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JANUARY 8, 1919. VOL XVI. NO. 1.

The AEROPLANE

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ON THE YEAR 1918.

There are those who would have us believe that the year 1918 will be famous among posterity for the fact that in it began the Millennium, when war ceased for ever, when the League of Nations had its beginning, when Universal Peace broke upon the world, and when the foundations were laid for the long-promised Kingdom of Christ upon Earth. Such people are some few thousands of years wrong in their reckoning.

1918 in fact has seen the end of the worst of the fighting in a short but fairly virulent war, lasting barely over four years, and, despite all the stories of death and devastation, doing very much less damage to Europe than did the Thirty Years War, in which the hand of man, aided by a few feeble utensils of destruction, wrought havoc such as all our machinery of to-day has failed to produce. In no country during the present war, except perhaps in Servia—the *fons et origo* of the war—has there been as great devastation and death as was spread all over Central Europe during the Thirty Years War. So we cannot even pride ourselves on our deadliness in this generation.

For the fact that war is less destructive than it was we may thank the introduction of aircraft as much as anything else. Without aircraft we should have had vast armies traversing France, and Belgium, and Elsass-Lothringen, and later the Western States of Germany, fighting, burning, and slaying as they went. As it has turned out, thanks to aircraft reconnaissance, no army has been able to move masses of troops without such movements being observed and countered. Thus even where a temporary success has been achieved, as in the British attack in November of 1917, as in General Nivelle's costly failure earlier in that year, as in the German attack on Amiens in March of 1918, and as in the later German attack on the Marne, it has been possible to check the progress of the attack at critical points.

Moreover, during 1918 the aeroplane has become more and more a weapon, as well as being the "eyes of the army," so that it has contributed very directly to hinder the movements of troops by bombing and machine-gunning lines of communication and thus hindering supplies from reaching front-line troops, and by attacking troops on the ground and thus hindering them from reaching the front line.

And so we find a clearly marked belt of "devastated area," varying from a few miles wide at the sea and at the Swiss frontier to twenty or thirty miles on the Arras, Cambrai, Amiens, La Fère districts. Whereas, but for the hindering effects of aircraft, similar devastation, perhaps less in degree at any one spot, but vastly greater in extent and therefore more damaging to the nations concerned, might have spread over half Europe.

For example, on the Eastern Front, where the Tartar hordes of His Imperial Majesty the late Tsar of Russia were practically without aircraft, the war area covered districts bigger than the whole of France and Belgium put together, because the masses of Orientals surged blindly over the landscape and were pushed back wave after wave by the skilfully guided though far less numerous Teutons.

On the whole, therefore, instead of foolishly humbugging ourselves into the belief that we are greatly blessed in having lived to see the end of War, we shall be wiser if we realise that we have had the luck to live through a short, sharp scrap which ought to prove a useful lesson in organising for the great war of the future. This great war may not come in the next ten years, or in the next generation, but come it must, for we have not had a real race-war for centuries.

To get this war into its proper perspective it is well to consider the words of a great Chinese statesman who, when asked his opinion about the "World War," replied:—"We in China pay but little attention to the clan-fights of Western barbarians."

There you have something like a reasonable outlook on the historical value of the war. Anglo-Saxons, Lowland Scots (who are Jutes), Flemings, Walloons, Saxons, Scandinavian English from North of the Humber, Brandenburgers, Alsatians, Hessians, Wurtemburgers, Franks, and so forth are merely a medley of Teuton tribes. None of them are Latins. And, on the other hand, Northern Italians, the Lombards especially, are Goths, the Eastern French are largely Gauls and Vandals, and none of them are racially very different from the South-Western Austrians and Bavarians.

There is no racial distinction till you come up against the Slav, who is a Prussian in his Westernmost manifestation, and a Tartar in his most Eastern origin. But he is not a Chinaman, for the upper-class Chinaman is a gentleman whereas the Slav is not, in any grade of society.

A Prophecy.

Just by way of a prophecy—for those who may live to see, or for those who may happen to light upon this written word in years to come—let it be set on record that the great war will come when a Slav Napoleon arises, who will master all the warring Slav factions and drive them Westward in a racial wave.

That war will be a long war, not a matter of four or five years, and probably the wave will, as usual, spend itself before reaching the Western Sea. And this land of Britain—for some inexplicable reason the chosen of God—will probably be saved from being overwhelmed by the gallantry of its allies; as it has been in this war by those super-heroes of the French Army, and as it was in 1815 by "our gallant German allies"—*vide* contemporary historical records and news-sheets.

But in that war against the Slav hordes we shall have the joint barrier of Teutons and Latins between us and the wave of Orientals—a great Anglo-Franco-German Alliance against all the Slavs, who will very probably

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be led and organised and officered by Prussians, because by then, and long before, the decent German tribes will have thrown off the Prussian yoke. And in that war aircraft will be the dominating factor, much as our sea-power has been in this war.

Dangerous Talk.

Which is why one has devoted so much space to what may have seemed entirely irrelevant matter. There is talk of reorganising the Royal Air Force, after peace is signed, on lines which suggest that those in authority think that there will never be any more war.

If this scheme is adopted purely as a camouflage, and is operated by officials with their tongues in their cheeks, well and good. But if Peace Talk is taken seriously by those who are to be in authority after the war, then we may as well all go to America where there are still men with minds in power, and where there is a growing aristocracy in being.

The Real Triumph of Our Aviators.

The year 1918 has shown the triumph of our aviators over enemies in the air for all to see, but all do not know that our active-service people have won a far greater victory by holding their own against the Germans in spite of enemies at home. The R.F.C. began 1918 with the mastery of the air, and it held that mastery till the signing of the Armistice, despite the fact that, intentionally or unintentionally, those at home who were responsible for its equipment had betrayed their trust, and had left the active-service people to finish the war with precisely the same machines as those which were in use a year earlier.

The Hotel Bolo.

No institution in the war has deserved its nickname so well as has the Hotel Bolo. The Air Ministry won the epithet because it was said that all the officials therein were either actively interfering with the progress of the war, or else were merely looking on as neutrals. The saying is true of probably 50 per cent. of the said officials, either because of their innate incompetence or because they were intriguing for their own ends instead of working for the people on active service.

These officials nearly ruined the equipment of the R.A.F. during 1918, and one does not hesitate to say that in previous wars, conducted by a more virile Government in a stronger age, men have been shot for crimes of commission and omission less base than those of which people now in high esteem at the Hotel Bolo have been guilty.

If it were even now possible to tell the truth, for example, about the engine supplies as they were when the Germans gave in, it would be agreed that degradation from the R.A.F. and penal servitude would be a cheap escape for some of the officials who are responsible for the position of those supplies.

Even to-day—in our so-called time of peace—R.A.F. officers and men are daily endangering and in some cases losing their lives on long-distance sea-patrols, searching for floating mines, on machines dependent on defective engines which are only in use because of the dishonesty or blatant ignorance of the officials pertaining to the Hotel Bolo and its Annexes.

If justice is ever done in this world, then officials such as those who have cost us so many brave men and so many millions of pounds' worth of wasted labour and material should be brought to trial. And if they are ever so brought to trial, their sentence by any just judge will assuredly be a heavy one.

Amalgamated Intrigue.

Bad as was the intrigue under the Air Board in 1917, there was at least emulation and competition between the R.N.A.S. and R.F.C., but under the conditions which resulted from the imbecile amalgamation of the two Services into the R.A.F. under an Air Ministry all initiative was crushed and the people at the Hotel Bolo became concerned solely with holding onto their jobs to avoid being sent on active service. Despite the heart-broken efforts of loyal and patriotic junior officers to improve the equipment of the active-service people, the intrigues among their superiors blocked all progress.

The consequence has been that at the end of the war the German Brandenburg seaplanes practically held the mastery of the air over the North Sea, and the squadrons of the R.A.F. with the Army were mounted on machines of types which, with one sole exception, had been in use at the end of 1917, and had been designed practically a year before. And all the while there have been machines and engines lying about here in England which are far superior for war purposes to anything which was in use on active service.

Is there to be an inquiry into the criminal negligence of the officials at the Hotel Bolo during the war 1918, or is there not? Are we to rest content that our men have won the war despite the neglect of those to whom their welfare was committed? If so, then we can never expect again from the present generation of aviators that loyal devotion which has enabled them to beat their enemies in the air despite all the difficulties which have beset them.

Our Worst Year.

However, one is not concerned in these notes with the future, but with the past year. In many ways it has been the worst year in the history of British aeronautics in that it opened with such bright promises and has closed—despite the victory of our Army aviators in all war areas—with such a lamentable state of technical unpreparedness for further fighting.

It is solely thanks to the Grace of God, and the British Army, that the R.A.F. have not to face a 1919 campaign on the same old obsolescent machines. For, owing to the complete failure of the engine programme, and also to the delay in putting the best aeroplanes into production, there would have been no prospects of the really valuable new types going on active service in appreciable quantities till June or July of 1919.

It has been one's privilege to be concerned, very much from the inside, with every agitation for the betterment of the Flying Services which has taken place in this country since flying began, which is to say from the days of Colonel Seely's attempts to deceive the House of Commons and the Country, and one can safely say that never has there been so much need for agitation against official corruption and incompetence as there is to-day. That agitation is likely to begin very soon after Parliament settles down to work again, and one hopes that this paper will then again be able to do its duty by those who fly.

At any rate, the prospects of the fight are more alluring than were those of the fights during the past four years, when one's style has been cramped, primarily by the need of concealing our worst weaknesses from the enemy, and secondarily by the possibility of the paper being suppressed under the Defence of the Realm Act, and so depriving one, so to speak, of one's arms and ammunition. When once free of all considerations except the Law of Libel one may be able to put up a sporting fight for the welfare of the Flying Services.

Meantime, as the full appreciation of a fight depends largely on a knowledge of the ground over which it is being fought, one commends to one's readers the perusal of the following condensed diary of the publicly known facts of 1918, which forms, as it were, a sketch-map of the future field of battle.—C. G. G

THE DAIRY OF THE YEAR.

JANUARY.

Naval.—During January the R.N.A.S. continued to develop their anti-submarine patrol services, and a considerable amount of useful work was done. R.N.A.S. units in Flanders continued to bomb German Naval and Military objectives in Belgium, and R.N.A.S. units attached to the R.F.C. did good work in France.

This month included what is probably the blackest spot in the whole history of the R.N.A.S., though, be it said, the incident was no discredit to the gallantry or skill of the pilots of the R.N.A.S. themselves. The affair to which one refers was the escape of the German warship, "Goeben," after being stranded for a week in the Dardanelles.

From Jan. 20th to Jan. 27th R.N.A.S. machines from the various stations in the vicinity of the Straits bombed the "Goeben" day and night without doing any material damage, and eventually the ship got away under her own power. When one recalls that early in 1915 a Turkish transport was torpedoed in the Marmora by R.N.A.S. torpedo aeroplanes, one may form some idea of the remissness of the R.N.A.S. authorities which resulted in the absence of any machine capable of torpedoing the "Goeben" in January, 1918.

On Jan. 12th the reorganisation of duties at the Admiralty resulted in the appointment of Wing Captain F. R. Scarlett, R.N., to be Director of the Air Division under the Deputy Chief of Naval Staff.

Military.—Sir Douglas Haig's dispatch, dated Dec. 25th, 1917, and published in the "London Gazette" of Jan. 8th, contained the following reference to the work of the R.F.C. during the previous year. The warning underlined may be taken as the text for future sermons on the organisation of the R.F.C. :—

> "In the discharge of duties, constantly increasing in number and importance, the Royal Flying Corps throughout the whole of the past year has shown the same magnificent offensive spirit which characterised its work during the Somme Battle, combined with unsurpassed technical knowledge and practical skill.
>
> "The enemy, however, shows no sign of relaxing his endeavours in this department of war. While acknowledging, therefore, most fully the great effort that has been made to meet the ever-increasing demands of this most important Service, I feel it my duty to point out once more that the position which has been won by the skill, courage, and devotion of our pilots can only be maintained by a liberal supply of the most efficient machines."

On Jan. 16th a dispatch from General Allenby in Palestine mentioned the names of many R.F.C. officers who had distinguished themselves, and a further dispatch from General Allenby on Jan. 26th described the work of the R.F.C. in the capture of Jerusalem. On Jan. 13th an Italian correspondent mentioned that R.F.C. detachments in Italy, then under Brig.-Gen. T. Webb Bowen, had "thoroughly found their wings," having crashed eleven German machines in those few days of the year.

During January, as there were no big battles on the Western front, the work of the R.F.C. in France was chiefly of a routine nature, though German machines were steadily brought down whenever they appeared. The greatest R.F.C. activity occurred in Eastern France, where continual bombing was carried on against German forces in Alsace-Lorraine.

On January 21st the "Morning Post" contained a serious warning of new German aerial activities, especially as regards the use of low-flying machines against troops on the ground.

Home Affairs.—On January 2nd an Order in Council established the Air Council, which was constituted as follows :—

Lord Rothermere, Secretary of State and President of Council.

Maj.-Gen. Sir Hugh Trenchard, K.C.B., D.S.O., Chief of the Air Staff.

Rear-Admiral Mark Kerr, C.B., R.N., Deputy Chief of the Air Staff.

Commodore Godfrey Paine, C.B., M.V.O., Master General of Personnel.

Maj.-Gen. W. S. Brancker, Comptroller General of Equipment.

Sir William Weir, Director General of Aircraft Production in the Ministry of Munitions.

Sir John Hunter, K.B., Administrator of Works and Buildings.

Maj. J. L. Baird, C.M.G., D.S.O., M.P., Parliamentary Under Secretary of State.

Lt.-Gen. Sir David Henderson, K.C.B., D.S.O., Additional Member of Council and Vice-President.

Mr. W. A. Robinson, C.B., Secretary to the Council.

Mr. H. W. McAnally, Assistant Secretary.

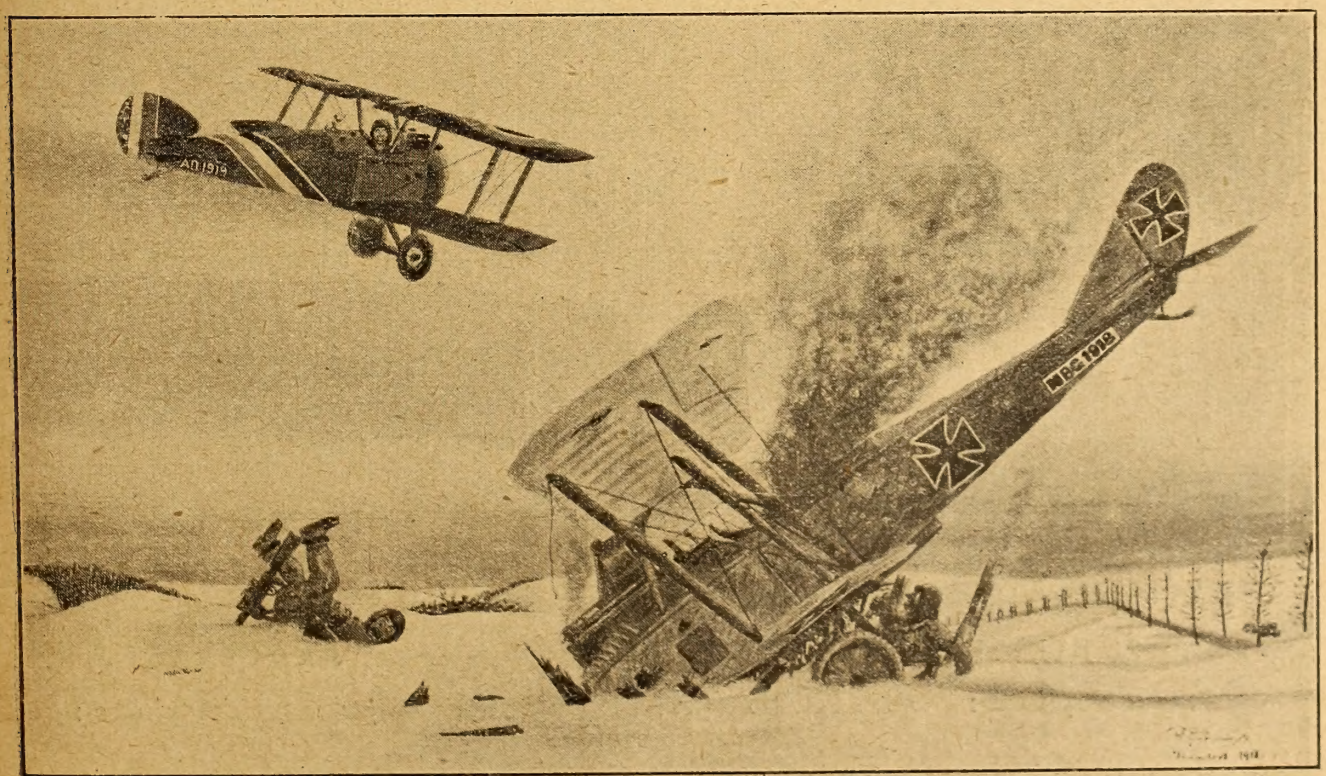
About the same date Sir Henry Fowler, who had hitherto been Superintendent at the Royal Aircraft Factory, was appointed Assistant Director General of Aircraft Production under Sir William Weir, and Mr. Sydney Smith—formerly one of H.M. Inspectors of Factories—was appointed Superintendent at the Royal Aircraft Factory.

On January 17th Maj. Baird, replying to Mr. Joynson-Hicks, stated that the Air Force would be constituted as soon as the organisation was completed.

On January 28th the first aeroplane raid of 1918 took place. The casualties were 58 killed, 173 injured. The London Aircraft Defence Area, then being re-organised under Maj.-Gen. Ashmore, C.B., M.V.O., had considerable success in repelling the invaders.

On January 29th another raid took place, the casualties being 10 killed, 10 injured.

On January 30th THE AEROPLANE contained three articles of some historic interest: (a) the beginning of serious agitation in favour of the use of parachutes on service aeroplanes; (b) the truth about the origin of the Tanks; and (c) the first authentic discussion of the new R.A.F. uniform.



A Greeting from the 213th Squadron, R.A.F., B.E.F.

THE SOP

AVIATION COM

DESIGNERS AND
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DESIGNERS and BUILDE
"DOLPHINS" – "CAMELS" – "PUPS" – "1½ STR
and numerous other types of Machines which were used

The majority of Fighting Scouts used in the War were of the Sopwith Design. Sopwith Machines were the first to bomb Germany

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During this week Sir Henry Norman was appointed Additional Member of the Air Council by Lord Rothermere.

Foreign Affairs.—U.S.A.—The National Advisory Committee for Aeronautics for the U.S.A. announced the formation of a committee of Civil Aerial Transport, with Dr. W. F. Durand as Chairman.

Bulgaria.—The Bulgars claimed that the British had dropped bombs near a military hospital at Demir-Hissar.

France.—On January 30th there was a big aeroplane raid on Paris—casualties 45 killed and 207 injured.

FEBRUARY.

Naval.— The R.N.A.S. carried out their duties as usual during February last, a remarkable performance noted in the communiqués being a flight by R.N.A.S. machines operating with the Italians across the Adriatic to the Dalmatian coast—a four hours' overseas flight—on February 11th.

Military.—The period from the 16th to the 18th of February was marked by severe air fighting in France.

During the month consistent good work was done by the R.F.C. in the Balkans, in Palestine, and in Mesopotamia.

The "London Gazette" of February 21st disclosed the fact that Major-General John Maitland Salmond, C.M.G., D.S.O., had been appointed G.O.C., R.F.C., in France, vice Major-General Sir Hugh Trenchard. General Salmond had, in fact, held this post ever since General Trenchard came home shortly after Christmas, 1917.

A dispatch from Mr. Philip Gibbs on February 25th gave the first warning in France of the coming German offensive. He noted that our aviators had observed German troops behind the enemy lines training for attacks led by tanks.

Home Affairs.—On Feb. 13th Mr. Kellaway, Parliamentary Secretary to the Ministry of Munitions, stated that in the last six months the aeroplane output had increased 42 per cent. and engine output 68 per cent.

On February 16th there was an aeroplane raid on the Eastern counties, in which 11 people were killed and 4 injured.

On February 17th there was another raid, in which 16 people were killed and 37 injured.

On February 18th there was another raid in which there were no casualties. It is doubtful whether, in fact, there was a raid at all on this night, and it is popularly supposed that the air-raid warning was given by mistake. This has become known as "The Hunless Raid."

On February 20th it was announced that the Air Council had taken over a big range of buildings in Kingsway as offices for the Production Department. These offices were ultimately known by the nickname of "Bolshevik Mansions."

Also on February 20th the "London Gazette" recorded the appointment of Brig.-Gen. E. L. Ellington, C.M.G., to be Director-General of Military Aeronautics.

On February 21st the first Air Force Estimates were introduced in the House of Commons by Major Baird, and produced much criticism.

On February 26th there appeared the first communiqué issued by the Air Ministry concerning the doings of the Flying Services, but it was of no particular importance.

Foreign Affairs.—On Feb. 11th a German dispatch stated that out of 31 attacks on the German Homeland during 1918, up to that date, 15 had been against Lorraine and Luxembourg and 14 on open towns.

On February 28th a dispatch from Copenhagen recorded the return of the German raider "Wolf" and of the "Wolf's" seaplane "Wulfchen," which enabled that vessel to do so much damage to shipping and also enabled her successfully to elude capture.

MARCH.

Naval.—There is nothing of special note to report concerning Naval aviation during March, but Admiralty communiqués of March 20th and March 21st referred to British seaplane patrols in the Helgoland Bight.

Military.—On March 4th Sir Douglas Haig's dispatch relating to the fighting before Cambrai from November 20th to November 30th was published in the "Gazette." The R.F.C. was specially mentioned "for very gallant and most valuable work carried out under conditions of the greatest difficulty from low clouds and driving mist."

On March 8th the G.H.Q. Communiqué said: "The C.-in.-C. has requested the Army Commander to convey to the Commander and all ranks of the 1st Brigade R.F.C. his best congratulations on their splendid success in bringing down 18 enemy aeroplanes in one day, and to state that he is very glad to hear that all our aeroplanes returned safely."

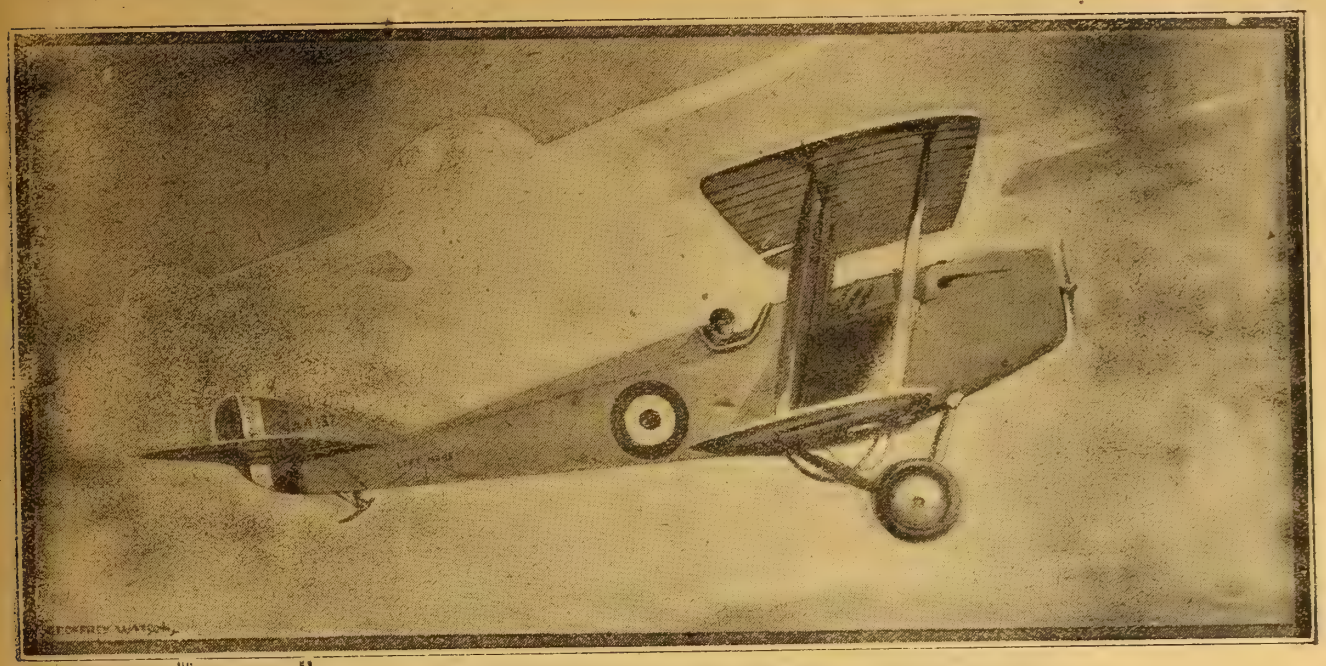
On March 12th the "London Gazette" published a list of officers and men of the R.F.C. specially mentioned by Sir Stanley Maude for good service in Mesopotamia.

On March 14th the G.H.Q. Communiqué said: "Australian and Naval squadrons attached to the R.F.C. have again proved of the highest value."



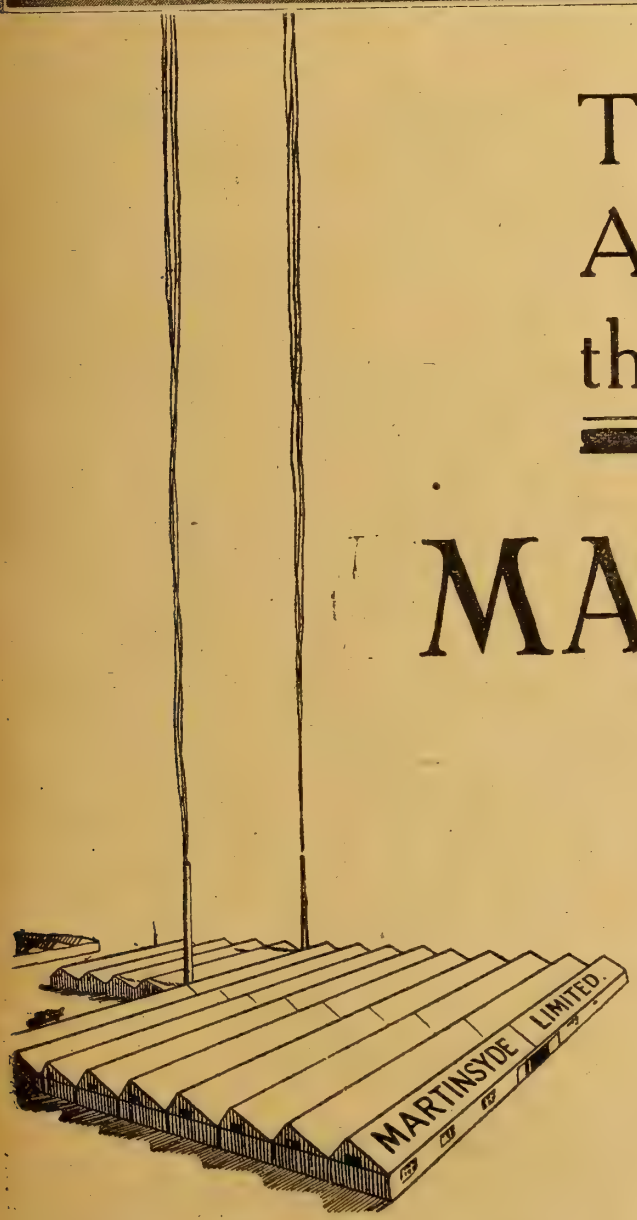


Obverse and Reverse.—A Greeting from the 83rd Squadron, R.A.F.



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As
Violet Loraine
with prophetic
vision says –

"The Atlantic is
only a little
puddle after all!"

JOHN DAWSON'S
of
Newcastle-on-Tyne

PUDDLES

We have been so successful in crossing "little puddles" of all sorts during the war that we are optimistic that a John Dawson bus will ere long cross this little puddle too.

JOHN DAWSON'S
of
Newcastle-on-Tyne

On March 23rd the G.H.Q. Communiqué recorded the first successes of the R.F.C. against the great German offensive, heavy mist having prevented flying on the 21st. Twenty-seven enemy machines were shot down and 20 brought down out of control on the 22nd.

On the 24th the Communiqué claimed 29 enemy machines crashed and 25 brought down out of control on the 23rd.

On the 25th the Communiqué claimed 45 enemy machines crashed and 22 down out of control on the 24th.

On March 26th G.H.Q. Communiqué said:—"Pilots reported that ground targets offered by the enemy surpassed description."

On March 27th H.M. the King sent a telegram to Sir Douglas Haig saying:—"I wish to express to General Salmond and all ranks of the Air Services of the British Empire in France to-day my gratification at their splendid achievement during this great battle. I am proud to be their Colonel-in-Chief."

A suitably loyal reply was sent to His Majesty by General Salmond.

On the 27th also the Air Ministry telegraphed to General Salmond: "The Air Council congratulate you and all ranks of the R.N.A.S., R.F.C., and Australian F.C., on the splendid work carried out during this great battle. We are following their great deeds, and know that they will keep it going."

General Salmond replied in a dispatch which has become historic: "Very many thanks for your Council's congratulations, which are very much appreciated by all concerned. All ranks have their tails well up, and the superiority of British over enemy airmen has never been more marked."

Home Affairs.—On March 6th THE AEROPLANE published an article on the Air Force Medical Service, which subsequently raised much controversy. It was announced about the same time that the Air Force Medical Service had been formed with an Administrative Committee to see to its organisation.

On March 7th there was an air raid on London, when 20 people were killed and 45 injured.

On March 12th there was an airship raid on Yorkshire—one woman died of shock.

On March 13th the "Gazette" published a list of Home Service people connected with the Royal Air Force, whose names had been "brought to the notice of the Secretary of State for War for valuable services rendered in connection with the war."

Also on the 13th there was an airship raid on the N.E. coast, when 8 people were killed and 22 injured.

On March 15th the "London Gazette" announced that the Air Force, when it came into being, would be called the Royal Air Force.

On March 18th Brig.-Gen. A. C. Critchley, D.S.O., was gazetted, as from March 4th, from the Canadian Cavalry to the R.F.C. Brig.-Gen. Critchley is the officer who has been responsible for the admirable organisation of the Royal Air Force Cadet battalions.

On March 20th Mr. McPherson, Under-Secretary of State for War, made a statement in the House of Commons on the good work done in R.F.C. raids on Germany.

On March 21st there was a debate in the House of Lords on the subject of the School of Aerial Fighting at Loch Doon, and the vast expenditure thereon.

On March 21st also, in the House of Commons, Mr. J. F. Hope stated that German officers were being brought from the West to the East of England, but not—"as a measure of reprisal or punishment."

On March 22nd there appeared the first Air Ministry Gazette. This contained the appointment of the first batch of General officers and Staff officers to the Royal Air Force.

Foreign Affairs.—On March 9th and 11th there were big aeroplane raids on Paris. These were alleged by the Germans to be reprisals for raids on the open towns of Trêves, Mannheim, and Pirmasens, which raids, as a matter of fact, were carried out by British aeroplanes. In these attacks on Paris the Germans lost 4 Gothas.

On March 11th German airships raided the city of Naples—a remarkably good flight, involving the crossing of the Adriatic and the whole of Italy.

On March 12th there was another air raid on Paris, in which 66 people were asphyxiated in a panic on the Metropolitan Railway.

On March 13th it was reported from Italy that the Officers Commanding the anti-aircraft defences of Naples, Foggia and Hermoli had been deprived of their commands.

On March 14th two enemy airships were reported over Vesuvius, and were alleged to have been beaten off by the Naples defences.

On March 19th Reuter's correspondent with the American Army in France reported that German aeroplanes were dropping rubber balls filled with mustard gas.

On March 20th a report from Paris stated that American aviators were beginning to reinforce the effectives of the French aviation service and to prove their own value.

APRIL.

Naval.—On April 3rd the Admiralty published the official account of the "Goeben" affair, which occurred between Jan. 20th and 27th. According to the official account 276 flights were made during that period by the R.N.A.S. without any results being achieved beyond it being claimed that the German warship "Breslau" hit a mine through zigzagging to avoid aerial bombs.

On April 23rd the famous attack on Zeebrugge took place in which Naval aircraft participated; but, owing to inclement weather, did not achieve any notable results. During the following days, however, they were useful in photographing the results achieved by the blockships. Several R.N.A.S. officers and ratings were mentioned in dispatches by Admiral Keyes.

Military.—On April 3rd the notification by the Secretary of the War Office of the award of the Victoria Cross to Capt. J. B. McCudden, D.S.O., M.C., M.M., was the last of this nature to the R.F.C.

On April 7th the G.H.Q. Communiqué said: "Throughout the present battle the Canadians in the R.A.F. have done most valuable work."

On April 13th the "London Gazette" published a dispatch from Lt.-Gen. Sir A. A. Barrett, G.O.C. Northern Army in India, who mentioned the use of aeroplanes in action against the Mahsuds between March and August, 1917.

The G.H.Q. Communiqué of April 13th recorded heavy air fighting in France on April 12th, 40 enemy machines having crashed and 20 brought down out of control.

On April 21st it was announced in the G.H.Q. Communiqué that the leading German aviator Capt. Baron Manfred von Richthofen had been killed by R.F.C. pilots after having achieved his 80th aerial victory.

On April 27th the Air Ministry reported that during the month of March 36,179 bombs had been dropped by British aeroplanes on territory held by the Germans, while in the same period only 2,465 German bombs were known to have fallen on territory held by the British troops.

Home Affairs.—On April 1st the Royal Air Force came into being officially. H.M. The King sent the following telegram to Lord Rothermere:—

> "To-day the Royal Air Force, of which you are the Minister in charge, comes into existence as a third arm of the defences of the Empire. As General-in-Chief, I congratulate you on its birth, and I trust that it may enjoy a vigorous and successful life. I am confident that the union of the Royal Naval Air Service and the Royal Flying Corps will preserve and foster that *esprit de corps* which these two separate forces have created by their splendid deeds.
>
> "GEORGE R.I.."

To this Lord Rothermere replied:—

> "Lord Rothermere, with his humble duty to your Majesty, begs leave on behalf of the Royal Air Force to convey an expression of their heartfelt appreciation of the gracious message addressed to them by their General-in-Chief. Lord Rothermere is confident that the assurance of your Majesty's interest and confidence will assist every officer and man in the Royal Air Force in the task of continuing the great traditions of the Royal Naval Air Service and the Royal Flying Corps—traditions which, as your Majesty has personally seen, have never been more gloriously maintained than in the struggle now proceeding."

On the same date an Air Force memorandum was issued concerning the new uniform.

On April 2nd an Order in Council notified that all officers of the R.N., R.M., R.N.R., and R.N.V.R. serving with the R.N.A.S., all Army officers serving with the R.F.C., and all R.N.A.S. and R.F.C. officers, became automatically attached R.A.F.

On the same date the "London Gazette" contained a list of numerous R.A.F. staff appointments. This was the first R.A.F. gazette.

On April 10th it was announced that Mr. W. A. Bland, Director of the Department of Finance at the War Office, was appointed Assistant Financial Secretary of the Air Ministry.

On April 11th Mr. Kellaway announced that for the first two months of 1918, as against the first two months of 1917, the output of aeroplanes had increased 223 per cent., and of engines 245 per cent.

On April 12th there was an airship raid in the North in which one airship reached the north-west coast beyond Wigan. Five persons were killed and 15 injured.

On April 14th (a Sunday) the astonishing announcement was made that Major-General Sir Hugh Trenchard had resigned his post as Chief of the Air Staff.

On April 15th it was officially announced that Major-General F. H. Sykes, C.M.G., had been appointed Chief of the Air Staff, *vice* General Trenchard. In the House of Commons Major Baird stated that General Trenchard—"took a view as to the powers and duties of the Chief of the Air Staff which the Secretary of State of the Royal Air Force could not accept."

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On the same date a long letter of self-justification from Lord Rothermere addressed to Colonel Faber, M.P., appeared in the Press.

Also, on the same date, the "Evening News" revealed, with great accuracy, the arrangement of the Royal Air Force Areas in Great Britain. It was therein recorded that Major-General F. C. Heath Caldwell, C.B., was to command the South-Eastern Area; Major-General the Hon. Sir Fredk. Gordon, K.C.B., D.S.O., the North-Eastern Area with Headquarters at York; Major-General Mark Kerr, C.B., M.V.O. (Rear Admiral, R.N.), the South-Western Area, with Headquarters at Salisbury; Major-General J. F. A. Higgins, D.S.O., the Midland Area, with Headquarters at Birmingham; and Major-General G. C. Caley, C.B. (Rear Admiral, R.N.), the Scotch Area, with Headquarters in Glasgow. As a matter of fact, Major-General Chas. Longcroft, D.S.O., actually took over the command of the Midland Area, but resigned the appointment and reverted to Brig.-General in order to go on active service again.

On April 16th it was announced that Sir Godfrey Paine and Sir David Henderson had both tendered their resignations. Sir Godfrey Paine's resignation was afterwards withdrawn, but Sir David Henderson's was accepted, and that distinguished officer thenceforth transferred his services to the Army.

On April 17th it was announced that Mr. A. E. L. Chorlton, C.B.E., was appointed Assistant Controller of the Department of Aircraft Production to deal with engine output.

Also, that Brig.-General Guy Livingston, C.M.G., was appointed Air Secretary to the Secretary of State, in addition to his appointment as Deputy-Master-General of Personnel.

On the same date it was announced that recruiting had begun for the Women's Royal Air Force.

On April 18th questions were asked in the House of Commons about General Trenchard's resignation, and, despite official explanations, it was evident that considerable dissatisfaction existed.

On April 24th it was announced that Mr. Bertram Jones, a well-known financial authority in the City, who had already done excellent organising work at the War Office, had been appointed Civil Assistant to the Comptroller-General of Equipment.

On the same date Mr. Bonar Law stated that General Trenchard tendered his resignation on March 19th before the great German attack began, and continued his work throughout the battle, his resignation being accepted on April 12th—apparently when the Cabinet had made up their minds that the danger was over.

On April 25th Lord Rothermere resigned his post as Secretary of State for the Air Force, much to the relief of most people concerned for the welfare of aeronautics.

On the same date Sir Arthur Roberts resigned his appointment as Expert Financial Adviser of the Air Ministry, owing to disagreement with Lord Rothermere, but returned later on in an honorary capacity to assist Lord Weir.

On April 29th there was a heated debate in the House of Commons on the resignation of General Trenchard, when it was clearly shown that whatever might be the political view, everybody who was in touch with the Air Force had complete confidence in him and sympathy with him.

It was then announced that Sir William Weir had been appointed Secretary of State for the Air Force in place of Lord Rothermere.

Foreign Affairs.—On April 10th it was announced that Brazil was coming into the war. Sundry Brazilian Naval pilots arrived in this country soon afterwards and were put into training.

On April 22nd Secretary Baker, of the United States Navy, was appointed to investigate the notorious aircraft scandals in the U.S.A.

On April 24th Mr. John D. Ryan was appointed to be Director of Aircraft production in the United States.

MAY.

Naval.—On May 1st the "London Gazette" issued a long Admiralty list of decorations awarded to R.N.A.S. officers and men, and all R.N.A.S. personnel mentioned in dispatches: "For zeal and devotion to duty during the period July 1st to December 31st, 1917." These were for home and coast patrol services.

On May 9th-10th the attack on Ostende took place, and an R.N.A.S. Air Mechanic was mentioned in dispatches in connection therewith.

Military.—On May 1st the "London Gazette" published the award of the first two Victoria Crosses to the Royal Air Force—one was to Lt. Alan Jerrard, South Staffs. Regt., who was apparently lost in winning his V.C., and the other was to Sec. Lt. Alan Arnett McLeod, R.A.F., who, after being five times wounded, sideslipped his burning machine to the ground in "No Man's Land" and then rescued his observer, Lt. A. Hammond, M.C., who had been six times wounded in the fight.

On May 23rd there was considerable excitement in the papers over the bombing of British military hospitals at Etaples by German aeroplanes. No precise indication was given at the time of the location of the said hospitals in relation to other military works.



A Greeting from the 82nd Wing, R.A.F.



A Greeting from No. 3 A.D., I.F., R.A.F.

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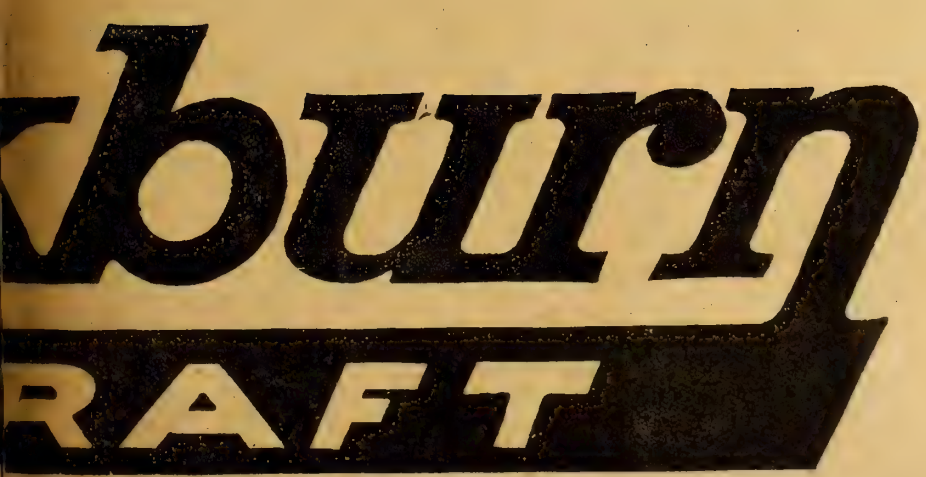
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On May 30th the "London Gazette" published a dispatch from Sir Herbert Plumer, G.O.C. British Forces in Italy, mentioning a number of R.A.F. officers and men for "distinguished and gallant services and devotion to duty."

Home Affairs.—On May 3rd the "London Gazette" published a long list from the Air Ministry of Area and Group Commanders and Staff officers of various grades.

On May 6th it was stated in the House of Commons by Maj. Baird that Sir Henry Norman had resigned his seat on the Air Council.

On May 8th it was announced that the Hon. Violet Douglas Pennant had been appointed Commandant of the Women's Royal Air Force.

On May 13th Mr. Bonar Law announced that General Trenchard had "accepted the command of a very important part of the British Air Force in France." This proved ultimately to be what was afterwards known as the Independent Air Force, R.A.F., which was intended for the bombing of Germany on a large scale.

On May 15th it was notified that Sir Arthur Duckham, K.C.B., was appointed to superintend the production of aircraft in succession to Sir William Weir.

On May 19th-20th the last aeroplane raid on London took place. In this 37 people were killed and 161 injured. Six German aeroplanes were brought down and four others crashed in landing, and these results apparently so discouraged the enemy that no further raids took place before the Germans were obliged to evacuate Belgium.

On May 20th Sir William Weir in an interview with the London representative of the "Petit Parisien" said: "We must continue to perfect every type of machine." This was Sir William Weir's first statement in opposition to the prevailing craze for over-standardisation, and in it he disagreed frankly with M. Painlevé, who had just before expressed his desire to standardise all types of French aeroplanes.

JUNE.

Naval.—Nothing of note concerning our Naval aviators was published during June, but the usual good work of the anti-submarine patrols and by the various Naval units using aeroplanes, seaplanes, airships, and kite balloons was continued in all the war areas.

Military.—On June 11th the "London Gazette" published a dispatch from Lieut.-Gen. Sir G. F. Milne, K.C.B., D.S.O., C.-in-C., British Forces in the Balkans, mentioning various R.A.F. officers for good service.

During June fighting in France slackened somewhat and no remarkable events were recorded in the communiqués, but the usual routine air work of the Army was continued with great efficiency, despite defective matériel.

Home Affairs.—From June 1st to June 3rd the "London Gazette" contained long lists of birthday honours lavishly distributed to officers of the R.A.F., among whom were included a large number of those who had so far failed to distinguish themselves on active service.

On June 3rd the "London Gazette" recorded the institution of the special Air Force decorations—namely, the Distinguished Flying Cross (D.F.C.), to be awarded to officers and warrant officers for active operations against the enemy; the Air Force Cross (A.F.C.), for courage and devotion to duty when flying, although not in active operations against the enemy; and the Distinguished Flying Medal (D.F.M.) and Air Force Medal (A.F.M.), to be awarded to N.C.Os. and men under similar conditions.

On June 7th the Press Bureau issued rough details of the first German giant aeroplane (Riesenflugzeug) brought down in France on June 1st.

On June 8th there occurred at Golder's Green the first accident to a British "giant" aeroplane when a four-engine Handley Page biplane was wrecked and six people were killed. One officer who was in the machine escaped with somewhat serious injuries.

On June 12th Sir Arthur Roberts, who had left the Air Ministry owing to disagreement with Lord Rothermere, rejoined that establishment as Honorary Chief Auditor of Works Accounts.

On June 18th the Parliamentary Air Committee met under the chairmanship of Mr. Joynson-Hicks and passed resolutions disapproving of the arrangements for the construction of high-power machines for next year's campaign, and also expressed anxiety about the casualties in the training of aviators.

On June 19th it was announced that a peerage had been given to Sir William Weir, who ultimately assumed the title of Lord Weir of Eastwood in Scotland.

On June 20th Lord Weir met a number of members of Parliament and allayed their fears for the time being.

On June 26th the sixth Wilbur Wright Memorial Lecture was delivered at the Central Hall, Westminster, by Dr. W. F. Durand, Scientific Attaché to the American Embassy at Paris, and Chairman of the United States Advisory Committee for Aeronautics. The chair was taken by Lord Weir, and in his introductory and closing speeches, impressed everybody with his earnest intention of doing his best for the Royal Air Force.

On the same date the Air Ministry began issuing daily communiqués relating to the Independent Air Force, and from that date onwards the good work of General Trenchard's Force was made known no more inadequately than the work of the other branches of H.M. armed Forces.

On June 26th THE AEROPLANE newspaper completed its 14th volume and 7th year of work.

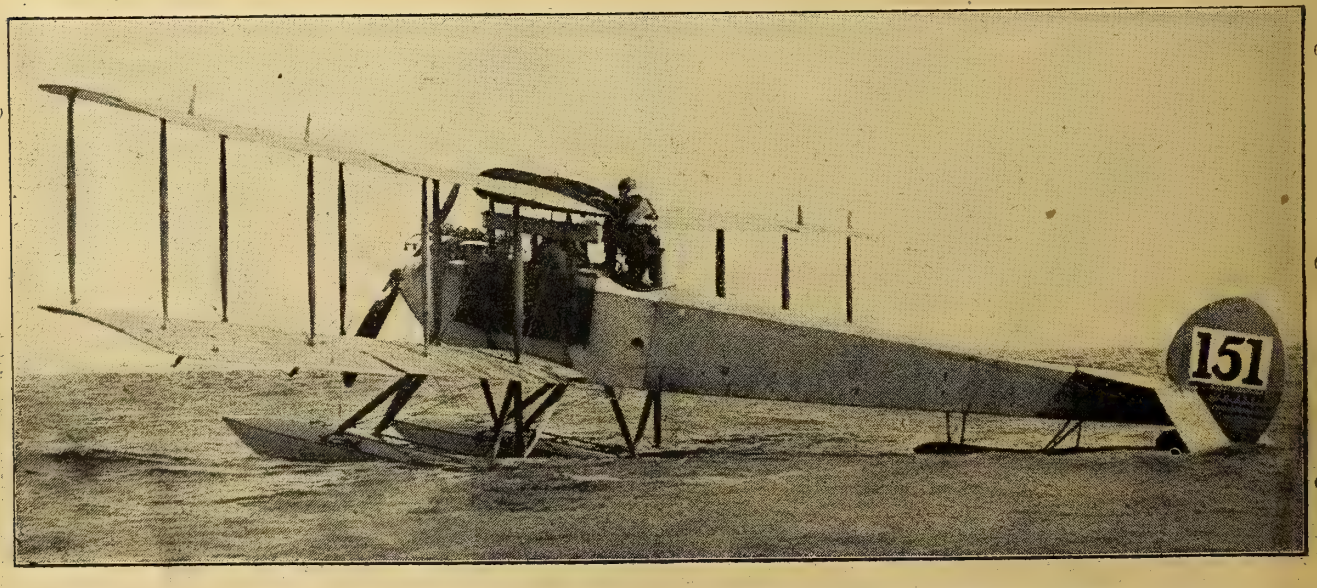
Foreign Affairs.—On June 6th Paris suffered its 39th aeroplane raid.

On June 7th the French aviators, Heraldy and Lorgnat, left Paris at 1.5 p.m. and arrived in London at 3.50 p.m.—left London at 4.5 p.m. and reached Paris at 6.40 p.m. This trip was intended as an experiment towards the beginning of an aerial postal service between the two capitals, but for various official reasons the service was not continued.

On June 8th the French aviators, Lemercier and Ducroq, left Paris at 6.40 a.m. and arrived at Lyons at 11.15 a.m.—left Lyons at 1.20 p.m. and arrived in Paris at 6.5 p.m. This was the beginning of a Paris-Lyons mail service, which has run somewhat intermittently since.

On June 19th the Italian Air Service suffered its greatest loss in the war by the death of Major Baracca, who was the leading Italian Hun killer.

(To be continued.)



A HISTORIC SEAPLANE.—The Sopwith Seaplane, with 100 h.p. Green Engine, built for the Seaplane Circuit of 1914, taken over by the Navy, and nown on active service in the early days of the war.

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ON THE R.N.A.S. IN 1918.

BY C. G. GREY.

None can say for certain that the R.N.A.S. is dead; perhaps it is only sleeping during this crazy period of the R.A.F. in which two very distinct Services are mixed without mingling. There is a strong feeling, amounting practically to a certainty, that the Navy is determined to have its own Air Service again. And when the Navy sits up and cries hard enough for anything it always gets it, like the spoilt child it is.

What is absolutely certain is that the airship people are going to become part of the Navy, as the airships themselves have always been. And if the airships, which in the next war will do most of their mileage over land—thanks to the production in quantities of helium, a non-inflammable gas—are to be entirely, along with their crews, a part of the Navy, it is impossible to imagine how even so illogical a thing as a Government official can persuade himself, or have the face to try and persuade anybody else, that seaplanes, flying-boats, and ship-'planes (as they are cacophonously called by the sea-going people) can possibly belong to anybody except the Navy.

Therefore there is every prospect of the old R.N.A.S. people going back to the Navy—at any rate, so many of them as may desire to do so, after having had experience of the Navy and its ways. If Mr. Churchill, as is rumoured, goes back to the Admiralty as First Lord, that prospect amounts to a certainty, for it is well to remember that the R.N.A.S. was Mr. Churchill's own invention, so to speak, and that while he was at the Admiralty the R.N.A.S. was by far the best equipped air force in the world, so far as the modernity of its machines and engines was concerned.

Naval Aviators.

If the sea-going people of the R.A.F. do go back to the Navy, they will probably not be called the R.N.A.S.; for their officials at the Admiralty would scarcely lose the opportunity of making the personnel buy new uniforms and thus of putting more money into the pockets of their friends the Naval outfitters. The chances are that they will merely come in as Naval officers, Lieut. (A.) and Lieut. (O.), for aviator and observer, and Lieut. (A.E.) for aircraft engineer, or something on those lines, and the air mechanics will become aircraft ratings analogous to torpedo or engine-room or stoker ratings. All of which would be as it should be, and as was advised in this paper long enough before the war.

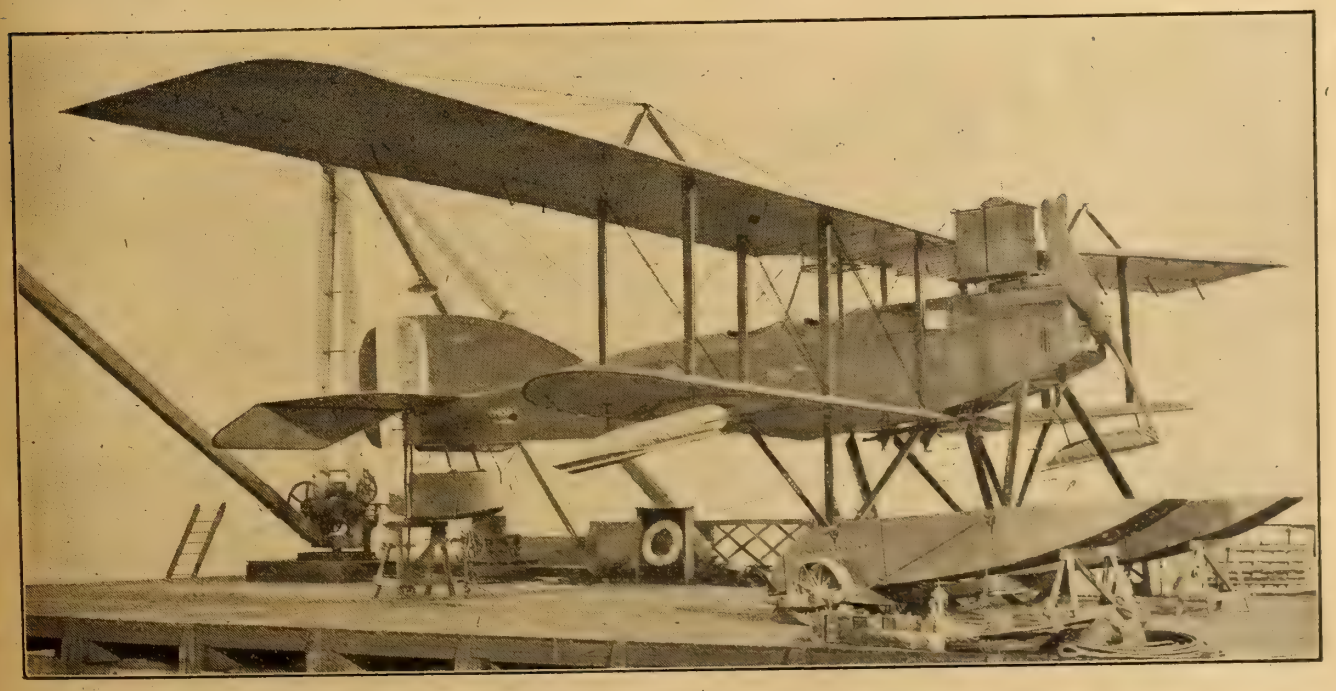
The R.N.A.S. only came into being at all as a separate branch of the Navy because Mr. Churchill and Captain Murray Sueter, R.N., very wisely wanted to get the Naval people away from the Army, for they began as the Naval Wing, R.F.C., and, so far as the Royal Warrant was concerned, they remained so in theory till the R.A.F. was formed. If the thing had been properly begun, they would always have been part and parcel of the Navy.

There would then never have been that ridiculous Naval Wing, R.F.C., and, if it had not existed, there would then never have been any excuse for the still more ridiculous R.A.F., for the Navy would never have parted with a portion of itself, though it did not mind parting with a mere excrescence such as the R.N.A.S. was esteemed to be till it was taken away. Cutting off the R.N.A.S. a year ago seemed much less important to the average Naval officer than would cutting off those abominable side-whiskers which seem to be the vogue among a certain type of Naval nut, and make him look like a groom or a footman, if he only knew it. Now, however, it seems that the Navy is at last beginning to feel the draught and is inclined to look quite kindly on the ex-R.N.A.S. officer or man.

All the Difference.

Formerly when an R.N.A.S. officer went aboard a ship or entered a Naval mess ashore he was treated with the same cold courtesy which is extended to a not particularly popular civilian. He was never one of themselves. In these days an R.A.F. officer in correct uniform under the same circumstances is treated with the same cold courtesy, unless the removal of an overcoat displays a D.S.C. ribbon, or a casual remark reveals that he was once R.N.A.S., in which event the Navy promptly falls on his neck and welcomes him as a long-lost brother, and he is lucky if he gets out of the ward-room while still sober.

All of which looks quite promising for the return of the Naval aviators to the Navy. But there is no denying the fact that hitherto the R.N.A.S. has been the Cinder-



A Short Seaplane (225 h.p. Sunbeam) on its Slipway.

ella of the Services. That fact of itself gave the R.N.A.S. a strong *esprit de corps*, which holds even to-day despite the R.A.F. and all its works. The R.N.A.S. prided itself on being composed of outcasts, much as the French Army of the Orient, which was at first regarded as being composed of the cast-offs of the French Army proper, prides itself on being a "cohort of the damned" and wears a gold crescent in its képi to signify its pride, which pride is all the greater because it was the first of all the Allies to finish its own corner of the war.

The Tragedy of the R.N.A.S.

Quite recently one paid a brief visit to a famous Naval base where there is a seaplane station which one remembers before the war as being most smartly Naval in all its ways. Throughout the war it has done purely Naval work of the highest value, and has brought much honour and glory to the R.N.A.S. To-day, though equally hard-working and earnest and well-disciplined, and commanded by officers who know their jobs thoroughly, it is an absolute pantomime in appearance.

The officers are in about a dozen different kinds of uniform, and the men, whom one remembers as ultra-Naval in their smart blue uniforms, are clad in shoddy, ill-fitting khaki, oil-stained and dirty, lacking the webbing equipment which gives smartness to a soldier, and making them look like infantry conscripts during their first week in barracks. All pride in their personal appearance seems to have been lost, and small wonder, for Beau Brummel himself could not make himself presentable in the mongrel kit which makes a figure of fun of the unfortunate R.A.F. airman. They look perfectly pathetic when one recalls their dapper turn-out in the old days of the R.N.A.S.

It is not surprising that practically all the men on the seaplane side of the R.A.F. want to get out of it as soon as possible. But if they are asked to volunteer to join the Royal Navy as aircraft ratings with the correct E.R.A. uniform plus distinctive badges it is fairly certain that there will be no lack of volunteers. Nothing has convinced one of the blatant folly of the whole R.A.F. scheme and of the way in which the R.N.A.S. has been "done in the eye," as they put it themselves, so firmly as has the sight of that splendid seaplane station as it is when compared with what it was.

The Selling of the R.N.A.S.

The feeling throughout the R.N.A.S. when it was merged in the R.A.F. was that it had been sold by its own senior officers. It was believed that if they had held out firmly at the time they could have induced the Admiralty to take over the R.N.A.S. and save it from the R.A.F., but that the temptation of high rank in a new Third Service, free from the hampering influence of a lot of old-fashioned stick and string Admirals, was too much for them. Consequently, so it was thought, they sold themselves, and sacrificed the men who had made their reputations for them, to the little tin gods of the political world.

Whether that feeling is right or wrong is not one's concern. It existed when the change was made, and, what is more significant still, it exists more strongly to-day than ever it did. The result is that the Naval side of the R.A.F. is going to lose most of its best officers and men very shortly, unless the R.N.A.S. returns to the Navy. Some will go back to sea with their old Naval rank. Some will go into civilian life.

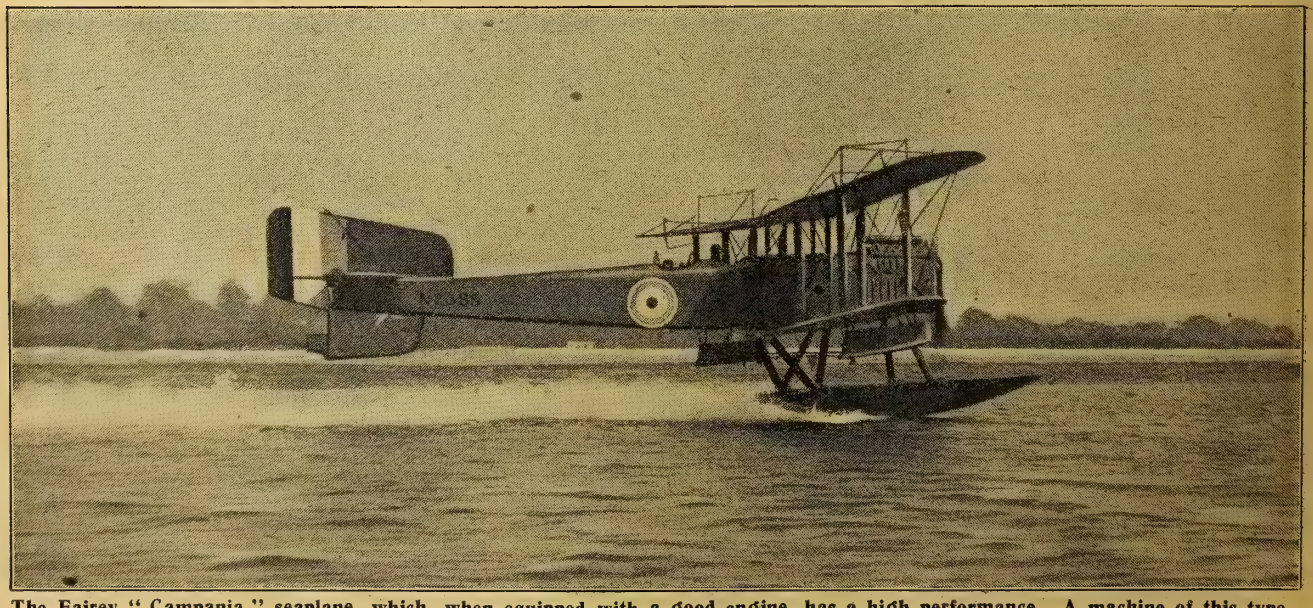
The net result in either case will be that many of the people with the most experience in sea-going aeronautics will be lost to the King's Service. And all through a political stunt, for the formation of the R.A.F. amounts to just that and nothing more. It has decreased efficiency and effectiveness, it has increased intrigue and jealousy, and in no direction has more harm been done than in destroying the *esprit de corps* of the R.N.A.S.

Gallantry versus Incompetence.

Nevertheless, during its three months of existence during 1918 the personnel of the R.N.A.S. did much fine work, and precious little credit did they get for it. True the good work was almost entirely the affair of the active-service people, for the headquarters work at the Hotel Bolo seems to have been almost entirely devoid of either brain or inspiration.

The outstanding example of brainlessness at the top is the "Goeben" affair in January, 1918. For a solid week the famous German warship lay fixed hard and fast aground in the Dardanelles, and there was not a solitary torpedo-seaplane to give her the final touch. When one recalls that in 1915 an antique Short seaplane staggered over the Gallipoli Peninsula and torpedoed a Turkish transport in the Marmora one can form some estimate of the fatuousness of the heads—one cannot in honesty say the brains—which controlled the R.N.A.S. at the Admiralty in 1916 and in the Hotel Bolo during 1917.

It seems almost too obvious to mention that if there had been officers of intelligence, and possessing any understanding of the science of war, at the head of affairs during those two years there would have been no question of missing the "Goeben" in 1918, for the



The Fairey "Campania" seaplane, which, when equipped with a good engine, has a high performance. A machine of this type is here seen planing on the surface before leaving the water.

whole German Fleet would have been torpedoed at its anchors long before the end of 1917. But, as one has ventured to hint—if somewhat obscurely—on previous occasions, imagination and science are not the strong points of the senior Naval officer. His ideas seem to stop short at appreciating a bull's method of abolishing an obstructive gate.

The Reward of Bravery.

However, the people who are responsible for missing the "Goeben" had sufficient intelligence to camouflage their own failure by awarding sundry D.S.Os. and things to the gallant youngsters who risked their lives and the King's property where no such risks should have been needed; and thus the unsuspecting public was led to believe that here was another glorious British victory. Few rewards have been so well deserved as these, for it is no light task to go bombing a small fixed mark, whether in broad daylight or in the glare of searchlights, on seaplanes which, again thanks to criminal imbecility at home, have an absolute ceiling at 4,000 feet or so.

It is even said that one very brave lad, after all the attempts with the futile little bombs available had failed against the "Goeben's" steel decks, took up the warhead of a torpedo, hitched up in a jury-rigged dropping gear, without anything in the way of a safety catch to prevent it from exploding if the dropping gear failed to release it and the pilot had to alight unwillingly. Figure to yourself getting off the water in the dark on a machine with a doubtful engine, and with a few hundreds of pounds of T.N.T. slung underneath you ready to go up on the slightest provocation.

The yarn may be somewhat coloured, but it came from one who ought to know, and anyhow it illustrates the risks which the active-service people were, and are, ready to take in the King's Service, despite being let down time after time by brainless chiefs or intriguing officials at home.

The Seaplane Ceiling.

Apropos being let down by the people at home, the Eastern Mediterranean has been notorious for the comic old seaplanes on which the R.N.A.S. have had to do their work. One pilot sized up the situation delightfully when he said that so far as patrolling for submarines was concerned he did not mind having a ceiling at 2,000 feet and a speed of 45 knots or so, but what he did object to was that when he was patrolling close in-shore along the Ægean, the Bulgars used to sit on the top of the hills and *fire down at him.*

One of the specialities of these seaplane heroes—or lunatics, they are much the same thing—was flying overland to bomb Turkish camps in Asia Minor and Syria. They began doing it in 1915 and they have been doing it ever since, always with a ceiling at 4,000 feet or so, because although by the end of 1917 there were far better machines and engines to be had in this country, the "brains" of the technical departments did not think much of seaplanes with high performances, and spent their time playing with other things. Not knowing much about the war they were full of theories, and nothing much else.

Anyhow, the Mediterranean people never got any high performance seaplanes, hence the story of an R.N.A.S. seaplane pilot who got caught in a valley in Syria where he had no room to turn, where the rocks did not offer tempting landing for floats, and where the hills, being fully 2,000 feet high, were unsurmountable. So he just flew straight on, hoping for the best, till at the head of the valley he was caught in the full blast of an up-current which hove him away up over the hill-tops and allowed him to turn for his little floating home off the coast. The old R.N.A.S. crowd is full of such entertaining stories of the loyalty of the pilots to their duty, and of the way in which they have been let down at home.

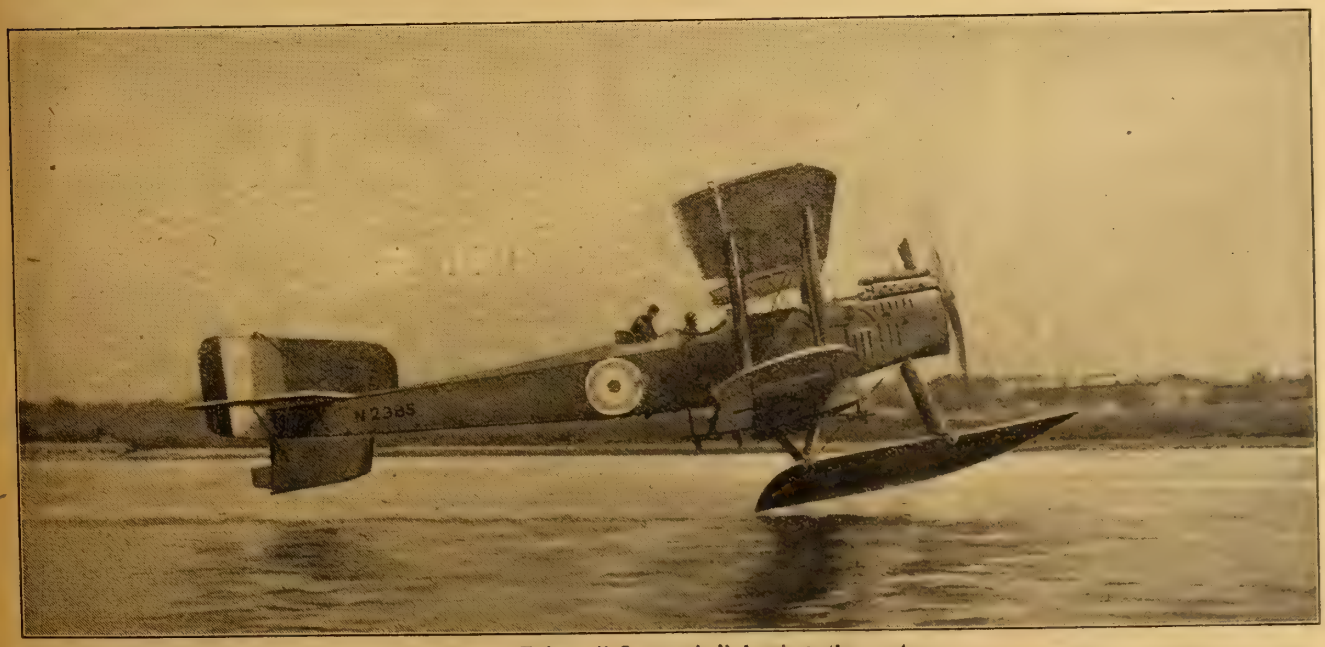
Omissions from Dispatches.

For the matter of that they were none too well treated abroad. The Army on the spot fully appreciated their help, but the people in the seaplane-carrying ships were not directly under the Army Command and so were not mentioned in dispatches by the Army commanders. And apparently the local Naval commanders were not particularly interested in their operations.

Which possibly explains why, with the exception of the "Goeben" *camouflage,* one has failed to find any reference in any dispatches during 1918 (which would include operations during 1917) to the work of seaplane pilots or of seaplane-carrying ships in the Mediterranean, or the Red Sea. One can only hope that when the G.O.C. R.A.F. in the East comes to publish his own dispatches—if such should be published, on the analogy of the separate dispatches of the G.O.C. Independent Force R.A.F.—justice may be done to a most deserving and very much neglected section of what was once a part of the King's Navy. It is to be feared, however, that as the R.A.F. was working with the Army and under the Army Command, such an opportunity may not occur.

A Sea Patrol Story.

Also, one feels that full justice has never been done to



A Fairey "Campanis" leaving the water.

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the coast-patrols and submarine hunters at home. It is true that many of the officers and men have been mentioned in dispatches, but the work of these people has never been told, in spite of all the propagandist tosh which has been circulated from the Hotel Bolo.

There is a great story, for example, that should some day be told in full detail, of one of our big Porte flying boats. It had gone out in command of a gallant and very young Wing-Commander on the long patrol from the East Coast to the Terschelling Bank, and there it was shot down by a powerful patrol of the little German Brandenburgers, which ultimately it fought off.

As it did not return at its proper time a destroyer was sent to look for it, and came back after many hours, only to report that it was not to be seen. The seaplane station refused to believe that the boat was lost, and the whole station loved its C.O., so in answer to their prayers another destroyer was sent to look for the missing craft. She also came back without result, and the Navy gave the flying-boat up as lost.

But there happened to be at that station a skilful and earnest navigating officer, who had in the meantime worked out carefully and exactly, from his knowledge of the prevailing tides and winds, just where the flying-boat ought to be, if sought with understanding and not on the supposition that she would remain on her original patrol course after being shot down helpless. So, after much persuasion, the local Navy allowed him to take out another ship and go searching where he himself believed the boat to be—which was somewhere much nearer Scotland than Helgoland.

And, there exactly as he had calculated, they found the boat, after it had been drifting for three days, on the verge of sinking, the officers and men worn out with constant baling—for the hull had been badly holed by Hun bullets—but brave and cheerful to the last, sustained by the pluck and the magnificent example of their young C.O. It needs the pen of a Frank Norris to tell the story properly, as he told that wonderful tale "A Diary of Sudden Death," only in this case the death was slow and long drawn out, and was happily averted by the brain of a practical navigator.

In the Ditch.

The R.N.A.S. can tell many similar stories of seaplane crews adrift for days, let down by defective engines, or "put in the ditch" by mere bad luck. Of men hanging on for the full day and more to the floats of upturned machines. And of men who, after supporting others to the bitter end by their grit and determination, have died of sheer exhaustion at the moment of rescue. The heroes of the air have not all fought the enemy over land, nor have all their portraits appeared in the picture papers.

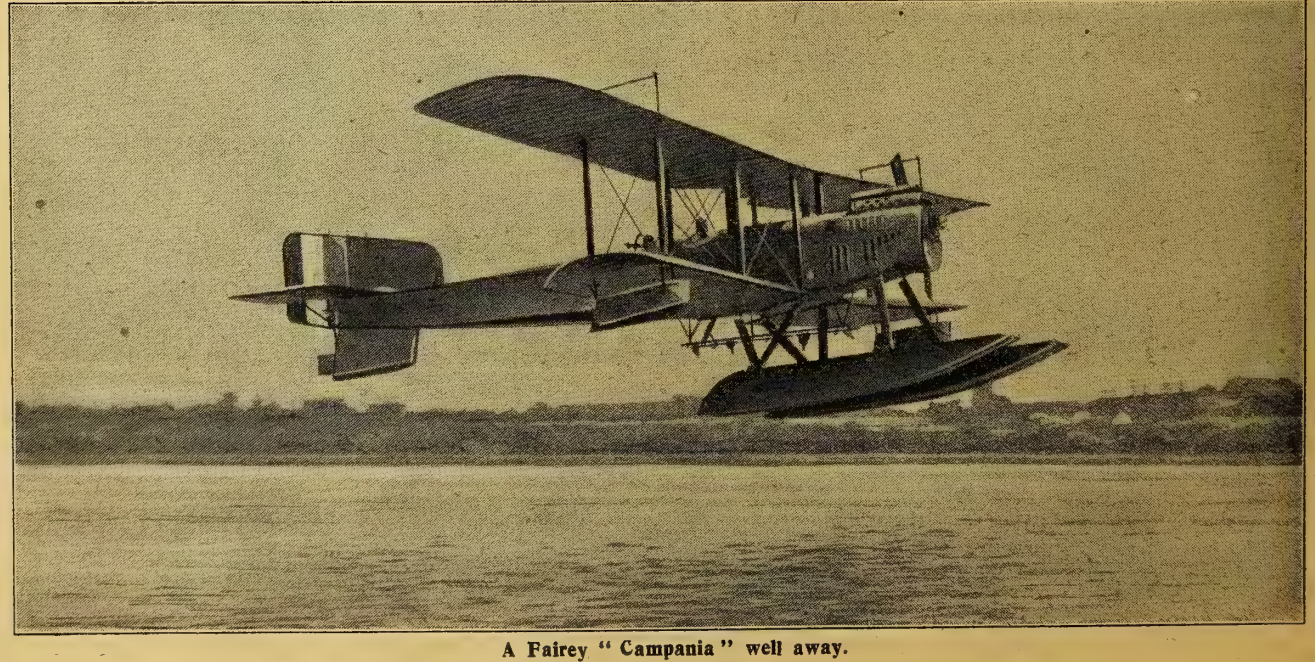
Nothing has been told by our official propagandists of the young R.N.A.S. officer who chased a Zeppelin out to sea on a land-going aeroplane carrying only three hours' petrol, and, finding that he was gaining steadily on her, continued his chase till his petrol gave out, knowing for a full hour and a half that he could never get home again. He caught her after flying for two hours, engaged her for an hour with his solitary machine-gun, and so damaged her steering gear that she was eventually wrecked in a neutral country. When his petrol was all gone he came down in the sea, and, by sheer good luck was picked up by a patrol-boat before his machine sank.

Such is the stuff of which the R.N.A.S. was made. Some of it was British, a little was Australian, a great deal was Canadian, and of those Canadians not a few were Americans. A very gallant crowd, a trifle wild perchance, not altogether disciplined according to the laws of the Navy, but doing their jobs and doing them thoroughly well. If the Navy can induce them to come into it now that it wants them it will get much more than it deserves.

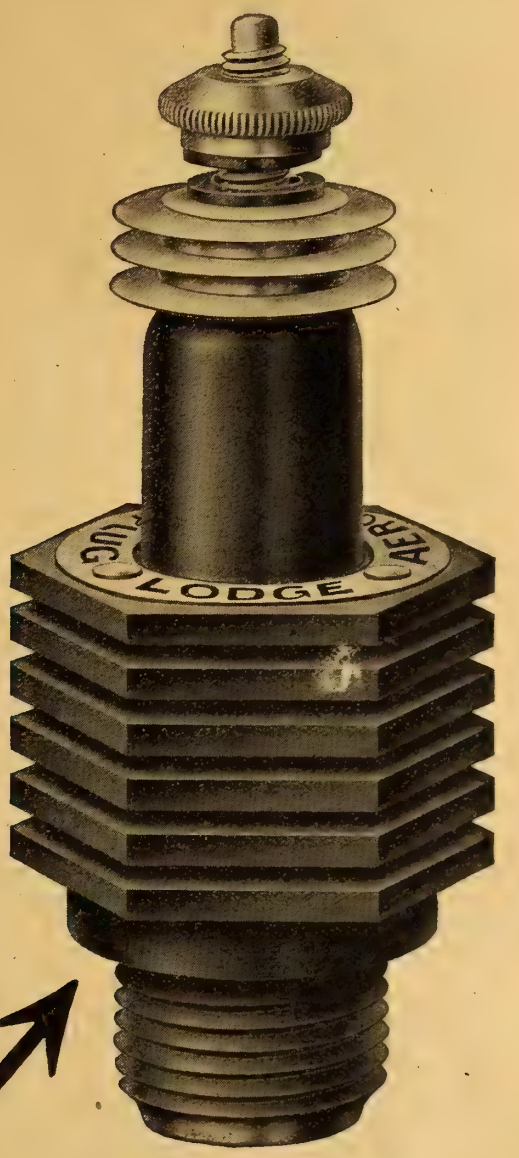
The Stay-at-Homes.

The only part of the R.N.A.S. that would not be a credit to the Navy would be the stay-at-home war-dodging mob of wasters who joined the R.N.V.R. in office jobs and bragged about the splendid situations they had left in order to serve their country on 11s. a day. Most of them, at any rate the less competent officers, who are generally the cleverer schemers, now parade London in brass hats and take salutes from men who have risked their lives in the King's service. And there is a grim humour in the fact that these gallant gentlemen who sacrificed so much, and who were so anxious before the Armistice to get out of uniform, are now, as a humorist put it, hanging onto their jobs at the hotel Bolo like a lot of monkeys hanging onto a tree—except when they are telephoning tentatively to see whether any of their erstwhile victims in the Aircraft Industry wants a self-alleged competent salesman or commercial traveller.

Leaving them aside, the old R.N.A.S., as it was when that fatal First of April, 1918, dawned, was a fine Service, which deserved well of the Nation. Let us hope that another official financial year may see the, seaplane people, along with their comrades of the airships, an integral part of the King's Navy.



A Fairey "Campania" well away.



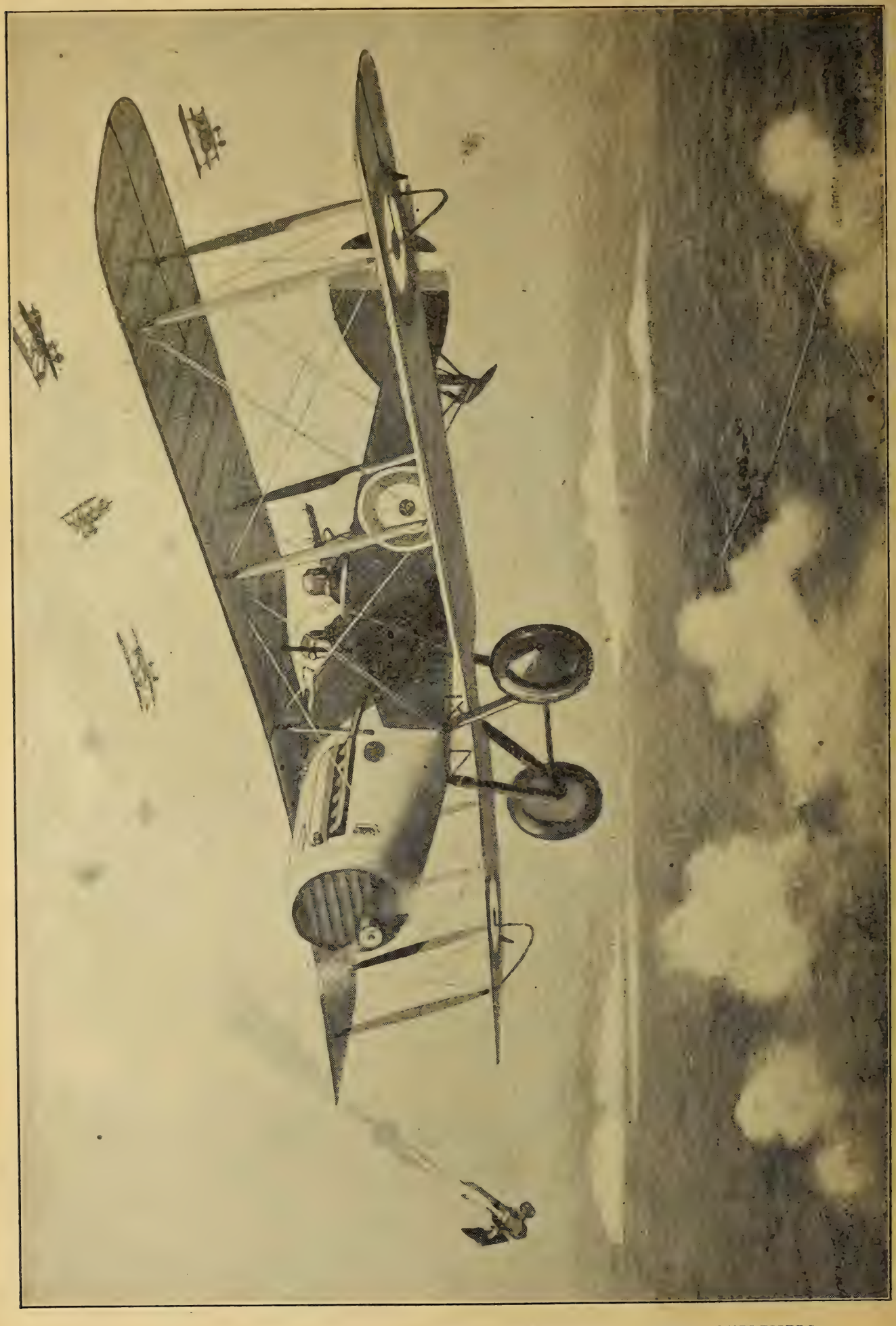
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ON THE R.F.C. IN 1918.

BY C. G. GREY.

The year 1918 began for the R.F.C. with a shock. Its idolised G.O.C., Major-General Sir Hugh Trenchard, took over the newly-made job of Chief of the Air Staff at home, and left the command in the field to another. The shock might well have broken the R.F.C.'s nerve but for the fact that Sir Hugh's successor was an officer whom the R.F.C. knew, and whom they trusted as they trusted General Trenchard himself.

The older hands had served with Major-General J. M. Salmond, in France, and had seen his work as a Squadron-Commander, as a Wing-Commander, and as a Brigade Commander. They knew that he was brilliant and yet sound at the same time. The younger generation knew him as G.O.C. the Training Division at home, an officer who had organised a system of training which gave a young pilot more military training and many times more hours in the air in six months than had been possible under the old system in a year. And they, in consequence, believed in him as firmly as did the older men. The events of 1918 have shown on what good foundation that belief was based.

When General Salmond—known familiarly as a mark of affection and with all respect by those who serve under him as Jack Salmond—took over the command in the field, the R.F.C. held complete mastery in the air. The Sopwith Camels, with 130 h.p. Clergêts, and the S.Es. with Hispano-Suizas, among single-seaters, and the two-seater Bristol Fighters with Falcon Rolls-Royces, had definitely shown their superiority over the best German fighting machines, and the D.H. 4s, with Eagle Rolls-Royces, had, with their high speed and ability in defence, proved that where long reconnaissance and day bombing were concerned the Germans could not touch our people. Even the lumbering old R.E. 8s, and the ancient Armstrong-Whitworths, commonly known as Ack-Ws, were able to go about their artillery observation and photography without serious opposition. And the best testimony to the hold which the G.O.C. had over his people is the fact that although the German machines improved very considerably, whereas the improvement in British machines in the field was hardly noticeable up to the end of the war and not at all up to the submersion of the R.F.C. in the R.A.F., the active-service aviators held almost the same mastery in the air all the time.

A Glorious Finish.

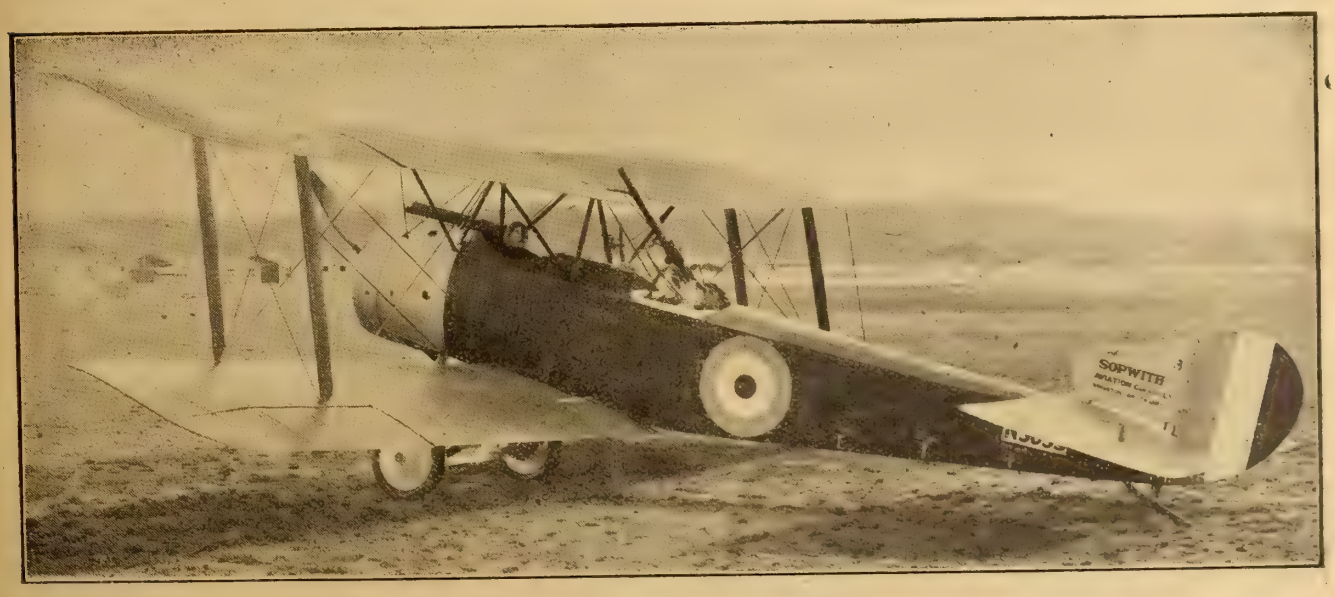
When the R.F.C. disappeared in the R.A.F. deluge it expired in a blaze of glory such as has, one imagines, never been the lot of any force which was being deliberately wiped out of existence by political intrigue and official fatuity. The end came almost simultaneously with the passing of the most critical moment in the great German push in March, 1918. On the first day of the push, March 21st, the R.F.C. was held up almost entirely by dense fog, but from then onwards one may safely say that the aviators had the time of their lives.

They lost their aerodromes, they lost their kit, they lost aeroplanes by the hundred, they lost their stores, they lost their spare parts, they lost their transport, but they never lost their spirits. It would be worth someone's while to write a book about the R.F.C. in the Retreat alone. Nothing has been more gallant, and somehow nothing has been more comic, in the history of the war. Somehow people got away from the forward aerodromes, somehow they got back to the rear, somehow they found new machines, and when they found them they proceeded to take it out of the Hun for all they had lost.

The Fog of War.

Even in the fog of the first day they did air work of some sort or another. There is a comic story of an R.E.8 squadron somewhere near Bapaume which was sent out in the fog to try and find Huns on the Cambrai road and delay their advance with bombs and machine-guns. It was impossible to see the ground from 100 feet up, and the only way of keeping direction was to fly along the road itself just above the tree-tops—that is, where the Hun has left any trees. If a pilot lost sight of the road he had to circle round and find it again.

The story has it that only nine machines were in a fit condition to start in the morning. Those who know the Raf engine may be able to explain why, and one suspects that the rest were burnt to save them from the advancing Hun. Anyhow the gallant nine started, and by excellent luck they all got back. When the last man to start landed again he climbed out of his machine and remarked, "I'm damned if I can understand it. I know only nine of us started, but I met eighteen R.E.8s with



The "One and a Half-Strutter" Sopwith biplane, of the two-seater type. First produced in 1915. First used on the Somme a year later, and still doing useful work on active service in 1917-18.

our squadron mark on them between here and Bourlon. Where the Hell did they come from?"

It seems that the only possible explanation is that they all lost their way and that he had met them all twice and some of them three times while they were dodging about trying to find that road. And where the trees have all vanished, as they have for stretches of kilometres at a time, it must have been pretty hard to find it in that fog.

The Time of their Lives.

Besides the losses of machines and other material in the abandoned aerodromes, the losses of men during the retreat were heavy, chiefly through machine-gun and rifle fire from the ground, but the R.F.C. did not seem to be affected in the least. Their blood was up and they were getting full value for their money. It was very different from the evil days when futile B.Es. were being shot down by Fokker monoplanes.

Pilots and observers who fought through the March retreat have told one that the risks of ground-strafing—or to put it less slangily, contour-fighting—were well worth taking. When a man had pumped a few thousands of rounds of machine-gun ammunition into troops in column of route, and had seen them jump for the ditches or scatter into the fields leaving a trail of casualties behind them, he felt that if there did happen to be a Hun bullet addressed to him he had a hearty balance in his favour. As one sportsman put it, when he was hit he remarked to himself, "In payment for value received."

Nothing could stop the R.F.C. during those days. The Corps went mad and bit. And the Huns did not like the manner of their biting. Our aeroplanes were emptying 20 to 30 tons of bombs a day and hundreds of thousands of rounds of machine-gun ammunition into the advancing enemy, and the only thing that cramped their style was sheer shortage of bombs and cartridges.

The People on the Ground.

The people in the air were magnificently backed up by their own people on the ground. No. 2 Aircraft Supply Depot, which had been built as if it were intended for a permanent aircraft factory, had to be evacuated. The personnel and as much of the material as was possible was loaded up on trucks and dumped down on a bare plain by the sea coast in pouring rain. They had no sheds, and they had to find Bessonneau marquees where they could. Three days after they left their old home, and with only one Bessonneau as a workshop, they had turned out their first rebuilt machine, and from then onward they never stopped work day or night till the danger was over.

The men slept in the open, under lorries and tenders, under shelters made of condemned wings. They had no cooking arrangements, they lived as hardly as the retreating infantry. And all the time they carried on the delicate and vital work of rebuilding and tuning machines and engines.

The squadron mechanics at the aerodromes worked till the last moment to get machines away. At some aerodromes repairs were only done in time for mechanics to start up the engines and climb into the passengers' seats of the machines as Hun shells or bullets began falling in the sheds. In some places ground officers and mechanics set fire to their sheds and bolted out of one side of the aerodrome as the enemy's infantry came in at the other. It was a wonderful show, and one honestly believes that most of the R.F.C. people enjoyed it. At any rate not one to whom one has talked about the retreat would have missed it for a fortune.

The R.F.C.'s Revenge.

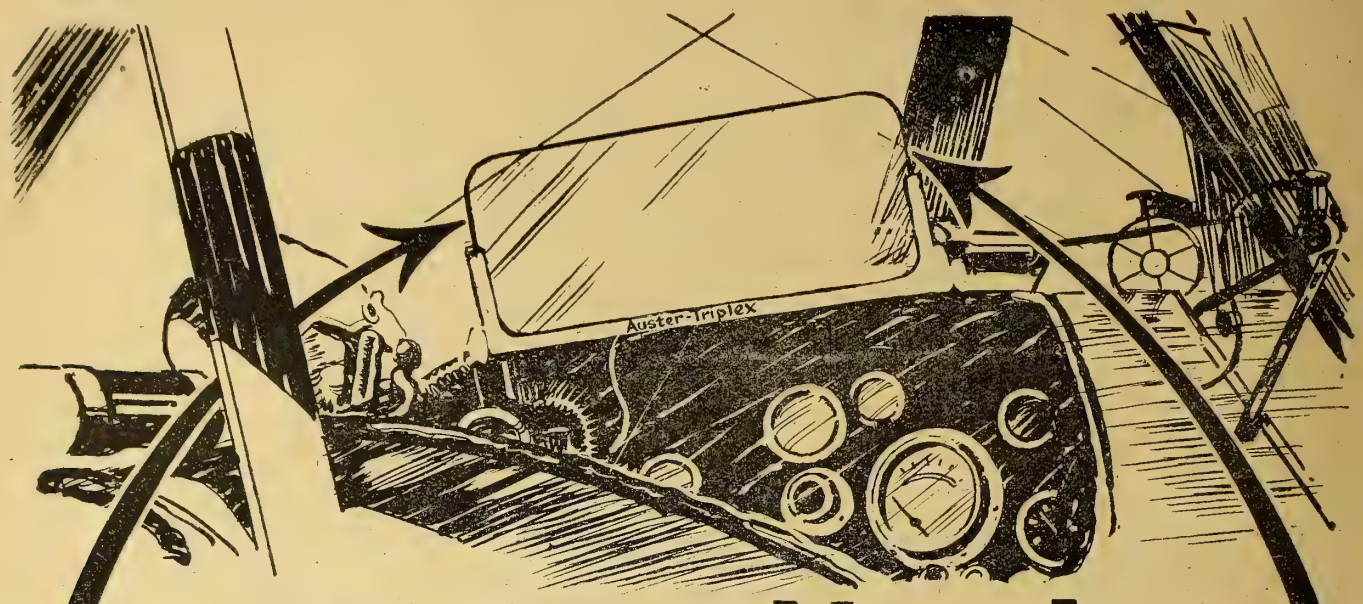
And all of them were sustained by the knowledge that the Hun was paying dearly for his victory, which they all believed to be purely a temporary affair. The Hun does not use his roads for heavy transport and for troops as we use ours. He lays innumerable light railways everywhere behind his lines, and moves everything over them. His roads are used chiefly by staff cars, and little else. This time, however, he had no railways, for our people took mighty good care not to leave any. And so the R.F.C. caught the Hun on the road and let him have it right, left and centre with every available bomb and gun.

Talking over the retreat months afterwards with one who was in it, and sitting alongside the great road from St. Quentin to Bavai watching troops and transport moving up in a slow but never-ending stream for the last great attack of the war, one was impressed by the real military advantage of the mastery of the air. The road was thicker with traffic than Piccadilly on a pre-war May morning and half a dozen low-flying aeroplanes could have blocked the lot for miles inside of five minutes. But fortunately the Hun was then down and out so far as air fighting was concerned, and he never has made a



Martinsyde "Elephant" (160 h.p. Beardmore), a machine which did much good work in Eastern War Areas in 1918.


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success of low flying. Nevertheless it gave one some idea of what the R.F.C.'s revenge must have been during its last days of existence as a part of the King's Army.

And while the R.F.C. was dying individually and literally, as well as collectively and figuratively, our politicians were messing about with its reorganisation into the R.A.F. Our little modern Neros were fiddling while our aerodromes were burning.

In Foreign Parts.

France has become so much a home-from-home for the British Army that it is scarcely reckoned as being a foreign country. Which is as it should be, seeing that all that is best in England came from France between 1066 A.D. and to-day. So the foreign service detachments of the R.F.C. have always been reckoned as those outside France.

Of these the greatest was the R.F.C. Division in the Middle and Near East under Major-General W. G. H. Salmond, D.S.O., who was given a well deserved C.B. in the New Year's Honours. Many people have been made K.C.Bs. for considerably less. The unrepentant R.F.C. in the East always talks of its distinguished G.O.C. as Bill Salmond, and as in the case of his famous brother the familiarity implies high esteem without lack of respect, for, as one has remarked on a previous occasion, it is only the great ones of the earth who are honoured by nicknames or abbreviations.

His command includes the Balkans, Egypt, Palestine, the Soudan, Arabia and Mesopotamia; a fairly extensive command, when one comes to look at the map. And in all those areas the R.F.C. did its job as effectively as in France.

The Dumping Ground.

In these "minor war" areas, as they have been called, the aviators had to be content with machines which were not considered good enough for France. B.Es. persisted in Palestine long after they had been scrapped in the West, and it was not till after the R.F.C. had ceased to exist that the best 1917 type machines got to the East. In fact it is doubtful whether the best of them have even yet reached Mesopotamia. The East was made the dumping ground for obsolescent aeroplanes.

Fortunately the Huns did the same thing, and so matters were fairly even. Occasionally a fairly modern machine percolated out to the East, and then funny things happened. As for instance when a Hun star turn in Palestine received a brand new Albatros and forthwith set out to kill a few English before breakfast.

Climbing out over the lines he met two long-snouted biplanes which he identified in the light of experience as the excellent but aged Martinsyde "Elephants" with 160-h.p. Beardmores. Knowing their performance to a nicety he proceeded to climb above them, but to his annoyance they refused to be out-climbed. Presently his annoyance turned to serious apprehension, as the long noses climbed up over him despite his best endeavours, and then to sheer blue funk as they turned and dived for him.

He stood the Albatros on her head and dived as he had never dived before. So hard did he dive that he forgot to swallow on the way down and split an ear-drum in consequence. But the British machines dived still faster, and, moreover, manœuvred at the same time so as to cut him off from home.

Being a wise Hun he allowed himself to be shepherded into a British aerodrome without a shot being fired on either side, and as he landed the British machines came in and squatted down with him in the friendliest manner. The Hun climbed out, and, full of wonderment, walked over to one of his conquerors, where his pride was consoled by finding that he had bumped into a couple of brand new Bristol Fighters, which had arrived in the East simultaneously with his nice new Albatros. Such are the fortunes of war—sometimes.

More often it was not so, and the R.F.C. did their long desert reconnaissances, or wandered over the peaks and chasms of the Balkans on the cast-offs from Europe—yes, the Balkans are in Europe geographically, but not ethnologically. Yet somehow the casualties were not unduly high. People die queerly in war. They survive the real perils and are killed in affairs which are rather less exciting than falling down stairs. The simple death seems even more banal than the simple life.

The Simple Death.

One such death in the East must be about the record in banal finishes. A very good pilot and a very good observer had been out over Sinai on a B.E. They had done the usual B.E. reconnaissance, from 1,500 feet or so, and had been potted by Turks and Arabs alike, they had dropped a few bombs on oases and markets, and they had come home rejoicing.

The observer unbuckled his belt as the machine was flattening out to land, and reached down to pick up some note-books from the floor. As he did so the machine was hit by one of those little spinning sand-devils, the miniature whirlwinds which lend a touch of adventure to the ordinary aerodrome landing in the East. The machine gave a jolt up into the air for a few feet, and then bumped onto the ground but pulled up without straining a wire.

The pilot climbed out, but the observer did not. So the pilot went and shook him, saying "Wake up, you lazy old devil, we're home!" or words to that effect, for it is the custom of tired observers to go to sleep on the



Three-quarter Rear View of a Martinsyde "Elephant."

last stretch of a long reconnaissance, when over their own country. There was once a pilot who went to sleep as well as his observer, but that is another story.

However, the observer did not wake up, he lay back in his seat and his head rolled curiously onto one shoulder and his eyes were wide open. The pilot thought that he had had some sort of a fit with fatigue or heat or both, and called to the people by the sheds to lend a hand in getting him out. The first man who came up said simply "He's dead."

The pilot refused to believe it, for he knew that his observer was alive and unhurt two minutes before. And when they got him out they found a little bruise under his chin and his neck was broken.

Apparently as he bent forward, with all his muscles relaxed, to pick up his papers, the machine hit the sand-devil and threw him forward onto a crossbar in the cockpit. The jerk threw his head back and broke his neck. And so he died, and the King lost a gallant and useful officer.

The Italian Force.

Apart from the R.F.C. in the East the only other foreign service contingent was the brigade in Italy, which went there with General Plumer's army to stiffen the Italian defence after the great defeat at Caporetto—a defeat which was foreseen by everybody except the then High Command of the Italian Army and the Allied politicians: at any rate one was warned of it six months before by an intelligent Frenchman, so presumably a few thousands of other people saw it coming, just as the defeat of General Gough's Army was foreseen by everybody except those who ought to have prevented it.

Anyhow the R.F.C. contingent went off to Italy at the beginning with visions of blue Italian skies and black Italian eyes and all the luxuries of a Henry Harland novel. And they found themselves perched on bare bleak mountain plateaux in the snow, without coal or wood to burn, or stuck in the mud of the plains in eternal rain, almost equally cold and even more uncomfortable. They hated it, but they did their jobs as usual, and in the first two weeks of January they slew eleven Hun aeroplanes.

While they were still the R.F.C. they slew a lot more, and as the weather improved they actually enjoyed themselves. They had very fairly good machines, and on the whole were better mounted than the opposing Huns. They were badly bombed in their aerodromes for a while, but they soon put a stop to that. And, like their comrades in the East and in France, they had commanding officers whom they liked personally and admired as soldiers. So, on the whole, after the first few weeks, the Italian force of the R.F.C. have had about as good a time as anybody in the war.

Home Defences.

Though strictly speaking Home Defence has been the Army's affair and the R.F.C. has been only an accessory, one cannot do less than pay a tribute to the fine work done by the Corps at home before it merged into the R.A.F.

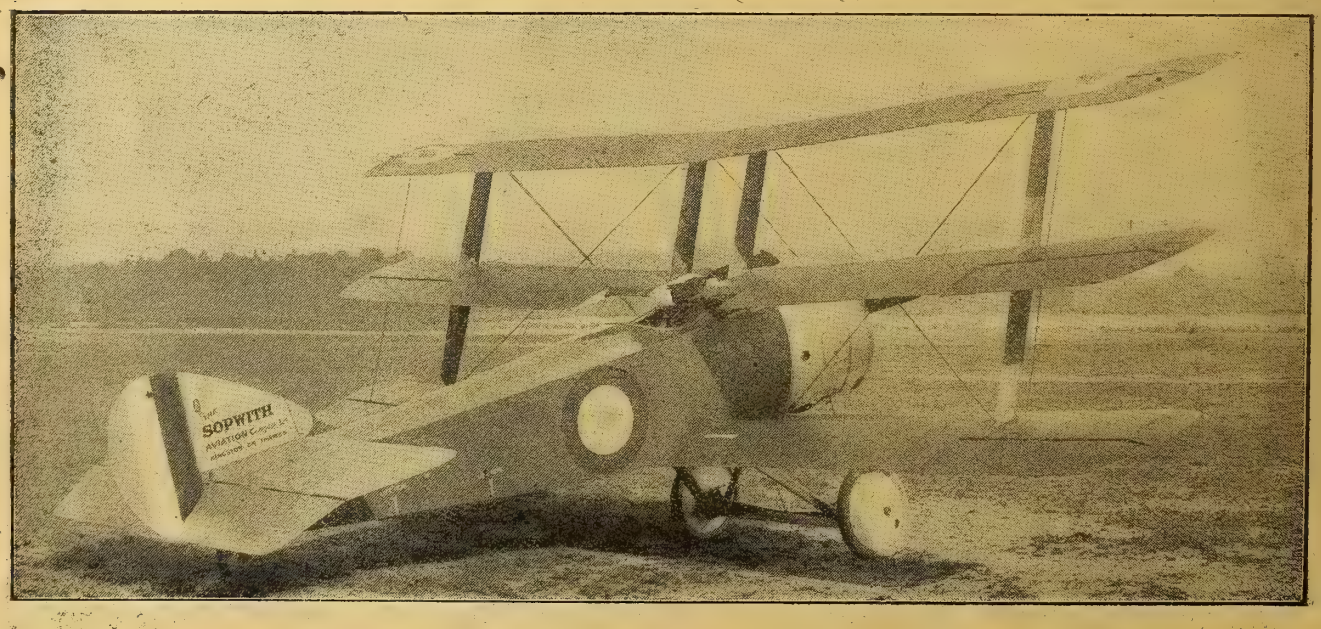
It was the R.F.C. which produced the night-flying squadrons which finally put the lid on Hun invasions. It was R.F.C. kite-balloon units which produced those "hush-hush" kite-balloon aprons so familiar to everybody, including the enemy, and yet made such a deadly secret by the High Authorities.

Also, it is desirable to recall the fact that Major-General Ashmore, G.O.C. London Air Defence Area, besides being a distinguished Gunner officer, was previous a Brigade-Commander R.F.C. in France. Even now it is doubtful whether Londoners in general recognise how much they owe to General Ashmore's talent for organisation and his technical knowledge of the combined possibilities of guns and aircraft.

It was the clever co-ordination of the work of searchlights, guns, balloon-aprons and aeroplanes during the early months of 1918 which presented at last a barrier to Hun raiders which, if not impenetrable, could only be penetrated at such cost that the German High Command decided that the game was not worth the candle, and so left London alone. To have produced such a result is a feat of which the G.O.C. L.A.D.A. may well be proud in all future time.

The Future.

So much one can say about the old R.F.C. and its works. Next week one hopes to say more about the R.A.F. and its doings. It is rumoured, or, as our distinguished Italian contributor Mr. T. S. Harvey put it on one occasion, "it is hoped on the best authority," that the Army side of the R.A.F. is going back to the War Office. The question is one deserving lengthy discussion, and such discussion it will have at a later date. But, if such a happy event should come to pass, one can only hope that the Army's new flying service will revive the glorious name of The Royal Flying Corps, and will re-establish it as a *corps d'élite* of the King's Army.



The Sopwith Triplane of 1917-18 (110 h.p. Le Rhône).

THE R.A.F. K.C.B.'S.

The appointment of three General Officers of the Royal Air Force to be Knights Commander of the Order of the Bath will be of much interest to all concerned with aeronautics.

Major-General Sir William Sefton Brancker, K.C.B., has the distinction of being the first officer to fly in India, when, as a captain on the staff of Sir Douglas Haig, he made a trip on a Bristol box-kite belonging to the Bristol Mission which visited India in 1912. He afterwards learned to fly at the Bristol School, and became one of the first Staff officers of the Royal Flying Corps.

During the early part of the War he held a Staff appointment at the War Office, and since then he has held the posts of Deputy Director-General of Military Aeronautics under the War Office, and of Comptroller-General of Equipment, and of Master-General of Personnel under the Air Ministry. He also held an appointment in Egypt for a short period, and during the present year went on a special mission to the United States.

He is remarkable as being a most persistent pilot, and has thoroughly deserved the A.F.C., which, one believes, is his only British decoration. The fact that he himself, in his various capacities, must have recommended some hundreds of officers for decorations, and has hitherto only acquired one himself, should distinctly be counted unto him for righteousness.

General Brancker has for some years frequently and publicly expressed his faith in the future of Commercial Aeronautics, and his recent appointment to a post with Mr. Holt Thomas bears witness to his willingness to prove his faith.

Major-General Sir Frederick Herbert Sykes, K.C.B., C.M.G., D.S.O., Chief of the Air Staff, R.A.F., is one of the earliest Royal Flying Corps officers. He was Commandant of the Military Wing, R.F.C., when that Corps was first formed, and held that post until the outbreak of war, when he went to France with the historic first five squadrons. Thereafter he commanded all R.N.A.S. units in the Eastern Mediterranean, and subsequently severed his connection with flying altogether in order to take up an appointment at the War Office. On the resignation of Major-General Sir Hugh Trenchard, General Sykes was appointed Chief of the Air Staff, which post he has held ever since.

He entered the Army during the South African War as a trooper in Lord Roberts' Body Guard, and thence was given a commission in the 14th Hussars, with which regiment he served in India. While in India he devoted his leave largely to exploration, and he has, one believes, the distinction of being one of the only two Europeans who have ever walked from Pekin to Simla, a journey involving the crossing of altogether unknown regions of China and Thibet. This journey alone bears witness of his personal bravery and determination, and a further proof of his mettle was given early in the War, when, during the period while the British Army was moving from the Aisne to the defence of the Channel ports, General Sykes made a journey by aeroplane right over the heart of the German positions in Northern France, carrying out a reconnaissance of a duration unattained up till that period, and obtaining much information of high value.

General Sykes is essentially a soldier, and has been a close friend of General Sir Henry Wilson, Chief of the Imperial General Staff, and therefore if it comes to pass, as is rumoured, that the military side of the Royal Air Force goes back under the control of the War Office, there is no doubt that the fact of his holding the post of Chief of the Air Staff will make for smooth working with the Army Chiefs.

Major-General Sir John Maitland Salmond, K.C.B., C.M.G., C.V.O., D.S.O., G.O.C. R.A.F. with the Army in France during the whole of 1918, is an outstanding example of the triumph of the regimental officer. One believes that it is correct to say that until his appointment as Brigadier-General Commanding a Brigade of the R.F.C. under General Trenchard, General Salmond had never held a Staff appointment.

He learned to fly at his own expense at Hendon in 1912, and he joined the R.F.C. as a Captain of Infantry, being then an officer of the King's Own (Royal Lancaster) Regiment. His promotion, though rapid, followed orthodox lines, and at the outbreak of war he took the famous No. 3 Squadron from Netheravon to France as a Major.

In 1917, when he commanded a Brigade in France, he was sent to England to command the Training Brigade, which later became the Training Division, with promotion of its G.O.C. to Major-General. In that position he laid down that whole scheme of training for the R.F.C. which has proved of such excellence that it has enabled the R.A.F. pilots during 1918 to hold the command of the air—which they won in 1917—despite the fact that, with hardly an exception, they were still mounted on machines which were in use in 1917. The system of training instituted during 1917 has been one of the most brilliant successes of the War, and though the general mis-organisation of the R.A.F. during 1918 has unfortunately done much harm to its efficiency, the system itself can still be revived under improved organisation at any future date.

General Salmond's name deserves to be famous in history not merely for his brilliant handling of the R.A.F. in France during 1918 and for the excellence of his Staff work, and for the wonderful confidence which he has the genius for instilling in all those who serve under him, but for the fact that the training system which he inaugurated at home laid the foundation for his own success in the Field.—C. G. G.

MR. BALDWIN RAPER, M.P.

Apropos the gratifying success of the majority of the Air Force candidates for Parliament, one learns with interest that Mr. A. Baldwin Raper, the new M.P. for East Islington, has had two years' active flying with the R.A.F. Most of his time has been spent in testing new machines and in instructing the rising generation of aviators. Therefore he is singularly well qualified to criticise future developments on the technical side, as well as the present methods of instruction, about which considerable anxiety is felt in some quarters.

During the last six months of the war, Mr. Raper was lent by the R.A.F. to the War Office to undertake a special mission abroad, the details of which may not yet be published.

There is no doubt that his experience of practical flying will be turned to excellent account in the House of Commons, where theory has held the field too long.

THE FREEDOM OF CIVILIAN FLYING.

On January 8th Major-General Sir Frederick Sykes, Chief of the Air Staff, read a most interesting paper on the developments of aeronautics to the London Chamber of Commerce at the Cannon Street Hotel. As this paper was going to press at the time, it has been impossible to report the lecture, but it is hoped that it will appear *in extenso* next week.

It is necessary, however, to give all possible publicity to General Sykes' official statement that a new code of regulations for civilian flying is now being drawn up, and will be presented to Parliament when the House assembles.

It is hoped by those responsible for them that these regulations will come into force within a very few weeks of their presentation and that civilians will soon to be free to fly again without military restrictions. The regulations will be published shortly.

A PUTATIVE WORLD'S RECORD.

It is reported that on Jan. 2nd Capt. Lang, R.A.F. (pilot), and Lt. Blowes, R.A.F. (passenger) ascended on a D.H.9 with a Napier "Lion" engine to a height of 30,500 ft., the start being made from Martlesham, near Ipswich.

The following interview with Capt. Lang was published in the "Morning Post":—

To-day I visited the Martlesham Experimental Aerodrome, near Ipswich, and interviewed Capt. Lang, R.A.F., as to his experiences of Thursday, when he ascended with a passenger to the record height for an aeroplane of 30,500 ft., nearly six miles. Capt. Lang, who hails from Sydney, Australia, and Lt. A. W. Blowes, who comes from Mitchell, in Ontario, Canada, had by no means recovered from the effects of their great climb, but the former gave a graphic description of all that happened during the 66 mins. 15 secs. taken up by the flight.

"I have," said Capt. Lang, "far more instruments to pay attention to than the observer" (to whom he paid warm tribute for his pluck under a terribly trying ordeal). "I have to make the most minute observations at every thousand feet, and these are recorded on a board strapped to my right leg. I have also to note down how the temperature changes, the speed at which the machine is climbing, the revolutions, water temperature in the engine, oil temperature, petrol pressure, and gallons of petrol consumed per hour, and occasionally to look over the side to note our bearings."

Thursday's flight, Capt. Lang said, had been contemplated for some time, and to prepare for it he and his colleague had remained strict teetotallers and had never indulged in a smoke for weeks. The machine they used was a De Havilland bombing machine, fitted with a 450 h.p. Napier engine. They started at half-past eleven on Thursday morning in a gale of wind.

Seventy Degrees of Frost.

Both men were specially clad for the occasion, and the need of this is indicated by the fact that when the machine reached an altitude of 30,500 ft. they encountered about 70 degrees of frost.

"During the first 8,000 ft. the machine tossed about like a leaf," said Capt. Lang, "but afterwards we settled down to far more comfortable flying. Generally we climb by taking big sweeping circles, but we were blown out of our course, and when we were nearly six miles up we were about 25 miles out at sea, off Yarmouth."

Asked what were the prevailing conditions at that height Capt. Lang said the sun was shining brightly, and, although it was a little hazy, he could see ships far away out at sea, and occasionally glimpses of the Thames.

He remarked: "At 2,000 ft. I had to take off my goggles owing to the oxygen frosting on the glass. Thereupon my left eye watered and froze and was soon as big as a plum. For the next 10,000 ft. I was flying with only one eye. After the first 8,000 ft. flying became gradually better, but at 20,000 ft. the cable in the revolution counter unfortunately broke. Being unable to take the records of the revolution counter I took the atmospheric temperatures, and it was lucky I did so, for Lt. Blowes had, unknown to me, collapsed through the breakage of the tube which was supplying him with oxygen from one of the two cylinders specially fitted for the flight."

Capt. Lang said it was most fortunate he was able to continue Lt. Blowes' work and take the atmospheric temperatures. Without them the test would have been worthless.

Shortage of Oxygen.

"We got into a very bumpy atmosphere at 27,000 ft.," continued the pilot, "being so tossed about that the machine became uncontrollable. At 28,000 ft. I felt a shortage of oxygen and I signalled, as prearranged, for more. It was then I found out that he was unconscious, and had been so (as I afterwards discovered) since we reached 20,000 ft., for he fell back in an attempt to pass me a note. I managed to hang on till we reached 30,500 ft., when the pressure pumps behind the engine ceased to work owing to the rarefaction, and the engine stopped."

Speaking of the descent, Capt. Lang said the first 10,000 ft. occupied 25 mins. He was then well off Yarmouth, there being a wind blowing at from 150 to 170 miles an hour. At 20,000 ft. the observer regained consciousness.

The two aviators have suffered badly from frost on hands and face, and Lt. Blowes, who is only 19 years old, has sustained severe injuries to his hands, which are very painful.

It will be noted that the flight is claimed to constitute a World's Record for altitude, and the amount of interest taken in it by the lay press as a sporting event leads one to hope that there may be quite a good future for purely sporting aviation. But it has yet to be proved scientifically whether the machine really reached the height stated.

Of course, it is not disputed that the final reading of the barograph was 30,500 ft., but atmospheric density, humidity, and temperature all reduce the figures materially. Therefore, the altitude claimed to have been reached may have to be corrected down to 28,000 and odd feet, or even 27,000.

Even if the corrected height works out at 29,000 ft. or more, and is passed by the Royal Aero Club as a British altitude record, it still remains to be proved whether it is a World's Record or not. The Fédération Aéronautique Internationale—an Association with headquarters in Paris and composed of representatives of the Aero Clubs of all nations—is the deciding authority in such a case. The F.A.I. takes the evidence of all claims to records by the various nations and, after comparing the figures, passes the claims.

A number of claims have been made during the war to world's records for speed, altitude, duration, etc., but none of them has been passed by the F.A.I., which has suspended its sittings until the end of the war. Quite lately, a German aviator flying in Chile claimed to have reached a height of 29,000 ft. Also there are various claims for flights made by aviators in Germany during the war to be considered. Whether a record is established by a German, or any other nationality, it still remains a record. And it is quite possible that a good number of the records for 1915, 1916, and 1917 will have to be acknowledged to Germany.

Soon after the outbreak of war the Allies' representatives on the F.A.I. decided to hold no further communication with Germany. In fact, one is given the impression that some of them wished to expel Germany from the Fédération and to refuse to recognise any German records in future; but one can scarcely imagine a serious scientific body being so absurd. It would be analogous to the Anthropological Society refusing to recognise the Patagonians as the tallest race of men in the world because the Council of the society disapproved of Patagonian table manners.

Therefore, it seems advisable before acclaiming the Martlesham performance as a World's Record, with due pomp and ceremony, to see what claims other countries put up against it, and to what figure the true corrected height amounts.

However, it is undoubtedly a very fine performance, and great credit must be given to the pilot and passenger as well as to the Napier "Lion" engine equally with the D.H.9 biplane—designed by Capt. Geoffrey de Havilland and built by the Aircraft Manufacturing Co.—which made it possible. This is by no means the first time that this combination has put up a fine performance, for a few months back a D.H.9 with a Napier "Lion" went up to over 29,000 ft. (as per barograph, uncorrected), carrying a pilot and passenger and 500 lbs. of "war load" in addition.

In all probability this was a record for a two-seater machine, although it was not claimed as such. It was merely a trial trip for the first of the "series-built" "Lions," by which one means that the engine was not specially built or faked, but was just the first of the first batch of engines to be put through the factory in the ordinary way. It is quite probable that this alleged record machine was the same.

One hopes that now that these extraordinary performances have been made public there will be an equally public inquiry into the reason why the Technical Department of the Air Ministry deliberately held back the "Lion" engine, and finally grudgingly gave the Napier Company absurdly limited orders for it, while at the same time flooding the country with inferior engines, even to the extent of forcing the magnificent Napier works to waste their time on producing engines of half the power designed by other people.

It has since been reported that Capt. Lang has been placed under open arrest for communicating with the Press.

THE COMPETENCE OF PILOTS.

The following letter has been received from an officer in the Royal Air Force, and is printed as an example of methods and manners:—

Dear Sir,—*Re* your letter in your rag, The Aeroplane, under the heading of "Competence of Pilots," you are doing a lot of good to the Royal Air Force, aren't you?

Your main aim in life seems to be to run down young officers, and as I am one of those myself, I am quite in a position to let you know that you are one of the many people about England who, to put things politely, "are not thought much of."

You talk about "Young cads in the Air Force." What right have you to run down the Air Force and criticise boys who fly and have brought this war to a successful end?

You also say, "Nobody worries about aviators being killed," etc. Who do you mean by nobody? If you were more in touch with the Air Force you would stop talking such absurd rot and mind your own business, which at the present moment seems to be in advertisements.

Anyhow, no one in the Air Force has any use for you, and your name is "mere dirty"

Unless you are a cad you will publish this in your rag.—Yours,

H. W. Woollett, Captain R.A.F.

THE REPATRIATION OF BRITISH PRISONERS OF WAR.

The following statement, dated Jan. 4th, was issued by the Interdepartmental Committee on Prisoners of War:—

Since the date of the Armistice 6,816 officers, 129,522 other ranks, and 4,499 civilians, or 140,837 in all, have been repatriated. These figures include about 650 Allied prisoners of war.

Out of the above total of 140,837 repatriated prisoners of war about 137,000 are British prisoners repatriated from Germany. There are also 4,191 British prisoners of war in Denmark and 9,525 British prisoners of war in Holland awaiting shipment, and a further number are in transports sailing to this country.



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THE INFLUENCE OF OFFICIAL CONTROL UPON THE DESIGN OF AIRCRAFT, 1914–1918.

BY "STRASBOURG."

It is fairly obvious that the time has not yet arrived when a history of the activities of the various technical branches attached to the permutations and combinations of H.M. Naval and Military Air Services can be compiled in any detail, nor is it yet possible to give in any semblance of their true perspective an account of their actions and reactions in regard to specific matters.

But it is possible to review in general the sum of the effects which have been produced under the impelling stress of war in the design of aircraft, to consider if those effects show the development of the art to have made progress commensurate with the energy which has been expended thereon during that period.

The tale of the "astounding developments" of aircraft during the last four years has been dinned into the ears of everyone by the Press, more particularly by the class of writer who cannot distinguish an airship from an aeroplane at sight, yet, while it must be acknowledged that, on the score of reliability and performance, the aeroplane has progressed probably as far as any but the uninformed would have cared to prophesy three years ago, a close examination of the aircraft of to-day reveals the fact that very little has been achieved to-day that could not have been achieved in 1914, had motors of the same power, weight, reliability, and economy then been available.

Relative Performances.

For, when the matter is explored, the differences between the performances of to-day and the performances of July, 1914, resolve themselves almost entirely into the difference between that of a machine carrying 7½ lbs. per h.p. and one carrying 17 lbs. per h.p., and that the 17 lbs. per h.p. machine of to-day is very little superior to the best designs of approximately similar loading of 1914.

To this it will be at once objected that, owing to the refinement of design, the 17 lbs. per h.p. machine of to-day carries a much larger proportion of its total weight in the form of useful load, and that this is the measure of the actual advance. This view is just, but in assessing the extent of the technical progress which is indicated by this improvement, due allowance must be made for the extent to which it has been made possible by the improvements in motors owing to the possibility of obtaining materials and accessories which were prohibited by their cost to those who attempted to build aircraft in pre-war times.

The structural design of aircraft has undoubtedly improved generally; reasonably accurate methods of estimating the loads and stresses to which the structure may be subjected have become more widely known, and a more economical use of material has thereby become general.

For this dissemination of knowledge the official controllers of aircraft design may claim some credit.

Further improvements in the general average of structural design have resulted from the influx to the Industry, under the compulsion of war conditions, of a considerable number of engineers and engineering draughtsmen possessing experience of structural design in other branches of engineering.

An Unaltered Structure.

But in spite of these improvements—refinements is possibly a more correct term—the aeroplane structure of to-day is the aeroplane structure of 1913-14 in all essentials, and there is nothing to show that, given the same plant and materials as are now available, the best designers of 1914 would have fallen appreciably behind the present-day standard of structural design.

There remains only to consider the aerodynamic features of the aeroplane of to-day. Have they improved appreciably?

The most cursory examination of the aircraft at the beginning and the end of the war will suffice to show that no startling innovation in regard to the general disposition of surfaces has occurred.

Probably the most noticeable change in this respect is the nearly universal use now of a fixed vertical fin in front of the rudder, a feature frequently absent in pre-war machines.

It requires a very minute search to discover grounds for supposing that any machine in general use to-day has been more completely faired in its lines with a view to the avoidance of unnecessary air resistance than, say, the two-seater Avro of 1914 or the Sopwith "Tabloid."

There has been a levelling-up of the average machine to something considerably nearer the best in this respect, but fairly general use of "streamline" wires on high-speed machines is the nearest approach to a revolutionary change.

Aerofoil Design.

Has there, then, been any very great improvement in the form and efficiency of the supporting surfaces employed on the modern machine?

There have been made a vast number of tests upon aerofoils of all varieties of section, of the effects of using these aerofoils in various differing combinations and relations the one to the other, and there is in existence an immense bulk of documents relating to such tests.

These documents are not yet available for publication, but when, and if, they are published it will become pos-

sible to point out from amongst them some results which should lead to very important developments in aerodynamic design, more particularly amongst the tests of certain aerofoil sections which have very different characteristics from those now in general use.

But if one examines the machines which are at present in regular use by the Royal Air Force, it will be found that the great majority employ an aerofoil section that had been actually tested and flown with success before August, 1914—or a very close imitation thereof.

Considering all these facts, one is forced to conclude that, great as aeroplane achievement has been during the last four years, the art of aeroplane design has undergone no startling change and is directly responsible for a relatively small proportion of the improved performances attained.

Some Further Considerations.

There remain, then, these points—(1) whether this lack of change is due to there being little room for further improvement in the aerodynamic features of the present aeroplane, or whether the period of relative stagnation has been due to the suppression or discouragement of experimental work in the realm of applied aerodynamics; and (2) if such a suppression has occurred, has it been due to unavoidable causes created by war conditions, or to a mistaken direction on the part of the controlling authorities?

To the present writer's mind neither of these points is debatable. Not only is it unthinkable, on general grounds alone, that the field of research offered by aerodynamics has been explored so thoroughly as to leave room for no hope of any great improvement in virtue of better aerodynamic design, but it can be shown on the basis of tests carried out by certain branches of the Services that there have been built and flown certain experimental machines with characteristics which very considerably extend the possibilities of aeroplane design in certain important directions, and that the work which was actually carried out in this field was stopped by the prejudices of those in control of the establishment which made the experiments, at just the period when it was possible to predict with certainty what could be achieved on those lines.

It is interesting to observe that the Civil Aerial Transport Committee has reported on the necessity, for commercial aviation, of exactly the characteristics which the experiments in question successfully achieved over two years ago, and that it is only within the last six months that the powers that be, on the urgent representations of one of the few aeroplane designers of imagination who are still permitted to design, have allowed an experimental machine embodying these characteristics to be put in hand.

Nor is this particular case unique. It is, on the contrary, more nearly the normal history of every effort at experimental work of a serious nature which has come within the reach of the authorities in control of aircraft design.

Delays in Experimenting.

Experimental work of a very important nature has been carried on to an eventually successful end under those authorities, admittedly, but generally not until long after the original proposal to undertake it had been turned down, and very rarely has the work been entrusted to the originator of the proposal, or the credit thereof been bestowed upon those who made its success possible.

If these things are so, and they are admitted, in the main, by the ablest of the individuals who make up the amorphous agglomerate which affects technical direction of the Air Force, it is a matter of some importance to attempt to discover why they are so.



IN A GERMAN AIRCRAFT FACTORY.—Preparing for Peace in time of War.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

A GERMAN REVIEW OF ALLIED BOMB-DROPPING APPARATUS.

BY ERIK HILDESHEIM (COPENHAGEN)

The well-known German optical works of C. P. Goerz, Ltd., in Berlin-Friedenau, has published a book by Doktor Oskar Proshnow, of which the aero paper, "Luftpost," extracts the following, reading with the introductory note to this effect:—

The aiming apparatus for bomb-dropping from aeroplanes is for ever a thing of the past, it is to be hoped. The reason why we comment to-day upon these instruments is our assumption that in its application to this most difficult part of aircraft equipment human industry has not worked in vain. Further, so little information has hitherto been available concerning these instruments that the appearance of the first publication on this matter (the book in question) is certain of arousing interest.

It reads as follows:—At the beginning of the war the pilots have undoubtedly been many, on either side, whose efforts strived at aiming their bombs as exactly as possible with the naked eye or with some auxiliary equipment in the hope of hitting the objective or coming as nearly as possible to it.

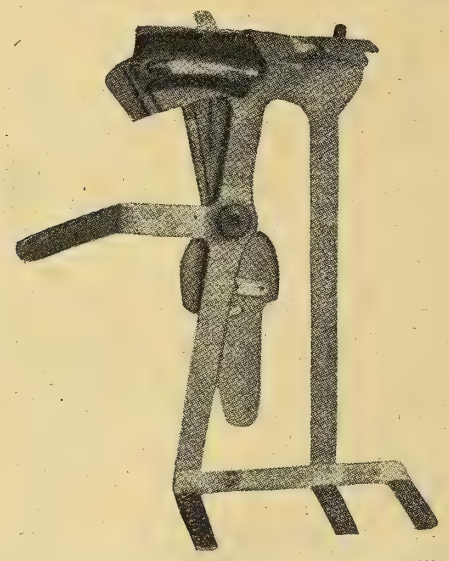
In the early part of 1915 the French, however, started the employment of aiming tools for bomb-dropping, and it was not long before quite a number of models were known. It is curious that these aiming arrangements show no regular line of development; on the contrary, very roughly made instruments are often found alongside more or less well-thought-out ones.

On the side of the opponents of Germany they have apparently soon arrived at the conclusion that generally the bombs do not at all drop vertically below the position of the aeroplane at the moment of releasing the bomb, but travel a considerable distance, possibly a half or one mile forwards in the flying direction corresponding with the speed of the aeroplane over the ground, the bombs possessing this speed at the moment of leaving the aircraft, and corresponding also with the necessary time for falling through the air.

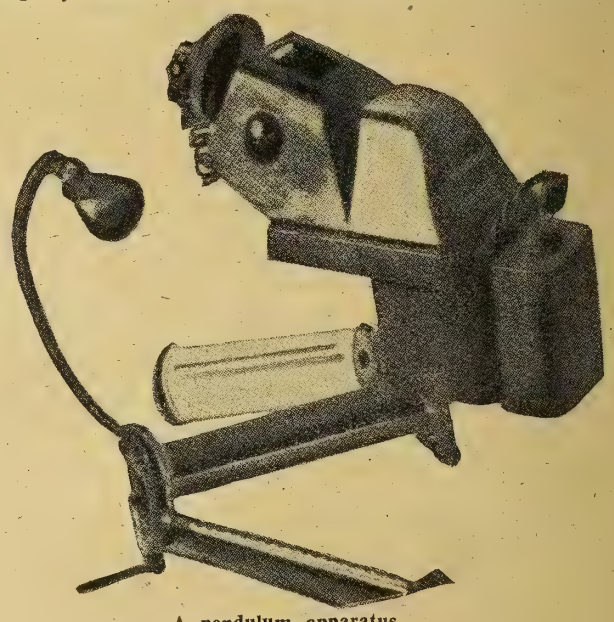
Four factors are to be considered in all aiming instruments for bomb-dropping, namely, the speeds of the aeroplane and the wind, air resistance to the horizontal travel of the bomb, and, finally, the altitude of dropping.

The flying speed depends upon the aeroplane's own speed and that of the wind, and the flying speed has an influence on the speed of the bomb at the moment of leaving the aircraft. The falling velocity increases with the altitude, and as at the same time the horizontal speed is reduced more and more by the air resistance, the track of the bomb grows, during the progress of the fall, towards the vertical till the bomb drifts with the wind. This takes place sooner in the case of light bombs of much head resistance than in the case of good ballistic bombs. One reckons then with the leeway of the bomb through the effect of wind. The check in forward motion is directly determined by the speed of the dropping bomb in relation to the air, being first equal to the aircraft's own speed, and then decreasing because of air resistance of a degree determined chiefly by the form and section of the bomb. Upon the latter two factors, air resistance and air friction, those powers overcoming these resistances are dependent.

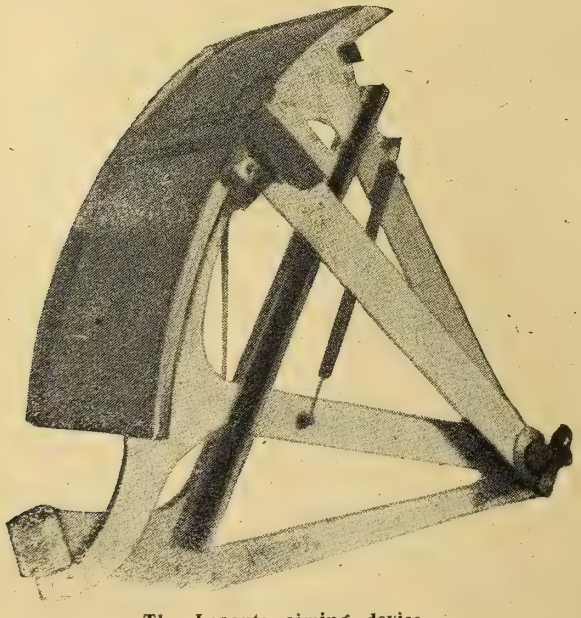
Many captured aeroplanes are equipped with no aiming instruments; the observer and pilot must then guess their aim when dropping bombs. An aiming apparatus on a primitive scale was found on a French single-seated aircraft captured in the autumn, 1915, near New-Breisach. The appliance is apparently but an emergency assistance for an aeroplane which is not a real bomb-



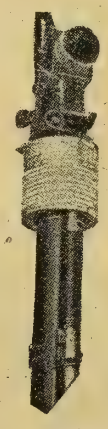
A French aiming device for use at a known altitude.



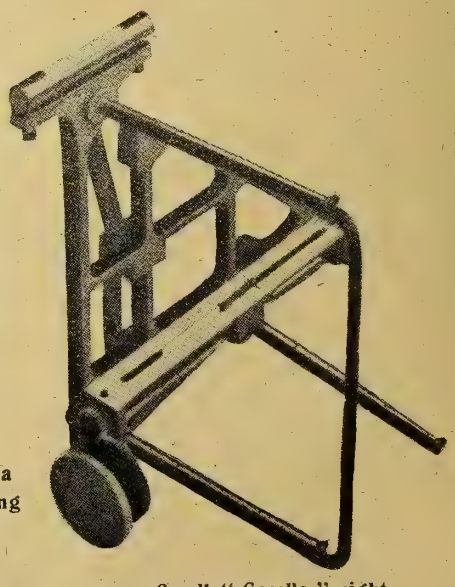
A pendulum apparatus.



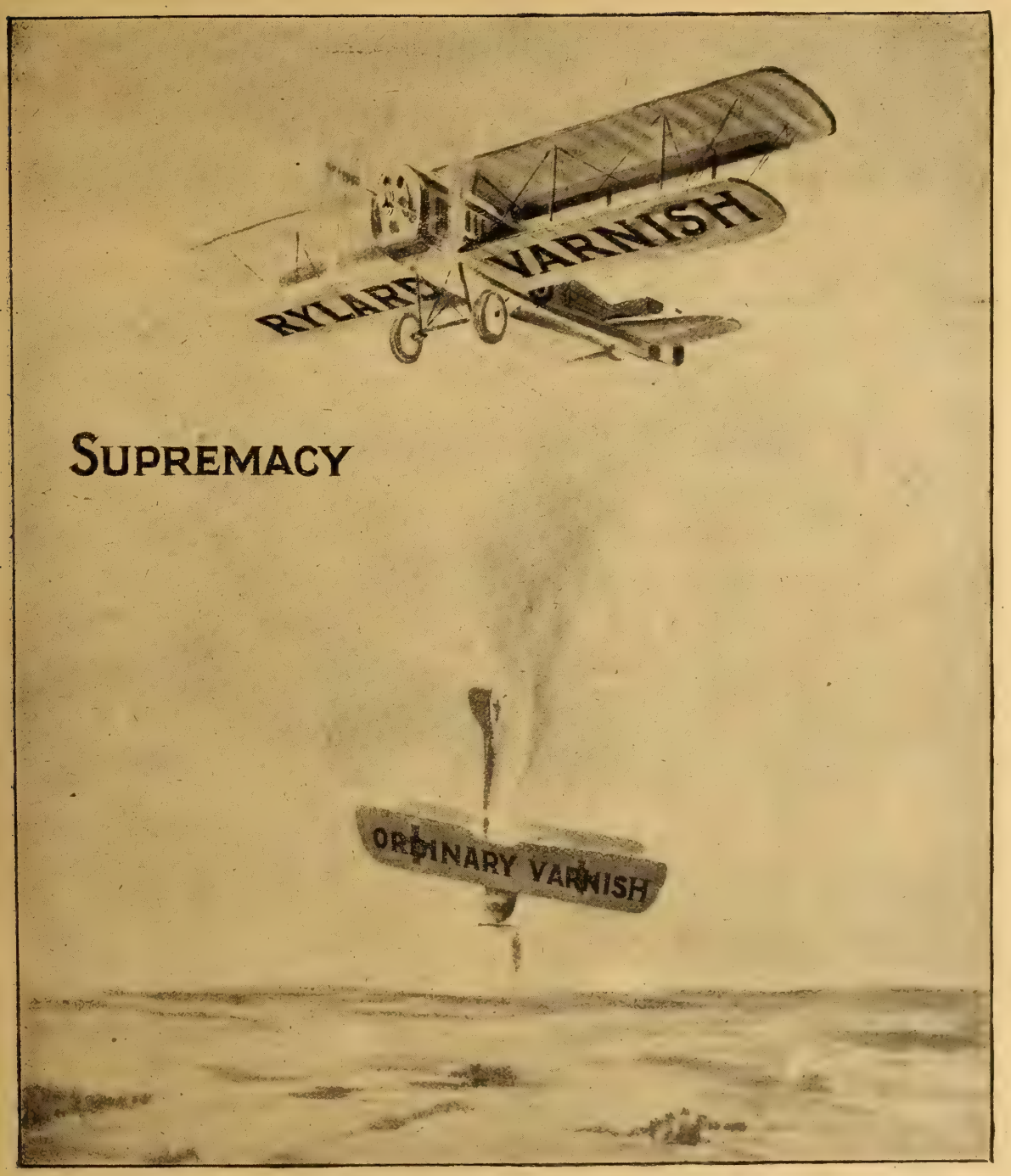
The Lepaute aiming device.



Eyepiece of a British sighting apparatus.



Small "Casella" sight.



"RYLARD" VARNISH

Now used on practically ALL British Aircraft, and has proved, like the R.A.F., its superiority to all others.

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TELEGRAMS: "TITANIC, BIRMINGHAM"

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

dropping aircraft, but which carries occasionally some bombs, for large objectives, and is chiefly used for scouting. Another nameless but repeatedly captured French aiming instrument can, owing to its manner of action, be characterised as "aiming apparatus for fixed altitudes." It is evident from the low altitudes in which it can only be employed, and from the whole construction of the apparatus, that it can only have been used in the early part of the war. It needs scarcely any mention that the result of the employment of such a simple aiming instrument must be specially bad on such days when the wind velocity differs much from the average speed. The first aiming instrument to have been captured on German side of the lines bears the name of Henry Lepaute, and is mainly made of aluminium.

A criticism of the Lepaute aiming instrument can only be given to this effect, that apparently the ballistic foundations of bomb-dropping have not been regarded rightly, so that though the instrument is well thought out in design, it will not give any exact aiming, the more as the problem of approaching the object in flight has not been considered at all by the manufacturer.

At the German aerial booty exhibition one pendulum aiming apparatus, stated to be captured, was to be seen, and had the name pressed in the pendulum ball.

Some time ago an arrangement, known as the "Scott" aiming and release apparatus, was described in a British paper. So far as knowledge goes this aiming and bomb-dropping instrument has never been employed, perhaps even not been built. For it will easily be seen that the appliance can only operate roughly, and yet demands much of the observer. Experience tells it to be very difficult to keep the object, while approaching all the time, in the centre of the sight field, and it is as difficult to arrange to have the release arrangement so exactly adjusted as to be exact within ¼ deg.

In the summer of 1916 an English aiming instrument was captured, first at long intervals and then more frequently, till it appears finally to have been universally employed at the Western front, being an aiming sight without tables made by C. F. Casella & Co., in London. The various constructions of the instrument known of vary only in unessential exterior points, while the main thing, the arrangement of the scales and the handling resulting thereof, remains the same in all models.

In the summer of 1916 a stop-watch was found in a British bomb-dropping aircraft, the hand of which started running by the first pressure on the release button, but did not stop again by the second pressure, but reversed its direction of movement, and by third pressure jumped back to the zero position. Further, the dial wore an adjustable altitude mark. For service there were some aiming marks.

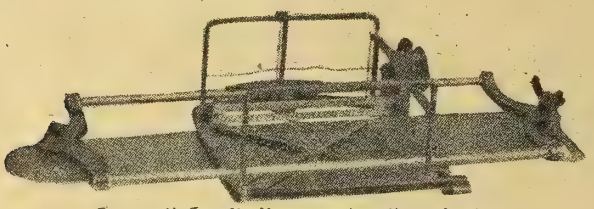


Another pendulum bomb sight.

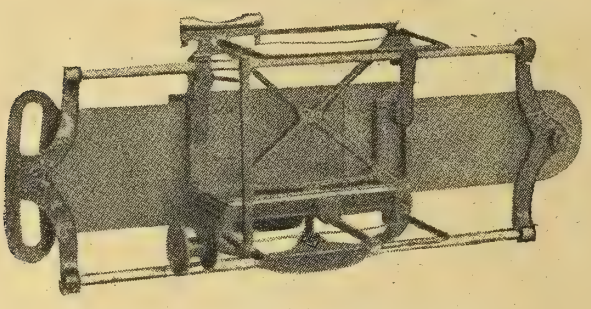
According to the information of the Englishman who was captured with the apparatus on board, the instrument was still in the experimental stage; yet the adjustable altitude mark bears evidence that the question is here not of an aiming apparatus for a certain altitude, but of an arrangement for general service.

The advantage of employing the object itself for calculating the speed is opposed by the drawback of the long straight flight of approaching, offering during that time a good object for the enemy anti-aircraft fire. Also, the measuring gets less exact thereby that one has to start the sighting at a comparatively sharp angle. Considered altogether, the aiming procedure by means of the reversing stop-watch is fairly easy, it must be confessed, though not very exact, and little adaptable for practical conditions.

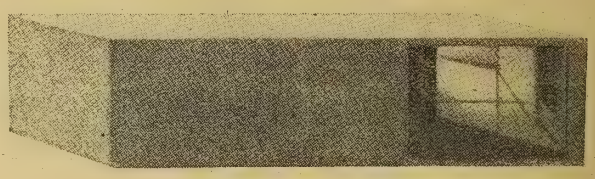
Based upon the bomb sight of Casella, London, the aiming telescope of Troughton & Simms for bomb-dropping resembles somewhat that of the German Goerz model.



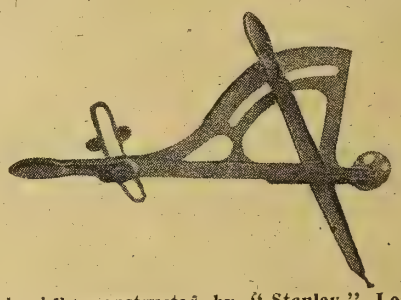
Large "Casella" apparatus (top view).



Large "Casella" apparatus (side view).



A simple French apparatus.



A bomb sight constructed by "Stanley," London.

THE SOPWITH PROCESSION.

Although Lady Haig expressed the wish that there should not be any official welcome to her husband on Thursday night, Dec. 19th, the employees of the Sopwith Aviation Works at Kingston decided to give some form of greeting to the Field-Marshal.

A torchlight procession was therefore arranged, and about nine o'clock the procession, which had been joined by thousands, marched up Kingston Hill carrying banners inscribed "Welcome to our Hero." Patriotic airs were played, and terrific cheers were raised for Sir Douglas Haig.

There were loud calls for the Commander-in-Chief, and the enthusiasm of the crowd was unbounded when he, accompanied by Lady Haig, came out and met the procession in the road. When the cheering had subsided, Sir Douglas Haig, who was in mufti, said:

"I want to thank you for the welcome you have given me, and it is very good of you to turn out to-night. In honouring me you honour our brave fellows who have been fighting. (Cheers.) I have not been talking during the last four and a half years—(laughter)—and I am sure you will not expect a speech from me to-night. I want to thank you who have been working to give us aeroplanes. We know the long hours you have toiled. You have done your bit, and more than your bit, to win the war.

"You will not expect me to talk to-night. I have been welcomed all day. I started from Dover, and I never knew there were so many people in Dover. At every cross-road on the journey up there were women and children to cheer me, and the reception I got in London made my heart full, and now I have this here to-night. I can only say that I wish you all a very merry Christmas."

Until Sir Douglas and Lady Haig returned to the house the cheering was continued.

TRIPLEX SAFETY GLASS.

Insurance companies are alive to the value of "Triplex" unsplinterable safety glass. The Dreadnought motor policies at Lloyd's have decided to allow a rebate on all public vehicles including taxicabs fitted with "Triplex." This should be a great inducement to motor manufacturers and users to have all their vehicles fitted with "Triplex" safety glass.

The New

OLEO PLUGS

for High Efficiency Engines are ready.

Weighs only 1¾oz.

Perfectly Tight and Insulated.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

CO-OPERATION.

BY "MEDWAY."

II.—STANDARDISED AND CO-OPERATIVE MANUFACTURE AND SELLING.

Some very young industries can embrace the principles of co-operation very heartily from the first, and can carry them out up to the point of a very general scheme of standardisation of parts, limitation of models, and so on. Others would be extremely unwise to attempt to go so far.

A good example of an industry which comes into the first category is the very young British Magneto Industry which was forced into existence by the war and by the prior establishment of the Stuttgart magneto monopoly.

For the first few months the British industry was a mere scramble. The only possible thing to do under the circumstances was to get hold of a good foreign machine and make the freest possible use of every good point in it. The British machines were mainly evolved by manufacturing exact copies of a variety of foreign parts, and testing singly each part so manufactured by incorporating it into a machine otherwise wholly foreign, and seeing if its presence affected the results obtained.

The British machines had to be pressed into service at the earliest possible instant, and their use could not for a time be preceded by any considerable amount of original investigation or a comprehensive testing of new theories. These could and did come later, but the fact remains that the Industry really started to manufacture a product already standardised, and very reliable if properly constructed.

The Danger of Originality.

The danger was that, directly they had time, the various firms in the new Industry would branch off into individualistic ideas, making a point of differing from their competitors in every possible way. Presently, we should have a few thousand standards for every little part and fitting, where one or two standards would really suffice.

However, the Industry very sensibly got together on a co-operative basis, agreed to limit the production of types of each manufacture, and standardised parts wherever standardisation did not mean the suppression of progress. There was no need to form a trust or syndicate, but only to establish a sound working agreement among all concerned. This sufficed to make a high degree of co-operation quite conceivable.



IN A GERMAN FACTORY: The Dope-Room.

A Stitch in Time.

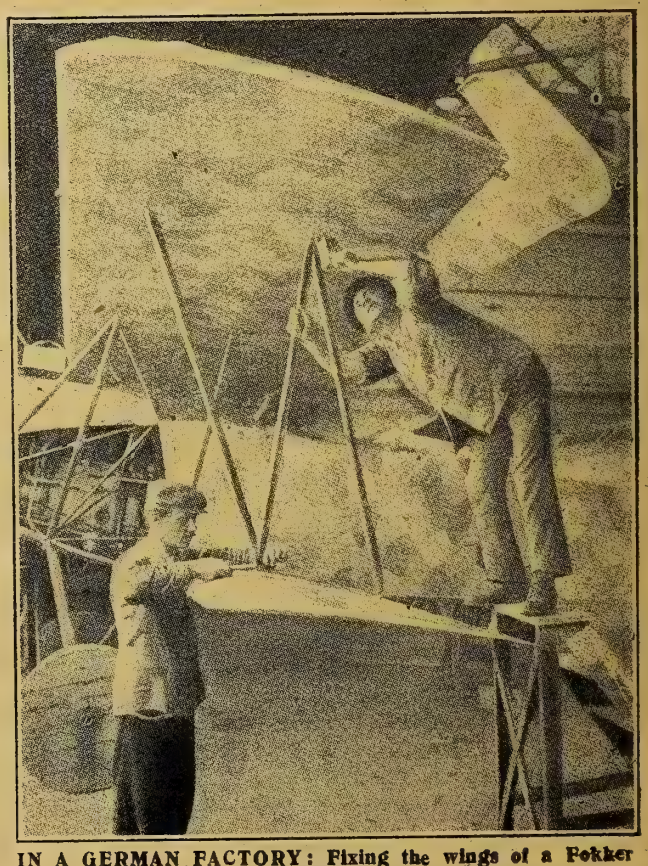
Here the circumstances were practically ideal for co-operation, and the moral is that, if it can be managed, co-operative principles should be introduced before the various firms in an industry have gone so far that they possess valuable goodwills based upon very specialised products, and also have evolved a somewhat complicated financial structure, and come to employ considerable numbers of responsible officials who will naturally wish to watch their own interests when any schemes for amalgamation or co-operation are subsequently proposed.

It is one thing for a firm to decide and agree not to begin to manufacture some particular article; it is quite another thing for it to agree to abandon the manufacture of an article to which goodwill attaches. Consequently, the further the industry has grown the more difficult does co-operation become:—I am referring to co-operation in the manufacture and the sale of the product.

Given an established industry, co-operation in sales is practically impossible to organise for a group of firms in one industry, intending to remain independent of one another and merely to aim at starting a common sales organisation in all or some of their markets. The trouble is that some of the products of some of these firms are certain to be directly competitive, and the sales organisation will concentrate on disposing of those which are most readily sold and show the best profits. Even if the men in charge of the sales organisation are scrupulously unbiased, it would be impossible to convince the less fortunate manufacturers concerned that this was the case.

An Example of the Impossible.

Suppose, for instance, that half-a-dozen firms tried to establish a common selling organisation for the purpose of marketing aeroplanes for sporting purposes or for individual rapid transport in, let us say, Australia. The Australians would almost certainly prefer one of the makes represented to the others. The result would be that the selling organisation would do a lot of good to one manufacturer and little or no good to the remainder, who would all attribute this to the prejudices of the selling officials or to something in the nature of bribery and corruption. It is clear, then, that co-operative selling would have to be preceded by the elimination of direct competition.



IN A GERMAN FACTORY: Fixing the wings of a Fokker biplane.



UP in the night sky, with the pencils of light around him, searching the darkness, the airman looks keenly ahead through the clear glass of his goggles.
Before him, his wind-shield takes the sharp edge from the cutting, cold air. His alertness and confidence depend much on the little things—his confidence in his goggles and wind-shield are unshakable because—well, just because they are **Triplex Safety Glass**—absolutely unsplinterable and giving 100 per cent. clear visibility.

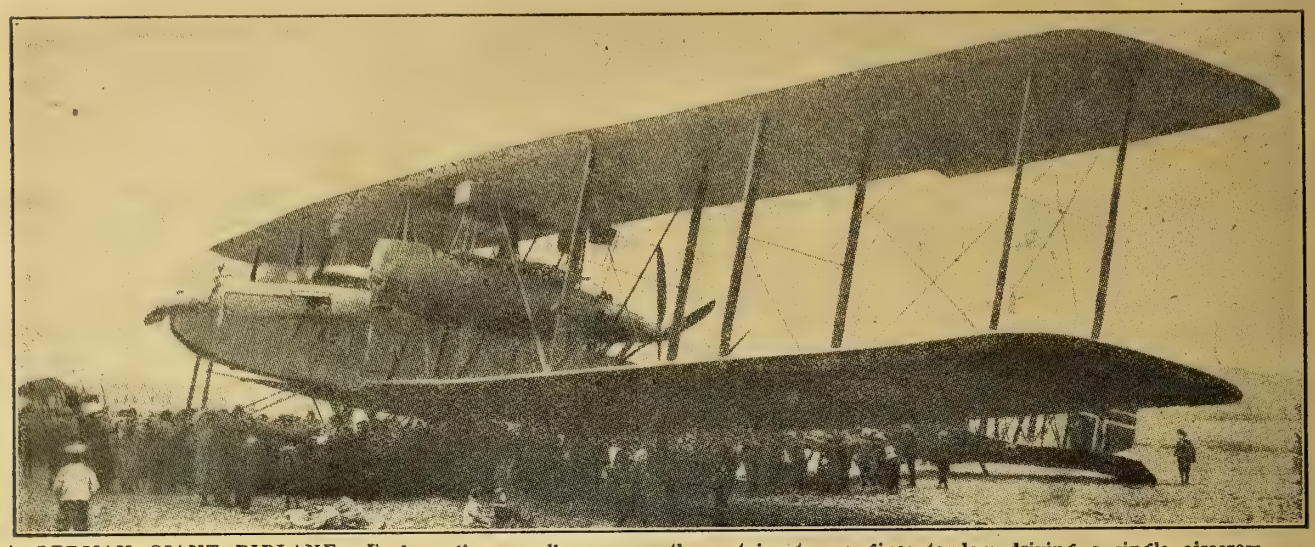
'TRIPLEX'

UNSPLINTERABLE SAFETY GLASS.

THE TRIPLEX SAFETY GLASS CO., Ltd.,
Reginald Delpech, Managing Director,
1, Albemarle Street, London, W.1.

Telephone—
Regent 1340.

Telegrams—
Shatterlys, Piccy, London.



A GERMAN GIANT BIPLANE.—Each engine nacelle appare ntly contains two engines tandem driving a single airscrew.

Suppose that there were half-a-dozen firms involved and half-a-dozen more or less distinct types of aeroplane for which a demand might be secured, each firm would have to specialise in one type to the exclusion of the others. In a very short time it would be found that there were much better markets for one or two types than for the remainder. These one or two would not be turned out with sufficient rapidity to fill the markets; the other types would be over-produced.

It would then be necessary for the manufacturers who were doing extremely well to recoup those who, by undertaking not to compete, were contributing to the success of their rivals. It would be also necessary to switch over certain works from one type to another, either temporarily or permanently.

Co-operation or Trust.

In practice, no satisfactory working arrangement could be reached unless by the firms concerned becoming in effect one firm by syndication or amalgamation. In other words, the Industry would presently come under the influence of a trust, and it is questionable whether we should like this to occur.

Moreover, the formation of such a trust from firms already established would be extremely difficult. The amalgamated concern would not want half-a-dozen managing directors and as many general managers, together with a board of 30 or 40 directors and a considerable party of chairmen. In fact most of the officials already employed in responsible and lucrative positions would no longer be wanted, except perhaps as sub-ordinates.

These are the very men who would have to be responsible for recommending the amalgamation to their shareholders, and it seems clear that any such recommendation would require a degree of altruism which very few people possess.

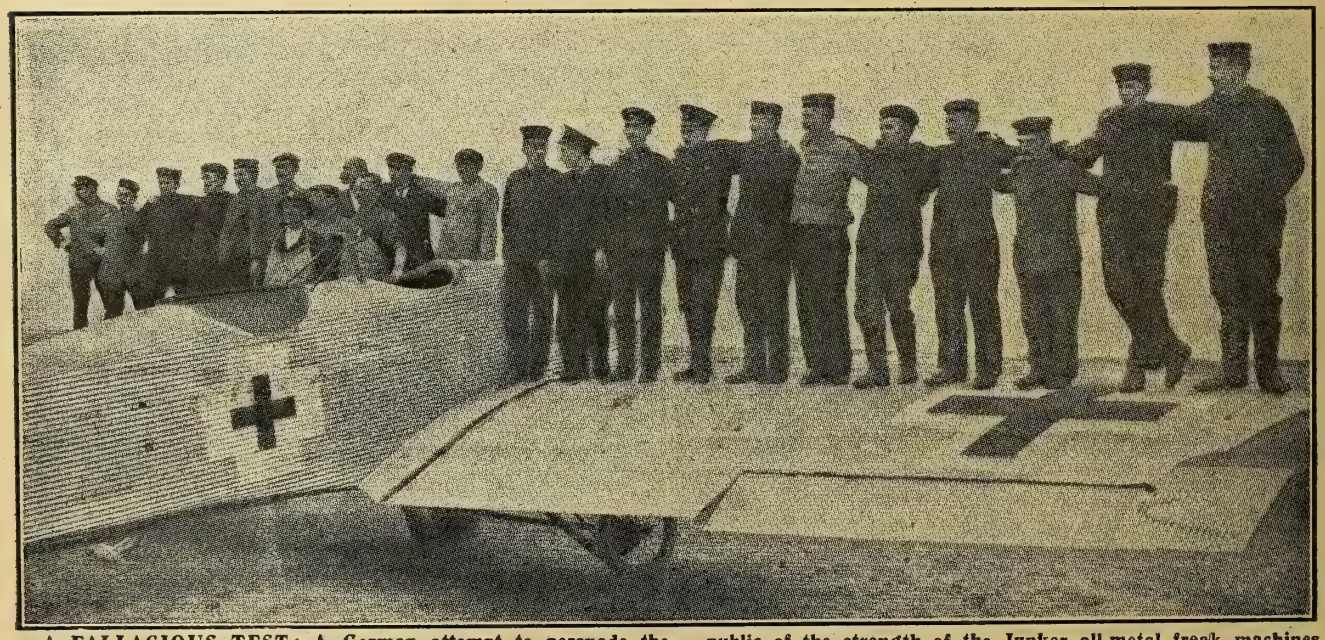
A Clog on Progress.

Yet another point is that the elimination of free competition, if achieved, would probably have a very detrimental effect upon progress in design, with the consequence that we should be likely to fall behind other nations, which would be most unsatisfactory, and, in the end, would ruin us.

Altogether, then, it seems to the writer to be quite clear that the Aircraft Industry is one in which co-operation in respect of manufacture and sales cannot be achieved, and ought not to be attempted, at any rate, until we have got so far that the aeroplane is at least as readily capable of standardisation as the railway locomotive appears to be to-day. This can only happen when we do not expect any very revolutionary changes in design, and when we have reached the point at which improvement is slow, and is a matter of details. It is probable that this point will not be reached in our day.

If these conclusions are more or less right, we appear to have come to the decision that co-operation in its most talked-of form is not for us. In the writer's opinion, however, this is where we shall be jumping to wrong conclusions. For one thing, we have not, up to the present, given any consideration to the question of co-operation in the purchase or production of the raw materials of the industry or of certain parts which could be standardised at an early date without detriment to progress.

(To be continued.)



A FALLACIOUS TEST: A German attempt to persuade the public of the strength of the Junker all-metal freak machines.

"Its up to you to have the best!"

The man who buys an inferior article is the loser in the long run.

It's the long run that counts!

One may have the best and most expensive machinery in the world, but unless it is driven by an efficient belt it cannot do its work.

For efficiency "There is nothing like Leather." It's an old saying but true nevertheless.

We manufacture our own Leather Driving Belting. Our Range of Leather is so great that we can make a Leather Belt to suit any drive.

The Ram's Head Trade Mark is known the whole world over as a guarantee of first-class excellence.

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Call or Write.



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ODORMERBEL, PARL,
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JOHN ORMEROD & SONS, LTD.,

Leather Belting Manufacturers,

38 and 39, PARLIAMENT STREET,
WESTMINSTER, S.W.1.,
LONDON.

A NOTABLE CROSS-COUNTRY FLIGHT.

On Nov. 30th last Mr. F. C. Kettering, vice-president of the Dayton-Wright Airplane Company, was taken by Mr. Howard M. Rinehart, chief pilot of the Company, from Dayton, Ohio, to New York, to keep an engagement for dinner and the theatre, arranged at 10 o'clock that morning.

The journey was made in a De Havilland 4 biplane, fitted with a 400 h.p. Liberty engine, and the trip of 550 miles was made in 4 hrs. and 10 mins., an average of slightly over 134 miles an hour.

It is interesting to note that when the machine alighted at Mineola Field sufficient fuel was left in the tanks to have carried it back to Dayton. This is certainly the longest high-speed journey ever made in the United States.

On the following afternoon the machine continued its flight to Washington, this trip being covered without incident, and the distance of 224 miles taking 2 hrs. and 5 mins.

THE CAUSE OF AN ACCIDENT.

With reference to a paragraph which recently appeared in THE AEROPLANE concerning the death of an American named Leon Molas, who lost his life while attempting a parachute jump, a letter has been received in this country from Frazar & Company, of New York, which satisfactorily clears up the mystery. The letter says :—

"Replying to your letter of November 25th, answer to which has been somewhat delayed owing to the necessity of investigating the incident referred to by you, we find that the accident in question was due to the failure of Mr. Molas to attach the parachute harness to himself before stepping out of the machine.

"Under these circumstances, of course, the accident had no relation to the efficiency of the parachute itself."

That an aviator in carrying out purely an experimental jump should be so absent-minded as to forget to attach the parachute harness to himself before jumping over the side is difficult to understand, but even more extraordinary accidents have resulted from absent-mindedness, as, for instance, when an officer who was giving instruction on the operation of a Stokes gun stood in front of the muzzle of the weapon, told his class how the weight of the charge pressing on the firing pin caused the gun to go off, and then pushed the charge into the gun to give a practical demonstration, and was consequently blown to pieces immediately afterwards.

During the strain of Active Service, balloon observers who have been sufficiently rash to remove their parachute harness have been known to jump over the side without reattaching it when surprised by enemy aircraft, but failure in that case is more understandable.

AN AMERICAN PARACHUTE DEMONSTRATION

On Nov. 22nd, in connection with what the Americans call a "charitable parade" in Washington, two members of the Balloon Detachment of the Marine Corps at Quantico, Va., gave a demonstration of jumping from an aeroplane by parachute. The machines used were Liberty-engined seaplanes of the H.F.2 type. The jumps were made from altitudes of between 2,000 and 3,000 ft., but both men missed the open ground on which they intended to alight, and one struck a wall in a street and is said to have broken two ribs and sustained other injuries. The other performer alighted safely on the roof of a police-station. The incident shows the foolishness of giving public parachute demonstrations from such an altitude that a correct calculation of the alighting point could not be made.

AIRCRAFT IN FINLAND.

In Helsingfors, the capital of the new Scandinavian country, a Finnish Air Traffic Co., Ltd., has been formed, which will in co-operation with the large and aircraft producing German firm, A. E. G., run daily passenger and mail services between Helsingfors and Riga, Helsingfors and Petrograd, and Helsingfors-Stockholm *via* Abo.

SCANDINAVIAN EXPORTS.

The Swedish Aircraft Works of Enoch Thulin has got export licence for three aero-engines to Japan. The army authorities have granted their sanction and recommendation. As two of the motors are described as useful for scouts, and the third in a school machine, they may be assumed to be two rotary 90 h.p. motors and a 160 h.p. water-cooled engine, of which type the Thulin works have turned out the first.

RULES OF THE ROAD.

On Sept. 28th the German Government Secretary of the Emperial Economy Office, sent the following communication to the "Association of German Skipper Clubs," accompanied by a letter, reading in extract :—"The new appearance of seaplanes on the water surface makes it necessary to fix rules for the passage between air and water craft. As rules for the air must be left till international discussions can later again be entered upon, the Government Secretary of the Emperial Admiralty suggests an early regulation, supplementing the Naval Court of Feb. 5th, 1906, since a similar order has already been issued for the field of the Emperial war harbour, Kiel. Thus your Association would oblige by giving the Bill an early discussion and by informing me on the comments."

The wording of the proposed Bill of mutual passing of ships and aircraft sounds :—"We, Wilhelm, etc., order, in the Realm's name, and with reference to section 145 of the Penal Code, as follows :—

PREFACE.

As long as aeroplanes, adapted for floating on the sea (seaplanes) rest on the surface, they are to be considered as watercraft.

PASSING.—Ships contrary to aircraft in the air.—Ships are not obliged to give way to aeroplanes in the air. Aircraft in flight must always give way to vessels on the sea and avoid dangerous positions.

Ships contrary to aircraft on the sea.—(a) Seaplanes with stopped engines are unable to manœuvre on the surface. All vessels have to give way to the seaplane, and, when possible, without danger, passing to windward.

(b) Seaplanes with running engines have a limited manœuvring capability on the surface. So far as possible they must avoid approaching other vessels.

(c) As soon as the courses of a seaplane and a ship cross each other so that there is danger of a collision should they stick to their course, the seaplane must turn into the wind and the ship give way to the seaplane.

This Bill is to be carried into effect in one month."

A SIGN OF THE TIMES.

It is interesting to note that the "Morning Post" has commenced the publication of a daily Isobaric Chart for the purpose of indicating the meteorological conditions and the prospects of the forthcoming weather. The intention of these charts is to create a popular interest in meteorological affairs, which, with the advent of Civil Aerial Transport, will begin to interest the general public, although never to the extent, one fears, which was experienced by some of us who, in the early days, used to sit for hours waiting until such time as cigarette smoke was pleased to mount vertically before anyone dared to consider the possibility of leaving the ground.

MR. GORDON ENGLAND'S MOVE.

The firm of Fredk. Sage & Co., Ltd., of Peterborough, having given up their aircraft work and returned to their normal occupation of making shop fittings, the agreement between the firm and Mr. E. C. Gordon England has terminated. Mr. England is at present engaged in developing certain very interesting inventions in connection with aircraft, and those who wish to communicate with him can do so at 85, Clarence Gate Gardens, Regent's Park, N.W.1.



Unlinking a German parachutist from his parachute.

"BUYING SYSTEMATICALLY."

In those valiant, careless years between 18 and 25 I was in turn engineer in charge of cotton gins; postman; draughtsman in a patent office; painter (house variety, not chiaroscuro); a very diffident traveller in picture postcards; labourer on the Grand Trunk Railway; mechanic in a bicycle shop; night caretaker in a skyscraper (the day-man was a Swede, very gifted on the accordeon); machinist with the International Harvester people; and rather sketchy *masseur* in a Turkish bath. To say nothing of art and dramatic critic; switch-board operator in a power-house (ringed about through the hours of darkness by moaning telegraph wires, odorous skunks, and illimitable blanched vistas of snow), and newspaper reporter (speciality: "Human interest").

When funds had got down to a rather low ebb once (six dollars, I think it was), I planned to destroy the population of Rochester, N.Y., in one of Ar. Zimbrich's taxi-juggernauts Having driven a 40 h.p. Panhard in a rather hectic manner through Deptford a few times. I esteemed myself qualified, and tackled a taxi-driver who seemed unoccupied. (I had previously armed myself with a fat ten-cent cigar.) The worthy man bit the end off the cigar and lit it, but before he had time to explain the controls, his fare came out, and he drove off, leaving me baulked of a career.

I can see myself now, drifting through those hard years, utterly untrained in any one thing that men would pay money for, poor, and terribly alone, with nothing but a dimly remembered public-school tradition to keep my chin above the water, and through it, proud as Lucifer, that I owed no man a penny. Strolling round with a feather-duster and a green baize apron, singing about "The worldly hope men set their hearts upon" (Liza Lehmann's setting), to keep my courage up, to the bemazement of my coevals. A secretaryship to a peer of the realm, who paid me a carter's wage, petty clerking—and the girding insolence of half-educated employers. . . .

Then I began to write.

And perhaps the weirdest incarnation, considering my known inability to add two and two correctly, was the bank clerking. I thought of Lamb, and persevered, with my tongue in my cheek.

But Mr. G. H. Mansfield, who has written a book on "Buying Systematically" (Aircraft Supplies Company, Ltd., 2s. 6d. net), was manifestly weaned on system. He has produced a handbook for the benefit of the Aircraft Industry, which, while it will not of itself act as a charm to straighten out kinks in a purchasing department, will certainly be found a useful finger-post to orderly and remunerative methods.

He is strong on keeping delivery dates (would there were more like him!) and says roundly that too many firms "bank on their customers getting into a hole, and then being very pleased with small deliveries, after which the customer becomes almost glad to pay quickly, in the hope of getting larger deliveries."

Manifestly, this is a man from whom nothing is hid!

A little sermon on the ethics of buying is followed by constructive suggestions, accompanied by explanatory schedules that should smooth the rocky road over which the buyer has to hobble.

"A few extra pounds spent" (in systematising the work, *bien entendu*) "and a prompt delivery, will save hundreds of pounds in the shops and production department, while the saving of a few pounds in a doubtful delivery may mean hundreds of pounds wasted time in the shops, and an inflated price for the goods to be obtained at the eleventh hour, in addition to special expenses in probably sending representatives out to locate such supplies or collect them."

Indications are given as to how to keep an index of suppliers so that the name required can be readily found; the work of the outside representative, indices of cost prices, the order office, progress office, catalogues, delivery cards, arrears reports, urging records, and similar cognate matters are dealt with in the light of experience.

To my mind the most valuable feature of the book is the reproduction of forms which Mr. Mansfield's experience has suggested as being most suited to the needs of the industry. The manager who procures this moderately priced compendium, and can put the fear of God into his clerks to such good effect that they use it in the way intended by the orderly brain that evolved it, will, I think, secure a return on his investment that will make War Loan look pale and uninteresting in comparison.—R. H. B.

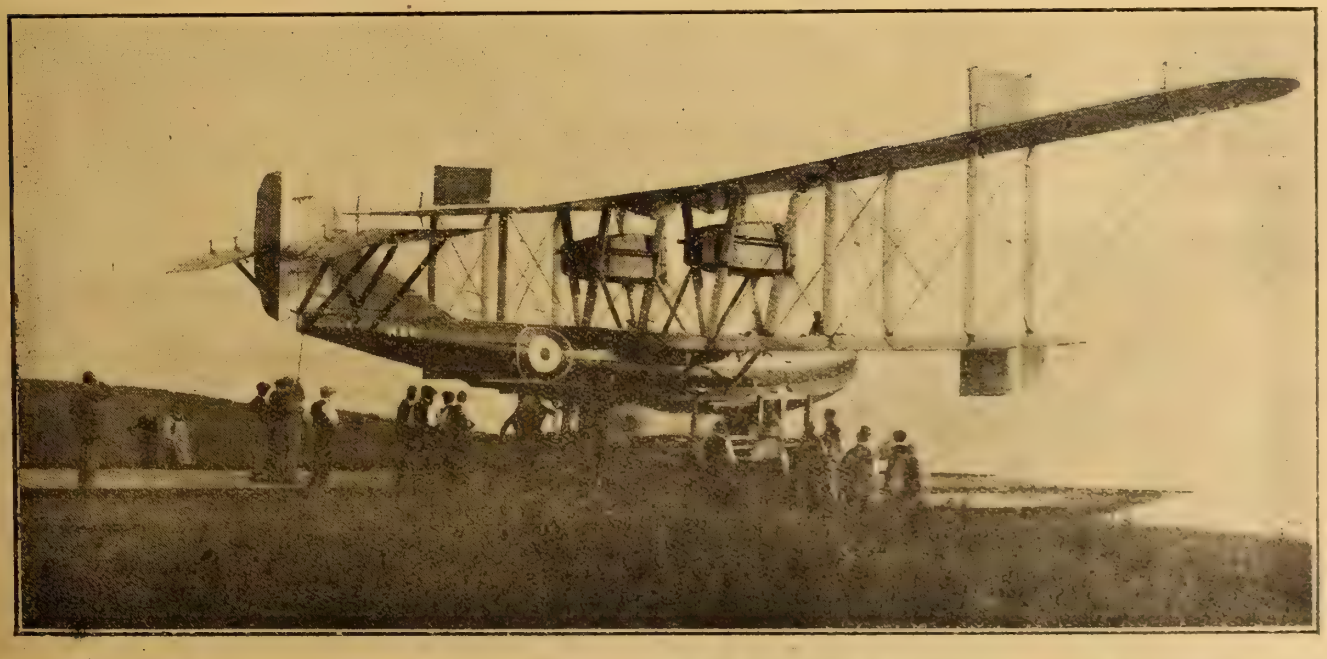
DISSATISFACTION AT AINTREE.

The following statement, dated January 1st, 1919, and signed by "R. Darbyshire, Secretary, Shop Stewards," has been circulated on behalf of the workers at the National Aeroplane Factory at Aintree, Liverpool. It is perhaps not improper to suggest that these workers are primarily anxious to maintain their present high rate of wages and are not sincere in their talk of national benefits to be gained from the continuance of the factory as a manufactory of aeroplanes.

"The workers at the National Aeroplane Factory at Aintree are of opinion that it is a public scandal that this two million factory should be practically scrapped at the whim of a Government official. A deputation from this factory waited on the Ministry on December 9th and 10th, protesting against the wholesale discharge of labour. The deputation were informed that the factory was about to be used as a salvage depôt and stores; also that practically all the work could be done by female labour, and that their advice to the skilled workers was to find work elsewhere.

"This factory was built and equipped on the most up-to-date principle, and is installed with the latest types of machinery. It is in a unique position as regards transport facilities. The Air Commission, which has issued its report recently, predicts a great future for the aeroplane for postal and commercial work, and yet we are told by responsible members of the Government that this lavishly equipped works is to be made practically a scrap heap, as far as productive work is concerned, and a stores for obsolete machines of war.

"Having brought into existence this national factory, we claim its continuance as such, seeing that the present Government have adopted the policy of transport nationalisation, and as they are to take over the railways. The much reiterated pledge given by the Government to the effect that all dilution would cease when skilled labour was available is being ignored completely, as dismantling of aeroplanes, which is skilled work, is going to be done by unskilled women, whilst men are thrown out of employment. In view of the foregoing, we demand (a) that the factories should be retained for national mechanical purposes; (b) that in any case (and this we insist upon) all dilutions must be removed before any skilled man is given his discharge."



A Phœnix-Cork twin-engined flying boat, built by the Phœnix Dynamo Co., of Bradford.

PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the current Official Patents Records :—

Patents Applications.

Austin, G. B. H. Aeroplanes. No. 21124. Dec. 18th.
Boulton & Paul. Construction of spars for aircraft. No. 21141. Dec. 18th.
Brewster, T. F. Electrical-controlling apparatus for aircraft. No. 20921. Dec. 16th.
Bruce, R. A. Aircraft. No. 21287. Dec. 19th.
Holt, J. Screw propellers. No. 21112. Dec. 18th.
Mooney, D. J. Fittings for aeronautical machines. No. 21260. Dec. 19th.
Nevell, W. H. Combined cushions and life-belts for aircraft, etc. No. 21183. Dec. 18th.
Rapp, J. W. Aeroplane rib construction. No. 21291. Dec. 19th.
Roe, A. V. Aircraft. No. 21263. Dec. 19th.
Spauls, J. Propellers for aeronautical and marine purposes, etc. No. 21270. Dec. 19th.
Swan, P. Aircraft controls. No. 21462. Dec. 21st.
Westergaard, H. Propellers. No. 20979. Dec. 16th.

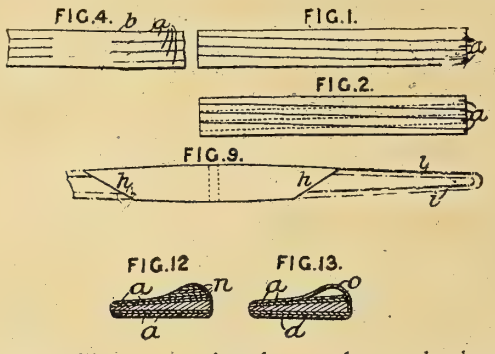
Complete Specifications Accepted, prints of which can be obtained on and after Jan. 9th, 1919.

15014/15. Oct. 23rd, 1915. Sage & Co., and England. Aeroplanes.
121,300. July 5th, 1917. Sage & Co., F., and England, E. C. G. Means for supplying fuel, water, or oil in connection with the engines of aircraft, motor-cars, motor-boats, and the like.
121,323. Dec. 7th, 1917. Driver, F. P. Petrol tanks for aircraft.
121,378. Jan. 2nd, 1918. Chamier, F. W., and Howard, W. F. Construction of aerial machines.
121,398. Jan. 31st, 1918. Dickson, H. C. Improvements in or relating to tubes, stays, struts, and like elements, said improvements being also applicable to the wings or planes, tail, body, and other parts of aerial craft.
121,393. Feb. 6th, 1918. St. Louis, G. C., and Pearson, C. Heavier-than-air flying-machines.

Abridgments of recently published Specifications.

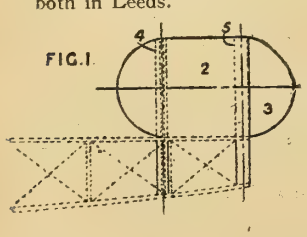
119,944. Screw-propellers. Crowther, D. S., Hay Green, Kingston Hill, Surrey, and Routledge, W., 4, Laurel Bank, Hoop Lane, Golder's Green, London.

Each blade is built of a series of layers of wood, vulcanised fibre, papier-mâché, or the like substantially parallel to its helical surface. The strips *a* of wood, etc., are made preferably with the



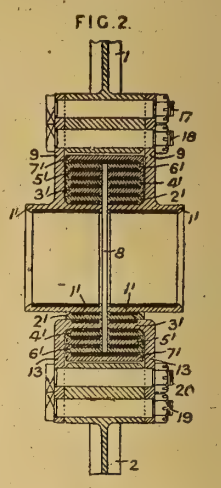
outside strips, Fig. 1, tapering from end to end whereby the joints between the strips run diagonally across the propeller, and in practice the layers or strips are arranged as shown in Fig. 2 or the layers cross at right-angles. The strips or layers are placed in a former and cemented together to form a laminated propeller. Fig. 4 shows a layer *b* made of a single piece of wood slit longitudinally to form a series of adjacent strips *a*. A series of these layers are moulded on a former and secured to a wood boss having a central metal bush. The boss may be of aluminium and fitted with wings *h*, Fig. 9, which may in some instances take the form of frames *i* extending entirely around the edges of the blades. The blades are clamped, riveted, or screwed to the boss. The rear face of the blade is thickened by wood, etc., layers *n*, Fig. 12, or by a shaped metal plate *o*, Fig. 13.

119,974. Aeronautics. Blackburn Aeroplane & Motor Co., Olympia, and Booth, H., 5, Oakwood Avenue, Roundhay, both in Leeds.



Planes, Arrangement and Construction of.—Tail fins for aeroplanes and other aircraft are constructed with two vertical spars entering into the fuselage, either the front or rear spar being laterally flexible and the other spar rigid so that the effectiveness of the fin shall be respectively increased or diminished with increase of speed. Fig. 1 shows a fin 2 having a flexible rear spar 5 and rigid front spar 4 extending into the fuselage. A rudder 3 is pivoted to the rear edge of the fin.

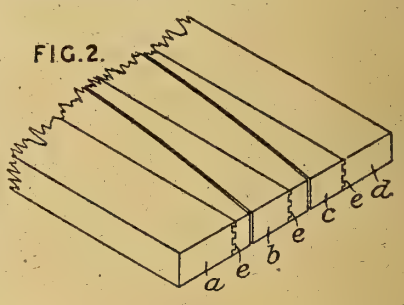
120,057. Connecting-rods. Thomas, G. H., 47, Victoria Street, Westminster; Havilland, G. de, Woodcote, Edgware, Middlesex; and Wilde, A. H., 101, Melrose Avenue, Cricklewood, London.



In a radial-cylinder aeroplane or other engine or pump, the connecting-rods are attached to lugs on concentric rings surrounding the crank-pin. The figure shows seven concentric rings 1^1—7^1. The innermost ring 1^1 is longer than the others, and the outermost ring 7^1 is in one piece, while the other rings are in halves, the space 8 between the halves serving for the passage of lubricant, which is supplied through a passage in the crank-pin. A connecting-rod 1 is secured by bolts 17, 18 to lugs 9 on the ring 1^1, the other connecting-rods 2 being secured by bolts 19, 20, to lugs 13 on the other rings. The inner surfaces of the rings are lined with antifriction metal.

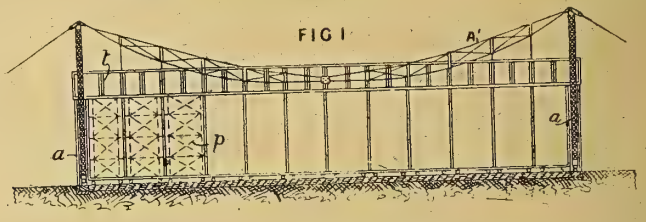
119,967. Screw-propellers. Lang Propeller, Ltd., Weybridge, and Laing, C. A., New Malden, both in Surrey.

Each lamina of an aeroplane propeller consists of strips *a*, *b*, *c*, *d* of wood formed from waste cuttings having tongue and grooved or like joints *e* fixed by glue or other adhesive. A number of rough laminæ are glued or otherwise united to form the block from which the propeller is shaped.



120,192. Shelters for aircraft. Leinekugel le Cocq, G. A. A., Chateauneuf S/Loire, Leiret, France, March 12th, 1918, No. 4332. Convention date, Oct. 23rd, 1917. Not yet accepted. Abridged as open to inspection under Sect. 91 of the Act. [Classes 20 (i) and 20 (iv).]

A hangar for dirigibles comprises two main suspension girders A^1 formed of cables or chain bars carried at their ends by four



braced uprights *a*, and supporting transverse roof trusses *t*, the roof thus being independent of the walls. The longer sides of the hangar are closed by movable partitions or doors *p* which travel on rails and can be placed adjacent to the ends to form a windscreen on either side for the entrance and exit of the dirigible. The end walls may be closed by fixed or movable partitions.

BARIMAR REPAIRS.

With the abolition of the Priority regulations of the Ministry of Munitions relative to the repair of motor parts comes a notification from Barimar, Ltd., scientific welding engineers, of 10, Poland Street, London, W.1., indicating that this company are now able to undertake all classes of welding work and radiator and lamp repairs without Priority certificates for readers of The Aeroplane. The cessation of hostilities on the battle fronts has had the effect of releasing for commercial and private purposes expert labour and plant hitherto solely employed on work of national importance, and Barimar, Ltd., are now able to undertake speedy, economical repairs in all those classes of work for which the company has justly become world-famous. It may be of interest to note that Barimar, Ltd., has been asked to establish branches of their business in France, Italy, Belgium, Spain, the Netherlands, Greece, Egypt, South Africa, China, India and Australia, and negotiations are now in progress.



SPEED WITH SAFETY.

Grahame-White Aircraft

THE Grahame-White Company, who built their first successful aircraft in 1910, and have been engaged continuously on such construction ever since, are now in a position to accept orders for large multi-engined machines, carrying 24 passengers or several tons of goods; also special high-speed craft for the transport of express air-mails, in addition to touring and pleasure-type machines for the use of the private purchaser.

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Telegrams: "Volplane, Hyde, London."
Telephone: Kingsbury 120 (7 lines).

London Office: 12, Regent Street, Pall Mall, S.W.1.

Telephone: Regent 2084.

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COMMERCIAL AERONAUTICS

RIVER FLYING:
A Vista of Inland Water Transport in the Future.

BY "CHEVRON OR."

It is probable that the earliest attempt at mechanical invention took place upon the waterways of the world when some savage of the Stone Age was possessed of the idea of propelling himself through the water, seated upon a log with the branch of a tree used as a paddle. The idea was not mechanical in the highest sense of the word, but still the principle of the lever, one of the best known mechanical appliances in the world of engineering to-day, was employed by this savage in his manipulation of this paddle.

River Transport, Past and Present.

From this simple beginning the invention was applied in more advanced forms, passing through many different stages in its progress—from the trunk of a tree the next step was to the dug-out canoe; from that to the bigger canoe made of planks sewn together with thongs of leather or plant fibres and propelled by more than one paddle. This was followed by larger craft, propelled by sails or oars as we find in the pictures of Roman and Phœnician galleys. These, again, were succeeded by the argosies and barques of the early Middle Ages.

Succeeding these we hear of the galleons and carapaces of Armada times, which vessels varied but little, except in size, until the time of Nelson and the introduction of steam early in the 19th century. From then onwards steam vessels began to assert their superiority until they have now reached the leviathan dimensions of the present day.

During the last few years, subsequent to the invention of the motor-car and the petrol engine, we have found a phenomenal advance in the design and construction of power-driven launches, the little brethren of the large steam craft. It is quite exceptional to find them driven by steam power nowadays, the marine petrol motor having ousted the marine steam-engine for these, the smaller fry of the ocean. In the development of marine motor racing between these little boats the hydroplane asserted itself a few years ago, and but shortly after such races had become popular we find the hydroplane beating all records for speed.

The hydroplane is merely a particular form of high-speed racing motor-boat, of which the hull is so designed that, upon attaining a certain speed it lifts itself partially out of the water and skims along the surface instead of ploughing its way through the water.

The Birth of the Hydro-Aeroplane

By now the flying machine was becoming a reality, and at about the same time an American, Mr. Glenn Curtiss, conceived the idea of making a hydroplane with wings so that it could fly. This was done, and after experiment and trial, much of which took place in the hard school of war, the flying boat has firmly established itself as a proved machine for flying over water, the ultimate developments to-day being chiefly due to Colonel J. C. Porte, C.M.G., R.A.F.

In years to come the flying boat may, and probably will, revolutionise sea travel, but while this is taking place—and it will not be just yet—the rivers of the world will be frequently and regularly flown by it.

For there is this difference between river flying and sea flying The sea is often rough and boisterous, and consequently there are times when the flying boat cannot descend upon it (if it should be so compelled by reason of engine failure or for other causes) without risk of damage or loss; but rivers, except where they emerge into the sea, are always comparatively calm and smooth of surface, offering to the flying boat a ready welcome at any place and at any time.

Thus it will be seen that a ready-made, safe and inexpensive track is to be had for the asking upon the great rivers of the world.

Trade and the Aeroplane.

That "Trade follows the Flag" is well known (though this statement is occasionally reversed by some people). Applying this motto to the flying machine, the writer would say equally that "The aeroplane will follow trade," though in certain cases it may be that "Trade will follow the aeroplane." The latter reversal of the motto will be true, it is thought, in those cases where the flying machine is used as the means of exploration of hitherto comparatively unknown countries. But, apart from exploration, there is the question of the value of the flying machine in assisting trade already established.

Now all great rivers run through great Continents, and most great Continents suffer from a lack of closely meshed communications; often enough they have but little communication beyond that afforded by their rivers.

It is here that the flying boat will be of use to humanity, as soon as humanity is ready to use it—that is to say, at any time after the cessation of hostilities.

Now, there are in all some thirty great rivers in the world, which, with their more important branches, must be nearly 100,000 miles long.

Thus we have, almost ready-made, a track nearly equal in length to four times the circumference of the globe.

The Preparation of River Routes.

As the flying boat requires the establishment of fuel and repair depôts every few hundred miles, at a cost of a few hundred pounds per station, it must be understood that these river tracks will cost something to make ready for mechanical flight, though they offer themselves at a vastly less cost than those which are now being discussed in the Press and elsewhere for trans-Continental services between such places as London, Paris, Rome, Baghdad and Bombay.

In addition to this, all existing river transport is relatively very slow, and therefore, in point of speed, is hopelessly outclassed by the flying boat, which flies at about a hundred miles an hour as opposed to the ten miles an hour of the river steamer.

But this is not the end of the comparison. While the river steamer slowly wends its weary way round tortuous bends and reaches in the river's course, its rival in the air will cut off corners and make a comparatively straight journey, thus saving a considerable percentage of the river's length.

It is not proposed to dwell at length upon all the great rivers of the world; only a few will be mentioned, such as the Nile, the Niger, the Congo, the Amazon, the St. Lawrence and the Irrawaddy.

The River Nile as an Aerial Route.

To apply these arguments, first of all, to the River Nile. Though in itself it is not a very great trading river as compared with some of the others, the fact should not be overlooked that it will be the main road to Africa. For, with some comparatively short gaps, which will be covered by land machine, there is a water track from the Mediterranean Sea to the southern end of Lake Tanganyika—a distance of approximately 3,000 miles.

There is no established or through communication quoted in the Travel Guides from the Mediterranean to Central Africa, but if one allowed, say, two months as the average duration of the journey, it would be a very optimistic estimate.

Against this let us compare the duration of the journey by air—3,000 miles at a speed of about 100 miles an hour gives us 30 hours, or travelling by day only and sleeping on terra firma by night, the journey would occupy about 2½ days.

The Niger and the Congo.

The Niger is another river similar in many ways to the Nile, but different in this way—i.e., in that it traverses a more commercial territory. There is an enormous amount of trade between the coast and the interior, and though the flying boat cannot carry heavy or bulky cargoes it will shorten enormously the present tedious journey between the coast and the confines of the Sahara. It will offer to Government officials and to the representatives of West African trading houses a means of saving time and therefore money that has hitherto been hardly even dreamt of.

The Congo, the next river to consider, also offers a fertile ground for exploitation by the flying boat. Twenty hours should suffice for its traverse from coast to source.

How many days does such a journey now take? How much simplified would be the business of those firms who have their headquarters at one end of the river and their trade stations all up and down its length? *En passant*, it should be pointed out that it is not by any means improbable that connection between Europe and Uganda would eventually pass *via* the Congo and the Nile.

The Amazon.

Upon turning to the map of S. America and tracing the line of the Amazon from side to side, one will see that, with the aid of its tributories it almost reaches the Pacific Coast, which is but

some 200-300 miles away at the nearest point. Here, then, with the aid of a short gap to be covered by land machine, is an express route to the Pacific.

Not only has the flying boat the advantage of speed upon these tropical routes; it has also the advantage of cool, clean, fresh air; the sweltering, steamy atmosphere of the river level does not touch it, the mosquitos are defeated by it. It has flown something near a hundred miles of the river length before its competitor—the steamboat—has finished raising steam to working pressure in her boilers.

The traders and business men on the Amazon will have no less reason to bless the flying boat than will those upon other tropical rivers.

The St. Lawrence and the Great Lakes.

The St. Lawrence and the Great Lakes at its head offer a rather different proposition. This river is not quite so easy to negotiate as the other rivers that have been mentioned for the reason that part of it is almost akin to the open sea, and therefore liable to be rough and stormy; moreover, in winter it is frequently fog-bound and blocked with ice. But, notwithstanding these drawbacks, as a flying route it will be of great commercial value, in summer if not in winter, for the American and Canadian mails (amounting to about 8,000 tons per annum outwards from Great Britain) could use it as a short cut and thus make a great saving of time, for the journey from St. John's to Port Arthur on Lake Superior would not occupy much more than 24 hours. This is significant not only from the mail point of view but also from the passenger aspect.

The Irrawaddy.

The Irrawaddy is another great artery of trade. One will be able to fly almost, if not quite, during the hours of day-light from Rangoon to Mandalay and back, some 1,000 miles. To have chota hazri at Rangoon, tiffin at Mandalay, and to do one's business and be back at Rangoon for dinner should contribute largely to the lightening of the white man's burden in the East.

The Advantages of Aerial Transport Over Rivers.

Now, over all the disadvantges of river communication the flying boat rises supreme, metaphorically and physically. Rapids do not count; swiftly flowing tides and currents it ignores; cataracts and shallows it looks down upon with contempt.

When afloat upon the water it draws from 8 ins. to 18 ins. Mists and miasmas, mosquitos and poochies it does not know. In short, it is the craft for safe and speedy mail and passenger transport in the future.

The Cost.

And now, perhaps, someone may inquire "What will it all cost?"—a question that has killed many a fairy scheme soon after birth.

The answer is that the cost depends upon a variety of local circumstances, among them the price of fuel and wages and the size of the boat, and also upon the total annual mileage.

A small boat to carry, say, half a ton or half a dozen passengers, should be run as a commercial proposition at from 1s. to 1s. 4d. a mile; a larger one carrying up to 2 tons or the equivalent in passengers from 1s. 6d. to 2s. 6d. a mile, including all charges.

And with regard to capital outlay the small boat should cost from £1,500 to £2,000, while the larger one should fall between the limits of £2,700 to £3,500.

The subject is new. The writer also ventures to think that it is interesting. Also, though it is in its absolute infancy, he has great faith in it. If those who from their local knowledge can make any pertinent criticisms (and there must be many) which will urge on the eventual supremacy of Great Britain as a flying nation, he will be glad to answer their inquiries.

CIVIL AERIAL TRANSPORT.

GENERAL.

It is understood that a conference will take place in Paris early in the year, of a number of Allied Powers, with a view to establishing some sort of basis for future aerial navigation.

Some of the principal questions to be discussed are the means to be taken to prevent aviators of various nationalities from avoiding the customs barriers, and also how to prevent German postal or commercial aeroplanes from being quickly converted into bombing machines.

The United States, Great Britain, France, Italy and Belgium will be represented at the conference, the decisions of which, after being duly drawn up, will have to be accepted as part of the peace treaty by Germany and her former Allies.

It is understood that negotiations are at present in progress with a view to establishing an aerial postal service between Paris, Brussels and London.

THE UNITED KINGDOM.

The Air Ministry has dispatched to Central Africa two parties of aviators with machines and equipment to prospect and survey an aerial route from Cairo to Cape Town.

A possible route from India to Australia, *via* Singapore, is being investigated.

It is understood that there is now a regular official air service between London and Paris for senior officials and dispatches.

There is a director of the special London-to-Paris air service at the War Office and another at the British Embassy in Paris.

Mr. Hirst—of the Blackburn Aeroplane and Motor Co., Ltd.—recently addressed the Leeds Chamber of Commerce on the coming International Air Service. He explained to the meeting the potentialities of Leeds as a centre of the new aerial transport, which is to facilitate inter-communication between English industrial centres and between this country and the Continent.

Mr. Hirst said: "The aeroplane is the annihilator of distance. By rail and steamer the journey from Leeds to Paris occupied 12 to 14 hours. The aeroplane reduces it to five hours, so that Leeds to Paris and back in a day on business is no idle dream. The journey from Leeds to Rome would be reduced from the present 40 hours to 14, and Leeds to London from five hours to two and a quarter."

After dilating on the possibilities of the aeroplane as a pleasure vehicle, Mr. Hirst continued: "The great utility of the new development in flying is, of course, in the carriage of passengers, mails and goods. You may journey from the heart of England to Denmark by aeroplane in perfect security in five or six hours, whereas the journey by boat and rail would involve nearly three days' travelling.

"While rigid airships may in the future carry the bulk of the merchandise, at a speed of from 60 to 80 miles an hour, there could be mail and passenger carrying aeroplanes to fly at from 100 to 130 miles per hour.

"A service of aeroplanes flying between this country and the Continent would make a reasonable profit with freight rates at very little more than those ruling with the General Post Office to-day."

FRANCE.

It is stated that the Farman Aviation Company intend shortly to begin an aerial passenger service between Paris and London. Three types of aeroplanes will be employed capable of carrying respectively two, six, and twenty passengers.

ITALY.

The resignation of the High Commissary after the most intense war-work recorded in this country is announced. What will become of the 31 training camps in the land is not yet certain. Meanwhile, his office has been taken up, or, perhaps, one ought to write, "absorbed," by the War Office.

A Committee composed of Ing. Caproni, Sig. Goria-Gatti, Ing. Macchi and others, on behalf of the Industrial Aerial Syndicate, is acting as look-out during the transition period with the hope of saving the trade from extinction.

I am sorry to hear that Macchi and many others have found it advisable to close down a large part of their works pro tem.

The C.A. factory has in immediate view two large weight-carriers. The one to transport 70 the other 100 passengers. Four motors are, I believe, to be fitted to the smaller aeroplane.

It is thought that the very rapid craft, formerly used for chaser and similar special work, may be useful to catch up ships a few days out and deliver the very late dispatches addressed to passengers thereon.

Italy having rather an abundance of such fast craft the matter is really rather an important one.—T. S. H.

CANADA.

The business men of Charlottetown, Prince Edward Island, have decided to form a company to organise and maintain an aerial mail service with the mainland. It is probable that two trips a day will be made, and the suggested route is to be Moncton, Summerside, Charlottetown, Georgetown, Picton, New Glasgow, and Halifax.

In order to urge its co-operation in the commercial development of aeroplanes, a deputation of the Canadian division of the Aerial League of the British Empire waited upon the Government on Dec. 9th, when members of the Cabinet expressed themselves as being heartily in sympathy with the objects of the League.

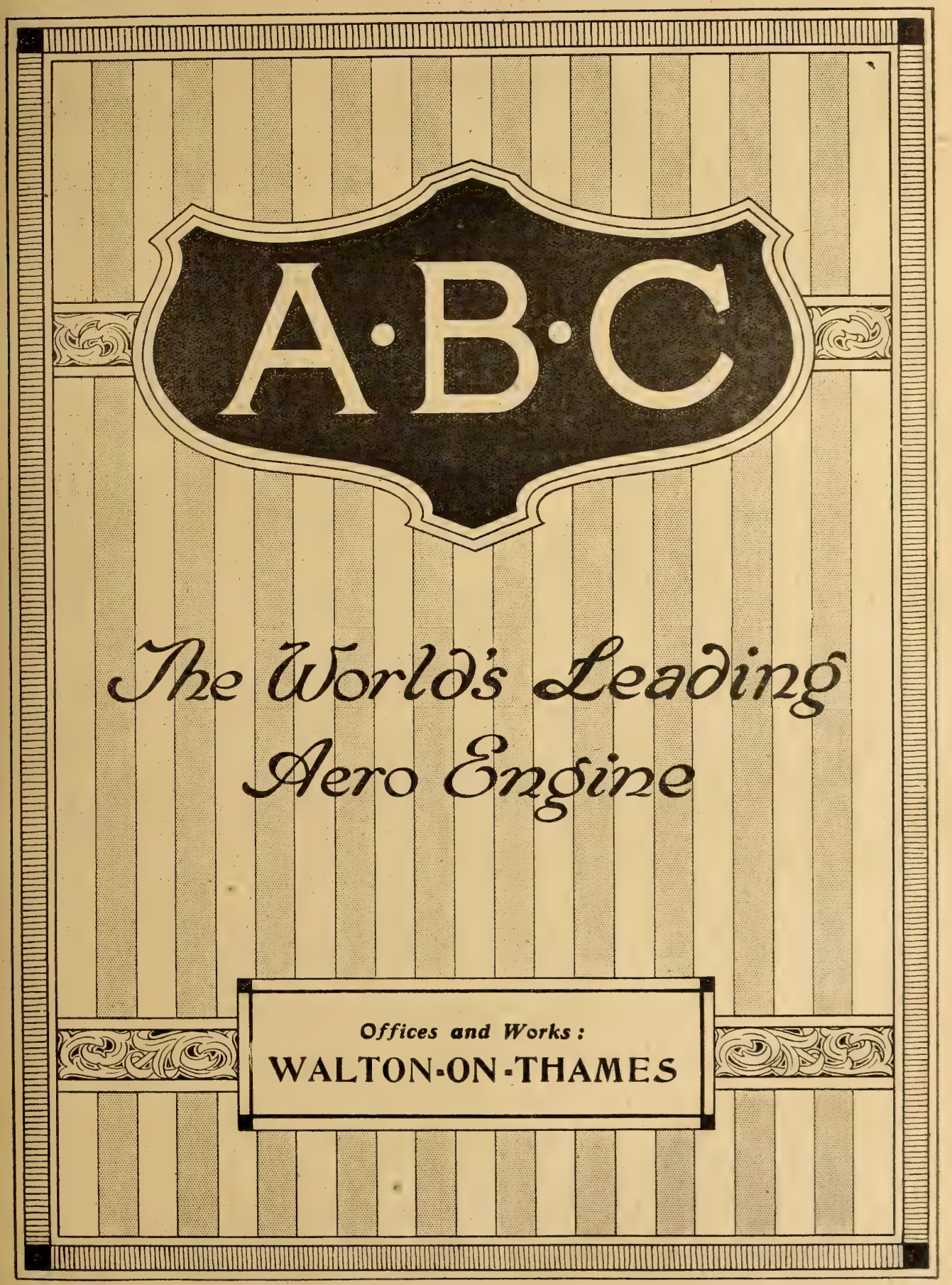
SOUTH AFRICA.

According to a photograph published recently in the "Daily Chronicle," an aerial post is being run in South Africa. A post card dispatched thereby has lately reached England.

AN AMUSING CHRISTMAS CARD.

An interesting Christmas card has been received from the Sopwith Aviation Co., Ltd. It is composed of six amusing illustrations which fold up between a cover—after the style of the pre-war seaside cards—on which are greetings befitting the season.

The drawings are by Mr. G. Harris, who did the amusing series of sketches illustrating "Cyril in the Aircraft Factory," which apparently are caricatures of various employees of the company.


A·B·C
The World's Leading
Aero Engine
Offices and Works:
WALTON-ON-THAMES

LIFE-SAVING IN THE AIR.

BY W. L. WADE.

A long and interesting letter has been received from Mr. E. R. Calthrop, the inventor of the "Guardian Angel" parachute, in which he raises some points concerning Commercial Aeronautics which must not be neglected. These points are embodied in the following article, together with some additional observations which may assist to throw light upon what is really a question of vital interest:—

Although those who look to Commercial Aeronautics for their livelihood are accustomed to speak with confidence of the safety of the aeroplane as a means of locomotion, one must not overlook the fact that the aeroplane, like every other form of mechanism, is subject to failure, usually at unexpected moments, and with more or less inconvenient results. Therefore, measures to secure the safety of passengers in such circumstances must be taken.

Life-saving Equipment in General.

The promoters of Civil Aerial Transport may be tempted to object to the provision of life-saving equipment on the ground that such provision would remind their patrons of potential dangers, and discourage them from making ascents. It should be remembered, however, that passengers on transatlantic liners are not discouraged from making voyages because during boat-drills they are obliged to wear life-belts and take up life-boat stations. Neither are railway travellers in any way concerned by the provision of appliances for putting the automatic brakes into operation, or at the sight of fire-extinguishers for use in case of emergency. On the other hand, they would probably decline to travel on ships or railways where life-saving appliances were conspicuous by their absence.

In the case of serious mishap to any locomotive vehicle the most necessary measure is to get away from the source of danger if no immediate remedy is available, and the possibility of "abandoning ship" will always have to be faced in the use of the aeroplane or the airship for commercial purposes, and the only possible way of getting out of an aeroplane when it is in the air is by one form or other of parachute. There is but little doubt that a line of aeroplanes properly equipped with parachutes for all the passengers would, other things being equal, receive greater patronage than a line of aeroplanes not so equipped, and people would speedily become as accustomed to donning parachute harness as they will be to putting on necessary warm flying garments.

The Terror of the Jump.

In this connection a small technical point arises. Parachuting is not half so terrible as some people imagine, but the action of jumping out of the machine is even more repulsive than jumping into a swimming-bath in mid-winter. It is the natural revulsion against committing any action which seems like potential suicide, just in the same way that the average person would flinch from putting his head under a steam-hammer, although he might be perfectly confident that the operator would check its fall before undue pressure was put upon his skull.

The Pilot as Life-saver.

For this reason it would probably be necessary for the parachutes of passengers to be so arranged that they would be put into operation by the pilot or other responsible member of the crew without any necessary action by the passengers, because it is quite conceivable that should a breakage or even a fire occur in mid-air, many passengers would fail to get together the necessary nerve to make the jump and they would find it less terrible to go down to their doom in an uncontrollable or possibly blazing aeroplane. On the other hand, an arrangement of this nature might be worth while to prevent the unnecessary use of parachutes by persons who became panic-stricken through the sudden stoppage of an engine or because of violent weather. This measure might also be necessary to prevent adventurous spirits jumping out of the machine at the end of a voyage as the most artistic and sensational method of alighting.

A Substitute for the Harness.

If, however, there is a widespread objection to the wearing of the ordinary parachute harness, the difficulty could be overcome by equipping each person with a bucket seat with a rail across the front, like that provided in an infant's chair, and this seat could form a point of attachment for the parachute sling, which could so to be arranged that both it and the parachute case were out of sight. Should it be necessary to use the parachute it would be the duty of the pilot to pull a special lever and the passengers fixed securely in their bucket-seats would fall or otherwise emerge from the aeroplane.

It is beyond dispute that it will be the duty of those who are set up to supervise the licensing and control of passenger-carrying aeroplanes to see that every precaution is taken to prevent accidents, and that provision is made for life-saving in case of unavoidable accidents. It is also the duty of the promoters of passenger-carrying enterprises to encourage and even insist upon the universal employment of every conceivable measure of safety, because an aerial catastrophe occurring in any one line of aeroplanes will have a result detrimental to the progress of commercial aeronautics.

The Civil Aerial Transport Committee and Safety Devices.

It is lamentable that the recently published Report of the Civil Aerial Transport Committee has dealt so inadequately with the question of the provision of life-saving equipment in aeroplanes. This would lead the man in the street to believe that the Committee was not fully persuaded of the necessity for this provision, or, alternatively, that the Committee was not fully informed as to the achievements of apparatus already devised for the purpose.

On the other hand, Lord Weir, Secretary of State for the Air, in his speech on Civil Aerial Transport, referred to the necessity for the inspection and certification of all private aircraft, and one sincerely trusts that as the Air Minister is so thoroughly aware of the necessity for care in the regulation of passenger aircraft, the question of safety appliances for use in case of accident has not been overlooked in the draft Bill for the regulation of private aviation, which one understands has been prepared.

Parliament and Necessary Legislation.

Parliament and the public have consistently demanded that all proper precautions should be taken and appliances provided on all categories of sea and land transport, and it should be the duty of the new Parliament, which will have to deal with the question of Civil Aerial Transport, to see that legislation shall be made to provide for life-saving in the Air, and that the equivalent of Board of Trade inquiries should be held in the case of every accident to ascertain the action of individuals and apparatus concerned.

The methods adopted to secure safety in the air will exercise much influence, not only with the general public, but also with Insurance companies who will be called upon to issue life and accident policies to aerial travellers, the terms of which will be determined by the nature of the risks which are likely to be run by the policy holders.

In connection with the advocacy of the equipment of aeroplanes with parachutes and other possible life-saving devices, one must not neglect the factor of risk in the failure of the life-saving apparatus itself, which must necessarily be subjected to the same rigorous inspection as the aeroplanes to which it is fitted. It would be poor consolation to the relatives of a person who was killed through failure of a parachute to know that, by good fortune, the blazing aeroplane from which he had jumped had ceased to burn immediately he had taken the leap, or that such of the crew as had elected to remain on board had escaped with a shaking.

A GOOD WORKS MAGAZINE.

The Christmas edition of the "B.P.," worke magazine of Boulton & Paul, Ltd., Norwich, contains the first part of an article by Mr. William H. ffiske—"Boulton & Paul, Ltd., and the Great War"—which will, in future, appear as a serial narrative. The happenings described in the article occurred during the period from August, 1914, to the cessation of hostilities, and were written almost in diary form at the time the events happened.

It is, however, intended that the matter shall be thoroughly revised later and published as a separate volume, fully illustrated. As a book it will constitute a valuable record of work completed, and should be greatly appreciated by the employees of Boulton & Paul, Ltd., as such.

Besides the article by Mr. ffiske, this magazine contains complete stories, competition pages, the usual silhouette, and numberless photographs, all of which stimulate interest in a very good number.

A SUITABLE TARGET.

It is announced that during one of the airship raids upon England, one of the airships penetrated as far as Derby, and dropped three bombs inside the Rolls-Royce aero-engine works, which, fortunately, exploded on vacant land. At this time the works were concentrating on the "Eagle" and "Falcon" engines, which have been such a success. The "Eagle" was originally designed to develop 200 h.p., but by various improvements, without adding to the weight or the size of the engine, the horse-power has been raised to 360.

Rolls-Royce, Ltd., are at the moment concentrating on a large 600 h.p. engine, to be known as the "Condor." It is claimed that this will be the most powerful engine in existence, and will do much to solve the problem of commercial aviation. It is expected that the engine will develop anything between 800 and 1,000 h.p.—R. M.

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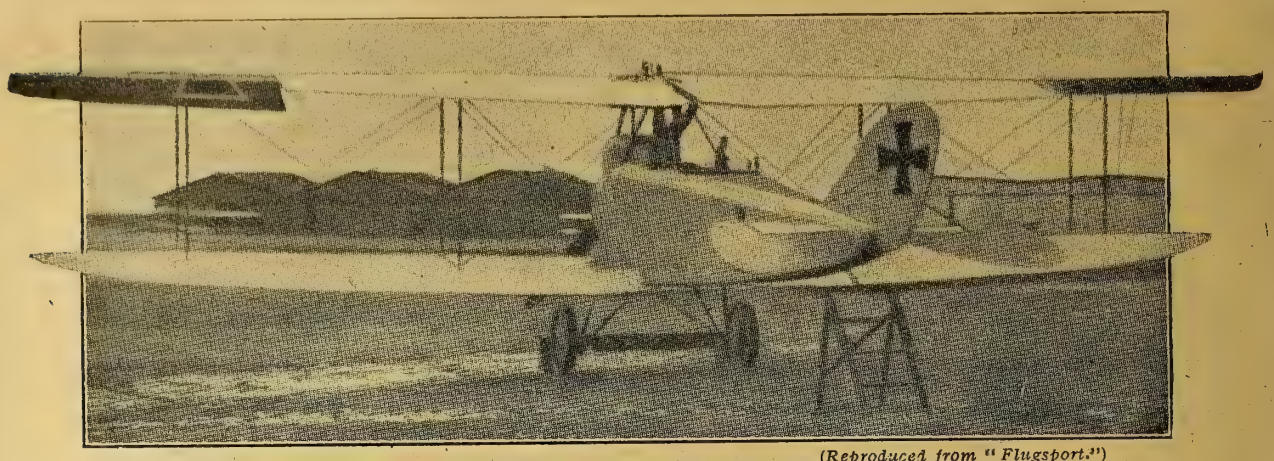
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A GERMAN PASSENGER MACHINE: A three-quarter rear view of the Rumpler C.V. biplane.

U.S. POSTAL PLANS.

It is announced that the new main trunk air lines in the United States will be directly under the supervision of the Post Office Department, and the machines will be flown by civilian aviators or released army pilots. Branch lines running in every direction from the main lines will be operated by the service.

At the present time there is no intention to establish a complete air line from New York to San Francisco. The mail will be taken by air to Denver and taken across the Rocky Mountains by train, where it will be picked up at some point yet to be selected and taken by air to the West Coast. With this arrangement aero mail leaving New York would catch at Denver the regular transcontinental mail which left New York 24 hours ahead of it.

Many machines are being turned over by the army authorities to the Post Office Department, including 100 De H.4 aeroplanes, 12 Liberty-engined Handley Pages, and 12 Glenn L. Martin twin Liberty-engined machines. These machines will be used for carrying exceptionally heavy loads. The Martin machine is credited with a speed of 115 miles an hour.

Some misgivings having been announced concerning the New York and Chicago aerial mail route because of the danger of flying over the mountainous region of Pennsylvania, which includes a stretch of rough and wooded mountains 60 miles in extent, a survey of the region has been undertaken by the Manufacturers' Aircraft Association with the intention of selecting six tracts of land suitable for landing stations which will provide emergency and alighting places every 10 miles.

An early extension of the service is to run from New England to the far South, and, in all, 50 aerial mail lines have been mapped out, and the employment of a thousand ex-military aviators is expected to be necessary within the course of a few weeks.

A daily aeroplane postal service was inaugurated between New York and Chicago on Dec. 15th, and, at the same time, the rate for letters sent by aeroplane was reduced to 6 cents for the first ounce, and 6 cents for each succeeding ounce. This applies also to sealed parcels, not exceeding 30 ins. in length and girth combined.

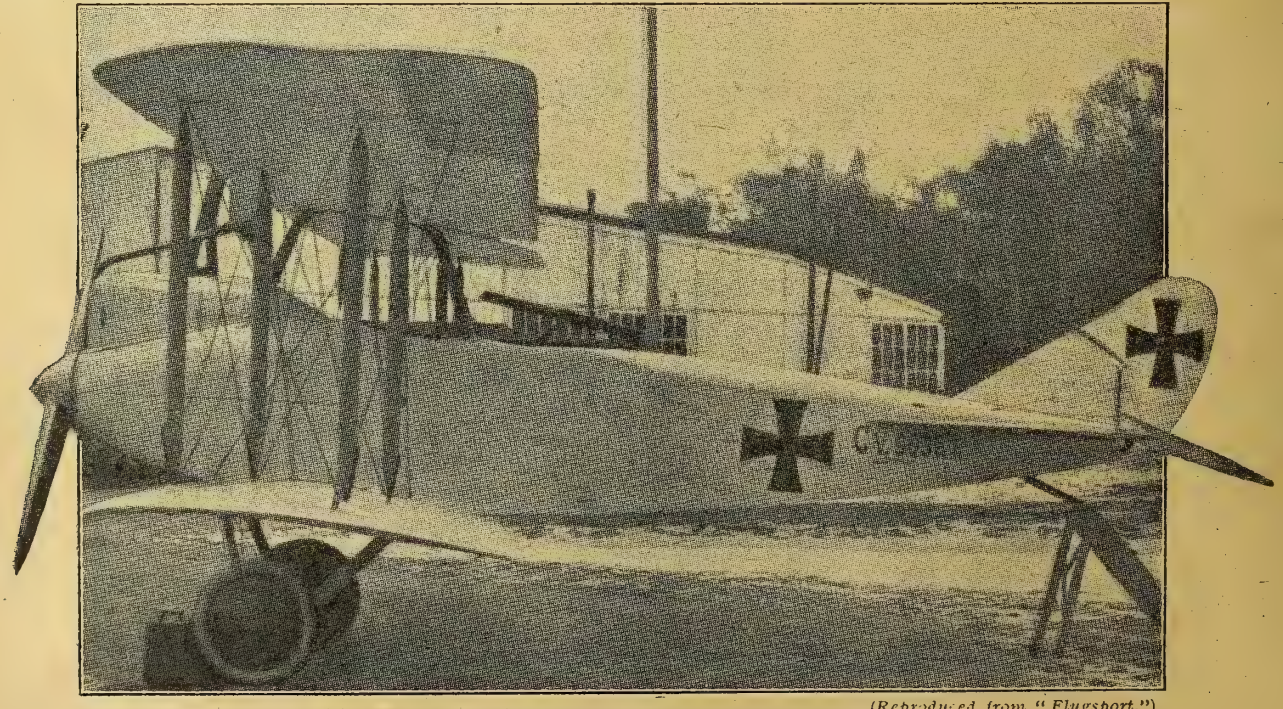
On the New York-Chicago route all mail stops are made in ample time to catch the regular carrier delivery, ensuring the delivery of the letter that day, and making it unnecessary to use special delivery unless the sender desires immediate expedition of the letter upon its arrival in the city of address.

A twin-engined American-built Handley Page is now being used for mail carrying on the New York-Chicago route. Faster machines will be placed on the New York-Washington route, ensuring arrival of the mail for the regular carrier delivery in Washington and New York on the day of arrival.

SCHUTTE-LANZ AEROPLANES.

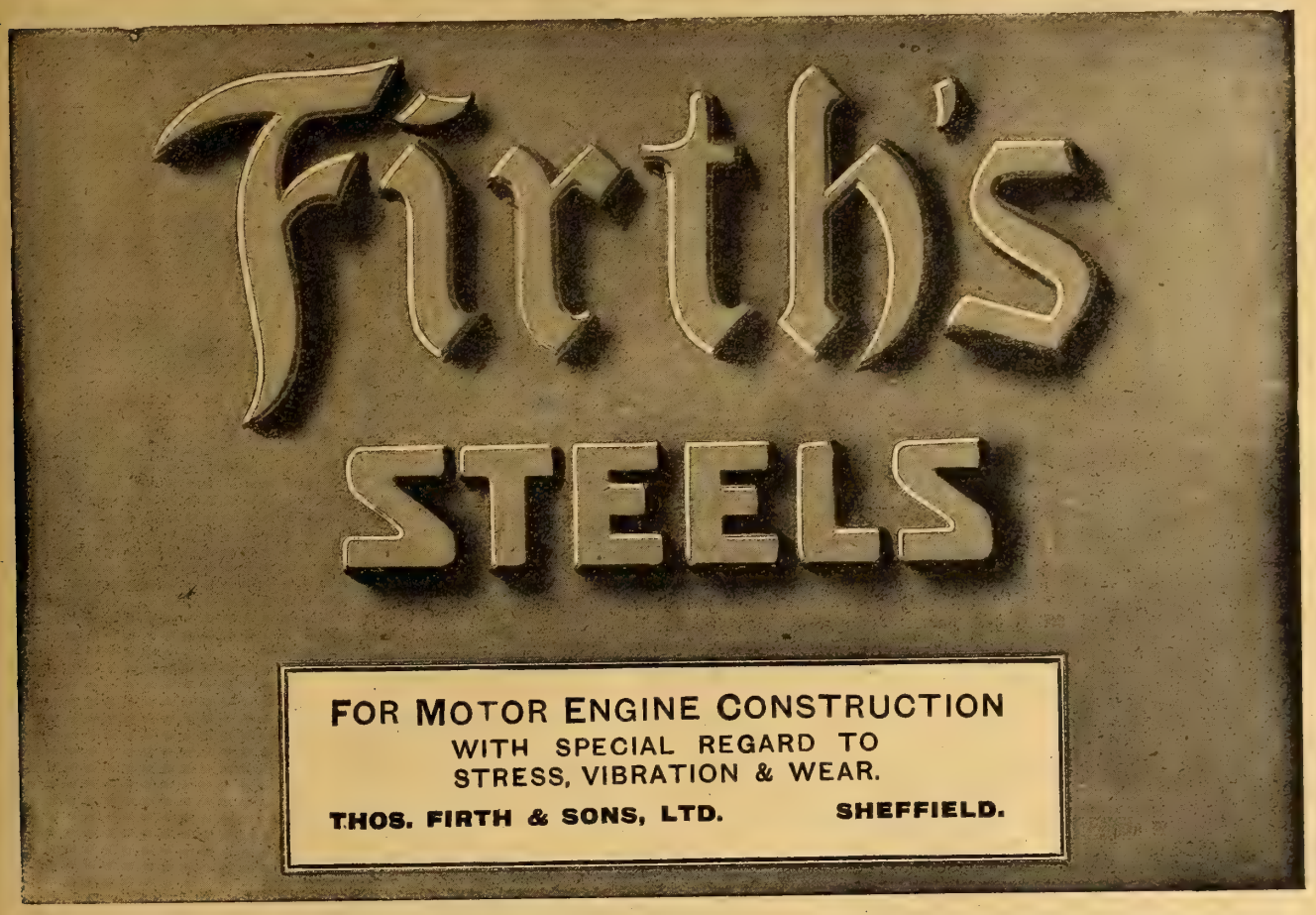
It has lately been mentioned that the Schütte-Lanz Company—the airship constructors of Mannheim—has been building aeroplanes. This has now been confirmed by a message from Copenhagen stating that a large Schütte-Lanz aeroplane, built for passenger traffic, flew from Berlin to Hamburg, a distance of 180 miles, in 3½ hours.

And again, in a recent edition of the "Motor"—a German technical journal the Schütte-Lanz Company were advertising both aeroplanes and airships. So evidently the company will continue to build airships.



(Reproduced from "Flugsport.")

The Rumpler C.V reconnaissance biplane.



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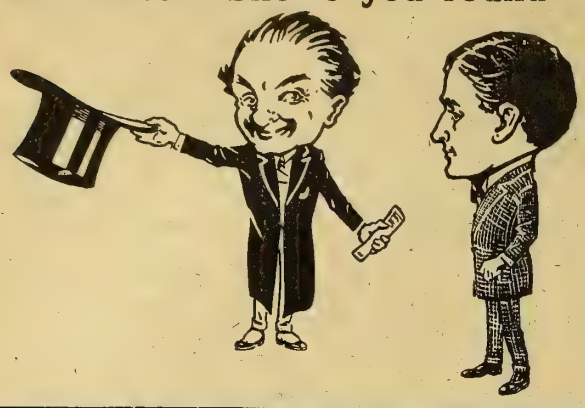
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C—CABLE	—	17
CANS (Dope)	—	23
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AIRCRAFT FINANCE

AERO FINANCE, 1918.

A YEAR OF PROSPERITY.

Although not without the average number of insignificant defects, one can conscientiously label 1918 as the *annus mirabilis* of the Aircraft Industry. Financially, the twelve months have been exceptionally successful. Of course, it could have scarcely been otherwise, bearing in mind that the Industry had no other alternative but to concentrate a constantly increasing pressure and activity on urgent national work at a reasonable scale of remuneration.

DISADVANTAGES SMALL.

Anyone who failed to attain success under such favourable circumstances would qualify better for a "Home of Rest" than a business career. This may seem a harsh statement: confessedly there are a thousand-and-one little details that enter into the successful accomplishment of a good bargain, but all the same it is indisputable that the aircraft venture which failed to garner a big and rich monetary reward during this wave of exceptional prosperity must seek the cause thereof in its own physical or mental deficiencies.

HYBRIDS REAPED THE BEST REWARD.

Possibly the hybrid undertakings—those which adapted themselves to the pressing needs of the moment—have fared better than the aircraft construction company proper. This is only natural, because the advantages were all with the former, including the existence of plant, which could be enlarged at a moderate cost, the staff, and the credit or financial facilities. True, the essentially aircraft companies derived some advantages from being "spoon-fed" by the Government, but these were not really equal to the former; and, on the other hand, they had to contend against the disability of youth. These disabilities are greater than most people admit, for a youthful venture exploiting new ideas cannot hope to inspire as much confidence with the general public as an established concern with a reputation to show.

UNREASONABLE SPECULATION.

However, all have prospered, and shareholders have participated in the prosperity. As is not unusual, the speculative element have been exceedingly optimistic, visualising a profit-earning capacity probably in excess of the level of logical reasoning. Hence the Stock Exchange has witnessed inordinate activity with shares, good, bad, and indifferent, commanding comparatively high prices. Merit does not always determine the market valuation of securities; indeed, intrinsic merit is sometimes a factor of minor consequence when sentiment, coupled with fancy and appetite, develop a gluttonous tendency.

A FAULT OF THE TIMES.

It would be too sweeping to thus categorise every aircraft share, but it unquestionably applies to some of them, and there are others which appear to be very fully valued at current prices. No doubt this is a fault of the times. One has only to glance cursorily at a general schedule of ordinary investments to discover plenty of similar anomalies. Financially, the times have been, and still are, out of joint, and one can hardly tell when and how the process of gravitation towards the normal will commence. Wait and see is a remarkable aphorism, and its translation into actuality sometimes painful.

NOT MUCH VICE.

One scarcely finds it necessary to emphasise that in the company world as elsewhere prosperity frequently breeds vice: it is generally accepted as being inevitable. This has not been entirely absent, but it has not obtruded itself unduly. This bears no inference to the parasitic growth of new aviation ventures, christened with high-sounding names and endowed with a superfluity of spurious hopes; these are concerned for the main purpose of inculcating commonsense into the Simple Simons of the investing public. The vice in question is that of trying to get rich quick at the expense of the other man and without any reasonable consideration for the honour of the trade. The symptoms are many and varied: the consequences are unpleasant for all save the fortunate few.

DEFICIENCIES IN THE ACCOUNTS.

In considering the position of the past year one cannot overlook the unfortunate irregularity in the presentation of the annual reports and accounts. The payment of a large dividend is not always adequate compensation for accounts being in arrear to the extent of a year or so. Without up-to-date accounts one is in the dark as to the actual position of the investment; an enhanced dividend is naturally reassuring, but it is not everything. The difficulty, and in some cases inability, of arriving at a *modus vivendi* with the tax people as regards the liability of Excess Profit Duty, etc., is held responsible for this fault. One hears a great deal about business principles and business methods being injected into Government Departments; for it was efficiency here and efficiency there and everywhere that was to win the war. One wonders whether the example of inefficiency was indigenous only to the Government Departments, or whether it manifested itself elsewhere as well.

FAULTY GOVERNMENT METHODS.

This brings one to the subject of Government Department "A" versus Government Department "B" and the effect upon "C," who is an outsider working like a Trojan for the benefit of the Nation, when "A" clamours for a tax debt due from "C" and "B," who owes "C" considerably more money, won't pay up promptly. It has the makings of a good farce if you collect the proper audience, but in reality it frequently developed into a drama, because there are limits beyond which a banker, even in war time, must stop granting temporary accommodation. Experiences of this sort have been too common. Admittedly each Government Department must look after itself first; but in a matter like this a little commonsense and co-ordination would have prevented waste and checked a tendency towards slackness, physical and moral, on the part of some people.

CURRENT TOPICS.

NAPIER CAPITAL IS INCREASED.

Another instance of increased capital is that of D. Napier & Son. At present £650,000 divided into 300,000 7½ per cent. £1 Preference shares and 350,000 Ordinary, it is to be raised to £850,000 by the creation of 200,000 additional Ordinary shares. A 10 per cent. dividend is now to be paid as a year ago, but the market hopes that the 1s. 6d. tax free bonus will also be expected when the accounts are struck.

STATE AID AND PROSPECTS.

We have gone through a very strenuous four years of war work, said the chairman to the shareholders, and are now busily engaged making our arrangements to turn over from war to peace trade. As to the future, whilst there will be problems to solve affecting labour, a great deal depends upon how our Government decides to protect the aircraft and motor-car industries during the next few years. Both are acknowledged as having been of invaluable assistance to the Government in time of war, and it would therefore seem only logical to take a hopeful view as to the Government devising some adequate means to encourage and foster aero-engine and aircraft manufacture; and particularly does this concern motor-car manufacturers, who have practically, like ourselves, sacrificed their motor-car trade during war time in order to help to place our Air Service in the foremost position it holds to-day. This surely will not be forgotten or overlooked, and, if dealt with promptly and in the right spirit, there should be a bright future for your company, as the Napier aero-engine (known in the Air Services as the "Lion") has already given an excellent account of itself in the hands of the Government pilots.

FRENCH BLERIOT'S SCHEME.

Shareholders of the French Blériot Co. have sanctioned the increase in the capital from two to four million francs by the creation of 200,000 new shares of 100 francs each. These will be issued at a premium of 10 francs and reserved for existing shareholders on a share for share basis.

It is proposed to offer these towards the end of January, when there will be distributed among the shareholders out of the special reserve fund a payment of 50 francs per share. Shareholders must then declare whether they intend to take advantage of the offer. This increase in the capital will facilitate the extension of the business and enable the board to acquire works necessary for its development.

S. SMITH & SONS' RESULTS.

Two annual reports and accounts are now submitted simultaneously by S. Smith & Sons (Motor Accessories), Ltd. After providing for charges and estimated liabilities for Excess Profit Duty, etc., and depreciation, the profit for the year to July 31st, 1917, was £48,191, a dividend of 10 per cent. being paid and £11,890 transferred to a special reserve for income-tax and con-

tingencies, leaving £12,728 to be carried forward. For the following year the profit was £48,788, the 10 per cent. dividend being repeated, £22,571 being added to the special reserve and £8,645 carried forward. Important additions have been made to the factories, enabling the company to largely increase its output, and in order to ensure the best marketing facilities the branches and connections in the Colonies and foreign countries have been considerably extended.

Aeroplane Instrument Supplies.

Presiding at the shareholders' meeting the chairman remarked: I wish to give you some indication of the progress we have made in the aviation department and as to our prospects in that connection. In the first place, I believe your company may aspire to the claim of having supplied more instruments for aeroplanes during the war than any other maker in the world. These instruments have been universally approved by pilots, and when I tell you that the pilot's life is largely dependent upon the accuracy of his instruments, this is saying a good deal. These instruments and others peculiar to aviation will form, I believe, a considerable part of our business in the future. We are known throughout the world in connection with our manufactures for aircraft, and hope with our facilities to hold the foremost position which we have already gained.

Future Plans Settled.

Our plans for the future are mature, and are not the result of a few days' or weeks' consideration. We have consistently and anxiously been solving the problems of reconstruction for the last three years which now confront us, and trust, as a result, we shall overcome the transition change without undue difficulty. I do not wish to infer we anticipate none; on the contrary, I foresee that there must necessarily be anxiety and hard work ahead, but so far as human foresight can provide, we have done our best to meet the future by being ready to grapple with the problem to be solved.

NEW COMPANIES.

Chester Engineering Co. (1918), Ltd.—Private company. Registered Dec. 24th. Capital £30,000 in £1 shares. Mechanical, electrical, and aeronautical engineers, founders, metal-workers, manufacturers of motor-cars, lubricants and solutions, etc. The subscribers (each with one share) are H. Burroughes, Sidbury Lodge, Edgware, engineer; G. A. Peck, Highfield, Stanmore, Middlesex, engineer. First directors: H. Burroughes and G. A. Peck. Solicitor: J. C. Soames, Lennox House, Norfolk Street, W.C.

SATISFACTIONS, MORTGAGES, AND CHARGES

Fairey Aviation Co., Ltd.—Charge on the company's undertaking and property present and future, including uncalled capital, subject to charge dated November, 1917, dated Dec. 6th, 1918, to secure £35,000, and any balance owing to Lloyds Bank on current or other account.

John Dawson & Co. (Newcastle-on-Tyne), Ltd.—Mortgage dated Dec. 5th, 1918, to secure all moneys due or to become due from the company to London Joint Company and Midland Bank charged on freehold land at Wallsend, with Olympic Skating Rink, cottage, etc., thereon.

Triplex Goggle Mask and Lens Co., Ltd.—Satisfaction in full on Dec. 11th, 1918, of debenture dated Oct. 3rd, 1918, securing £5,250.

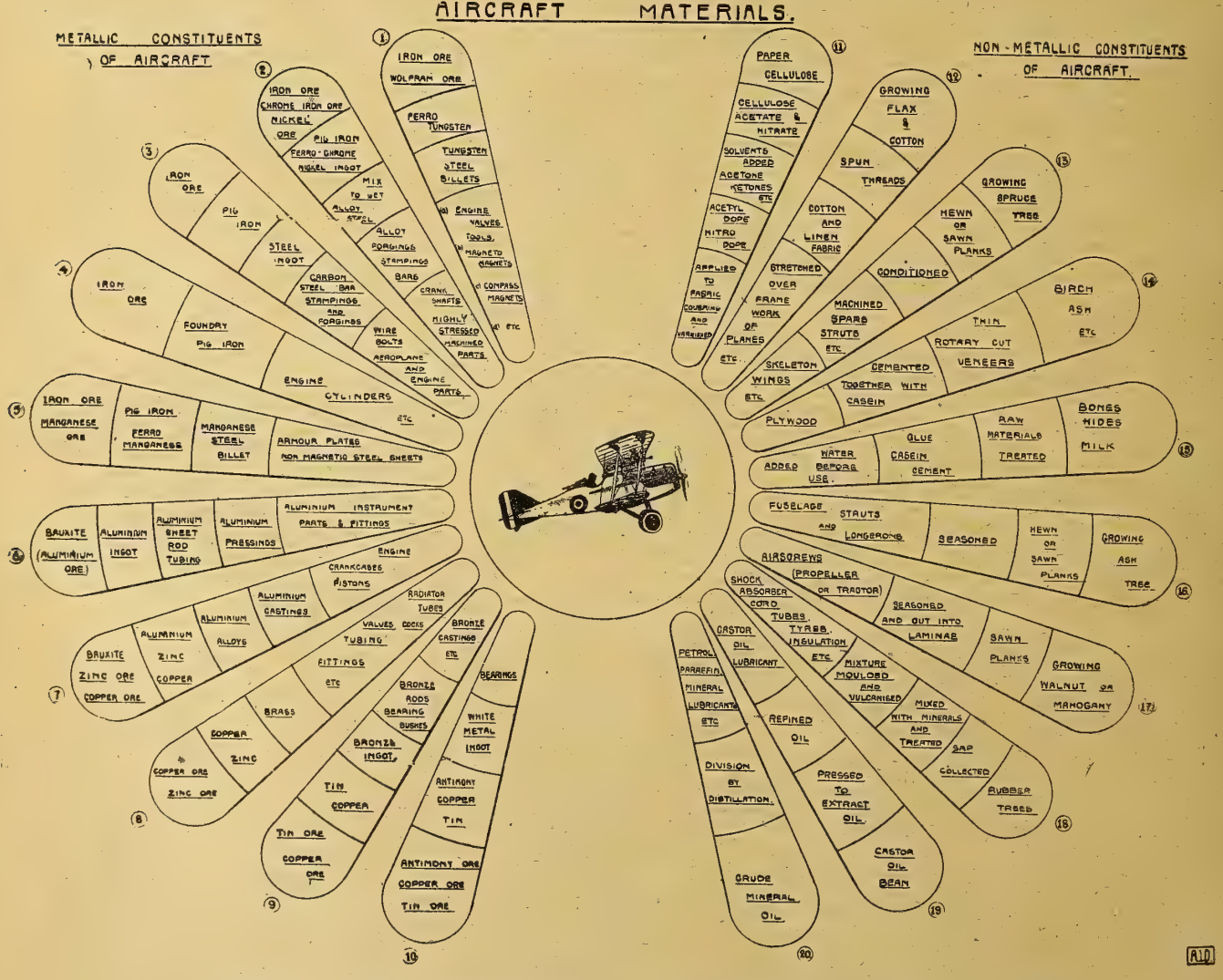
U.S. AIRCRAFT FINANCE.

It seems unlikely that the United States will neglect its military and naval aviation activities in the year beginning July 1st, 1919. The Departmental Estimates presented to Congress included 165 million dollars for army and 225 million dollars for navy aviation.

The Military Estimate includes approximately 145 million dollars (£29,000,000) for aircraft production and 20 million dollars (£4,000,000) for the Aviation Service itself. The Military Estimate for the previous year was 760 million dollars (£152,000,000) for production and 184 million dollars (£36,800,000) for the cost of running the service.

Although the estimate for the forthcoming year naturally shows a great reduction, the amount is sufficient to ensure the establishment of a formidable peace-time equipment. On the other hand, the Naval Estimate shows a slight increase.

It is apparently the intention of the U.S. Navy to purchase four Zeppelin-type airships, a dozen non-rigid and twelve dozen balloons, presumably meaning kite balloons.



HOW THE MONEY GOES: An Official analysis of the materials which go to make up an Aeroplane.



NAVAL & MILITARY AERONAUTICS



GEOFFREY WATSON

FROM THE "LONDON GAZETTE."

AIR MINISTRY, Dec. 31st.

R.A.F.—The following temp. appts. are made at the Air Ministry :—Staff Officer, 1st Cl.—(P.).—Maj. (actg. Lt.-Col.) W. J. Ryan, M.B.E., and to retain his actg. rank while so empld., Dec. 6th, 1918.

Staff Officer, 3rd Cl.—Sec. Lt. H. M. Piper, and to be actg. Capt. while so empld., Aug. 16th, 1918.

The following temp. appts. are made :—Staff Officers, 3rd Cl.—Lt. (Hon. Capt., actg. Capt.) A. Ferris, Sept. 18, 1918 (substituted for notification on page 14707 of "Gazette," Dec. 13th, 1918); (P.)—Sec. Lt. J. Warner Jones and to be actg. Capt. while so empld., Sept. 27th, 1918.

FLYING BRANCH.—Capt. L. H. Wilkins, D.S.C., to be actg. Maj. while empld. as Maj. (S.), Oct. 1st, 1918

Capt. W. A. Dunn to be Capt. (A'shp.), from (K.B.), Nov. 7th, 1918.

Lts. to be actg. Capts. while empld. as Capts :—M. O. Haskell (A.), Sept. 27th, 1918; J. Hodgson (O.), Nov. 1st, 1918.

Sec. Lts. to be Lts. :—(Actg. Capt.) R. Turner, and to retain actg. rank; W. B. Clarke, M.C., T. C. Stuart, H. Shaw, L. Smith, S. G. Williams, April 2nd, 1918; H. Morden-Wright, M.C., April 3rd, 1918; J. P. Bosman, W. E. Barnes, April 5th, 1918; H. B. Wood, April 6th, 1918; (Hon. Lt.) G. Cuttle, M.C., April 10th, 1918; J. Wallace, April 14th; 1918; G. H Hobson, D.F.C., April 17th, 1918; K. M. Walker, April 24th, 1918; W. G. Hanton, C. S. Bissett, (Hon. Capt.) F. J. Haney, M.C., and to retain his hon. rank, (Hon. Lt.) S. W. Cubitt, (Hon. Lt.) E. F. Rogers, April 25th, 1918; B. W. P. Kirby, April 28th, 1918; W. K. McGlashan, R. F. Casey, May 2nd, 1918; W. Williamson, May 6th, 1918; F. Taylor, M. E. Meredith, May 7th, 1918; A. S. Wilcockson, May 9th, 1918; (Hon. Lt.) A. R. Watts, M.C., May 11th, 1918; J. McK. Reilly, May 15th, 1918; S. L. Cannon, May 17th, 1918; (Hon. Lt.) J. H. M. Yeomans, M.C., F. S. Fisher, A. W. Sharp, J. Bremner, May 19th, 1918; E. H. Ralling, C. W. T. Colman, R. F. W. Sheraton, May 24th, 1918; T. C. Danby, May 28th, 1918; G. W. Heap, May 29th, 1918; (Hon. Lt.) S. G. Harman, H. V. Geary, M.C., May 30th, 1918; (Hon. Lt.) S. E. Sutcliffe, June 2nd, 1918; I. S. Black, N. D. Lambert, J. G. Wilson, F. L. Clark, A. E. Masters, June 4th, 1918; S. J. Thomas, June 6th, 1918; V. W. Allen, M.C., June 9th, 1918; B. H. Smyth (Hon. Lt.) G. F. Manning, M.C., F. Pascoe, R. Addison, M.C., June 13th, 1918; (Hon. Lt.) F. H. Moore, June 14th, 1918; E. L. Wilson, June 15th, 1918; J. C. S. Masters, June 16th, 1918; W. G. Robins, A. A. Robinson, M.C., W. R. Patey, D.F.C., R. Lean, E. Walker, D.F.C., J. A. Wright, N. T. Kennard, W. Richards, O. Sherwood, H. E. Chapman, A. E. Garrison, M.C., Jan. 19th, 1918; O. H. Adams, M.C., June 23rd, 1918; A. G. L. Mullen, June 26th, 1918; C. D. Spiers, June 27th, 1918, (Hon. Lt.) P. V. C. Low, June 28th, 1918; W. G. Norden, S. Wallingford, June 29th, 1918; C. C. R. Millington, B. Reading, W. V. Hunt, June 30th, 1918; A. Metcalf, July 1st, 1918; H. J. Palmer, July 3rd, 1918; J. C. Anderson, July 6th, 1918; E. H. Ward, July 7th, 1918; L. Egan, E. M. Drummond, July 9th, 1918; S. J. H. Pile, M.C., July 10th, 1918; (Hon. Lt.) S. T. Lowe, July 11th, 1918; H. T. Singleton, July 12th, 1918; H. W. Arnott, July 15th, 1918; E. C. Delamain, M.C., July 17th, 1918; H. Kinsbury, July 18th, 1918; F. A. Barley, July 20th, 1918; H. S. Laing, July 21st, 1918; R. Walmsley, W. Hodgkinson, S. J. Charles, R. P. Keeley, A. T. Reed, R. McK. Jamison, D.F.C., A. G. McI. Jennings, M.C., R. D. Linford, B. Mansfield, July 25th, 1918; A. A. Tigar, E. King, July 26th, 1918; H. C. Kent, July 28th, 1918; T. A. Cousins, July 30th, 1918; N. Smith, Aug. 1st, 1918; N. B. Eames, R. C. Cowl, Aug. 2nd, 1918; E. G. Thomas, Aug. 3rd, 1918; H. Clarke, Aug. 8th, 1918; H. Brooks, Aug. 9th, 1918; H. J. Sier, Aug. 13th, 1918; (Hon. Lt.) H. A. Francis, Aug. 14th, 1918; L. C. Tonkin, J. Carrey, Aug. 15th, 1918, (Hon. Lt.) A. A. English, M.C., Aug. 19th, 1918; (Hon. Lt.) E. S. Seaton, Aug. 20th, 1918; H. F. Birchal, Aug. 21st, 1918; (Hon. Lt.) J. A. Chaproniere, Aug. 22nd, 1918; F. G. Taylor, Aug. 24th, 1918; H. G. Herbert, Aug. 25th, 1918, A. J. S. Winton, Aug. 28th, 1918; E. H. Osborne, Aug. 30th, 1918; H. J. C. Hartley, Aug. 31st, 1918; W. S. Gregor, W. H. Delamere, W. V. Ribbins, M. Ross-Jenkins, W. D. Clark, E. M. Heron, L. G. Macklin, H. L. Macdonald, G. E. Rolleston, V. C. Hemsley, J. H. Crowe, B. C. Pearson, H. J. Bath, (Hon. Lt.) M. K. McGregor, Sept. 1st, 1918; R. Lucovich, M.C., Sept. 3rd, 1918. (Hon. Lt.) C. O'N. Daunt, Sept. 6th, 1918; P. Wilkins, M.C., Sept. 10th, 1918; A. R. Blakeley, Sept. 11th, 1918; T. H Formby, K. T. Kirkby, Sept. 12th, 1918; F. W Palmer, V.C., M.M., Sept. 14th, 1918; P. C. Foster, (Hon. Lt.) D. C. S. Williams, Sept. 17th, 1918; M. H. Cole, A. D. Sinclair, Sept. 20th, 1918; J. R. Smith, Sept. 21st, 1918; A. H. Gitsham, Sept. 25th, 1918; W Seagram, Sept. 26th, 1918; C Dixon, M.M., G. J. L. Campbell, P. V. G. Chambers, W. F. Hanna, F. C. Sawyer, C. E. E. Boult, C. R. McMullen, P. Dendy, E. Dumville, S. C. M. Lovejoy, A. E. Ealding, R. A. Thomas, E. T. Roocroft, H. G. Eldon, E. L. Chafe, A. G. Wilson, Sept. 28th, 1918; V. S. Gray, Oct. 4th, 1918; J. Collier, Oct. 5th, 1918; W. C. Kidd, G. E. W. Stevens, M.C., Oct. 13th, 1918; T. H. R. Riggs, Oct. 14th, 1918; J. A. Whalley, Oct. 15th, 1918; T. Foster, Oct. 16th, 1918; B. Dawe, H. R. Milton, W. N. Owen, Oct. 20th, 1918; E. F. Stephenson, Oct. 23rd, 1918; F. Walsh, Oct. 24th, 1918; H. Marsden, B. Donald, D.F.C., F. H. Chapple, E. Martyr, G. N. Sellers, D.F.C., B. W. Wilson, H. Tasker, **A. J. Forbes, J. W. Partridge,** G. R. Schooling, S. Hall, G. Archer, **E. W. Bell, H. P. Elliot, J. C. Clark,** G. Graham-Green, J. N. Hawthorne, R. P. Gundill, T. L. Jones, A. Murchie, S. T. R. Lloyd, A. C. Godfrey, R. S. E. Walshe, M. E. Barlow, R. Leask, G. R. Leighton, G. H. Collis, Oct. 26th, 1918; W. H. Shrimpton, Oct. 30th, 1918, M. P. E. Harrisson, C. W. Wridgway, C. L. Kelly, A. G. Grant, Nov. 1st, 1918; W. E. Beckett, Nov. 17th, 1918; A. C. Holmes, Nov. 28th, 1918; B. E. H. Whiteford, M.C., E. G. W. Coward, Nov. 29th, 1918; J. S. Machin, Nov. 24th, 1918; A. Schofield, Nov. 27th, 1918; C. R. Campbell, W. F. Evans, D.C.M., W. Wilkinson, E. M. Prichard, A. G. Fletcher, L. G. Radcliffe, C. Beagle, E. Biggs, C. P. Shilton, A. J. Hannah, F. H. Chainey, L. G. Hills, R. C. Clarke, E. A. Bingen, P. K. Chapman, A. E. Turton, V. A. Fair, M.C., H. H. Senior, R. H. Thompson, Nov. 30th, 1918; F. R. G. Spurgin, R. H. Trelease, Dec. 7th, 1918; W. A. Briggs, Dec. 11th, 1918; I. Carr, R. J. Thompson (A.), R. J. Thompson (O.), Dec. 12th, 1918; W. F. Carson, Dec. 15th, 1918; H. C. Hawkins, Dec. 17th, 1918; D. G. Fraser, G. W. Waddington, M.C., Dec. 21st, 1918; E. E. Morgan, Dec. 24th, 1918; C. C. Woodall, C. A. Grant, W. L. A. Wilkinson, Dec. 26th, 1918; C. A. Hutchins, R. J. R. Ward, O. S. Brown, A. J. Todd, C. S. Whellock, W. Ashford, G. Webb, A. W. Whitmore, H. R. Goss, G. T. Gauntlett, J. D. Irvine, H. G. Garrett, E. A. Wadsworth, G. V. Learmond, C. H. Connah, P. Allsopp, B. Archer, W. L. Bing, A. F. Pope, A. F. Beckett, B. D. Nicholson, A. C. Vallance, A. G. Lambert, T. S. Miller, B. S. Chantrill, J. J. Ambler, K. N. King, R. Inglis, N. Offord, H. V. Edwards, Dec. 27th, 1918.

Lts. to be Lts. (A.) from (Obsr. Officers) :—F. G. Solis, S. S. Jones, M.C., Nov. 21st, 1918.

Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts (A.) :—N. F. S. Hubbard, May 28th, 1918; G. Holden, Sept. 29th, 1918, J. M. Russell, Oct. 19th, 1918; C. W. Binet, D. W. Bridge, Nov. 12th, 1918.

96541 Flt. Cadet E. Dawson is granted a temp. commn. as Sec. Lt. (A.), Sept. 19th, 1918.

The following are granted temp. commns as Sec Lts. (A.) :—K. G. H. R. Gunn (Lt., A. Cyc. Corps, T.F.), and to be Hon. Lt., Aug. 14th, 1918; J. Clarke, M.C. (Lt., Worc. R.), and to be Hon. Lt ; J. Miller (Lt., Arg. and Suthd. Highrs., Spec. Res.), and to be Hon. Lt., Nov. 12th, 1918; A. McK. Gillespie, M.M. (Lt., Manitoba R., C.E.F.), and to be Hon Lt., Nov. 22nd, 1918.

Sec. Lt. T. M. Pratt (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Obsr. Officer), Sept. 1st, 1918.

Sec. Lt. A. G. T. Wills to be Sec. Lt. (Obsr. Officer), from (A.), Oct. 23rd, 1918.

The following are granted temp. commns. as Sec. Lts. Obsr. Officers) :—S. H. Munro (Hon. Lt., Can. Y.M.C.A.), and to be Hon. Lt., Oct. 22nd, 1918; L. Townsend (temp. Sec. Lt., Northd. Fus.), Oct. 23rd, 1918; A. A. Phillips (temp. Sec. Lt., attd. W. Kent R.), Oct. 30th, 1918; W. J. B. Gordon (Sec. Lt., R. Ir. R., Spec. Res.), Nov. 14th, 1918; D. G. Craig (temp. Lt., A.S.C.), and to be Hon Lt., Nov. 18th, 1918; W. J. Wilson (Lt., Can. For. Corps), and to be Hon. Lt., J. C. Bowstead, D.C.M., M.M. (Sec. Lt., Norf. R.), F. H. J. Bull, M.C. (temp. Sec. Lt., A. Cyc. Corps), A. D. Kemp (temp. Sec. Lt., W. Rid. R.), Nov. 21st, 1918.

Lt. A. H. C. Bruce to be Sec. Lt. (A'shp.), and to be Hon. Lt., from (T.), Nov. 7th, 1918.

Sec. Lt. W. V. Pegden (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (K.B.), June 15th, 1918.

S. J. Brickstock (Sec. Lt., Worc. R., T.F.) is granted a temp. commn. as Sec. Lt. (A.), Oct. 25th, 1918 (substituted for notification in "Gazette," Nov. 29th, 1918).

Lt. F. A. Black to be Lt. (Obsr. Officer) from (A.), Sept. 30th, 1918 (substituted for notification in "Gazette," Nov. 1st, 1918).

Lt. C. Jackson to be Lt. (A.) from Obsr. Officer, April 5th, 1918 (substituted for notification in "Gazette," June 11th, 1918).

The notification in "Gazette," Nov. 4th, 1918, concerning H. A. Bartlett is cancelled.

The notification in "Gazette," Aug. 16th, 1918, page 9580, concerning J. M. Russell is cancelled.

The name of J. O. McL. Keil is as now described, and not as in "Gazette," Nov. 26th, 1918.

The name of C. C. Hoey is as now described, and not as in "Gazette," Nov. 26th, 1918, page 13920.

The notification in "Gazette," Oct. 18th, 1918, concerning J. H. Spracklin is cancelled.

The notification in "Gazette," Oct. 8th, 1918, page 13217, concerning Capt. F. H Pritchard, R.G.A., is cancelled.

The name of Sec. Lt. L. W. Robins is as now described, and not as in "Gazette," Nov. 5th, 1918.

The name of J. F. M. Phillips is as now described, and not as in "Gazette," Oct. 11th, 1918.

The surname of J. M. Brunton is as now described, and not as in "Gazette," Nov. 8th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. D B. Cumming, Nov. 28th, 1918; Lt. J. P. Alexander (Capt., British Columbia R.), Dec. 5th, 1918; Lt. W. H. M. Wardrope (Lt., Royal Canadian Dragoons), Dec. 10th, 1918, Lt P. E. Biggar (Lt., Canadian A.S.C.), Dec. 17th, 1918.

The date of relinquishment of his commn. by Lt. L. F. Cameron is Nov 30th, 1918, and not as stated in "Gazette," Dec. 13th, 1918.

Sec. Lts (Hon. Lts.) relinquish their commns. on ceasing to be empld. :—W. L. Kingwill, M.C. (Lt., Norfolk R.), Dec. 4th, 1918; C. E. Black (Lt., Canadian F.A.), J. A. A. Malbiot (Lt., Canadian Rail. Service), Dec 16th, 1918.

Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—N. C. Aston, F. H. Jackson (contracted on active service), J. McD. A. Mackey (caused through wounds), F. H. May, A. D. Pate (contracted on active service), D. Rooksby (contracted on active service), K. L. Warrington, W. R. G. Wickham, Jan. 1st.

Lts. relinquish their commns. on account of ill-health :—H. G. Ross (Lt., Devon. Fort. Engrs., R.E., T.F.), L. H. Kennedy (Lt., Can. Local Forces), G. C. Bourne (Lond. R., T.F.), L. B. Chambers, M.C. (Lt., York and Lanc. R., Spec. Res.), Jan. 1st; Lt. C. T. Dodd resigns his commn., Jan. 1st.

Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—J. McK. Young, D.F.C. (contracted on active service), J. S. Muir (caused by wounds), R. A. Jones, J. A. Sutherland, B. Williams, Jan. 1st.

Sec. Lt. M. P. E. Harrisson (Sec. Lt., E. Kent R.) relinquishes his commn. on account of ill-health, Jan. 1st.

Sec. Lts. resign their commns :—S. Cox, D. W. Pugh, Jan. 1st.

Sec. Lt. B. C. K. Bayly is dismissed the Service by sentence of a General Court-Martial, Dec. 5th, 1918

Administrative Branch.—Capts. to be actg. Majs. whilst empld. as Majs. :—C. L. Mundey, April 1st, 1918; F. le M. Callaway, June 10th, 1918.

Capt. (actg. Maj.) G. H. K. Bone to be Capt., from (T.), and to retain the actg. rank of Maj. whilst empld. as Maj., Dec. 9th, 1918.

Capts. to be Capts., from (A. and S.) :—C. J. Temperley, from (S.O.), Nov. 18th, 1918; W. S. Wilson, Dec. 5th, 1918.

Capt. L. A. F. Foers, M.C. (temp Capt., York and Lanc. R.) is granted a temp. commn. as Capt., June 1st, 1918, seny. April 1st, 1918.

Lt. S. Taylor to be Lt. and actg. Capt. whilst empld. as Capt., from (A.), Oct. 23rd, 1918.

Lt. J. R. S. Borman to be actg. Capt. whilst empld. as Capt., Oct. 30th, 1918.

Sec. Lt. E. S. Peters to be actg. Capt. whilst empld. as Capt., Nov. 9th, 1918.

Lts. to be Lts., from (A.) :—H. E. K. Eccles, M.C., July 11th, 1918; (Hon. Capt.) W. F. T. James, Sept. 18th, 1918; W. G. Breen-Turner, Sept. 24th, 1918; A. W. Robinson, Oct. 15th, 1918; D. W. Marriott, Nov. 2nd, 1918; C. W. Lewis, Nov. 6th, 1918; J. E. F. Dell, Nov. 20th, 1918; R. H. Harmer, Nov. 25th, 1918, F. A. Barratt, Nov. 27th, 1918; A. J. Lucas, Nov. 30th, 1918; W. H. Bundock, Dec. 9th, 1918.

Lts. to be Lts., from (O.) :—N. A. Arthur, Aug. 16th, 1918; A. S. Clarke, Oct. 30th, 1918; H. C. R. Milward, Nov. 3rd, 1918; E. W. Keep, Nov. 16th, 1918.

Lt. (Hon. Capt.) G. A. Hoghton to be Lt. from (K.B.), Nov. 16th, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. :—(Hon. Lt.) F. Ambler, from (O.); (Hon. Capt.) C. J. P. Copner, from (K.B.), Sept. 27th, 1918; H. J. Cutler, Oct. 13th, 1918. (Substituted for notification in "Gazette," Oct. 25th, 1918.) A. F. Johnston, Oct. 30th, 1918.

Maj. W. B. Stansfeld (Maj., Res. of Officers) relinquishes his commn. on ceasing to be empld., Sept. 22nd, 1918.

Capt. C. H. Dennison relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., Jan. 1st.

Lt. A. E. Neal relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Lt., Jan. 1st.

Sec. Lt. L. T. Dickson relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Sec. Lt., Jan. 1st.

Sec. Lt. F. L. Letter resigns his commn., Jan. 1st.

Technical Branch.—Maj. W. J. Polybank to be actg. Lt.-Col. while empld. as Lt.-Col. (Gr. A), July 1st, 1918.

Capt. W. Calder to be actg. Lt.-Col. while holding a special appt. at the Ministry of Munitions, Sept. 19th, 1918.

Maj. C. Barber to be actg. Lt.-Col. while empld. as Lt.-Col. (Gr. B), Sept. 20th, 1918.

Maj. J. Dickson to be actg. Lt.-Col. while empd. as Lt.-Col., July 12th, 1918 (substituted for the notification in "Gazette," Nov. 19th, 1918).

Capts. to be actg. Majs. while empld. as Majs. :—F. E. Pike, Oct. 1st, 1918; W. A. B. Laing, K. J. Young, Oct. 30th, 1918.

Capts. to be actg. Majs. while empld. as Majs. (Gr. B) :—S. Curtis, H. J. C. Smith, Oct. 25th, 1918.

Sec. Lt. (actg. Capt.) R. B. Stephenson to be actg. Maj. while empld. as Maj., Oct. 30th, 1918.

Capt. N. W. G. Blackburn to be Capt from (A.) (Gr. A), Oct. 4th, 1918.

Lts. to be actg. Capts. while empld. as Capts. (Gr. A) :—W. Dawson, April 1st, 1918 (substituted for the notification in "Gazette," Nov. 29th, 1918); W. R. Lewis, Nov. 1st, 1918.

Lt. J. H. Dale to be actg. Capt. while empld. as Capt. (Gr. B), Oct. 1st, 1918.

Lt. G. W. Hippisley to be actg. Capt. while empld. as Capt., Oct. 30th, 1918.

Lts. (actg. Capts.) relinquish the actg. rank of Capt. on ceasing to be specially empld. (Gr. B) :—A. L. C. Fuller, H. E. Went, Nov. 19th, 1918

Lts. to be actg. Capts., without pay and allces. of that rank, while empld. as Capts (Gr. B) :—G. C. Heseltine, C. E. Welsh, Nov. 1st, 1918.

Sec. Lt. (Hon. Lt.) G. K. Johnson to be temp. Capt. while holding a special appt. at the Ministry of Munitions, Oct. 28th, 1918.

Sec. Lt. (actg. Lt.) J. W. Jean, D.S.M., to be actg. Capt. while empld. as Capt. (Gr. A), Nov. 1st, 1918.

Sec. Lt. (actg. Lt.) H. M. Over to be actg. Capt. while empld. as Capt. (Gr. B), Nov. 1st, 1918.

Sec. Lts. (actg. Lts.) to be actg. Capts., without pay and allces. of that rank, while empld. as Capts. (Gr. B) :—(Hon. Lt.) A. J. Dick, S. K. D'A. de Ferrars, W. Hill, (Hon. Lt.) H. H. Mitchel, R. L. Burdon-Sanderson, Nov. 1st, 1918.

Lt. B. O. Newman to be Lt., from (O.) (Gr. A), April 1st, 1918.

Lts. to be Lts. (Gr. B) :—H. M. Franklin, from (A.), June 8th, 1918; E. L. Chadwick, from (O.), Nov. 26th, 1918.

Sec. Lt. J. S. Card to be temp. Lt. while specially empld., Oct. 10th, 1918.

Sec. Lt. (actg. Lt.) F. Ambler to retain the actg. rank of Lt. while empld. as Lt., from (Ad.) (Gr. A), Dec. 15th, 1918

Sec. Lts. to be actg. Lts. while empld. as Lts. (Gr. B) :—W. D. Corse, Sept. 2nd, 1918; W. J. Ley, S. R. Winkworth, Oct. 1st, 1918; (Hon. Lt.) L. Stockton-Smith, Oct. 25th, 1918; (Hon. Lt.) W. B. Brett, E. D. Jones, Nov. 1st, 1918.

The heading "The under-mentioned Sec. Lts. (temp. Lts.) (Admin.) to be Sec. Lts. and to be Hon. Lts." in "Gazette" of Oct. 29th, 1918, page 12711, should read "The under-mentioned Sec. Lts. (temp. Lts.) (Admin.) to be Sec. Lts. and to be (temp. Lts.)."

Capt. C. H. Johnson (Lt., R.E., T.F.) relinquishes his commn. at his own request, Dec. 13th, 1918.

Sec. Lt. (Hon. Lt.) J. A. Rushworth (Lt., Lpool. R., T.F.) relinquishes his commn. on ceasing to be empld., Aug. 24th, 1918.

Sec. Lt. L. B. Clough relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Sec. Lt., Jan. 1st.

Medical Branch.—The following are granted temp. commns. as Capts., with seny. from April 1st, 1918 :—G. Sparrow (temp. Surg., R.N.), Nov. 5th, 1918; C. C. O'Malley (temp. Surg., R.N.), Nov. 28th, 1918.

W. J. S. Cameron is granted a temp. commn. as Lt., Dec. 20th, 1918.

The initials of Capt. T. J. Thomas are as now described, and not as stated in "Gazette" of Nov. 26th, 1918.

Dental Branch :—L. C. W. Balls is granted a temp. commn. as Lt., June 10th, 1918 (substituted for notification in "Gazette" of June 11th, 1918, page 6938).

Chaplains Branch.—The following are granted temp. commns. as Chaplains with the relative rank of Capts. :—Rev. P. C. Barber (temp. Chap. to the Forces, 4th Cl., A.C.D.); Rev. A. S. C. Harrison (Chap. to the Forces, 4th Cl., T.F., attd. E. Surr. R.), Dec. 23rd, 1918; Rev. A. A. Crawshaw, Dec. 27th, 1918

Memoranda.—Lt. P. F. W. Bush is granted the actg. rank of Capt. while holding a special appt. at the Ministry of Munitions, June 1st, 1918.

Sec. Lt. A. J. Thompson to be actg. Capt., without the pay and allces. of that rank, while specially empld., Dec. 23rd, 1918.

Capts. are confirmed in the rank of Capts. :—E. D. Crundall, H. F. Delarue, D.F.C., R. M. Clifford, S. J. Woolley, E. E. Barnett, H. R. de Wilde, D.F.C., L. M. Bailey, P. E. Beasley, A. C. Burt, H. S. Scroggs, P. H. Martin, H. G. Hall, D.S.C., G. M. T. Rouse, N. G. Hodson, J. S. Maitland, K. F. Saunders, D.F.C., A.F.C., A. W. Carter, D.S.C., E. G. Hopcraft, D.S.C., S. J. Fetherston, D.F.C., E. B. Drake, A. J. O'Reilly, P. Wickens, W. L. Jordan, D.S.C., D.F.C., D. S. Don, E. J. B. How, B. C. H. Cross, D.F.C.

Sec. Lts. to be Lts. :—(Actg. Maj.) H. W. Sidley, and to retain his actg. rank; (Hon. Lt.) (actg. Lt.) F. C. Wild, April 2nd, 1918; (actg. Capt.) H. B. Langton, and to retain his actg. rank, April 13th, 1918; (actg. Lt.) R. Davis, April 27th, 1918; (actg. Capt.) H. H. Harries, and to retain his actg. rank, Oct. 11th, 1918; (actg. Capt.) W. T. Watson, and to retain his actg. rank, Oct. 15th, 1918, (actg. Lt.) E. G. Clement, Dec. 6th, 1918.

The date of appt. of Capt. H. G. Wheeler is May 11th, 1918, and not as stated on page 11868 of the "Gazette," Oct. 8th, 1918.

Maj. Hon. M. Baring, O.B.E., relinquishes his appt. as (S.O.), Dec. 1st, 1918.

Maj. A. C. Robinson (Maj., R.E.) relinquishes his commn. on ceasing to be empld., Dec. 19th, 1918.

Maj. (actg. Col.) F. J. Scott relinquishes his appt. as Dep. Dir. at the Air Ministry and his commn., and is permitted to retain the rank of Col., Dec. 31st, 1918.

Admiralty, Jan. 1st.

The King has been pleased to give orders for the following appointment to the Most Excellent Order of the British Empire, in recognition of the valuable services rendered in connection with the war :—

O.B.E. (Military Division).

Comdr. H. G. Atkinson, R.N.V.R. (now Maj., R.A.F..

St. James's Palace, S.W.1, Jan. 1st.

The King has been graciously pleased to give orders for the following appointment to the Most Excellent Order of the British Empire for valuable services rendered in connection with military operations in Egypt :—

To be Officer of the Military Division of the said Most Excellent Order.

Temp. Capt. Norman Stephen Gilchrist, M.D., R.A.M.C., attd. R.A.F.

St. James's Palace, S.W.1, Jan. 1st

The King has been pleased to give orders for the following appointments to the Order of the Bath, in recognition of services during the war :—

K.C.B (Civil Division).

William Arthur Robinson, Esq., C.B., Sec. to the Air Ministry.

C.B. (Civil Division).

William Archdale Bland, Esq., Principal Clerk, War Office, lent to Air Ministry as Asst. Financial Sec.

CENTRAL CHANCERY OF THE ORDERS OF KNIGHTHOOD.

St. James's Palace, S.W.1, Jan. 1st.

The King has been graciously pleased to give orders for the following appointments to the Most Honourable Order of the Bath, for services rendered in connection with the war :—

To be Additional Members of the Military Division of the Second Class, or Knights Commanders, of the said Most Honourable Order :—

Royal Air Force.

Maj.-Gen. Frederick Hugh Sykes, C.M.G.
Maj.-Gen. William Sefton Brancker, A.F.C.
Maj.-Gen. John Maitland Salmond, C.M.G., C.V.O., D.S.O.

To be Additional Members of the Military Division of the Third Class, or Companions, of the said Most Honourable Order :—

Maj.-Gen. Edward Leonard Ellington, C.M.G.
Maj.-Gen. William Geoffrey Hanson Salmond, D.S.O.
Maj.-Gen. Richard Cleveland Munday, M.R.C.S., L.R.C.P.
Col. (actg. Maj.-Gen.) Philip Woolcott Game, D.S.O.
Col. (actg. Brig.-Gen.) Oliver Swann.
Col. (actg. Brig.-Gen.) Francis Rowland Scarlett, D.S.O.
Col. (actg. Brig.-Gen.) Lionel Evelyn Oswald Charlton, C.M.G., D.S.O.
Lt.-Col. (actg. Brig.-Gen.) John Glanville Hearson, D.S.O.

Chancery of the Order of Saint Michael and Saint George, Downing Street.

January 1st.

The King has been graciously pleased to give directions for the following appointments to the Most Distinguished Order of Saint Michael and Saint George, in recognition of distinguished services rendered during the War :—

To be Additional Members of the Third Class, or Companions, of the said Most Distinguished Order—

Royal Air Force.

Col. (actg. Brig.-Gen.) Edward Maitland Maitland, D.S.O.
Col. (actg. Brig.-Gen.) Harold Douglas Briggs.
Col. the Hon. Arthur Stopford.
Col. (actg. Brig.-Gen.) Rudolph Edward Trower Hogg, C.I.E.
Col. (actg. Brig.-Gen) Hugh Caswell Tremenheere Dowding.
Col. (actg. Brig.-Gen.) Eugene Louis Gerrard, D.S.O.
Lt.-Col. (actg. Brig.-Gen.) Thomas Charles Reginald Higgins.
Lt.-Col. (actg. Brig.-Gen.) Philip Lee William Herbert.
Lt.-Col. (actg. Brig.-Gen.) Cyril Louis Norton Newall.
Lt.-Col. (actg. Col.) Robert Gordon, D.S.O.
Lt.-Col. (actg. Col.) Bertie Harold Ollivier Armstrong.
Lt.-Col. (actg. Col.) Andrew George Board, D.S.O.
Lt.-Col. (actg. Brig.-Gen.) Felton Vesey Holt, D.S.O.
Lt.-Col. (actg. Col.) Kennedy Gerard Brooke.
Lt.-Col. (actg. Col.) Philip Bennet Joubert de la Ferté, D.S.O.
Lt.-Col. (actg. Brig.-Gen.) Norman Duckworth Kerr MacEwen, D.S.O.
Lt.-Col. Gerard Robert Addison Holmes, O.B.E.
Lt.-Col. Percival Kinnear Wise, D.S.O.
Lt.-Col. (actg. Col.) Archibald Christie, D.S.O.
Lt.-Col. (actg.-Col.) Arthur Wellesley Bigsworth, D.S.O.
Lt.-Col. Evelyn Boscawen Gordon, D.S.O.
Lt.-Col. (actg.-Col.) Reginald John Armes.
Lt.-Col. Ivo Arthur Exley Edwards.
Lt.-Col. (actg. Col.) Hugh Alexander Williamson.
Lt.-Col. (actg. Brig.-Gen.) Arthur Lowthian Godman, D.S.O.
Lt.-Col. Arthur Vere Bettington.
Lt.-Col. (actg. Brig.-Gen.) Bertram Charles Fellows.
Lt.-Col. Geoffrey Teale Brierley, D.S.O.
Lt. Col. Malcolm Graham Christie, D.S.O., M.C.
Lt.-Col. (actg. Col.) Tom Dark Mackie, O.B.E.

CENTRAL CHANCERY OF THE ORDERS OF KNIGHTHOOD.

ST. JAMES'S PALACE, S.W.1, Jan. 1st.

The King has been graciously pleased to give orders for the following promotions in, and appointments to, the Most Excellent Order of the British Empire, in recognition of valuable services rendered in connection with the War;—

ROYAL AIR FORCE.

To be Commanders of the Military Division of the said Most Excellent Order.

Lt. Col. Thomas David Collis Barry.

Lt.-Col. Thomas Reginald Cave-Browne-Cave, Lt.-Col (actg. Col.) Frederick Holden Cleaver, D.S.O., Lt.-Col. (actg. Brig.-Gen.) Christopher Lloyd Courtney, D.S.O.

Lt.-Col. Francis Richard Drake, Hon. Lt.-Col. Richard Frederick Drury, O.B.E.

Maj. (actg. Col.) Herbert Charles Ellis.

Maj. (Hon. Lt.-Col.) Martin William Flack, M.B.

Lt.-Col. Napier John Gill, M.C.

Lt.-Col. (actg. Col.) John Crosby Halahan, Lt.-Col. Charles Brehmer Heald, Lt. Col. Francis Richard Gurney Hoare, Hon. Lt.-Col. Harold Edward Sherwin Holt, F.R.G.S., Lt.-Col. (Hon. Col.) James Murray Home, Lt.-Col. (actg. Brig.-Gen.) John Archibald Houison-Crauford.

Maj. (actg. Lt. Col.) Sir Norman Roderick Alexander David Leslie, Bart.

Lt.-Col. (actg. Col.) Archibald Campbell Holms Maclean, Maj. (actg. Lt.-Col.) Harold Arthur Moore, M.C., Actg. Lt.-Col. Francis Frederick Muecke, M.B., F.R.C.S.

Lt.-Col. Alec Ogilvie, O.B.E.

Lt.-Col. Douglas Powell.

Lt.-Col. Charles Russel Jekyl Randall.

Col. (actg. Brig.-Gen.) John Miles Steel, Lt.-Col. (actg. Col.) Ralph Durrant Sadleir Stoney.

Lt.-Col. Reginald George Talbot.

Lt.-Col. (actg. Brig.-Gen.) Cecil Henry Whittington, C.M.G.

To be Officers of the Military Division of the said Most Excellent Order.

Maj. Charles Francis Abell, Maj. George Henry Abell, Capt. (actg. Maj.) Reginald Addenbrooke-Prout, M.C., Capt. (actg. Maj.) George Charlton Anne, Maj. Felton Clayson Atkinson, Maj. Harold Gordon Atkinson, Capt. (actg. Maj.) Henry Fox Atkinson-Clark, Maj. (actg. Lt.-Col.) Herbert Arthur Reginald Aubrey, M.C., Capt (actg. Maj.) Lawrence Auker, Capt. (actg. Maj.) Sidney Robert Axford, Capt (actg. Maj.) William Edgar Aylwin, M.B.E.

Capt. (actg. Maj.) Lionel Percy Ball, Capt. (actg. Maj.) Aiden James Wharton Barmby, Capt. (actg. Maj.) Allen Stewart Barnfield, Maj. (actg. Lt.-Col.) Robert John Ferguson Barton, Capt. (actg. Maj.) Thomas George Baxenden, Maj. (actg. Lt.-Col.) John George Bayes, Maj. Victor Douglas Bell, Lt.-Col. Bertram Richard White Beor, Lt.-Col. Edward Gerald Oakley Beuttler, Maj. Henry Francis Tozer Blowey, Lt.-Col. (actg. Col.) Ian Malcolm Bonham-Carter, Capt. (actg. Maj.) Claude Herbert Dick Bonnett, Lt.-Col. James Bevan Bowen, Lt.-Col. Geoffrey Rhodes Bromet, D.S.O., Capt. (actg. Maj.) Francis Giles Brown, Maj. Thomas Builen, Capt. (actg Maj.) William Douglas Bugden, Capt. (actg. Maj.) Christopher Llewellyn Bullock, Capt. (actg. Maj.) Cyril Gordon Burge, Capt. (actg. Maj.) John Wotherspoon Burt, Maj. Horace Austin Buss, D.S.C., Maj. (actg. Lt.-Col.) Charles Adrian James Butter.

Maj. (actg. Lt.-Col.) Donald Hay Cameron, Lt.-Col Edward Oliver Bamford Carbery, M.B., Maj. Rowland Dobree Carey, Maj. (actg. Lt.-Col.) Silas Bernard Foley Carter, Maj. Frederick Foster Chambers, Maj. (actg. Lt.-Col.) Ronald Cockburn, Maj. (actg. Lt.-Col.) Reginald Blayney Bulteel Colmore, Lt.-Col. (actg. Col.) Daniel Goodwin Conner, Capt. (actg. Maj.) Robert Ewing Cook, Maj. Ion Alexander Scott Cooke, Maj. James Percy Carre Cooper, M.C., Hon. Maj. Herbert John Corin, L.D.S., R.C.S., Lt.-Col. Jasper Wallace Cruickshank, Capt. (actg. Maj.) Howard Cumming, Capt. (actg. Maj.) Walter John Brice Curtis.

Maj. Walford Davies, Maj. Francis Robert Edward Davis, Capt. (actg. Maj.) Harold Bentley Denton, Maj. (actg. Lt.-Col.) Rene de Sarigny (S.A. Forces), Lt.-Col. Francis Richard Drake, Maj. Chester Stairs Duffus, M.C., Lt.-Col John Dunville

Capt. (actg. Maj.) Percy Granville Edge, M.B.E., Lt.-Col. Charles Humphrey Kingsman Edmonds, D.S.O., Capt. (actg. Lt.-Col.) Thomas Macdonald Eggar, Capt. (actg. Maj.) James Boyne Elliott, Maj. Stuart Oswald Everitt.

Capt. (actg Lt.-Col.) William Walter Farthing, Lt. Col. Louis Frederick Rudston Fell, D.S.O., Maj. (actg Lt.-Col) William James Fernie, Lt.Col. Cecil Fraser, M.C., Capt. (actg. Maj.) Francis William Ian Victor Fraser, M.C., Lt.-Col. George William Frederick Fraser, Maj. (actg. Lt.-Col.) Max Freeman.

Maj. Charles William Gamble, M.B.E., Maj. Thomas Richard Henty Garrett, Actg. Maj. William Walker Gibson, M.B.E., Maj. (actg. Lt.-Col.) Thomas Edward Gilmore, Maj. Stanley James Goble, D.S.O., D.S.C., Lt.-Col. Norman Goldsmith, Capt. (actg. Maj.) Cedric Foskett Gordon, M.C., Capt. (actg. Maj.) Frank James Gray, Capt. (actg. Maj.) The Hon. Lionel George William Guest.

Maj. (actg. Lt.-Col.) Alfred Kingsley Hall, Capt (actg. Maj.) Ernest Samuel Halford, Capt. (actg. Maj.) William Stanley Hammond, Maj. (actg. Lt.-Col.) George Daniel Hannay, Capt (actg. Lt.-Col.) John Frederick Hawkins, Maj. (actg. Lt.-Col.) Robert Cholerton Hayes, Maj. George Hazelton, Maj. (actg. Lt.-Col.) Alfred Stanley Hellawell, Capt. (actg. Major) Richard Gustavus Heyn, Maj. (actg. Lt.-Col.) John Harris Hills, M.B.E., Maj. (actg. Lt.-Col.) Robert Hilton-Jones, Capt. (actg Maj.) William Hodgson, Capt. (actg Maj.) Ernest Holloway, Maj. Ernest James Howard.

Maj. Ernest Henry Johnston, Maj. Frank Jolly.

Maj. (actg. Lt.-Col.) Stuart Samuel Kennedy, Maj. Charles Frederick Krabbé, M.B.E., Capt. (actg. Maj.) Clarence Brehmer Krabbé.

Maj. (actg Lt.-Col.) George Laing, Capt. (actg. Lt.-Col.) James Arthur Maule Lang, Lt.-Col. William Henry Lang, Maj. (actg. Lt. Col.) Henry Charles Theodore Langdon, Maj. Frederick Charles Victor Laws, Capt. (actg. Maj.) Harold Roger Lecomber, Lt. Col. Cecil John L'Estrange-Malone, Capt. (actg. Maj.) Leonard Moore Lilley, Capt. (actg. Maj.) Reginald Stuart-Lindsell, Maj. John William Lintott, Capt. (actg. Maj.) Philip Norman Logan, Maj. Walter Dixon Long, Capt. (actg. Lt.-Col.) Theodore Ernle Longridge, Maj. (actg. Lt.-Col.) Frederick William Lucas, Maj. (actg. Lt.-Col.) Thomas Lyons, M.B.E.

Capt. (actg Maj.) George Buchanan McClure, Capt (actg. Maj.) Samuel McClure, Maj. James Ronald McCrindle, M.C., Capt. (actg. Maj.) Colin Temple McLaren, Maj. (actg Lt.-Col.) William Lockwood Marsh, Capt. (actg. Maj.) Reginald Ferdinando Maitland, Maj. (actg. Lt.-Col.) Alfred Ridley Martin, Capt. (actg. Maj.) Thomas Martin, Capt. (actg. Maj.) Richard Beauchamp Maycock, Lt.-Col. Arthur Harold Measures, Maj. Charles Edward Hastings Medhurst, M.C., Capt. (actg. Lt.-Col.) Edward Patrick Alexander Melville, Lt.-Col. Malcolm David Methven, Maj. William Charles Michie, Maj. Arnold John Miley, M.B.E., Lt.-Col. Robert Harry Monument, Maj. Alfred Samuel Morris, Maj. Roland James Mounsey, Maj. Charles Joseph Murfitt, Maj. Percy Murray John Murrell.

Capt (actg. Maj.) Douglas Gordon Nairn, Maj. (actg. Lt.-Col.) Stanley Sharp Nevill, Capt. (actg. Maj.) Norman Dakeyne Newall, Capt. (actg. Maj.) Leslie Newman, Maj. Herbert John Newton-Clare, Maj. (actg. Lt.-Col.) Francis Arthur Gerard Noel, Capt. (actg. Maj.) John Tom North, Maj. Harry Robert Northover, M.C.

Maj. Charles Percy Ogden, Maj Brefney Rolph O'Reilly, M.D. (Canadian Local Forces).

Capt. (actg. Maj.) Henry William Moncrieff Paul, M.C., Maj. (actg. Lt.-Col.) Gerald Selwyn Peacock, Capt. (actg. Maj.) Joseph Pearce, Capt. (actg. Maj.) Eugene Courtney Perrin, Lt.-Col. Thomas Brocklehurst Phillips (late 13th Hrs., and formerly attd. Air Board), Maj. (actg. Lt.-Col.) Geoffrey Denzie Pidgeon, Maj. (actg. Lt.-Col.) Robert Kingsley Pillers, Maj. William Joseph Polyblank, Maj. Enoch Powell, Lt.-Col. George Frederick Pretyman, D.S.O., Maj. Charles Edmond Prince, M.B.E., Maj. Conway Walker Heath Pulford, Capt. (actg. Maj.) Frederick Bygrave Pulham.

Capt (actg. Maj.) Stamford Cecil Raffles, Capt. (actg. Lt.-Col.) William Oswald Raikes, M.B.E., Maj. Donald Rainsford-Hannay, Maj. George Martin Treherne Rees, Capt. (actg Maj.) Robert Alburne Reid, Maj. Vincent Crane Richmond, Maj Thomas Edward Robertson, Maj. Alexander Augustus Edmund Robinson, Maj. Alick Christopher Robinson, Capt. (actg. Maj.) John Rubie, Maj. (actg. Lt.-Col.) William John Ryan, M.B.E.

Lt.-Col. Leslie Sadler, Maj. (actg. Lt. Col.) Frederick Lewellen Scholte, Lt.-Col. Francis Claude Shebnerdine, Maj. the Right Hon. Sir John Allsebrook Simon, K.C.V.O., K.C., Capt. (actg. Maj.) Gerald Arthur Sinclair-Hill, Maj. Sidney Vincent Sippe, D.S.O., Maj. (actg. Lt.-Col.) Charles Gainer Smith, Lt Col. (actg. Col.) Sidney Ernest Smith, Major John Trevor Spittle, Capt (actg. Maj.) Frederick Gunning Stammers, Capt. (actg. Maj.) Edward Parker Stapleton, Lt.-Col. John Starling, Maj. (actg. Lt.-Col.) Ernest Walker Stedman, Maj. (actg. Lt.-Col.) Alfred Horace Steele Steele-Perkins, Maj. Frank Harold Stephens (Medical Service), Maj. Edward Stokes, Maj. Arthur Struben (S.A. Eng.), Maj Bertine Entwistle Sutton, D.S.O., M.C.

Capt. (actg. Maj.) Otho Vincent Thomas, Capt. (actg. Maj.) Rudall Woodliffe Thomas, Actg. Maj. John Edmund Burnet Thornely, Capt. (actg. Maj.) Francis William Trott, M.C., Maj. (actg. Lt.-Col.) Arthur Kellan Tylee.

Capt. (actg. Maj.) Anthony Herbert William Wall, M.C., Capt. (actg. Maj.) Vere Ward-Brown, M.C., Maj. Francis Cartwright Williams, Maj. (temp. Lt.-Col.) Richard Williams, D.S.O. (Aus F.C.), Capt. (actg. Maj.) Frank Gordon Wilson, Maj. (actg Lt.-Col.) Francis Augustus John Bartholomew Wiseman, Capt. (actg Maj.) Murdick McKenzie Wood, Capt. (actg. Maj.) Gilbert de Lacy Wooldridge, Maj. (actg. Lt.-Col.) Harold Wyllie, Maj. (actg. Lt.-Col.) Alfred Hearst Wynn Elias Wynn.

Capt. (actg. Maj.) Walter Gerald Paul Young.

WOMEN'S ROYAL AIR FORCE.

Asst. Comdt., Cl. I., Mrs. Wimfred Powell, Asst. Comdt., Cl. II., Mrs. Mary Edwards, Asst. Comdt., Cl. II, Mrs. Margaret Moss

To be Members of the Military Division of the said Most Excellent Order.

Lt. George Philip Achurch, Sec. Lt. John Leonard Adams, D.S.M., Sec. Lt. (Hon. Capt.) Arthur Dunscombe Allen, Lt. (actg. Capt.) Henry Graeme Anderson, Sec. Lt. Charles Attrill.

Sec. Lt. Harry James Bagge, Capt Edward Henry Bellew, Capt. Walter Owen Bentley, Lt. (actg. Capt.) Arthur William Brittain, Capt. William Robert Bruce-Clarke, Sec. Lt. (Hon. Lt.) Fernand Charles Butler.

Capt. Leslie Wilden Carr, Lt. (actg. Capt.) John Eric Catherall, Lt. (actg. Capt.) John Harwood Catleugh, Capt. Archibald Sidney Cheshire, Capt. Fred Christie, Lt. John George Neilson Clift, Capt. Herbert Prinsep Somers Clogstoun, Sec. Lt. William Cole, Lt. (actg. Capt.) Edgar Edmund Colquhoun, Sec. Lt. (actg. Capt.) James Henry Cooke, Capt. Hugh George Corby, Capt. William Percy Cort. Capt. Reginald Aloysius Courtney, Lt. (actg. Capt.) Keppel Archibald Cameron Creswell.

Lt. (actg. Capt.) Amos Allan Denison, M.C., Capt. William James Dew, Capt. Ernest O. Drudge.

Lt. Samuel Howard Ellis.

Capt. Samuel Denys Felkin, Sec. Lt. John Herbert Ferguson, Lt. (actg. Capt.) Walter Harrison Fieldiug, Sec. Lt. (actg. Capt.) Albert Edward Muspratt Fortescue, Capt. George Gerald Rae Fraser, Sec. Lt. (actg. Capt.) Robert McGorman Freemantle, Sec. Lt. (actg. Capt.) John Hunt Furniss.

Capt. Harold Gardiner-Hill, Capt Arthur Basil Wickham Greenhough, M.C., Capt. Arthur Leslie Gregory, M.C.

Capt. Adolph Herbert Handman, Capt. Albert Urbane Hansford, Capt. William Whiddon Hart, Sec. Lt. Wilfred Edward Graham Heanly, Sec. Lt. (actg. Capt.) Noel Hemsley, Capt. Charles Goldby Hetherington, Lt. (actg. Capt.) Alfred Hingston, Sec. Lt John Walter Hoskings, Lt. (actg. Maj.) Philip Charles Hoyland, Lt. Eric Beresford Humphries, M.C., Lt. (actg. Capt.) Robert Henry Humphreys, Sec Lt. John Hunter.

Lt. (actg. Capt.) Frederick Mitchell Iredale.

Sec. Lt. (actg. Lt.) Maurice Jewison James, Sec. Lt. Thomas Pargeter Jones.

Capt. Alfred Knight.

Capt. Edward Leonard Lander, Lt. Alistair Lee, Sec. Lt. Bernard Alexander Levey, Sec. Lt. (actg. Capt.) Walter Lienard, Lt. (actg. Capt.) William Lingard, Lt. (actg. Capt.) George Henry Hudson Lyall, Lt. (actg. Capt.) William Hooker Lyall, Lt. Edgar Lyne.

Capt. Alister Pelham MacKilligan, Sec. Lt. Robert Knox McLean, Sec. Lt. (actg. Lt.) John Alexander McMullen, Capt. John Mitchell Mitchell, Lt. Edward Arthur Molyneux, Capt. Stanley Robert Mullard

Lt. (actg. Lt.) Herbert John Greatrex Newman

Capt. Tom Douglas Hamilton Osborn, Lt. Alexander Rutherford Ovens.

Lt. (actg. Capt.) Thomas Arthur Peddell.

Hon. Capt. George Ramage, Capt John Victor Read, Capt. Colin Spencer Richardson, Lt. (actg. Maj.) Jacob Sutcliffe Ruttle.

Capt. Frederick William Scarff, Capt. Walter Alfred Scoble, Lt. John Butterfield Sharples, Sec. Lt. James Henry Slater, Capt. Alexander Clegg Smith, M.C., Lt. (actg. Capt.) Charles Hodgkinson Smith, Capt. Henry Joseph Cecil Smith, Capt. Robert Stephenson-Peach, Capt. Robert Little Stevenson, Sec. Lt. George John Stroud, Lt. James Henry Richardson Sutherland (Can. Inf.).

Lt. (actg. Capt.) Henry Percy Tate, Capt. Tom Whitaker Tattersall, Sec. Lt. Charles Stuart Thompson, Sec. Lt. George Albert Thompson, Capt. Harry Tilley, Lt. (actg. Capt.) Samuel Arthur Turner, Capt. James Herbert Tyler.

Capt. Dudley Francis Upjohn.

Lt. (actg. Capt.) Antoine Emile Verpilleux

Capt Robert Bruce Waite, Capt. John Philip Walker, Capt. John Charles Watson, Capt. William Thomas Webley, Lt. Herbert Gray Welsford, Capt. Raymond Whitaker, Sec. Lt John Charles White, Sec. Lt Thomas Willis, Lt. Albert Thomas Edgar Witt, Lt. Charles Harry Witty.

Lt. Christopher Harding Young

WOMEN'S ROYAL AIR FORCE

Administrator Miss Matilda Theresa Talbot, Asst. Administrator Miss Marion Annie Thompson, actg. Asst. Comdt. Mrs. Olive Eleanore Tibbits, Supt. Mrs. Charlotte Bathasar Gething (Woking).

, AIR MINISTRY, Jan. 1st.

His Majesty the King has been graciously pleased to approve of the undermentioned rewards to officers and other ranks of the Royal Air Force, in recognition of distinguished service:—

Promoted to rank of Substantive Colonel.

JAN. 1st, 1919

Lt.-Col. (actg. Brig.-Gen.) Henry Percy Smyth-Osbourne, Lt.-Col. (actg. Brig.-Gen.) Bertie Clephane Hawley Drew, C.M.G., Lt.-Col. (actg. Col.) Frederick Crosby Halahan, D.S.O., M.V.O., Lt.-Col. (actg. Brig.-Gen.) Alfred Huggins, C.M.G., D.S.O., Lt. Col. (actg. Brig.-Gen.) Percy Robert Clifford Groves, D.S.O., Lt.-Col. (actg. Col.) Lyster Fettiplace Blandy, D.S.O.

Promoted to rank of Substantive Lieutenant-Colonel.

JAN. 1st, 1919.

Maj. (actg. Lt.-Col.) Creffwell Paillett Rooke, Maj. Percival Scott Rickord, Maj. George Hilton, D.C.M., Maj. (actg. Lt.-Col.) John Theodore Cuthbert Moore-Brabazon, Maj. (actg. Lt.-Col.) John Mead, M.C., Maj. (actg. Lt.-Col.) Richard Charles Montagu Pink.

Promoted to rank of Substantive Major.

JAN. 1st, 1919.

Capt. (actg. Lt.-Col.) Nigel Gordon Darnell, Capt. (actg. Lt.-Col.) Frederick George Darby Hards, D.S.C., D.F.C., Capt. (actg. Lt.-Col.) Edward Raux Littledale Corballis, D.S.C., Capt. (actg. Maj.) Geoffrey Robson Newton, Capt. Archibald Robert Boyle, M.C., Capt. (actg. Maj.) George William Williamson, M.C., Capt. (Hon. and actg. Maj.) Herbert Arthur Michell, Capt. (Hon. Maj.) Herbert Frederick Wood, Capt. (actg. Maj.) William Thomas, M.C., Capt (actg. Maj.) Sidney Herbert Cleall, Capt. Albert James Butler, M.C., Capt. Thomas Harry Vitty, Capt. (actg. Lt.-Col.) Francis Swinton Isaac, Capt. Frederick William Scarff, M.B.E., Capt (actg. Maj.) John Weston, Capt. (Hon. Maj.) Arthur Balliene Ennis.

Promoted to rank of Substantive Captain.

JAN. 1st, 1919.

Lt. (actg. Capt.) Donald Leonard Abbott, Sec. Lt. (Hon. Lt.) Sidney Herbert Alston, Lt. Frederick Ernest Bishop, Lt. Dudley George Bourne, Lt. (actg. Capt.) Harold Reginald Brutey, Lt (actg. Capt.) Basil Everard Catchpole, M.C., D.F.C., Lt. (actg. Capt.) Douglas Colyer, D.F.C., Lt. (Hon. Maj.) Claude Augustus Cutbill, Sec. Lt. (actg. Lt.) Joseph Rudolph Derouet, Lt. (actg. Capt.) Harold Gaul Etheridge, Lt. (actg. Capt.) Gordon Grange Fairbairn, Lt. (actg. Capt.) Andrew Ferris, Hon. Lt. Charles Murray Hennell, Lt. James Hutton, Lt. (actg. Capt.) Harold Lawson, M.B.E., Lt. Sir Courtenay Cecil Mansel, Bart., Lt. Michael Amyas Julian Orde, Lt. (actg. Capt.) Francis John Harris Palmer, Lt (actg. Maj.) Keith Rodney Park, Lt. Arthur Henry Peake-Jones, Lt. Robert William Reeve, D.F.C., Lt. (actg. Capt.) Norman Frank Were Rockey, Lt. (actg. Capt.) Francis George Stanley Williams, Lt. (actg. Capt.) George Edward Wilson.

Promoted to rank of Substantive Lieutenant.

JAN. 1st, 1919.

Sec. Lt. George Frederick Allison, Sec. Lt. (Hon. Lt.) Herbert Michael Ayres, Sec. Lt. Leonard Desborough Brown, Sec. Lt. Charles Frederick Bulmer, Sec. Lt. George Henry Carbutt, Sec. Lt. Albert Ernest Wilford Finch, Sec. Lt. (Hon. Lt.) Cecil Hubert Higson, Sec. Lt. Thomas Charles Penna, Sec. Lt. James Rodger, Sec. Lt. (Hon. Lt.) Edward Angus Roberts, Sec. Lt. Robert John Shanks, Sec Lt. Samuel Victor Towers, Sec. Lt. James Tassie Vernon

AWARDED THE DISTINGUISHED SERVICE ORDER.

Maj. (actg. Lt.-Col.) Jack Armand Cunningham, D.F.C., Capt. (actg. Maj.) Francis Joseph Edward Feeney, Lt.-Col. Francis Esme Theodore Hewlett, O.B.E., Capt. (actg. Maj.) Arthur Frederick Foy Jacob, Lt.-Col. (actg. Col.) Arthur Murray Longmore, Maj. Trafford Leigh Mallory, Lt.-Col. Hugh Mowbray Meyler, M.C., Col. (actg Brig.-Gen.) Duncan Le Geyt Pitcher, C.M.G., Maj. George Ronald MacFarlane Reid, M.C., Lt.-Col. Helperus Andrias Van Ryneveld, M.C.

AWARDED A BAR TO THE DISTINGUISHED FLYING CROSS.

Capt. (actg. Maj.) Keith Logan Caldwell, M.C., D.F.C., Lt. (actg. Capt.) Robert Halley, D.F.C., Lt (actg. Capt.) Thomas Walter Nash, D.F.C.

AWARDED THE DISTINGUISHED FLYING CROSS.

Lt. William Melville Ackery, Lt. Allan Percy Adams, Lt. Douglas Alliban, Lt. (actg. Capt.) Thomas Craig Annan, Maj. Anthony Rex Arnold, D.S.C., Lt. Edward Enos Arnold

Maj. Frederick Cecil Baker, A.F.C., Lt. Leonard William Baker, Capt. Sidney Ernest Ball, Capt. David Moar Ballantyne, Lt. Albert Frederick Bartlett, Lt. Frederick Gordon Bayley, Capt. Rene Maurice Bayley, Lt. James Alexander Beeney, Lt. Bernard John Everest Belcher, Lt. William Bentley, Capt. George William Biles, Actg. Capt. Thomas Gerald Glyn Bolitho, M.C., Lt. (actg. Capt.) Ralph Bolton, Lt. James Boyd, Lt. Neville Isaac Brockbank, Lt. (actg. Capt.) Reginald Frederick Browne, Lt William Edward Bryan, Lt. Wilfred James Buchanan.

Lt.-Col. Henry Meyrick Cave-Browne-Cave, D.S.O., Lt Sydney James Chamberlain, Capt. Cecil John Clayton, Lt Lionel John Collier, Lt. (actg. Capt.) Herbert Melbourne Coombs, Capt. Ebenezer Bertram Cowell.

Capt. Rupert Edward Darnton, Lt. Robert Ernest Lloyd Davies, Lt (actg. Capt.) Harold George Davis, Maj. Charles Herbert Dixon, M.C., Capt. (actg. Maj.) Kenneth Town Dowding

Lt. John Ellingham.

Lt. Sidney Samuel Flook, Capt Wilfred Forsyth Norman Forrest, Lt. Leslie Robert Fox, Lt. Eric John Furlong.

Lt. Arthur Stuart Girling, Lt. Thomas Crowther Gordon, Lt. (actg. Capt.) Acheson Gosford Goulding, M.C. (Can. Local Forces), Capt. (actg. Maj.) Ronald Grahame, D.S.O., D.S.C., Lt. Charles Bremner Green (Can Local Forces), Lt. James Duff Guild

Capt. Francis Neville Halstead, Lt. (actg. Capt.) Earl McNabb Hand, Sec. Lt (Hon. Capt.) Frederick Joseph Haney, M.C., Capt. Henry Ivan Hanmer, Lt. Norman Roy Harben, Capt. Edmund Parfitt Hardman, Sec. Lt. George Henry Alexander Hart, Lt. Peter Haworth, Lt. (actg. Capt.) Harold Hillier, Capt. Walter George Raymond Hinchliffe, Lt. John Hodgson, Lt. George William Holderness, Lt. (actg. Capt.) John Richard Hopkins.

Lt. (Hon. Capt.) Francis Thomas Rattray Kempster, Capt. Walter Robert Kenny, Lt. (actg. Capt.) Leslie Lindo King.

Lt. George Martin Lees, M.C., Lt. Douglas Fairlie Lepraik, Capt. (actg. Maj.) Reginald Frederick Stuart Leslie, D.S.C., Lt. (actg. Capt.) Isaac Wyper Leiper, Lt. George Alexander Lingham.

Sec. Lt. James Macdonald (No. 6 Group, Adriatic), Lt. Malcolm MacEwan, Maj. Charles Joseph Mackay, M.C., Sec. Lt Dugald MacDougall, Lt. Earle Fraser McIlraith, Lt. Frank Melville McLennan, Capt Philip Herbert Mackworth, Lt. (actg. Capt.) Harvey Lancelot Macro, Capt. Bertram Alexander Malet, Lt. John Leonard Mayer, Sec. Lt. (Hon. Lt.) William Miller, Lt. David Fraser Murray.

Lt. Jaffrey John Walter Nicholson, Capt. Harry Laurence Nunn, D.S.C.

Sec. Lt. Osborne John Orr.

Sec. Lt. Augustus Paget, Lt. Frederick William Pickup, Sec. Lt Colin Patrick Primrose, Lt.-Col. William Harold Primrose.

Maj. John Charles Quinnell.

Lt. Walter Ridley (Can. Eng.), Lt.-Col. Edmund Digby Maxwell Robertson, Lt. Frederick Vernon Robinson (Can. M.R.), Sec. Lt. (Hon Lt.) Ian Robert Lawther Ross, Lt. (actg. Capt.) George Henry Russell.

Capt. William Leopold Samson, Lt. (actg. Capt.) Frederick Herbert St. Clair Sargant, Maj. Richard Ernest Saul, Capt. (actg. Maj.) Charles Winter Scott, Capt. Robert Henry Sharp, Lt. (actg. Capt.) Victor Donald Siddons, Capt. Ronald Davidson Simpson, Capt Leonard Horatio Slatter, D.S.C., Maj. Bernard Edward Smythies, Lt. Robert Geddes Spence, Sec. Lt. (actg. Capt.) James Humphrey Sprott, Sec. Lt. Henry McDermott Starke, Capt. Claude Harry Stokes, Lt. (actg. Capt.) Edwin Curtis Robinson Stoneman, Lt. Stephen Charles Stafford.

Lt. Hedworth Williamson Tait, Capt. (actg. Maj.) Godfrey Maine Thomas, Lt. William Miles Thomas, Lt. Thomas William Gordon Thompson, Capt. Thomas George Thornton, M.C., Sec. Lt. Geoffrey Beauchamp Treadwell.

Lt. (actg. Capt.) Frederick Culborne Vincent.

Lt. Charles Frederick Allan Wagstaff, Capt. Henry James Wiser (Can. Inf.).

Capt. John Arthur Yonge.

AWARDED THE AIR FORCE CROSS.

Maj. Leslie Peech Aizlewood, M.C., Capt. Ellis Anthony (Can. Mila.), Capt. (actg. Maj.) William Henry Shields Aplin, Lt. (actg. Capt.) George Hughes Armstrong, Capt. Edward Dawson Atkinson, D.F.C., Capt. Joseph Dover Atkinson, Capt. (actg. Maj.) Ernest Arthur Oliphant Auldjo-Jamieson.

Maj (actg. Lt.-Col.) Philip Babington, M.C., Sec. Lt. William Dodds Haldane Baird, Capt. (actg. Maj.) Brian Edward Baker, D.S.O., M.C., Lt. (actg. Capt.) Edward Gentleman Bannister, Lt. (actg. Capt.) Frank Bell Baragar, Capt. Frank Sowter Barnwell, O.B.E., Capt. (actg. Lt.-Col.) Stanley Bell, Capt. Vivian Arthur Fenton Bellamy, Capt. Seymour Stewart Benson, Sec. Lt. Archer Ormonde Binding, Lt. (actg. Capt.) Joseph Wesley Lightbourne Birkbeck, Capt. Alfred Montague Blake, Capt. Alfred Gordon Bond, Lt. the Hon. Alan Reginald Boyle (56th Balloon Section), Lt. (actg. Capt.) Allan Boyle, M.C., Capt. (actg. Maj.) Norman Brearly, D.S.O., M.C., Lt. (actg. Capt.) Godfrey Bremridge, Lt. Bertie Sandel Brice, Col. (actg. Brig.-Gen.) Henry Robert Moore Brooke-Popham, D.S.O., Sec. Lt. Richard John Brotherton (S.A. Forces), Sec. Lt. Leonard Desborough Brown, Capt Henry John Butler, Lt.-Col. Henry Richard Busteed, O.B.E.

Lt. David Vaughan Carnegie, Lt. (actg. Capt.) Reginald Sheridan Carroll, Lt. Morris Drinkwater Carver, Lt. Paul Richard Tankerville Chamberlayne, Maj. Robert Arthur Chalmers, O.B.E., Lt. Douglas Alwyn Rougier Chapman, Lt. Victor Charles Chapman, Lt. (actg. Capt.) Henry Richard Clarke, Capt. Frank Cleary, Capt John Alexander Coats, Capt. (actg. Maj.) Ralph Alexander Cochrane, Maj. the Hon. Roger Coke, Capt (actg. Maj.) John Patrick Coleman, Maj. Arthur Quilton Cooper, D.S.C., Capt. Alexander Robb Cox.

Capt. Arthur George Davis, Capt. Ronald Eric Dean, Lt. (actg. Capt.) Desmond Herlooin De Burgh, Capt. Geoffrey De Havilland, O.B.E., Lt. Emile Henri De Heaume, Capt. Hedley Vicars Drew, Lt. Charles Herbert Drew.

Lt. Reginald Threlkeld Edwards, Capt. (actg. Maj.) Thomas Walker Elmhirst

Lt. (actg. Capt.) Sven Eric Faber, Capt. (actg. Maj.) Charles Osborn Fairbairn, Capt. John Stewart Temple Fall, D.S.C., Lt.-Col. Charles Robert Finch-Noyes, D.S.O., Lt.-Col. John Norman Fletcher, Lt. (actg. Capt.) Norman Graham Fraser.

Lt. (actg. Capt.) Edward David George Galley, M.C., Lt. Harold Fraser Game, Lt. (actg. Capt.) Gerald William Gathergood, Capt. Alfred Herbert Harold Gilligan, Capt. Albert Earl Godfrey, M.C., Lt. John Henry Gotch.

Maj. (actg. Lt.-Col.) Douglas Harries, Maj. Irving Henry Bibby Hartford, Capt. Charles Samuel Hay, Lt (actg. Capt.) Stephen Hay, Capt. (actg. Maj.) Harold Hemming, Maj. Swithin Gane Hodges, M.C., Capt. (actg. Maj.) Walter Thomas Forrest Holland, Maj. (actg. Lt.-Col.) Ralph James Jean Hope-Vere, Lt. Frank Lindon Hopps, Lt. John Leitch Horne, Maj. Thomas O'Brien Hubbard, M.C.

Lt. (actg. Capt.) Frederick Irwin Jacks, Lt. Clarence Jackson, Capt. (Hon. Maj.) Douglas Grahame Joy (Can. M.R.).

Capt. John Harvey Keens, Capt. (actg. Maj.) Harold Spencer Kerby, Lt. Ralph Imray Kirton, Capt. Edwin Middleton Knott.

Sec. Lt. Charles Victor Lacey, Lt. Thomas Audley Langford-Sainsbury, Lt. Eardley Haydon Lawford, Capt. John Owen Leach, M.C., Capt. (Hon. Major) Thomas Orde Hans Lees, Capt. (actg. Maj.) Ivo Cecil Little, Col. (actg. Brig.-Gen.) Charles Alexander Holcombe Longcroft, D.S.O., Capt. Ernest Vincent Longinotto, Capt. Geoffrey Lyttleton Lowis.

Capt. James Steel Maitland, Lt.-Col. Francis Kennedy McClean, Capt. Cedric Yeats McDonald, Capt. Ian Macdonald, Lt. Ivor Ewing McIntyre, Capt. (actg. Maj.) William Gordon McMinnies, Lt. Theodore Marburg, Capt. Peter Henry Martin, Capt. Thomas John Clement Martyn, M.C., Lt James Arthur Ryerson Mason, Col (actg. Brig.-Gen.) Edward Alexander Dimsdale Masterman, C.B.E., Sec. Lt. Thomas Frederick Mathewson, Capt. Edward Morgan Morgan, Lt. Cyrus Maxwell Mortimer, Sec. Lt John Morton.

Maj. (actg. Col.) Eric Roper Curzon Nanson, D.S.C., Lt. (actg. Capt.) William Eric Nicholson.

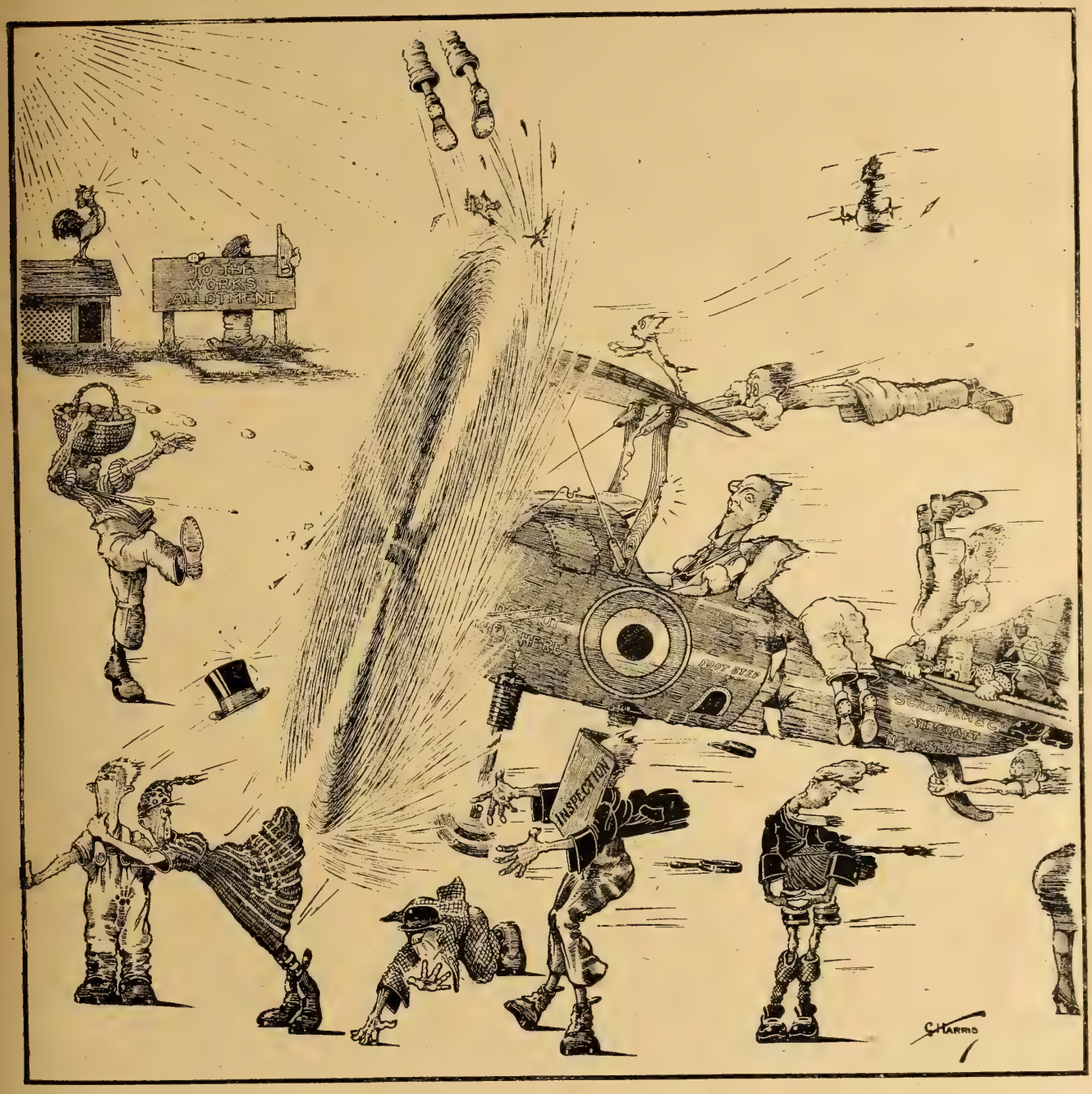
Maj. Sidney Ernest Parker, M.B.E., Capt. (actg. Maj.) Cyril Patteson, M.C., Lt.-Col. Richard Edmund Charles Peirse, D.S.O., Lt. George Beacoll Powell, Sec. Lt. Arthur Gwynne Power, Lt Raphael Chevallier Preston Maj. Conway Walter Heath Pulford.

Capt. (actg. Maj.) William Ronald Read, M.C., Lt. Leo James Riordan, Capt. Hugh Anselm Boulton Robb, M.C., Capt. Brian Kyte David Robertson, Lt. Douglas Hall Robertson, Capt. William Roche-Kelly.

Lt.-Col. (actg. Col.) Charles Rumney Samson, D.S.O., Capt. Robert Henry Magnus Spencer Saundby, M.C., Lt.-Col. Alan John Lance Scott, M.C., Maj George Herbert Scott, Maj. James Stanley Scott, M.C., Capt. (actg. Maj.) Walter Somerville Scott, M.C., Lt. James Orrok Simpson, Lt. (actg. Capt.) Malcolm Millard Sisley, Lt. (actg. Capt.) Harry Slingsby, Lt. (actg. Capt.) Bernard Valentine Seymour Smith, M.C., Lt. Gerald Dent Smith, Capt. Percy William Snell, Maj Frederick Sowrey, D.S.O., M.C., Maj. William Sowrey, Capt. Arthur Sparrow, Sec. Lt. Cowan Douglas Stephenson, Lt. John Clifford Stockman, Capt. Charles Howe Stocks, Capt. Ronald Scott Sugden, Capt. John A. Sully-(Alberta R.).

Lt. Edric Tasker, Maj. George Stanley Trewin, Capt. (actg. Maj.) Cyril Jameson Truran, Capt. George Mark Turnbull, Capt. (actg. Maj.) Harley Alec Tweedie.

Lt. Harold Ridlington Hunter Ward, Capt. Siegfried Ricards Watkins, Lt Francis Vivian Way, Lt. Robert Marychurch Whitmore, Capt. Lloyd Whitworth, Capt. Percival Wickens, Capt. James Norris Wilson, Maj. John Philip Wilson, D.S.C., Capt. (actg. Maj.) Bernard Cyril Windeler, Lt (actg. Capt.) Ambrose Oliver Keeton Wright, Lt. (actg Capt.) James



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Lt. Harold Clare Young (Can. M.G. Corps).

Note.—A further list of awards of the Air Force Cross and Air Force Medal will be published at an early date

AWARDED THE ROYAL RED CROSS.

1st Class.

Mrs. Lilian O'Imeira Doughty-Wylie, M.B.E., Matron, Limenaria Hospital, Thasos.

2nd Class.

Miss Millicent Rutherford-Hams, Nursing Sister, R.A.F. Hospital, Vendome, Miss Elizabeth Sandford, M.B.E., Asst. Matron, Limenaria Hospital, Thasos.

AWARDED THE DISTINGUISHED FLYING MEDAL

J/3083 Serjt. Mech. (Obsr.) Samuel Eli Allatson (Southend-on-Sea), 127633 Serjt. Mech. Robert Allen (Fochabers), 216697 Serjt. Mech. (Obsr.) Cecil George Tennyson Bishop (Wimbledon), 212506 Cpl. Mech. (E.) Richard Brock (Ontario, Can.), 210951 Serjt. Mech. (Obsr.) Edwin Charles Carpenter (King's Lynn), 216346 Serjt. Mech. (Obsr.) Ronald Charles Chapman (Manor Park, E.), P/39380 Serjt. Mech Charles William Cooke (E. Lancs. R., attd. R.A.F.), 227042 2nd Cl. Air Mech. William Edwards (Boston Spa), 232634 3rd Cl. Air Mech. William Kimberley Foster (West Hampstead, N.W.), 215955 (formerly R.N.15955) Serjt. Edward Hoare (Acton Vale), 107715 Serjt. Mech. Trevor Hooton (Cardiff), 217040 Serjt. Mech. (Obsr.) William Henry Hoskin (Fulham, S.W.), 213517 2nd Cl. Air Mech. William Owen Hughes (Anglesey), 240901 3rd Cl. Air Mech. Arthur Stanley Jones (Levenshulme), 207605 Serjt. Mech. (Obsr.) George Stanley Keen (High Wycombe), 6663 1st Cl. Air Mech (actg. Cpl. Mech.) Charles William Lamb (Wolverhampton), 234940 3rd Cl. Air Mech. Alexander Lindsay (Milngavie), 224374 Serjt. Mech. (Obsr.) Ernest George Maund (Ilford), 12921 Serjt. Mech. John Henry Matthews (Cardiff), 205670 1st Cl. Air Mech. Reginald Arthur Miller (Balham, S.W.), 238686 Serjt. Mech. Malcolm Frederick George Mill (Poplar), 220266 Serjt. Mech. Ewart Oswald Norris (Cheltenham), 33413 Serjt. Mech. Percival George Phillips (East Ham), 237756 Serjt. Mech. Christopher James Shannon (Stamford Hill, N.), 26297 Serjt. Mech. Eric Gordon Stevens (Lancs. Fus., attd. R.A.F.), 12380 Cpl. Clk. Frank Frederick Thomas (Sandown, I. of W.), 216285 Serjt. Mech. Frank Leslie Clive Thornton (Blanford), 208051 Cpl. Mech. (Eng.) Alfred Edward Tucker (Watford), 222466 Cpl. Frederick Thomas Wallace (Canning Town, E.), 207316 Serjt. Mech. (Obsr.) William Edward David Wardrop (Fulham), 11930 Serjt Mech. Victor Gordon Warnock (Kidderminster).

AWARDED THE AIR FORCE MEDAL.

204181 Cpl. Mech. Elmo Bearden (Brooklyn), 220547 2nd Cl. Air Mech (W.T.) William Herbert Brown (Croydon), 234743 Ch. Mech. Arthur Ernest Close (Glasgow), 11419 Serjt. Mech. (Pilot) Sidney Redvers Cole (Chesham Bois), 290 Ch. Mech. Cecil Jebson Cox (York), 202403 1st Cl. Air Mech. Harold Frank Crespin (Felixstowe), J/4471 Ch. Mech. Albert Edward Easterbrook (Portsmouth), 235044 Ch. Mech. George William Hunt (Peterhead), K/2075 Ch Mech. John William Long (Gosport), 202272 Ch. Mech. Hubert Wilfred Newill (Goodmayes), 1536 Serjt. Mech William Fred Paull (Bitton, Glouc.s.), 208381 Cpl. Mech. James Moran Quail, D.S.M. (Clontarf, Dublin), 1018 Serjt. Mech. Walter Rogers (Vauxhall), 213632 1st Cl. Air Mech Stephen Leonard Starr (Richmond, Surrey).

AWARDED THE MERITORIOUS SERVICE MEDAL.

200211 Ch. Mech. J. B. Abbott (Chiswick, W.), 402559 Serjt. Clk. D. C Adams (Perth), 20717 Ch. Mech. E. A. Adams (Queen's Park, London), 202670 Serjt.-Maj. F. A. Adams (Stockport), 3337 actg. Mas. Clk. H. C. Adams (Kinswear, S. Devon), 55927 1st Cl. Air Mech. J. W. Adamson (S. Shields), 12456 1st Cl. Air Mech. C. J Aiano (Forest Gate, E.), 20219 Ch. Mas Mech. E. A. Allemand (Wandsworth), 405971 Cpl. Clk. W. J. Annette (S. Bermondsey), 16156 Serjt. Mech W. S. Appleton (Colchester), 219966 Serjt. Mech. T. B. Arlette (Lostwithiel), 23892 actg. Serjt. W. J. Asker (Holloway, N.).

16317 Serjt.-Maj. J. B. Barnard (Tottenham, N.), 6762 Ch. Mech. E. B. Barnett (Kensington, W.), 18635 Serjt. Mech. E. Battell (Kingsland, N.E.), 217382 Cpl. Obsr. E. A. Barber (5 Group, Dover), 16832 Serjt. Mech. J. Barr (Barrhead, N.B.), 14128 Ch. Mech. R. Barritte (Stanley, Durham), 2625 Ch. Mas. Mech M. J. Bell (Slough), 163249 2nd Pte. P. M. Beveridge (Kirkliston), 23113 Serjt. Mech. W. E. Smith (Enfield Lock), 33816 Cpl. Mech. H. W. Smith (Stamford), 3187 Ch. Mas. Mech. P Smyth (Galashiels), 735 Ch. Mas Mech. W. J. Southgate (Highgate, N.), 2435 Flt. Serjt. C. H. Spry (Houghton-le-Spring), 19281 Cpl. Mech. J. Staffiere (Dunfermline), 5200 Cpl. Mech. F. Stansfield (Wakefield), 209329 Ch. Mech. C. D Stephens (Birmingham), 16322 Serjt. Clk. R. C. Stevenson (Rochdale), 14724 Ch. Mas. Mech. A. E. Stone (Woolwich), 212047 2nd Air Mech. Swire (Nelson, Lancs.), 69337 1st Air Mech. T. B. Sykes (Luddendonfoot, Yorks.).

Aus./740 Ch. Mas. Mech. A. Taylor (France, 60th Squad.), 22857 Serjt. Mech. A. A. Taylor (Notting Hill, N.), 13053 Serjt. Clk. P. N. Taylor (Norwich), 8402 Ch. Mech. T. Thompson (London, W.C.), 6929 Ch. Mas Mech. E. J. Tobin (Oxford), 12021 Serjt. Clk. A. Topp (Farnham), 54355 3rd Air Mech. J. Traquair (Coatbridge), 128 Ch, Mas. Mech. W. G. Turner (Plumstead), 213709 1st Pte. J. S. Twyford (Camberwell).

8078 Serjt. Clk. F. J. Udell (Ilford).

9258 1st Pte. F. T. Veale (Bristol).

238435 Ch. Mech. E. Walker (Southsea), 2309 Ch. Mech. J. A. Wallace (Kelso), 201718 Ch. Mech. G. A. Worboys (Barnet), 14975 Cpl. H. J. Waters (Bow), 211062 Serjt. Mech. C. E. Watkins (Victoria, S.W.), 201364 Flt.-Serjt. F. Weavers (Beccles), 201719 Ch. Mech. A. L. Weeks (Cricklewood, N.W.), 204144 Cpl. Mech. G. H. Westcott (Westcliff-on-Sea), 5962 F./Clk. E. J. Westley (Hove), 48483 1st Air Mech E. A. C. Weston (London, N.W.), 15362 Cpl. F. G. Weymouth (Devonport), 9401 Actg. Serjt.-Maj. G. G. R. White (Bristol), 245644 3rd Air Mech. F. J. White (Salisbury), 2611 Ch. Mas. Mech. J. Whittingham (Galgate), 8926 Ch. Mech. F. Williams (Swansea), 201458 Ch. Mech. R. R. Williams (Didsbury), 203835 Ch. Mech. G. T. Wilton (High Barnet, N.), 50103 1st Air Mech. W. H. Winchcombe (Swindon), 218967 Actg Cpl. F. J. Wise (Watford), 21035 Serjt. Clk. A. R. Wood (Honor Oak Park), 35086 Cpl. Mech. J. T. Wood (Birmingham), 32578 Serjt Clk. T. Woodcock (Nottingham), 370 Ch. Mas. Mech. E. Woolaway (Berks.), 11403 Ch. Mech. T. S. Wootton (Hucknell), 206966 Ch. Mech. G. W. Wortley (Doncaster).

MENTIONS.

The following Officers and other ranks of the Royal Air Force have been mentioned in dispatches for distinguished service in war areas:—

Officers.

Maj. Vaudrey Adolph Albrecht, M.C. (I.F., France.), Maj. Anthony Rex Arnold, D.S.C., (France), Lt. Walter Bamber (Mediterranean) Lt. Michael James Barnard-Smith (Ægean), Capt. Goodwin Howard Thomas Barnes (Coast Patrol), Lt. (actg. Capt.) James Parkinson Barnes (Coast Patrol), Ensign Philip J. Barnes (Capt., SSZ Airship, United States Air Service), Sec. Lt. Alexander Bushfield (Coast Patrol), Lt. Edward Arnold Bastow (I.F., France), Sec Lt. Henry Conrad Becker-

Mech. F. Harris (Liverpool), 39670 1st Cl. Air Mech. W. Harrison (Settle, Yorks.), 7132 Ch. Mech. H. W. Hartwell (Uxbridge), 16910 Serjt. Clk. T. Harvey (Cooreclure, Co. Clare), 48516 Serjt. Mech. R. C. Heathfield (Highgate, N.), 27800 Serjt. Mech. W. Helmsley (Ashby), 6972 1st Cl. Air Mech. J. W. Hemming (Basingstoke), 19486 Flt. Clk. F. A. Hill (Harrow), 39917 1st Cl. Air Mech. W. O. Hickling (N.W. Area, Glasgow), 69612 actg. Cpl. J. R. Higson (Northern Russia), 7690 Ch. Mech. G. Hodgson (Wharfedale), 18857 Ch. Mech. F. J. Hogberg (Marylebone), 11726 Mas. Mech. H. S. Howard (Newmarket), 23034 Serjt. Clk. P. R. Hutchins (Poplar).

30451 Ch. Mech. H. Irving (Liscard).

152 Mas. Clk. F. James (Barrow-on-Soar), 159 Ch. Mas. Mech. C. Jarvis (Pewsey), 22563 Flt. Clk. R. H. Jeffs (Monmouth), 7421 Serjt. Clk. W. A. Jenkins (Pembroke Dock), 9460 Ch. Mech. G. W. Jenner (Fulham), 50485 Cpl. C. P. Johnson (Shrewsbury), 219721 1st Cl. Air Mech. A. A. Jones (Hackney, N.E.), 67961 Serjt. Mech. E. Jones (Sale), 7956 Serjt. Mech. F. J. Jones (Margate).

403865 Cpl. Clk. G. E. Keay (Leicester), 97089 2nd Cl. Air Mech. J. Kelly (Greenock), 8101 Mas. Mech. J. Kemp (Chingford), 13890 Ch. Mech. A. L. Kerry (Leadington, Oxon.), 42582 Serjt.-Maj. W. Kilkenny (Bury), 206958 Cpl. Mech. E. G. Kirby (Leigh-on-Sea).

46255 Ch. Mas. Mech. J. Laithwaite (Southport), 18769 Ch. Mech. P. Lashbrook (Paddington), 12906 Serjt.-Maj. C. H. Lawrence (East Ham), 3708 Ch. Mas. Mech. G. Leach (Rugby), 25660 Cpl. (actg. Serjt.) P. A. Lester (Brockley, S.E.), 232656 Ch. Mech. J. N. Leigh (Bolton), 2705 Serjt. J. Littlewood (Leeds), 948 Ch. Mech. W. Lodge (Brighton), 2468 Serjt. Mech. F. Lovelace (Henstridge, Som.), 13801 Serjt. Mech. P. J. Lovell (Okehampton), 432948 1st Cl. Air Mech. L. H. Lowe (Walsall).

214065 Serjt. Mech. J. McArthur (Buckhaven), 139637 1st Clk. E. McCabe (Liverpool), 16961 Serjt. Clk. D. Mackinnon (Isle of Skye), 7662 Ch. Mas. Mech. J. McPherson (Edinburgh), 744 Ch. Mas. Mech. H. MacQueen (Leicester), 211078 Ch. Mech. R. F. Maulers (Leyton), 212604 Serjt. Clk. R. J. Marfleet (Birmingham), 1777 Ch. Mas. Mech. S. G Marsh (Mangerton, Dorset), 252 Ch. Mas. Mech. D. Martin, M.M. (Shrewton), 23281 Serjt. Clk. W. E. Mason (East Ham), 33553 Flt. Clk. W. Mendoza (Clapton, N.), 103623 Serjt. Clk. A. Merrilees (Oxford), 5531 Serjt. Mech. H. B. Midgley (Ossett), 17095 Cpl. Mech. D. D. Miller (Napier, N.Z.), 93922 Cpl. Mech. R. Moffat (Paisley), 404319 1st Air Mech. Moncur (Edinburgh), 5 Serjt.-Maj. W. E. Moore (Bournemouth), 125306 3rd Air Mech. W. Morton (Newcastle), 402583 Serjt. Clk. F. Mowbray (Newcastle-on-Tyne), 7844 Cpl. Mech. D. Muckersie (Perth), 21340 Serjt. Clk. H. L. M. Mulchinock (Palmers Green), 202099 Ch. Mech. A. C. Murphy (Bow Green, Kent).

1555 Ch. Mas. Mech. J. New (Bloomsbury, W.C.), 210808 Ch. Mech. S. H. Newton (Hull), 25035 Ch. Mech. (actg. Mas. Mech.) A. A. Nicod (Wallsend), 403594 Ch. Mas. Mech. F. Norton (Lincoln).

5883 Ch. Mech. E. A. Ogburn (64th Naval Wing), 8027 Serjt. Mech. J. L. Ostick (Leeds), 3786 Ch. Mech. C. Ostler (Holbeach).

208333 1st Air Mech. H. W. Partridge (Gillingham), 3745 Flt.-Serjt. W. E. Parkhurst (Newton Abbott), 200566 Ch. Mech. W. H. Parsons (Harrow), 13091 Serjt.-Maj. C. H. Perrin (Portsmouth), 209289 Ch. Mech. R. W. Petch (Scarboro), 17727 Cpl. L. C. Phillips (Northern Russia), 204577 Cpl. Mech. H. Phipps (Littlehampton), 201717 Ch. Mech. S. J. Petts (Wimbledon, S.W.), 124957 3rd Air Mech. S. Prince (Liverpool), 134957 F./Clk. G. H. Pulfer (Upper Holloway, N.).

24587 Cpl. Clk. D. D. Radcliffe (Ewell), 18786 Serjt. Clk. J. A. Raeburn (Glasgow), 25435 Cpl. Mech E. F. Rainbert (Brixton, S.W.), 1432 Serjt.-Maj. L. N. Reader (Leyton), 17388 Ch. Mech. J. Redpath (Gilmerton), 37666 Cpl Clk. W. H Reed (Wimbledon, S.W.), 1744 Ch. Mas, Mech. W. E. Rhoades, A. M. (Blandford), 6565 F./Clk. A. E. Richardson (Norbiton), 405740 1st Air Mech. R. Ripley (Newcastle-on-Tyne), 8169 F./Serjt. A. Ritson (Portsmouth), 16673 Cpl. Clk. E. C. Roberts (Hampstead), 29172 Ch. Mech. A. A. Robinson (Norton), M.14617 1st Clk. E. C. Robson (West Hartlepool), 25336 Serjt. Mech. D. M. Rose (Glasgow), 403808 Serjt.-Maj. F. Rowden (Tiverton), 75824 Actg. Cpl. H. Rowe (Northern Russia).

5974 Ch. Mas. Mech. F. Schofield (Stalybridge), 16218 Ch. Mech. A. Seabrook (St. Albans), 15400 Ch. Mech. W. J. Sheppard (Northampton), 17664 Actg. Serjt. F. Shipperbottom (Bolton), 7347 Serjt. Mech. E. G. Simmons (Brighton, 50778 Cpl. Mech. (actg. Serjt Mech.) G. Shore (Rugby), 3408 Ch. Mech. R. Simpson (Cheetham); 13202 Serjt. Mech. T. W. Scaife (Pickering), 3103 Ch. Mech. D. M. Smith (Broughty Ferry), 25645 Ch. Mech. F. B. Smith (Barrow-on-Furness), 68507 Serjt.

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Capt. Walter James Calderwood (Sea Patrol), Lt. Edward Cartwright (I.F., France), Sec. Lt. (actg. Lt.) Bernard Chesman (Flanders), Sec. Lt. (actg. Capt.) Cecil Frederick Chinery (Flanders), Lt. Leonard de Ville Chisman (Mediterranean), Lt. Charles Chrimes (Mediterranean), Capt. (actg. Maj.) John Beresford Cole-Hamilton (Coast Patrol), Lt.-Col. Richard Hamilton Collier, D.S.O. (I.F., France), Sec. Lt Percy Coyle (Flanders), Capt Bertie Frederick Crane (I.F., France), Lt. Stuart Douglas Culley, D.S.O. (Sea Patrol), Lt. (actg. Capt.) William Reginald Curtis (Sea Patrol).

Lt. John Henry Dale (I.F., France), Capt. (actg. Maj.) Jean de Francia (Mediterranean), Capt. William Forster Dickson, D.S.O. (Sea Patrol), Lt Basil Robert Digby (Coast Patrol), Lt.-Col. Ralph Charles Donaldson-Hudson, D.S.O. (I.F., France), Maj. Norman Sholto Douglas (Mediterranean), Surg. R. N. William Agar Scholefield Duck (Adriatic), Temp. Surg. R.N. Arthur Leslie Dykes (Adriatic).

Capt. Arthur Stanley Elliott, D.S.C. (Coast Patrol), Maj. Tom Harry England, D.S.C. (Coast Patrol), Maj. (actg. Lt.-Col.) Douglas Claude Strathern Evill, D.S.C. (Coast Patrol).

Capt. (actg. Maj.) Francis Joseph Edward Feeney (Ægean), Lt. (actg. Capt.) James Senior Agar Ferguson (Coast Patrol), Lt.-Col. Charles Robert Finch-Noyes, D.S.O. (Sea Patrol), Lt. Edgar Cecil Finzi (deceased) (Mediterranean), Sec. Lt. James Henry Jackson Footman (Flanders), Ensign John C. Foster (U.S.A. Air Service, attd R.A.F., Flanders), Maj. (actg. Lt.-Col.) Ivor Fraser (Coast Patrol), Sec. Lt. (Hon. Lt.) Alexander Hay Frater (I.F., France), Lt. William Selwyn Bruce Freer (Flanders), Capt. James Keith Fryer-Smith (White Sea).

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Lt. Frederick Vincent Hall (killed) (Flanders), Lt. William Hallitt (I.F., France), Maj. Benjamin Henry Noel Hans Hamilton, D.S.O. (Flanders), Lt. Alexander Hanna (Coast Patrol), Lt. (actg. Capt.) Alec Hawley (I.F., France), Lt. Charles Louis Heater, D.F.C., U.S.A. Air Service (attd. I.F., France), Capt. Henry Paul Dundas Helm (I.F., France), Lt.-Col Francis Esme Theodore Hewlett, O.B E (Ægean), Lt. (actg. Capt.) Harry Spurway Holman (Coast Patrol), Sec. Lt. Frederick Tims Holmes (I.F., France), Sec. Lt. Frederick Hopwood (White Sea), Capt. Everard John Boothby How (Adriatic), Lt. Sherwood Hubbell, U.S.A. Air Service (attd. I.F., France), Maj. John Elgar Hume, D.S.O. (Conn. Rang.) (I.F., France), Lt. Sidney Knight Forbes Phillip Humphrey (Adriatic), Lt. George Robert Hurst (Flanders), Lt. Horace Roberts Hutt (Coast Patrol).

Capt. (actg. Lt.-Col.) Douglas Iron (Coast Patrol), Lt. David Sinton Ingalls, D.F.C., U.S.A. Air Service (attd. R.A.F., Flanders).

Sec. Lt. George B. James (Mediterranean), Capt. (actg. Maj.) Arthur Frederick Foy Jacob (Ægean), Lt. Fitzroy Jardine (Coast Patrol), Sec. Lt. (actg. Lt.) John Watson Jean, D.S M. (I.F , France), Capt. Reginald Eric Victor Jelliffe (Coast Patrol), Lt. William Rowland Lionel Jenkins (Coast Patrol), Sec. Lt. Frank Jezzard (Flanders), Lt. Francis Richard Johnson (I.F , France), Capt. (actg. Maj.) John Fleming Jones, D.S.C. (I.F., France).

Sec. Lt. Harold Thomas Kempton (Coast Patrol).

Lt.-Col. Joseph Herbert Arthur Landon, D.S O. (I.F., France), Ensign Norman Jackson Learned (Capt. U.S.A. Airship SSZ), Lt. Arthur Cecil Lester (Flanders), Lt. George Selby Lewtas (Flanders), Sec. Lt. William John Ley (I.F., France), Lt. Philip Edward Linder (Adriatic), Lt. Stuart Lindsay (Mediterranean), Capt. (actg. Maj.) Gerald Edward Livock, D.F.C. (Sea Patrol), Lt.-Col (actg. Col.) Arthur Murray Longmore (Adriatic)

Capt. (actg. Maj.) Warren Rawson Mackenzie, D.S.C. (Mediterranean), Sec. Lt. John MacLelland (Mediterranean), Capt. John Alexander MacNab (White Sea), Lt. Anthony Jacques Mantle (Adriatic), Lt. (actg. Capt) John Gerald Manuel, D.S.C. (Flanders), Capt. Thomas Bertrand Marson (I.F., France), Sec. Lt. Austin Joseph Milier (Mediterranean), Lt. S. K. Modrach, D.F.C., Slavo-British Aviation Corps (N. Russia), Lt. Alfred Arthur Morris (Mediterranean), Capt. Charles Reginald Morrish, D.S.C. (Coast Patrol), Sec. Lt. Henry Hanson Mortiboy (Coast Patrol), Sec. Lt. James Alexander Munn (Mediterranean), Capt. (actg. Major) Archibald Murray (I.F., France).

Sec. Lt. John George Nash (Adriatic), Lt. Cuthbert Ernest Neath (Coast Patrol), Lt.-Col. (actg. Brig.-Gen) Cyril Louis Norton Newall (I.F., France), Sec. Lt. Henry Nichols (Mediterranean), Sec. Lt. Joseph Herbert Nickson (Coast Patrol).

Lt. Dennis Delmar O'Flaherty (Mediterranean), Lt.-Col. Douglas Austin Oliver, D.S.O. (Adriatic), Temp. Surg., R.N., Robert Sydney Overton (Mediterranean), Lt. Edward Rosser Owen (Coast Patrol).

Sec Lt. Arthur Charles Parnacott (I F., France), Maj. Laurence Arthur Pattinson, M.C., D.F.C. (I.F., France), Capt. (actg. Maj.) William Godfrey Pigott (Mediterranean), Lt. William Roy Plaskitt (Coast Patrol), Sec. Lt. Ricardo Preve, D.S.O., Italian F. Corps (Adriatic), Capt. (actg. Maj. Harold Melsome Probyn, D.S.O. (Coast Patrol), Lt. Edward John Prothero (Coast Patrol), Lt. Wilfred Von Schwartz Pryor (Adriatic).

Lt. (Hon. Capt.) (actg. Capt.) Harry Stephen Quigley, M.C. (Coast Patrol).

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Maj. William Huyshe Yeatman-Biggs (Orkneys.)

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250374 2nd Pte. J. H. Barrett (Coast Patrol), 207052 Serjt. Mech. Frederick Barsby (Mediterranean), 6682 F./Clk. T. A. Bates (I.F., France), 216239 3rd Air Mech. W. E. G. Beer (Coast Patrol), 346126 Mas. Mech. L. M. Bird (I.F., France), 240395 Cpl. S. E. Birt (I.F., France), 404262 Cpl. Mech. J. J. Blindell (Coast Patrol), 250407 1st Air Mech. J. Booth (Coast Patrol), 21352 Ch. Mech. A. E. Bott (I.F , France), 213986 Cpl. Mech. H. C. Bouchier (Coast Patrol), 209511 1st Air Mech. W. S. Bright (Flanders), 213548 Serjt. Mech. F. H. Brown (I.F., France), 204721 Ch. Mech. S. W. Brown (I.F., France), 219608 1st Air Mech O. H. Burley (Flanders), M9066 Sen. Attendt. H. Byers (Flanders).

217677 2nd Air Mech. T. R. Caldwell (I.F., France), 225844 1st Air Mech H. H. Camburn (Mediterranean), 5206 Cpl. Mech. S. G. Channell (I.F., France), 403066 F./Clk. W. Chewter (I.F., France), 232259 3rd Air Mech. S. W. Charles (Coast Patrol), 98119 1st Pte E. F. Charlton (I.F., France), 235462 1st Pte. J. Clark (Mediterranean), 231825 Serjt. (Obsr.) W Clark (Coast Patrol), 191805 1st Clk. W Clarke (I.F., France), 204554 Ch. Mech. E. Collier (Flanders), 193487 2nd Clk. W. Connor (I F., France), 210926 Ch. Mech. C. G. Coughtrey (I.F., France), 1800 Caporal E. C. D. Couteaux, 2nd Aviation Group, French Army (Flanders), R.N.J.26988 1st Air Mech. D. F. Crosbie (Coast Patrol), 200315 Mas. Mech. E. R. Crook (Mediterranean), 221835 Cpl. Mech. E. G. Croskin (I F., France).

205198 Ch. Mech. F. K. Daniels (Flanders), 224431 Serjt. Mech. (Obsr.) A J Davenport (Coast Patrol), 212235 1st Air Mech A. Davies (Coast Patrol),218055 2nd Air Mech. V. Dodd (Coast Patrol), 87085 Cp T. H. Domoney (Flanders), 208390 Ch. Mech. (Eng.) J. Donovan (Coast Patrol).

212580 Cpl. W. A. Easeman (Mediterranean), 111042 Cpl. Clk. C. Eccleston (I.F., France), 213086 1st Air Mech. R. V. Ellis (Flanders). 54267 Serjt. C. R. L. Falcy, D.C.M. (Flanders), K13136 Ch. Mech. J. Fletcher (Mediterranean), 187948 Serjt.-Maj. A. R. Fraser (I.F., France), 406434 1st Air Mech. C. Funnel (Coast Patrol).

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209653 Serjt. Mech. (Obsr.) W. E. Iles (Flanders), 212210 Serjt. Mech. H. Imber (Mediterranean).

215689 1st Air Mech. H. Jobson (Coast Patrol), 240901 3rd Air Mech. (W.T.) A. S. Jones (Sea Patrol), 6768 Serjt. J. Jones (Coast Patrol), 222303 Serjt. (Obsr.) R. S. Jovsey (Flanders)

11858 F./Clk. A. Kelly (I.F., France).

202813 Ch. Mech. Stuart Charles Lay (Mediterranean), 26853 Cpl. Mech L. Leicester (I.F., France), 234940 3rd Air Mech. (W.T.) A. Lindsay (Sea Patrol), 2061 Serjt. E. Lloyd (Flanders), 26421 Serjt. F. C. Lucas (Flanders), 202634 Ch. Mech. W. G. Luff (Mediterranean).

7800 Cpl. Clk. F. M. Macdonald (Coast Patrol), Master Clerk Thomas Macdonald (64th Wing, Mediterranean), 228400 2nd Air Mech. W. Macey (Coast Patrol), 217163 Serjt. Clk. C. M. Maffey (I.F., France), 207864 Serjt. Mech. R. Mainland (Coast Patrol), 202639 Serjt. Mech. R. Marriott (Mediterranean), 31627 Master-Signal Electrician E. Marsh, U.S A. Air Service (attd. I.F., France), 217554 Serjt. Mech. A. W. Marshall, A.F.M. (Coast Patrol), 234941 2nd Air Mech. (Obsr.) A. J. May (Coast Patrol), 213002 Serjt. Mech. E. C. Mead (I.F., France), 202184 Ch. Mech. J. H. Milson (Flanders).

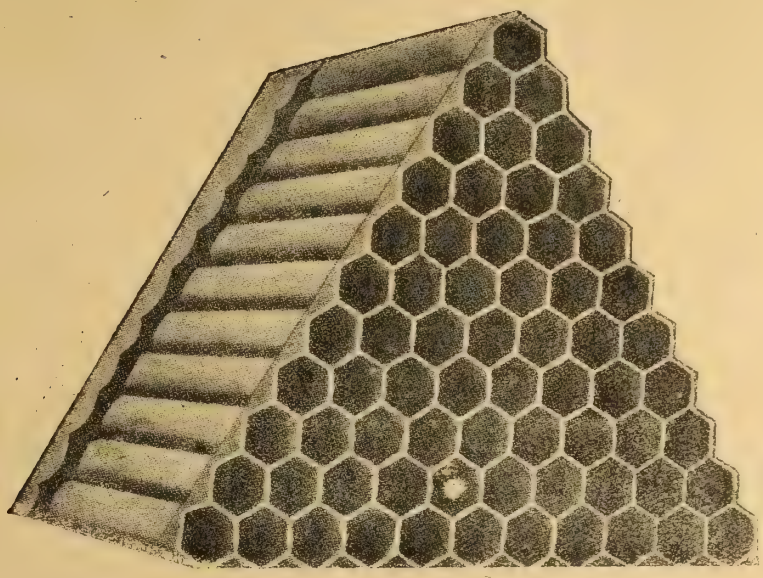
200742 Cpt. M. Nunn (Coast Patrol).

219055 Serjt. Clk. J. Parry (Flanders), K12513 Cpl. Mech. G. E. Peck (I F., France), 3602 Serjt. Clk. P. W. Peel (Coast Patrol), 227643 3rd Air Mech. J. H. Phillips (Coast Patrol), 221177 Cpl. H. W. Pierson (Coast Patrol), 209017 Serjt. Mech. F. V. Plumer (Flanders), 202480 Serjt. Mech. G. H. Preece (Flanders), 230481 Serjt. W. Price (Mediterranean), 205635 Cpl. Mech. G. Priter (Coast Patrol), 1946 Serjt. Mech. W. H. Procter (Coast Patrol).

32586 Cpl. Mech. W. Ratcliffe (I.F., France), 212554 Ch. Mech. R. M. Read (Flanders), 48008 Serjt. Clk. A. Reeve (I.F., France), 217425 Cpl. Mech. W. J. Reeve (Coast Patrol), 222327 1st Air Mech. W. A. Rich (Coast Patrol).

210382 Ch. Mech. H. Sargeant (Flanders), 234878 2nd Air Mech. L. A. Shepperson (Coast Patrol), 201050 Serjt. Mech. C. Shoote (Mediterranean), 208275 1st Air Mech. D. H. Simmonds (Mediterranean), 210480 2nd Air Mech. F. Skipper (Coast Patrol), 217505 Serjt Clk C. Smith (Flanders), 209570 Serjt. (Obsr) F. Smith (Flanders), 208702 Serjt. Mech. W. Smith (Flanders), 1254 Ch. Mas Mech. C. H. Spong (I.F., France), 204847 Serjt. Mech. H. T. Stratford (Coast Patrol), 204418 Ch. Mech. G. H. Stratton, A.F.M. (Coast Patrol), 186753 Serjt. Clk. (actg. Mas. Clk) C. Street (I.F., France), J5825 Ch. Mech. E. W Strudwick (Flanders), 211951 Cpl. E. Sutcliffe (Adriatic), 200082 Ch Mech. G. W. Sutcliffe (I.F., France).

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205209 Ch. Mech. J. T. Wakefield (Flanders), 212156 Serjt. Mech. J. Weir (Mediterranean), 238447 3rd Air Mech. E. F. Wheeler (Coast Patrol), 201986 Serjt. Mech. (Obsr.) T. F. Whittaker (Flanders), 240927 2nd Pte. N. G. L. Wilkins (Coast Patrol), 215559 Serjt. (Obsr.) R. J. Williams (Flanders), 214049 Serjt. Clk. J. Wolton (Mediterranean), 209257 Serjt. Clk. F. G. Wootton (Mediterranean), 11940 Serjt. F. E. Yardy (Flanders).

WAR OFFICE, Jan. 1st, 1919.

His Majesty the King has approved of the undermentioned rewards in recognition of bravery in the field:

ROYAL AIR FORCE.

AWARDED THE MILITARY CROSS.

Sec. Lt. George William Cox, Lt. James Joseph Malone (Aust. F. Corps).

AWARDED THE MILITARY MEDAL.

201149 Actg. Ch. Master Mech. Laurence Grant Miles (Harlesden).

AIR MINISTRY, JAN., 3rd.

The following R.A.F. temp. appts. are made at the Air Ministry:—Staff Officers, 2nd Cl.—And to be actg. Majs. whilst so empld. if not already holding that rank:—Capt. N. Martin, Sept. 25th, 1918 (Air); Capt. (actg. Maj.) F. S. A. Baker, Dec. 10th, 1918.

Staff Officers, 3rd Cl.—And to be actg. Capts. whilst so empld.:—Lt. W. D. Miller, Sept. 25th, 1918 (Air); Lt. A. J. Clark, Aug. 18th, 1918, to Oct. 26th, 1918 (substituted for notification in "Gazette," Dec. 20th, 1918).

Staff Officers, 4th Cl.—And to be actg. Lts. whilst so empld.:—Sec. Lt. F. R. Richardson, Oct. 4th, 1918; temp. Hon. Lt. W. G. Knight, Oct. 13th, 1918 (substituted for notification in "Gazette," Dec. 3rd, 1918); Sec. Lt. (Hon. Lt.) J. Baillie, M.C., Oct. 24th, 1918.

The following temp. appts. are made:—Group Comdrs.—Lt.-Col. F. V. Holt, D.S.O., and to be actg. Brig.-Gen. whilst so empld., April 1st, 1918, but without pay and allces. prior to April 26th, 1918 (substituted for notification in "Gazette," May 3rd, 1918), Lt.-Col. (actg. Col.) F. C. Halahan, M.V.O., D.S.O., and to retain his actg. rank whilst so empld., Dec. 10th, 1918.

Staff Officer, 2nd Cl.—(P.) Capt. (actg. Maj.) F. T. Bridger, and to retain his actg. rank whilst so empld., Dec. 13th, 1918.

Staff Officers, 3rd Cl.—Sec. Lt. (Hon. Lt.) H. M. Ayres, and to be actg. Capt. whilst so empld., Aug. 26th, 1918; (Air.) Capt. J. Selwyn, Dec. 20th, 1918.

FLYING BRANCH.—Capt. T. G. G. Bolitho, M.C., to be Lt. (K.B.) on reversion from Balloon Coy. Comdr., Sept. 6th, 1918 (substituted for notification in "Gazette" of Sept. 17th, 1918).

Lts. (A.) to be Lts. (O.).—T. W. Banks, Aug. 28th, 1918; H. Garnett, Sept. 5th, 1918; W. Urinowski, Sept. 14th, 1918; K. L. Grant, Oct. 13th, 1918.

Lts. (O.) to be Lts. (A.):—(Hon. Capt.) C. H. L. Coney, Nov. 5th, 1918; T. J. R. Wilson, Nov. 7th, 1918; A. R. Gurney, M.C., Nov. 20th, 1918; W. D. Robertson, Nov. 26th, 1918.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts. (A.):—S. D. Horne, Nov. 25th, 1918; P. L. Dunsdon, Nov. 27th, 1918.

The following are granted temp. commns. as Sec. Lts. (A.):—J. Davidson (temp. Sec. Lt., R. Scots, attd. N. Lancs. R.); A. Thomson (temp. Sec. Lt., Highd. L.I., attd. E. Surr. R.), and to be Hon. Lt., Nov. 8th, 1918; L. S. Elphick (Sec. Lt., R. W. Kent R., T.F.), Nov. 11th, 1918; W. H. Avery (Sec. Lt., R. W. Surrey R., T.F.), T. Varcoe (Lt., R.F.A., T.F.), and to be Hon. Lt., Nov. 14th, 1918; C. Maddox (Sec. Lt., Welsh R., attd. R. W. Fus.), Nov. 20th, 1918; R. Powell (Lt., Hants R.), and to be Hon. Lt.; W. D. Hamilton (temp. Lt., R. Ir. R.), and to be Hon. Lt., Nov. 22nd, 1918.

The following are granted temp. commns. as Sec. Lts. (K.B.):—H. C. Collis (Sec. Lt., Wilts R., Spec. Res.), J. L. G. Fasham (temp. Lt., R. Innis Fus.), and to be Hon. Lt., Aug. 8th, 1918.

Sec. Lt. (A.) to be Sec. Lt. (O.):—S. L. McKillen, Oct. 18th, 1918.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) confirmed in their rank as Sec. Lts. (O.):—H. E. Hounsell, A. E. Heath, Aug. 8th, 1918, A. E. Marsh, Aug. 15th, 1918.

The following are granted temp. commns. as Sec. Lts. (O.):—M. McEwan (Lt., R.G.A., T.F.), and to be Hon. Lt., May 10th, 1918 (substituted for notification concerning E. McEwan in "Gazette" of July 30th, 1918); H. C. H. Townsend (Lt., Lond. R., T.F.), and to be Hon. Lt., Aug. 17th, 1918; J. S. Wesson (Lt., Worc. R., Spec. Res.), and to be Hon. Lt., Aug. 19th, 1918; H. E. Davis, M.C. (Lt., Lond. R., T.F.), and to be Hon. Lt., Aug. 25th, 1918; E. T. W. Lander (Sec. Lt., R. Sussex R., T.F.), Sept. 21st, 1918; W. L. Morrey (temp. Lt., M.G.C.), and to be Hon. Lt., Sept. 24th, 1918; L. J. Llewellyn (Sec. Lt., Welsh R., T.F.), Oct. 8th, 1918; A. W. B. S. Bloy (Capt., Lond. R., T.F.), and to be Hon. Capt., L. C. Pallett (Sec. Lt., Lond. R., T.F.), Nov. 6th, 1918; H. H. Thomas (Lt., W. Yorks R., T.F.), and to be Hon. Lt., Nov. 9th, 1918; H. H. Warren (Lt., Lond. R., T.F.), and to be Hon. Lt., Nov. 11th, 1918.

Sec. Lt. C. R. Abrahams relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 4th.

The surname of actg. Lt. W. H. Dunton is as now described, and not Dutton, as stated in "Gazette" of Nov. 19th, 1918.

The notification in "Gazette," June 4th, 1918, concerning Lt. (actg. Capt.) A. R. Cox is cancelled.

The notification in "Gazette" of Oct. 25th, 1918, concerning Lt. C. A. McConchie is cancelled.

ADMINISTRATIVE BRANCH.—Lt. J. D. Davidson to be Lt., from (A.), Nov. 2nd, 1918 (substituted for notification in "Gazette," Nov. 5th, 1918).

Lt. J. A. Clarke to be Lt., from (O.), Sept. 12th, 1918 (substituted for notification in "Gazette," Nov. 12th, 1918).

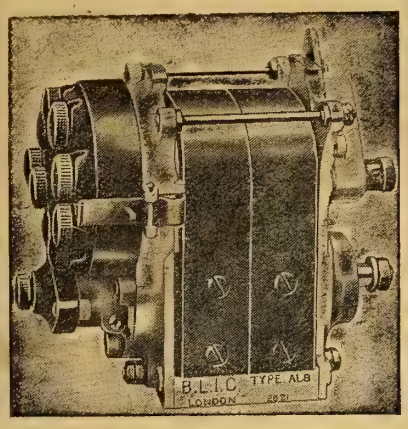
Capt. H. Mason relinquishes his commn. on ceasing to be empld., and is permitted to retain his rank, Jan. 4th.

The date of appt. of Lt. (Hon. Maj.) W. B. Dunn is Aug. 15th, 1918, and not as stated in "Gazette," of Nov. 15th, 1918.

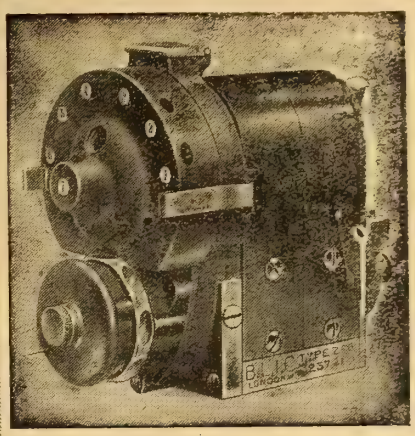
The notification in "Gazette" of Nov. 1st, 1918, concerning Lt. L. V. Marchant, is cancelled.

TECHNICAL BRANCH.—Sec. Lts. to be Lts.:—Actg. Capt. P. A. Barron, and to retain his actg. rank; actg. Lt. W. Birtwhistle, actg. Lt. J. P. Burden, actg. Lt. K. A. Smith, actg. Lt. V. W. Allen, Hon. Lt. (actg. Lt.) T. H. Birdsall, Hon. Lt. (actg. Lt.) J. A. Pritchard, Hon. Lt. (actg. Lt.) A. E. Fincher-Brookes, Hon. Lt. (actg. Capt.) E. G. Herbert, and to retain his actg. rank, Hon. Lt. (actg. Capt.) J. A. Rossi, and to retain his actg. rank, Hon. Lt. (actg. Lt.) A. W. O'Q. Shire, actg. Capt. H. J. Taplin, and to retain his actg. rank, Hon. Lt. (actg. Lt.) W. Hardcastle, Hon. Lt. (actg. Lt.) R. W. Anderson, Hon. Lt. (actg. Lt.) J. L. Dearing, Hon. Lt. (actg. Lt.) C. S. Edwards, Hon. Lt. (actg. Lt.) F. W. Port, Hon. Lt. (actg. Lt.) E. P. Lyon, actg. Lt. A. H. Brown, actg. Capt. A. L. Johnson, and to retain his actg. rank, Hon. Lt. (actg. Cpt.) A. H. Cobeldu, and to retain his actg. rank, Hon. Lt. (actg. Lt.) G. Baillie, actg. Lt. F. T. Sinclair, Hon. Lt. (actg. Lt.) A. D. Napier, actg. Capt. A. H. Edwards, and to retain his actg. rank, Hon. Lt. (actg. Lt.) H. J. O. Barnett, Hon. Lt. (actg. Capt.) H. G. Wood, and to retain his actg. rank, actg. Lt. W. Allan, Hon. Lt. (actg. Lt.) V. A. Cooper, Hon. Lt. (actg. Lt.) E. J. Girdler, actg. Lt. P. Brass, Hon. Lt. (actg. Lt.) W. B. Rayner, actg. Lt. F. P. Williams, Hon. Lt. (actg. Lt.) J. R. Brown, M.C., Hon. Lt. (actg. Lt.) P. S. Woodroffe, actg. Lt. J. E. H. Swain, actg. Lt. Hon. H. G. H. Mulholland, actg. Lt. H. J. Burns, Hon. Lt. (actg. Lt.) G. R. Waters, April 2nd, 1918; Hon. Lt. (actg. Lt.) W. F. Baker, April 6th, 1918; actg. Capt. G. K. Johnson, and to retain his actg. rank, April 7th, 1918; actg. Lt. W. G. Stafford, M.C., D.C.M., April 12th, 1918; actg. Lt. P. E. Scrivener, April 23rd, 1918; actg. Lt. P. R. Garner, May 5th, 1918; actg. Lt. E. H. Trump, May 10th, 1918; actg. Capt. R. J. Paton, and to retain his actg. rank, June 8th, 1918; actg. Lt. A. N. Mefer, June 11th, 1918; actg. Lt. J. P. White, June 19th, 1918; actg. Lt. G. Kitchin, July 12th, 1918; actg. Lt. J. N. Eastcott, July 26th, 1918; actg. Lt. W. H. Dowling, July 30th 1918; actg. Lt. G. R. Cobb, Aug. 3rd, 1918; actg. Lt. H. S. Lewin, actg. Capt. H. J. Skingle, and to retain his actg. rank, actg. Lt. P. H. Paul, Aug. 9th, 1918; actg. Lt. A. A. McConnell, Aug. 27th, 1918; actg. Lt. C. F. Gorringe, actg. Lt. D. R. Morford, actg. Lt. W. H. Griffith, Sept. 9th, 1918; actg. Lt. A. C. Hankey, actg. Capt. C. E. Amoore, and to retain his actg. rank, actg. Lt. A. R. B. Gill, Sept. 10th, 1918; actg. Lt. A. V. Boothroyd, actg. Lt. W. H. Harrison, Sept. 14th, 1918; actg. Lt. T. A. Burns, Sept. 17th, 1918; actg. Lt. R. Bassett, actg. Capt. F. B. Woods, and to retain his actg. rank, actg. Lt. H. W. Henchie, actg. Capt. H. W. Brooks, and to retain his actg. rank, Oct. 5th, 1918; actg. Lt. R. J. Sladden, Oct. 6th, 1918; actg. Lt. J. R. Bedford, Oct. 7th, 1918; actg. Capt. W. Chapman, and to retain his actg. rank, actg. Capt. J. Burden, and to retain his actg. rank, Oct. 11th, 1918; actg. Lt. W. H. M. Groom, Oct. 20th, 1918; actg. Lt. E. W. Chatterley, Nov. 3rd, 1918; actg. Lt. W. Calvert, actg. Lt. C. N. Henderson, Nov. 4th, 1918; actg. Lt. J. Booth, Nov. 11th, 1918; actg. Lt. W. Blackwell, Nov. 15th, 1918; actg. Lt. A. H. Comfort, Nov. 18th, 1918; actg. Lt. F. A. Mills, Nov. 30th, 1918; actg. Lt. F. H. Bartlett, actg. Lt. E. W. Dormer, actg. Lt. J. W. Gage, Dec. 1st, 1918; actg. Lt. G. Dickson, Dec. 8th, 1918; actg. Lt. H. S. Alger, actg. Lt. F. M. Pepper, Dec. 20th, 1918, actg. Lt. H. G. Toye, Dec. 26th, 1918; actg. Lt. A. W. McClellan, actg. Lt. R. Hall, Dec. 27th, 1918; actg. H. H. Cox, Dec. 29th, 1918; actg. Lt. J. A. Armstrong, actg. Lt. R. Leedal, actg. Lt. H. R. Hardy, actg. Lt. W. P. W. Smith, Dec. 30th, 1918.

Sec. Lts. to be Lts. (without pay and allces. of that rank):—Hon. Lt. A. A. Davis, Hon. Lt. C. H. E. Ridpath, Hon. Lt. R. G. Hutchinson, E. E. G. B. Lennard, Hon. Lt. H. E. Ward, M. V. Barton, Hon. Lt. H. Darnell, G. B. Wilkins, T. E. H. Bristow, A. Meyrick, Hon. Lt. A. H. Meldrum, Hon. Lt. R. H. Tweedy, R. N. Corah, Hon. Lt. A. J. L. Chrystall, Hon. Lt. C. V. Thornton, Hon. Lt. L. Mantell, Hon. Lt. J. M. Scott, Hon. Lt. W. B. Brett, Hon. Lt. R. J. Cowan, Hon. Lt. C. H. Butcher, S. P. Stocks, R. F. McMichael, Hon. Lt. E. D. Inskip, Hon. Lt. G. W. Charley, H. Tallis, E. M. A. Van-der-Meersch, H. Whitehead, J. Wheatland-Clinch, R. E. Chadderton, A. O. Roberts, W. K. Cannon, Hon. Lt. G. M. J. Denman, J. R. Evans, F. W. Beard, C. B. Willcocks, E. M. Leete, C. T. Keble, C. Curwen, R. W. Davies, C. C. Bracebridge, Hon. Lt. E. T. Driver, C. R. Becke, P. A. Rich, Hon. Lt. R. E. Wakelin, Hon. Lt. M. P. Mullery, Hon. Lt. H. S. Wilkins, J. Farquharson, J. H. B. Foss, L. B. Crough, C. E. Oxendale, Hon. Lt. F. Ward, J. C. Courtice, W. H. R. Skudder, J. Witt-Mann, M. J. James, T. Cooper, J. F. B. Smith, H. Haddon, S. F. Barton, G. Barnett, A. Wragg, Hon. Lt. G. A. B. Wheldon, J. R. Taverner, H. C. Sharp, S. Mercer Hon. Lt. H. B. D. Grazebrook, H. Nankivell, B. V. N. Rowcroft, Hon. Lt. H. Newns, T. Tatton, W. H. G. Furnivall, Hon. Lt. H. J. Gilbert, C. H. Mendham, L. A. Owen, A. T. Griffith, L. T. Fiadd, J. E. J. Crawford, Hon. Lt. A. F. Elliott, J. W. Parkinson, H. P. Reid, Hon. Lt. C. R. H. Trevor, R. F. Malabar, Hon. Lt. H. C. Short, Hon. Lt. O. S. Waymouth, Hon. Lt. W. G. Foulds, Hon. Lt. S. A. Salmon, H. Edge, Hon. Lt. B. O. Angell, Hon. Lt. T. J. Stannage, Hon. Lt. C. M. Hennell, Hon. Lt. F. J. Cowlishaw, J. Hodder, H. W. McGowan, Hon. Lt. J. F. Guinan, L. M. Hughes, Hon. Lt. B. Pool, A. Smellie, actg. Capt. L. F. Jones, and to retain his actg. rank with pay and allces. of a Sec. Lt., Hon. Capt. H. I. Allen, and retain his hon. rank, Hon. Lt. R. Backhouse, Hon. Lt. J. R. Shanks, Hon. Lt. H. R. Poole, Hon. Lt. C. P. Beadon, Hon. Lt. V. J. Copestake, M.C., Hon. Lt. C. H. Masters, Hon. Lt. J. H. Falconer, Hon. Lt. J. L. Hill, Hon. Lt. H. E. Randall, Hon. Lt. J. B. Glass, F. P. Cleaver, H. M. Attwell, T. F. Northcote, S. B. Henson, H. F. Pulford, Hon. Lt. S. S. Barber, J. C. Holmes, Hon. Lt. C. W. Bickley, H. B. Shepheard, Hon. Lt. H. A. Braddock, C. H. Shelton, Hon. Lt. W. D. Squire, Hon. Lt. M. P. Spencer, E. S. Steddy, Hon. Capt. S. Smith, and to retain his hon. rank, C. C. Bazell, Hon. Lt. A. E. Franklin, Hon. Lt. F. E. Glass, Hon. Lt. T. V. Villiers, Hon. Lt. K. G. de Jongh, Hon. Lt. S. R. McLaren, G. E. Lane, Hon. Lt. C. V. Anthony, Hon. Lt. H. A. B. Miller, Hon. Lt. E. T. A. Jones, J. M. Atherton, J. H. Loveridge, W. B. Wood, M.C., D. Gordon, W. S. Jamieson, Hon. Lt. S. G. Hewitt, Hon. Lt. H. Teesdale, R. J. Martin, P. F. Connaughton, C. M. Bevan, April 2nd, 1918; S. R. Winkworth, April 7th, 1918; C. J. Geddes, April 9th, 1918; W. A. Haslam, April 11th, 1918; J. T. Brothwick, April 12th, 1918; C. E. Nightingale, April 19th, 1918; W. C. Clark, April 23rd, 1918; P. R. Aitken, W. R. Mainstone, April 24th, 1918; J. G. Dyson, R. C. Wallace, E. J. R. Dyer, T. T. Murray, April 25th, 1918; S. Wilson, R. Rochford, J. D. Richards, E. C. Frisby, E. E. Beaumont, T. H. Cooper, W. Gregory, May 5th, 1918; G. Lynch, May 9th, 1918; E. C. Fowler, May 13th, 1918; P. S. Taylor, May 14th, 1918; F. J. B. Powell, May 16th, 1918; W. H. Bokenham, May 20th, 1918; A. V. McPhail, May 21st, 1918; L. C. H. Cave, May 22nd, 1918; C. G. J. Silcock, May 24th, 1918; S. A. Bond, May 26th, 1918; R. Knott, P. P. Nicholl, actg. Capt. R. J. Paton, and to retain his actg. rank, R. H. Butler, W. R. Sievwright, F. E. Bayley, D. Rintoul, June 8th, 1918; J. H. F. Pilling, June 13th, 1918; R. C. S. Jamie, June 14th, 1918; R. A. Watson, June 15th, 1918; E. C. Deeth, June 18th, 1918; G. F. Felstead, V. F. Spurgeon, June 19th, 1918; E. W. Lawrence, June 22nd, 1918; H. C. Perks, June 28th, 1918; T. F. Pullien, June 29th, 1918; B. C. Adamson, July 3rd, 1918; A. R. Parker, July 6th, 1918; F. W. Stiles, July 9th, 1918; V. F. J. Barker, E. L. M. Emtage, July 12th, 1918; C. S. Collingwood, July 18th, 1918; R. B. Herring, T. A. Roberts, July 19th, 1918; Hon. Lt. J. Cawley, July 23rd, 1918; A. E. Reynolds, July 26th, 1918; J. Hooper, July 27th, 1918; F. A. W. Braine, July 30th, 1918; A. Christian, H. H. Hussey, Aug. 1st, 1918; W. Crick, Aug. 4th, 1918; E. D. Leishman, Aug. 8th, 1918; H. J. Ashwell, W. G. Cullen, B. A. Hill, W. E. Lowe, F. J. R. Perfitt, R. J. Saunders, W. Towell, W. Duff, C. G. Walton, L. R. Pierce, Aug. 9th, 1918; W. T. Langton, S. H. Pestell, Aug. 14th, 1918; A. C. Truelove, Aug. 15th, 1918; P. G. Pickwell, G. N. Cockerell, Aug. 19th, 1918; C. J. Hallward, F. R. Davis, Aug. 21st, 1918; A. Milner, D. W. Dron, Aug. 27th, 1918; C. H. O. Stanton, L. H. S. Harben, Aug. 28th, 1918; T. F. Morris, A. Garrity, E. T. Scale, E. C. Williams, M.C., Sept. 1st, 1918, A. E. Abell, Sept. 3rd, 1918; R. W. Jefferson, W. W. McDonald, Sept. 4th, 1918; A. W. Judge, Sept. 7th, 1918; H. P. Beaseley, Sept. 8th, 1918; A. J. Evans, A. H. Sippe, C. D. Clarke, H. A. Scott, Sept. 9th, 1918; R. J. Fetherston, L.E. Heather, D. Low, J. Massey, D. G. Moreton, A. C. Nixon, R. J. Shanks, F. J. Farlow, D. Ottewell, Sept. 10th, 1918; H. J. Dolan, Sept. 11th, 1918; F. Thomas, Sept. 14th, 1918; W. H. Glaser, J. L. Cuthbertson, Sept. 16th, 1918; E. E. N. Smith, F. M. M. Ellis, H. A. Dunningham, C. W. Duval, R. F. Jones, C. B. Mallocks, W. Bourne, Sept. 17th, 1918; T. V. J. Davison, Sept. 19th, 1918; K. S. Hughes, Sept. 20th, 1918; W. A. Lyon, Sept. 22nd, 1918; L. R. Howland, Sept. 23rd, 1918; L. Y. Cardall, Sept. 26th, 1918, J. N. Hill, Sept. 27th, 1918; W. A. Allan, Sept. 28th, 1918; L. F. Williams, E.T. L. Jones, Oct. 4th, 1918; Hon. Lt. S. Symonds, F. T. Wheatley, H. H. Maudsley, E. C. Steel, E. H. Hart,







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Sec. Lts. to be actg. Lts. while empld. as Lts. :—(Hon. Lt.) M. D Scott, H. R. C. Van de Velde, Sept. 18th, 1918.

R A. Golden (Lt., N. Staff. R., Spec. Res.) is granted a temp. commn. as Lt. (Gr. B), May 20th, 1918.

V. E. R. Bolton (temp. Sec. Lt., M.G.C.) is granted a temp. commn. as Sec. Lt. (Gr. B), Aug. 19th, 1918.

MEMORANDA.—Lt.-Col. to be actg. Cols. (without pay and allces. of that rank) while empld. as Permanent Presidents of Courts-Martial :—F. H. G. Playfair, A. W. C. McFall, R. M. Daniel, V Henry, C.B., W. P. Alexander, Dec. 1st, 1918.

The following Capts. are confirmed in rank of Capt. :—L. O. Brown, D.S.C., W. G. R. Hinchcliffe, A. A Wallis, B. A. Malet, R. R. Thornley, D.S.C., E. E. Deans, D.S.C., T. E. B. Howe, A.F.C., G. Preen, N. R. Cook, D.S.C., C. R. Rischbieth, D. M. Ballantyne, J. S. Wright, D S.C., A. R. Stack, D. B. M. Hume, A. J. B. Tonks, D.F.C., A. H. H. Gilligan, T. A. Gladstone, L. E R. Murray, F. J. W. Mellersh, H. Tether, B. N. Harrop, T. G. C. Wood, D.S.C., C. L. Bailey, J. R. Allan, D.S.C, W. A. Scott, D.S.C., S. D. Scott, A. D. Ellwood, D.S.C., J. R. Swanston, D.F.C., A. Frauenfelder, B. A. Millson, D.S.C., S. R. Watkins, G S. Abbott, T. P. M. Alexander, D. R. Baylis, J. H. Woolner, A.F.C., C. B. Sproatt, D.S.C., J. H. Keens, O. W. Redgate, D.F.C., H. M. Ireland, D F.C., K. B. S. Greig, A. M. Fitz-Randolf, J. de C. Paynter, D.S.C., H. S. Broad, W. B. Galloway, C. N. Downs, H. J. Wiser, R. R. Soar, D.S.C., E. A. Bolton, A. G. Bissop, A.F.C., H. L. E. Tyndale-Biscoe, L. C. Shoppee, D.S.C., J. A. Sadler, J. A. Shaw, G. D. Smith, D.S.C., F. R Johnson, D.S.C., F. Towers, T. K. Thyne, J N. Wilson, L. G. Wright, L. G. Wright, G. W. Hemming, D.S.C., F. L. C. Butcher, E. Anthony

Sec. Lt. (Hon. Lt.) G. K. Johnson to be actg Capt. while holding a special appt. at Ministry of Munitions, Oct. 28th, 1918.

Sec. Lt. (Hon. Lt.) H. W. Clarke to be Hon. Capt., Aug. 31st, 1918.

The date of appt. of Capt. (actg. Lt.-Col.) E. P. A. Melville is April 1st, 1918, and not as in "Gazette," May 3rd, 1918

The surname of Capt. D. C. Hydes is as now described, and not as stated in "Gazette," Dec. 24th, 1918.

WAR OFFICE, Jan. 6th.

The following is an extract from a dispatch which has been received by the Secretary of State for War from General F. R. the Earl of Cavan, K.P., K.C.B., M.V.O., Commander-in-Chief of the British Force in Italy :—

ROYAL AIR FORCE.

Awcock, Capt. (actg. Maj.) C. H. (R.G.A.).
Barker, Capt. (actg. Maj.) W. G., D.S.O., M.C.
Carpenter, Lt. (actg. Capt.) P., D.S.O., M.C.
Close, Sec. Lt. W. T.
Craig, Sec. Lt. and Hon. Lt. G.
Foster, Lt. C.
Hill, Sec. Lt. P. L.
Howell, Lt. (actg. Capt.) C. E., D.S.O., M C., D.F.C.
Johnson, Lt. A. J.
Joubert de la Ferté, Lt.-Col. (actg. Col.) P B., D.S O. (R.A.), Comdg. 14th Wing.
Luxton, Lt. R. H. (Can. Fd. Arty.).
Mounsey, Maj. R. J. (Lt., Hamps. R.).
Whittaker, Maj. J. T., M.C. (Lt., R.A.S.C.).
Allen, 17789 Serjt. Clk. C.
Andrews, 12324 Cpl. Mech. (actg. Serjt. Mech.) E. H.
Bowler, 11539 Cpl. Clk. (actg. Serjt. Clk.) W C.
Cockerill, 25416 Serjt. Mech. T. W.
Eaton, 16645 Serjt. Mech. (actg. Ch. Mech.) F. G.
Holmes, 404363 1st Cl. Air Mech. (actg. Cpl.) W B.
Lee, 43669 1st Cl. Air Mech. R.
Lord, 13724 Ch. Mech. C.
McNally, 34997 Serjt. Mech. T
Mockford, 26322 Ch. Mech. A.
Powell, 84 S. M. F.
Ross, 36740 Cpl. Mech. A. W.
Tomlin, 12506 Serjt. Mech H.
Turner, 18708 Serjt. Clk. E. W.
Warner, 23825 Serjt. Clk. G. E.

ADMIRALTY APPOINTMENTS.

The following appointment has been made :—
JAN. 1st.—Lt.-Comdr.—H. W. K. Young, to Argus (Dec. 28th).

THE CASUALTY LIST.

MILITARY.

Reported Jan. 1st.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England :—

Ackers, Lt. C. H. S., R.F.C.; Adams, Capt. R C. H., Middx. R, attd. R.F.C.; Adamson, Lt. C. P., R.F.C.; Allen, Lt. J. M., R.F.C.; Anderson, Lt. A., Conn. Rang, attd. R.F.C.; Archibald, Lt. L. M., R.F.C.; Armstrong, Lt. G. W., R.F.C.; Atkinson, Lt. T. L., R F C;

Ball, Sec. Lt. A. C., Sher. For., attd. R.F.C.; Biddington, Lt. H. V., R.F.C.; Bird, Lt. A. F., Norf. R., attd. R.F.C.; Bird, Lt. C B, M.C., R.F.C.; Birks, Lt. N. A., R.F.C.; Bowers, Lt. P. T., R F C; Boyd, Lt. J., Sco. Rif, attd. R.F.C.; Briggs, Lt. S. P., North'n. R., attd. R F C; Brydone, Lt. J., R.F.C.; Burrill, Lt. T. E., Yeo., attd., R F C; Burton, Lt. E., R.E., attd. R.F.C.;

Cairnes, Capt. D. S., Rif. Brig., attd. R.F.C.; Cameron, Lt. D. R., R F C; Cameron, Lt. I. D., R.F.C.; Carter, Lt. R. N., R.F.C.; Cartledge, Lt. R. A., R.F.C.; Caunt, Lt. H. V., R.F.C.; Clark, Lt. F. S., R.F.C., Clarke, Lt. A. F. G., R.F.C.; Cowan, Lt. R. H., R F C; Crammond, Lt. G. R., Lanc. Fus., attd. R.F.C.; Crane, Lt. C. G., R.F.C.; Crawford, Lt. O. G. S., R.F.C.; Cribb, Lt. A. G., R.F.C.; Crole, Capt. G. E., M.C., R.F.C.; Crosbee, Lt. C. H., R.F.C.; Cudmore, Lt. E. O., R.F.C.; Cullen, Lt. W. D., E. Surr. R., attd. R.F.C.; Currie, Lt. J. D., High. L.I., attd. R.F.C.

Davies, Lt. H. D., R.F.C.; Davies, Lt. H. E., R.F.C.; De Selincourt, Capt. A., R.F.C.; Diamond, Lt. W. E De B., R.F.C.; Dogherty, Lt F. W., R.F.C.; Dougall, Lt. H. F., R.F.C.; Doyle, Lt. D. C., R.F.C.; Duke, Lt. R. E., R.F.C.; Durkin, Sec. Lt. F V., Worc. R., attd. R.F.C.

Eason, Lt. A. T., R.F.C.; Edwards, Lt. E L., Welsh R., attd. R.F.C.; Elphinstone, Lt. C., R.F.C.; English, Lt W., R.F.C.

Fenton, Lt. C. B., R.F.C.; Ferguson, Lt. J. A. A., R.F.C.; Flere, Lt. C. H., R.F.C.; Foster, Lt. P. La T., R.F.C.; French, Lt. G. S., Camb R., attd R.F.C.; Fulton, Lt. E. P., R.F.C.

Garratt, Lt. J. C., R.F.C.; Gilbert, Lt. F. C., R.F.C.; Goodbehere, Sec Lt. P., Manch. R., attd. R.F.C.; Goodchap, Lt. A. F., Glouc. R., attd. R.F.C.; Goode, Lt. R. J. E. P., R.F.C.; Gray, Lt. C. D. G., R.F.C.; Gray, Lt. W. M. R., R.F.C.; Greenslade, Lt. R. S., R.F.C.; Grierson, Sec. Lt. C. D., Yeo., attd. R.F.C.

Hair, Capt. N. B., R.F.C.; Hall, Sec. Lt. W. E., Lond. E., attd. R.F.C.; Hallam, Lt. H. A., York. and Lanc. R., attd. R.F.C.; Harker, Lt. G. T., R.F.C.; Hawkins, Capt. H. R., R.F.C.; Hedley, Capt. J. H., R.F.C.; Helder, Lt. L. B., R.F.C.; Hempel, Lt. A. E., R.F.C.; Hewson, Lt. F A. A., R.F.C.; Hill, Lt. A. B., R.F.C.; Hill, Lt. C. W., R.F.C.; Hill, Lt. R I. V., Welsh R., attd. R.F.C.; Holmes, Lt. C. W. D., R.F.C.; Hopkins, Lt. G. M., R.F.C.; Howes, Lt. W. H., R.F.C.; Huggard, Lt. J. C., R.F.C.; Hunt, Lt. K. F., R.F.C.

Insoll, Lt. F. N., R.F.C.; Ivamy, Lt. W. G., R.F.C.

Jackson, Lt. G. G., R.F.C.; Jay, Lt. T. W., R.F.C.; Jeff, Lt. R. N. W., R F C.; Johns, Lt. T. M., R.F.C.

Kendall, Lt. S., R.F.C.; Kennedy, Lt. C. J., R.F.C.; Kent, Sec. Lt. T. J. R.F.C.; Kirkman, Capt. K. R., M.C., R.F.C.; Knowlden, Lt. W. E., Bord. R., attd. R.F.C.; Knowles, Capt. M. B., Lond. R., attd. R F C.

Lawson, Lt. J. H., R. Scots. attd. R.F.C.; Lawton, Lt. J. B., R.F.C.; Lee, Lt. E. B., R.F.C.; Lefevre, Lt. F. E., M.C., Linc. R., attd. R.F.C.; Leggatt, Lt. C. W., R.F.C.; Lister, Lt. B. S., R.F.C.

McEntee, Lt. G. O., R. Fus., attd. R.F.C.; McGown, Lt. J. C., Yeo., attd. R.F.C.; McKeown, Lt. C. J. W., R.F.C.; Manley, Lt. G. A. C., R.F.C.; Mann, Lt. F. A., Suff. R., attd. R.F.C., Manners-Smith, Lt. J. A., R.F.C.; Marsh, Lt. R. M., R.F.C.; Mase, Lt. H. F., Norf. R., attd. R.F.C.; Matson, Lt. A. W., R.F.C.; Mayne, Lt. R. A., R.F.C.; Metson, Lt G. F., R.F.C.; Middlebrook, Lt. N., Rif. Brig., attd. R.F.C.; Miller, Lt. D., R.F.C.; Money, Capt. R. R., E. Yorks. R., attd. R.F.C.; Muir, Lt. A., R.F.C.; Mumford, Lt. G. W., R.F.C.; Mussared, Lt W. J., R.F.C.

Nicholson, Lt. G. H., R.F.C.; Nixon, Lt. L. G., R.F.C.; Norman, Lt G. R., R.F.C.

Ogden, Lt. C. E., R.F.C.; Oliver, Lt. R. C. D., R.F.C.; Organ, Lt. A. E., R.F.C.

Palmer, Lt. A. W., R.F.C.; Park, Lt. S. M., R.F.C.; Pepper, Lt. A. C., R.F.C.; Percival, Lt. E., R.F.C.; Phelan, Lt. R. S., R.F.C.; Pinkerton, Lt. A. L., R.F.A., attd. R.F.C.; Prior, Lt. W. J., R.F.C.; Quilter, Lt. E. G. C., R.F.C.

Raymond Barker, Lt. A. B., R.F.C.; Read, Lt. L., R.F.C.; Reynell, Lt. A. W., R.F.C.; Rickards, Lt. A. R. M., R.F.C.; Ringer, Sec. Lt. E. C. S., R Suss. R., attd. R.F.C.; Roberts, Lt. C. L., R.F.C.; Roche, Lt. S., R.F.C.; Ross, Lt. W., R. Welsh Fus., attd. R.F.C.; Rush, Lt. A. W., R.F.C.

Salmond Capt. H. G., R.F.C.; Sams, Lt. F. D. H., R.F.C.; Scholtz, Lt. E., R.F.C.; Shakesby, Sec Lt. C. V., E. Yorks R., attd. R.F.C.; Shaw, Lt. J. W., Oxf. and Bucks L.I., attd. R.F.C.; Skinner, Lt. W. R. K., R.F.C.; Smith, Lt. B., Essex R., attd. R.F.C.; Smith, Lt. Charles, W. Yorks R., attd. R.F.C.; Smith, Sec. Lt. C. F., King's (Lpool. R.), attd. R.F.C.; Smith, Lt. R. M., R.F.C.; Southron, Lt. T. M., R.F.A., attd. R.F.C.; Steeves, Lt. D T., R.F.C.; Strange, Lt. M. H., R.F.C.; Sturgess, Lt. T. M., R.F.C.; Styles, Sec. Lt. W. B., R.F.C.; Swart, Lt. O. B., R.F.C.

Tambling, Lt. H. G., R.F.C.; Taylor, Lt. L. G., R.F.C.; Taylor, Lt. N. J., R.F.C.; Taylor, Lt. R. C., R. War. R., attd. R.F.C.; Taylor, Lt. W. H., R.F.C.; Thomas, Lt. G. P. F., Durh. L.I., attd. R.F.C.; Thompson, Lt. S., R.F.C.; Timmis, Lt. L. W., R.F.C.; Topliss, Lt. R. H., R.F.C.; Turner, Lt. G. F., R F C

Van Baerle, Sec. Lt. P. E. H., W. Yorks R., attd. R.F.C.; Vaughan, Lt. D., R.F.C.; Vick, Lt. W. W., R.F.C.; Vipond, Lt. F. E., Manch. R., attd R.F.C.

Wadden, Lt. G., R.F.C.; Walker, Lt. R. D., R.F.C.; Warren, Lt. A. P., R.F.C.; Waters, Lt. C. B., Lond. R., attd. R.F.C.; Waters, Lt. H. E., R.F.C.; Wells, Lt. N. B., R.F.C.; Westfield, Lt. F. J., Manch. R., attd. R.F.C.; Whitworth, Lt. H., R.F.C.; Wigan, Lt. A. P. C., R.F.C.; Willcox, Lt. W. T., R.F.C.; Williams, Lt. L. L., R.F.C.; Williams, Lt. S. W., Essex R., attd. R.F.C.; Wilson, Capt. R. E., Hamps. R., attd. R.F.C.; Wilson, Lt. T. S., R.F.C.; Windle, Lt. B. C. W., R.F.C., Wookey, Sec. Lt. H. C., Glouc. R., attd. R.F.C.; Wright, Lt. M. T., L. N. Lanc. R., attd. R.F.C.

Yeo, Lt. H. A., R.F.C.; Yeomans, Lt. F. L., R.F.C.

AUSTRALIAN FORCE.—Cornish, Capt. E. W., M.C., F.C.; Feez, Lt. C. M., F.C.; Flight, Sec. Lt. O. T., F.C.; McCulloch, Sec. Lt. A. F. G., F.C.; Nicholls, Lt. W. H., F.C.; Randell, Lt. W. B., F.C.; Rintoul, Lt. A., F.C.; Wearne, Lt. A., F.C.; Willmott, Sec. Lt. F. B., F.C.

Reported Jan. 2nd.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England :—

Boumphry, Lt. J. W., Yeomanry, attd. R.F.C.; Chidson, Lt. M. R., R.G.A., attd. R.F.C.; Davidson, Capt T., Camn. Highrs., attd. R.F.C.

The following officers, who were prisoners of war in Germany, have been released :—

Colledge, Sec. Lt. G., Yeomanry, attd. R.F.C ; Jeffs, Lt. C. H., Bord. R., attd. R.F.C.

The following officers, who were prisoners of war in Turkey, have been released :—

AUSTRALIAN FORCE.—Haig, Lt. F. W. F.C.; Hancock, Lt F., F.C.; Poole, Lt. A. A., F.C.; Vautin, Lt. C. H., F C.

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Dick Lane Works: BRADFORD

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Reported Jan. 3rd.

The following officers, who were prisoners of war in Germany, have been released and have arrived in England :—

Cushing, Lt. D., R.F.C.; Hewitt, Sec. Lt H. A., R.F.C.; Ohrt, Lt. F M., R.F.C.

Newfoundland Contingent.—Blackall, Lt. J. F. W., R. Newf. Regt., attd. R.A.F.; Sellars, Lt. F. M., R. Newf. Regt., attd R.A.F.

Reported Jan. 4th.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England :—

Alderson, Lt. A. G. D., Worc. R., attd. R.F.C., Ambler, Sec. Lt. J. J., R.F.C.; Cahusac, Capt. E. B., M.C., S. Staff. R., attd. R.F.C.; Crisp, Lt. A. K., R.F.C.; Dingley, Lt. R. L., Worc. R., attd R.F.C.; Isbell, Lt. A. T., R.F.C.

Reported Jan. 6th.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England :—

Clarke, Lt. T. H., R.F.C.; Colbert, Lt. L. A., R.F.C.; Cooke, Sec. Lt. E. A., R.F.C.; Davies, Lt. C. W., R.F.C.; Deane, Lt. G. S., R.F.C.; Fenwick, Lt. T. B., R.F.C.; Fitzgerald, Lt. J. J., R.F.C.; Haight, Lt. J. L., R.F.C.; Hammond, Lt. H. T., R.F.C.; Harris, Sec. Lt. H., R.F.C.; Hassler, Lt. G. F., R.F.C.; Heagerty, Lt J. S., R.F.C.; Hervey, Lt. H. E., M.C., R.F.C.; Hollis, Lt. J. A., R.F.C.; Jones, Lt W. H., R.F.C.; Kerr, Lt C., R.F.C.; Loyd, Lt. E. E. F., Dgn Gds., attd. R.F.C.; McIntosh, Lt. R. R., R.F.C.; Madge, Lt. J. B. C., R.F.C.; Mathew, Lt C. G., R.F.C.; Osborn, Lt. C. C. F., R.F.C.; Palmer, Sec. Lt. C. H., R.F.C.; Shadwell, Lt. L. M., R.F.C.; Smith, Sec. Lt. E. A. L. F., R.F.C.; Smith, Lt. V., R.F.C.; Spiro, Lt. S. G., R.F.C., Sutcliffe, Lt. C. A., R.F.C.; Wheeler, Lt. L. F., R.F.C.; Wigley, Sec. Lt. L., R.F.C.

Canadian Forces.—Carter, Maj. A. D., D.S.O., N. B. R., attd. R.A.F.; Gilmour, Lt. C., Sask. R., attd. R.A.F.; Harvey, Lt. J. B., Cent. Ont. R., attd. R.A.F.; McCallum, Capt. A. H. K., Que. R., attd. R.A.F.; Shaw, Lt G. M., Cent. Ont. R., attd R.A.F.

Canadian Forces.—Died.—Wright, Lt. W., Alta R., attd R.A.F.

Reported Jan. 7th.

The following officers, who were prisoners of war in Germany, have been released and have arrived in England :—

Adams, Lt. F., R.F.C.; Burnard, Sec. Lt. R. A., Lond. R., attd. R.F.C.; Redpath, Lt. H. S., Arg. and Suthd. Highrs., attd. R.F.C.; Roberts, Lt. R. M., Yorks. L.I., attd. R.F.C.; Shipwright, Lt. A. T. K., R.F.C.; Watson, Lt. N. T., Middx. R., attd. R.F.C.

Casualties among W.Os., N.C.Os. and Men. The dates are those of the Official List.

The following soldiers, who were prisoners of war in Germany, have been released, and have arrived in England :—

Dec. 21st.—R.F.C.—Snelling 78217 E. (Holloway, N.)

Dec. 28th.—Hadlow 65249 2nd Cl. Air Mech. F. (Woolwich, S.E.)

AIR FORCE.

Reported Jan. 2nd.

Killed.—Burns, Lt. T. R. R.
Doucet, Lt. A. C.

Died.—Casey, Capt. J. P. N.
Helm, Capt. H. P. D.

Repatriated.—Andrews, Lt. J. S., Ashton, Sec. Lt. K. H. Burnham, Lt. M. E., Bartlett, Sec. Lt. C. H., Bensly, Lt. E. F., Birley, Lt. T. E. H., Brown, Sec. Lt. J. W., Black, Lt. S. McB., Cameron, Lt. D. R., Campbell, Sec. Lt. A. B. D., Coghill, Lt. F. S., Cross, Lt. H. L., Cowgill, Sec. Lt. W. A. F., Dugdale, Lt. J. G., Darby, Sec. Lt. E., Doncaster, Sec. Lt. A. E., Elliott, Sec. Lt. H., Flere, Lt. C. H., Fulton, Sec. Lt. J., Finch, Lt. F. E., Forsyth, Lt. A. F., Gilmour, Capt. S. G., Gregory, Sec. Lt. R. J., Goodchap, Lt. A. F., Henderson, Lt. W. R., Hampton, Lt. P. R., Heyes, Lt. A. C., Valentine, Lt. J.

Reported Jan. 3rd.

Killed.—Marsh, Capt. P. E. G.
Simpson, Sec. Lt. T. B.

Died of Injuries.—Wright, Sec. Lt. S. H.

Repatriated.—Hatfield, Capt. A. C., Hill, Sec. Lt. S. J., Hill, Sec. Lt. G. A. R., Hitchcock, Sec. Lt. C. G., Howard, Sec. Lt. G. R. Ingram, Sec. Lt L. J. W., Jackson, Lt. W. E., Jennings, Sec. Lt. J. E., Jenyns, Lt. C. G., Jones, Lt. A. D. R., Kilbourne, Lt. W. H., King, Sec. Lt. F. W., Lister, Lt. B. S., Lovell, Sec. Lt. C. E. A., McCrea, Sec. Lt. P. C. S., MacLennan, Lt. J. McM., Marsden, Lt. C., Mercer-Smith, Lt. V., Mussared, Lt. W. J., Oakley, Lt. W. E. B., Percival, Lt. E., Pugh, Lt. J. A., Roberts, Sec. Lt. E., Rochester, Sec. Lt G. E., Russell, Sec. Lt. G. C., Shakesby, Sec. Lt. C. V., Shell, Lt. W. H., Smith, Lt. A., Sparks, Sec. Lt. H. J., M.C.

Reported Jan. 4th.

Killed.—Howett, Sec. Lt. W. F.
Kirby, Sec. Lt. J. R.

Died.—Plenty, Capt. E. P.

Repatriated.—Akester, Lt. J. C., Anderson, Lt. J. D., Austin, Lt. H., Baker, Sec. Lt. F. G., Beauchamp, Lt. F. E., Bell, Sec. Lt. E. V. A., Bingham, Lt. A. E., Body, Lt. G. C., Boe, Sec. Lt. D., Bond, Lt. F. E. Brown, Lt. L. L., Buckingham, Capt. W., Bullen, Lt. E. H., Burton, Lt. D. F., Carlin, Capt. S., Carpenter, Lt. F., Carveth, Lt W. A., Coombes, Sec. Lt. E. S., Cox, Sec. Lt. W., Gray, Capt. K. W., Malcomson, Sec. Lt. J. C., Maxwell, Lt. G. E., Moore, Lt. A., Shook, Lt. J. K., Sieveking, Capt. L. G., Smith, Lt. A. F., Stringer, Lt. F. H., D.S.C., Stubbs, Sec. Lt. H. B., Turner, Sec. Lt. W.

Reported Jan. 6th.

Killed.—Jenner, Sec. Lt. P. H.
Weber, Lt. V. J.

Died.—Patrick, Capt. J.

Repatriated.—Cairns, Sec. Lt. W. T. S.; Currie, Lt J. D.; Doe, Lt. J. E.; Elvin, Sec. Lt. A. J., Eveleigh, Sec. Lt E. R.; Jones, Lt. A. V.; Kellog, Lt. W. B., Kemp, Sec. Lt. P.; Labatt, Sec Lt. W. H. E.; Lewis, Sec. Lt. H. G.; Lloyd, Lt. C. B. E.; Mantle, Sec. Lt. H. S.; Marsh, Sec. Lt. G. R. T.; Marsh, Lt R. M.; Mason, Lt. H. S.; Mitten, Sec. Lt. R. C.; Monaghan, Lt. H. B.; Norton, Sec. Lt. P. C.; Pearson, Lt. B. C.; Perring, Sec. Lt. J. H.; Pretty, Lt R. C.; Pryor, Lt. J. W.; Reynolds, Maj. L. G. S.; Saunders, Lt. W. J.; Senecal, Sec. Lt. C. H.; Sommerfelt, Sec. Lt A.; Stewart, Lt. R. J. G.; Tambling, Lt. H. G.; Timmins, Sec. Lt. L.; Turner, Sec. Lt. E. G.; Westfield, Lt. F. J.; Whitfield, Lt. G. H. P., M.C.; Wignall, Sec. Lt. G.; Wood, Lt J. C.; Wood, Lt. H. H.; Woodman, Sec. Lt. K. C. B.; Vick, Lt. W. W.

Reported Jan. 7th.

Killed.—Beaman, Capt. E. R. H.
Maxted, Lt. W. H.

Died.—Collins, Sec. Lt. C. F.

Repatriated.—Armstrong, Lt. G. W.; Atkinson, Lt. T. L.; Bartlett, Sec. Lt. G. R.; Bayliss, Lt. W. M. F.; Brie, Sec. Lt. R. A. C.; Bucknall, Sec Lt. C. V. A.; Burn, Sec. Lt. J. S.; Clarke, Sec. Lt. A. F. G.; Cotton, Lt. H.; Coulson, Lt. W. E.; Davies, Lt. H. D.; Foster, Lt. P. L.; Fulton, Lt. E. P.; Gillett, Sec. Lt. W. H. C.; Gray, Lt. W. M. R.; Hair, Capt. N. B.; Hall, Lt. C. R.; Harris, Sec. Lt. N. B.; Harrison, Sec. Lt. C. A.; Hemmens, Lt. R. H., Hill, Lt. R. I. V.; Hopper, Sec. Lt. R. W.; Hutcheson, Lt W. B.; Inglis, Capt. A. G.; Jeff, Lt. R. N. W.; Jones-Lloyd, Lt. O. J. F.; Lawe, Lt. A. G.; Lopinsky, Lt. J.; Magee, Lt. E. A.; McEntee, Sec. Lt. G. O.; Mercer, Lt. H.; Mumford, Lt. G. W.; Newbury, Lt. G. G.; Norden, Lt. W. G.; Norman, Lt. G. R.; Patman, Lt. G. H.; Payne, Sec. Lt. A. C. J.; Pontin, Lt. S. C. M.; Rainier, Lt G. A.; Rankin, Lt. W. A.; Rickett, Sec. Lt. W. H. A.; Ridley, Lt. C. B.; Ritchie, Lt. T. M.; Sanders, Lt. W.; Smith, Lt. C. F.; Smith, Sec. Lt. F.; Smith, Sec. Lt. R. B.; Taylor, Sec. Lt. N. J.; Thackrah, Lt N. H.; Thomson, Lt. G. F.; Timmis, Lt. L. W.; Travers, Sec. Lt. G., Vipond, Lt. F. E.; Vosper, Lt. R. A.; Wharton, Lt. C. E.; Wood, Sec. Lt. J. O.; Wooding, Lt. J.; Wright, Lt. M. T.; Yeo, Sec Lt H. A.

Correction.—Killed.—Arbuthnot, Lt G. R., R.A.F., should read Arbuthnot, Lt. R. G. U., 16th Lrs., attd. R.A.F.

Reported Jan. 8th.

Killed.—Ffrench, Capt. E. W.

Died of Injuries.—Parks, Sec. Lt. H. C.

Repatriated.—Anderson, Sec. Lt. G. F.; Atkins, Sec. Lt. C. A.; Atkins, Lt. W. T. J.; Berry, Lt. F. H.; Bosher, Lt. H.; Clack, Lt. L. A.; Collett, Lt. H. S.; Coops, Lt. F. C., Coulthard, Lt. R.; David, Sec. Lt. C. K.; Davies, Sec. Lt. D. P.; Denny, Lt. C. E.; Elwig, Sec. Lt. H. J. C.; Evans, Lt. H. B.; Fletcher, Sec. Lt. A.; Garrett, Lt. A. L.; Gedge, Sec. Lt. G., Glazebrook, Lt. R. F.; Gondre, Lt. J.; Gray, Lt. R. H.; Hacklett, Lt. L. A.; Hall, Lt K. W. J., Hempil, Lt. A. E.; Home-Hay, Capt. J. B.; Lewis, Lt. R. G.; Mallett, Lt. D.; McCracken, Lt. E. C. J.; McKelvey, Lt M. T., Meyer, Lt. O. F.; Mitchell, Lt P. C.; Nicholas, Sec. Lt. E. M.; Oliver, Lt. R. C. D.; Papenfus, Lt. M. T. S.; Pemberton, Lt A. L.; Peterson, Sec. Lt. G. G. W.; Puckridge, Capt. H. V.; Reid, Lt. C. W.; Rickards, Lt. A. R. M.; Rodger Lt. K. M.; Rolph, Sec. Lt. E. G.; Rose, Lt. G.; Russell, Lt. F. C.; Scriverer, Sec. Lt. H. K.; Singleton, Sec. Lt. E.; Strainward, Sec. Lt F. L.; Struben, Lt. H. M.; Sugden, Lt. J. E. W.; Taylor, Lt. A. L. T.; Thompson, Lt. J. C.; Townley, Lt. D. C.; Venter, Capt. C. J.; Warburton, Sec. Lt. T.; Whyte, Sec Lt. R. P.; Wigan, Lt. A.; Winter, Lt. W. H.; Wright, Lt. E. P.

Casualties among W.Os., N.C.Os. and Men of the R.A.F. The dates are those of the Official List

Killed.

Jan. 2nd.—Convey 143076 2nd Pte F. (Manchester); Moors 78179 Cpl.-Mech. R. (Oldham).

Jan. 3rd.—Armitage 40322 Cpl.-Mech O. H. (Shaw), Farr 7966 1st Air Mech. W. J. (Hampstead); Guppy 7980 1st Air Mech E. A. (Hoxton).

Died.

Jan. 2nd.—Adams 7919 2nd Air Mech. T H. O. (Barking); Baldwin 58630 2nd Air Mech. A. W. (Barnsbury); Briscoe 21732 3rd Air Mech. C. (London, W.); Bushell 144612 2nd Pte. J. (Liverpool); Cooper 283651 3rd Clk. W. H. (Earlswood); Gibb 99434 3rd Air Mech. T. R. (Laurencekirk); Graham 5293 Cpl.-Mech. A. J. (Tetbury); Grant 124737 2nd Clk. B. (London, N.19); Hodgkinson 109572 3rd Air Mech. R. (Bacup); Howe 7902 1st Pte. W. M. (Mountrath); Jean 56335 3rd Air Mech. F. H. R. (Norwich); Jelly 134558 2nd Air Mech. H. H. (London, S.W.); Keates 14392 1st Air Mech. E. (Barking); Maddock 54227 2nd Pte. T. (West Ham); Mapp 62321 1st Pte. J. F. (Aldershot); McKenna 108588 2nd Pte. J. (Manchester); Morris 287491 2nd Pte. E. R. (Oxford); O'Neill 69366 1st Pte. J. (Millom); Penketh 140253 3rd Air Mech. G. E. (Oldham); Renn 80505 2nd Pte. F. H. (Islington, N.); Shortley 9107 1st Pte. H. J. (Coventry); Sillis 33979 Serjt.-Mech. T. (Sevenoaks), Skeels 235924 1st Pte. W. R. (Haugh, Newhey); Stow 120544 3rd Air Mech. J. H. (Glusburn); Wright 58944 1st Pte. A. A. (Anstey).

Jan. 3rd.—Edmondson 32757 1st Air Mech. T. W. (Nelson); White 30247 3rd Air Mech. A. J. (Waltham Cross).

Died of Wounds.

Jan. 2nd.—Jackson 80463 3rd Cl. Air Mech. E. H. (Birmingham).

Jan. 3rd.—Dyson 11342 3rd Clk J. Cheetham, Manchester); Wilkie 268470 2nd Pte. J. (Aberdeen).

Wounded.

Jan. 3rd.—Stevens 281757 2nd Pte. W. (Bromsgrove); Sturmey 408741 1st Pte. H. R. (Swindon).

Repatriated.

Jan. 3rd.—Christmas 226755 1st Air Mech L. A. (Guildford); Hamilton P/S40638 Serjt.-Obsr. J. (Hamilton, Lanark); Harbour 92457 1st Pte. A. G. T. (Folkestone); Hawkins 46209 1st Pte W. (Minehead); Machir 245212 1st Pte. P. G.; (Dundee); Nash 10206 Serjt.-Pilot F. E. (Mansfield); Read 4475 Serjt.-Mech. F. E. (Aldershot); Rosenberg 41497 1st Air Mech. M. (Whitechapel, E.), Russell 78284 Serjt. F. (Stepney); Thomas 240923 Serjt.-Mech. R. H. (Rhyl); Thomson 100105 Serjt.-Mech. F. S. (Liverpool); Trehearn 8197 1st Air Mech. E. (London, W.), Winkworth 58292 3rd Air Mech. R. D. (Kentish Town, N.W.).

PERSONAL NOTICES.

NAVAL.

Death.

FAWCETT.—Maj. Henry Fawcett, R.M.L.I., who was accidentally killed on Dec. 29th while with the Murman Expedition, was the only son of Henry Fawcett, 3, Wilbury Villas, Hove, and Broadfield, Dent, Yorks. He was in his 35th year.

Engagement.

SHOPPEE—MACLEAN.—The engagement is announced of Lt. Denys C. G. Shoppee, D.S.C., R.N., son of the late Capt. Gerald A. Shoppee, J.P., LL.D., and Mrs. Shoppee, of 21, Buckingham Palace Mansions, S.W.1, and Nellice, eldest daughter of Mr. and Mrs. Charles J. MacLean, 3, Grosvenor Crescent, Glasgow.

Marriage.

HALL—JEANS.—The marriage between Capt. H. G. Hall, D.S.C., R.A.F., elder son of Dr. and Mrs. C. Hubert Hall, of Park House, Watford, and Nancy, only daughter of Mr. and Mrs. L. M. Jeans, of Eastleigh, Watford, will take place at St. Andrew's Church, Watford, on Jon. 22nd, at 2 o'clock. There will be no reception, but all friends will be welcome at the church.



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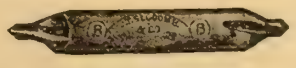
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MILITARY.

Deaths.

ROBINSON.—Capt. William Leefe Robinson, V.C., R.A.F., died on Dec. 31st at Stanmore, near Harrow. Capt. Leefe Robinson was the first aviator to bring down an airship in England—at Cuffley, on Sept. 3rd, 1916—for which act he received the V.C. He was taken prisoner by the Germans in April, 1917, and only returned from captivity on Dec. 14th last. He made three or four attempts to escape, and finally the Germans put him into solitary confinement in a small cell. Since his repatriation he had suffered severely as the result of his imprisonment in Germany, and for over a week had been ill with influenza, to which his death is attributed.

Capt. Robinson, who was born at Tollidetta, South Coorg, Southern India, on July 14th, 1895, was the son of Mr. Horace Robinson, and grandson of Mr. W. C. Robinson, R.N., Chief Naval Constructor at Portsmouth Dockyard. He was educated at St. Bees School, Cumberland, and, after travelling in France and Russia, entered Sandhurst in August, 1914. In the following December he was gazetted to the Worcestershire Regt. He joined the Royal Flying Corps in France as an observer in March, 1915, and on May 9th was wounded in the arm while flying over Lille. On his recovery a few weeks later he learned to fly at Farnborough, took his "ticket" on Sept. 15th, and was appointed a flying officer, R.F.C., three days later. He was attached to various stations in England for night flying, and before bringing down the Schütte Lanz at Cuffley had attacked another airship. The official report described his successful attack as being carried out with the utmost gallantry and judgment.

Capt. Leefe Robinson was engaged to Mrs. Joan Whipple, widow of Capt. H. C. Whipple of the Devon Regt., who was killed in action in December, 1914.

Engagements.

JACKSON—SLADE.—The engagement is announced of Maj. J. Lee Jackson, M.C., Connaught Rangers and R.A.F., eldest son of B. Lee Jackson, of Exeter, South Devon, and Belmullet, Ireland, and Miss Rosamond Tuder Slade, of Boston, Mass., and Quebec.

RANSFORD—McINTYRE.—The engagement is announced between Capt. F. B. Ransford, London Regt. and R.A.F., youngest son of the late Canon R. B. Ransford and Mrs. Ransford, and Esme, youngest daughter of Mr. and Mrs. J. P. McIntyre.

Marriages.

BELLAMY—TETLEY.—On Jan. 1st, at the Chapel Royal of the Savoy, Capt. Harry G. F. Bellamy, D.S.O., M.C., late R.F.C., eldest son of Lt. H. F. Bellamy, R.N.V.R., and Mrs. Bellamy, of Hillcrest, Mannamead, Plymouth, was married to Dorothy, only child of Mr. and Mrs. Alexander (Sandy) Tetley, late of Buenos Ayres.

CATHCART—DE GREY WARTER.—The marriage arranged between Earl Cathcart and Mrs. de Grey Warter, the widow of Capt. H. de Grey Warter, 4th Dragoon Guards, took place on Jan. 6th at Holy Trinity Church, Sloane Street.

Birth.

DUFF.—On Dec. 29th, at Great Melton Rectory, near Norwich, the wife of Capt. Ian Duff, M.C., R.A.F.—a daughter.

FORBES.—On Dec. 30th, the wife of Capt. A. R. Forbes, M.C., A.S.C., attd. R.A.F., of Thelis Island, B.C.—a daughter.

* * *

Will any aviator who was with the 32nd Squadron, R.F.C., in France on Aug. 10th, 1917, very kindly communicate with Melville Seth-Ward, Sutmer Court, Chalfont St. Giles, Bucks?

* * *

Lt. E. T. Smart, R.G.A. (Spec. Res.), attd. R.F.C., and his observer, Sec. Lt. K. Barford, R.F.C., both of the 2nd Squadron, were reported missing March 27th, 1918. They were flying Armstrong-Whitworth B.288, and were last seen over Lamotte, east of Amiens, on their way to attack German transport on the sector Bray-sur-Somme to Roye. Any information from returning prisoners about either of these officers will be gratefully received by the Rev. J. R. Smart, 20, Manor Grove, Tonbridge, Kent.

AIR FORCE.

Deaths.

BEAMAN.—Flt. Capt. Edgar Robert Hulme Beaman, R.A.F., who was killed on Dec. 17th in an aeroplane collision, was the son of the late Gen. A. H. Beaman, I.M.S. He was 26 years of age.

FITZGERALD.—Marjorie Lilian Purefoy FitzGerald, driver, W.R.A.F., who died on Jan. 4th from heart failure following enteric fever, was the daughter of the Rev. and Mrs. H. Purefoy FitzGerald, of Lidwells, Goudhurst. She was 20 years of age.

GOW.—Lt. John Eckford Gow, R.A.F., who was reported missing after aerial combat on July 31st, is now known to have died of wounds in German hands on Aug. 10th, was the second son of John Eckford Gow, Inspector, Inland Revenue, Kingston, Canada, and Agnes Taylor Gow, and grandson of the late James Gow, of Windsor, Ontario, District Inspector, Inland Revenue, and of the late Rev. John Eckford, of Edenbank, Dunkeld, Ontario, formerly Minister of the U.P. Church at Newbigging, Forfar. He was 19 years of age.

HURNDALL and ELLERCAMP.—A double aeroplane fatality occurred at Hornchurch, Essex, on Dec. 30th, when Lt. Charles Douglas Hurndall, R.A.F., aged 21, and Lt. Wilfred Alan Ellercamp, R.A.F., aged 19, came into collision, and both machines fell. The two officers were instantly killed. Mr. Hurndall's home was at Martley, Worcester. Both the deceased were experienced fliers. Lt. Wilfred Alan Herbert Ellercamp, 44th Sqdn., R.A.F., was the only son of H. McD. Ellercamp, India Office, S.W.

KING.—Sec. Lt. J. S. King, R.A.F., who was reported missing on Oct. 1st, is now reported to have been killed in France, was the only son of the Rev. W. R. C. King, Cholderton Rectory, Salisbury. He was 19 years of age.

THOMPSON and VINCENT.—Cadet C. Thompson, R.A.F., aged 18, of Rochdale, and Cadet W. Vincent, R.A.F., aged 25, of Plymouth, were recently killed at Stamford, their machine crashing to earth. In one case death was instantaneous; in the other the aviator died immediately after admission to hospital.

It was stated at the inquest on Jan. 4th that the cause of the crash was an attempt to turn the aeroplane without it having sufficient speed. Mr. Thompson was the pilot and Mr. Vincent a passenger. Both were declared to be capable aviators. A verdict of accidentally killed was returned.

Engagements.

CHARTERIS—VALENTINE.—The engagement is announced of Capt. Ronald Louis Charteris, R.A.F., son of the late Capt. the Hon. Frederick William Charteris, R.N., and Lady Louisa Charteris, and Mrs. James Valentine, widow of Lt.-Col. James Valentine, D.S.O., R.F.C. Mrs. Valentine is the only daughter of the late Maj.-Gen. G. W. Knox, C.B., and Lady Sybil Knox, and a niece of the Earl of Lonsdale.

HALFORD-THOMPSON—FREDERICK.—The engagement is announced of Lt. C. V. Halford-Thompson, R.A.F., son of the late Colonel Halford-Thompson and of Mrs. Halford-Thompson, of Tavistock, and Sophy, younger daughter of Mr. H. P. Frederick, of Burgh Castle.

HAYWARD—PEGLER.—The engagement is announced between Capt. Cedric Charles Hayward, R.A.F., only son of Charles W. Hayward and Mrs. Hayward, of Adelaide, South Australia, and Beatrice Elaine (Tommy), youngest daughter of Frank Pegler, J.P., Notts, and Mrs. Pegler, of Ordsall Hall, Retford, and Seacroft, Lincolnshire.

Marriage.

GARVAGH DIMMER.—On Jan. 1st, at St. Matthew's Church, Bayswater, Lieut. the Lord Garvagh, R.A.F., was married to Mrs. Dimmer, widow of the late Lt.-Col. J. H. S. Dimmer, V.C., and daughter of Mr. and Mrs. W. Bayley-Parker, of Moseley.

Births.

ELSDON.—On Jan. 2nd, at Redholme, Deal, the wife of Maj. Elsdon, R.A.F., of a son.

GUDGIN.—On Jan. 1st, at Homelands, Swadham, to Capt. S. H. and Mrs. Gudgin, R.A.F.—a son.

HAWKEN.—On Dec. 26th, at a nursing home, the wife of Henry Harold Hawken, R.A.F., of 73, Claverton Street, St. George's Square, S.W., of a son.

JENKINS.—On Jan. 3rd, at 5, Bedford Terrace, Joppa, Edinburgh, the wife of Lt. A. Collier Jenkins, R.A.F., of a son.

MOFFATT.—On Jan. 5th, at Ashville, Sunderland, the wife of Maj. A. Mor Moffatt, R.A.F., Arnotdale, Falkirk, Stirlingshire, of a son.

SOMERSET-LEEKE.—On Dec. 27th, at 2, Douglas Mansions, Cromwell Road, S.W., to Winifred, wife of Capt. A. F. Somerset-Leeke, R.A.F.—a son.

STEER.—On Dec. 27th, at 132, Lozells Road, Birmingham, the wife of Serjt. W. E. G. Steer, R.A.F., of a son.

* * *

Sec. Lt. B. J. McCutcheon, R.A.F., pilot, and Lt. V. S. Gray, R.A.F., observer, both of the 48th Squadron, have been missing since Aug. 8th from the Somme battle-front. They were flying Bristol fighter D.8061, and were probably shot down between Villers and Chaulnes. If anyone can give any information concerning them it will be gratefully received by J. C. McCutcheon, Esq., 16, Philpot Lane, London, E.C.3.

* * *

Any information concerning Lt. D. H. Hazell, R.A.F., reported killed on Sept. 27th, and his observer, Sec. Lt. D. B. Robertson, R.A.F., reported missing, will be gratefully received by Mrs. Hazell, "Tasma," Frinton-on-Sea. Both were of the 25th Squadron, R.A.F., and the machine they were flying was D.H.4 A8031.

TERRY

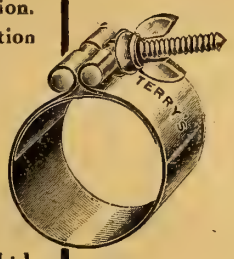
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MAJOR-GENERAL TRENCHARD'S DISPATCH.

AIR MINISTRY, Jan. 1st.

The Secretary of State for the Royal Air Force has received the following dispatch from Maj.-Gen. Sir H. M. Trenchard, K.C.B., D.S.O., commanding the Independent Force, Royal Air Force :—

MY LORD,—I have the honour to submit the following report on the work of the Independent Air Force from June 5th to the signing of the Armistice on Nov. 11th, 1918.

I have also mentioned in the earlier part of this report the work done in the attack on Germany by the squadrons from a base south-east of Nancy before the establishment of the Independent Air Force.

In May, 1918, you informed me that you considered it advisable to constitute an Independent Force to undertake the bombing of the industrial centres of Germany.

You further intimated to me that you intended to place the whole of the British effort in attacking Germany from the air under my command, and that it would be probable that squadrons would be available to carry out this work from England, as well as from the eastern area of France.

On May 20th, 1918, I proceeded to the Nancy area, where the 8th Brigade, R.A.F., under the local command of Brig.-Gen. C. L. N. Newall, consisting of :—

No. 55 Squadron, De Hav. 4, 275 h.p. Rolls-Royce,
No. 99 Squadron, De Hav. 9, 200 h.p. B.H.P.;
No. 100 Squadron, F.E. 2b, 160 h.p. Beardmore;
No. 216 Squadron, Handley Page, 375 h.p. Rolls-Royce;

was already established under Field-Marshal Sir Douglas Haig.

With the exception of No. 99 Sqdn., this Force had been in this area since Oct. 11th, 1917.

I took over from Field-Marshal Sir Douglas Haig the tactical command of this Force on June 5th, and the administrative and complete control on June 15th, 1918.

From Oct. 11th, 1917, to June 5th, 1918, this small Force had, in spite of a very severe winter, carried out no less than 142 raids. Fifty-seven of these raids were made in Germany, and included night and day attacks on Cologne, Stuttgart, Mannheim, Mainz, and Coblenz. Long-distance raids had also been carried out against Namur, Charleroi, and Liège, in order to help in attacking the enemy's communications to the Western Front.

It should be remembered that No. 216 Sqdn. (at that time R.N.A.S.) was hastily formed, and was not equipped until October, 1917. No. 100 Sqdn. was only equipped with short-distance machines, and No. 99 Sqdn. only joined in May, 1918.

No. 55 Sqdn. was equipped solely with short-distance machines, which had an air endurance of 3¼ hours only. But the squadron itself rectified this to the best of its ability by adding extra petrol tanks to the machines, which gave them an air endurance of 5¼ hours.

The work during last winter called for exceptional efforts of endurance and perseverance on the part of the commanders, pilots, and observers.

Preparatory work on the construction of aerodromes, with a view to accommodating a larger force, had been undertaken before my arrival, and had been handled with zeal and tact by the General Officer Commanding the 8th Brigade. The work accomplished by Gen. Newall formed a foundation upon which I was at once able to build in making arrangements to accommodate an increased number of squadrons.

In aviation it is essential that the technical and administrative controls should be under one command, as the work to be carried out nearly always entirely depends on the administration of the Force. As it had been decided to separate the tactical control of this Force from the British Armies operating in France, it was therefore necessary to separate the administrative control as well; and, in my opinion, it became likewise necessary to constitute all the administrative services on an independent basis, in order to make the Air Force completely independent.

This involved the formation of a large staff to deal with the multifarious matters connected with the formation and the maintenance in the field of an aerial force.

In addition to this, the Anti-Aircraft Defence and Searchlights came under my command.

By June 26th the staff for the above-mentioned services had been assembled and organised and were capable of maintaining the Independent Air Force.

I take this opportunity of mentioning that the Independent Force was operating throughout in the zone of the group of the French Armies of the East under the command of Gen. de Castlenau, to whom I am indebted for the very valuable assistance which he and his staff gave me and for advice which helped me over the many difficulties inseparable from an organisation of such a kind. In fact, without his assistance it would have been almost impossible to have made an efficient organisation.

I should also like to mention that the whole of the administrative services were provided by Field-Marshal Sir Douglas Haig from the British Armies in the field. The British Armies in the north provided me with all the personnel and material that was necessary to maintain and organise and operate the Independent Force, apart from technical aeroplane supplies.

My first work was to at once push on and arrange for the accommodation of a Force in the neighbourhood of 60 squadrons. This was a much larger task than may appear at first sight.

The country is throughout hilly and woody, and where there are any level places they consist of deep ridge and furrow, there being as much as 3 ft. 6 ins. between furrow and ridge.

The aerodromes had to carry heavy machines and heavy bomb loads; in order to enable this to be done, draining work on a large scale had to be very carefully carried out, and arrangements had to be made for a large installation of electrical power for workshops and lighting and petrol in order to save transport.

This work was practically completed by Nov. 1st, 1918.

It will be within your recollection that in the past I had referred to the necessity for equipping the British Expeditionary Force on the Western Front with sufficient aircraft to hold and beat the German aerial forces on the Western Front; that the bombing of Germany was a luxury till this had been accomplished, but that, once this had been accomplished, it became a necessity. That is to say, it became necessary to attack what I may call the German Army in Germany, and to strike at its most vital point—its sources of supply; and the Independent Force was formed with this object.

The question I had to decide was how to use this Force in order to achieve the object—i.e., the breakdown of the German Army in Germany, its Government, and the crippling of its sources of supply.

The two main alternative schemes were :—

1. A sustained and continuous attack on one large centre after another until each centre was destroyed, and the industrial population largely dispersed to other towns, or

2. To attack as many of the large industrial centres as it was possible to reach with the machines at my disposal.

I decided on the latter plan, for the following reasons :—

(i.) It was not possible with the Forces at my disposal to do sufficient material damage so as to completely destroy the industrial centres in question.

(ii.) It must be remembered that, even had the Force been still larger, it would not have been practical to carry this out unless the war had lasted for at least another four or five years, owing to the limitations imposed on long-range bombing by the weather.

The weather during June, July, and August was extremely favourable for long-distance bombing, but during September, October, and the first 10 days of November it could have hardly been worse for this particular work. Day after day attempts were made to try to reach the long-distance targets, but the wind was generally too strong; or, if there was no wind, heavy rain and fog prevailed by day and dense mist by night, which lasted often until ten or eleven o'clock the next morning. Often the nights were perfect, but dense white mist completely obliterated the ground, making it impossible for machines to ascend.

Besides this, there are always a large number of technical difficulties to overcome which still further interfere with the continuity of long-range bombing.

By attacking as many centres as could be reached, the moral effect was first of all very much greater, as no town felt safe, and it necessitated continued and thorough defensive measures on the part of the enemy to protect the many different localities over which my Force was operating.

At present the moral effect of bombing stands undoubtedly to the material effect in a proportion of 20 to 1, and therefore it was necessary to create the greatest moral effect possible.

I also recommended, as you will recollect, that the proportion of day bombing squadrons in the Force should be slightly larger than that of night bombing squadrons, as I considered that, although day bombing squadrons suffer higher casualties than night bombing squadrons, at the same time, if day bombing is excluded, at least four-fifths of the value of night bombing must necessarily be wasted, owing to the fact that the enemy can then make his arrangements to work by day and live at a distance by night, and take many other similar defensive steps.

Also, if the bombing had been carried out exclusively by night it would not have caused the enemy to make such a large use of his men and material in defensive measures, and therefore it would not have affected the Western Front to such an extent as it did.

Though night bombing is the safer, many mistakes are made at night in reaching the locality it has been decided to bomb.

My Intelligence Department provided me with the most thorough information on all targets such as gas factories, aeroplane factories, engine factories, poison-gas factories, etc., each target having a complete detailed and illustrated plan, and maps were prepared of every target that was within reach. These were supplemented in a large way by the aerial photographs taken by reconnaissance machines.

Before it was possible to attack Germany successfully it was necessary to attack the enemy's aerodromes heavily in order to prevent his attacking our aerodromes by night, and by destroying

his machines to render his attacks by day less efficacious I considered that it was probable during the spring and early summer of 1919 that at least half my Force would be attacking the enemy's aerodromes, whilst the other half carried out attacks on long-distance targets in Germany.

It was also necessary several times during the period the Force operated to carry out attacks in conjunction with the Armies on the enemy's communications.

I also had to decide, when it was impossible for squadrons to reach their objectives well in the interior of Germany, what alternative objective should be attacked, and which attacks would have the greatest effect in hastening the end of hostilities. I decided that railways were first in order of importance, and next in importance the blast furnaces.

The reason of my decision was that the Germans were extremely short of rolling stock, and also some of the main railways feeding the German Army in the West passed close to our front, and it was hoped that these communications could be seriously interfered with, and the rolling stock and trains carrying reinforcements or reliefs or munitions destroyed. They were also fairly easy to find at night.

I chose blast furnaces for the second alternative targets, as they were also easy to find at night, although it was difficult to do any really serious damage to them owing to the smallness of the vital part of the works.

On my arrival in the Nancy area the 8th Brigade consisted of those squadrons shown above. Additional squadrons arrived on the dates as shown :—

No. 104 Squadron, De Hav. 9, B.H.P., May 23rd.
No. 97 Squadron, Handley Page, Rolls Royce, Aug. 9th.
No. 215 Squadron, Handley Page, Rolls-Royce, Aug. 19th.
No. 115 Squadron, Handley Page, Rolls-Royce, Aug. 31st.
No. 110 Squadron, De Hav. 10, Liberty, Aug. 31st.
No. 45 Squadron, Sopwith Camel, Sept. 22nd.

It must be remembered that new squadrons could not be used for work over the line until three weeks after their arrival, as during this period they were receiving their final training, which can only be carried out at the front.

No. 45 Squadron was intended to attack the enemy's scouts many miles over the line. It was necessary to re-equip this squadron with longer range scouts after I received it, but as these machines did not arrive before the Armistice was signed the squadron was only used for attacking individual hostile machines which crossed our lines.

During August No. 100 Squadron, which was armed with F.E. 2b short-distance machines, commenced re-equipping with Handley Pages. While it was being re-equipped—which process took nearly the whole month—scarcely any work could be carried out by the squadron.

Below are a few interesting figures :—

The total weight of bombs dropped between June 6th and Nov. 10th was 550 tons, of which 160 tons were dropped by day and 390 tons by night. Of this amount no less than 220¼ tons were dropped on aerodromes. This large percentage was due to the necessity of preventing the enemy's bombing machines attacking our aerodromes and in order to destroy large numbers of the enemy's scouts on their aerodromes, as it was impracticable to deal with them on equal terms in the air. I think this large amount of bombing was thoroughly justified when it is taken into consideration that the enemy's attacks on our aerodromes were practically negligible, and not a single machine was destroyed by bombing during the period June 5th to Nov. 11th.

In addition to this the following objectives were attacked :—

Baalon, Baden, the Black Forest, Bonn, Cologne, Coblenz, Darmsdatt, Duren, Dillingen, Frankfurt, Forbach, Hagendingen, Heidelberg, Hagenau, Kaiserlautern, Karthaus, Karlsruhe, Ludwigshafen, Landau, Mainz, Mannheim, Lahr, Lumes, Luxemburg, Oberndorf, Offenburg, Pforzheim, Pirmaisens, Rastatt, Rombas, Rottweil, Sallingen, Saarburg, Saarbrucken, Stuttgart, Treves, Weisbaden, Worms, Voelkingen, Wadgassen, Zweibrucken, and other miscellaneous targets.

It must also be remembered that of the 109 machines which were missing, the majority dropped bombs on targets before landing. The amount of bombs dropped by these machines is not included in the above figures.

In June the longest distance flown out and back by day was 272 miles, and by night 240 miles.

In July the longest distance flown out and back by day was 272 miles, and by night 300 miles.

In August the longest distance flown out and back by day was 330 miles, and by night 342 miles.

In September the longest distance flown out and back by day was 320 miles, and by night 320 miles.

In October the longest distance flown out and back by day was 320 miles, and by night 272 miles.

A large amount of photographic reconnaissance was done by individual machines at a great height. This work was nearly always successfully carried out, and only one photographic machine was lost during the whole period of operations.

Photographs have proved time and again the efficiency of the work of the bombing machines. Captured correspondence testified to the great moral effect of the bombing attacks on Germany.

It was apparent by the end of June that the enemy was increasing the number of fighting machines opposed to us. These machines were presumably being provided from squadrons he had withdrawn from the Russian Front and re-equipped for Home Defence work. In September and October our day bombing squadrons had to fight practically from the front line to their objective, and from there home again. In several cases they had to fight the whole way out and the whole way back. This necessitated the most careful keeping of formation in order to avoid undue casualties, as once the formation was split up the enemy's machines could attack individual machines at their leisure. When our machines were in formation he generally concentrated on the rear machines, occasionally making attacks on the machine in front.

I would like to state here that the courage and determination shown by the pilots and observers were magnificent. There were cases in which a squadron lost the greater part of its machines on a raid, but this in no wise damped the other squadrons' keenness to avenge their comrades, and to attack the same target again and at once.

It is to this trait in the character of the British pilots that I attribute their success in bombing Germany, as even when a squadron lost the greater part of its machines, the pilots, instead of taking it as a defeat for the Force, at once turned it into a victory by attacking the same targets again with the utmost determination. They were imbued with the feeling that whatever their casualties were, if they could help to shorten the war by one day and thus save many casualties to the Army on the ground they were only doing their duty. I never saw, even when our losses were heaviest, any wavering in their determination to get well into Germany.

Long-distance bombing work requires the utmost determination, as a change of wind completely upsets all calculations that may have been made before starting. It requires fine judgment on the leader's part to know if he perseveres to the objective, whether he will have sufficient fuel to carry the formation home again safely. This will be realised when it is pointed out that on several occasions the machines with only five and a quarter hours' petrol were out for that time ; in one case a formation was out for five hours and thirty minutes, and it only just managed to clear the front line trenches on its homeward journey. A miscalculation of five minutes would have lost the whole formation.

Ceiling was of more importance than speed for long-distance day bombing work. It was essential that squadrons should fly as high as possible, and it soon became apparent, as I had already stated, that the two squadrons with the 200 h.p. B.H.P. engines had not sufficient power for this long-distance work. One squadron was re-equipped with D.H.9a machines with Liberty engines in November, before the signing of the Armistice, and the second squadron had started re-equipping.

The 27th Group was established in England under the command of Colonel R. H. Mulock, D.S.O., for the purpose of bombing Berlin and other centres. This Group only received the machines capable of carrying out this work at the end of October, and though all ranks worked day and night in order to get the machines ready for the attack on Berlin they were only completed three days before the signing of the Armistice.

The Daily Communiqués gave all the places which were attacked, and therefore I have not repeated those reports in this dispatch.

I would, however, like to bring to your notice the following important raids which show some of the difficulties met with in long-range bombing.

On the night of June 29th-30th, Handley Page machines of No. 216 Squadron were ordered to attack the chemical works at Mannheim. Owing to the weather conditions only one machine reached the objective, on which it dropped its bombs. This machine, on the homeward journey, failed to pick up its aerodrome, and landed no less than 160 miles S.W. of the aerodrome undamaged.

On July 5th twelve machines of No. 55 Squadron, under the command of Capt. F. Williams and Capt. D. R. G. Mackay, set out to attack the railway sidings at Coblenz. Shortly after starting the squadron passed over thick clouds and steered its course by compass, but the target was obscured by clouds. The leader turned with the intention of attacking Karthaus, but as he turned the anti-aircraft barrage over Coblenz opened. Through a small hole in the clouds he could see a portion of the target, and the formation followed him and released their bombs.

On July 31st No. 99 Squadron, under the command of Capt. Taylor, went out to attack Mainz. They encountered 40 hostile scouts south of Saarbrucken. Fierce fighting ensued, as a result of which four of our machines were shot down. The remaining five machines of the formation reached Saarbrucken, and dropped their bombs on the station. On their way home they were again attacked by large numbers of hostile scouts, and suffered the loss of three more of their number.

Immediately after their return, No. 104 Squadron, led by Capt. E. A. Mackay and Capt. Home-Hay, proceeded to attack the factories and sidings at Saarbrucken, which they successfully accomplished with no losses.

On Aug. 11th No. 104 Squadron, under the command of Major Quinnel, attacked the station at Karlsruhe, in spite of bad

weather conditions, causing a heavy explosion in the station and scoring many direct hits on the railway sidings. In the course of fighting one of our machines was brought down and three of the enemy's machines were driven down out of control.

Frankfurt was attacked for the first time on Aug. 12th by 12 machines of No. 55 Squadron, under the command of Capts. B. J. Silly and D. R. G. Mackay. Most of the bombs burst in the town east of the goods station, and all the machines returned safely with the loss of one observer, who was killed by machine-gun fire.

The formation was heavily attacked by 40 scouts of various types over Mannheim on its way to the objective and throughout the return journey. Two hostile machines were destroyed and three were driven down. The average time taken by each machine on this raid was five hours and thirty minutes, but all machines reached their objective and returned safely, though they only just cleared the trenches on their return journey, running completely out of petrol.

On the night of Aug. 21st-22nd two Handley Page machines of 216 Squadron, piloted by Capt. Halley and Lieut. Stronach, dropped just over a ton of bombs on Cologne station, causing a very large explosion. The time taken on this raid was seven hours.

On Aug. 22nd 12 machines of No. 104 Squadron started on a raid on Mannheim. The formations were led by Capt. J. B. Home-Hay and Capt. E. A. Mackay. Two machines had to land under control about five miles over the lines, after driving away eight hostile machines. Immediately before the objective was reached 15 hostile machines attacked the formation with great determination and resistance. The formation came down to 6,000 feet in following the leader, who was shot down under control. In the fierce fighting three German machines were destroyed. Despite constant and determined attacks by superior numbers, 10 machines dropped bombs on Mannheim, causing seven bursts in a factory, where four fires were caused. A direct hit was also obtained on a large new building immediately south of the Badische Anilin Soda Fabrik Works.

On the night of Aug. 25th-26th two machines of No. 215 Squadron made their first attack on the Badische Anilin Soda Fabrik Works at Mannheim.

The two machines, piloted by Capt. Lawson and Lieut. Purvis, left at eight o'clock. One pilot shut off his engine at 5,000 ft. and glided in on the target from the N.W., following the river. He was at once picked up and held in the beams of the searchlights, and an intense anti-aircraft barrage was put up. The machine continually changed its course, but could not shake off the searchlights, and the pilot was completely blinded by the glare. At this moment the second machine glided in, with its engines almost stopped, underneath the first machine, got immediately over the works, below the tops of the factory chimneys, and released its bombs right into the works. The searchlights at once turned on to this machine, freeing the first machine from their glare. This machine then turned and made straight for the works as low as the second machine amongst the chimneys, and released its bombs. The searchlights were turned almost horizontally to the ground and the anti-aircraft guns were firing right across the works and factories almost horizontally. In spite of this, the two machines remained at a low altitude and swept the factories, works, guns and searchlights with machine-gun fire. On the return journey both of these machines passed through rain and thick clouds, whilst lightning and thunder were prevalent throughout the trip.

On the night of Sept. 2nd-3rd machines of No. 215 Squadron attacked Buhl aerodrome and the railway junction at Ehrang, some of the machines making two trips. In the first attack on Buhl two direct hits were obtained and three fires started, all bursts being observed on and in close proximity to the hangars. The second attack was carried out from 150 to 900 ft., machines circling around the aerodrome for fifteen minutes. Excellent shooting was made and thirteen direct hits were claimed. Three hangars were entirely demolished and a fire started. In addition motor lorries were bombed from 100 ft., and a hostile machine on the ground was attacked with good results.

On Sept. 7th 11 machines of No. 99 Squadron, followed by 10 machines of No. 104 Squadron, made an almost simultaneous attack on Mannheim, where bombs were dropped with excellent results on the Badische Anilin and Soda Fabrik.

No. 99 Squadron obtained at least eight direct hits on the factory, but the results of No. 104 Squadron could not be observed owing to the mist and smoke. Both squadrons were attacked on the outward and return journey and over the objective by superior numbers of hostile aircraft. The formation of No. 99 Squadron were led by Colonel (then Major) L. A. Pattinson, and the formation of No. 104 Squadron by Capt. R. J. Gammon.

No. 99 Squadron was attacked by six hostile machines fifteen miles over the lines. These were driven off. Ten hostile machines attacked about fifteen miles over the lines. They were also driven off. Fifteen hostile machines then attacked over the objective. After dropping bombs the formation turned towards the hostile machines, which apparently disconcerted them, as they became scattered. On the return journey several enemy scouts kept up a running fight, one scout attacking from in front was driven off by the leader's observer firing over the top plane.

No. 104 Squadron was attacked at a long-range fifteen miles over the lines. The enemy were driven off. Fifteen hostile machines heavily attacked over the objective and followed the formation back for 70 miles. Near the lines the formation was again attacked by seven hostile machines.

Over two tons of bombs were dropped at Mannheim in this raid.

On the night of Sept. 16th-17th seven Handley Page machines were missing. Five of these, detailed for Cologne and Mannheim, were probably unable to return in the face of a strong south-westerly wind, which increased after the machines had left the ground.

The missing machines undoubtedly attacked various objectives well into Germany before they had to land. It was reported that one machine landed in Holland with engine trouble, after having dropped its bombs on Bonn, and was interned.

On Sept. 25th No. 110 Squadron, led by Capts. A. Lindley and A. C. M. Groom, dropped over 1½ tons of bombs on Frankfurt. They were opposed by a large number of hostile machines, two of which they destroyed. Four of our machines did not return, and, in addition, one observer was killed and one observer and one pilot were wounded. This was the first long-distance raid carried out by this squadron.

On the night of Oct. 21st-22nd machines of Nos. 97 and 100 Squadrons attacked the railways at Kaiserslautern in very bad weather. Several 1,650-lb. bombs were dropped, but bad visibility obscured the results. One very large fire and five smaller ones were observed, and all these fires were seen to be still burning when the town was lost sight of in the mist.

I would like to bring to your notice the work of bombing aerodromes done by No. 100 Squadron, commanded by Major C. G. Burge, when it was equipped with the short-distance F.E.2b machines, and also with Handley Pages. The squadron bombed aerodromes from low heights, and photographs show that a large number of sheds were hit.

The Independent Force, at the request of Marshal Foch, co-operated with the American First Army in its attack on the St. Mihiel salient, and it further co-operated with the Army by attacking important railway junctions behind the French lines in the combined offensive of Sept. 26th.

My thanks are due to Brig.-Gen. B. B. Gordon, D.S.O., my Chief of Staff, who carried out his responsible duties with the most commendable smoothness and efficiency.

I also desire to thank Col. G. R. M. Church, C.M.G., my Army Troops Commander, for the admirable manner in which he carried out his very responsible duties.

Finally, I desire to express my great appreciation of the loyal work of all my own Staff, of the Commanders of Formations and their Staffs, and all the units in the Independent Air Force serving under me, who carried out their difficult task of organising and carrying through with tact and energy the work of forming a new Air Force during active hostilities.

I have forwarded the names of officers and other ranks deserving of special mention in a separate dispatch.

I have the honour to be, my Lord, your obedient Servant,
(Sgd.) H. TRENCHARD, Major-General, commanding
Independent Force, Royal Air Force.

The Rt. Hon. the Lord Weir of Eastwood, Secretary of State for Air, Air Ministry, London, W.C.

THE SURRENDER OF GERMAN AIRCRAFT.

Regarding the handing over of German aircraft to the Allies, the "Times" correspondent at Cologne writes on Dec. 29th that trains are arriving at that city every day, bringing aircraft from all parts of Germany to the R.A.F. The correspondent states that among the machines was the "Junker" biplane, which had been constructed for contact patrol work.

It is understood that the War Cabinet will shortly consider the conditions under which the Germans will surrender their naval airships.

It is also alleged that these will be navigated by German crews to England and France as soon as hangars are ready for them.

AN AERIAL DERBY IN THE UNITED STATES.

It is of interest to note that the Contest Committee of the Aero Club of America proposes to hold an Aerial Derby on July 4th, 1919, in connection with the suggested Peace Celebration in the United States of America.

The Aero Club of America desires all the Allied aviators of note to participate in the competition, an International Aviation Trophy being the main prize.

AEROPLANES FOR THE MASSES.

It is announced from Paris that a French aeroplane constructor has designed a machine which can be sold to the public at a price equal to that of a small car. Light in construction, capable of a speed of 100 miles an hour, it is to be so built that it can be packed for transport in the course of a few minutes. For the present one feels inclined to abide by Mr. Asquith's advice and to "Wait and see."

THE AWARD OF THE "1914-15 STAR."

The following Army Order was issued by the War Office on December 23rd, 1918:—

XX.—British Expeditionary Forces, 1914-15—Grant of "1914-15 Star."—1. His Majesty the King, having been graciously pleased to recognise by the grant of a distinctive decoration the services rendered by his Majesty's military forces in France and Belgium during the earlier phase of the war in 1914, his Majesty has been further pleased to recognise likewise the services rendered by others of his Majesty's forces who served in theatres of war between Aug. 5th, 1914, and Dec. 31st, 1915, both dates inclusive.

2. The decoration will be a Star in bronze.

3. No clasp will be issued with the Star.

4. The riband will be red, white, and blue, shaded and watered.

5. Provided the claims are approved by the Army Council the Star will be granted to all officers, warrant officers, non-commissioned officers, and men of the British, Dominion, Colonial, and Indian Forces, including civilian medical practitioners, nursing sisters, nurses, and others employed with military hospitals, who actually served on the establishment of a unit in a theatre of war as defined in Appendix A. Individuals in possession of the "1914 Star" will not be eligible for the award of this decoration.

6. Instructions as to the submission of claims and the disposal of the Stars in the case of Dominion, Colonial, and Indian Forces will be issued by the respective Governments in due course.

7. Officers i/c records will prepare, on printed forms to be obtained from the Secretary, War Office (A.G. 10), nominal rolls, in duplicate, of British soldiers entitled to the Star, and forward them, as soon as practicable, to the Secretary, War Office (A.G. 10).

8. British officers (including chaplains, and acting chaplains) and nursing staffs (excluding the rank and file of the Royal Army Medical Corps), if not now serving, will submit their claims direct to the Secretary, War Office; if now serving, through their present commanding officers or heads of departments, stating their rank and situation on original date of entering a theatre of war.

In the case of deceased officers and other ranks, applications from their legatees or next-of-kin should, in the former case, be addressed to the Secretary, War Office (A.G. 10), and, in the latter case, to the officer i/c records concerned.

9. The names of officers and warrant officers will be entered on the rolls in order of rank, and those of non-commissioned officers and men in alphabetical order. The rank and regimental number entered on the rolls will be that held by an individual on the date of first entering a theatre of war.

10. The names of individuals who have forfeited the Star under the conditions laid down in the Pay Warrant are to be included in the rolls, their names being entered in red ink and the cause of forfeiture stated in the column for "remarks." The names of individuals who have become non-effective by death, transfer, discharge, etc., should also be entered in red ink, and the cause stated in the column for "remarks."

APPENDIX A.

For the purpose of this Army Order the definition "Theatres of War" will be as follows:—

1. *Western European Theatre.*—To include all operations in France and Belgium from midnight, Nov. 22nd-23rd, 1914.

2. *Balkan Theatre.*—To include all operations in:—
   (a) Greek Macedonia, Serbia, and Bulgaria, from Oct. 5th, 1915.
   (b) Gallipoli and islands of Ægean Sea from April 25th, 1915.

3. *Egyptian Theatre.*—To include all operations against Turco-German forces from Nov. 5th, 1914; also operations against Senussite forces in Western Egypt and on the borders of Cyrenaica from Nov. 3rd, 1915, but excluding operations for which the Sultan's Sudan Medal has been awarded.

4. *African Theatre.*—To include all operations set forth below, but excluding local military operations against native tribes or rebels:—
   (a) In British East Africa, German East Africa, Rhodesia, Nyasaland, and Uganda from Aug. 20th, 1914.
   (b) In German South-West Africa and on the adjacent borders of the Union of South Africa from Aug. 20th, 1914, to July 9th, 1915.
   (c) In Kamerun and on Eastern and Northern Frontiers of Nigeria from Aug. 24th, 1914.
   (d) In Togoland from Aug. 7th, 1914, to Aug. 26th, 1914.

5. *Asiatic Theatre.*—To include all operations:—
   (a) In Mesopotamia from Nov. 6th, 1914.
   (b) At Shaik Sa'id (South-West Arabia) on Nov. 10th, 1914.
   (c) Conducted by Aden Field Force from July 3rd, 1915.
   (d) At Musquat in Gulf of Oman, under the command of Col. S. M. Edwardes, D.S.O., in January, 1915.
   (e) In Seistan, under the command of Lt.-Col. J. M. Wikeley, 28th Light Cavalry, in 1915.
   (f) In the Tochi Valley and Derajat from Nov. 28th, 1914, to March 27th, 1915.
   (g) Against the Mohmands and Swatis, as follows:—
      (i) Under the command of Maj.-Gen. C. F. G. Young, near Hafiz Kor, in April, 1915.
      (ii) Under the command of Brig.-Gen. N. G. Woodyatt, in August, 1915.
      (iii) Under the command of Brig.-Gen. W. G. L. Beynon, C.B., D.S.O., on the Landakai Ridge, in August, 1915.
      (iv) Under the command of Maj.-Gen. F. Campbell, C.B., D.S.O., in the vicinity of Hafiz Kor and Shabkadar from August to October, 1915.
      (v) Carried out by the Malakand Movable Column which advanced from Chakdara Camp on Oct. 27th, 1915.
   (h) At Tsing-Tau from Sept. 23rd, 1914, to Nov. 7th, 1914.

6. *Australasian Theatre.*—To include all operations in:—
   (a) German New Guinea and Bismarck Archipelago as follows:—
      (i) New Britain from Sept. 11th, 1914, to Sept. 21st, 1914.
      (ii) New Ireland from Sept. 16th, 1914, to Oct. 18th, 1914.
      (iii) Kaiser Wilhelm-Land on Sept. 24th, 1914.
      (iv) Admiralty Islands on Nov. 21st, 1914.
   (b) Nauru on Nov. 6th, 1914.
   (c) German Samoa on Aug. 29th, 1914.

By Command of the Army Council,
R. W. BRADE.

R.A.F. IN ITALY.

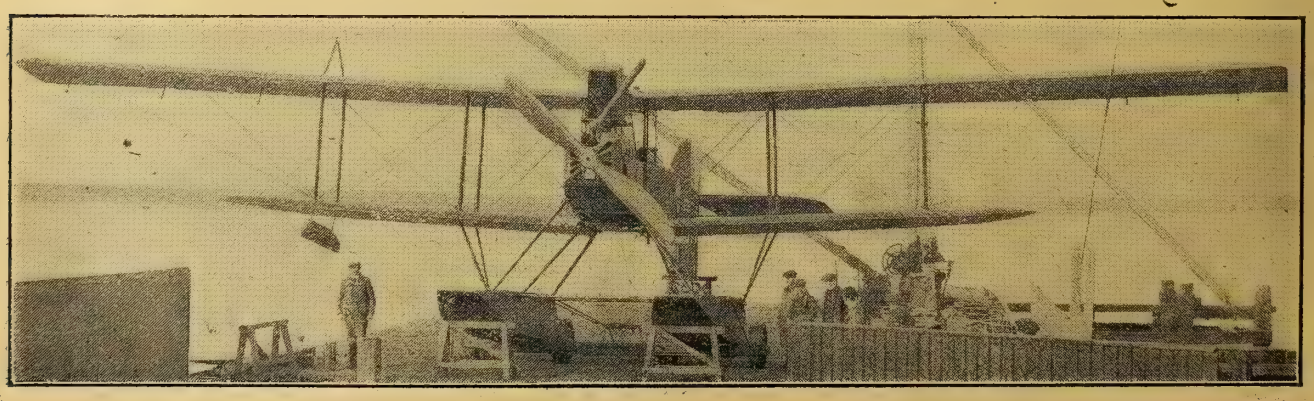
On no front, except in Palestine, has the Royal Air Force achieved such a complete mastery of the air as it gained in Italy during the 12 months in which it was represented on that front.

At first the situation was very unsatisfactory, but after a few months the Austrian aviators rarely ventured to cross the British lines.

In the spring of 1918 some air units were withdrawn, and only one R.A.F. wing remained in Italy. This played a very fine part in repulsing the enemy who were attempting to advance on the Piave line, and up to October held almost undisputed supremacy in the air.

Before the Italian offensive in that month our aviators took thousands of photographs of the Austrian positions, and later harassed the retreating enemy. During the battle they dropped nearly 20,000 lbs. of bombs and fired over 51,000 rounds at ground targets.

During the twelve months in Italy the R.A.F. destroyed 386 enemy aeroplanes and 27 balloons, and drove down 33 machines. The British losses were 47 machines missing and 3 balloons destroyed.



A Short Seaplane (225 h.p. Sunbeam). Front view.

LONG DISTANCE OVERSEA FLIGHTS.

A SIMPLE METHOD OF ALLOWING FOR "DRIFT."

[The following translation of an article by M. Ernest Archdeacon, who has been prominent in French aviation circles since the early nineties, which appeared in the "Petit Parisien" of Dec. 19th, 1918, is the work of an officer in the B.E.F., France.]

At this present time, when all thinking people, having in mind the marvellous progress made in flying during the war, are looking forward with confidence to a Transatlantic flight in the near future, may I be allowed to submit a suggestion?

In the first place, we must feel absolutely convinced that this flight will be an accomplished fact before the end of 1919, and I myself fervently hope that the honour will fall to a Frenchman.

Should this happen, then the credit will be doubled, for he will probably have the winds against him, as their prevailing direction is from America to France. Several different routes for this flight have been proposed. All have one object in common, which is to reduce as far as possible the length of the "stages"—that is to say, from landing to landing—and, in doing this, to reduce the weight of petrol to be carried.

Now, of all the different routes, there is one which is far and away preferable to all the others because of the possibility of having two landing-places: starting from Lisbon, with the—

	Kilos.	Miles.
1st stop at the island of San Miguel (Azores) ...	1,400 ...	875
2nd stop at the island of San Flores (Azores)	560 ...	350
3rd stop at St. John (Newfoundland)	1,930 ...	1,206
4th stop at New York	1,850 ...	1,156
Total	5,740 ...	3,587

As is seen by the above table, the longest non-stop flight is of 1,206 miles; the fourth stage from St. John to New York need not be considered, as it is overland all the way. We have, then, in round figures, a maximum stage of 1,250 miles, and certainly our modern aeroplanes are easily able to carry fuel for this distance even against a moderately strong contrary wind.

The greatest difficulty in such a voyage is to avoid what we might call "drift" or unconscious deviation from the proper course. In other words, running past and missing altogether the Azores Islands. This is not so hard as it sounds, when one considers that the stage will take 10 to 12 hours and the pilot will probably have a side-wind of 18 to 25 m.p.h. to deal with. The drift would be enormous; also it would be unconscious. The pilot would have no check on it. I have always understood that pilots on a sea flight had absolutely no means of checking or keeping account of their drift. And it seems to me that in such a case any long sea-flight would be a chance affair.

Nevertheless there is a method both simple and accurate of determining this drift, and I do not think that up to now it has been discussed.

It is as follows:—

Supposing we set out from Lisbon. Theoretically speaking, to get to the Azores we must point the nose of our machine west; but we find that there is a north wind blowing which will certainly give us a south-westerly drift. How are we to keep an eye on the amount of drift and alter our course accordingly? Here is my method:—

We have on board our aeroplane a supply of a kind of smoke-balls for day use, and for night-time a chemical-ball which will burn on the surface of the water.

As soon as we are well on our way, but before drift has had time to act, the assistant-pilot drops one or two smoke-balls at a few seconds interval. The machine is provided with a special compass so placed as to be in full view of the assistant-pilot or the observer and who is sitting facing the tail of the machine. He takes a sight (through the special sights provided on this compass) on to the two smoke-balls which he has dropped on the sea. He finds that the two balls are not in the same straight line as the course of the aeroplane, but that they are away to the north, to his left. Now, these balls, being on the sea surface, are to all intents and purposes motionless; therefore it is the aeroplane which is off its course. To get back on the course is easy; the pilot has simply to "ease off" bit by bit to the north until such time as the two smoke-balls are once again in line.

At sea, and especially in calm weather, the wind never changes suddenly its direction; so that it will never be necessary to drop any balls more often than, say, once every hour. The balls need only be small, as they will not need to burn for any length of time; so that the weight to be carried will be practically negligible.

That is my suggestion, and I shall be very pleased if my idea is to be of any use at all, however small, to those of my fellow-countrymen who intend making this flight.

(Signed) ERNEST ARCHDEACON.

THE BALLAD OF A BRISTOL.

There's a good half-dozen 'buses
On which I've done a whack,
From the R.E.8 to the three ton weight
Of the lumbering old Big Ack;
On a rotary-engined Avro
I've attempted several tricks,
And I'm quite a dab at steering a Crab
(Better known as a D.H.6).

And many a first-rate joy-ride
Have I had on 'em, last and first,
And many a strut have I had go phut,
And many a wheel-tyre burst;
But none of 'em knows the secret
Of making my heart rejoice
Like a well-rigged Bristol Fighter
With a two six four Rolls-Royce.

She leans at her place on the tarmac
Like a tiger crouched for a spring,
From the arching spine of her fuselage line
To the ample spread of her wing.
With her wires like sinews tautened
And her tail-skid's jaunty twist,
Her grey-cowled snout juts grimly out
Like a tight-clenched boxer's fist.

Is there a sweeter music,
A more contenting sound,
Than the purring clop of the broad-curved prop
As it gently ticks around?
Open her out crescendo
To a deep-toned swelling roar,
Till she quivers and rocks as she strains at the chocks
And clamours amain to soar.

Whisk 'em away, my hearties,
Taxi her into the wind,
Then away we skim on a spinning rim
With the tail well up behind;
Hold her down to a hundred,
Then up in a climbing turn,
And off we sweep in a speckless sky
Till we catch our breath in the air Alp-high;
I wouldn't exchange my seat, not I,
For a thousand pounds to burn.

H. T. B.

COMMERCIAL AERONAUTICS.

The attention of readers of THE AEROPLANE is called to certain paragraphs which have recently appeared under the heading of "Commercial Aeronautics," inviting pilots and observers in the Royal Air Force, who are interested in the prospects of Commercial Aviation, to communicate with Captain Swinton, care of THE AEROPLANE.

As the result of a large amount of correspondence received, it is hoped shortly to bring out a Register of Pilots and others who are willing to engage in Commercial Aerial Transport, as apart from the manufacturing side of the Aircraft Industry.

The Register is being compiled by Captain A. J. Swinton (late R.E.), who has been for some time a contributor to the "Commercial Aeronautics" section of THE AEROPLANE.

This Register will show in tabular form a mass of information concerning each registrant, of value to the public, and to Lloyd's and other especially interested parties. The tabular headings and any explanatory matter will be so printed as to be understood by persons speaking English, French, Spanish and Italian.

It is hoped that the publication of this Register will result in the encouragement of the public to think of the aeroplane commercially, and to act accordingly. Such action will result in creating a demand for pilots and their necessary staffs. There are also other definite benefits offered to those who register.

The first edition of the Register will go to press during January, and those who are seriously interested are invited to write at once to Captain Swinton, c/o THE AEROPLANE, giving rank, name and address, but no other particulars, as special forms will be forwarded for this purpose.

It should be noted that Captain Swinton cannot be interviewed at THE AEROPLANE offices.

The cost of the Register, when published, will be 3s. 4d.

U.S. AERIAL POLICE.

It is of interest to note that an aviation section has been formed in the New York Police Department. There is no mention of this section being employed in managing aerial traffic, but it is expected that the important work of policing the rivers, harbours and bays will be made simple by the use of aircraft.

During the recent catastrophe at Morgan, New Jersey, when a fire threatened to set on fire many tons of T.N.T., which might have caused great destruction among the subways and buildings even in New York City, aviators greatly helped in directing protective operations.

Burberrys' War Record



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R.N.A.S. HONOURS FOR 1918.

ORDERS.

Commodore GODFREY PAINE, C.B., M.V.O., to be a Knight Commander of the Bath. (Gazetted March 7th.)

A BAR TO THE DISTINGUISHED SERVICE ORDER.

Sqdn. Comdr. E. R. MOON, D.S.O. R.N.A.S.
In recognition of the resource and gallantry displayed by him in the following circumstances:—On Jan. 6th, 1917, whilst on a reconnaissance flight over the Rufiji Delta with Comdr. the Hon. R. O. B. Bridgeman, D.S.O., R.N., as observer, he was obliged by engine trouble to descend in one of the creeks, where it became necessary to destroy the seaplane to avoid the possibility of its being captured. For three whole days the two officers wandered about the delta in their efforts to avoid capture and to rejoin their ship. During this time they had little or nothing to eat, and were continually obliged to swim across the creeks, the bush on the banks being impenetrable. On the morning of Jan. 7th they constructed a raft of three spars and some latticed window-frames. After paddling and drifting on this for the whole of Jan. 7th and 8th, they were finally carried out to sea on the morning of the 9th, when Comdr. Bridgeman, who was not a strong swimmer, died of exhaustion and exposure. In the late afternoon Flt. Comdr Moon managed to reach the shore, and was taken prisoner by the Germans. He was released from captivity on Nov. 21st, 1917. He displayed the greatest gallantry in attempting to save the life of his companion. (Gazetted March 16th.)

THE DISTINGUISHED SERVICE ORDER.

Wing Comdr. F. W. BOWHILL, R.N.
In recognition of his invaluable services as Commanding Officer of the R.N.A.S., employed in connection with military operations in East Africa. It is due to his experience and unceasing labour that his small unit of the R.N.A.S. has been of such assistance to the military operations. He has instilled a high sense of discipline into those under his orders. (Gazetted Feb. 22nd.)

Flt. Comdr. R. LECKIE, D.S.C., R.N.A.S. (Gazetted May 17th.)

Sqdn. Comdr. V. NICHOLL, D.S.C., R.N.A.S. (Gazetted May 1st.)

Sqdn. Comds. C. R. F. NOYES, R.N. (Gazetted May 1st.)

Flt. Sub-Lt. ROBERT WITHY PEEL, R.N.A.S.
Carried out a determined and courageous bombing attack on the "Goeben" in the face of attacks from a vastly superior enemy air force. (Gazetted Sept. 14th.)

Obsr. Sub-Lt. FREDERICK CHARLES SMITH, R.N.A.S.
Acted as observer for Flt. Comdr. Sorley during a determined and successful bombing attack on the "Breslau" on January 20th, 1918, and also during the subsequent day and night attacks on the "Goeben." (Gazetted Sept. 14th.)

Flt. Comdr. RALPH SQUIRE SORLEY, R.N.A.S.
For the determined and successful bombing attacks on the "Breslau" and "Goeben" on January 20th, 1918, and subsequent days, both by day and by night. (Gazetted Sept. 14th.)

Flt Lt. HARRY VERNON WORRALL, R.N.A.S.
Made a successful attack on the "Goeben," obtaining a direct hit, although this was his first night flight. (Gazetted Sept. 14th.)

A SECOND BAR TO THE DISTINGUISHED SERVICE CROSS.

Flt. Comdr. R. J. O. COMPSTON, D.S.C., R.N.A.S (Gazetted March 16th.)
Lt. (temp. Capt.) T. F. LE MESURIER, D.S.C, R.N.A.S. (Gazetted June 21st.)
Actg. Flt. Comdr. R. P. MINIFIE, DS.C., R.N.A.S. (Gazetted April 17th.)
Flt. Comdr. J. G. STRUTHERS, D.S.C., R.N.A.S (Gazetted Feb. 22nd.)

A BAR TO THE DISTINGUISHED SERVICE CROSS.

Flt. Comdr. C. P. O. BARTLETT, D.S.C., R.N.A.S. (Gazetted May 17th.)
Flt. Lt V. G. BLACKBURN, D.S.C., R.N.A.S. (Gazetted May 17th.)
Lt. (Hon. Capt.) A. R. BROWN, D.S.C, R.A.F. (Gazetted June 21st.)
Flt. Lt. (actg. Flt. Comdr.) W. A. CURTIS, D.S.C, R.N.A.S. (Gazetted March 16th.)
Flt. Comdr. C. H. DARLEY, D.S.C., R N.A.S. (Gazetted April 17th.)
Flt. Sub-Lt. W. H. DUNN, D.S.C., R.N.A.S. (Gazetted May 17th.)
Lt. (temp. Capt.) S. T. EDWARDS, D.S.C., R.N.A.S. (Gazetted June 21st.)
Flt. Lt. J. A. GLEN, D.S.C., R.N.A.S. (Gazetted June 7th.)
Flt Lt. W. L JORDAN, D.S.C., R.N.A.S. (Gazetted March 16th.)
Flt. Lt. (actg. Flt Comdr.) C. R. LUPTON, D.S.C, R.N.A.S. (Gazetted June 7th.)
Flt. Comdr. G. W. PRICE, D.S.O., R.N.A.S. (Gazetted March 16th.)
Flt. Lt. (actg. Flt. Comdr.) L. H. ROCHFORD, D.S.C., R.N.A.S. Gazetted June 7th.)
Flt. Lt. S. W. ROSEVEAR, D.S.C., R.N.A.S. (Gazetted April 17th.)
Flt. Lt. V. E. SIEVEKING, D.S.C., R.N.A.S. (Gazetted April 17th.)
Flt. Lt. (actg. Flt. Comdr.) L. H. SLATTER, D.S.C., R.N.A.S. (Gazetted May 17th.)
Flt Comdr. J. G. STRUTHERS, D.S.C, R.N.A.S. (Gazetted Feb 22nd.)
Lt. (Hon. Capt.) A. T. WHEALY, D.S.C, R.N.A.S. (Gazetted June 21st.)

THE DISTINGUISHED SERVICE CROSS.

Flt. Lt J. E. BARRS, R.N.A.S. (Gazetted Feb. 22nd.)
Actg. Flt. Comdr. C. F. BREWERTON, R.N.A.S. (Gazetted April 17th.)
Flt.-Lt. C. C. CARLISLE, R.N.A.S. (Gazetted May 1st.)
Flt.-Lt. J. F. CHISHOLM, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Comdr. G. G. H. COOKE, R.N. (Gazetted May 1st.)
Flt. Sub-Lt. H. DAY, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Lt. (actg. Flt. Comdr.) M. J. G. DAY, R.N A.S. (since killed). (Gazetted March 16th.)
Flt.-Lt. E. E. DEANS, R.N.A.S. (Gazetted March 16th.)
Flt -Lt. R. D. DELAMERE, R.N.A.S. Gazetted Feb. 22nd.)
Flt. Comdr. W. H. DUNN, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Sub-Lt. M. H. FINDLAY, R.N.A.S. (Gazetted April 17th.)
Lt. E. C. W. FITZHERBERT, R N A S. (Gazetted Feb 22nd.)
Flt. Lt. C. H. FITZHERBERT, R.N.A.S. (Gazetted May 1st.)
Flt. Obsr. H. A. FURNISS, R.N.A.S. (Gazetted April 17th.)
Flt. Lt JOHN GAMON, R.N.A.S. (Gazetted June 7th.)
Flt. Lt. (actg. Flt. Comdr.) C. GILMOUR, R.N.A.S (Gazetted May 1st.)
Flt. Lt. (actg. Flt. Comds.) B. E. P. GREGG, R.N A.S. (Gazetted May 1st.)
Flt. Comdr. E. de C. HALLIFAX, R.N.A S. (Gazetted May 1st.)
Flt. Lt. F. N. HALSTEAD, R.N.A.S. (Gazetted May 1st.)
Flt. Lt J. F. HART, R.N.A.S. (Gazetted Feb 22nd.)
Flt Sub.-Lt. THOMAS HINSHELWOOD, R.N.A.S (Gazetted Sept 14th.)
Flt. Lt. E. G. HOPCRAFT, R.N.A.S. (Gazetted May 1st.)
Flt. Comdr. W. F. HORNER, R.N. (Gazetted May 1st.)
Flt. Lt. F. G. HORSTMAN, R.N.A.S. (Gazetted April 17th.)
Flt. Sub-Lt. J. D. HUME, R.N.A.S. (since killed). (Gazetted May 17th.)
Flt. Sub-Lt E. G. JOHNSTONE, R.N.A.S. (Gazetted March 16th.)
Flt. Sub-Lt W. L. JORDAN, R N.A.S. (Gazetted Feb. 22nd.)
Flt. Sub-Lt. R. McN. KEIRSTEAD, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Lt. S M. KINKEAD, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Lt. D. KNOWLES, R.N.A.S. (Gazetted May 1st.)
Flt. Sub-Lt. G. B. MCBAIN, R.N.A.S. (Gazetted June 7th.)
Flt. Sub-Lt. (actg. Flt. Comdr.) N. M. MACGREGOR, R.N.A S (Gazetted Feb. 22nd.)
Flt. Sub-Lt. (actg. Flt. Lt.) E. E. MAITLAND-HERIOT, R.N.A.S. (Gazetted May 1st.)
Flt. Sub-Lt. J. M. MASON, R.N.A.S. (Gazetted April 17th.)
Flt. Lt. F. S. MILLS, R.N.A.S. (Gazetted May 1st.)
Flt. Lt. B. A. MILLSON, R.N.A.S. (Gazetted April 17th.)
Flt. Lt. R. S. MONTAGUE, R.N. (Gazetted May 1st.)
Flt. Comdr. R. B. MUNDAY, R.N.A.S. (Gazetted March 10th.)
Lt. G. D. NELSON, R.N.V.R. (Gazetted May 17th.)
Flt. Lt H. L. NUNN, R.N.A.S. (Gazetted April 17th.)
Flt. Lt G. M. F. O'BRIEN, R.N.A.S. (Gazetted May 1st.)
Flt. Lt. T. O'CONNOR, R.N.A.S. (Gazetted May 1st.)
Flt. Lt. J. DE C. PAYNTER, R.N.A S. (Gazetted April 17th.)
Flt Lt. A. R. T. PIPON, R.N.A.S. (Gazetted May 1st.)
Flt. Comdr. G. W. PRICE, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Lt. (actg Flt. Comdr.) C. B. RIDLEY, R.N A.S (Gazetted April 17th.)
Obsr. Sub-Lt. T. S. RUSSELL, R.N.A.S (Gazetted April 17th.)
Flt. Lt. K. F. SAUNDERS, R.N.A.S. (Gazetted May 1st.)
Flt Comdr. W. G. SITWELL, R.N. (Gazetted May 1st.)
Obsr. Sub-Lt. F. H. STRINGER, R.N.A.S. (Gazetted April 17th.)
Flt. Lt. S. E. TAYLOR, R.N.A.S. (Gazetted May 1st.)
Flt. Lt. W. UNDERHILL, R.N. (Gazetted May 1st.)
Flt. Lt. (now Flt. Comdr.) A. M. WAISTELL, R.N.A.S. (Gazetted Feb 22nd.)
Flt. Sub-Lt. T. A. WARNE-BROWNE, R.N.A.S. (Gazetted April 17th.)
Flt. Lt. (actg. Flt. Comdr.) J. K. WAUGH, R.N.A.S. (Gazetted May 1st.)
Flt. Lt. H. WILKINS, R.N.A.S (Gazetted May 1st.)
Flt. Comdr. W. H. WILSON, R.N.A.S. (Gazetted May 1st.)
Flt. Sub-Lt. N. H. WOODHEAD, R N A S (Gazetted May 1st.)

BAR TO THE DISTINGUISHED SERVICE MEDAL.

Air Mech., 1st Gr., W. Naylor, D.S.M., O.N. F.1406. (Gazetted June 7th.)

P.O. Mech. T. B. Thomson, D.S.M., O.N. J. 13350 (Dev.) (Gazetted May 1st.)

DISTINGUISHED SERVICE MEDAL.

Actg. Air Mech., 1st Gr., W. H Allan, O.N. F.21833; Ldg Mech. (E.) E F. Anthony, O.N., F.4874; Ldg. Mech. W. C. Argent, O.N F.13496; C.P.O. Mech., 1st Gr. (C.), J. F. Armitt, O.N. 343587 (Ch.); C P.O. Mech. (W.) A. W. Ayres, O.N. F.9322; C.P.O Mech., 1st Gr, J. F Armitt, O.N. 343587 (Ch.) (All gazetted May 1st); Ch Mech. C Armitage, R.N.A.S., O.N. F.6981. (Gazetted July 23rd.)

C.P.O Mech., 2nd Gr. (E.), H. R. Beckett, O.N. F.477; P.O Mech (E.) G F. Blyth, O.N.F.13884; P.O. Mech (E.) G. S. Browning, O.N F.2836; Ldg. Mech. W. H. Butt, O.N. F.13624. (All gazetted May 1st.)

P.O. A. Clark, O.N. 234540 (Po.). (Gazetted April 17th.)

Ldg. Mech. (E.) G. J. Chandler, O.N. F.12523; C.P.O. Mech., 2nd Gr, W. J. Coadwell, No. R.M. Po./15413; P.O. Mech R. Connor, O.N. F.4587; Ldg. Mech. (E.) W. G. Cornell, O.N. F.5262; C.P.O Mech., 3rd Gr. (E.), A. E Crispin, O.N. F.2519; Actg. P.O. Mech C Curtis, O.N. F.3843. (All gazetted May 1st.)

C.P.O., 1st Cl. (now W.O., 2nd Gr.), W Dickison, O.N 272318 (Ch.). (Gazetted March 16th.)

P.O. Mech. D. T. Davies, O.N. F.17941; Actg Air Mech., 1st Gr., R J. Davis, O.N. F.14902; C.P.O. Mech., 3rd Gr., W. G. C. Davis, O.N F.4992; C.P O. Mech. G. W. Denmark, O.N. F 14105; C.P.O. Mech., 3rd Gr., J. R Douglas, O.N. F.2154, Ldg. Mech. P. Durrant, O.N. F.7501; C.P.O Mech., 2nd Gr., P. A. B. Dyke, O.N. F.3624. (All gazetted May 1st.)

C.P.O., 3rd Gr., H. P. Eustace, O.N. F.2486. (Gazetted Feb. 22nd.)

Ldg. Mech. W. A. East, O.N. F.132; P.O. Mech., 1st Gr., S. J. Edwards, O.N. 197047 (Ch.); P.O. Mech. G. H. Ellis, O.N 13423. (All gazetted May 1st.)

C P.O. Mech., 1st Gr., B. J. Fearn, O.N. F.403; P.O. W. Feldwick, O N 117557 (Po.). (Both gazetted May 1st.)

C P O. Mech., 3rd Gr., G. J. Gawthorn, O.N. F.3787; Ldg. Mech. G Greenwood, O.N. 227264 (Po.); C.P.O. Mech, 2nd Gr., A. E. Groom, O.N 235356 (Ch.). (All gazetted May 1st.)

Air Mech., 1st Gr., A. M. Hallawell, O.N. F.12258; P.O. Mech. (E.) E. A. Harrison, O.N. F 1860; Actg. Air Mech., 1st Gr. (E.), J. Hawes, O.N. F.18509; Air Mech., 1st Gr., H. E. Hayes, O.N. F.6644; Actg. Air Mech., 1st Gr., W. S. Hemery, O.N. F.5846; Actg Air Mech., 1st Gr, D. Henderson, O.N. F.23608; Ldg. Mech. R. L. Hobson, O.N. F.19727; P.O. Mech. H. Hosmer, O.N. F.2687; P.O. Mech D. J. Hull, O.N. F.225 (All gazetted May 1st); C.P.O., 3rd Gr., Alfred John Humphries, O N F 547 (now R.A.F.) (Gazetted Sept. 14th.)

P.O. T. R. Johnston, O.N. J.5523 (Dev.). (Gazetted Feb. 22nd.) Actg. Air Mech., 1st Gr., H. H. Johnson, O.N. F.18174; C.P.O. Mech., 3rd Gr., A. Jones, O.N. F.4532. (Both gazetted May 1st.)

Air Mech., 2nd Gr., A. R. Key, O.N. F.20262 (Gazetted May 1st.) P.O. Mech. T. Matthews, O.N. F.2204; C.P.O. Mech., 2nd Gr., W. R. Mayes, O.N. F.695, C.P.O. Mech., 3rd Gr., F. Miller, O.N. 223410 (Dev.). (Gazetted May 1st.)

C.P.O. Mech., 3rd Gr. (E.), S. W. Painter, O.N. F.314; C.P.O. Mech., 2nd Gr., G. S. Palmer, O.N. 310410 (Dev.); P.O. Mech. (E.) W. E. Palmer, O.N. F.8110; Air Mech., 1st Gr. (E.), B. Percy, O.N. F.7308; Ldg. Mech J. L. Plumbe, O.N. F.1488; P.O Mech. G. H. Price, O.N. F.662. (All gazetted May 1st) Ldg. Mech. G. Pemberton, R.N.A.S., O.N. F.13706 (Gazetted July 23rd.)

Air Mech., 2nd Gr., G. H. Robinson, O.N. F.26879. (Gazetted March 16th.) C.P.O. Mech., 3rd Gr. (E.), A. J. Ramsey, O.N. F.13772; C.P.O. Mech., 3rd Gr., H. J. Richer, O.N. F.308; P.O. Mech. N. K. Ruxton, O.N F.3564. (All gazetted May 1st.) C.P.O. Mech., 2nd Gr., J. Rodger, O.N M.2435 (Ch.) (Gazetted May 17th.)

C.P.O Mech., 3rd Gr., A. J. Saunders, No. R.M. Ch./A.8603; Air Mech., 1st Gr., A. A. Smith, O N. 225269 (Po.); C.P.O. Mech., 3rd Gr. (E.), A. S. Stephenson, O.N. F.3398 P.O Mech. (C.) G. Swindells, O.N. F.8596 (All gazetted May 1st.) Air Mech., 1st Gr., J. F. D. Shrewsbury, R.N.A.S., O.N. F.20056. (Gazetted July 23rd.) Air Mech., 1st Cl., Douglas Gordon Smith, R.N.A.S., O.N. F.12853. (Gazetted Aug. 28th.)

Air Mech., 1st Gr., W. Taylor, O.N. F.14/6. (Gazetted April 17th.) Air Mech., 1st Gr., F. E. Tattershall, O.N. F.8200; P.O. Mech. (E.) T. W. Thirlwall, O.N. F.9430; P.O. Mech. F. T. Tucker, O.N. F.2575. (All gazetted May 1st.)

P.O. Mech. (E.) F. P. Vobe, O.N. F.3901. (Gazetted May 1st.)

P.O. Mech. C. H. Wainwright, O.N F.2683; C.P.O. Mech., 2nd Gr. (C.), H. Walder, O.N. 344482 (Po.); Ldg Mech. J. W. Walker, O.N. F.12468; P.O. Mech. H. M. Watson, O.N. J.3349 (Po.); P.O. Mech. J. R. Woolard, O.N. K.15829 (Po.); Air Mech., 2nd Gr., P L. Worthington, O.N. F.18949 C.P.O. Mech., 2nd Gr., J. Wrigley, O.N. F.469; Actg. Air Mech., 1st Gr., L. H. Wright, O.N. F.4315; C.P.O. Mech., 3rd Gr., J. M. Wyer, O.N. F 43545. (All gazetted May 1st.)

ALBERT MEDAL.

Act. Flt. Comdr. Paul Douglas Robertson. R.N.A.S. (Gazetted June 18th.)

Flt Lt. Victor Albert Watson, R.N. (Gazetted March 7th.)

* * *

Air Mech., 1st Gr., Harold Victor Robinson. (Gazetted March 7th.)

Boy Mech. Eric Edward Steere. (Gazetted March 17th.)

FOREIGN DECORATIONS.

FRANCE.

LEGION D'HONNEUR.

Officier.

Rear-Adm. George C. Cayley, C.B. (Gazetted Aug 28th.)

Chevalier.

Sqdn. Comdr. Edwin R. Moon, D.S.O., R.N.A.S. (Gazetted Sept. 14th.)

CROIX DE GUERRE.

Flt. Lt. C G Bronson, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Lt. E. J. P. Burling, R.N.A.S. (Gazetted Feb. 22nd.)
Sqdn.-Comdr. H. R. Busteed, O.B.E., R.N A.S. (Gazetted May 17th.)
Wing-Comdr. C. H. K. Edmonds, D.S O., R.N.A.S. (Gazetted April 17th.)
Flt Lt. E. M. King, R.N.A.S. (Gazetted Feb. 22nd.)
Flt Lt. A E. Popham, R.N.A.S. (Gazetted Feb. 22nd.)
Sqdn. Comdr. C. W. H. Pulford, R.N.A.S. (Gazetted April 17th.)
Flt. Sub-Lt. G. D. Smith, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Lt. H V. Worrall, R.N.A.S. (Gazetted Feb. 22nd.)

THE MEDAILLE MILITAIRE.

Air Mech., 1st Gr., Robert G. Kimberley, D.S.M., R.N.A.S., O.N. F.4766. (Gazetted Aug 28th.)

P.O. Mech Geoffrey C. P. Rumming, C.G.M., R.N.A.S., O.N. F.813. (Gazetted Aug. 28th.)

P.O Mech John H. Russell, C.G.M., R.N A S., O.N. F.839. (Gazetted Aug. 28th.)

C.P.O. Mech., 1st Gr., A. H. Simmonds, O.N M.443. (Gazetted May 17th.)

BELGIUM.

ORDRE DE LEOPOLD.

(With Swords.)

Chevalier.

Wing Capt. E. L. Gerrard, D.S.O, R.N A.S. (Maj., temp. Lt.-Col. R.M.L.I.). (Gazetted Feb. 22nd.)

ORDRE DE COURONNE.

COMMANDER.

Flt. Lt E. J. K. Buckley, R.N.A S (since killed) (Gazetted Feb. 22nd.)
Flt. Sub-Lt. G. W. Hemming, R.N.A S. (Gazetted Feb. 22nd.)
Flt. Lt. G. M. T. Rouse, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Sub-Lt L. F. W. Smith, R.N.A S. (since killed) (Gazetted Feb. 22nd.)

CROIX LE GUERRE.

Flt. Sub-Lt. E. J. K. Buckley, R.N.A.S. (since killed). (Gazetted Feb. 22nd.)
Flt. Sub-Lt. G. W. Hemming, R.N.A.S. (Gazetted Feb. 22nd.)
Flt Comdr. Richard B Munday, R.N.A.S. (Gazetted Sept. 14th.)
Flt Sub-Lt. G. M. T. Rouse, R.N.A.S. (Gazetted Feb. 22nd.)
Flt. Sub-Lt. L. F. W. Smith, R.N.A.S. (since killed). (Gazetted Feb. 22nd.)

ITALY.

MILITARY ORDER OF SAVOY.

OFFICER.

Vice-Adml. M. E. F. Kerr, C.B, M.V.O. (Gazetted Aug. 7th.)

GREECE.

ORDER OF THE REDEEMER.

COMMANDER.

Sqdn. Comdr. R. J. Bone, D.S.O., R.N A.S. (Gazetted April 7th.)
Maj. (temp Lt.-Col.) Robert Gordon, D.S.O., R.M.L.I. (Gazetted Sept. 14th.)
Capt. F. R. Scarlett, D.S.O, R.N. (Gazetted March 16th.)

MENTIONS IN DISPATCHES.

Feb. 22nd.

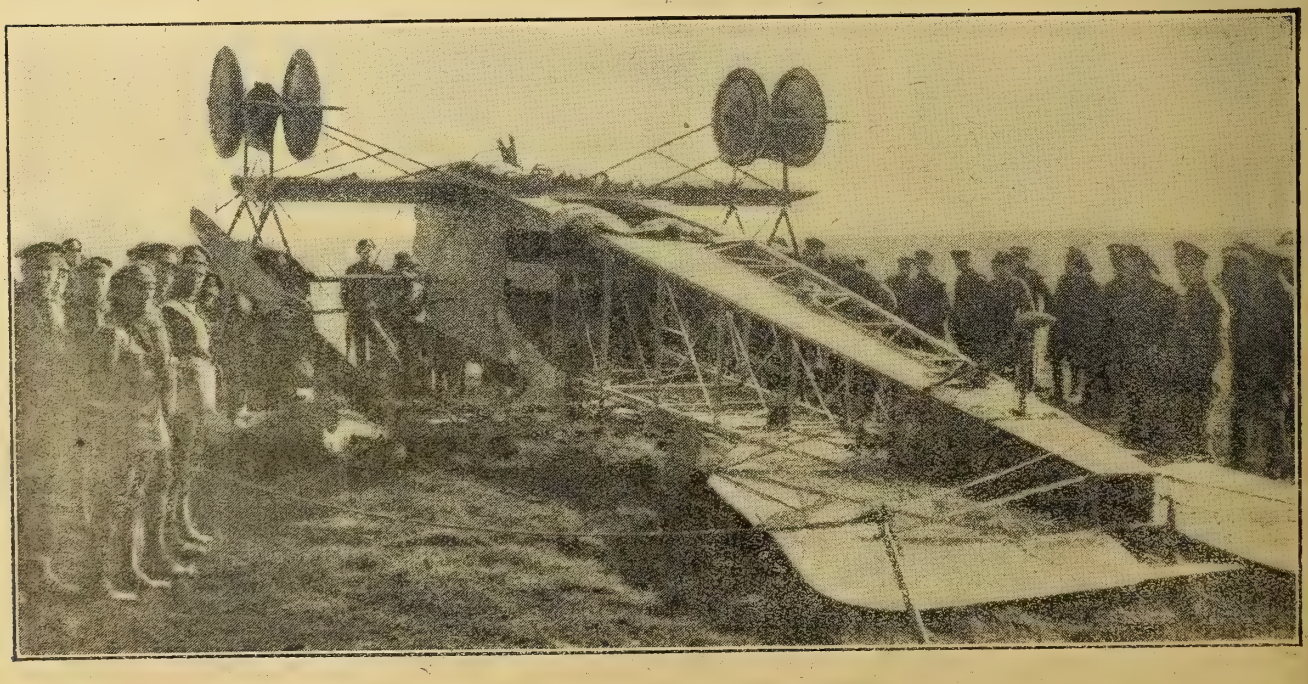
The following rating has been mentioned in dispatches :—
Ldg Mech. A. G Furber, O N. F.4979

March 16th.

The following officers have been mentioned in dispatches :—
Wing Comdr. R. H. Mulock, D.S.O., R.N.A.S
Flt Comdr. C. E. Wood, R.N.A.S. (killed)

May 1st.

The following officers and men have been mentioned in dispatches :—
Lt.-Comdr. G. H. Abell, R.N.V.R.
Flt. Sub-Lt. E. J. Addis, R.N.A.S.
Flt. Lt. W. H. S. Aplin R.N.A.S.
Lt. (actg. Comdr.) F. Atkinson, R.N V.R
Flt. Lt. L. M. Bailey, R.N A S.
Flt. Sub-Lt. G. H. T. Barnes, R.N.A.S.
Lt. V. A. F. Bellamy, R.N.V.R.
Warrt. Officer, 2nd Gr., F. E. Bishop. R.N A.S.
Flt Comdr. N. C. Blanch, R.N.A.S.
Flt. Lt W. B Callaway, R.N.
Wing Comdr. T. R. Cave-Brown-Cave, R.N
Warrt. Officer, 2nd Gr., L. J. Chandler, R.N.A.S.
Lt. J. Chapman, R.N.V.R.
Lt.-Comdr. R. B. B. Colmore, R.N. (Flt. Comdr., R.N.A.S).
Flt. Comdr. E. S. Cripps, R.N.A.S.



AS IT SHOULD BE :—An Inverted Gotha.

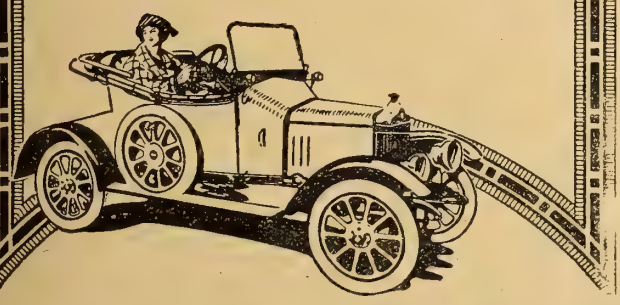
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Flt. Lt. J. F. Dixon, D.S.C., R.N.A.S.
Warrt. Officer, 2nd Gr., R. W. Edwards, R.N.A.S.
Lt. W. W. Farthing, R.N.V.R.
Lt. (actg. Comdr.) G. W. H. Fraser, R.N.V.R.
Flt. Lt. C. H. W. Godfrey, R.N.A.S.
Lt.-Comdr. A. S. Halliwell, R.N.V.R.
Flt. Sub-Lt. S. B. Harris, R.N.
Lt. C. Harrison, R.N.V.R.
Flt. Lt. J. F. Hart, R.N.A.S.
Lt.-Comdr. G. Hazelton, R.N.V.R.
Flt. Comdr. (actg. Sqdn. Comdr.) E. J. Hodsoll, R.N.A.S.
Sqdn. Comdr. R. J. J. Hope-Vere, R.N.A.S.
Flt. Lt. T. E. B. Howe, R.N.A.S.
Flt. Lt. D. B. M. Hume, R.N.A.S.
Flt. Comdr. G. H. Jackson, R.N.A.S.
Sqdn. Comdr. R. H. Jones, R.N.A.S.
Lt. C. K. Jupp, R.N.V.R.
Lt.-Comdr. A. S. Langley, R.N.V.R.
Obsr. Sub-Lt. D. G. McGregor, R.N.A.S.
Warrt. Officer, 2nd Gr., E. W. Mann, R.N.A.S.
Flt. Lt. P. E. Maitland, R.N.
Lt.-Comdr. T. A. Monckton, R.N.V.R.
Lt. (actg. Lt.-Comdr.) D. A. B. Morle, R.N.V.R.
Warrt. Officer, 2nd Gr., A. Page, R.N.A.S.
Flt. Lt. W. E. C. Parry, R.N.A.S.
Lt.-Comdr. A. Partridge, R.N.V.R.
Flt. Sub-Lt. T. C. Pattinson, R.N.A.S.
Flt. Lt. W. G. Pigott, R.N.
Sub-Lt. C. R. E. Pope, R.N.V.R.
Lt. J. Robinson, R.N.V.R.
Lt. F. Smith, R.N.V.R.
Wing Capt. H. P. Smyth-Osbourne, R.N.
Prob. Obsr. Sub-Lt. G. G. Speight, R.N.A.S.
Sqdn. Comdr. G. H. Scott, R.N.A.S.
Flt. Lt. G. R. I. Snow, R.N.
Lt. R. Spickernell, R.N.V.R.
Lt.-Comdr. (actg. Comdr.) L. H. Strain, D.S.C., R.N.V.R.
Warrt. Officer, 1st Gr., F. Susans, R.N.A.S.
Sqdn. Obsr. F. H. Swann, R.N.A.S.
Sqdn. Obsr. G. L. Thomson, D.S.C., R.N.A.S.
Sqdn. Comdr. L. Tomkinson, R.N.
Flt. Comdr. B. Travers, R.N.A.S.
Sqdn. Comdr. J. L. Travers, R.N.A.S.
Lt.-Comdr. C. C. Turner, R.N.V.R.
Warrt. Officer, 2nd Gr., H. J. Usher, R.N.A.S.
Lt. R. M. S. Veal, R.N.V.R.
Flt. Sub-Lt. J. A. E. Vowles, R.N.A.S.
Flt. Sub-Lt. A. Ward, R.N.A.S.
Flt. Comdr. W. K. F. G. Warneford.
Sub-Lt. F. K. Wells, R.N.V.R.
Lt. J. K. Wells, R.N.V.R.
Warrt. Officer, 2nd Gr., W. Wheatley, R.N.A.S.
Warrt. Officer, 2nd Gr., H. Williams, R.N.A.S.
Lt. O. C. Williams, R.N.V.R.
Warrt. Officer, 2nd Gr., F. Wiltshire, R.N.A.S.
Flt. Comdr. B. C. Windeler, R.N.A.S.
Flt. Comdr. M. E. A. Wright, R.N.A.S.
Lt. W. Young, R.N.V.R.

Ldg. Mech. T. Adam, O.N. F.10687; Ldg. Mech. (E.) A. E. Allard, O.N. F.13318; Ldg. Mech. T. B. Arlette, O.N. F.19966; C.P.O. Mech., 3rd Gr., C. Armitage, O.N. F.6981; Ldg. Mech. J. A. Askew, O.N. F.28288.

C.P.O. Mech., 3rd Gr., B. A. Bagnall, O.N. F.345; Actg. Air Mech., 1st Gr., W. Baker, O.N. F.11681; P.O. Mech. W. J. Battle, O.N. F.7053; Air Mech., 1st Gr., W. H. Barton, O.N. F.12834; M.A.A. H. C. Beeton, O.N. 167555 (Ch.); P.O. Mech. (E.) R. Bellian, O.N. F.1082; Ldg. Mech. (E.) W. A. Betteley, O.N. F.8387; C.P.O. Mech., 3rd Gr. (E.), J. B. Bishop, O.N. F.4277; Ldg. A.C. H. W. Bompas, O.N. F.14638; Ldg. Sea. S. Boucher, R.N.V.R., O.N. A.A.1209; P.O. Mech. (E.) F. E. Bowden, O.N. F.12163; C.P.O. Mech. 3rd Gr. (E.), O. C. Bown, O.N. F.2061; Ldg. Mech. S. Bremner, O.N. F.6884; C.P.O. Mech., 3rd Gr., E. J. Bristow, O.N. F.7180.

C.P.O. Mech., 3rd Gr., N.S. Calder, O.N. F.3641; Air Mech., 1st Gr. (E.), C. Calver, O.N. F.18438; P.O. Mech. (C.) A. G. Carr, O.N. F.9778; Actg. Air Mech., 1st Gr. (E.), W. G. Chapman, O.N. F.24573; Air Mech., 1st Gr., W. L. Clark, O.N. F.3947; C.P.O. Mech., 3rd Gr., W. Clayton, O.N. F.673; P.O. Mech. E. A. Coates, O.N. 237750 (Dev.); Air Mech., 2nd Gr., J. Collett (killed), O.N. F.20396; P.O. Mech. W. L. Collyer, O.N. F.894; P.O., 1st Cl., G. A. Constable, O.N. L.8855; Ldg. Mech. T. G. Cook, O.N. F.19710; Ldg. Mech. J. Cooper, O.N. F.3726; C.P.O. Mech., 2nd Gr., A. E. Crespin, O.N. F.7719; Air Mech., 1st Gr., H. F. Crespin, O.N. F.2403; Ldg. Mech. H. W. Crisp, O.N. F.266; Ldg. Mech. C. A. Cross, O.N. F.2066; Air Mech., 1st Gr. (E.), A. H. Cuff, O.N. F.3671; C.P.O. Mech., 2nd Gr., A. H. Cummings, O.N. F.667.

Air Mech., 2nd Gr., A. M. Daniels, O.N. F.13388; P.O. Mech. A. W. Deed, O.N. F.2108; Air Mech., 1st Gr. (C.), C. W. Deuchar, O.N. F.8858; C.P.O. Mech. T. A. Dimon, O.N. 170694 (Dev.); P.O. Mech. L. Doyle, O.N. 15210 (Dev.); Ldg. Mech. R. Duckett, O.N. F.12458.

C.P.O. Mech., 2nd Gr. (E.), F. G. Eckford, O.N. F.217; Ldg. Mech. (E.) F. J. Emerson, O.N. F.1057.

Ldg. Draughtsman T. W. Feasey, O.N. F.13026; C.P.O. Mech., 3rd Gr., C. Foiley, O.N. F.9512; Actg. Air Mech., 1st Gr., K. Ford, O.N. F.5760; P.O. Mech. (E.) S. T. Fowler, O.N. F.4655; Ldg. A. C. W. Franklin, O.N. F.17143; C.P.O. Mech., 3rd Gr., W. D. Frost, O.N., F.3907; Air Mech., 1st Gr., G. H. Frost, O.N. F.7656.

P.O. Mech. (E.) E. J. Garner, O.N. F.378; C.P.O. Mech., 2nd Gr., W. S. Gilbert, O.N. F.9102; Ldg. Mech. (C.) H. E. Goodrick, O.N. F.7778; Air Mech., 1st Gr. (E.), F. Grant, O.N. F.11338; P.O. Mech. J. McL. Gray, O.N. F.18460; Ldg. Mech. W. J. Gulliver, O.N. F.2947.

P.O. Mech. (C.) C. G. Hine, O.N. F.10996.
C.P.O. Mech., 3rd Gr. (E.), W. F. Inns, O.N. M.14393 (Ch.).
P.O. Mech. W. D. Jones, O.N. F.10549.
P.O. Mech. (C.) G. F. Kemp, O.N. F.12612; C.P.O. Mech., 2nd Gr., A. H. Knight, O.N. 202087 (Ch.); Ch. Ship's Cook A. H. Knight, O.N. 247120 (Ch.); C.P.O. Mech., 3rd Gr., A. Knowles, O.N. F.3359.

Ldg. Mech. (E.) A. C. Lane, O.N. F.5595; Ldg. Mech. W. G. Lavender, O.N. F.11277; Actg. Air Mech., 1st Gr., H. Leadbetter, O.N. J.3300 (Dev.); Ldg. Mech. C. J. Lofts, O.N. F.6430; C.P.O. Mech., 3rd Gr., C. A. Longhurst, O.N. F.5321.

Ldg. Mech. J. H. Manser, O.N. F.29004; P.O. Mech. R. J. Marfleet, O.N. F.12604; C.P.O. J. Marra, O.N. 104578 (R.F.R.Po./A1268); Actg. Air Mech., 1st Gr., J. E. Martin (killed), O.N. J.34195 (Po.); P.O. Mech. (E.) E. W. Martin, O.N. F.319; A.B. J. W. Miller, O.N. 226447 (Ch.); Actg. Ldg. Mech. L. C. Moss, O.N. F.907; C.P.O. Mech., 2nd Gr., H. G. Mugridge, O.N. G.11854 (Ch.); Ldg. Mech. J. A. V. Murfin, O.N. F.18271.

Ldg. Mech. H. Neville, O.N. F.8215; Air Mech., 1st Gr. (E.) M. Nunn, O.N. F.742.

C.P.O. E. S. Oak-Rhind, R.N.V.R., O.N. A.A.1415.
C.P.O. Mech., 3rd Gr., E. C. Parker, O.N. F.3331; Ldg. Mech. W. H. Pascoe, O.N. F.5141; Actg. Air Mech., 1st Gr., F. F. Petersen, O.N. F.10567; C.P.O. Mech., 3rd Gr., H. L. Pitt, O.N. F.145; C.P.O. Mech., 1st Gr., R. J. M. Platt, D.S.M., O.N. F.393; P.O. Mech. G. E. Plumpton, O.N. F.18405; C.P.O. Mech., 3rd Gr., T. W. Point, O.N. F.5636.
Air Mech. 1st Gr., P. A. Reeves, O.N. F.3895; C.P.O. Mech., 3rd Gr. (E.), F. P. Revie, O.N. F.5402; Ldg. Mech. A. E. Rosevear, O.N. F.5052; Ldg. Mech. W. S. Russell, O.N. F.18854; Actg. P.O. Mech. S. E. O. Russell, O.N. F.10609.
Ldg. Mech. (E.) J. B. Sanders, O.N. F.9657; Ldg. Mech. L. F. Short, O.N. F.8173; P.O. Mech. (C.) F. J. Smart, O.N. F.19780; P.O. Mech. (E.) S. J. Smith, O.N. F.330; P.O. Mech. J. Smith, O.N. F.3735; P.O. Mech. (C.) H. W. Smith, O.N. F.11213; P.O. Mech. H. B. Smith, O.N. F.14607; Ldg. Mech. F. N. Squire, O.N. F.9397; P.O. Mech. (C.) W. J. Squire, O.N. F. 4309; P.O. Mech. (E.) S. Stilwell, O.N. F.210; P.O. Mech. (E.) C. Stimpson, O.N. F.3344.
C.P.O. Mech., 2nd Gr. (E.) H. Tatem, O.N. F.253; Ldg. Mech. E. S. Temperton, O.N. F.13564; C.P.O. Mech., 3rd Gr., J. Thomas, O.N. F.307; Actg. Air Mech., 1st Gr. (E.) F. Thompson, O.N. F.8907; Ldg. Mech. F. Thorn, O.N. 228367 (Ch.); Air Mech., 1st Gr., P. J. L. Tigg, O.N. F.24996; P.O. Mech. F. J. Tucker, O.N. F.7733.
C.P.O. Mech., 2nd Gr. (E.) S. Upton, O.N. M.3933 (Ch.).
C.P.O. Mech., 3rd Gr., J. G. W. Wicks, O.N. F.8128; Ldg. Mech. A. W. Whistlecraft, O.N. F.4972; P.O. Mech., 1st Gr. (E.) E. R. Whyte (killed), O.N. F.2824; C.P.O., 3rd Gr. (E.), M. W. Winterbottom, O.N. F.689; Ship's Std. R. J. Wyatt, O.N. 341,138 (Ch.).

May 17th.

The following officers have been mentioned in dispatches:—
Wing Comdr. F. W. Bowhill, R.N.A.S.
Flt. Lt. C. B. Gasson, R.N.A.S.
Obsr. Lt. E. F. Turner, R.N.A.S.

June 7th

The following officer has been mentioned in dispatches:—
Flt. Lt. H. C. Lemon, R.N.A.S. (killed).

July 23rd.

The following officers and men were mentioned in dispatches by Vice-Admiral Sir Roger J. B. Keyes, K.C.B., C.M.G., C.V.O., D.S.O., Commanding the Dover Patrol, for distinguished services on the night of April 22nd-23rd, 1918:—
Maj. (temp. Lt.-Col.) F. A. Brock, O.B.E., R.A.F. (killed in action)
Maj. (temp. Lt.-Col.) J. T. Cull, D.S.O., R.A.F.
Air Mech. R. R. Entwistle, R.N.A.S., O.N. F.39326.
Air Mech. W. H. Gough, R.N.A.S., O.N. F.19842.
Ch. Air Mech., 2nd Cl., W. G. Ryan, R.N.A.S., O.N. F.48864.
Air Mech., 1st Cl., K. H. Thow, R.N.A.S., O.N. F.12770
Air Mech., 1st Cl., G. Warrington, R.N.A.S., O.N. F.26702.

The following officers were mentioned by Vice-Admiral Sir Roger Keyes for services in connection with the preparatory work of the operations:—
Maj. (temp. Lt.-Col.) P. F. M. Fellowes, D.S.O., R.A.F.
Lt.-Col. F. C. Halahan, M.V.O., D.S.O., R.A.F.
Col. (temp. Brig.-Gen.) C. L. Lambe, C.M.G., D.S.O., R.A.F.

Aug. 28th.

The following extracts are taken from a dispatch received from Vice-Admiral Sir Roger J. B. Keyes, K.C.B., C.M.G., C.V.O., D.S.O., Commanding the Dover Patrol, concerning the operation against Ostend on the night of May 9th-10th:—

Aerial photographs taken prior to the operation clearly showed that the enemy had made special preparations in anticipation of a renewed attack.

The following man volunteered for dangerous rescue work:—
Air Mech., 1st Cl., Douglas Gordon Smith, R.N.A.S., O.N. F.123853.

The following men also rendered valuable services in action and off the enemy coast:—

IN MOTOR LAUNCHES.

Air Mech., 1st Cl., Laurence Henry Sensicle, R.N.A.S., O.N. F.13014 (M.L. 105).
Ldg. Mech. William Henry Grice, R.N.A.S., O.N. F.12790 (M.L. 283).

The co-operation of the Air Force under Brig.-Gen. Charles L. Lambe, C.M.G., D.S.O., R.A.F., was of great value during the operation. In spite of the fog, the squadron under the command of Sqdn. Comdr. Herbert G. Brackley, D.S.O., D.S.C., continued to attack in accordance with programme until after the completion of the operation.

Sept. 14th.

The following Officers and Men have been mentioned in dispatches:—
Flt. Sub-Lt. Samuel Porter Colt, R.N.A.S.
Sec. Lt. Alexander Dalgety Ferguson, Highland L.I., attd. R.F.C.
Flt. Comdr. Lionel Arthur Hervey, R.N.A.S.
Capt. William Robert McBain, M.C., R.F.C.

ORDER OF THE BRITISH EMPIRE.

COMMANDERS (C.B.E.).

Lt.-Comdr. Basil Oliver Jenkins, R.N.V.R., Member in Charge of Aviation, British War Mission, United States of America. (Gazetted Jan. 7th.)
Actg. Paymaster-in-Chief Frank Lenn, R.N., in Charge of Central Pay Office, R.N.A.S. (Gazetted June 3rd.)
Wing Capt. Edward Alexander Dimsdale Masterman, R.N.A.S. (Gazetted Jan. 7th.)

OFFICERS (O.B.E.).

Flt. Comdr. (actg. Wing. Comdr.) Frank Arthur Brock, R.N.A.S. (Gazetted Jan. 7th.)
Sqdn. Comdr. Henry Richard Busteed, R.N.A.S. (Gazetted Jan. 7th.)
Sqdn. Comdr. Robert Arthur Chalmers, R.N.A.S. (Gazetted Jan. 7th.)
Wing Comdr. Alec Ogilvie, R.N.A.S., Head of Aeroplane Design Section, Air Board Technical Department. (Gazetted Jan. 7th.)
Sqdn. Comdr. Charles Frederick Pollock, R.N.A.S. (Gazetted Jan. 7th.)

MEMBERS (M.B.E.).

Lt.-Comdr. Thomas Barwell Barrington, R.N.V.R., Design Section, Air Board, Technical Dept. (Gazetted Jan. 7th.)
Lt.-Comdr. Charles Frewen Jenkins, R.N.V.R., Air Board, Technical Dept. (Gazetted Jan. 7th.)
Flt. Lt. Leon Joseph Killmayer, R.N., Production Officer, Seaplanes Branch, Air Board. (Gazetted Jan. 7th.)

MEDAL.

James Gardner, Ex-Air Mech. L., R.N.A.S., for courage and presence of mind in extinguishing, at great personal risk and with difficulty, a fire on a loaded ammunition lorry. (Gazetted June 3rd.)
Harry Tilley, Ldg. Mech., R.N.A.S., for courage and presence of mind in preventing an explosion at great personal risk. (Gazetted June 3rd.)

R.F.C. HONOURS LIST FOR 1918.

ORDERS.

ORDER OF THE BATH.

COMMANDER (MILITARY DIVISION.)

Lt.-Col. and Bt. Col. (temp. Maj.-Gen.) EDWARD BAILEY ASHMORE, C.M.G., M.V.O., R.A. (Gazetted June 3rd)

THE ROYAL VICTORIAN ORDER.

COMMANDER.

Maj.-Gen. J. M. SALMOND, C.M.G., D.S.O., R.A.F. (Gazetted Aug. 27th.)

VICTORIA CROSS.

Sec. Lt. (temp. Capt.) JAMES BYFORD MCCUDDEN, D.S.O., M.C., M.M., Gen. List and R.F.C

For most conspicuous bravery, exceptional perseverance, keenness, and very high devotion to duty.

Capt. McCudden has at the present time accounted for 54 enemy aeroplanes. Of these 42 have been definitely destroyed, 19 of them on our side of the lines. Only 12 out of the 54 have been driven down out of control.

On two occasions he has totally destroyed four two-seater enemy aeroplanes on the same day, and on the last occasion all four machines were destroyed in the space of 1 hour and 30 minutes.

While in his present squadron he has participated in 78 offensive patrols, and in nearly every case has been the leader. On at least 30 other occasions, whilst with the same squadron, he has crossed the lines alone, either in pursuit or in quest of enemy aeroplanes.

The following incidents are examples of the work he has done recently :—

On December 23rd, 1917, when leading his patrol, eight enemy aeroplanes were attacked between 2.30 p.m. and 3.50 p.m. Of these two were shot down by Captain McCudden in our lines. On the morning of the same day he left the ground at 10.50 and encountered four enemy aeroplanes; of these he shot two down.

On January 30th, 1918, he, single-handed, attacked five enemy scouts, as a result of which two were destroyed. On this occasion he only returned home when the enemy scouts had been driven far east; his Lewis gun ammunition was all finished and the belt of his Vickers gun had broken.

As a patrol leader he has at all times shown the utmost gallantry and skill, not only in the manner in which he has attacked and destroyed the enemy, but in the way he has during several aerial fights protected the newer members of his flight, thus keeping down their casualties to a minimum.

This officer is considered, by the record which he has made, by his fearlessness, and by the great service which he has rendered to his country, deserving of the very highest honour. (Gazetted April 2nd.)

A BAR TO DISTINGUISHED SERVICE ORDER.

Temp. Capt. R. M. DRUMMOND, D.S.O., M.C., R.F.C.

He attacked single-handed a formation of six enemy scouts, and brought down one, which was wrecked on striking the ground. He was then attacked by the remainder, and succeeded in bringing down one out of control before he himself, owing to engine trouble, was forced to land. He got the engine going again, and, though stopped by engine trouble on four occasions, he managed to get back to his own lines, thus evading his pursuers. His performance was a gallant and successful one. (Gazetted July 26th.)

Temp. Sec. Lt. (temp. Capt.) EDWARD MANNOCK, D.S.O., R.E., and R.A.F.

For conspicuous gallantry and devotion to duty. In company with one other scout, this officer attacked eight enemy aeroplanes, shooting down one in flames. The next day, when leading his flight, he engaged eight enemy aeroplanes, destroying three himself. The same week he led his patrol against six enemy aeroplanes, shooting down the rear machine, which broke in pieces in the air. The following day he shot down an Albatros two-seater in flames, but later, meeting five scouts, had great difficulty in getting back, his machine being much shot about, but he destroyed one. Two days later, he shot down another two-seater in flames. Eight machines in five days—a fine feat of marksmanship and determination to get to close quarters. As a patrol leader he is unequalled. (Gazetted Sept. 16th.)

Sec. Lt. (temp. Capt.) J. T. B. MCCUDDEN, D.S.O, M.C., Gen. List and R.F.C.

He attacked enemy formations, both when leading his patrol and single-handed. By his fearlessness and clever manœuvring he has brought down about 31 enemy machines, 10 of which have fallen in our lines. His pluck and determination have had a marked effect on the efficiency of the squadron. (Gazetted Feb. 18th.)

Temp. Lt. (temp. Maj.) C. F. A. PORTAL, D.S.O, R.E., Spec. Res. and R.A.F.

During a period of four months, chiefly under adverse weather conditions, he repeatedly carried out successful raids by day and night, his ingenuity and daring enabling him to drop many tons of bombs on important enemy posts. One night he crossed the lines five times, only landing between each flight to replenish with bombs. Another day he took on single-handed five enemy machines, and drove down three of them—a most gallant and splendid feat. On another day, despite thick mist, he registered one of our batteries on an enemy battery, causing the destruction of one pit and obtaining one fire and two explosions; and another day, flying for 5¼ hours, he carried out two very successful counter-battery shoots, observing 350 rounds. He has always set a most magnificent example to the squadron under his command. (Gazetted July 26th.)

CANADIAN FORCE.

Maj. ALBERT DESBRISAY CARTER, D.S.O., New Brunswick R., and R.A.F.

For conspicuous gallantry and devotion to duty as a fighting pilot. In three and a half months he destroyed thirteen enemy machines. He showed the utmost determination, keenness and dash, and his various successful encounters, often against odds, make up a splendid record (Gazetted Sept. 16th.)

THE DISTINGUISHED SERVICE ORDER.

Temp. Sec. Lt. (temp. Capt.) B. E. BAKER, M.C., Gen. List and R.F.C. (Gazetted March 5th.)

Temp. Capt. W. C. BARKER, M.C., Gen. List and R.F.C. (Gazetted Feb. 18th.)

When on scouting and patrol work he has on five different occasions brought down and destroyed five enemy aeroplanes and two balloons, though on two of these occasions he was attacked by superior numbers. On each occasion the hostile machines were observed to crash to earth, the wreckage bursting into flames. His splendid example of fearlessness and magnificent leadership have been of inestimable value to his squadron.

Lt. (temp. Capt.) C. H. BOWMAN, M.C., R. War. R., Spec. Res. and R.F.C. (Gazetted March 26th.)

Lt. (temp. Capt.) C. J. Q. BRAND, M.C., R.A.F.

For conspicuous gallantry. While on patrol at night he encountered an enemy aeroplane at a height of 8,700 feet. He at once attacked the enemy, firing two bursts of 20 rounds each, which put the enemy's right engine out of action. Closing to a range of 25 yards he fired a further three bursts of 25 rounds each, and as a result the enemy machine caught fire and fell in flames to the ground. Captain Brand showed great courage and skill in manœuvring his machine during the encounter, and when the enemy aeroplane burst into flames he was so close that the flames enveloped his machine, scorching his face. This officer has shown great determination and perseverence during the past nine months when on anti-aeroplane patrols at night, and his example of unassuming gallantry and skill has raised his squadron to a very high state of efficiency. (Gazetted May 31st.)

Temp. Capt. PETER CARPENTER, M.C., R.A.F

For conspicuous gallantry and devotion to duty. He has destroyed nine enemy machines, and driven three down out of control. He has led forty-six offensive patrols. On one occasion twelve enemy aircraft were attacked, and on another he led two other machines against nineteen of the enemy, destroying six of them. He has at all times shown a magnificent example. (Gazetted Sept. 16th.)

Capt. R. M DRUMMOND, M.C., R.F.C. (Gazetted March 26th.)

Lt. (temp. Capt.) W. B. FARRINGTON, Notts and Derby R., Spec. Res. and R.F.C.

On five occasions during a period of three months he has led formations on long-distance bombing raids, in which, despite bad weather conditions, he has found and bombed his objectives with the most excellent results. All the operations in which he has taken part have proved highly successful, and his apabilities have stood out most prominently. He is a keen and most efficient pilot, and by his courage and determination has set a splendid example to his squadron. (Gazetted April 22nd.)

Temp. Capt. M. B. FREW, M.C., Gen. List and R.F.C. (Gazetted March 5th.)

Temp. Sec. Lt. (temp. Capt.) EDWARD MANNOCK, M.C., R.E., attd. R.A.F.

For conspicuous gallantry and devotion to duty during recent operations. In seven days, while leading patrols and in general engagement, he destroyed seven enemy machines, bringing his total in all to thirty. His leadership, dash and courage were of the highest order. (Gazetted Sept. 16th.)

Sec. Lt. (temp. Capt.) J. T. B. MCCUDDEN, M.C., Gen. List and R.F.C.

He attacked and brought down an enemy two-seater machine inside our lines, both the occupants being taken prisoner. On another occasion he encountered an enemy two-seater machine at 2,000 feet. He continued the fight down to a height of 100 ft. in very bad weather conditions, and destroyed the enemy machine. He came down to within a few feet of the ground on the enemy's side of the lines, and finally crossed the lines at a very low altitude. He has recently destroyed seven enemy machines, two of which fell within our lines, and has set a splendid example of pluck and determination to his squadron. (Gazetted Feb. 4th.)

Sec. Lt. (actg. Capt.) A. E. MCKEEVER, M.C., R.F.C., Spec. Res.

While on patrol by himself over the enemy's lines in very bad weather he encountered two enemy two-seater machines and seven scouts. By skilful manœuvring he engaged one and destroyed it. As he turned to get back to the lines five of the enemy dived on his tail, and his observer engaged and destroyed two of them. After an indecisive combat with two others he attacked and destroyed one of the enemy which had overshot him. He continued the fight with the remainder until he was within 20 feet of the ground, when the enemy machines climbed and left him. He has recently destroyed ten enemy machines, and has shown great courage and initiative. (Gazetted Feb. 4th.)

Temp. Lt. J. E. G. MOSBY, R.A.F.

Whilst on an artillery patrol he was attacked by three enemy machines, two from the front and one from the rear. He engaged and drove off the latter, but was hit in the abdomen, and when he turned to engage the others his pilot was hit and instantly killed. Although his machine fell out of control from 3,000 feet to 1,000 feet, he continued to engage them, and was again hit in the abdomen. But he succeeded in driving them off, and though his machine again became out of control he righted it and safely landed it at his aerodrome. He showed indomitable pluck, both during an unequal contest and in determining to land his machine without injury, although nearly unconscious from loss of blood. (Gazetted July 26th.)

Capt. ERIC MACKAY MURRAY, M.C., Q.V.O., Corps of Guides, I.A., and R.F.C. (Mesopotamia.)

For conspicuous gallantry and devotion to duty during three months' operations. He persistently showed courage and ability of a high order throughout. He was three times in action against enemy aircraft, and on the last occasion returned with 20 bullet-holes in his machine, after his passenger had emptied 1½ drums of ammunition from a Lewis gun at the adversary. (Gazetted Dec 2nd.)

Temp. Capt. A. H. PECK, M.C., Gen List and R.F.C. (Gazetted March 5th.)

Temp. Capt. F. G. QUIGLEY, M.C., R.F.C.

While leading an offensive patrol he attacked a very large number of enemy aeroplanes, destroyed one of them and drove another down out of control. On the following day, while on a low-flying patrol, he was attacked by several enemy scouts, one of which dived at him. He out-manœuvred this machine and fired on it at very close range. He followed it down to 500 feet, firing on it, and it spiralled very steeply to the ground in a cloud of black smoke. During the three following days, while employed on low-flying work, he showed the greatest skill and determination. He fired over 3,000 rounds and dropped 30 bombs during this period, inflicting heavy casualties on enemy infantry, artillery, and transport. (Gazetted June 22nd.)

Lt. (temp. Maj.) W. R. SNOW M.C., R.F.C., Spec. Res.

During a flight lasting three hours and 40 minutes he successfully registered two siege batteries on a hostile battery, and observed 100 and 150 rounds respectively. On one occasion he made four trips

and dropped twelve 112 lb. bombs on two aerodrome objectives. He has carried out a large number of successful counter battery and trench registration shoots under exceedingly unfavourable weather conditions, and has at all times carried out his duties in a thoroughly keen and able manner, displaying a magnificent spirit of dash and energy. (Gazetted April 22nd.)

Lt (temp. Capt.) D. F. STEVENSON, M.C., Yeo. and R.A.F.
For conspicuous gallantry and devotion to duty when carrying out low-flying reconnaissances and contact patrols, under very heavy machine-gun, rifle, and anti-aircraft fire. In his patrols, often lasting many hours, and in bad weather conditions, he attacked enemy infantry, transport, and batteries from a low level, using his machine-gun and dropping bombs, frequently returning with his machine riddled with bullets, and the information he obtained was quite invaluable. His cheerful spirit, consistent dash, and fearlessness, and his magnificent work have set a splendid example to all in his squadron, and greatly encouraged them at a time when the casualties in it were extremely heavy. (Gazetted July 26th.)

Lt. (temp. Capt.) G. E. THOMSON, M.C., Gen. List and R.F.C.
On one occasion, encountering a number of enemy two-seater planes, he dived on one of these and sent it down in flames. On returning to our lines, he dived onto another enemy machine, the observer of which was seen to collapse in his cockpit, the hostile machine going down completely out of control. On the following day, observing a hostile two-seater machine, he dived on it, engaging it at 100 yards' range. On the hostile 'plane going down in a slow spin, he followed it to within 2,500 feet, but was compelled to withdraw owing to heavy machine-gun fire from the ground. He has, in all, accounted for 21 enemy machines, and has at all times during recent operations displayed the most marked skill and gallantry (Gazetted June 22nd.)

Temp. Capt. HENRY WINSLOW WOOLLETT, M.C., Gen. List, attd. R.A.F.
For conspicuous gallantry and devotion to duty during recent operations. In two days during three patrols he destroyed eight enemy machines, making his total twenty-two. His leadership, dash and courage were of the highest order. (Gazetted Sept. 16th.)

CANADIAN FORCE.

Maj. A. D. CARTER, Infantry and R.F.C.
He destroyed two enemy aeroplanes, drove down several others out of control, and on two occasions attacked enemy troops from a low altitude. He showed great keenness and dash as a patrol leader. (Gazetted Feb. 18th.)

A SECOND BAR TO THE MILITARY CROSS.

Temp. Capt. WILLIAM GEORGE BARKER, D.S.O., M.C., Gen. List and R.F.C. (Gazetted Sept 16th.)
Temp. Sec. Lt. (temp. Capt.) A. K. COWPER, M.C., Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Capt. GERALD ERNEST GIBBS, M.C., R.A.F (Gazetted Sept. 16th.)
Lt (temp. Capt.) JOHN GILMOUR, D.S.O., M.C., A. and S. Highrs. and R.A.F. (Gazetted Sept. 16th.)
Sec. Lt (temp. Capt.) GILBERT WARE MURLIS GREEN, D.S.O., M.C., Gen. List and R.F.C. (Gazetted Jan. 7th.)
Temp. Lt. J. E. HIBBERT, M.C., S. Lan. R. and R.F.C. (Gazetted June 22nd.)
Lt. (temp. Capt.) G. E. H. MCELROY, M.C., R.G.A., and R.F.C. (Gazetted July 26th.)
Sec. Lt. (temp. Capt.) A. C. YOUDALE, M.C., R.F.C., Spec. Res (Gazetted Feb. 4th.)

A BAR TO THE MILITARY CROSS.

Temp. Lt. (temp. Capt.) JOHN WILLIAM ALDRED, M.C., R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) ALFRED CLAYBURN ATKEY, M.C., R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) H. H. BALFOUR, M.C., K.R.R.C., Spec. Res., and R.F.C. (Gazetted April 22nd.)
Temp. Sec. Lt. (temp. Capt.) ANDREW WEATHERBY BEAUCHAMP-PROCTOR, M.C., Gen. List, attd R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) JAMES DACRES BELGRAVE, M.C., Ox. and Bucks. L.I., attd. R.A.F. (Gazetted Sept. 16th.
Sec. Lt. (temp. Capt.) D. J. BELL, M.C., R.F.C., Spec Res. (Gazetted May 13th.)
Lt. GERALD ALFRED BIRKS, M.C., R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) F. E. BROWN, M.C., R. Dub. Fus., Spec. Res., and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. (temp. Capt.) P. W. S. BULMAN, M.C., Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Capt. PETER CARPENTER, M.C., Gen. List and R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt (temp. Capt.) A. K. COWPER, M.C., Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. RALPH ST. JOHN DIX, M.C., Lond. R., and R.A.F (Gazetted Sept. 16th.)
Lt. (temp. Capt.) W. R. FISH, M.C., Gen. List and R.A.F. (Gazetted June 22nd.)
Lt. (temp. Capt.) J. FITZMORRIS, M.C., Highd. L.I. and R.F.C. (Gazetted June 22nd.)
Temp. Capt. G. E. GIBBS, M.C., R.F.C. (Gazetted June 22nd.)
Lt. (temp. Capt.) J. GILMOUR, M.C., A. and S. Highrs. and R.A.F. (Gazetted July 26th.)
Capt. A. W. F. GLENNY, M.C., A.S.C., attd R.A.F. (Gazetted June 26th.)
Lt. (temp. Capt.) ROBERT ARTHUR GROSVENOR, M.C., Dgn Gds. and R.A.F. (Gazetted Sept. 16th.)
Temp. Lt. A. W. HAMMOND, M.C., R.E. and R.F.C. (Gazetted July 26th.)
Temp. Capt. (actg. Maj.) H. O. HOLMES, M.C., R.F.C. (Gazetted Feb. 18th.)
Temp. Sec. Lt. L. C. HOOTON, M.C., Gen. List and R.A.F. (Gazetted July 26th.)
Temp. Capt. O. HORSLEY, M.C., Gord. Highrs. and R.F.C. (Gazetted June 22nd.)
Lt. (temp. Capt.) P. HUSKINSON, M.C., Notts and Derby R. and R.F.C. (Gazetted April 22nd.)
Capt. W. S. F. JOHNSON, M.C., Yeo. and R.F.C. (Gazetted May 13th.)
Lt. S. S. JONES, M.C., S. Lan. R. and R.F.C. (Gazetted May 13th.)
Lt. (temp. Capt.) CONRAD LALLY, M.C., R.F.C., Spec. Res. (Gazetted Feb. 4th.)
Temp. Capt. J. LEACROFT, M.C., Gen. List and R.F.C. (Gazetted June 22nd.)
Sec. Lt. (temp. Capt.) K. M. St. C. G. LEASK, M.C., Devon R. and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. (temp. Capt.) DONALD RODERICK MACLAREN, M.C., Gen. List, R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) L. J. MACLEAN, M.C., R.E., and R.F.C. (Gazetted Feb. 4th.)
Sec. Lt. G. F. H. MCELROY, M.C., R.G.A. and R.F.C. (Gazetted April 22nd.)
Capt. W. E. MOLESWORTH, M.C., R. Mans. Fus., and R.F.C. (Gazetted March 26th.)
Lt. TOM CECIL NOEL, M.C., K.O.S.B., Spec. Res., attd. R.A.F. (Gazetted Sept 16th.)
Temp. Capt. J. H. NORTON, M.C., R.F.C. (Gazetted April 22nd.)
Temp. Capt. A. H. PECK, D.S.O., M.C., R.F.C. (Gazetted July 26th.)
Temp. Capt. F. G. QUIGLEY, M.C., Gen. List and R.F.C. (Gazetted May 13th.)
Temp. Capt. F. G. SAUNDERS, M.C., R.F.C. (Gazetted March 26th.)
Temp. Capt. J. A. SLATER, M.C., Gen List and R.F.C. (Gazetted June 22nd.)
Sec. Lt. (temp. Capt.) C. A. STEVENS, M.C., W. Rid. R. and R.F.C. (Gazetted Feb. 18th.)
Temp. Sec. Lt. (temp. Capt.) D. A. STEWART, M.C., Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Capt. J. L. TROLLOPE, M.C., Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Capt. J. H. TUDHOPE, M.C., R.A.F. (Gazetted July 26th.)
Lt. (temp. Capt.) W. L. WELLS, M.C., Middx. R. and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. ARTHUR BARLOW WHITESIDE, M.C., R.A.F. (Gazetted Sept. 16th.)
Capt. R. N. WOLTON, M.C., R.F.A. and R.F.C. (Gazetted June 22nd.)
Temp. Capt. H. W. WOOLLETT, M.C., R.F.C. (Gazetted June 22nd.)

CANADIAN FORCE.

Lt. WILLIAM JAMES ARTHUR DUNCAN, M.C., C.R.T.D. Sec., R.A.F. (Gazetted Sept. 16th.)
Lt. R. R. MCCALL, M.C., Infantry, and R.F.C. (Gazetted June 22nd.)

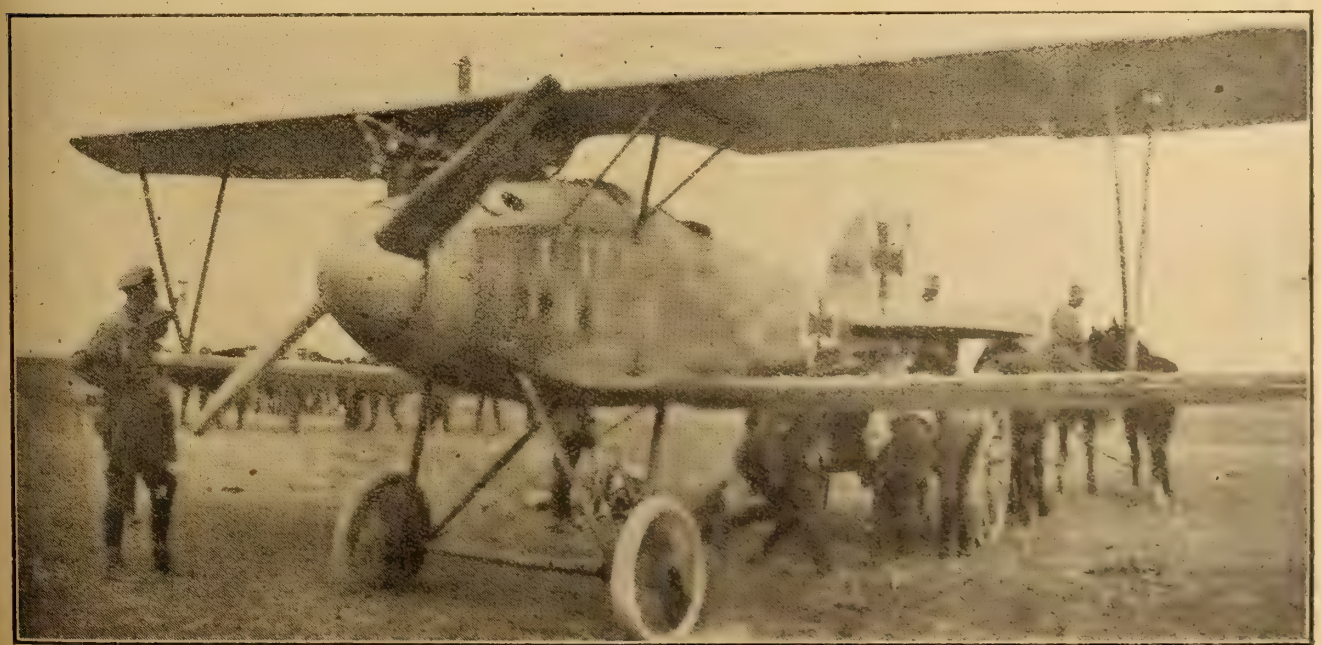
AUSTRALIAN IMPERIAL FORCE.

Capt. R. C. PHILLIPPS, M.C., Aust. F.C., attd. R.F.C. (Gazetted June 22nd.)
Lt. R. M. SMITH, M.C., Aust. Light Horse R., attd Aust. F.C. (Gazetted March 26th.)

THE MILITARY CROSS.

Temp. Sec. Lt. H. C. ADAMS, R.F.C. (Gazetted June 22nd.)
Sec. Lt. (temp. Capt.) J. M. ALLPORT, R.F.C., Spec. Res. (Gazetted April 22nd.)
Temp. Lt. A. J. ARKELL, R.A.F., Gen. List. (Gazetted May 31st.)
Temp. Sec. Lt. A. A. MACD. ARNOT, R.F.C. (Gazetted June 22nd.)
Temp. Lt. CHARLES HENRY ARNISON, Gen. List, attd. R.A.F. (Gazetted Sept. 16th.)
Sec. Lt. A. C. ATKEY, R.F.C., Spec. Res. (Gazetted June 22nd.)
Lt. J. W. BAKER, R.G.A. and R.A.F. (Gazetted July 26th.)
Lt. CHARLES CHAPLIN BANKS, R. Welsh Fus. and R.F.C. (Gazetted Feb. 8th.)
Capt. J. C. L. BARNETT, Oxf. and Bucks L.I. and R.F.C. (Gazetted Feb. 4th.)
Sec. Lt. (temp. Capt.) C. E. BARRINGTON, R.F.A. and R.F.C. (Gazetted Feb. 4th.)
Lt. E. C. BATCHELOR, R.F.A. and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. B. D. BATE, Gen. List and R.F.C. (Gazetted Feb. 4th.)
Lt. F. A. BATES, Yeo. and R.F.C. (Gazetted Feb. 1st.)
Lt. (temp. Capt.) L. J. BAYLY, R.G.A. and R.F.C. (Gazetted Feb. 7th for Jan. 1st.)
Lt. (temp. Capt.) B. P. G. BEANLANDS, Hamp. R. and R.F.C. (Gazetted Jan. 18th.)
Temp. Sec. Lt. A. W. BEAUCHAMP-PROCTOR, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. (temp. Maj.) V. A. BEAUFORT, Devon. R. and R.F.C. (Gazetted April 11th.)
Temp. Sec. Lt. W. BEAVER, Gen. List and R.F.C. (Gazetted June 22nd)
Lt. (temp. Capt.) D. C. BELL, Middx. R. and R.F.C. (Gazetted March 5th.)
Temp. Capt. HILLIARD BROOKE BELL, R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. R. R. BENTLEY, Gen. List and R.F.C. (Gazetted Jan. 18th.)
Lt. GERALD ALFRED BIRKS, R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. W. M. BLACKIE, Gen. List and R.F.C. (Gazetted April 22nd.)
Temp. Capt. C. H. BREWER, Beds. R. and R.F.C. (Gazetted May 13th.)
Temp. Sec. Lt. (temp. Capt.) ORLANDS CLIVE BRIDGEMAN, Gen. List, attd. R.A.F. (Gazetted Sept. 16th.)
Lt. J. M. BRISBANE, R. Scots, attd. R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. D. C. M. BROOKS, R.F.C. (Gazetted June 22nd.)
Lt. F. E. BROWN, R. Dub. Fus., Spec. Res. and R.F.C. (Gazetted April 22nd.)
Temp. Sec. Lt. W. H. BROWN, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Lt. R. S. S. BROWN, Gen. List and R.F.C. (Gazetted Feb. 4th.)
Sec. Lt. R. J. BROWNELL, M.M., R.F.C., Spec. Res. Gazetted March 5th.)
Lt. LANCELOT HAROLD BROWNING, R.F.A. and R.A.F. (Gazetted Oct. 15th.)
Lt. (temp. Capt.) O. C. BRYSON, Yeo. and R.F.C. (Gazetted March
Temp. Capt. R. E. BRYSON, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. P. W. S. BULMAN, Gen. List and R.F.C. (Gazetted Feb. 4th.)
Temp. Lt. GEORGE WILLIAM BULMER, Gen. List and R.A.F. Gazetted Sept. 16th.)
Temp. Sec. Lt. J. G. BURCHETT, R.F.C. (Gazetted June 22nd.)
Lt. FREDERICK WILLIAM BURDICK, A. Cyc. Corps, attd R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. (temp. Capt.) PHILLIP SCOTT BURGE, M.M., Gen. List and R.A.F. (Gazetted Sept. 16th.)
Temp. Lt. P. T. CARDEN, Gen. List and R.F.C. (Gazetted Jan. 18th.)
Temp. Sec. Lt. P. CARPENTER, Gen. List and R.F.C. (Gazetted March 5th.)
Temp. Sec. Lt. (temp. Capt.) BASIL EVERARD CATCHPOLE, Gen. List and R.A.F. (Gazetted Sept. 16th.)
Lt. T. W. CAVE, R.F.A., attd. R.F.C. (Gazetted May 13th.)
Temp. Capt. R. W. CHAPPELL, R.F.C. (Gazetted June 22nd.)
Lt. (temp. Capt.) R. M. CHARLEY, R.F.C., Spec. Res. (Gazetted Jan. 18th.)
Temp. Sec. Lt. J. S. CHICK, Gen. List and R.F.C. (Gazetted May 13th.)
Lt. (temp. Capt.) R. L. CHIDLAW-ROBERTS, Hants. R. and R.F.C. (Gazetted Feb. 4th.)
Lt. (temp. Capt.) J. M. CHILD, Manch. R. and R.F.C. (Gazetted Feb. 4th.)
Lt H. A. CHIPPINDALE, R.F.A., attd. R.F.C. (Gazetted June 22nd.)

Temp. Sec. Lt. P. J. CLAYSON, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. E. A. CLEAR, Gen. List, R.F.C. (Gazetted June 22nd.)
Temp. Capt. J. P. COLIN, Gen. List and R.F.C. (Gazetted June 22nd.)
Sec. Lt. H. W. COLLIER, R.A.F., Spec. Res (Gazetted July 26th.)
Temp. Capt. LEWIS ISAAC COLLINS, York R. and R.A.F. (Gazetted Sept. 16th.)
Temp. Lt. D. G. COOKE, R.A.F. (Gazetted July 26th.)
Lt. K. A. COOPER, Gen. List and R.F.C. (Gazetted June 22nd).
Sec. Lt. J. H. COOPER, Arg. and Suthd. Highrs and R.F.C. (Gazetted Feb. 4th.)
Temp. Sec. Lt. A. K. COWPER, Gen. List and R.F.C (Gazetted April 22nd.)
Temp. Capt. G. M. COX, Gen. List and R.A.F. (Gazetted July 26th.)
Sec. Lt. GEORGE WILLIAM COX, R.A.F. (Gazetted Jan 1st.)
Sec. Lt. E. N. S. CRESE, Dur. L.I. and R.F.C (Gazetted May 13th.)
Temp. Sec Lt. R. C. CROWDEN, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. H. G. CROWE, R. Ir. R. and R.A.F. (Gazetted July 26th.)
Lt. C. R. CUTHBERT, R.F.A., Spec. Res., attd R.F.C. (Gazetted June 22nd.)
Temp. Lt. G. C. CUTHBERTSON, Gen. List and R.F.C. (Gazetted April 22nd.)
Temp. Sec. Lt. H. DANIEL, Gen. List and R.A.F. (Gazetted July 26th.)
Sec. Lt (temp. Lt.) C. R. DAVIDSON, H.L.I. and R.F.C. (Gazetted April 22nd.)
Temp. Sec. Lt. F. H. DAVIES, Gen. List and R.F.C. (Gazetted May 13th.)
Sec. Lt. W. E. DAVIS, Glouc. R. and R.F.C (Gazetted Feb. 4th.)
Temp. Sec. Lt H. F. DAVISON, R.F.C. (Gazetted June 22nd.)
Temp Sec. Lt. J. DAY, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Capt. G. R. A. DEACON, R.F.C. (Gazetted April 11th.)
Lt. (temp. Capt..) W. DEANE, Norf R. and R.F.C. (Gazetted June 22nd.)
Lt. F. H. DEAR, R. Suss. R., and R.F.C. (Gazetted Feb. 4th.)
Temp. Lt. D. M. DENING, R.A.F. (Gazetted July 26th.)
Lt. R St. J. DIX, Lond. R. and R.F.C. (Gazetted June 22nd.
Sec. Lt. (temp. Capt H. F. S. DREWITT, R.F.C., Spec. Res. (Gazetted June 22nd.)
Lt. (temp. Capt.) I. A. J. DUFF, Dorset R. and R.F.C. (Gazetted Feb. 4th.)
Temp. Sec. Lt. R. S. DURNO, Gen List and R.F.C. (Gazetted June 22nd.)
Lt. HAROLD ROSS EYCOTT-MARTIN, R.E., R.A.F. (Gazetted Sept. 16th.)
Sec. Lt. F. C. FARRINGTON, R.A. and R.A.F. (Gazetted July 26th.)
Sec. Lt. C. G. FENTON, R.F.C., Spec. Res (Gazetted Jan. 18th.)
Sec. Lt. R. L. M FERRIE, R.F.C., Spec Res. (Gazetted Feb. 4th.)
Temp. Lt. (temp. Capt.) J. C. B. FIRTH, Gen. List and R.F.C. (Gazetted Feb. 18th.)
Lt. (temp. Capt.) W. R. FISH, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Lt. A. L. FLEMING, R.F.C. (Gazetted May 13th.)
Temp. Sec. Lt. E. M. FORSYTH, R.A.F. (Gazetted July 26th.)
Temp. Capt. J. B. FOX, Gen. List and R.F.C. (Gazetted May 13th.).
Temp. Sec. Lt. A. W. FRANKLYN, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. E. D G. GALLEY, A.S.C. and R.F.C. (Gazetted June 22nd.)
Sec. Lt. CHARLES GEORGE GASS, Lond R., attd R.A.F (Gazetted Sept. 16th.)
Temp. Lt. R. A. GEORGE, Gen. List and R.F.C. (Gazetted March 26th.)
Temp. Capt GEORGE EVERARD GIBBONS, Gen. List and R.A.F. (Gazetted Sept. 16th.)
Temp. Lt. G. E. GIBBS, R.F.C. (Gazetted March 26th.)
Sec. Lt (temp. Capt.) M. E. GONNE, R Fus and R.F.C. (Gazetted March 5th.)
Temp. Sec. Lt. L. F. GOODWIN, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec Lt. F. C. GORRINGE, Gen. List and R.F.C. (Gazetted March 5th.)
Temp. Lt. HERBERT RUSKA GOULD, Gen. List and R.A.F. (Gazetted Sept. 16th.)
Temp. Capt. T. GRAN, Gen. List and R.F.C. (Gazetted March 26th.)
Sec. Lt. J. S. GREEN, Gen. List and R.F.C (Gazetted March 5th.)
Sec. Lt H. J. GREENWOOD, W. York R., attd R.F.C. (Gazetted June 22nd.)
Lt. (temp. Capt.) R. A. GROSVENOR, Dn Gds. and R.A.F. (Gazetted July 26th.)
Temp. Lt. A. R. GURNEY, M.M.G.C., attd R.F.C. (Gazetted July 26th.)
Temp. Capt. GEORGE HENRY HACKWILL, Gen. List and R.F.C. (Gazetted Feb. 8th.)
Lt. (temp. Capt.) H. A HAMERSLEY, R.F.C, Spec. Res. (Gazetted June 22nd.)
Lt. (temp. Capt.) H. J HAMILTON, D. of Corn. L.I., attd. R.A.F (Gazetted July 26th.)
Sec. Lt. H. HAMMOND, Dorset R. and R.F.C. (Gazetted Jan. 18th.)
Temp. Lt. A. W. HAMMOND, R.E., attd R.F.C (Gazetted April 22nd.)
Sec. Lt. L. F. HANDFORD, Lond. R., attd. R.A.F. (Gazetted July 26th.)
Temp. Sec. Lt. J. L. S. HANMAN, R.F.C (Gazetted June 22nd.)
Temp. Sec. Lt. P. HARDY, Gen. List, R.F.C. (Gazetted June 22nd.)
Sec. Lt. W L. HARRISON, R.F.C., Spec. Res. (Gazetted May 13th.)
Sec. Lt. A. C. B. HARRISON, Oxf. and Bucks L.I., and R.F.C. (Gazetted Feb. 18th.)
Temp. Lt. CHARLES PHILIP HARRISON, R.E., attd. R.A.F (Gazetted Sept. 16th.)
Temp. Lt. R G. HART, R.A.F. (Gazetted July 26th.)
Lt. W. J. HARVEY, R. Dub. Fus., Spec. Res, and R.F.C (Gazetted June 22nd.)
Lt J. A. G HASLAM, R.A., attd. R.A.F. (Gazetted July 26th.)
Sec. Lt. HORACE HAYCOCK, R.A.F., Spec. Rec (Gazetted Sept. 16th.)
Temp. Sec. Lt. G. S. L. HAYWARD, R.W Kent. R., attd. R.F.C (Gazetted July 26th.)
Lt. B. HEAD, Northd. Fus. and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. HERBERT GEORGE HEGARTY. R.A.F. (Gazetted Sept. 16th.)
Sec. Lt. R. S. HERRING, Lond. R. and R.F.C (Gazetted June 22nd.)
Lt. (temp. Capt.) H. HEWETT, R. Berks. R. and R.F.C. (Gazetted Jan. 18th.)
Sec. Lt. F. L. HIRD, R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. R. W. HOBBS, S. Wales Bords, attd. R.F.C. (Gazetted March 26th.)
Temp. Sec. Lt G. L. HOBBS, R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. F. HOBSON, Gen. List and R.F.C. (Gazetted March 5th.)
Temp. Sec Lt P. K. HOBSON, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. F. H. HOLMES, R.E. and R.F.C. (Gazetted Jan. 18th.)
Temp Sec. Lt. L. C. HOOTON, R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. A. HOPKINS, B.W.I. Regt and R.F.C. (Gazetted April 11th.)
Sec. Lt ERNEST FORD HOWARD, R.A. and R.A.F. (Gazetted Sept. 16th.)
Temp Sec. Lt. H. HOWARD, attd. Northd.. Fus. and R.F.C (Gazetted Jan. 18th.)
Lt. CEDRIC ERNEST HOWELL, R.A.F., Spec. Res. (Gazetted Sept. 16th.)
Temp Sec. Lt. G. R. HOWSAM, Gen. List and R.F.C. (Gazetted March 5th.)
Temp. Lt. HAROLD BYRN HUDSON, R.A.F (Gazetted Sept. 16th.)
Sec. Lt. (temp. Capt.) G. F. HUGHES, R.F.C., Spec. Res. (Gazetted May 13th.)
Temp. Sec. Lt. E. W. A HUNT, Gen List and R.F.C. (Gazetted April 22nd.)
Lt. G. R. HUNTER, Camn. Highrs., attd R.F.C. (Gazetted Jan. 18th.)
Temp. Sec. Lt. D. F HURR, Middx. R., attd. R.F.C. (Gazetted April 22nd.)
Temp. Capt. FRANK HYDE, Gen. List and R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) D. G. B. JARDINE, H.L.I. and R.F.C. (Gazetted April 22nd.)
Lt. (temp. Capt.) MONTAGUE RIGHTON NEVILL JENNINGS, R.A.F., Spec. Res. (Gazetted Sept. 16th.)
Temp. Lt. G. O. JOHNSON, Gen. List and R.F.C. (Gazetted June 22nd.)
Sec Lt. J. S. JONES, R.G.A., Spec. Res, attd. R.F.C. (Gazetted March 26th.)
Sec. Lt. W. W. JONES, Lond. R. and R.F.C. (Gazetted June 22nd.)
Temp. Lt. JAMES IRA THOMAS JONES, M.M., R.A.F (Gazetted Sept. 16th.)
Lt. ARTHUR STUART KEEP, Gen. List, attd R.A.F. (Gazetted Sept. 16th.)
Temp. Lt. A. P. KELLY, R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt C. F. KING, Gen. List and R.F.C. Gazetted April 22nd.)
Temp. Lt CHARLES LEY KING, R.A.F. (Gazetted Sept. 16th.)
Temp. Lt. J. KIRK, R. Highrs. and R.F.C (Gazetted April 11th.)
Temp. Capt. R. K KIRKMAN, Gen. List and R.F.C. (Gazetted March 26th.)
Temp. Capt. F. M. KITTO, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. A. KOCH, R.F.C. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) C. T. LALLY, R.F.C., Spec Res. (Gazetted Jan. 18th.)



Front view of a German Albatros biplane brought down at Gozel bazel, Palestine, by a Bristol fighter. The machine was removed by a limber which is seen yoking up.

Temp. Sec. Lt. A. E. Lancashire, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. W. I. E. Lane, Gen. List, attd. R.A.F. (Gazetted July 26th.)
Lt. R. S. Larkin, R.F.C., Spec. Res. (Gazetted March 26th.)
Temp. Lt. Dennis Latimer, R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. A. Leach, British West Indies R., attd. R.A.F. (Gazetted July 26th.)
Lt. E. G. Leake, Manch. R. and R.F.C. (Gazetted June 22nd.)
Sec. Lt. (temp. Capt.) K. M. St. C. G. Leaske, Devon R. and R.F.C. (Gazetted March 26th.)
Lt. R. D. Leigh-Pemberton, G.Gds. and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. Alfred Alexander Leitch, Gen. List, attd. R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) C. M. Leman, R.G.A. and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. Bryant Lutellus Lindley, Gen. List, attd. R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. E. Lindut, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. H. P. Lloyd, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Lt. A. Lomax, R.F.A., attd. R.A.F. (Gazetted July 26th.)
Temp. Capt. Cyril Nelson Lowe, Gen. List, and R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) Thomas Clelland Lowe, R.E. and R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. P. A. MacDougall, Gen. List and R.F.C. (Gazetted May 13th.)
Lt. R. M. C. MacFarlane, R.F.A. and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. W. G. MacKenzie, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Lt. D. R. Mackie, R.E. and R.F.C. (Gazetted April 11th.)
Temp. Sec. Lt. D. R. MacLaren, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. W. E. MacLean, R.A.F. (Gazetted June 26th.)
Temp. Sec. Lt. (temp. Capt.) N. MacMillan, Gen. List and R.F.C. (Gazetted Feb. 18th.)
Sec. Lt. (temp. Lt.) J. F. N. Macrae, Gen. List and R.F.C. (Gazetted May 13th.)
Sec. Lt. E. R. Maddox, Hamps. R., attd. R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. F. P. Magoun, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. J. H. Maingot, B.W.I. Regt. and R.F.C. (Gazetted April 11th.)
Lt. Leslie John Mann, A.S.C., attd. R.A.F. (Gazetted Sept. 16th.)
Lt. A. Mann, A.S.C. and R.F.C. (Gazetted Jan. 18th.)
Temp. Capt. C. J. Marchant, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. Ronald Turnbull Mark, M.C., Gen. List and R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. R. T. Mark, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. (temp. Capt. T. J. C. Martyn, Lond. R., and R.F.C. (Gazetted April 22nd.)
Lt. (temp. Capt.) Frederick William Mathias, R.F.C. (Gazetted Sept. 16th.)
Lt. James Joseph Malone, A.F.C. (Gazetted Jan. 1st).
Lt. R. F. S. Mauduit, D. Gds. and R.F.C. (Gazetted Feb. 4th.)
Temp. Sec. Lt. L. W. Mawbey, R.A.F. (Gazetted July 26th.)
Temp. Sec. Lt. Frederick McChesney, R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) R. S. McClintock, R.F.A. and R.F.C. (Gazetted June 22nd.)
Sec. Lt. H. L. C. McConnell, Ind. A. R. of O. and R.F.C. (Gazetted April 11th.)
Sec. Lt. J. A. McCudden, Gen. List, R.F.C. (Gazetted April 22nd.)
Lt. Ian Donald Roy McDonald, R.A.F. (Gazetted Sept. 16th.)
Sec. Lt. G. E. H. McElroy, R.G.A. and R.F.C. (Gazetted March 26th.)
Lt. Alan Fleming McGlashan, R.A.F. (Gazetted Sept. 16th.)
Temp. Capt. D. M. McGoun, R.A.F. (Gazetted July 26th.)
Temp. Sec. Lt. G. McPherson, Gen. List and R.F.C. (Gazetted April 22nd.)
Sec. Lt. (temp. Capt.) M. E. Mealing, Shrops L.I. and R.F.C. (Gazetted May 13th.)
Lt. (temp. Capt.) C. E. H. Medhurst, R. Innis. Fus. and R.F.C. (Gazetted Jan. 18th.)
Capt. L. A. Middleton, R.F.A. and R.F.C. (Gazetted April 22nd.)
Lt. J. E. Middleton, R.A.F. (Gazteed July 26th.)
Lt. (temp. Capt.) N. C. Millman, R.F.C., Spec. Res. (Gazetted June 22nd.)
Sec. Lt. W. H. G. Milnes,, R. War. R. and R.F.C. (Gazetted June 22nd.)
Sec. Lt. (temp. Capt.) L. Minoi, R.F.C., Spec. Res. (Gazetted April 22nd.)
Lt. (temp. Capt.) J. Mitchell, R.F.C., Spec. Res. (Gazetted Feb. 18th.)
Sec. Lt. P. J. Moloney, R.F.C., Spec. Res. (Gazetted Jan. 18th.)
Capt. R. N. Montagu-Stuart-Wortley, Yeo. and R.F.C. (Gazetted April 22nd.)
Temp. Sec. Lt. K. B. Montgomery, Gen. List and R.F.C. (Gazetted Feb. 18th.)
Temp. Sec. Lt. Henry Michael Moody, Gen. List and R.F.C. (Gazetted Sept. 16th.)
Temp. Capt. G. B. Moore, Gen. List and R.F.C. (Gazetted May 13th.)
Temp. Sec. Lt. J. M. J. Moore, R.A.F., Gen. List. (Gazetted July 26th.)
Temp. Sec. Lt. J. L. Morgan, R.A.F. (Gazetted July 26th.)
Temp. Sec. Lt. C. G. D. Napier, Gen. List and R.F.C. (Gazetted June 22nd.)
Capt. Ian Patrick Robert Napier, Arg. and Suthd. Highrs. and R.A.F. (Gazetted Sept. 16th.)
Temp. Capt. Kenneth Russel Napier, R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. C. F. Nathan, Gen. List and R.F.C. (Gazetted Jan. 18th.)
Temp. Capt. F. Nuttall, R.F.C. (Gazetted March 26th.)
Temp. Sec. Lt. S. A. Oades, Gen. List and R.F.C. (Gazetted April 22nd.)
Lt. (temp. Capt.) D. H. Oliver, Gen. List and R.F.C. (Gazetted June 22nd.)
Capt. W. H. L. O'Neill, Sikhs, I.A., and R.F.C. (Gazetted Jan. 18th.)
Capt. John Overton Cone Orton, 2nd Bn., Norf. R., attd. R.F.C. (Mesopotamia.) (Gazetted Dec. 2nd.)
Lt. (temp. Capt.) T. Owen, S. Staff. R., attd. R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. J. P. Owen-Holdsworth, Gen. List and R.F.C. (Gazetted Sept. 16th.)
Lt. E. T. Owles, R. Ir. Fus., Spec. Res. and R.F.C. (Gazetted Jan. 18th.)
Sec. Lt. (actg. Lt.) Frank Bacon Palmer, R.A.F. (Gazetted Nov. 8th.)
Temp. Capt. W. H. Park, R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. L. A. Payne, Gen. List and R.A.F. (Gazetted July 26th.)
Sec. Lt. Kenneth Willie Payne, R.A.F., Spec. Res. (Gazetted Sept. 16th.)
Capt. L. G. S. Payne, Suff. R. and R.F.C. (Gazetted Feb. 18th.)
Temp. Sec. Lt. Ernest Frederic Peacock, Gen. List, R.A.F. (Gazetted Sept. 16th.)
Temp. Lt. (temp. Capt.) A. H. Peck, Gen. List and R.F.C. (Gazetted Jan. 18th.)
Temp. Sec. Lt. H. B. Pett, R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. M. H. Picot, R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. G. Pilditch, Gen. List and R.F.C. (Gazetted June 22nd.)
Sec. Lt. (temp. Capt.) E. R. H. Pollak, R.F.A. and R.F.C. (Gazetted April 22nd.)
Capt. I. P. H. Preston, Gen. List and R.F.C. (Gazetted April 11th.)
Lt. (temp. Capt.) T. L. Purdom, K.O.S.B. and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. E. Pybus, Gen. List and R.F.C. (Gazetted May 13th.)
Temp. Sec. Lt. F. G. Quigley, Gen. List and R.F.C. (Gazetted Feb. 18th.)
Lt. S. L. Quine, Ches. R., Spec. Res. and R.F.C. (Gazetted Jan. 18th.)
Temp. Sec. Lt. J. J. Quinn, R.A.F. (Gazetted July 26th.)
Temp. Sec. Lt. H. B. Redler, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. J. H. Reeves, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. H. B. Richardson, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. J. T. Richardson, Durh. L.I. and R.F.C. (Gazetted June 22nd.)
Lt. H. A. Rigby, R.F.C., Spec. Res. (Gazetted June 22nd.)
Temp. Sec. Lt. George Raby Riley, R.A.F. (Gazetted Sept. 16th.)
Lt. (temp. Capt.) V. A. H. Robeson, R.F.C., Spec. Res. (Gazetted
Lt. (temp. Capt.) P. D. Robinson, R.F.C., Spec. Res. (Gazetted March 5th.)
Temp. Sec. Lt. H. N. C. Robinson, Gen. List and R.F.C. (Gazetted May 13th.)
Temp. Lt. C. C. Robson, R.F.C. (Gazetted June 22nd.)
Sec. Lt. (temp. Capt.) W. W. Rogers, R.F.C., Spec. Res. (Gazetted Feb. 4th.)
Capt. H. T. F. Russell, R. Welsh Fus. and R.F.C. (Gazetted Feb. 4th.)
Sec. Lt. Hugh William Lumsden Saunders, M.M., Gen. List, attd. R.A.F. (Gazetted Sept. 26th.)
Temp. Lt. D. A. Savage, Gen. List and R.A.F. (Gazetted July 26th.)
Temp. Sec. Lt. K. G. Sclanders, Gen. List and R.F.C. (Gazetted Jan. 18th.)
Lt. G. H. H. Scuit, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. H. W. Sellars, R.F.C., Spec. Res. (Gazetted June 22nd.)
Temp. Sec. Lt. D. H. Sessions, Gen. List and R.F.C. (Gazetted Jan. 18th.)
Temp. Capt. W. H. N. Shakespeare, R.F.C. (Gazetted Feb. 4th.)
Sec. Lt. L. E. Shaw-Lawrence, E. Kent R. and R.F.C. (Gazetted Feb. 4th.)
Lt. L. H. Short, Durh. L.I., attd. R.A.F. (Gazetted July 26th.)
Temp. Sec. Lt. (temp. Capt.) B. J. Silly, Gen. List and R.F.C. (Gazetted March 5th.)
Temp. Sec. Lt. (temp. Capt.) J. A. Slater, Gen. List and R.F.C. (Gazetted Feb. 4th.)
Sec. Lt. (temp. Capt.) H. A. Smith, Middx. R. and R.F.C. (Gazetted Feb. 18th.)
Temp. Lt. (temp. Capt.) J. B. Solomon, Oxf. and Bucks. L.I. and R.F.C. (Gazetted Jan. 18th.)
Temp. Sec. Lt. J. V. Sorsoleil, Gen. List and R.F.C. (Gazetted April 22nd.)
Sec. Lt. E. H. Stanes, R.A.F. (Gazetted July 26th.)
Lt. (temp. Capt.) Stanley Stanger, R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. W. E. Staton, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. A. H. St. Clair, Arg. and Suthd. Highrs. and R.F.C. (Gazetted April 11th.)
Sec. Lt. T. L. Steele, Gen. List and R.F.C. (Gazetted March 26th.)
Lt. (temp. Maj.) F. W. Stent, R.F.C., Spec. Res. (Gazetted June 22nd.)
Temp. Sec. Lt. W. S. Stephenson, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. D. A. Stewart, Gen. List and R.F.C. (Gazetted April 22nd.)
Lt. E. E. Stock, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. (temp. Capt.) G. H. B. Streatfield, Durh. L.I., Spec. Res. and R.F.C. (Gazetted April 22nd.)
Temp. Sec. Lt. Charles Anthony Sundy, S. Wales Bord., and R.A.F. (Gazetted Sept. 16th.)
Lt. L. J. Sweeney, B.C.R., R.A.F. (Gazetted July 26th.)
Lt. Francis Stanley Symondson, Yeo. and R.A.F. (Gazetted Sept. 16th.)
Temp. Capt. E. R. Tempest, Gen. List and R.F.C. (Gazetted May 13th.)
Temp. Lt. William MacKenzie Thomson, R.A.F. (Gazetted Sept. 16th.)
Temp. Capt. G. E. Thomson, Gen. List and R.F.C. (Gazetted April 22nd.)
Temp. Lt. Samuel Frederick Henry Thompson, Gen. List, R.A.F. (Gazetted Sept. 16th.)
Capt. T. G. Thornton, York R. and R.F.C. (Gazetted April 11th.)
Sec. Lt. (temp. Capt.) John Tod, R.A.F. (Gazetted Sept. 16th.)
Temp. Capt. J. L. Trollope, Gen. List and R.F.C. (Gazetted May 13th.)
Temp. Capt. J. H. Tudhope, Gen. List and R.F.C. (Gazetted March 26th.)
Temp. Capt. T. K. Twist, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Lt. A. J. Tyler, Gen. List and R.F.C. (Gazetted Jan. 18th.)
Temp. Sec. Lt. Walter Alexander Tyrrell, Gen. List, attd. R.A.F. (Gazetted Sept. 16th.)
Sec. Lt. John Howard Umney, Gen. List and R.A.F. (Gazetted Sept. 16th.)
Lt. T. H. Upfill, R.F.A., Spec. Res. and R.F.C. (Gazetted June 22nd.)
Lt. (temp. Capt.) J. L. Vachell, R.F.A., attd. R.F.C. (Gazetted Jan. 18th.)
Lt. Reginald Charles Van Der Ben, Gen. List and R.A.F. (Gazetted Jan. 24th.)
Temp. Sec. Lt. E. R. Varley, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Capt. S. W. Vickers, Gen. List and R.F.C. (Gazetted June 22nd.)
Sec. Lt. A. Wald, R.F.C., Spec. Res. (Gazetted March 5th.)
Sec. Lt. G. G. Walker, N. Lanc. R. and R.F.C. (Gazetted June 22nd.)
Temp. Sec. Lt. Henry Edward Walker, Gen. List and R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. H. J. Walkerdine, Gen. List and R.F.C. (Gazetted May 13th.)
Temp. Sec. Lt. Stanley Harry Wallace, Gen. List and R.A.F. (Gazetted Sept. 16th.)
Temp. Capt. Albert Gregory Waller, Gen. List and R.A.F. (Gazetted Sept. 16th.)
Lt. J. W. Wallwork, R.A.F. (Gazetted July 26th.)
Lt. Hugh Sidney Porter Walmsley, N. Lanc. R. and R.A.F. (Gazetted Sept. 16th.)
Temp. Sec. Lt. W. E. Warden, Gen. List and R.F.C. (Gazetted June 22nd.)
Temp. Capt. E. Waterlow, Gen. List and R.F.C. (Gazetted June 22nd.)
Lt. (temp. Capt.) F. G. C. Weare, E. Kent R. and R.F.C. (Gazetted June 22nd.)

Temp. Sec. Lt. E. I. WELLS, Rif. Brig., attd. R.F.C. (Gazetted June 22nd.)
Lt. W. L. WELLS, Middx. R. and R.F.C. (Gazetted May 13th.)
Lt. F. M. F. WEST, R. Muns. Fus., Spec. Res. and R.A.F. (Gazetted July 26th.)
Temp. Sec. Lt. A. B. WHITESIDE, Gen. List and R.F.C. (Gazetted March 26th.)
Lt. (temp. Capt.) G. T. WILLCOX, High. L.I. and R.F.C. (Gazetted Feb. 18th.)
Lt. (temp. Capt.) FREDERICK WILLIAMS, R.A.F. Spec. Res. (Gazetted Sept. 16th.)
Temp. Sec. Lt. THOMAS FREDERIC WILLIAMS, Gen. List and R.F.C. (Gazetted Sept. 16th.)
Temp. Sec. Lt. THOMAS MELLING WILLIAMS, Gen. List, attd. R.A.F. (Gazetted Sept. 16th.)
Sec. Lt. (temp. Lt.) L. B. WILLIAMS, Gen. List and R.F.C. (Gazetted Jan. 18th.)
Capt. F. E. WILLIAMS, Welsh Regt. and R.F.C. (Gazetted April 11th.)
Lt. (temp. Capt.) PERCY WILSON, R.A.F. (Gazetted Sept. 16th.)
Sec. Lt. A. G. WILSON, W. Yorks. R. and R.A.F. (Gazetted July 26th.)
Lt. (temp. Capt.) G. H. B. WILSON, Gen. List and R.F.C. (Gazetted April 11th.)
Temp. Capt. H. T. O. WINDSOR, Gen. List and R.F.C. (Gazetted March 26th.)
Temp. Sec. Lt. H. WISNEKONITZ, R.F.C. (Gazetted June 22nd.)
Capt. R. N. WOLTON, R.F.A. and R.F.C. (Gazetted March 26th.)
Lt. J. H. G. WOMERSLEY, R.G.A. and R.F.C. (Gazetted Jan. 18th.)
Temp. Sec. Lt. A. J. WRIGHT, Gen. List and R.F.C. (Gazetted March 26th.)

CANADIAN FORCE.

Lt. (temp. Capt.) R. DODDS, Cent. Ont. R. and R.F.C. (Gazetted May 13th.)
Lt. W. J. A. DUNCAN, Rly. Troops, attd. R.A.F. (Gazetted July 26th.)
Lt. A. B. FAIRCLOUGH, Can. M.G. Co. and R.F.C. (Gazetted May 13th.)
Lt. T. I. FINDLEY, Can. F.A., attd. R.A.F. (Gazetted July 26th.)
Lt. J. E. HANNING, Engrs. and R.F.C. (Gazetted June 22nd.)
Lt. HUBERT LEE HOLLAND, Cyc. Co., secd. to R.A.F. (Gazetted Sept. 16th.)
Lt. K. W. JUNOR, Can. M.G. Corps and R.F.C. (Gazetted May 13th.)
Lt. H. R. KINCAID, Infy. and R.F.C. (Gazetted June 22nd.)
Lt. F. R. MCCALL, Infy. and R.F.C. (Gazetted March 5th.)
Lt. CLIFFORD MCEWEN, Infy., secd. to R.A.F. (Gazetted Sept. 16th.)
Lt. EDWARD LAUNCE O'LEARY, Can. Field Arty., attd. R.A.F. (Gazetted Sept. 16th.)
Lt. J. E. PUGH, Can. Loc. Forces and R.F.C. (Gazetted June 22nd.)
Lt. F. H. TAYLOR, Cent. Ont. Regt., attd. R.F.C. (Gazetted June 22nd.)

AUSTRALIAN FORCE.

Lt. A. R. AUSTIN, F.C. (Gazetted March 26th.)
Lt. C. LE B. BROWN, F.C. (Gazetted April 11th.)
Lt. W. A. COATES, F.C. (Gazetted April 11th.)
Lt. H. L. FRASER, F.C. (Gazetted April 11th.)
Lt. J. R. GORDON, F.C., attd. R.F.C. (Gazetted Sept. 16th.)
Lt. L. H. HOLDEN, F.C. (Gazetted Feb. 4th.)
Lt. R. W. HOWARD, F.C. (Gazetted Feb. 4th.)
Lt. F. G. HUXLEY, F.C. (Gazetted Feb. 4th.)
Capt. ERNEST JAMES JONES, D.F.C., F.C.
Lt. O. M. LEE, F.C. (Gazetted April 11th.)
Lt. (temp. Capt.) G. F. MALLEY, F.C., attd. R.F.C. (Gazetted June 22nd.)
Lt. R. W. MCKENZIE, F.C., attd. R.F.C. (Gazetted May 13th.)
Capt. R. C. PHILLIPS, F.C. (Gazetted Feb. 4th.)
Lt. A. E. ROBERTSON, F.C., attd. R.F.C. (Gazetted June 22nd.)
Lt. F. J. SCOTT, F.C., attd. R.F.C. (Gazetted June 22nd.)
Lt. L. W. SUTHERLAND, F.C. (Gazetted Feb. 18th.)
Lt. H. TAYLOR, F.C. (Gazetted Feb. 4th.)
Lt. (temp. Capt.) G. C. WILSON, F.C. (Gazetted Feb. 4th.)
Capt. and Flt. Comdr. S. I. WINTER-IRVING, F.C. (Gazetted Jan. 18th.)

ALBERT MEDAL.

The King has awarded the Albert Medal to Serjt. (Flt. Serjt.) THOMAS NICHOLL, R.F.C., in recognition of an act of gallantry which he performed in France on Feb. 26th, 1918.

Two bombs exploded under an aeroplane, burning the machine entirely and causing considerable loss of life. Owing to the explosion a phosphorus bomb attached to another machine standing near to it was ignited. Flt. Serjt. Nicholl with great presence of mind and regardless of the danger to himself, unhooked the burning bomb and carried it to a place of safety. By his prompt action Flt. Serjt. Nicholl, whose hands were badly burned, saved the second machine and prevented further serious damage and loss of life which would probably have been caused. (Gazetted June 3rd.)

A BAR TO DISTINGUISHED CONDUCT MEDAL.

6391 Serjt. F. JOHNSON, D.C.M., R.A.F. (Kettering).

For conspicuous gallantry and devotion to duty in encounters with enemy aeroplanes, with the following results:—Attacked and crashed a Pfalz scout, drove down an Albatros out of control. On previous occasions he had destroyed four enemy aeroplanes and driven three down out of control. D.C.M. gazetted April 26th, 1917. (Gazetted Sept. 3rd.)

THE DISTINGUISHED CONDUCT MEDAL.

16427 Cpl. W. N. Baldwin, R.F.C. (Grimsargh). (Gazetted Sept. 3rd.)
10537 1st Cl. Air Mech. M. H. Church, R.F.C. (Leyton, E.). (Gazetted Feb. 25th.)



AN AERIAL TILTING GROUND.—Bourlon Wood, over which many aerial duels have taken place. The late Major McCudden was the victor in many fights over this area.

67051 Cpl. (actg. Serjt.) E. A. Deighton, R.A.F. (Cheltenham). (Gazetted Oct. 1st.)
21479 1st Cl. Air Mech. S. W. Egan, R.F.C. (Catford, S.E.). Gazetted May 1st.)
1753 Flt. Serjt. G. A. F. Gibson, R.F.C. (Queen's Park, London, W.). (Gazetted March 6th.)
4905 1st Cl. Air Mech. S. Hall, R.F.C. (Newton Heath, Manchester). (Gazetted March 6th.)
2015 Serjt. F. Hopper, R.F.C. (Burnley). (Gazetted March 28th.)
7750 1st Cl. Air Mech. A. Leyland, R.F.C. (Burnley). (Gazetted March 28th.)
20624 Cpl. M. Mather, R.F.C. (Croy Station). (Admiralty Gazette of May 1st.)
2151 Cpl. A. H. Mathieson, R.F.C. (Kimberley, S.A.). (Gazetted Feb. 19th.)
47016 Cpl. P. A. Ovenden, R.A.F. (Groombridge). (Gazetted Sept. 3rd.)
709 Serjt. T. F. Stephenson, R.F.C. (Peterboro'). (Gazetted March 6th.)
1504 Serjt. P. Spargo, R.A.F. (Liverpool). (Gazetted Sept. 3rd.)

A BAR TO MILITARY MEDAL.

7773 1st Air Mech. H. R. Deane, F.R.C. (London, S.W.). (Gazetted Feb. 5th.)

THE MILITARY MEDAL.

P/S4/230974 Serjt. A. S. Allan, R.A.F. (Perth). (Gazetted July 16th.)
63289 Air Mech., 2nd Cl., W. I. Baker, R.A.F. (Finedon). (Gazetted Nov. 8th.)
7467 1st Cl. Air Mech. (actg. Cpl.) E. R. Bidewell, R.A.F. (London, N.). (Gazetted July 16th.)
64937 2nd Cl. Air Mech. H. Blair, R.F.C. (West Kilbride). (Gazetted April 3rd.)
26216 1st Cl. Air Mech., R. N. Booth, R.A.F. (Dewsbury). (Gazetted June 12th.)
25272 1st Cl. Air Mech. B. O. Boundy, R.A.F. (Taunton). (Gazetted June 12th.)
4248 Flt. Serjt. C. F. Colin, R.F.C. (Chichester). (Gazetted June 12th.)
5720 1st Cl. Air Mech. H. Doran, R.F.C. (Belfast). (Gazetted Jan. 14th.)
44243 2nd Cl. Air Mech. F. F. Dawson, R.F.C. (Metheringham). (Gazetted Feb. 5th.)
49424 2nd Cl. Air Mech. H. H. Edmunds, R.F.C. (Port Talbot). (Gazetted March 13th.)
87595 1st Cl. Air Mech. H. Else, R.F.C. (Mansfield). (Gazetted March 13th.)
9521 Air Mech., 1st Cl., G. Emmitt, R.A.F. (Spalding, Lincs). (Gazetted Nov. 8th.)
7966 1st Cl. Air Mech. W. J. Farr, R.A.F. (London, N.). (Gazetted June 12th.)
99481 Air Mech., 3rd Cl., H. Flather, R.A.F. (Mexborough). (Gazetted Nov. 8th.)
4248 Flt. Serjt. C. F. Ford, R.F.C. (Chichester). (Gazetted July 16th.)
98930 2nd Cl. Air Mech. J. G. Glass, R.A.F. (India) (Gazetted June 12th.)
40277 1st Cl. Air Mech. W. Hargreaves, R.F.C. (Love Clough) (Gazetted March 13th.)
12737 Serjt. H. G. Howard, R.A.F. (N. Cerney). (Gazetted Sept. 14th.)
29263 Serjt.-Mech. W. E. Layzell, R.A.F. (Romford). (Gazetted Nov. 8th.)
22629 2nd Cl. Air Mech. G. O. Leeding, R.F.C. (Rushden). (Gazetted March 13th.)
17116 1st Cl. Air Mech. T. Leyland, R.F.C. (Blackburn). (Gazetted March 13th.)
14115 1st Cl. Air Mech. W. C. Lindsay, R.F.C. (South Shields). (Gazetted March 19th.)
18387 Cpl.-Mech. F. Ludlow, R.A.F. (Haggerston, N.). (Gazetted Nov. 8th.)
8680 Cpl.-Mech. E. Mabbutt, R.A.F. (Kingston-on-Thames). (Gazetted Nov. 8th.)
3697 Serjt. (Flt. Serjt.) N. Moore, R.F.C. (Keighley). (Gazetted Feb. 23rd.)
58471 2nd Cl. Air Mech. W. E. Millar, R.A.F. (Peckham). (Gazetted July 16th.)
5715 1st Cl. Air Mech. F. C. Mills, R.F.C. (Peckham) (Gazetted March 19th.)
201149 Actg. Chief Master Mech. Laurence Grant Miles (Harlesden). (Gazettzd Jan. 1st.)
114784 Serjt. J. Nichol, R.A.F. (Durham). (Gazetted Nov. 8th.)
27416 Serjt.-Mech. T. Owens, R.A.F. (Salisbury, Wilts). (Gazetted Nov. 8th.)
10740 Pte (1st) K. M. Paterson, R.A.F. (Clodden Moore, Inverness). (Gozetted Nov 8th.)
25362 Cpl. S. H. Platel, R.F.C. (Brixton Hill) (Gazetted Feb. 5th.)
10607 2nd Cl. Air Mech. J. W. Rookledge, R.F.C. (Cape Town, South Africa). (Gazetted Jan. 14th.)
402637 2nd Cl. Air Mech. B. C. Rhodes, R.A.F., attd. R.G.A. (Brixton). (Gazetted Sept. 14th.)
20243 Serjt.-Mech. G. T. Ridler, R.A.F. (Dursley). (Gazetted Nov. 8th.)
115269 1st Cl. Air Mech. J. Ryder, R.F.C. (Wishaw). (Gazetted March 19th.)
12375 Cpl. A. E. Sackett, R.A.F. (Bedford). (Gazetted Nov. 8th.)
9891 Serjt. F. W. J. Sibley, R.A.F. (Barking). (Gazetted Nov. 8th.)
30869 Serjt. C. R. Smith, R.A.F. (Leeds). (Gazetted Oct. 7th.)
23611 1st Cl. Air Mech. F. C. Smyth, R.F.C. (Sutton). (Gazetted March 18th.)
24070 Air Mech., 3rd Cl., J. F. Sparks, R.A.F. (Sidmouth). (Gazetted Nov 8th.)
10052 1st Cl. Pte. A. T. C. Stagg, R.A.F. (Romsey). (Gazetted May 31st.)
134856 Cpl. (actg. Serjt.) S. A. Taylor, R.A.F. (Dundee). (Gazetted Nov. 8th.)
17991 Air Mech., 1st Cl., A. Teakle, R.A.F. (Westminster, S.W.). (Gazetted Nov. 8th.)
55961 2nd Cl. Air Mech. H. C. Thomas, R.A.F. (London). (Gazetted Sept. 14th.)
8609 1st Cl. Air Mech. (actg. Cpl.) R. B. Watson, R.A.F. (North Hants). (Gazetted July 16th.)
12660 1st Cl. Air Mech. A. Williams, R.A.F. (Glamorgan). (Gazetted July 16th.)
104631 Cpl. Mech. W. Windebank, R.A.F. (Guildford). (Gazetted Nov. 8th.)
33801 Air Mech., 1st C., A. J. Winter, R.A.F. (Peterborough). (Gazetted Nov. 8th.)
134709 Air Mech., 3rd Cl., D. A. Wood, R.A.F. (Ipswich). (Gazetted Nov. 8th.)
43691 2nd Cl. Air Mech. W. G. Worsdall, R.F.C. (Derby) (Gazetted March 19th.)

AUSTRALIAN IMPERIAL FORCE

A./120 Serjt. B. F. Jones, F.C. (Gazetted March 13th.)
A./20 Serjt. R. Lonsdale, F.C. (Gazetted March 13th.)
A./1750 1st Cl. Air Mech. H. S. Raphael, F.C. (Gazetted March 13th.)
A./319 2nd Cl. Air Mech. W. E. Ries, F.C. (Gazetted June 27th.)

THE MERITORIOUS SERVICE MEDAL.

Gazetted April 11th.

403988 (frmly. 51031) 1st Cl. Air Mech. (actg. Cpl.) H. Anthony, R.F.C. (Lower Edmonton, N.)
3206 Serjt.-Maj. W. A. Bradwell, R.F.C. (Birdwell, nr. Barnsley).
1669 Flt. Serjt. C. W. Etheridge, R.F.C. (Bishop's Waltham, Hants);
403891 (frmly. 50948) Serjt. T. Evans, R.F.C. (Merthyr).
3090 Flt. Serjt. C. C. Gissing, R.F.C. (Northampton); 1221 Flt. Serjt. W. J. F. Golding, R.F.C. (Kensington).
9029 Flt. Serjt. F. S. Hall, R.F.C. (Sittingbourne); 3552 Flt. Serjt. J. S. Hunt, R.F.C. (Blandford, Dorset); 4256 Serjt.-Maj. T. J. Huxter, R.F.C. (Barry Dock, Glam.).
11895 Serjt. A. L. Payne, R.F.C. (Blackheath, S.E.); 404005 (frmly. 51204) Cpl. C. H. Phillips, R.F.C. (Cardiff); 3030 Serjt. F. W. Pound, R.F.C. (Liverpool).
403905 (frmly. 65382) 1st Cl. Air Mech. J. Rankin, R.F.C. (Kilmarnock).
1527 Flt. Serjt. F. O. Walker, R.F.C. (Chudleigh, Devon); 7643 Cpl. F. E. Wilson, R.F.C. (Great Yarmouth).

AUSTRALIAN IMPERIAL FORCE

A./108 Serjt. W. A. Beard, F.C.
A./455 Actg. Sergt. O. H. Gulson, F.C.
A./124 Actg. Flt. Serjt. J. H. Rogers, F.C.
A./320 Flt. Serjt. H. L. Sleeman, F.C.
A./104 Flt. Serjt. T. Watkins, F.C.

MENTIONS IN DISPATCHES.

Jan. 12th.

The following names are among those mentioned in a dispatch from Gen. Sir Archibald Murray, K.C.B., late Commander-in-Chief, Egyptian Expeditionary Force, dated June 28th, 1917:—

Staff.

Capt. (temp. Lt.-Col., R.F.C.) C. Fraser, N. Staff. R.

Royal Flying Corps.

Temp. Capt. C. E. I. C. Anne (drowned)
Temp. Capt. F. D. Berridge, Gen. List; Maj. R. A. Bradley, N. Staff. R.; Temp. Capt. W. T. Blake, Gen. List; Maj. (temp. Lt.-Col.) A. G. Board, S. Wales Bord.; Lt. J. Brown, Spec. Res.
Capt. A. G. H. Carr, York and Lan. R.
Temp. Capt. J. A. D. Dempsey, Gen. List; Capt. J. E. Dixon-Spain, Hamps. R.
Sec. Lt. G. C. Gardener, R. Ir. R.; Capt. (temp. Maj.) P. R. Grace, Spec. Res.
Lt. R. C. Jenkins, M.C., D. Corn. L.I.
Capt. (temp. Maj.) A. K. H. O'Brien, D. Gds., Spec. Res. (Capt., ret pay); Maj. E. H. M. O'Farrell, R. Ir. Fus.
Capt. (temp. Maj.) W. H. Primrose, Arg. and Suthd. Highrs.
Lt. (temp. Capt.) W. E. L. Seward, Spec. Res.
Lt. H. H. Thomas, R.F.A.
246 Flt. Serjt. (temp. Serjt.-Maj.) C. W. Baker, 2192 Serjt. (actg. Flt. Serjt.) W. J. Beer, 1726 Flt. Serjt. D. P. Calder, 2084 Flt. Serjt. W. H. Cross, 1267 Serjt. R. J. H. Holland, 4256 Serjt. (temp. Serjt.-Maj.) T. J. Huxter, 12128 Flt. Serjt. J. W. Large, 46145 Cpl. W. J. Osborn, 49457 Cpl. R. C. Phelps, 5775 Serjt. (temp. Serjt.-Maj.) H. W. Prickett, 26056 1st Cl. Air Mech. (actg. Cpl.) A. J. Shaw, 204 Flt. Serjt. P. J. Waghorn.

OVERSEA CONTINGENTS.

Australian Imperial Force.—Flying Corps.

Capt. A. W. L. Ellis, Capt. A. M. Jones, M.C., Lt. V. P. Turner, Capt. (temp. Maj.) R. Williams, D.S.O.
A/332 Flt. Serjt. H. Johnston, A/105 Flt. Serjt. R. S. Robertson.

Jan. 16th.

The names of the following officers, non-commissioned officers and men are among those which have been brought to the notice of the Secretary of State for War by General Sir Edmund Allenby, G.C.M.G., K.C.B., Commanding-in-Chief, Egyptian Expeditionary Force, for distinguished service in connection with military operations under his command:—

Staff.

Capt. G. C. Anne, L.I. and R.F.C.
Maj. (temp. Lt.-Col.) P. R. C. Groves, D.S.O., K.O. Shrops L.I. and R.F.C.
Temp. Sec. Lt. (temp. Capt.) T. C. Macaulay, M.C., R.A. and R.F.C.

Royal Flying Corps.

Capt. (temp. Maj.) C. W. Anstey, S. Wales Bord.
Lt. F. A. Bates, Yeo.; Lt. H. F. Blake, Spec. Res.; Capt. (temp Lt.-Col. in Army) H. Burchall; Capt. (temp. Lt.-Col.) A. E. Borton, D.S.O., R. Highrs.; Lt. H. J. Buchanan-Woolaston, Yeo.
Maj. (temp. Lt.-Col.) A. D. Carden, R.E.
Sec. Lt. (temp. Lt. in Army) J. H. Muller, Middx. R.; Capt. L. L. Maclean, Gurkha Rif., I.A.; Capt. (temp. Maj. in Army) J. R. McCrindle, M.C., Gord. Highrs.
Temp. Sec. Lt. (temp. Maj.) G. H. Padley, Gen. List; Sec. Lt. R. C. Steele, D.S.O., Spec. Res.
Sec. Lt. (temp. Capt. in Army) the Hon. P. M. Thesiger, Yeo.
5865 Serjt. E. Clay; 3090 Serjt. (actg. Flt. Serjt.) C. C. Gissing; 3931 Serjt. (actg. Flt. Serjt.) E. Hewitt; 1363 Serjt. E. G. Hone; 8520 1st Cl. Air Mech. D. W. W. Jakes; 63 Serjt.-Maj. A. E. Lewis; 49722 1st Cl. Air Mech. W. B. Richardson; 3345 Cpl. L. L. J. Thompson.

Australian Imperial Force.—Flying Corps.

Lt. F. W. F. Lukis.
Lt. D. T. W. Manwell.
Lt. C. de C. Matulich.
Maj. R. Williams, D.S.O.
Lt. S. I. Winter-Irving.
A/274 1st Cl. Air Mech. A. Balfour; A/450 2nd Cl. Air Mech. A. R. Betteridge; A/1393 2nd Cl. Air Mech. W. J. Hawkes; A/166 Cpl. A. B. Payne; A/123 1st Cl. Air Mech. W. E. Peverill; A/257 2nd Cl. Air Mech. H. Shepherd; A/104 Flt. Serjt. T. Watkins.

FEB. 12th.

The following officers have been brought to the notice of the Secretary of State for War, by the Army Council, for very valuable services rendered in connection with the war up to Dec. 31st, 1917 :—

Maj. and Bt Lt.-Col. (temp. Brig.-Gen.) D. Le G. Pitcher, Ind. Army.
Maj. (temp. Lt.-Col.) J. G Weir, R.F.A.
Capt. (temp. Col.) C. H. Whittington, R.F.C., Spec. Res.

OVERSEA MILITARY FORCES OF CANADA.

Lt. (temp. Lt.-Col.) A. C. Maund, Manitoba R. and R.F.C.

FEB. 27th.

The following name is added to the list of Officers mentioned for distinguished and gallant services and devotion to duty in the dispatch from the Fiel-Marshal Commanding-in-Chief the British Armies in France, dated Nov. 7th, 1917 :—

ROYAL FLYING CORPS.

Temp. Lt. R. L. Graham (killed).

MARCH 7th.

The following are among those mentioned in a dispatch dated May 30th, 1917, which has been received by the Secretary of State for War from Maj.-Gen. A. R. Hoskins, C.M.G., D.S.O., late Commanding-in-Chief, East Africa Force :—

ROYAL NAVAL AIR SERVICE.

C.P.O., 2nd Gr., E. Mathias, O.N M6502; Air Mech., 2nd Gr., J. H. Seager, O.N. F7818.

ROYAL FLYING CORPS.

Sec. Lt. M. C. Mossop, Spec. Res.; Temp. Lt. F. L. Osman; Z212 Serjt. E. A. Andrews; Z252 Cpl. (actg Serjt.) H Atkins; Z194 Serjt. (actg. Flt. Serjt.) A. R. Geater; Z211 Cpl. P. S. V. Parsons; Z180 Serjt. T. Sim; Z144 Serjt. (Flt. Serjt.) A. L. Solomons

The following are among those mentioned in a dispatch dated Oct. 11th, 1917, which has been received from the Secretary of State for War from Lt.-Gen. J. L. Van Deventer, K.C.B., Commanding-in-Chief, East Africa Force :—

ROYAL FLYING CORPS.

Temp. Capt. W. W. Carey-Thomas, M.C.; Temp. Lt. A. E. Kennedy; Sec. Lt. R. B. Lovemore, R. Fus.; Temp. Sec. Lt. A. E. Reynolds, Gen. List; Sec. Lt. F. C. Smith, Spec. Res.; Temp. Maj. G. P. Wallace, D.S.O.; Temp. Lt. L. Walmsley, M.C., E. Yorks. R.

Z323 Cpl. A. W. Barnes; Z123 1st Cl. Air Mech. (actg. Cpl.) H. H. Blake; Z134 1st Cl. Air Mech. (actg. Cpl.) W. H. Husin, Z261 1st Cl. Air Mech. (actg. Cpl.) L. J. D. Paré; Z294 Serjt. E. C. Smith; Z184 1st Cl. Air Mech. (actg. Cpl.) C. Walker.

MARCH 12th.

The following are among those mentioned for distinguished and gallant service in a dispatch which the Secretary of State for War has received addressed to the Chief of the General Staff, India, by Lt.-Gen. Sir Stanley Maude, K.C.B., Commanding-in-Chief, Mesopotamia Expeditionary Force :—

STAFF AND HEADQUARTERS.

Lt. Col. R. F. C. Gordon, C.I.E., Ind. Army.

ROYAL FLYING CORPS.

Lt. (temp. Capt.) L. J. Bayly, R.A. ; Lt. (temp. Capt.) V. Buxton (Capt., Leic. R.); Capt. (temp.-Maj.) de Havilland, D.S.O., Spec. Res ; Lt. (temp. Capt.) P. L. Hunting, Northd. Fus. (T.F.); Temp. Capt. L. M. Lilley; Temp. Lt. R. K. Morris, Gen. List; Capt W. H. L. O'Neill, Sikhs, Ind. Army; Sec. Lt. L. S. M. Page, E. Kent Yeo.; Lt A. E. L. Skinner, Norf. Yeo.; Bt. Maj. (temp. Lt.-Col.) J. E Tennant, M.C., S. Gds.; Temp. Sec. Lt. A. E. Young.

36678 2nd Cl. Air Mech. J. Cagliari; 3834 Sergt F. W. Curtis; 5551 1st Cl. Air Mech. F. Kiel; 35507 Cpl. F. E. Smith.

MARCH 13th.

The names of the following have been brought to the notice of the Secretary of State for War for valuable services rendered in connection with the war, and when applicable an entry will be made in the records of service of officers and other ranks :—

Capt. (temp. Maj.) G. G. Adeley, R. Ir. Rif. and R.F.C.; Capt. L. P. Aizlewood, M.C., Yorks. and Lanc. R., T.F. and R.F.C.; Temp. Lt. W. R. P. Allen, Gen. List and R.F.C.; Temp Lt. C. H. T. Alston, Gen. List and R.F.C.; Capt. A. J. G. Anderson, Lond R. and R.F.C.; Lt. (temp. Capt.) H. F. Anns, Lond. R. and R.F.C.; Temp Lt. J. A. Atkinson, Gen. List and R.F.C.; Sec. Lt. (temp. Capt.) L. Auker, R.F.C.; Qrmr. and Hon. Lt. (temp. Capt.) W. F. Alywin, R.F.C.

Temp. Capt. F. J. Baker, R.F.C.; Lt. (temp. Maj.) R. Balcombe-Brown, M.C., R.F.A., Spec. Res. and R.F.C.; Temp. Capt. J. H. Banks, R.F.C.; Capt. H. C. Barber, Gen. List and R.F.C., Spec. Res.; Temp. Lt. A. W. Barnett, R.F.C.; Lt. (temp. Capt.) C. H Bell, R.F.C., Spec. Res.; Sec. Lt.. (temp. Lt.) H. G. Bell, R.F.C., Spec Res.; Lt. T. J. Bell, Gen. List and R.F.C.; Sec. Lt. (temp. Capt.) A. D. Bell-Irving, M.C., Gord. Highrs. and R.F.C.; Capt. (temp. Lt.-Col.) R. Bell-Irving, Can. Local Forces and R.F.C.; Temp. Capt. H. M. Bentley, Gen. List and R.F.C.; Sec. Lt. (temp. Lt.) R. W. B. Billinghurst, R.F.C., Spec. List; Temp. Sec. Lt. W. Blackwell, Gen. List and R.F.C.; Maj. (temp. Col.) I. M. Bonham-Carter. Northd. Fus. and R.F.C.; Lt. (temp. Capt.) J. J. Botterill, R.F.C., Spec. Res.; Capt. (temp. Lt.-Col.) J. B. Bowen, Pembroke Yeo. and R.F.C., Lt. J. C. Briggs, Leic. R. and R.F.C.; Sec. Lt. (temp. Lt.) F. D. Brooker, R.F.C., Spec. Res.; Sec. Lt. G W. A Brown, R.F.C., Spec. Res.; Temp. Capt. W. J. C. Brown, R.F.C.; Sec. Lt. (temp. Capt.) H. A. Browne, R.F.C., Spec Res.; Lt. (temp. Capt.) F. C. Buck, R.F.C., Spec. Res.; Temp. Maj. N. F. D. Buckeridge, R.F.C.; Sec. Lt. (temp. Lt.) H. C. S. Bullock, R.F.C.; Bt. Lt.-Col. (temp. Col.) W. E. S. Burch, R.F.C. (Res of Officers); Temp. Capt. J. W. Burt, R.F.C.; Lt. (temp. Capt.) H. J. Butler, R.F.C., Spec. Res.; Maj. C. K. Butler-Stoney, R.F.C., T.F. Res.; Capt. (temp. Maj.) C. A. J. Butler, Sco. Horse, Yeo. and R.F.C.

Temp Capt. P. R. Callard, Gen. List and R.F.C.; Capt. (temp. Maj.) C. D. M. Campbell, R.F.C., Spec. Res.; Temp Capt. R. G. L. Candy, Gen. List and R.F.C.; Temp. Capt. P. P Capelli, Gen. List and R.F.C.; Lt. (temp. Maj.) R. H. Carr, R.F.C., Spec. Res.; Lt. (temp. Capt.) W. S. Caster, M.C., Hunts. Cyc. Bn. and R.F.C.; Maj. J. A. Chamier, D.S.O., Punjabis and R.F.C.; Lt. (temp. Maj.) H. E. Chaney, Lanc. Fus. and R.F.C.; Bt. Lt.-Col. (temp. Brig.-Gen.) L. E. O. Charlton, C.M.G., D.S.O., Lanc. Fus. and R.F.C.; Capt. (temp. Maj.) A. C. Clarke, Welsh R. and R.F.C.; Sec. Lt. J. D. Coales, R.F.C., Spec. Res.; Maj. (temp Lt.-Col.) D. G. Conner, R.A. and R.F.C.; Capt. (temp. Maj.) F. S. Creswell, R.F.C., Spec. Res.; Temp. Capt. H. L. Crichton, Gen. List and R.F.C.; Lt. (temp. Capt.) W. N. Cronshaw, E. Lanc. R. and R.F.C.; Temp. Sec. Lt. (temp. Capt.) W. M. Cumming, R.F.C.

Capt. M. O. Darby, R.F.C., Spec. Res.; Lt. (temp. Capt.) S. Davenport, R.F.C., Spec. Res.; Sec. Lt. (temp. Capt.) A. C. Day, R.F.C., Spec. Res.; Capt. (temp. Maj.) C. Defries, R.F.C., Spec. Res.; Capt. H. A. P. Disney, Camb. R. and R.F.C.; Sec. Lt. (temp. Capt.) C. H. Drabble, R.F.C., Spec. Res.; Lt. J. M. Drysdale, R.F.C., Spec. Res.; Temp. Capt. Lord G. H. L. Dundas, R.F.C. (Res. of Officers).

Capt. (temp. Maj.) H. S. Ebben, R.F.C., Spec. Res.; Temp. Capt. Hon. W. C. W. Egerton, R.F.C.; Capt. (temp. Maj.) A. Ellis, R.E. and R.F.C.; Temp. Sec. Lt. D. C. Ellis, Gen. List and R.F.C.; Temp. Capt. W. H. Ewen, Spec. List and R.F.C.

Temp. Capt. C. R. Fleming-Williams, R.F.C., Spec. Res.; Qrmr. and Hon. Capt. (temp. Lt.-Col.) A. Fletcher, M.C., R.F.C.; Lt. A. R. Forson, Sco. Fus. and R.F.C.

Lt. R. C. Gallop, Sco. Rif. and R.F.C.; Capt. (temp. Maj.) H. G. Gold, R.F.C., Spec. Res.; Temp. Lt. C. P. H. Gunyon, Gen. List and R.F.C.

Sec. Lt. (temp. Capt.) E. S. Halford, R.F.C., Spec. Res.; Lt. (temp. Maj.) G. D. Hannay, R.F.C., Spec. Res ; Temp. Capt. L. G. Harber, R.F.C.; Sec. Lt. (temp. Lt.) A. C. Hartley, R.F.C., Spec. Res.; Lt. (temp. Maj.) A. P. Hartley, Ches. R (T.F.) and R.F.C.; Capt. (temp. Lt.-Col.) S. A. Hebden, R.F.C., Spec. Res.; Sec. Lt. (temp. Capt.) J. N. D. Heenan, R.F.C., Spec. Res.; Capt. and Bt. Maj. (temp. Brig.-Gen.) P. L. W. Herbert, Notts and Derby R. and R.F.C.; Lt. (temp. Capt.) R. G. Heyn, R.F.C., Spec. Res.; Lt. (temp. Maj.) C. A. A. Hiatt, M.C., Norf. R. and R.F.C.; Temp. Capt. A. R. Howard, R.F.C.; Temp. Maj. E. J. Howard, R.F.C.; Sec. Lt. (temp. Capt.) G. F. Hughes, R.F.C., Spec. Res.; Capt. (temp. Maj.) G. E. W. Humphrey, R.F.C., Spec. Res.; Temp. Sec. Lt. W. A. Huntley, R.F.C.

Temp. Lt. M. O. Illingworth, R.F.C.

Capt. (temp. Maj.) C. Jarrott, R.F.C., Spec. Res.; Bt. Maj. (temp. Brig.-Gen.) F. C. Jenkins, R.F.C., Spec. Res., Temp. Lt. J. W. Jennings, R.F.C.; Lt. (temp. Capt.) B. M. Jones, R.E. (T.F.) and R.F.C

Lt. W. J. King, N. Staffs. R. (temp. Capt.), R.F.C

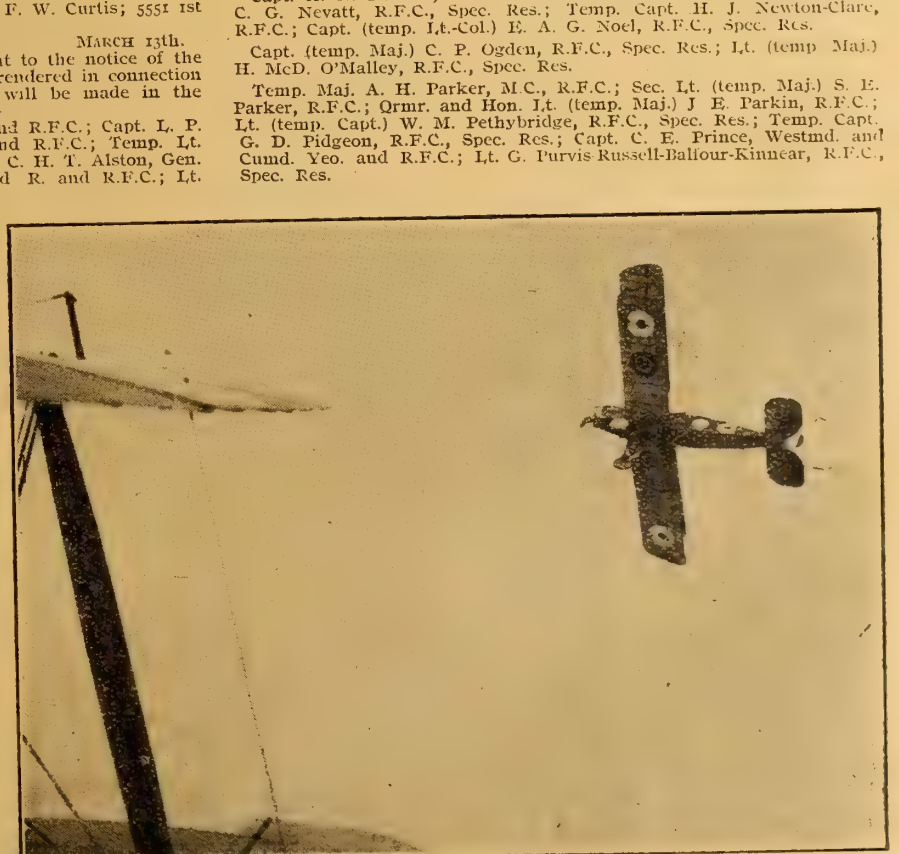
Sec. Lt. (temp. Capt.) A. B. D. Lang, R.F.C., Spec. Res.; Temp. Lt.-Col. W. H. Lang, R.F.C.; Sec. Lt. (temp. Capt.) O. W. Latimer, R.F.C.; Capt. R. D. Law, W. Yorks R. (T.F.) and R.F.C.; Sec. Lt. V. A. B. Learoyd, R.F.C., Spec. Res.; Capt. (temp. Lt.-Col.) C. F. Lee, W Som. Yeo. and R.F.C.; Temp. Capt. H. E. A. Lindsay, R.F.C.; Maj. (temp. Brig.-Gen.) G. Livingston, C.M.G., Lond. R. and R.F.C.; Lt. (temp. Capt.) G. L. Lumsden, Can. Local Forces and R.F.C.; Qrmr. and Hon. Capt. (temp. Capt.) T. Lyons, R.F.C

Temp. Maj. A. E. G. MacCallum, R.F.C.; Temp. Maj. A. H. S. MacCallum, R.F.C.; Capt. (temp. Maj.) B. C. McEwen, R.F.C., Spec. Res.; Capt. (temp. Lt.-Col.) A. C. H Maclean, R. Scots and R.F.C.; Capt. (temp. Maj.) G. L. Main, R.F.C., Spec. Res.; Temp. Capt. H. Marsh, R.F.C.; Capt. (temp. Lt.-Col) R. B. Martyn, M.C., Wilts R and R.F.C.; Lt. (temp. Capt.) H. K. Maxwell, R.F.C., Spec. Res.; Temp. Lt. W. D. Miller, R.F.C.; Sec. Lt. (temp. Maj.) R. J. Mounsey, Hamps. R. and R.F.C.; Sec. Lt. (temp. Lt.) F. Murphy, R.F.C., Spec. Res.

Capt. A. A. Nathan, Herts Yeo and R.F.C.; Sec. Lt. (temp. Capt.) C. G. Nevatt, R.F.C., Spec. Res.; Temp. Capt. H. J. Newton-Clare, R.F.C.; Capt. (temp. Lt.-Col.) E. A. G. Noel, R.F.C., Spec. Res.

Capt. (temp. Maj.) C. P. Ogden, R.F.C., Spec. Res.; Lt. (temp Maj.) H. McD. O'Malley, R.F.C., Spec. Res.

Temp. Maj. A. H. Parker, M.C., R.F.C.; Sec. Lt. (temp. Maj.) S. E. Parker, R.F.C.; Qrmr. and Hon. Lt. (temp. Maj.) J E. Parkin, R.F.C.; Lt. (temp. Capt.) W. M. Pethybridge, R.F.C., Spec. Res.; Temp. Capt. G. D. Pidgeon, R.F.C., Spec. Res.; Capt. C. E. Prince, Westmd. and Cumd. Yeo. and R.F.C.; Lt. G. Purvis-Russell-Balfour-Kinnear, R.F.C., Spec. Res.



A PRETTY PICTURE.—A Bristol Fighter manœuvring.

Capt. (temp. Maj.) G. J. N. Read, Staffs. R. and R.F.C.; Capt. (temp. Maj.) V. O. Res, Lond. R. and R.F.C.; Sec. Lt. (temp. Lt.) J. S. Reid, R.F.C., Spec. Res.; Sec. Lt. (temp. Capt.) E. E. Robb, R.F.C., Spec. Res.; Temp. Capt. J. Romanes, R.F.C.; Sec. Lt. (temp. Maj.) R. S. Rumbold, Som. L.I. and R.F.C.; Qrmr. and Hon. Lt. (temp. Maj.) W. J. Ryan, R.F.C.

Lt. (temp. Capt.) T. M. Scott, R.F.C., Spec. Res.; Temp. Capt. L. G. T. Sedgwick, Gen. List and R.F.C.; Temp. Capt. F. C. O. Shaw, Gen. List and R.F.C.; Lt. (temp. Capt.) M. Skitt, R.F.A., Spec. Res. and R.F.C.; Temp. Sec. Lt. R. J. Sladden, Gen. List and R.F.C.; Capt. (temp. Lt.-Col.) R. G. D. Small, Leins. R. and R.F.C.; Temp. Capt. H. G. Smart, Gen. List and R.F.C.; Maj. (temp. Lt.-Col.) S. E. Smith, Glouc. R., T.F., and R.F.C.; Temp. Lt. J. G. Spencer, Gen. List and R.F.C.; Lt. (temp. Maj.) J. T. Spittle, R.F.C., Spec. Res.; Temp. Capt. G. E. Stagg, Gen. List and R.F.C.; Capt. (temp. Lt.-Col.) W. E. G. Statter, R. Lanc. R. and R.F.C.; Capt. F. Steel, Essex R. and R.F.C.; Lt. (temp. Maj.) E. Stokes, R.F.C., Spec. Res.; Lt. J. A. Stone, Gen. List and R.F.C.

Sec. Lt. (temp. Capt.) L. E. Taylor, R.F.C.; Capt. R. W. Thomas, Lond. R. and R.F.C.; Lt. R. H. Timmis, R.F.C., Spec. Res.; Temp. Capt. H. T. Tizard, Gen. List and R.F.C.; Temp. Maj. E. G. Toye, R.F.C., Spec. Res.; Lt. J. D. Troup, R.F.C., Spec. Res.; Temp. Maj. L. U. D. Truman, Gen. List and R.F.C.; Temp. Lt. T. B. Tully, Gen. List and R.F.C.; Capt. (temp. Maj.) L. W. F. Turner, R.F.C., Spec. Res.

Qrmr. and Hon. Lt. (temp. Maj.) F. H. Unwin, R.F.C.

Sec. Lt. (temp. Maj.) H. R. Vagg, Som. L.I. and R.F.C.

Temp. Maj. H. C. Wakefield, Gen. List and R.F.C.; Sec. Lt. (temp. Lt.) E. W. Walford, R.F.C., Spec. Res.; Temp. Capt. H. G. Waterall, R.F.C.; Sec. Lt. (temp. Capt.) H. L. Webb, R.F.C., Spec. Res.; Capt. R. Whiddington, R.F.C. and T.F. Res.; Temp. Lt. J. S. Williams, M.C., R.F.C.; Temp. Lt. B. J. Wolfe-Barry, R.F.C. (temp. Capt., Spec. List); Lt. A. Wombwell, Linc. R. and R.F.C.; Lt. (temp. Capt.) T. Worswick, R.F.C., Spec. Res.

3573 Serjt. J. Allen, R.F.C.; 1791 Flt. Serjt. C. I. Antill, R.F.C.

9350 Serjt. C. H. Banner, R.F.C.; 56421 Temp. Serjt.-Maj. E. V. Bashford, R.F.C.; 1790 Flt. Serjt. C. D. Beevor, R.F.C.; 26111 Temp. Serjt.-Maj. W. V. Booker, R.F.C.; 51336 Flt. Serjt. W. R. Bowmer, R.F.C.; 2072 Temp. Serjt.-Maj. W. Bradley, R.F.C.; 8679 Flt. Serjt. T. A. Breese, R.F.C.; 13014 Flt. Serjt. F. G. Brigden, R.F.C.; 6954 Serjt. R. W. Brotherston, R.F.C.; 29854 Qrmr.-Serjt. H. J. Burns, R.F.C.; 45727 Temp. Serjt.-Maj. N. Byrne, R.F.C.

3706 Temp. Serjt.-Maj. F. Calnan, R.F.C.; 7183 Temp. Serjt.-Maj. G. E. Camp, R.F.C.; 5867 Temp. Serjt.-Maj. D. Campbell, R.F.C.; 9321 Serjt. H. B. Chorley, R.F.C.; 87947 Temp. Serjt.-Maj. H. A. Clayton, R.F.C.; 2434 Flt. Serjt. S. T. Condick, R.F.C.; 27770 Serjt. G. A. Conyard, R.F.C.; 57017 Cpl. R. Cooper, R.F.C.; 859 Temp. Serjt.-Maj. A. Cordeaux, R.F.C.; 6816 Temp. Serjt.-Maj. H. W. Croft, R.F.C.; 44071 Flt. Serjt. J. W. Crooks, R.F.C.; 40291 Cpl. (actg. Serjt.) W. A. Cross, R.F.C.

28470 Flt. Serjt. R. H. Dann, R.F.C.; 8513 Serjt. J. Dempsey, R.F.C.; 17687 Serjt. G. R. Dexter, R.F.C.; 554 Flt. Serjt. J. T. Dutfey, R.F.C.

25051 Temp. Serjt.-Maj. A. Erskine, R.F.C.

57432 Serjt. W. Frost, R.F.C.

5404 Flt. Serjt. T. George, R.F.C.; 11839 Temp. Serjt.-Maj. H. P. Grabaskey, R.F.C.; 5025 Serjt. J. H. R. Green, R.F.C.; 3839 Temp. Serjt.-Maj. J. Griffiths, R.F.C.; 6581 Cpl. F. Gulliver, R.F.C.

19786 Temp. Serjt.-Maj. J. H. Harfleet, R.F.C.; 16779 Flt. Serjt. J. H. Harris, R.F.C.; 10465 Temp. Serjt.-Maj. A. D. R. Hayden, R.F.C.; 26067 Cpl. G. H. Heeley, R.F.C.; 25012 Temp. Serjt.-Maj. E. Henderson, R.F.C.; 30209 Flt. Serjt. H. C. Hill, R.F.C.; 2956 Temp. Serjt.-Maj. W. Hill, R.F.C.; 1273 Temp. Serjt.-Maj. T. Hodgson, R.F.C.; 9725 Temp. Serjt.-Maj. L. H. Holmes, R.F.C.

485 Temp. Serjt.-Maj. E. D. Jackson, R.F.C.; 15555 Serjt. A. H. James, R.F.C.; 2258 Serjt. A. Johnson, R.F.C.; 14807 Temp. Serjt.-Maj. H. Jones, R.F.C.

13723 Cpl. G. C. Kellam, R.F.C.; 6558 Flt. Serjt. A. F. Kellaway, R.F.C.; 5062 Flt. Serjt. J. Kerr, R.F.C.

8099 Temp. Serjt.-Maj. H. Lee, R.F.C.; 12190 Flt. Serjt. A. Lenney, R.F.C.; 399 Flt. Serjt. W. St. J. Littlewood, R.F.C.; 21338 Flt. Serjt. J. Lloyd, R.F.C.; 42490 Cpl. T. E. Lomas, R.F.C.

23884 Serjt. L. G. Mace, R.F.C.; 3803 Flt. Serjt. D. Mackie, R.F.C.; 21027 Serjt. W. Magee, R.F.C.; 4637 Temp. Serjt.-Maj. J. Major, R.F.C.; 19002 Serjt. H. E. C. Manton, R.F.C.; 6561 Flt. Serjt. W. Mathews, R.F.C.; 18998 Flt. Serjt. A. C. Morley, R.F.C.

33244 Flt. Serjt. A. Nevill, R.F.C.; 27489 Cpl. S. W. Newbold, R.F.C.; 45848 Temp. Serjt.-Maj. R. Newton, R.F.C.; 40698 Serjt. J. Nuttall, R.F.C.

1653 Flt. Serjt. L. F. T. Pearce, R.F.C.; 5377 Serjt. (actg. Flt. Serjt.) W. Pearman, R.F.C.; 57555 Qrmr.-Serjt. H. W. Pinder, R.F.C.; 9605 Temp. Serjt.-Maj. H. M. Piper (now temp. Sec. Lt., Gen. List), R.F.C.; 21033 Flt. Serjt. G. E. Polley, R.F.C.; 3425 Flt. Serjt. H. Pybus, R.F.C.

22239 Serjt. V. B. Ranford, R.F.C.; 63701 Serjt. W. H. Read, R.F.C.; 61318 Cpl. T. Rees, R.F.C.; 350 Flt. Serjt. J. G. Richardson, R.F.C.; 57582 Serjt. T. J. Richardson, R.F.C.; 69753 3rd Air Mech. R. Roberts, R.F.C.; 57588 Flt. Serjt. A. Rogers, R.F.C.; 46140 Cpl. W. T. Rose, R.F.C.; 28267 Serjt. F. V. Russ, R.F.C.

47712 Temp. Sert.-Maj. J. M. Saddler, R.F.C.; 21153 Serjt. R. Sadler, R.F.C.; 235 Temp. Serjt.-Maj. A. E. Scott, R.F.C.; 21712 Cpl. H. Sherman, R.F.C.; 37720 Cpl. W. Simmons, R.F.C.; 21 Temp. Serjt.-Maj. E. Slade, R.F.C.; 2646 Temp. Serjt.-Maj. A. C. Smith, R.F.C.; 6124 Flt. Serjt. D. Smith, R.F.C.; 11697 Serjt. (actg. Flt. Serjt.) F. B. Smith, R.F.C.; 26163 Flt. Serjt. P. J. Snead, R.F.C.; 18327 Flt. Serjt. L. J. Spillman, R.F.C.; 7701 Qrmr.-Serjt. E. W. R. Stapley, R.F.C.; 57615 Serjt. S. Stanford, R.F.C.; 11080 Flt. Serjt. W. E. Strong, R.F.C.

3482 Serjt. J. A. Taylor, R.F.C.; 7025 Temp. Serjt.-Maj. W. E. Townsend, R.F.C.

43042 Serjt. A. P. Vandenberg, R.F.C.; 2976 Temp. Serjt.-Maj. A. G. H. Vint, R.F.C.

9030 Flt. Serjt. H. Walden, R.F.C.; 78674 Temp. Serjt.-Maj. J. Wannop, R.F.C.; 2157 Temp. Serjt.-Maj. E. C. Watson, R.F.C.; 2296 Flt. Serjt. L. G. Watts, R.F.C.; 8104 Flt. Serjt. H. W. Westbrook, R.F.C.; 1412 Serjt. G. W. Weston, R.F.C.; 1652 Flt. Serjt. S. H. Wheatley, R.F.C.; 19202 Temp. Serjt.-Maj. A. B. Williams, R.F.C.; 6234 Flt. Serjt. H. A. Williams, R.F.C.; 19111 E. Willis, R.F.C.; 3854 Serjt. J. Wileson, R.F.C.; 26155 Temp. Serjt.-Maj. J. S. F. Wilson, R.F.C.; 1098 Flt. Serjt. S. V. Winney, R.F.C.; 4258 Serjt. H. W. Woodcock, R.F.C.; 3580 Flt. Serjt. A. E. Wyatt, R.F.C.

July 6th

The following officer has been brought to the notice of the Secretary of State for War for valuable services rendered in connection with the war:—

Gilmore, Lt.-Col. and Bt. Col. (temp. Maj.-Gen.) E. B., C.M.G., M.V.O., R.A.

Oct. 7th

The name of the undermentioned officer is to be added to those brought to notice for distinguished and gallant services and devotion to duty by Gen. Sir E. H. H. Allenby, G.C.M.G., K.C.B., Commander-in-Chief of the Egyptian Expeditionary Force, in his dispatch of April 3rd:—

Shekleton, Capt. (temp. Lt.-Col.) A., R.A.F (then R. Mun. Fus. and R.F.C.)

FOREIGN DECORATIONS.

FRANCE.

LEGION D'HONNEUR.

CROIX D'OFFICIER.

Capt. (temp. Lt.-Col.) John Dolben Mackworth, C.B.E., R. W. Surrey R. and R.F.C. (Gazetted Oct. 10th.)

Bt. Col. (temp. Maj.-Gen.) John Maitland Salmond, C.M.G., D.S.O (Gazetted Oct. 10th.)

CROIX DE CHEVALIER.

Lt. Henry James Finer, R.E. and R.F.C. (Gazetted Oct. 10th.)

Qrmr. and Hon. Capt. Thomas Lyons, R.F.C. (Gazetted Oct. 10th.)

Capt. (temp. Maj.) the Hon. Edward Alexander Stonor, R.F.C., Spec. Res. (Gazetted Oct. 10th.)

Temp. Capt. G. F. W. Zimmer, Gen. List and R.F.C. (Gazetted Aug. 17th.)

CROIX DE GUERRE.

Temp. Capt. B. E. Baker, M.C., Gen. List and R.F.C. (Gazetted April 18th.)

Lt. (temp. Capt.) G. B. A. Baker, M.C., R. Berks R. and R.F.C. (Gazetted April 18th.)

Temp. Lt. William Arthur Barnes, R.F.C. (Gazetted Oct. 10th.)

Maj. G. T. J. Barry, S. Wales Bords and R.F.C. (Gazetted Aug. 17th.)

Maj. (temp. Brig.-Gen.) J. H. W. Becke, D.S.O., Notts and Derby R. (Gazetted April 18th.)

Temp. Lt. A. F. Britton, M.C., R.F.C. (Gazetted April 18th.)

Capt. F. N. Chadwick, Manch. R. and R.F.C. (Gazetted Aug. 17th.)

Lt. (temp. Capt.) R. M. Charley, M.C., R.F.C. (Spec. Res.) (Gazetted April 18th.)

Temp. Sec. Lt. J. Day, Gen. List and R.F.C. (Gazetted Aug. 17th.)

Bt. Lt.-Col. (temp. Lt.-Col.) G. W. P. Dawes, D.S.O., R. Berks. R. and R.F.C. (Gazetted April 18th.)

Flt. Comdr. Frank Thomas Digby, D.S.O., R.N.A.S. (Gazetted Oct. 10th.)

Lt. (temp. Capt.) Whyndham Brookes Farrington, D.S.O., Notts and Derby R., Spec. Res., and R.F.C. (Gazetted Oct. 10th.)

Temp. Capt. R. P. Fenn, Gen. List and R.F.C. (Gazetted Aug. 17th.)

Lt. A. D. Ferguson, High L.I., Spec. Res. and R.F.C. (Gazetted April 18th.)

Temp. Capt. H. M. Ferreira, Gen. List and R.F.C. (Gazetted April 18th.)

Lt. (temp. Capt.) C. H. Gardner, R.F.A. and R.F.C. (Gazetted April 18th.)

Temp. Lt. H. S. Goodliffe, Gen. List and R.F.C. (Gazetted April 18th.)

Lt. E. D. Hall, Northd. Fus. and R.F.C. (Gazetted Aug. 17th.)

Sec. Lt. (temp. Capt.) H. B. T. Hawkins, R.F.C. (Spec. Res.). (Gazetted April 18th.)

Capt. J. H. Hedley, Gen. List and R.F.C. (Gazetted Aug. 17th.)

Capt. (temp. Maj.) J. H. Herring, D.S.O., M.C., R.F.C., Spec. Res. (Gazetted April 18th.)

Capt. W. R. Kempson, R.F.A. and R.F.C. (Gazetted April 18th.)

Temp. Sec. Lt. A. F. McGlashan, Gen. List and R.F.C. (Gazetted Aug. 17th.)

Capt. C. Mackay, M.C., Lein. R., Spec. Res., and R.F.C. (Gazetted April 18th.)

Lt. (temp. Lt.-Col.) A. C. Maund, Canadian Contingent and R.F.C. (Gazetted April 18th.)

Capt. V. Millard, Essex R., Spec. Res. and R.F.C. (Gazetted April 18th.)

Lt. (temp. Capt.) Cecil Charles Morley, R.F.C., Spec. Res. (Gazetted Oct. 10th.)

Lt. (temp. Capt.) F. J. Morse, K.R.R.C. and R.F.C. (Gazetted April 18th.)

Temp. Maj. M. H. B. Nethersole, Gen. List and R.F.C. (Gazetted April 18th.)

Lt. L. H. Pakenham-Walsh, Ches. R. and R.F.C. (Gazetted April 18th.)

Sec. Lt. (temp. Capt.) K. R. Park, M.C., R.A., and R.F.C. (Gazetted April 18th.)

Lt. (temp. Capt.) A. D. Pryor, Cambs. R. and R.F.C. (Gazetted April 18th.)

Sec. Lt. (temp. Capt.) T. E. Salt, R. War. R. and R.F.C. (Gazetted April 18th.)

Sec. Lt. (temp. Lt.) J. H. Secker, R.F.C., Spec. Res. (Gazetted April 18th.)

Temp. Capt. S. B. Smith, M.C., R.F.C. (Gazetted April 18th.)

Maj. Herbert Victor Stammers, R.F.C. (Gazetted Oct. 10th.)

Temp. Capt. Tilden Chrismas Thomson, Gen. List and R.F.C. (Gazetted Oct. 10th.)

Temp. Capt. H. Turner, Gen. List and R.F.C. (Gazetted April 18th.)

Maj. A. A. Walser, M.C., Lond. R. and R.F.C. (Gazetted April 18th.)

Temp. Lt. William Arthur Winter, Gen. List and R.F.C. (Gazetted Oct. 10th.)

Capt. C. W. Wise, M.C., A.S.C., Spec. Res. and R.F.C. (Gazetted April 18th.)

37107 Serjt. F. J. Appleton, R.F.C. (Scarborough). (Gazetted Aug. 17th.)

26989 Serjt. J. M. Bainbridge, R.F.C. (Accrington). (Gazetted Aug. 17th.)

18053 Flt. Serjt. Henry Edwin Beauchamp, R.F.C. (Knightsbridge, W.). (Gazetted Oct. 10th.)

38336 Air Mech., 1st Cl., E. Davidson, R.F.C. (Holywell Green). (Gazetted Aug. 17th.)

25862 Air Mech., 1st Cl., Frank Henry Freeman, No. 42 Sqdn., R.F.C. Twickenham). (Gazetted Nov. 29th.)

10267 Air Mech., 1st Cl., Clive Stuart Furrell, R.F.C. (Kennington, S.E.). (Gazetted Oct. 10th.)

4946 Qrmr.-Serjt. Joseph James Gadd, R.F.C. (St. Leonards) (Gazetted Oct. 10th.)

93775 Cpl. D. McLean, R.F.C. (Lochgilhead, Argyllshire) (Gazetted Aug. 17th.)
973 Serjt. W. R. McCleery, R.F.C. (Swindon). (Gazetted Aug. 17th.)
2553 Serjt. Cecil Wheadon Noel, R.F.C. (L'Ancresse Vale, Guernsey). (Gazetted Oct. 10th.)
7679 Air Mech., 1st Cl., (actg. Cpl.) Cecil Perry, late R.F.C. (Gray's Inn Road, W.C.). (Gazetted Oct. 10th.)
M2/049533 Pte. A. Richardson, A.S.C., attd. Anti-Aircraft Bty. (Manor Park, E.). (Gazetted Aug. 17th.)
9864 Air Mech., 1st Cl., L. G. Routledge, R.F.C. (Clapham, S.W.). (Gazetted Aug. 17th.)
63961 Serjt. J. R. Wright, R.F.C. (Hendon, N.W.). (Gazetted Aug. 17th.)

MEDAILLE MILITAIRE.

8571 Serjt. G. Avery, R.F.C. (Tenterden). (Gazetted Aug. 17th.)
6999 Air Mech., 1st Cl., H. Fraser, R.F.C. (Birkenhead). (Gazetted August 17th.)
1187 Temp. Serjt. Maj. A. Gee, R.F.C. (Leicester) (Gazetted Aug. 17th.)
58311 Serjt. K. Gellan, R.F.C. (Finsbury Park, N.). (Gazetted Oct. 10th.)
115569 Serjt. (Aerial Gnr.) Fred Hopper, M.M., R.F.C. (Ushaw Moor Colliery, Durham). (Gazetted Oct. 10th.)
7813 Air Mech., 1st Cl., W. P. Pryke, R.F.C. (Buckingham Gate, S.W.) (Gazetted Oct. 10th.)

BELGIUM.

ORDRE DE LA COURONNE.

OFFICIER.

Capt. (temp. Lt.-Col.) A. S. Barratt, M.C., R.F.A. and R.F.C. (Gazetted July 25th.)

CHEVALIER.

Lt. P. E. Biggar, Can. A.S.C. and R.F.C. (Gazetted July 25th.)
Capt. (temp. Maj.) C. H. B. Blount, M.C., R.W. Surr. R. and R.F.C. (Gazetted July 25th.)
Temp. Sec. Lt. H. R. Griffin, Gen. List and R.F.C. (Gazetted July 25th.)
Temp. Capt. A. E. Illingworth, R.F.C. (Gazetted July 25th.)
Capt. the Hon. E. G. W. T. Knollys, Lond. R. and R.F.C. (Gazetted July 25th.)
Sec. Lt. H. G. Little, S. African Heavy Art., attd. R.A.F. (Gazetted July 25th.)

ORDRE DE LEOPOLD.

OFFICIER.

Bt. Lt.-Col. (temp. Brig.-Gen.) T. I. Webb Bowen, C.M.G., Bedf. R. (Gazetted April 15th.)

DECORATION MILITAIRE.

37208 Cpl. A. W. Daniells, R.F.C. (Goldsboro' Road, S.W.). (Gazetted April 15th.)
12515 1st Cl. Air Mech. A. Langstaffe, R.F.C. (Boston). (Gazetted April 15th.)

CROIX DE GUERRE.

Maj. J. L. Baird, C.M.G., D.S.O., M.P., Yeo. (Gazetted March 11th.)
Temp. Lt. (temp. Capt.) C. B. Baker, Oxf. and Bucks. L.I. and R.F.C. (Gazetted April 15th.)
Lt. (temp. Maj.) J. E. A. Baldwin, Hrs. and R.F.C. (Gazetted March 11th.)
Temp. Capt. K. F. Balmain, R.F.C. (Gazetted April 15th.)
Capt. (temp. Lt.-Col.) A. S. Barratt, M.C., R.A. and R.F.C. (Gazetted July 25th.)
Lt. P. E. Biggar, Can. A.S.C. and R.F.C. (Gazetted July 25th.)
Capt. (temp. Maj.) C. H. B. Blount, M.C., R.W. Sur. R. and R.F.C. (Gazetted July 25th.)
Temp. Capt. N. A. Bolton, Spec. List and R.F.C. (Gazetted March 11th.)
Sec. Lt. W. D. Bostock, R.F.C., Spec. Res. (Gazetted April 15th.)
Temp. Capt. W. P. MacD. Brettell, R.F.C. (Gazetted April 15th.)
Temp. Lt. L. D. Brown, R.F.C. (Gazetted April 15th.)
Maj. A. D. Carter, D.S.O., New Brunswick R. (Can. Forces) and R.F.C. (Gazetted April 15th.)
Lt. (temp. Capt.) C. M. B. Chapman, M.C., E. Kent. R. and R.F.C. (Gazetted March 11th.)
Lt. (temp. Capt.) J. M. Child, Manch. R. and R.F.C. (Gazetted March 11th.)
Temp. Capt. S. Cockerell, Gen. List and R.F.C. (Gazetted March 11th.)
Capt. (temp. Maj.) J. A. Cunningham, R.F.A. and R.F.C. (Gazetted April 15th.)
Temp. Lt. C. H. Davies, Gen. List and R.F.C. (Gazetted July 25th.)
Temp. Sec. Lt. H. Entwistle, Gen. List and R.F.C. (Gazetted July 25th.)
Capt. E. A. Faweus, Northd. Fus. and R.F.C. (Gazetted April 15th.)
Temp. Sec. Lt. C. R. H. Ffolliott, Linc. R. and R.F.C. (Gazetted April 15th.)
Temp. Sec. Lt. H. R. Griffin, R.F.C. (Gazetted July 25th.)
Temp. Sec. Lt. R. Harris, R.F.C. (Gazetted April 15th.)
Temp. Sec. Lt. John Arthur Higham, R.F.C. (Gazetted Nov. 29th.)
Temp. Lt. H. O. Hope, Gen. List and R.F.C. (Gazetted July 25th.)
Capt. (temp. Maj.) M. K. Horn, M.C., R.F.C., Spec. Res. (Gazetted April 15th.)
Temp. Capt. A. E. Illingworth, R.F.C. (Gazetted July 25th.)
Lt. (temp. Capt.) R. H. Jarvis, M.C., R.F.C. (Spec. Res.) (Gazetted July 15th.)
Temp. Capt. J. H. O. Jones, Spec. List and R.F.C. (Gazetted March 11th.)
Temp. Capt. G. Knight, M.C., R.F.C. (Gazetted April 15th.)
Capt. the Hon. E. G. W. T. Knollys, Lond. R. and R.F.C. (Gazetted July 25th.)
Temp. Capt. G. F. Lines, M.C., Gen. List and R.F.C. (Gazetted July 25th.)
Sec. Lt. H. G. Little, S. African Heavy Art., attd. R.A.F. (Gazetted July 25th.)
Temp. Capt. L. Mason, M.C., R.A. (Gazetted April 15th.)
Temp. Sec. Lt. W. F. Mayoss, R.F.C. (Gazetted April 15th.)
Lt. (temp. Capt.) J. McKelvie, R.E. (Gazetted April 15th.)
Temp. Capt. A. D. Pearce, R.F.C. (Gazetted April 15th.)
Lt. R. C. Purvis, W. Kid. R. and R.F.C. (Gazetted April 15th.)
Temp. Sec. Lt. R. W. Rose, R.F.C. (Gazetted April 15th.)
Lt. (temp. Maj.) J. C. Russell, R.E. and R.F.C. (Gazetted March 11th.)
Lt. (temp. Capt.) J. C. Slessor, M.C., R.F.C. (S.R.). (Gazetted March 11th.)
Sec. Lt. (temp. Maj.) L. A. Tilney, M.C., R.H. Gds. and R.F.C.
Temp. Capt. W. B. Tisdall, Gen. List and R.F.C. (Gazetted July 25th.)
Maj.-Gen. Sir H. M. Trenchard, K.C.B., D.S.O.
Lt. F. Tymms, M.C., S. Lanc. R. and R.F.C.
Maj. H. S. Walker, Ches. R. and R.F.C. (Gazetted April 15th.)
Temp. Sec. Lt. W. Walker, R.F.C.
Capt. A. J. R. Waller, Essex R. and R.F.C. (Gazetted July 12th.)
Bt. Lt.-Col. (temp. Brig.-Gen.) T. I. Webb-Bowen, C.M.G., Bedf. R.
Temp. Capt. W. A. Wright, Gen. List and R.F.C. (Gazetted March 11th.)

AUSTRALIAN IMPERIAL FORCE

Capt. W. H. Anderson, F.C. (Gazetted July 12th.)
Lt. B. J. Blackett, F.C. (Gazetted July 12th.)
99149 Air Mech, 2nd Cl., R. T. Ainsworth, R.F.C. (Canterbury). (Gazetted July 25th.)
30203 Flt. Serjt. P. A. Barrett, R.F.C. (Maiden Newton). (Gazetted July 25th.)
30212 Flt. Serjt. J. Baxter, R.F.C. (Guildford). (Gazetted July 25th.)
15490 Serjt. P. Blackburn, R.F.C. (Blackburn). (Gazetted July 25th.)
43958 Air Mech., 1st Cl., L. F. Bolton, R.F.C. (Westminster, S.W.). (Gazetted April 15th.)
10551 Cpl. E. Bradshaw, R.F.C. (Tonbridge) (Gazetted April 15th.)
88059 Air Mech., 2nd Cl., F. Broscomb, R.F.C. (Hunslet, Leeds). (Gazetted April 15th.)
15422 Air Mech., 1st Cl., B. Brown, R.F.C. (Bitterne, Hants). (Gazetted April 15th.)
3497 Cpl. W. J. Collett, R.F.C. (Leighton Buzzard). (Gazetted April 15th.)
8513 Air Mech., 1st Cl., C. A. Davey, R.F.C. (South Norwood). (Gazetted April 15th.)
12228 Flt. Serjt. J. Edmond, R.F.C. (Dunmore). (Gazetted July 25th.)
13509 Air Mech., 1st Cl., D. French, R.F.C. (Camberwell, S.E.). (Gazetted July 25th.)
29039 Air Mech., 1st Cl., E. Gomersall, R.F.C. (Morley). (Gazetted July 25th.)
77880 Air Mech., 2nd Cl., F. Goodspeed, R.F.C. (Hackney, N.E.) (Gazetted April 15th.)
78272 Air Mech., 2nd Cl., T. F. Goodwin, R.F.C. (Halifax, Yorks.). (Gazetted April 15th.)
5293 Serjt. (Flt. Serjt.) A. J. Graham, R.F.C. (Tetbury, Gloucestershire). (Gazetted April 15th.)
98931 Cpl. G. Holmes, R.F.C. (Yeovil). (Gazetted April 15th.)
7890 Cpl. A. R. Jackson, R.F.C. (West Norwood, S.E.). (Gazetted April 15th.)
27292 Air Mech., 1st Cl., P. James, R.F.C. (Cricklewood). (Gazetted July 25th.)
6413 Cpl. J. O. Jones, R.F.C. (Llandudno). (Gazetted April 15th.)
8506 Air Mech., 1st Cl., S. O. Kelly, R.F.C. (Cahir, Co. Tipperary). (Gazetted April 15th.)
21306 Flt. Serjt. L. C. King, R.F.C. (Devizes, Wilts.) (Gazetted April 15th.)
6188 Cpl. R. E. Knight, R.F.C. (Birmingham). (Gazetted April 15th.)
9922 Air Mech., 1st Cl., W. F. Lange, R.F.C. (Westminster). (Gazetted April 15th.)
2410 Serjt. C. Lewis, R.F.C. (Merthyr Tydvil, Glamorgan). (Gazetted April 15th.)
14796 Air Mech., 1st Cl. (actg. Cpl.) J. A. Macdonald, R.F.C. (Dumfries). (Gazetted April 15th.)
106099 Air Mech., 2nd Cl., J. McMeehan, R.F.C. (Horwich, Lancashire). (Gazetted April 15th.)
106809 Cpl. W. Metson, R.F.C. (Brentwood, Essex). (Gazetted April 15th.)
9856 Air Mech., 1st Cl., H. W. Moore, R.F.C. (Devonport). (Gazetted April 15th.)
7228 Air Mech., 1st Cl., C. H. McCarthy, R.F.C. (Rotherhithe, S.E.). (Gazetted July 25th.)
8216 Air Mech., 1st Cl., R. C. Platford, R.F.C. (Edmonton, N.E.). (Gazetted April 15th.)
2290 Serjt. (Flt. Serjt.) S. Potts, R.F.C. (Whickham, Durham). (Gazetted April 15th.)
3916 Air Mech., 1st Cl. (actg. Cpl.), J. Reardon, R.F.C. (Stepney, E.). (Gazetted April 15th.)
6372 Cpl. F. Spencer, R.F.C. (Oswestry, Salop). (Gazetted April 15th.)
7916 Serjt. (Flt. Serjt.) F. W. Stroud, R.F.C. (Woking, Surrey). (Gazetted April 15th.)
8755 Cpl. (actg. Serjt.) G. R. Sykes, R.F.C. (Barnet). (Gazetted April 15th.)
44986 Air Mech., 2nd Cl., F. J. Tingey, R.F.C. (Forest Gate, Essex). (Gazetted April 15th.)
77881 Air Mech, 2nd Cl., W. Titchmarsh, R.F.C. (Ealing, W.) (Gazetted April 15th).
4492 Air Mech., 1st Cl., C. H. Topps, R.F.C. (Cirencester, Gloucestershire). (Gazetted April 15th.)
5521 Cpl. G. Whitehead, R.F.C. (Manchester). (Gazetted April 15th.)
61920 Air Mech., 1st Cl., W. Wilkes, R.F.C. (Walsall). (Gazetted April 15th.)
1279 Flt. Serjt. B. W. Wright, R.F.C. (Lutterworth). (Gazetted July 25th.)

RUSSIA.

ORDER OF ST. GEORGE.

4TH CLASS.

Capt. (temp. Maj.) J. Valentine, D.S.O., late R.F.C., Spec. Res (Gazetted Jan. 14th.)

ORDER OF THE WHITE EAGLE, WITH SWORDS.

Lt.-Gen. Sir D. Henderson, K.C.B., D.S.O. (Gazetted Jan. 14th.)

ORDER OF ST. STANISLAS.

1ST CLASS.

Bt. Lt.-Col. (temp. Brig.-Gen.) D. S. MacInnes, C.M.G., D.S.O., R.E (Gazetted Jan. 14th.)

SERBIA.

ORDER OF THE WHITE EAGLE.

4TH CLASS (WITH SWORDS).

Bt. Lt.-Col. (temp. Lt.-Col.) G. W. P. Dawes, D.S.O., R. Berks. R. and R.F.C. (Gazetted Jan. 28th.)

4TH CLASS.

Capt. (temp. Maj.) A. Cleghorn, R.E. and R.F.C. (Gazetted Jan 28th.)

ITALY.

SILVER MEDAL FOR MILITARY VALOUR.

Temp. Capt. William George Barker, D.S.O., M.C., R.F.C (Gazetted Sept. 12th.)

Lt. (temp. Capt.) Robert Sydney Pearce Boby, Lanc. Fus and R.F.C. (Gazetted Sept. 12th.)

Temp. Sec. Lt. Julius Edward Bonniksen, R.F.C. (Gazetted Sept. 12th.)

Temp. Capt. Matthew Brown Frew, D.S.O., M.C., R.F.C. (Gazetted Sept. 12th.)

Capt. William Earle Molesworth, M.C., R. Munster Fus. and R.F.C. (Gazetted Sept. 12th.)

BRONZE MEDAL FOR MILITARY VALOUR.

1429 Serjt. Ernest John Elton, R.F.C. (Wimborne, Dorset). (Gazetted Sept. 12th.)

7228 Air Mech., 1st Cl., Charles Henry M'Carthy, R.F.C. (Rotherhithe, S.E.) (Gazetted Sept. 12th.)

7061 Serjt. Sidney Robert Marston, R.F.C. (Liscard, Cheshire). (Gazetted Sept. 12th.)

59404 Serjt. Angus Holden Muff, R.F.C. (Bankfoot, Bedford). (Gazetted Sept. 12th.)

10219 Air Mech., 1st Cl., George Edward Richardson, R.F.C. (Grantham). (Gazetted Sept. 12th.)

113031 Serjt. James Ryan, R.F.C. (Canton, Cardiff). (Gazetted Sept. 12th.)

3116 Serjt. Walter Ernest Smith, R.F.C. (Bowes Park, N.) (Gazetted Sept. 12th.)

EGYPT.

ORDER OF THE NILE, 3RD CLASS.

Brev. Lt.-Col. (temp. Brig.-Gen.) Amyas Eden Borton, D.S.O., R. Highrs. and R.F.C. (Gazetted Nov. 9th.)

ORDER OF THE NILE, 4TH CLASS.

Temp. Capt. Henry Ivan Hanmer, Gen. List and R.F.C. (Gazetted Nov. 9th.)

Lt. Ernest Andrew Mustard, Aus. F.C. (Gazetted Nov. 9th.)

Temp. Capt. John Heron Storey, Gen. List and R.F.C. (Gazetted Nov. 9th.)

Lt Hugh Hamshaw Thomas, R.F.A. and R.F.C. (Gazetted Nov. 9th.)

JAPAN.

GRAND CORDON OF THE ORDER OF THE SACRED TREASURE.

Lt.-Gen. Sir David Henderson, K.C.B., D.S.O (Gazetted Nov. 9th.)

ORDER OF THE BRITISH EMPIRE.

KNIGHTS COMMANDERS (K.B.E.).

Lt.-Col. Henry Fowler, C.B.E., Chief Mechanical Engineer to the Midland Railway ; Superintendent of the Royal Aircraft Factory, Farnborough. (Gazetted Jan. 7th.)

COMMANDERS (C.B.E.).

Lt.-Col. Richard Bell-Irving, Instructor, Royal Flying Corps. (Gazetted Jan. 7th.)

Maj. Henry Edward Chaney, Headquarters Training Division, Royal Flying Corps. (Gazetted Jan. 7th.)

Maj. Francis Samuel Creswell, Park Commander, Royal Flying Corps. (Gazetted Jan. 7th.)

Maj. Henry Stuart Ebben, Deputy Asst. Adjutant-General, Royal Flying Corps. (Gazetted Jan. 7th.)

Maj. Charles Jarrott, Inspector of Mechanical Transport, Royal Flying Corps. (Gazetted Jan. 7th.)

Lt.-Col. John Charters Kirk, Anti-Aircraft Defences, Home Forces. (Gazetted June 3rd.)

Lt.-Col. Charles Lloyd, T.D., Anti-Aircraft Defences, Home Forces. (Gazetted June 3rd.)

Maj. Michael John Long, Anti-Aircraft Defences, Home Forces. (Gazetted June 3rd.)

MEMBERS (M.B.E.).

Capt. William Edgar Aylwin, R.F.C. (Gazetted Jan. 7th.)

Sec. Lt. William Thomas Finley Atherton, Anti-Aircraft Defences, Home Forces. (Gazetted June 3rd.)

Lt. Frank Clement Ball, Anti-Aircraft Defences, Home Forces. (Gazetted June 3rd.)

Lt. Cecil Norman Brown, Anti-Aircraft Defences, Home Forces. (Gazetted June 3rd.)

Maj. Charles Duncan Miles Campbell, R.F.C. (Gazetted Jan. 7th.)

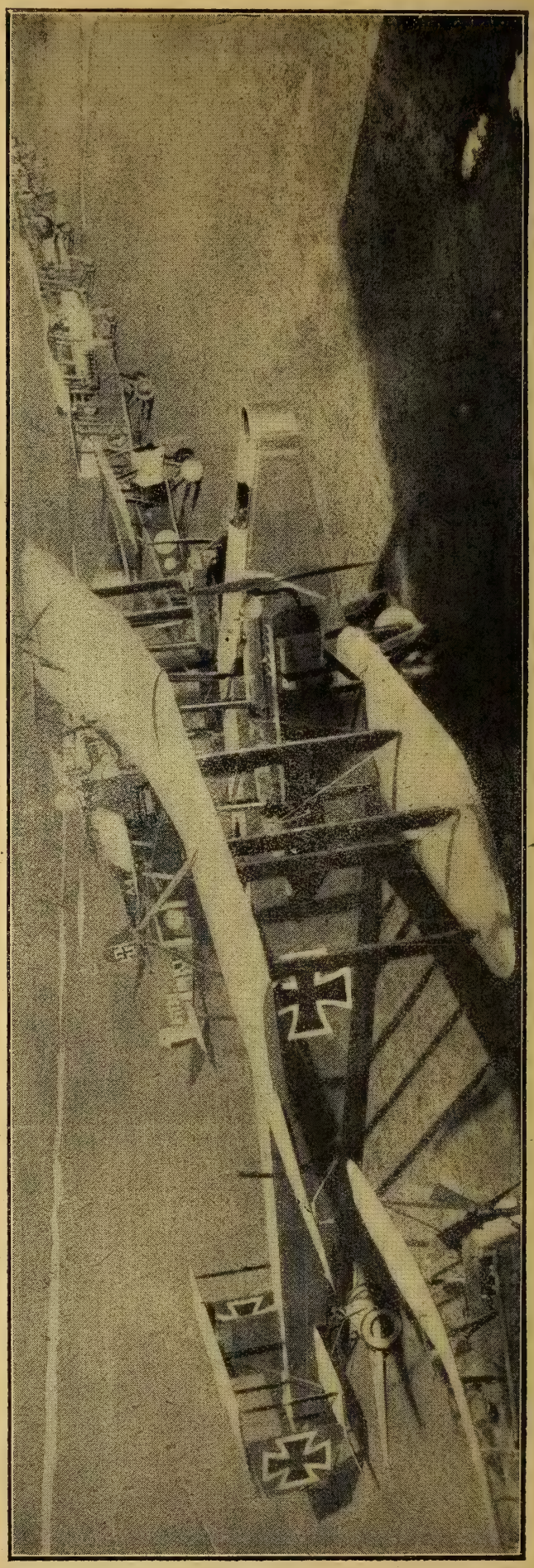
Capt. Philip Edward Broadley Fooks, Anti-Aircraft Defences, Home Forces. (Gazetted June 3rd.)

Maj. Sidney Ernest Parker, Instr., R.F.C (Gazetted Jan. 7th.)

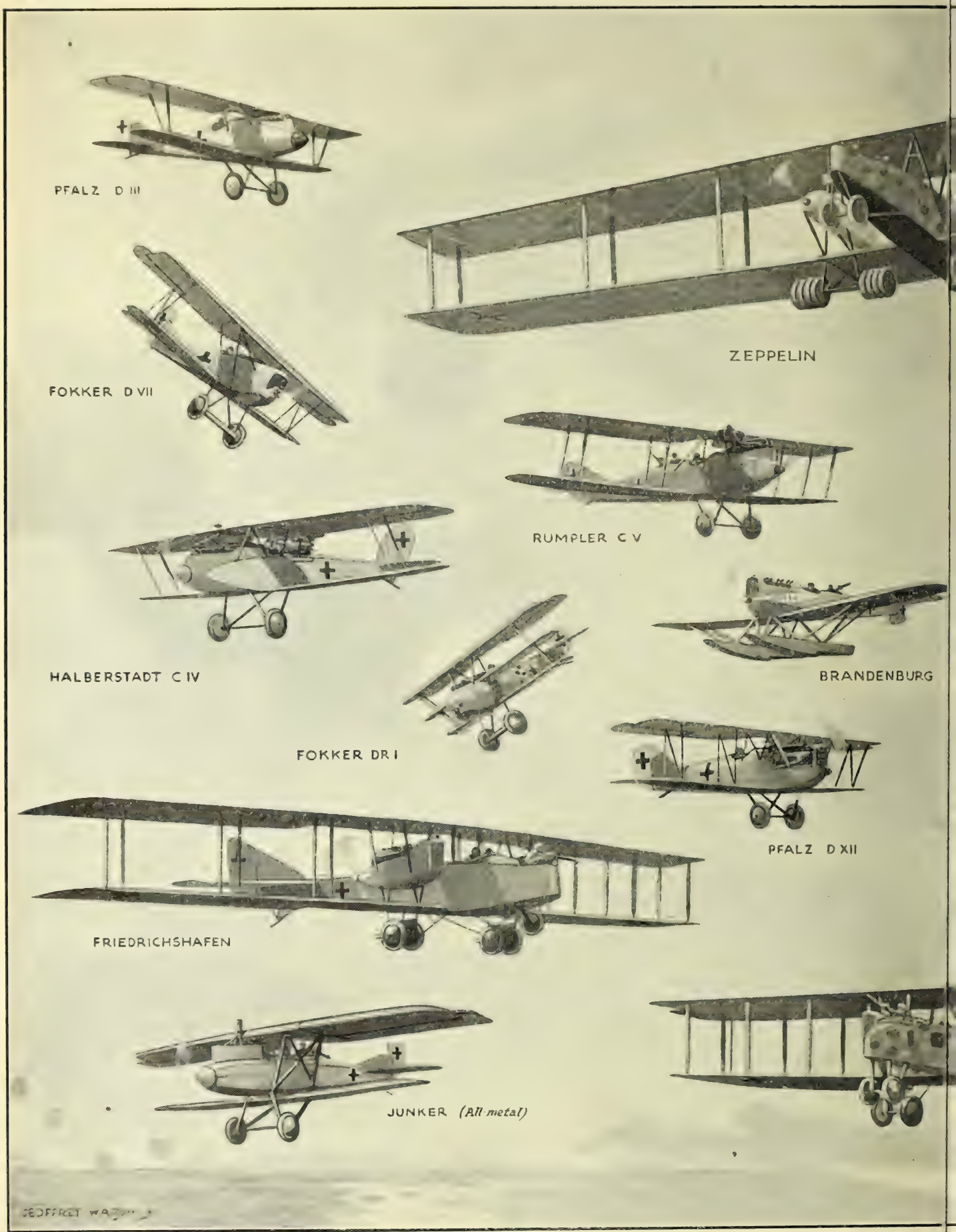
Maj. William John Ryan, R.F.C. (Gazetted Jan. 7th.)

Lt. Foster James Semmons, Anti-Aircraft Defences, Home Forces. (Gazetted June 3rd.)

Lt. Arthur Percy Vanneck, Anti-Aircraft Defences, Home Forces. (Gazetted June 3rd.)



An Enemy Aircraft Review from the German side. The recognisable machines are an S.E., a Handley Page, a Camel, and an R.E.8.


PFALZ D III
ZEPPELIN
FOKKER D VII
RUMPLER C V
HALBERSTADT C IV
BRANDENBURG
FOKKER DR I
PFALZ D XII
FRIEDRICHSHAFEN
JUNKER (All metal)

German Aerc



planes of 1918.

JANUARY 15, 1919. VOL XVI. NO. 2

The AEROPLANE

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THE REVIEW OF THE YEAR—II.

JULY.

Naval.—A submarine (C 25) patrolling off the East Coast on July 6th, was attacked by five German seaplanes under Lt. Christiansen, but managed to get away with the loss of one officer and five men. This manner of attack almost within British territorial waters was now becoming an almost daily incident.

Half a ton of bombs were dropped on Constantinople on July 7th. All five machines returned safely.

During a Grand Fleet reconnaissance off the Jutland coast on July 19th a bombing attack was made on the Zeppelin aerodrome at Tondern Schleswig by R.A.F. aeroplanes from the Fleet. Two attacks were made, a large double shed being destroyed in the first and damage was done in the second, observation being made difficult in the latter case by heavy anti-aircraft fire. Four machines did not return, three of these interning themselves in Denmark.

Constantinople was again bombed at midnight on July 27th-28th, the dockyard being damaged.

During the month numerous bombing raids were made over the Dardanelles area. The Oriental railway was damaged at several points, notably at Kuleli, Burgas, Karagatch, and Uzunkeupri.

Towards the end of the month it was stated that enemy aircraft activity off the East Coast of England had intensified.

H.M. the King visited the Grand Fleet on July 22nd and inspected seaplane-carriers. He decorated several officers of the Royal Air Force.

Military.—Aircraft activity was intense throughout the month. On July 2nd 25 enemy machines were destroyed and 15 driven down out of control.

In the attack south of the Somme on this date our aeroplanes gave great assistance both by preliminary bombardment and by contour fighting during the action.

The Independent Air Force bombed with continued vigour the railway centres in Alsace-Lorraine, depositing from two to four tons of bombs daily.

On July 5th their Majesties the King and Queen of the Belgians came to England by aeroplane on the occasion of the Royal Silver Wedding.

Major Baird stated in the House of Commons on July 15th that Service chevrons were forbidden in the R.A.F.

The Royal Air Force sustained a heavy loss on July 9th by the death of Major James Byford McCudden, V.C., D.S.O., M.C., M.M., who was killed in France through an accident while flying to take over his first squadron. Originally a sapper, he transferred in 1913 to the Royal Flying Corps and received his first commission in 1915 as a reward for all-round efficiency and bravery in action. His consistent gallantry, coupled with true modesty, endeared him to all with whom he had to work. A chivalrous fighter, he carried on worthily the great traditions of the Army he loved so well. With the single exception of the D.C.M., he had all the decorations possible to a soldier for gallantry in action. His memory will help to create tradition in the Royal Air Force, and his example should be a ready guide for all time to new Service pilots.

Captain C. G. Bell, a pioneer of English aviation, who had seen service with the R.F.C. during the first two years of war, was killed in a flying accident near Paris on July 29th, while employed by a firm of aeroplane manufacturers. He had flown many types of aeroplanes during his career, and had earned a great reputation for knowledge and skill.

Throughout the month R.A.F. contingents with the Army had, in addition to their customary work, carried out innumerable bombing raids over enemy back areas, in nearly all cases causing heavy damage. The I.A.F. also carried out daily a set programme of offence, dropping many tons of bombs on German cities, with a high degree of precision.

Field-Marshal Sir Douglas Haig telegraphed on July 2nd to G.O.C., Royal Air Force, France, in the following terms:—

"I wish to express my high appreciation of the brilliant work performed by the Royal Air Force throughout the recent operations. By defeating the enemy's aircraft, and thereby carrying out the important work of observation without interruption, and by harassing the enemy's movements by bombing and machine-gun fire the Royal Air Force have rendered all-important assistance to the other arms. Their constant successes have greatly encouraged their comrades in the field.

"I cannot express in terms of sufficient strength my admiration for the gallantry and skill of all ranks of the Royal Air Force."

Home Affairs.—A strike of aircraft employees broke out during the first few days of the month on various pretexts of the class common to all industrial troubles. The Ministry of Munitions, in accordance with the principle now customary of acceding to the demands of the employed, itself settled the strike. Aircraft production was not seriously retarded by this trouble as there was in existence a very large reserve of aircraft.

In the House of Commons on July 4th Sir J. Butcher asked the Government if it was a fact that British aeroplanes had been supplied to the Chilian Government, and whether this action was likely to disturb the equanimity of other South American Republics. The Under Secretary of State for Foreign Affairs said that the Admiralty had taken over a battleship building in this country for Chili, and that, in addition to monetary compensation, a gift of a few aeroplanes had been made in addition. It was unlikely that other Latin republics would feel or express annoyance.

Sir Basil Zaharoff, G.B.E., a wealthy Greek, placed £25,000 at the disposal of the Government for the purpose of endowing a Professorship of Aviation at the University of London. This gentleman has already founded similar professorships in Paris and Petrograd.

The "Daily Mail," weary of prize cucumbers and puppet Prime Ministers, revived its prize of £10,000 for the first flight, with two or less stops en route, from America to Great Britain, or vice versâ. This prize originally offered on April 1st, 1913, was suspended at the outbreak of war.

Maj.-Gen. the Rt. Honble. J. E. B. Seely, C.B., D.S.O., M.P., Secretary of State for War at the time of the formation of the Royal Flying Corps, who had earned an unenviable reputation for constant inaccuracy of statement in regard to matters affecting his department, was appointed Parliamentary Under-Secretary to the Ministry of Munitions.

On July 18th, at 6,30 p.m., a hostile aeroplane—not of the Gotha type—flew over the Isle of Thanet at a great height. A heavy fire was opened, and it immediately returned to the eastward. Two days later another hostile aeroplane crossed the Kentish coast at 9.35 a.m. under cover of a thick mist. This machine also turned eastward immediately fire was opened. In both cases it is probable that the pilots lost their way.

His Majesty the King inspected No. 1 Balloon Training Wing, R.A.F. (commanded by Lt.-Col. John Dunville, R.A.F.), on July 16th. Major-General Sir Godfrey Paine, Master-General of Personnel, was in attendance.

Mr. Harry Lawson, at one time notorious for his financial dealings in the motor trade, and later for his attempt to exploit the Aircraft Industry in the same manner, was sentenced at the Old Bailey on July 22nd to 20 months' imprisonment in the second division on a charge of conspiracy in regard to a company promotion.

Major Bennett Goldney, a Member of Parliament, who had shown an intelligent interest in aeronautics, and who was one of those concerned in forcing the Government to form the Air Inquiry Committee, died at Brest towards the end of the month as a result of a motor-car accident.

Foreign Affairs.—Lieut. Fonck, the French "Ace," brought down his 49th enemy aeroplane on June 30th.

The markings of German aircraft were altered towards the end of June or the beginning of July from the design based on the Iron Cross to a true Maltese Cross of black edged in white.

The former design was occasionally confused with the circular markings on the aircraft of the Allied Powers.

On July 6th at Brooklands two aeroplanes were presented to the Royal Air Force—one the gift of a South African branch of the Overseas Club, the other a personal gift of Mr. Walter Greenacre, of Durban.

Lieut. Udet, a German pilot of distinction, brought down his 40th aeroplane on July 4th.

American aeroplane squadrons began to appear in numbers during this month, and co-operated with the American troops in the Chateau Thierry sector.

Captain Kenobstadt and Baron Cederstrom flying a seaplane built for the protoplasmic State of Finland by the Swedish Aviation Company, left Stockholm to cross the Baltic some time early in the month. Nothing has since been heard of them. Wreckage of a seaplane was found near the Aaland Islands, and appears to indicate that they have both died. Baron Cederstrom was a pioneer of aviation well known in France in 1909 and 1910. He learned to fly a Blériot monoplane at Pau, in the former year, and had early in the war opened an aeroplane factory in Sweden.

On July 10th in a bombing raid on Coblenz by six American aeroplanes the Germans captured the entire squadron. The crews were all taken prisoner.

The Turkish Government stated that on July 12th an attempt to raid Constantinople was defeated by Turkish fighting aeroplanes.

Lieut. Quentin Roosevelt, youngest son of the ex-President of the United States of America, died of wounds received in an air fight near Chateau Thierry on July 14th. Born in 1896, he joined the American Air Service early in 1917, and came to England in August of that year. In the few weeks before his death he had shown pluck and determination in several aerial engagements, and succeeded in bringing down his first enemy aeroplane a few days before his death.

The last battle of the Marne, which came shortly before the beginning of Marshal Foch's counter-offensive, began on July 15th, and French aircraft were engaged for several days in attacking enemy bridging parties, apparently with but little success. An average of 20 tons of bombs were dropped daily in the enemy back areas. Rail heads, junctions, roads of approach, and bivouacs were consistently bombed.

The Italians bombed Pola in the early morning of July 17th. Shortly after midnight of the day before two naval airships had dropped between two and three tons on the naval anchorage at that place. Eight tons of bombs were dropped in the course of the two attacks. While this operation was in progress a British contingent was bombing Cattaro.

On July 21st a German submarine appeared off Cape Cod and sank three coal barges and a tug by gunfire. American seaplanes made a concerted but ineffectual attack on the submarine, which disappeared in safety.

AUGUST.

Naval.—Five enemy airships, all presumably Zeppelins, attempted to raid England. While still over the North Sea, 40 miles from the coast, they were engaged by an R.A.F. contingent working with the Navy. Of three directly brought to action, one was destroyed (commanded by Captain Peter Strasser), and one damaged. The rest returned safely to their base.

On August 11th a Zeppelin was attacked over the North Sea by a seaplane, and was brought down in flames. The German report on this action states that this airship and reconnoitring aeroplanes over the Frisian Islands sighted a British Naval Force of at least 25 ships of the line with attendant armoured cruisers and other small craft. The German aircraft attacked with machine-guns and bombs the swift minelayers with the British Squadron, and claim to have sunk three of these and one torpedo-boat. These losses were denied by the Admiralty. The Germans admit the loss of one Zeppelin (Commander Proells) and one aeroplane.

Constantinople was bombed on the nights of Aug. 19th-20th, 20th-21st, 25th-26th, and 27th-28th by Naval aeroplanes, according to a Turkish report. In the last raid a British aeroplane was forced to land. Damage was done to the Arsenal and War Office.

It was announced at Ottawa on Aug. 8th by the Naval Department that a Royal Canadian Air Service was to be formed in connection with the Canadian Navy.

Military.—In the third battle of the Somme, the British advance began on Aug. 8th, and British aeroplanes took an important part. The orderly retreat of the enemy was turned into a rout at many points by bombing and machine-gun attack from aircraft. Special attacks were made by low-flying aeroplanes on the detachments serving anti-tank guns. Two enemy advanced aerodromes were captured, at one of which was found a five-engined bombing aeroplane.

On the night of Aug. 10th-11th a five-engined German biplane was brought down in an aerial fight.

An I.A.F. squadron intent on bombing the aerodrome at Hagenau (16 miles north of Strasburg) met a strong force of enemy aircraft shortly after crossing the lines. Action was joined, and after severe fighting four enemy machines were destroyed and one driven down. Two of our machines were brought down. The squadron, enlivened by the engagement, flew on to Hagenau and carried out its appointed task.

During the third Somme battle the practice began of low-flying aircraft screening the advance of whippet tanks by means of smoke bombs.

In the fortnight ending Aug. 24th, 1918, 328 German aeroplanes were destroyed, and 134 forced down out of control on the Western Front.

Squadrons of the I.A.F. flew through heavy thunderstorms to bomb Frankfurt and Mannheim. Much damage was caused, and all machines returned safely.

The Communiqué of Aug. 29th stated that small arm ammunition was delivered by parachute from aeroplanes to troops in the trenches at various points in the battle front.

In a dispatch from Lt.-General W. R. Marshall, G.O.C. Mesopotamian Expeditionary Force, the following reference was made to the work of the R.F.C. :—

"Throughout the whole period covered by this dispatch the work of the R.F.C. has been, as usual, perfectly admirable, and enemy machines, which endeavoured at one time to carry out raids on our camps and communications, were either driven off or brought down. Many reprisals were also carried out on the enemy aerodromes and camps both by day and night. During all operations the R.F.C. have co-operated with other arms, cavalry, artillery and infantry in the closest and most effectual way, whilst the pursuit of the retreating enemy columns has been harassed by our machines in the boldest manner, both by bombing and machine-gun fire."

In a letter dated Aug. 13th, 1918, and written in France to Sir Douglas Haig, H.M. the King said: "I have inspected detachments of the Royal Air Force. Its prowess and established superiority over the enemy make me proud to be General-in-Chief of this last creation in the fighting forces of the world."

Home Affairs.—M. Serge de Bolotoff, son of Princess Wiasemsky, a member of an old Russian house, was married to a daughter of Mr. H. G. Selfridge, who owns shops in New York and London. M. de Bolotoff will be remembered as the builder of a gigantic triplane at Mourmelon le Grand, in 1908-9. He was warned not to make flights in this machine by a friend in another world, who communicated with him through Mr. W. G. Stead. The machine never flew, and all danger was avoided.

On Aug. 22nd there was a reshuffle of the higher appointments at the Air Ministry. Maj.-Gen. Sir Godfrey Paine, K.C.B., M.V.O., one time Commandant of the Central Flying School, was appointed Inspector-General of the Royal Air Force, thus vacating his office as Master-General of Personnel. Maj.-Gen. W. S. Brancker was appointed Master-General of Personnel vice Sir Godfrey Paine, and Maj.-Gen. E. H. Ellington, C.M.G., became Controller-General of Equipment in the place of Maj-Gen. Brancker. These officers have each had a lengthy connection with aeronautics and have held several appointments in the R.F.C. and R.A.F.

The Air Ministry issued on Aug. 24th dress regulations for warrant officers, N.C.Os. and men of the Royal Air Force, detailing the form and colour of the light blue uniform, about which there has been so much heated argument.

During this month Sir Joseph Jonas, a former Lord Mayor of Sheffield and chairman of Sir Joseph Jonas, Colver & Co., Ltd., steel manufacturers, was convicted at the Central Criminal Court of conspiring to obtain information as to Vickers' rifle works at work in the years immediately preceding the war. He was fined £2,000, and was degraded from the degree of Knight Bachelor, which he had received from King Edward VII in 1906. His chief offence would appear to have been his birth at Bingen on the Rhine, in 1845.

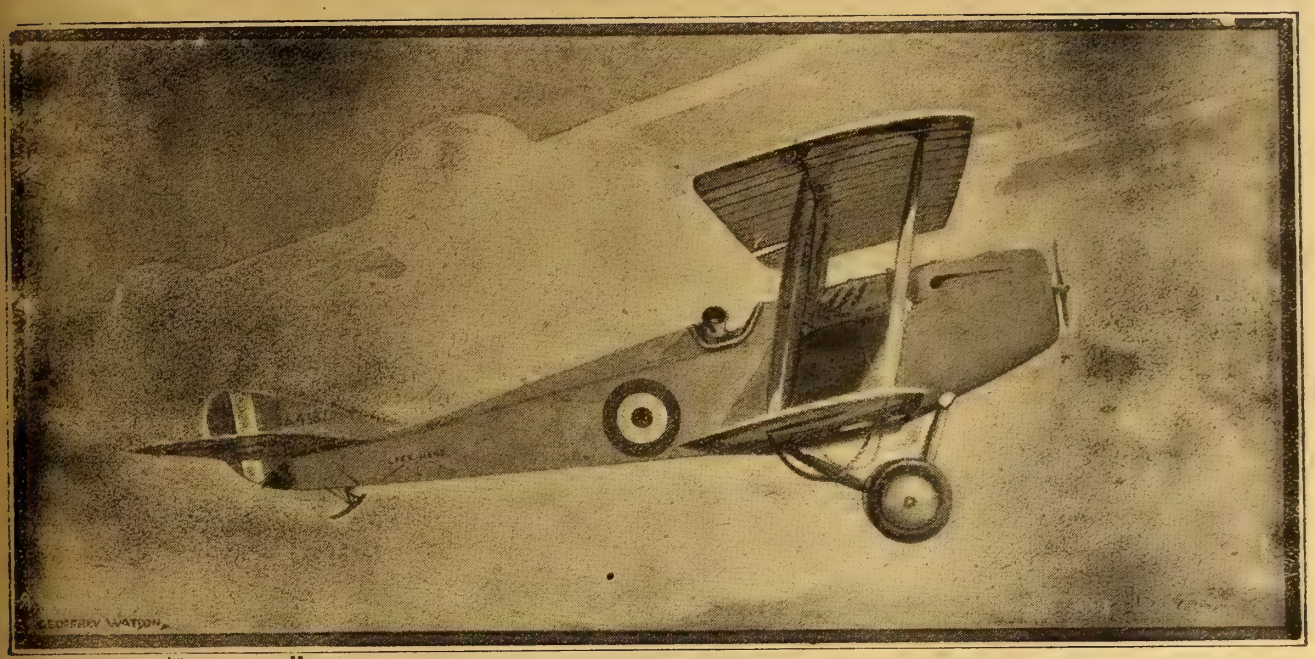
Sir Laming Worthington Evans, M.P., formerly Financial Secretary to the Ministry of Munitions, stated in an article contributed to "Overseas" that British factories were producing at that date (August) in a single week more aeroplanes than were made during the whole of 1914, in a single month more than were made in 1915, and in the quarter more than were made in 1916.

It was stated in Canada on Aug. 15th that there were at that date 13,495 Canadians in the Royal Air Force.

Foreign Affairs.—It was announced early in August, on the authority of a Parisian paper, that several squadrons of young men of Siam, perfectly trained as aviators, were waiting at Bangkok to embark for France. This contingent arrived in France towards the end of the month.

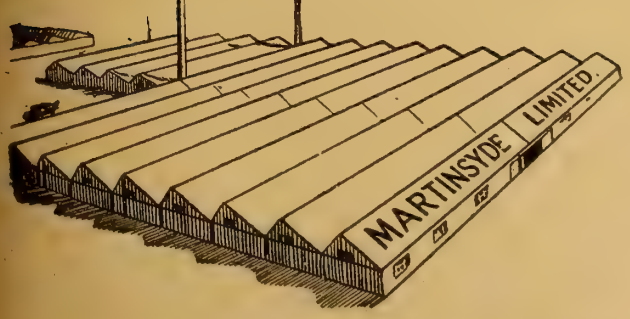
Early in August two Air Force officers with two air mechanics flew from England to Egypt on a Handley Page aeroplane, carrying all necessary spare parts in addition to their own kit. Several stops were made en route.

On August 11th Lt. Löwenhardt, a German pilot of distinction, was killed in action. He had brought down his 52nd and 53rd victims two days before.



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On Aug. 9th a squadron of Italian aeroplanes (one two-seater, seven sigle-seaters), commanded by Major d'Annunzio, the distinguished poet, flew to Vienna and back, 310 miles each way, 250 being ever enemy territory. Over Vienna, tracts containing advice to the Viennese were dropped, but no bombing or other offensive action was carried out. No aerial fighting took place during the raid, and all machines save one, which landed at Vienna Neustatt through engine failure, returned safely.

According to a "Times" correspondent, writing on Aug. 18th, the Germans had by then begun fitting aeroplanes with parachutes, a practice which is recommended to the British authorities. Two cases were quoted by the correspondent of aviators in Fokker biplanes escaping death by the use of parachutes.

On Aug. 17th a regular aerial postal service was started between Paris (Le Bourget) and St. Nazaire, a distance of 250 miles. The pilots were discharged military aviators, and the machines were of a class no longer suitable for military work.

Paris was raided on the night of Aug. 15th-16th between 10.52 p.m. and 12.36 a.m. Many bombs were dropped.

It was stated that Jules Védrines, famous in pre-war days for his skill as a pilot and for uncouth manners, had been engaged for months in landing spies again in German territory, and then, at a later date, picking them up again at pre-arranged points. He received for this the Legion of Honour and the Military Medal. The carrying of spies by aeroplane into enemy territory has been a common practice on both sides during the war.

General Pershing reporting to the U.S. War Department on Aug. 16th stated that a complete squadron of American-built de Havilland biplanes (Liberty engines) had successfully carried out without loss the first strategical reconnaissance over the German lines made by American-built aircraft.

SEPTEMBER.

Naval.—Constantinople was bombed on the nights of Sept. 20th-21st and 21st-22nd. It was claimed that Haidar Pasha Station, north of the Admiralty, was badly damaged. A Greek naval contingent co-operated in these attacks. One Greek and one British machine failed to return.

On Sept. 28th a squadron of large seaplanes carried out a long reconnaissance in the Helgoland Bight.

Military.—A departmental committee, under Mr. Cosmo Bonsor, was appointed early in the month to inquire into adequacy of the staffs at the Air Ministry to carry out the work allotted to them, and to suggest reductions if necessary.

On Sept. 5th the following Air Force areas in Great Britain were formed with similar duties in regard to the R.A.F. as the great Commands have to the Army:—North-Western—Headquarters at Glasgow; North-Eastern—Headquarters at York; Midland—Headquarters at Leamington; South-Western—Headquarters at Salisbury; South-Eastern—Headquarters at London. Ireland—Headquarters at Dublin. Each area was to be under the command of a Major-General, R.A.F.

Early in the month the Honble. Violet Douglas-Pennant resigned her appointment as Commandant, Women's Royal Air Force, and was replaced by Mrs. Gwynne-Vaughan, C.B.E.

It was announced on Sept. 6th that in the weeks since the beginning of the great advance on Aug. 8th, 465 enemy aeroplanes and 61 balloons were destroyed, as against 262 missing British aeroplanes.

While proceeding to bomb Mannheim on Sept. 7th a squadron of the Royal Air Force had to fight continuously for 60 miles on the outward journey, and for the same distance on their way back. Four machines failed to return.

On Sept. 20th the first Communiqué from the G.O.C., Archangel front, referring to aircraft was published. It stated that on Sept. 15th an enemy aeroplane was brought down by gunfire. The pilot and observer escaped.

Particularly good work was carried out on the Western Front on Sept. 28th. Not only were the retreating enemy harassed by machine gunning and bombing from low-flying aircraft, but the intensity and accuracy of the artillery attack was greatly increased by the skilful co-operation of R.A.F. observation aeroplanes. Over 1,000 photographs were taken during the day.

During this month an R.A.F. pilot and observer, carrying out a contour patrol, were fired on from a trench and sunken road. The pilot, annoyed by this untoward attention of the enemy, dived towards the trench, in which there were 56 Germans, firing steadily the while. Panic-stricken, the German party held up a white handkerchief. Accepting their surrender, the pilot signalled to them to march in the direction of the British trenches, which they did, escorted from above by the circling aeroplane. Once in the British lines they were taken over by an infantry detachment. Thus was completed the first capture of infantry by a pilot in the air.

During September 548 enemy machines were destroyed or driven down out of control. Of these 11 were destroyed by anti-aircraft gunfire, and the remainder by the R.A.F.

Home Affairs.—The Air Ministry, with strict adherence to its principle of vandalism, announced with ostentatious secrecy its intention of adding to its vast office establishments several of the houses in the Adelphi, designed and decorated by the Adams Brothers. Those who loved old London, and had a true respect for tradition, were aghast at the prospect of the damage likely to be caused to these graceful relics of a charming past by uncouth members of the R.A.F., either officers or other ranks. Later in the year it became apparent that the Air Ministry were for once overborne by higher authority, and the houses are still undisturbed.

Mr. Bonar Law, in a speech at the Guildhall, spoke approvingly of the unpleasant effect on the *moral* of the German people caused by the activities of the Independent Air Force.

Foreign Affairs.—On Sept. 9th the German authorities announced that on the German fronts 565 enemy aeroplanes were brought down, 251 landing on the German side of the lines.

The United States War Department stated that in future "Air Service" will be the general term for all aeronautical units in the Army.

The aerial mail between New York and Washington, started in July, had by September become a settled service. A charge of 3 cents an ounce on ordinary deliveries and 10 cents an ounce on express deliveries was made. The journey, via Philadelphia, was carried out at an average speed of 90 miles an hour on the double trip.

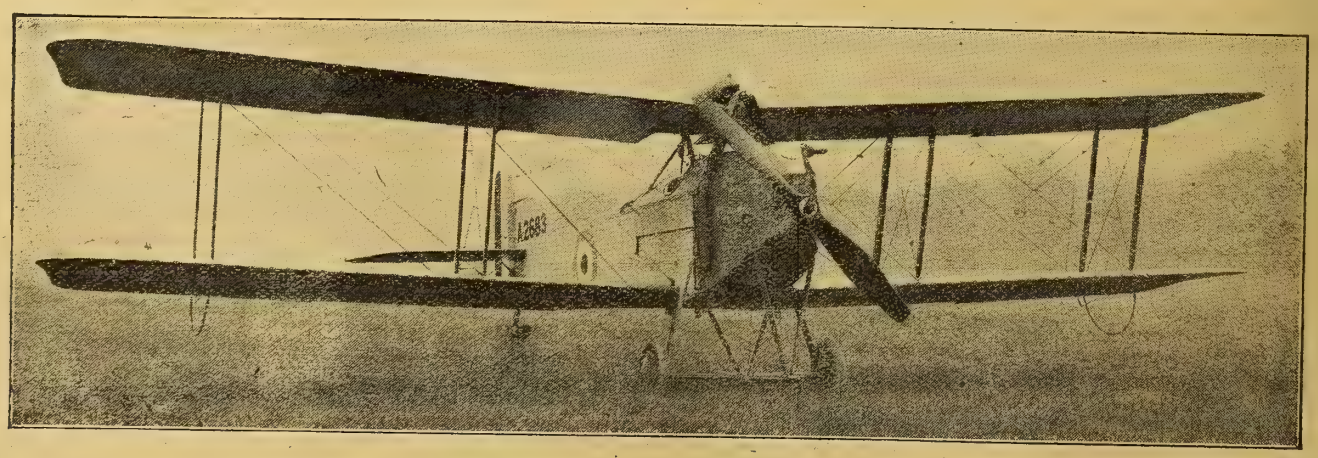
Paris was bombed on the night of Sept. 15th-16th between 1.25 a.m. and 3 a.m. Some bombs were dropped and personal and material damage was caused. The Germans state that 22 tons of bombs were dropped in Paris during this raid.

Lieut. Maurice Boyau, a French aviator of repute, who had brought down 35 German aeroplanes, was reported missing on Sept. 19th. He had been awarded the Legion d'Honneur, the Croix de Guerre with 12 palms, the Medaille Militaire, and the D.S.O.

Several instances were recorded during the month of German aviators and observers landing from damaged aeroplanes by means of parachutes.

In the second week of the month two Italian mechanics, employed at an Austrian seaplane base, stole the seaplane belonging to the Officer Commanding, and flew swiftly and safely to Italian territory. Neither of these mechanics had ever piloted an aeroplane before. Whether true or not, the story possesses charm.

It was reported late in the month that M. Sikorsky, the first successful designer of giant aeroplanes, had joined the Voisin



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Company in France, and that he intended to continue his active interest in the designing of multi-engined aeroplanes.

An aerial mail service between New York and Chicago via Cleveland began on Sept. 5th.

The aerial mail service between Budapest and Vienna came to an end, owing to the mail aeroplane being destroyed at Magyarover. According to the Viennese Press the machine, piloted by two officers, was attacked by an envious eagle, so that the eagle and the airscrew were destroyed simultaneously, owing to an untoward meeting. The machine fell to the ground and burst into flames.

OCTOBER.

Naval.—The R.A.F. contingents on the Belgian coasts continued in this month to co-operate with the Belgian troops in the operations connected with the great advance.

Vice-Admiral M. E. F. Kerr, C.B., M.V.O Major-General in the Royal Air Force), was placed on the Retired List of the Royal Navy on Oct. 1st at his own request. On Oct. 14th he retired also from the Royal Air Force, on ceasing to be employed. Early in the history of aviation he showed keen interest in the subject, and in 1912 he made many long cross-country flights with the late Mr. Gustav Hamel. In 1913 he was appointed to organise the Greek navy, and was responsible for the formation of the Greek Naval Air Service. While in Greece he learned to fly on a Sopwith seaplane—thus being the oldest (in age) British pilot. He was made an extra member of the Air Council as Deputy Chief of the Air Staff in April, 1918, and later was appointed to command the South-Western Area, R.A.F.

On Oct. 17th, as the military situation on the coast of Belgium between Nieuport and Ostend was obscure, a division of destroyers with attendant aircraft reconnoitred the coast. At 11 a.m. a British aeroplane landed on the beach at Ostend and was greeted by a large crowd of Belgian inhabitants. The German troops were at this time still within range of Ostend. The King and Queen of the Belgians, who had wished to proceed to Ostend by aeroplane, landed instead from a destroyer.

The steam packet "Leinster," sailing from Dublin to Holyhead, was sunk, on Oct. 10th, off the Irish Coast by an enemy submarine. The loss of life was heavy. Replies to questions asked in the House of Parliament, both in the Lords and the Commons, on Oct. 22nd, made it clear that an aerial escort was rarely given to steam packets on this route. After the "Leinster" accident steamers cruising the Irish Channel were provided with aerial escort when possible.

Military.—Throughout the month the R.A.F. contingents with the Army on the Western Front assisted greatly the general advance made in this final stage of the present war. The work in its character differed not at all from that of previous months, but it was more arduous and intensive than ever before. The retreating enemy were given no rest on any part of the line in the day or in the night. Bad weather did not prevent the British pilots from flying save when no advantage would be gained from flight.

On Oct. 1st more than 1,700 photographs were taken on the British sectors alone.

Frequent mention is made in the Communiqués this month of the practice of screening infantry advances by the use of smoke-bombs. The transport by aeroplane of small arm ammunition to infantry in the trenches and to machine-gun detachments in the front line had by now become ordinary routine of the day.

During this period of hostilities the kite-balloon detachments with the Army were employed in close proximity to the front line on occasion even within rifle fire by the enemy. One company moved its balloons on one occasion to a position between the front lines and the British outpost—farther forward than balloons had ever previously been employed in action.

One day early in the month it was desired at one point of the line to take a small salient. The Germans were expecting the attack and the casualties to the attacker would have been very heavy. Guile, therefore, took the place of direct action. On the appointed morning, a British aeroplane flew low down about 500 yards behind the German lines and parallel with it. The Germans excited at a possibly easy target devoted their attention to the aeroplane which was flying as slowly as possible. While the Germans in the front trenches were firing at the aeroplane with their backs to the British lines, the British infantry advanced swiftly, and, with little difficulty, captured the position and many prisoners. The aeroplane escaped undamaged, which is a proper finish to a tale of war.

In Army Council Instruction 1110 of 1918 it was ordained that no Army officer was to wear a pilot's badge ("wings") unless employed on work in connection with the Royal Air Force.

On Oct. 9th the official Communiqué referred to the enveloping of enemy strong points by smoke-screens dropped by aircraft. This was a new development in the use of smoke-bombs.

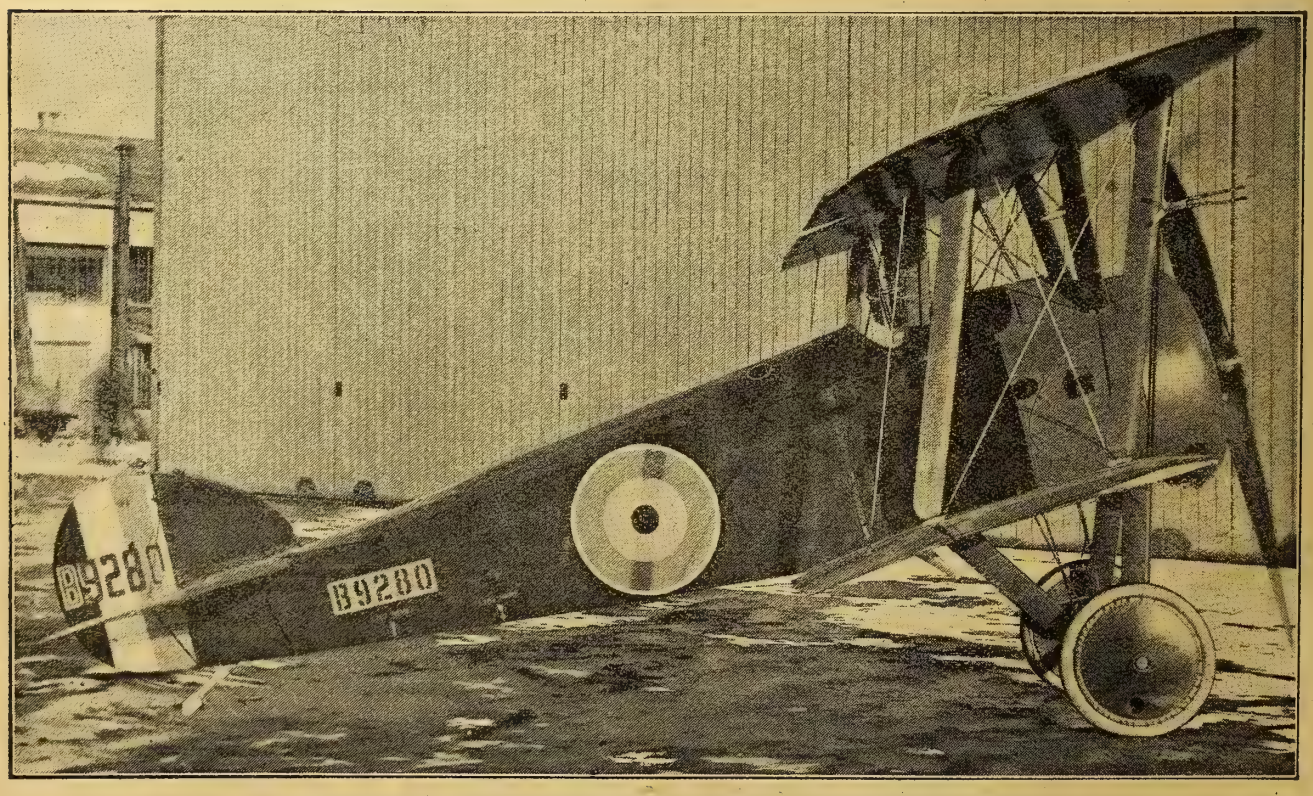
On Oct. 14th the Flanders Group of Armies, under the King of the Belgians, began a fresh attack at 5.35 a.m. British, French and Belgian aviators co-operated in this advance.

Intense activity was shown by German aviators in this sector of the front throughout the day. Thirty-one enemy machines were destroyed before nightfall, while 11 British machines failed to return.

On the night of Oct. 15th the I.A.F., despite heavy rain and thick mists, attacked Frescaty aerodrome and seriously damaged the Zeppelin shed at that place.

On the night of Oct. 22nd-23rd a German night-bombing machine was brought down by Lewis gunfire from the ground.

Very heavy aerial fighting took place on Oct. 30th. During the day 65 German aeroplanes were destroyed in the air, 15 were driven down out of control, and 2 machines were destroyed on the ground at a German aerodrome, attacked by a bombing squadron. Eighteen British machines failed to return. This destruction of German aeroplanes constitutes a record for one day's fighting.



A Boulton and Paul "Camel" (130 h.p. Clergêt) of Sopwith de sign used in 1917-18.



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During the month the R.A.F. on the Western Front destroyed 396 German aeroplanes and drove 128 down out of control. Of British aeroplanes 209 were lost.

The I.A.F. made 64 raids on important German towns during the month, 25 of which were on the Metz-Sablon railway junction.

Home Affairs.—Mr. Cecil Harmsworth was, towards the end of the month, appointed by Mr. Lloyd George to inquire into the reasons underlying the dismissal by the Air Council of the Honble. Violet Douglas Pennant from the command of the Women's Royal Air Force.

On Oct. 23rd H.R.H. Prince Albert, attended by Maj. Greig, R.A.F., travelled from London to France by aeroplane in order to join the Independent Air Force for duty. The Court Circular announcement on Oct. 24th of this flight is the first of its nature in that stately journal.

His Majesty sent the following telegram to the Air Minister on Oct. 31st:—

"I offer you and the Royal Air Force my warmest congratulations on the successful results of air fighting on Oct. 30th and on beating all previous records. Such achievements testify to the spirit which animates all ranks in their determination to maintain our mastery in the air, and cannot fail materially to assist the steady advance of my armies in the field.

"GEORGE, R.I., General-in-Chief."

On Oct. 30th in the House of Commons Major Baird stated that sufficient progress with experimental parachutes for use in aeroplanes had been made to justify their provision for certain types of machines. It was intended to supply them first for machines in France.

The Viscount Cowdray, the first Air Minister, gave on Oct. 30th £100,000 for the establishment and endowment of a Royal Air Force Club. The Committee to select Club buildings and to promulgate initial regulations was to consist of the members of the first Air Ministry, Lt.-General Sir David Henderson, K.C.B., Major-General Brancker, Major Baird, Major-General Sir Godfrey Paine, K.C.B., Lord Weir, Mr. Percy Martin, and Sir Paul Harvey.

A strike of aircraft workers at the Aintree National Aeroplane Factory began about the middle of the month. The question at issue was, as usual, the scale of wages. A settlement was arrived at on Nov. 3rd.

Major Baird stated in a written reply in the House of Commons on Oct. 22nd that three fatal accidents had occurred at Oxford and seven in the neighbourhood during the past three months, and that low-flying over the city was strictly forbidden.

Foreign Affairs.—Lieut. Roland Garros, of the Service d'Aviation Militaire, was killed in an aerial fight over enemy territory on Oct. 5th. One of the earliest aviators, he was throughout among the most distinguished. In 1909 and 1910 he was flying the original Demoiselle monoplane for M. Santos Dumont. Later he flew Blériots, and later still Morane monoplanes. His skill as a pilot in pre-war days was unequalled, yet his modesty and charm remained constant. Early in the war he became an aerial fighter of distinction, and his name was as feared in the German aviation service as it was renowned in France. In April, 1915, he was brought down near Ypres and captured. Nearly three years later, in February, 1918, he escaped from Magdeburg and made his way to the Dutch frontier. Rejoining the French aviation service he revived, without delay, his former gallant methods of fighting.

On Oct. 7th Lieut. Rumey, a German pilot of distinction, was killed in action. He had brought down 21 enemy pilots by May 21st while still a Corporal. Early in June he was promoted Serjeant-Major, and at the end of the month he was given a commission. Before his death he had destroyed 45 enemy machines.

The Aero Club of America awarded on Oct. 6th the American altitude record to a pilot with the almost improper name of Capt. Ruddy W. Schroeder, who, on Sept. 18th, at the Wilbur Wright Field, Fairfield, Ohio, reached an altitude of 28,900 ft. above sea-level on a Bristol Fighter (300 h.p. Hispano-Suiza engine).

The presence of American seaplane squadrons in the Adriatic was revealed to the world by the advertising department of the American Navy in communiqués extolling the virtues of their best brand of aviator.

On Oct. 6th Lieut. Fonck, the leading French fighting pilot, is said to have brought down four enemy machines in 20 minutes.

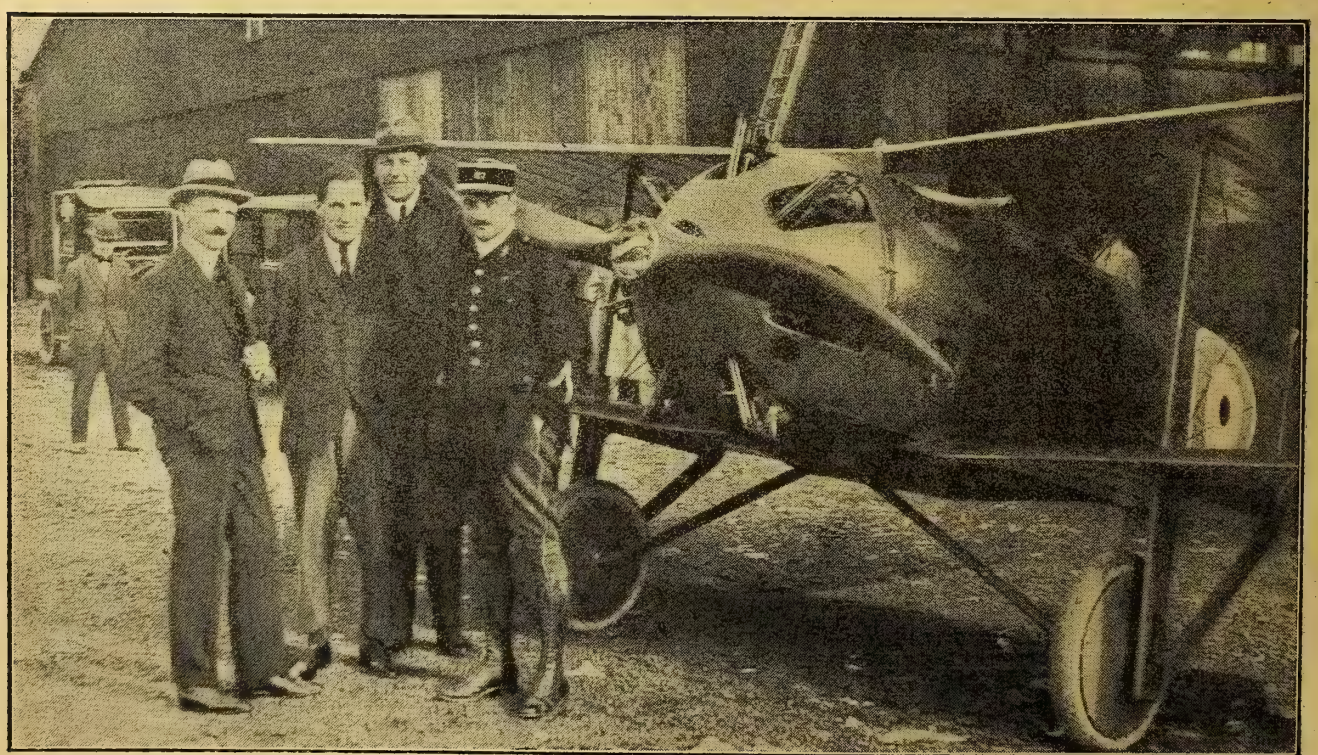
M. Léon Morane, a pioneer of French aviation, died of pneumonia in Paris early in the month. In early days he flew Blériots, and in 1910 was, with his brother, seriously injured in an attempt to fly to the Puy de Dôme under the terms of the Prix Michelin. After his recovery he joined M. Borel in the manufacture of monoplanes, and in 1912 founded the Morane-Saulnier firm, whose aeroplanes were almost invincible in the air throughout 1913 and 1914. To-day their machines are in use in all Allied Armies.

NOVEMBER.

Naval.—In the second week of the month Vice-Admiral Sir Roger Keyes, K.C.B., commanding Dover Patrol, issued the following communication:—

"The Chief of the Staff of the Belgian Army communicated with the General Officer Commanding 2nd Army under the impression that the 5th Group, R.A.F., were under his orders. The King of the Belgians, however, asked me to convey to the 5th Group an expression of his admiration for the great bravery and skill they displayed in carrying out the task allotted to them under the most difficult and dangerous weather conditions, and his thanks for their services which were invaluable and greatly contributed to the success of the operations."

The following is a translation of the letter from the Chief of Staff of the Belgian Army to which Admiral Keyes refers in his communication:—



The last photograph of Lieut. Roland Garros. He is here seen at Villacoublay with the Bat biplane and A.B.C. engine which he had just been testing. With him, reading from left to right, are M. Pierre Maréchal, Mr. Peter Legh, and Mr. Frederick Koolhoven.

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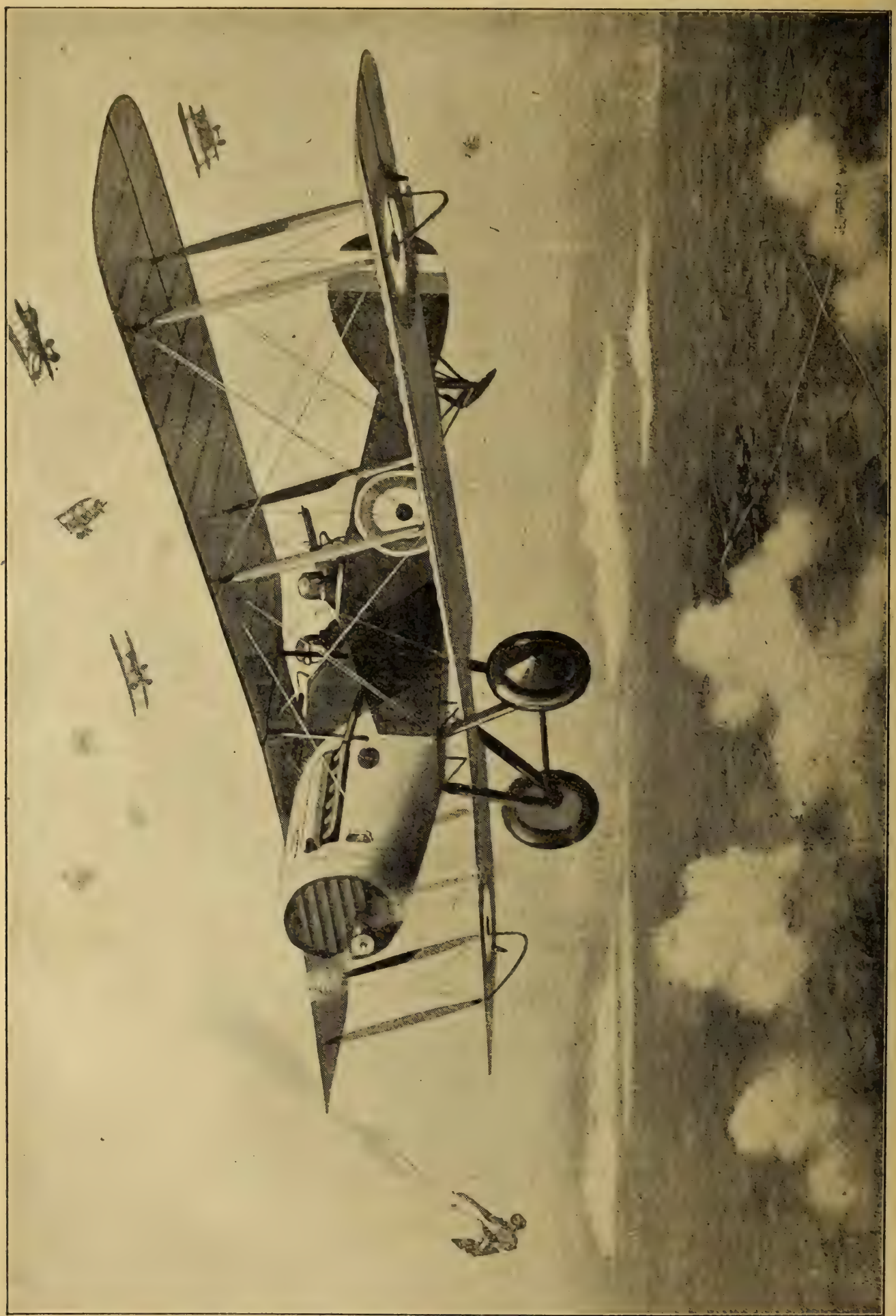
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"I have asked General Sir H. Plumer, Commander of the 2nd British Army, to convey to you the gratitude of the Belgian Army for the magnificent work accomplished by the Air Force under your Command during the offensive launched on Sept. 28th. The part played by your aviators in the battle was extremely important; in spite of unfavourable weather conditions your gallant aviators accomplished their tasks with consummate ability, great boldness, endurance, and a most sublime spirit of sacrifice.

"They thus greatly contributed to the success of the Belgian Army in its first great offensive.

"We desire to thank you, Sir, for your energetic and wise leadership, which ensured the accomplishment of these glorious exploits.

"Please transmit our admiration and gratitude to your heroes and express to them the most hearty congratulations of the Belgian Army for their marvellous co-operation during the Anglo-Belgian offensive in Flanders."

On Nov. 20th, 20 German submarines were surrendered to Rear-Admiral Sir Reginald Tyrwhitt's squadron in accordance with the terms of the Armistice. Several airships (one of them, R 26, a large rigid) and seaplanes accompanied the escorting squadron from and to Harwich.

Their Majesties the King and Queen and the Prince of Wales visited the Grand Fleet at Rosyth and, among other vessels, inspected H.M.S. "Furious," a large ship specially equipped as an aeroplane carrier.

On the following day a large proportion of the effective vessels of the German Fleet were surrendered to a composite squadron of the Grand Fleet in accordance with the pre-arranged scheme. British airships and seaplanes accompanied the squadron in great numbers.

Sometime early in November, H.M.S. "Campania," a seaplane-carrying ship, once a famous cross-Atlantic steam packet, sank in the Firth of Forth owing to having drifted into a battleship during a gale. She was engaged in the outskirts of the Jutland battle and towed the disabled "Warrior" for ten hours.

Military.—In the Austrian retreat in Italy the Royal Air Force contingent did continuous and excellent work in harassing the retiring troops.

The Armistice between the contesting Powers was signed at 5 a.m. on November 11th, and came into effect all along the line at eleven o'clock on the same day. The following are the conditions of the Armistice relating to aircraft.

"IV.—Surrender in good condition by the German Armies of the following equipment:—

2,000 Aeroplanes (Fighters, Bombers—firstly D.7s—and night-bombing machines).

"XXVII.—All Naval Aircraft are to be concentrated and immobilised in German bases to be specified by the Allies and the United States of America.

"XXVIII.—In evacuating the Belgian Coasts and Ports, Germany shall abandon all merchant ships, tugs, lighters, cranes and all other harbour materials, all materials for inland navigation, all aircraft and air materials and stores, all arms and armaments, and all stores and apparatus of all kinds.

"XXIV.—The duration of the Armistice is to be 36 days, with option to extend. During this period on failure of execution of any of the above Clauses, the Armistice may be denounced by one of the contracting parties, on 48 hours' previous notice."

* * *

The following is among the conditions of Armistice with Austria-Hungary:—

"All Naval aircraft are to be concentrated and immobilised in Austro-Hungarian bases to be designated by the Allies and United States of America."

Up to the end of Nov. 10th and the early morning of Nov. 11th the R.A.F. units in France continued their intensive offensive against the enemy. Sixteen enemy machines were brought down during the day with a loss of nine British aeroplanes.

During the night 20 tons of bombs were dropped on railway centres and large towns behind the German lines. No British machines failed to return.

The I.A.F. on the night of Nov. 10th-11th bombed its favourite objective, the railway triangle at Metz-Sablon as well as several aerodromes. No British machines were lost.

The following appeared in the daily papers of Nov. 26th:—

"Now that the final submission of Germany by the surrender of her fleet and submarines has taken place, the Air Council desire to express their gratitude to all ranks of the Royal Air Force for their share in the long series of operations which have ended so triumphantly for British arms, and their deep admiration for the valour and devotion to duty which has been shown through all vicissitudes.

"In every theatre of war, by sea and by land, the assistance of units of the Royal Air Force has been a factor of ever-increasing importance in the operations of the Navy and Army; in these islands, also, the Home Defence Squadrons, under conditions of great difficulty and danger, have successfully met the menace of the enemy's attack by air on the civil population.

"In recent months the work of the Independent Air Force has had moral and material effects, which have contributed powerfully to the disintegration of the enemy's capacity for resistance.

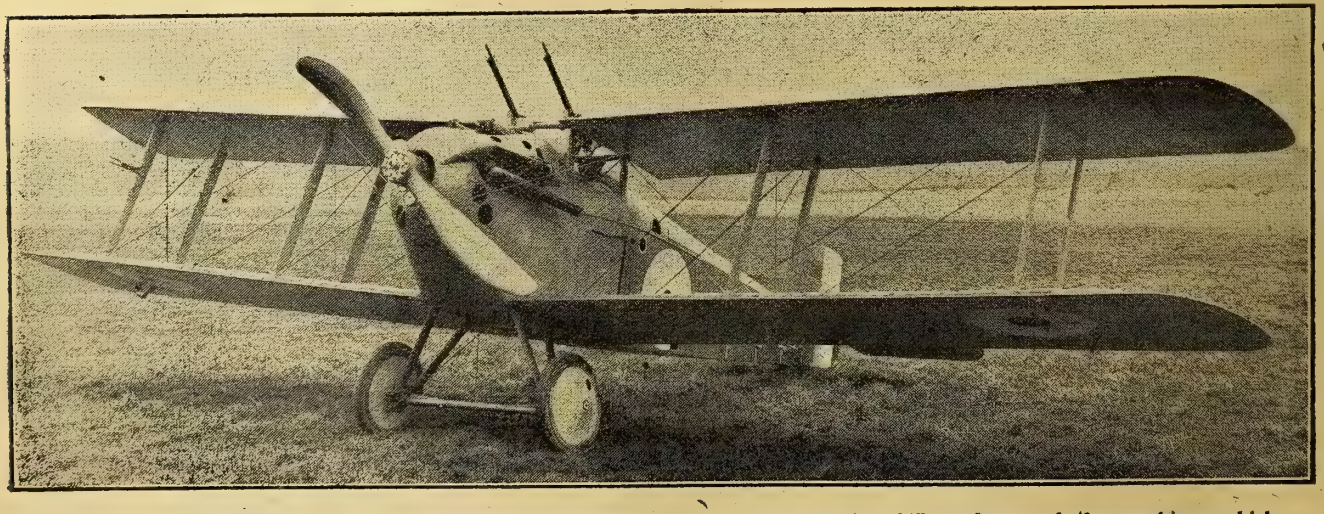
"These results are due to the brilliant and inspiring leadership, Staff work, and organisation of the Force, to the self-sacrifice and daring of pilots and observers, the unceasing care, under arduous conditions, of the ground personnel, the courage and devotion of flying instructors at home, and to the ingenuity and industry of all ranks in the equipment branches.

"To all these, as well as to all the members of the Women's Royal Air Force, the Air Council tender the expression of their warmest admiration and gratitude in a spirit of thankfulness for the great results which, from small beginnings, have been achieved by the Air Service, and with the hope and the confidence, that, as aviation has shown itself to be so potent a factor in war, so it may also prove itself to be a beneficent influence in the peaceful development of civilisation."

In a letter written on Nov. 24th, by Sir Arthur Lawley, British Red Cross Commissioner in France and Belgium, it is stated that the Independent Air Force had assisted greatly, since the beginning of the Armistice, in the distribution of rations to prisoners of war camps on the German frontier.

It was stated in an official communiqué that between Jan. 1st and Nov. 11th, 1918, the R.A.F. (and the R.F.C. and R.N.A.S. before April 1st presumably) destroyed 3,539 enemy machines and drove down 1,251 out of control. In this period 1,420 British machines failed to return. It must be remembered that the latter does not necessarily include British aeroplanes brought down behind the British lines.

Canadian Headquarters announced early in November that the officer who fought 60 aeroplanes single-handed, destroying four and bringing six down out of control before forced to land himself through severe wounds, was Major W. G. Barker, D.S.O. (with two bars), D.F.C., and M.C. (and bar) and Italian Cross of



The Sopwith "Dolphin" (150 h.p. or 200 h.p. Hispano-Suiza). Used in France in 1917, and one of the machines which finished the war.

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Honour. This officer, a Canadian, has since been awarded the Victoria Cross.

Home Affairs....Capt. B. C. Hucks, R.A.F., who had been engaged for the past two years in testing aeroplanes for the Aircraft Manufacturing Co., Ltd., died of pneumonia on Nov. 6th. He had had a most successful career as pilot and was one of the first aviators to popularise aviation by successful exhibitions. He was the first to introduce "looping the loop" as a habit in English aeronautics.

Lord Weir in a speech at the Lord Mayor's banquet at the Guildhall on Nov. 9th said that "the future of aviation—the future, perhaps, of the Air Force—will come, I hope, from the needs of peaceful commerce rather than from the tragic necessities of war, and one of the duties of the Air Force will be to maintain and still further develop that degree of technical superiority which we have now achieved."

The Director of the R.A.F. Medical Service having resigned his appointment owing to a difference of opinion with the Medical Administration Board, Col. M. H. G. Fell, C.M.G. was appointed in his stead.

Lord Weir again eulogised the R.A.F. in a speech of great clarity delivered on Nov. 15th at the opening to the public of the Enemy Aircraft Exhibition at the Agricultural Hall, Islington.

Mr. Holt Thomas announced on Nov. 15th that he had made all arrangements to begin an aerial passenger service between London and Paris, and was only awaiting Government permission.

On Nov. 15th Mr. Clifford Prodger piloting a Handley Page biplane (two 350-h.p. Rolls-Royce engines) carried forty passengers in a flight over part of London. The total human load was 6,022 lbs., and the petrol carried was sufficient for six hours.

The outbreak of rabies in Devon and Cornwall at the beginning of November was imputed generally to the carrying of dogs from France to England by aeroplane—though this was denied officially.

The Secretary of the Air Ministry stated the total casualties in the Royal Air Force from April 1st, 1918, to Nov. 11th, 1918, were 7,589 all ranks killed, wounded, missing, prisoners and interned, of which 1,551 officers and 1,129 other ranks were definitely reported to be killed.

Foreign Affairs.—On Nov. 4th, 45 day bombardment and 100 pursuit aeroplanes of the American Army deposited five tons of bombs on the crowded enemy columns and transport at Montmédy.

On Nov. 20th Major-General Biddle of the U.S. Army stated that it would not be long before all the American troops had returned to America, among them being about 20,000 aviation personnel, part of which was in England.

On Nov. 19th Lieut. Dietrichsen of the Norwegian Navy is said to have created a Norwegian record by flying 620 miles in 8½ hours.

DECEMBER.

Naval.—An Italian semi-rigid airship, bought by the Air Ministry, was navigated from Rome to England by three officers and six other ranks, R.A.F. The flight began on Oct. 29th and final landing was made at Folkestone on Nov. 1st. Stoppages en route had been made at Marseilles and Paris.

On Dec. 5th an Allied Naval Commission, with Brig.-Gen. Masterman, C.B.E., R.A.F., and Col. R. H. Clark-Hall, D.S.O., R.A.F., representing British military aeronautical interests as members, inspected airship and seaplane stations in Germany. Norderney, Helgoland, Borkum, Nordholz, and Sylt were among the many stations visited. All aircraft were put out of action by the orders of the Commission save a small number necessary in order to carry out necessary service routine.

The regulations governing the award of the 1914-15 Star to officers and men of naval units who have served in a theatre of war between Nov. 22nd, 1914, and Dec. 31st, 1915, were issued at the beginning of the month.

Military.—On Dec. 12th, Maj.-Gen. W. G. H. Salmond, D.S.O., Brig.-Gen. A. E. Borton, Capt. Ross-Smith, A.F.C., and two mechanics arrived at Delhi from Cairo on a Handley Page biplane (two 350 h.p. Rolls-Royce engines). They left Cairo on Nov. 30th and stopped en route at Damascus, Bagdad, Bushire, Bandar Abbas, Charbah, Karachi, and Nasirabad.

On the following day another Handley Page biplane, piloted by Maj. A. S. Maclaren, M.C., with Brig.-Gen. McEwen, Capt. Halley, and three mechanics on board, left for India viâ Egypt. Fog and bad weather delayed this machine, which arrived at Cairo about the end of the month.

It was stated in the Canadian Press on Dec. 10th that the demobilisation of the Royal Canadian Air Service had been decided upon by the Department of Naval Services.

It was announced in The Aeroplane on Dec. 31st that Maj.-General Brancker, A.F.C., Master-General of Personnel, was to be allowed to resign his appointment in order to join Mr. Holt Thomas in his aerial transport schemes. This statement was confirmed officially on Jan. 4th, 1919.

In a dispatch from Gen. Sir Edmund Allenby, G.C.B., G.O.C., Palestine Expeditionary Force, the following specific reference was made to the R.A.F. contingent serving with that force:—

"Brilliant work has been done by the Palestine Brigade, Royal Air Force, and the Australian Flying Corps, not only during the actual operations, but in the preceding months. The process of wearing down the enemy's strength in the air had been continuous throughout the summer. Our ascendancy in the air became so marked towards the end of August that only a few of the enemy's aeroplanes were able to fly, with the result that my troops were immune from air attacks during the operations, and the whole strength of the Air Forces could be concentrated on the enemy in his retreat.

"Besides taking an active part in the fighting, the Air Force provided me with full and accurate information as to the enemy's movements."

Home Affairs.—On Dec. 7th the reports (Interim and Final) of the Civil Aerial Transport Committee were issued as a White Paper.

Major H. F. Wood, 9th Lancers and R.A.F., manager since 1911 of the Aviation Department of Vickers, Ltd., died of meningitis on Dec. 11th, 1918. He had seen service in South Africa and in the early part of the present war.

In the boxing tournament for the King's Trophy held at the Albert Hall on Dec. 11th and 12th the Royal Air Force tied with the Navy for third place with 32½ points.

It was stated in the "Daily Express" on Dec. 18th that the Air Ministry was shortly to be abolished, that the War Office would again take charge of military aeronautics, and Lord Weir had resigned his portfolio as Secretary of State. On the following day the Secretary of the Air Ministry officially denied the statement that the Air Ministry was to be abolished. As it lies to the Cabinet to deny a statement as to the future of a Government Department one need not necessarily accept the denial as indicating any more than the Secretary of the Air Ministry's ignorance of any proposals for the dissolution of the Air Ministry.

Mr. Bertram Jones, Honorary Civil Adviser to the Comptroller-General of Equipment, relinquished his office, as in view of the Armistice and possible early demobilisation the work on which he had been engaged had ended. He was thanked by the Air Council for the valuable services rendered by him.

Mr. G. F. Mort, F.R.S., the designer of the N.E.C. engine and a pioneer of aviation, died on Dec. 27th.

In a speech delivered at an official luncheon, given by the Lord Mayor of Manchester on Dec. 20th, Lord Weir again said that he thought the Air Ministry should, in the future, in addition to its other duties, undertake the development of civil aviation in this country.

On the announcement of the poll of the General Election, held on Dec. 14th, it was shown that all save three of the candidates interested in aeronautics were elected.

Foreign Affairs.—H.I.H. the Crown Prince of Prussia, in an interview with a correspondent of the Associated Press, given in Holland on Dec. 3rd, is reported to have said:—

"The air raids on London and other towns and the big gun bombardments of Paris were useless from a military point of view, and, in fact, silly. As regards air raids, I suggested two years ago an international agreement confining air activities to the actual war zone, but my opinion was entirely disregarded. I was told my job was to command armies."

Early in the month it was stated that a Federal Air Ministry was to be established in Berlin, and that Herr August Euler was to be first Under Secretary of State.

On Dec. 12th Lt. Godoy, of the Chilian Military School of Aviation, flew on a Bristol "fighter" from Santiago, Chile, to Mendoza, in the Argentine, in one hour and a half, crossing the Cordilleras of the Andes. This flight establishes a Chilian height record.

On Dec. 7th aerial mail services began between certain large German towns. Services were, for instance, instituted between Berlin and Munich, Cologne and Königsberg. The passenger fare was at the rate of 2½ marks a kilometre (about 4s. a mile).

Brig.-Gen. Rhodes, an American member of the Armistice Commission, while flying as a passenger in an aeroplane from Treves to Paris on Dec. 22nd, was seriously injured through the machine running into the ground while travelling through a fog. The pilot, an English officer, was killed.

The Aero Club of America subscribed £50,000 to pay for a Polar expedition under Capt. Edmund Bartlett, during which an attempt is to be made to cross the North Polar region by aeroplane.

The foundation-stone of a monument to the late Mr. Wilbur Wright was laid at Le Mans on Dec. 22nd in the presence of an august assembly and the American Ambassador.

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ON THE R.A.F. IN 1918.

BY C. G. GREY.

When that fatal First of April, 1918, brought into existence the hermaphrodite affair known as the Royal Air Force all who had any real understanding of the nature of the King's Service expected loss of efficiency on active service and chaos and intrigue at home. They were not at fault in their expectations. But, be it said, and be it said most emphatically, there was no loss of efficiency abroad among the fighting personnel of the Flying Services.

The R.N.A.S. and the R.F.C. were mixed by the politicians at home. They even mingled freely and amicably in the same squadrons and messes. But they have never amalgamated. One might as well try to amalgamate oil with vinegar as the Navy-trained aviator or airman with him who has been Army-trained. Considered as a salad-dressing the R.A.F. has turned out to be a fair-to-moderate effort. As a scientifically organised cock-tail it is a hopeless wash-out.

One ventured in its earliest days to prophesy that this mix-up could not last, and one expects confidently to see it announced in a few days that the two services are separated again. It is obvious that the Navy will not be content to draw its aircraft and its aviators from a poor relation of the War Office.

The Navy's airships have never been under the Air Ministry either for design or construction, and, though the airship personnel has been supplied by the R.A.F., for training, discipline and operations they have been entirely under the Navy. It was practically decided some time ago that airship personnel would revert entirely to the Navy on April 1st next, the beginning of the next financial year. And, as things now stand, it will be rather surprising if the whole of the Naval side of the R.A.F. does not go over with them on the same date.

It is possible that there may be delays, owing to events of minor importance, such as Peace Conferences, Cabinet-making and so forth, but it is bound to happen sooner or later. And the sooner the better, so far as the feelings of all ranks of the R.N.A.S. are concerned.

There will be some R.N.A.S. people who will wish to transfer to the Army. They are almost wholly the people belonging to the shore-going squadrons which did such good work at Dunkirk despite the variegated types of officers who have commanded them, and to the squadrons which worked with the Army elsewhere in France. Most of these people have no love for the Navy and prefer to pose as soldiers, something like the hero of that gorgeous story in "Punch," the ex-Commander R.N. who in this war became a cavalry subaltern, and so prided himself on being a soldier that when crossing the Channel he took an emetic to prevent any chance of anyone mistaking him for a sailor.

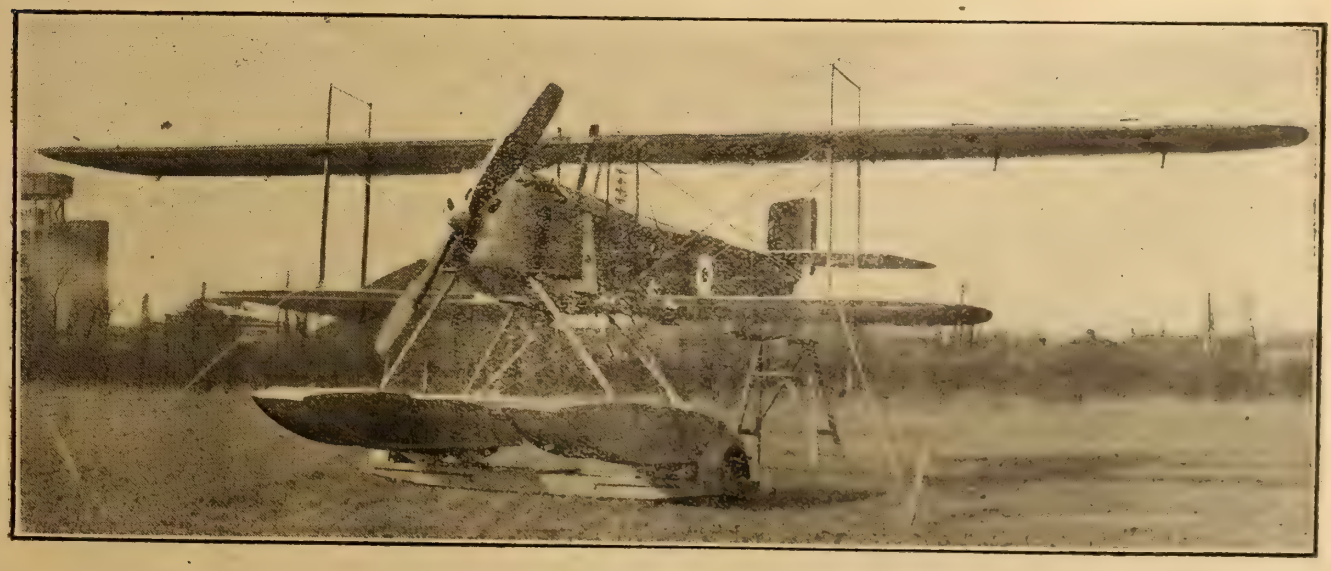
The Sea-going R.A.F.

When one considers how the truly Naval side of the R.A.F. has been treated one quite understands why it wants to go back to the Navy. It will be recalled that on occasion one has referred delicately to the folly of mixing up the air-mechanics—or airmen as they are now called—of the two Services. In the course of an argument on the subject the other day a violent R.A.F.ist insisted that it did not matter, and argued that an R.N.A.S. mechanic from a Porte Boat squadron would tune Rolls-Royces equally as well as a mechanic in an H.P. squadron of the Army or of the Independent Force R.A.F. It sounds plausible enough, but it does not work out in practice.

For example, about the middle of 1918 a certain seaplane carrier in the Meriterranean had a bunch of mechanics sent to it from an Army squadron in England to replace its old and skilled R.N.A.S. mechanics, who were brought home. The men were Army trained and regarded themselves as soldiers. They hated the ship, they hated the sea, they hated the Navy and all its works. They knew all about all the Army engines and aeroplanes, but they had never seen a seaplane or the engines used therein till they came to the ship.

The N.C.Os. under whom they had to work were old Warrant and Petty Officers R.N. or R.N.A.S. and they hated them worse than they had ever hated a Squadron Sergeant-Major. The said N.C.Os. had been brought up in the ways of the Navy, with the Navy's methods of discipline—which are not the civil and gentle ways of the Army—and, moreover, they despised these R.F.C. people as being a lot of "ruddy grabbies,"—which is one of the Navy's opprobrious epithets for the mere soldier.

The result was that what had been quite a happy ship became a hive of discontent, and what had been quite a fairly efficient batch of seaplanes became hopelessly inefficient, partly because the men did not know their engines and partly because they took no interest in their work. Happily by that time most of the Hun submarines had been scared out of the Mediterranean, chiefly by kite-balloons, and so the inefficiency of the ship's seaplanes mattered little. But it requires no vast imagination to see what the result of this insane craze for mixing the personnel of two distinct Services would have been i



Front View of a Fairey Seaplane: 1917 type.

the Empire's sea-traffic had depended to any extent worth mentioning on the efficiency of its seaplane carriers.

Nothing reflects greater credit on the pilots and observers of the sea-going R.A.F. than the fact that, knowing all the trouble stirred up by the mixing process, they continued to do their patrols without hesitation. How many lives have been lost through accidents to seaplanes improperly rigged or badly tuned by mechanics trained for the Army can never be ascertained, but the loss of those lives and the agony suffered by the men who drifted helpless out at sea till death came to their release, will be an added damnation for the souls of the self-seeking politicians—both in and out of the Services—whose intrigues and tricks brought such things to pass.

Sea-Patrols on Land Machines.

Fortunately the sea-going R.A.F., being young and high-spirited, merely cursed the said politicians and went on with their jobs as best they could. One has indicated in a previous issue that the tame geniuses of the Technical Department at one time in 1918 conceived a violent dislike for seaplanes and took it into their silly heads that the real thing for over-sea patrol work was a land machine, fitted with air-bags in the pious hope that it might keep afloat if forced to come down in the sea. So the R.A.F. people went patrolling on whatever was given them.

For example they crossed the Adriatic to bomb Austrian ports on land machines with engines which they knew could only do the out and home journey by dint of hoping for the best. And somehow most of them used to get home somehow. Those who fell into the sea were generally fished out by picket-boats or trawlers, and the fact that some £4,000 or £5,000 worth of perfectly good aeroplane went to the bottom was cheerfully forgotten in the joy of getting home again. And next day they would climb into new machines and go and do it all over again.

The fact that if they had had float seaplanes or flying boats they could probably have taxied home on the surface, or could have put their engines right and have got off again, was quite a minor matter. But it is one for which the Technical Department ought to be called to account at some future date.

The Coast Patrols.

Similarly our own coast patrols went out on land machines. For this work they used the funny old D.H. 6s. commonly known either as Sky-Hooks, Clutching Hands, or Crabs, with 90 h.p. Raf engines and a speed of about 50 miles an hour. They were quite good school machines when Captain de Havilland first designed them, they were already obsolete when they first began to come through from sub-contractors, and the last thing for which they were ever intended was flying over the sea. But over the sea they went, hunting for submarines and convoying merchant ships, and into the sea they fell with the pertinacity of a performer in a greasy pole competition.

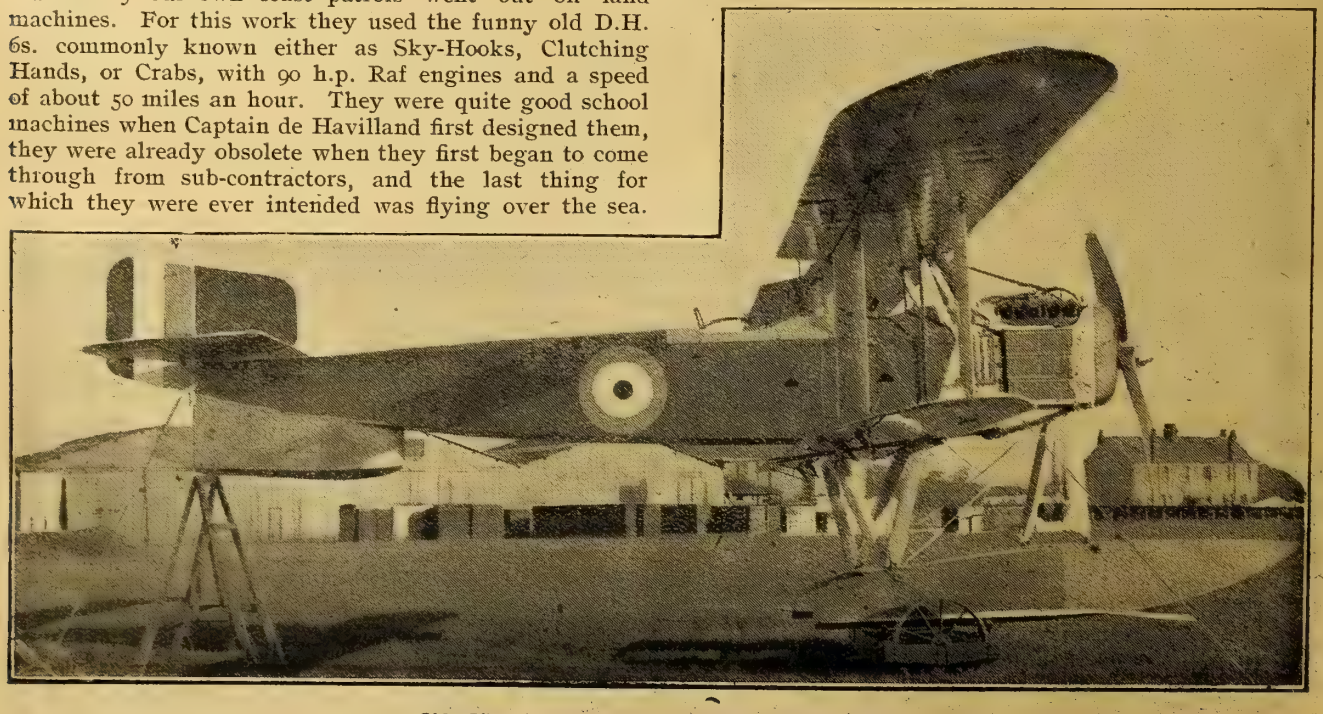
Some coast stations, greatly daring the wrath of the High Authorities who disliked seaplanes of all sorts, used to send out a flying-boat with the land-machine convoys in the hopes of picking up the crews of any which fell into the ditch. Some were saved in this way, and some were picked up by trawlers or destroyers. Some, but not very many considering the wide-spread extent of this imbecile custom, were drowned. But the great thing was that a lot of undesired machines were "lost on active service," and so the scandal of burning them on land in order to save their storage room was happily avoided.

So the faces of the Technical Department were saved at the cost of the lives of a few aviators, which, as one has said before, nobody minds very much in these days, —except a few of us old hands who know what an aviator's feelings are, who have lost some of our dearest friends in the past through the criminal carelessness and bigoted ignorance of Government "experts," and who would cheerfully be in the firing party detailed to carry out the sentence of the Court-martial if the said experts ever received their deserts.

The Sea-Going K.Bs.

The devil of it all is that all these nonsensical over-sea patrols, these "suicide clubs" as some of them called themselves, were utterly needless. All the ships which they ever saved could have been saved, as the "Leinster" and dozens of other ships could have been saved, if only someone in the Navy had had enough intelligence to tie a kite-balloon onto the tail of one or two ships in each convoy.

The work of the kite balloons at sea has been extraordinarily effective. It is, one believes, a fact which is recognised officially, though hitherto kept assiduously secret, that in the Mediterranean, where for months on end never a convoy got across without losing one or more ships through the action of enemy submarines, no convoy which was thereafter equipped with kite-balloons was ever so much as attacked. The reason was simply that the submarines saw the kite-balloons long before the



Side View of a Fairey Seaplane, 1917 type.

kite-balloons saw them, and knew that the K.Bs. would see them before they were within torpedoing range and would turn the convoy's guns and destroyer escort onto them before they had a chance of doing damage.

THE K.Bs. SPHERE OF INFLUENCE.

A well-organised force of big seaplanes and flying-boats and airships searching for submarines out at sea or round the coasts off the convoy routes would have achieved good results, and kite-balloons with the convoys themselves would have prevented attack. And so there was no need whatever for these insane escorts of land machines, which merely wasted money and lives.

The efficacy of the kite-balloon was preached in season and out of season by officers who knew their jobs. Half-a-dozen K.Bs., or probably more, can be built for the price of one ordinary aeroplane. And yet the High Authorities refused to listen to anybody except their tame experts at home. Now, however, one gathers that the Navy recognises the defensive value of the K.B., and it seems that the despised sausage will come into its own.

Incidentally, the K.B. is another example of the folly of the Navy in not having its own air service. The observer in a K.B. is for all practical purposes the controlling officer for the time being of the ship to which he is attached. His orders for the steering of the ship and the use of her guns have to be obeyed instantly. To all intents and purposes his basket is a super-elevated fore-top. To be thoroughly efficient he should have all the training and instincts of a Naval officer. Yet, in the wisdom of our unwarlike Government, he is a mere outsider, a servant of the Hotel Bolo. But doubtless all this will be altered when the R.N.A.S. goes back to the Navy.

SHIP-PLANES.

Of the work of the aeroplanes launched from ships and, sometimes, alighting on ships little has been made known, beyond the publication of pictures showing such machines flying off platforms rigged on the ship's guns, a method of departure which seems quite needlessly dangerous and also seems to indicate a strange lack of ingenuity. One has seen no pictures of machines starting from or alighting on "Furious" or "Argus," which lack of advertisement may be due to a very seemly modesty.

It is, however, known that such machines made quite a useful raid on the Zeppelin sheds at Tondern in Slesvig last summer. This, be it noted, was the first real raid on Germany by Naval machines since the raid on Cuxhavn on Christmas Day, 1914. There was an attempt somewhere in 1917, but so far as one recollects several machines were lost without achieving any result, so perhaps the less said about it the better.

Despite this seeming lack of achievement one gathers that there has been a considerable amount of work done in developing ship-planes, as the Navy calls these machines. It is quite probable that if the war had gone on for another two or three years the Navy might have acquired quite a useful striking force composed of bombers and torpedo-droppers designed to start from and return to the decks of ships.

Even as things are it is likely that the Navy will continue to work along these lines, for it is said that the younger and brighter brains in the Grand Fleet—with not more than three stripes on their sleeves—are beginning to understand that aircraft must be used and developed by the Navy unless the Navy wishes to be wiped out of existence by aircraft. Either the Navy must own its aircraft or the aircraft will acquire a new Navy of their own. These ideas are said to be steadily if slowly percolating through the brains of the senior officers, and probably something will be done about it in their Lordships' good time.

THE PORTE BOATS.

The work of our big flying boats, descendants of the original Porte Boats, has been indicated in a previous article on the R.N.A.S. Their work under the R.A.F. has not differed materially from that done formerly. They suffered heavily at the tail end of the war from the onslaughts of quantities of little Brandenburgers, but in a few months they would have regained their ascendancy, thanks to certain improvements in armament which were being made, and to practise in formation flying when they became available in greater quantities.

Certainly the fights they put up against superior numbers were among the great performances of the war, and their crews thoroughly deserved the comparatively few D.F.Cs. distributed among them. As submarine searchers and droppers of bombs and depth-charges they are without equal, and as sea-going aircraft they are, naturally on account of their size and the disposition of their weights, far ahead of any other type. Except as high-speed short-distance fighters or for special kinds of work, such as torpedo-dropping or coastal bombing, they have the advantage over the float type seaplane or the ship-plane on all counts.

EARNING A DECORATION.

Incidentally the big-boat people tell a delightful story of a R.A.F. staff-officer who much desired a decoration of some sort. Although he scrupulously avoided active service of the more dangerous kind he regarded the big boats as safe enough even for him, so he went forth bravely as an observer to search for submarines. Now, be it noted, for all its size a big boat can roll and pitch at times in a manner disconcerting to one of delicate stomach.

So it came to pass that when, after some time, a real Hun submarine was sighted, the gallant officer was in



Front three-quarter View of D.H.9a (400 h.p. Liberty).

the preliminary agonies of air-sickness and did not observe it as a good observer should. The pilot, being an old hand at the game, spotted the submarine at once, and jerked the elevator controls to attract the observer's attention. Unfortunately the observer, being so intent on his own internal affairs, did not recognise the signal, and regarded the jerk as merely another unkind stroke of Fate.

The pilot steered skilfully for the submarine, and, when almost in position again jerked his controls, this time more forcibly, to signify that it was about time for the observer to get busy. Again the jerk merely aggravated the observer's discomfort, and nothing happened.

By this time the pilot realised that the observer was not paying proper regard to his commanding officer, and to assure his prompt attention gave a mighty heave at the elevator which swung the big boat up and down like a rocking horse. That did it. The cataclysm befell. In his paroxysm the observer clutched at the first thing near him. Anything to get a grip of something. It so happened that the something which he gripped happened to be the bomb-release lever. And, as his soul was rent within him, two hefty bombs whistled through the air and deposited themselves on or near the submarine.

Things spread themselves over the surface of the water and were duly certified as evidence that an enemy submarine had been sunk. Things also spread themselves over the interior surface of the boat, but that is another affair. It suffices to say that the boat duly returned, and that in due official time the observer mounted the blue and white ribbon of the D.F.C. "for gallantry in the face of the enemy." Officially, one gathers, the top of a submarine commander's head is the face of an enemy, for purposes of donating decorations.

Which rather reminds one of the true and dolorous story of the torpedoing of the German mine-laying "Helga" inside the Helgoland Bight, by a certain one-toothed pirate of H.M. Submarine Service. But that again is another affair, and if the story is required it can be obtained from the Submarine Service itself.

Furthest East.

It has been made known recently that certain British forces are operating on the shores of the Caspian Sea against Russian Bolsheviks. Though it has not been officially announced, it is said that certain ex-R.N.A.S. units are co-operating in this business, doing patrols in the Caspian on the look-out for Bolshevik boats which may interfere with the traffic between Baku and Trans-Caspia, where yet other British forces are operating.

The stories of their adventures have still to arrive in this country, but there is one touch of humour attending their dispatch which deserves to be recorded. The question arose of the transport of aircraft over the railway from Batoum on the Black Sea to Baku on the Caspian. As the said railway would naturally be choked with troop-transport and as aeroplanes take up a good deal of room on a railway, a brainy sailor-man suggested that the seaplanes should fly across. It never occurred to him that there would be anything unusual in flying a heavy float-seaplane over some 400 miles of mountains, though it is true that on examining the map he made the brilliant suggestion that they could come down in a small lake about half way "if the crew wanted a drink."

Anyhow, the yarn—which is probably apochryphal—illustrates the great truth that at last the Navy is beginning to believe in seaplanes. One can only hope that such touching faith may not lead the Navy to expect too much, for that way lies disappointment.

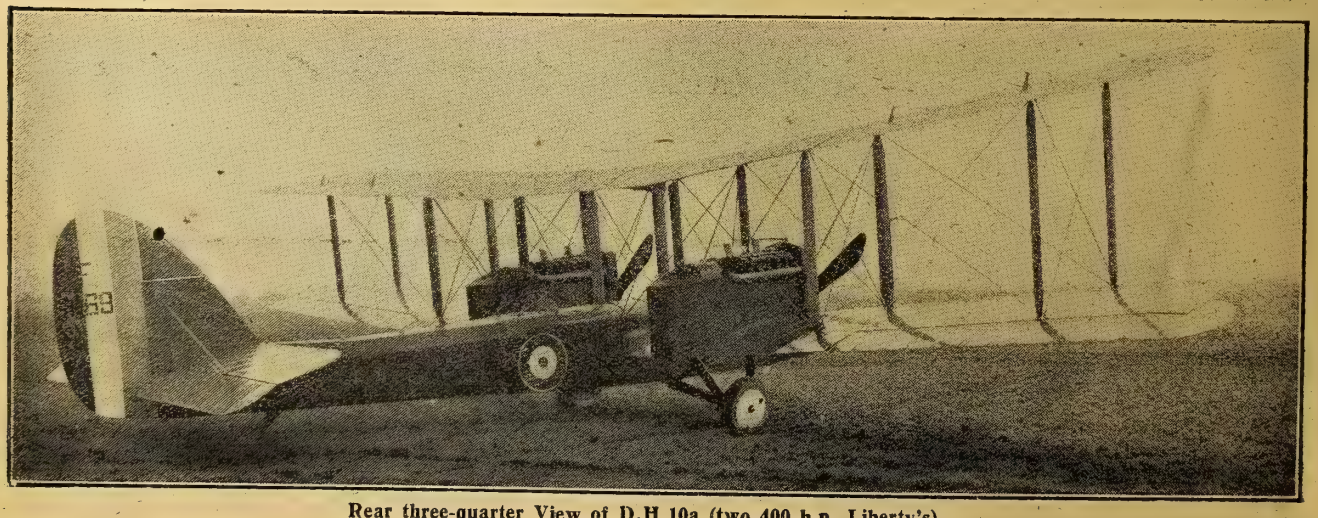
So much then for the Naval side of the R.A.F. The work of the airships has been discussed by another writer elsewhere in this issue. And so we may proceed to the doings of the shore-going people.

THE R.A.F. WITH THE ARMY.

Thanks to the kindness of General Sykes, Chief of the Air Staff, and of General Salmond, G.O.C. R.A.F. in France, and also thanks to a wonderful stroke of luck, one had the good fortune to spend a wholly joyous week in France which ended precisely six days before the Armistice was signed. The luck lay in the fact that one saw the R.A.F. right at the top of its form when the whole Army was getting ready for the big attack, "from the Sea to Switzerland" as they called it, which was to end the war. As in truth it did, for the attack began on the Monday morning of that week, the heavy fighting was over by the Friday, and the Armistice was signed on the following Monday.

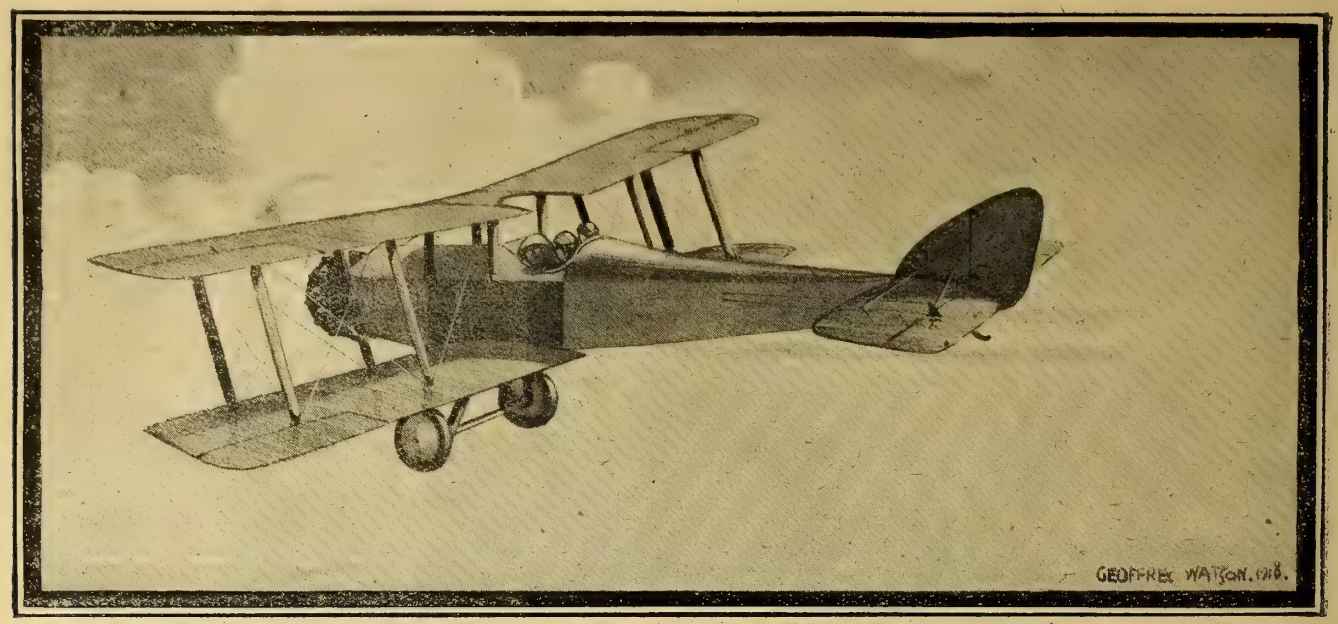
Naturally, as the big attack was in preparation the R.A.F. people were all over the sky, and apparently they were having things all their own way. Here and there the Huns were kicking a bit, notably in Belgium, but in France they were out of the war as a serious force. On one day, just before the big attack, the R.A.F. brought down 80 enemy aeroplanes. That was the last German attempt to dispute the command of the air. After that the R.A.F. had to go far across the lines to look for them, and even then they were hard to find.

And here, be it noted, the G.O.C. R.A.F. was mighty particular about the way in which shot-down Huns were counted. To be reckoned as "brought down" a machine had to be verified by witnesses, either by other pilots who had seen it crash, or by people on the ground. Machines logged as "shot down out of control" had also to be verified by witnesses, the only difference between



Rear three-quarter View of D.H.10a (two 400 h.p. Liberty's).


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them and the others being that owing to extreme height or low clouds they were not actually seen to crash. Therefore one may take the G.H.Q. figures as accurate.

At the same time the Communiqué, while strictly accurate as regards the number of our own machines which failed to return from beyond the enemy's lines, did not, very naturally, give the number crashed either by the enemy or by accident on our own side of the lines, so that it was absurd to compare the two figures to show comparative losses as some papers did. Nevertheless, owing to the fact that the R.A.F. were attacking the whole time, there were very few casualties on our own side of the lines except through aerodrome accidents.

"Going East."

Apropos which question of machines failing to return, the R.A.F. had at that time a lovely story of the pilot of a single-seater which was shot down by a Hun well over the East of the lines. In that stage of the British advance one never knew whether No Man's Land was a hundred yards wide or several miles. This particular pilot glided as far West as he could and landed in a patch where Huns and British were all mixed up over a depth of a couple of miles.

As soon as he had disentangled himself from the wreck of his machine and had started to trek Westward he was vigorously pursued by two large German infantrymen with bayonets. He had no chance of putting up a fight against them so he ran for his life, and by good luck sighted one of our own tanks to which he bolted for refuge. The tank crew could not fire at the Huns for fear of hitting him, so they held the back door open while he hopped in, and slammed it just as the bayonets of the baffled pursuers clashed on the armour. The tank was much too busy to bother about chasing the two Huns, so it proceeded on its slow and dignified way. Whereupon the pilot asked the tank skipper where he was going.

"We're going East," said the skipper. "Hell! —— Let me out," yelled the pilot: "I've been far enough East already this morning. Me for my little grey home in the West."

So the tank crew obliging opened their door, and the pilot proceeded to trek West again. He had only been going a few minutes when his two enemies appeared again and started to chase him. But this time he had a longer start and kept ahead of them till all of a sudden a very good imitation of an artillery barrage opened on them.

The two Huns promptly went to ground in a shell-hole and the pilot, seeing a good big hole in front of him, ran for it, tumbled in, and fell headlong on top of three other Huns who were sheltering in it already. Luckily for him they were thoroughly fed with the war, so instead of being hostile they agreed with him that fighting on the ground or in it was a silly game and that they had better all stop where they were.

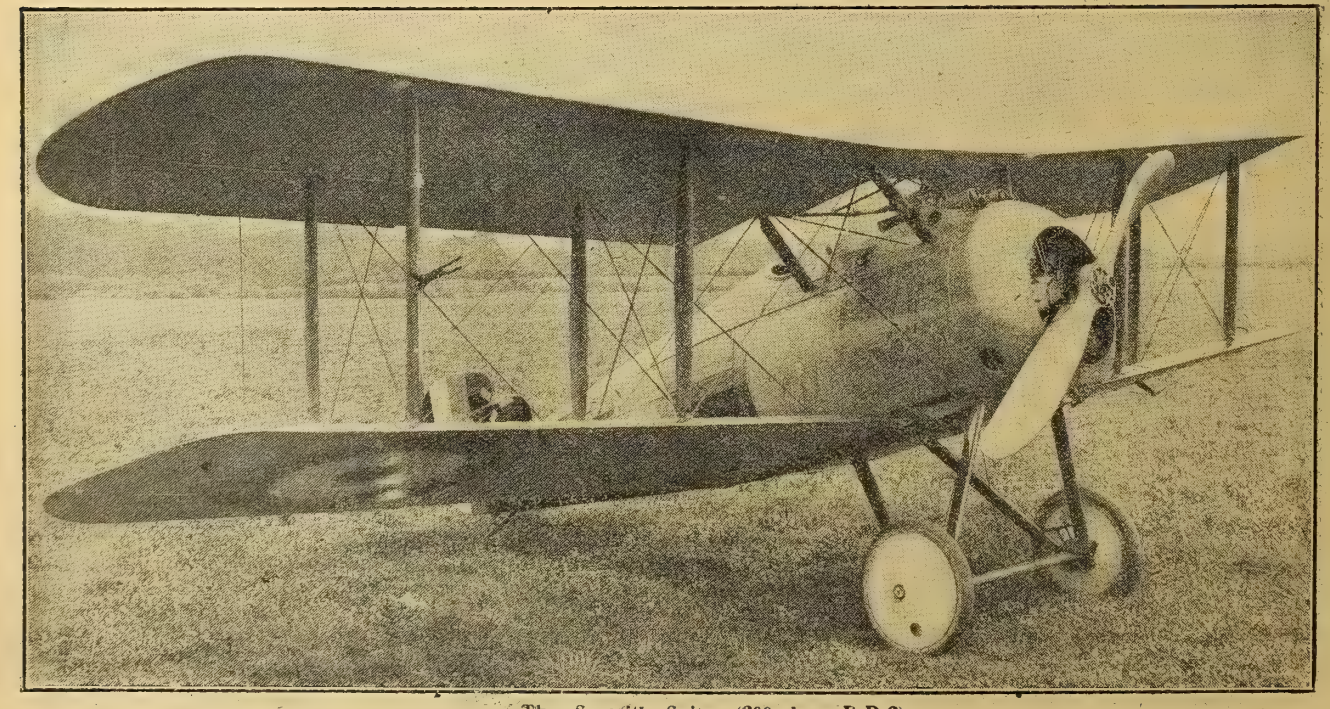
Presently the barrage lifted, and behind it came British infantry in quantities. To them the pilot handed over his three "prisoners," and then proceeded with his Westward trek. In time he reached his squadron, got a new machine, and renewed his gentlemanly war in the air as far East as the best of them. But one still wonders whether his old machine was logged among those which failed to return.

A Gentleman's War.

Writing of gentlemanly war reminds one that during that last week of the war the R.A.F. pilots were strongly of the opinion that for once in a way things were being done as they ought to be done. The advanced squadrons were living in untouched chateaux or the houses of well-to-do business men in the re-occupied areas from which the Huns had just bolted. Brigade headquarters were in Nissen huts, or Armstrongs, on the edge of the devastated area. And Advanced G.H.Q., including the G.O.C. and his gilded Staff, were in derelict Hun huts in the very middle of the most devastated of all the devastated areas. "Which," said the advanced squadrons, "is precisely how a war ought to be conducted."

As a matter of fact the aforesaid Hun huts were a credit to their builders. They were beautifully warm and comfortable. Admirably situated in a little wood, which sheltered them equally from weather and prying aircraft at all seasons. And under them was a wonderful system of dug-outs, which provided the humorists of the Staff with excellent opportunities for stories of mysteriously ticking clocks which were supposed to indicate the existence of delay-action mines which would at some unknown moment send the whole of Advanced G.H.Q. to glory.

If the local Frenchman is anything of a business man he will run a fence round that wood and preserve those huts for the use of future tourists to the war area. They could be let at exorbitant prices, and would bring in fai

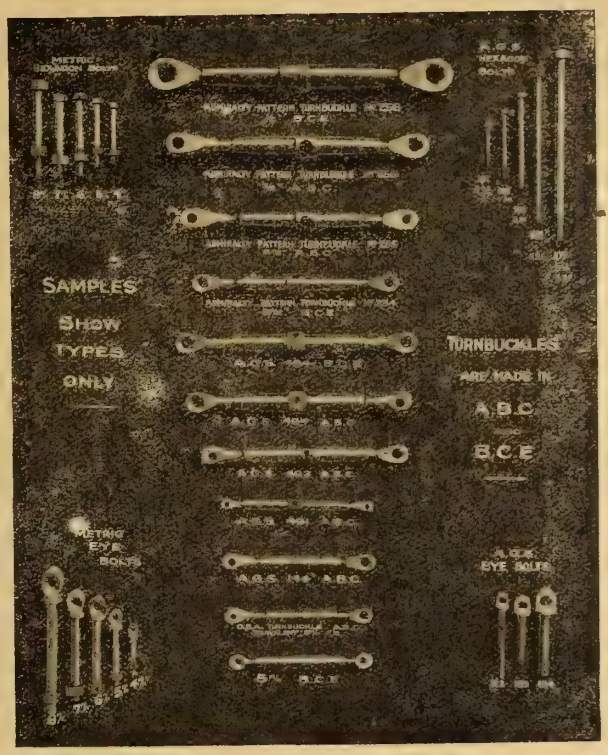


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The Lap of Luxury.

One advanced squadron, commanded pro tem. by a war-stained veteran of twenty-three or thereabouts, who with his observer had twelve Huns to their credit on an R.E.8, lived in the house of a lace manufacturer at Caudry, not far from Valenciennes, where they had a domed conservatory for their ante-room opening direct into the big dining room which was their mess. And they boasted that they had a piano in every room. There were pretty little clocks and ornaments on the mantelpieces, pictures on the walls, and all the comforts of a home. The retreating Hun had not taken a thing, and he had done no damage anywhere, beyond blowing up the main roads at each entrance to the town, which had fetched down all the corner houses at those spots.

Also he left a delay action mine which blew up the railway bridge three weeks or so after he had left the place, and killed a few people who happened to be near, including, unfortunately, two nurses from a Casualty Clearing Station in the district. As one had driven under the same bridge the day before it went up one reckoned that was another stroke of luck.

A Seat in the Stalls.

At one Wing Headquarters the O.C. reckoned that he had quite the best show in the war. His house was on the top of a hill in a village near Le Câteau. By turning round in his chair from his desk he could look across the town and watch his squadrons at work over the Forest of Mormal. The only drawback to the place was that it was close to a big road junction and still within range of the Hun artillery, so the Huns used to wake him up at night by dropping shells or bombs near him which were meant for the road junction. He was not angry about it, because he knew that the shells were not intended for him personally, but they annoyed him by disturbing his rest.

Sometimes too they used to start switching shell haphazard over his district during the day, but that annoyed him less, because there was always such a row going on anyhow with transport crashing over the pavé. They had been doing it the day one went to see him, and one of his squadron commanders came in very angry indeed carrying a large chunk of a 5.9 which had knocked a piece out of his house, an impertinence which he strongly resented.

A little farther on one met another squadron-commander, O.C. one of the few squadrons in tents, still more angry because a shell had lobbed into his camp and had blown the side out of his mess-tent, causing serious casualties among certain precious bottles. This he regarded as a distinct infraction of all the Conventions, Hague, Geneva, Labour, Primrose League, and all the rest. "A damned dirty trick," he called it.

A Happy Home.

Not very far away from the said aerodrome one came across an idyllic scene. A squadron of single-seat fighters had apparently dug themselves in for the winter. They had a delightful house, once the residence of the owner or manager of a sugar-factory. Alongside was the sugar-factory itself, the main floor of which had been made into an engine repair-shop.

That squadron had the duddest engines of the war—the Law of Libel prevents one from naming them—and the C.O. had either persuaded the Hotel Bolo to treble his establishment of engine mechanics, or else he had himself trained his whole personnel, including riggers, carpenters, cooks, batmen and motor-cyclists, as engine-mechanics, for the place looked more like the assembling shop of a prosperous engine-factory in England than a deserted sugar-factory in France. Apparently every engine had to be rebuilt after every trip over the lines. But somehow, it seems, he kept his engines running, which, after all, is the great thing.

In the yard of the factory he kept the squadron's farmyard, consisting of numbers of hens and ducks, which kept the Squadron more or less adequately supplied with eggs, and the squadron's pig, which ate the rest of the scraps and would in return feed the squadron in due course. And, by way of assisting the larder, on off-days he and his recording officer, accompanied by sundry neighbouring cavalrymen, hunted the local hares with the aid of John, a "long dog" of surpassing beauty, while their home was guarded by Jane, a bull bitch of petrifying ugliness but possessing an all-embracing smile for those to whom she was properly introduced.

Entertainment was further provided by a colony of Chinese labourers who lived under the sugar factory, worked on the aerodrome when needed, beamed amiably on everybody, and held weird sing-songs of their own in their spare time. The squadron must have been quite sorry to move up towards Germany, apart from the trouble of transporting the farmyard.

A Home-Coming.

On the whole the R.A.F. was enjoying the war thoroughly at that period. One of the prettiest sights on which one happened was the home-coming of a famous fighting squadron from its evening patrol. All three flights were at full strength and they arrived at five-minute intervals like clockwork. The first formation came in at a height of about thirty feet, down wind at something like 150 miles an hour, broke up at the far end of the aerodrome, played a few tricks and landed as each pilot chose. The second formation came in up-wind, landed in perfect formation, and trickled up to their sheds still in formation. The third formation broke up at about 2,000 feet and came down looping and spinning and spiralling, and generally diverting themselves.

They had only seen two Huns the whole time they were



The Two-seater Bristol Fighter. 1918 type.

out and these bolted before they could catch them. Their feelings were apparently divided between disappointment at finding no enemies to assault and joy at having complete command of the air. What seemed to annoy them most was that while they were over Bavai at a reasonable fighting height they saw sundry machines similar to their own, but belonging to another squadron, chucking stunts over the town at a height of a few hundred feet, apparently for the encouragement and delectation of the townspeople or to irritate the Hun soldiery who were still in the town. This, it seems, did not appeal to them as serious war. Still, serious war or no serious war, they were a merry enough crowd at tea afterwards, and it went against the grain to leave their warm and cosy mess in a working-man's well-built stone house in the local village to face a wet dark and bumpy drive back to Brigade H.Q. and its tin huts.

Brigade H.Q.

Still, Brigade H.Q. was remarkably cheerful when one got there. It is wonderful what can be done with a big Nissen hut in the way of comfort, especially when a retreating enemy has left some thousands of tons of perfectly good briquettes a few miles away and the Army is entreating all and sundry to take the damned stuff away and burn it, because the ground is wanted for other purposes.

One fears that considerable of His Majesty's time was wasted that night, for sundry highly skilled staff officers sat up till an unseemly hour listening to two of the very earliest pilots of the R.F.C., and a mere civilian, yarning about the days when flying was really flying and not merely piloting a tame aeroplane wherever it is desired to go. Also there was a disquisition on the manners and customs of the present day, which ended in the disquisitor being sat upon in the fireplace, though in truth he deserved rather to be appointed deputy to the Reverend Doctor Inge, more commonly known as the Gloomy Dean, albeit the manner of the discourse in question was far from gloomy.

Certainly it is possible to be very happy in a tin hut, far happier it seems than was the lot of another Brigadier who was living in a regular palace in a big French city, just re-occupied. Surrounded by every visible luxury, in a house furnished with that kind of bourgeois magnificence which tempts one to ask whether the style is late Pullman or early North German Lloyd, he bemoaned the fact that his H.Q. had all the disadvantages of living in a city without any of the advantages. However, he was consoled by the fact that his brigade was doing extraordinarily good work, and was having the luck to find Huns in the air along their front who were brave enough to come out and be killed.

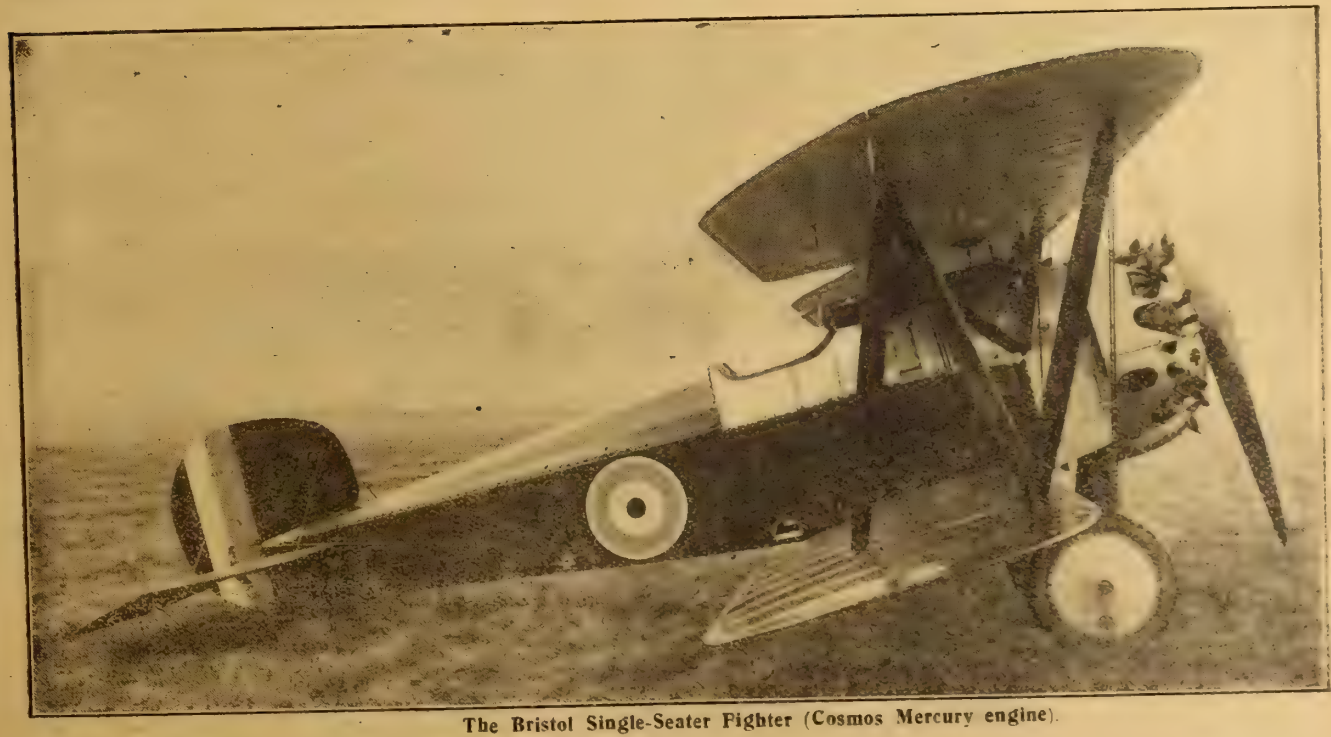
Generals Who Fly.

Also he was consoling himself with the idea that the war would soon be over and that he would then be able to go home and keep a nice fast aeroplane of his own on which he could fly whenever he felt disposed, without being told that flying is not a general's job. That is one of the peculiarities of R.A.F. generals, at any rate the ex-R.F.C. generals and many of the ex-R.N.A.S. as well. They will insist on flying whenever they get a chance.

While one was at G.H.Q. there was quite a serious stir one evening because a Brigadier who was expected from England had not arrived, having apparently disappeared in a thick mist, or the fog of war, or something of that sort. At last a telephone message came through that he was coming along by car. He had arrived in France on a Sopwith Pup, the only thing of its kind in France at that date, but, as he said, a very nice touring machine. Darkness and cloud came on while he was over the worst of the devastated area, so he put back to an aerodrome which he knew near Bapaume, instead of hunting for the G.H.Q. aerodrome which he did not know.

So long as the senior officers of the R.A.F. persist in flying as they do, one can understand the junior officers being put on their mettle to keep up their skill at the game. When a Brigade or Group commander visits an aerodrome and comes down in a spin from 5,000 feet to 500, finishing with a side-slip landing on the tarmac in front of the sheds, it is rather up to the mere flight-commanders and pilots to maintain a high standard of flying in the squadron.

It is when one meets the men who lead the R.A.F. on active service—one uses the word lead advisedly in preference to the word command—that one realises best the difference between them and the mobs of officials at home who pose as experts on the technical side of aeronautics and yet never go to see the war and hardly ever go to see an aeroplane. If only the active-service people had had the running of the technical side, what a wonderfully equipped force the R.A.F. would have been by the end of the war.



The Bristol Single-Seater Fighter (Cosmos Mercury engine).

Good Technical Work.

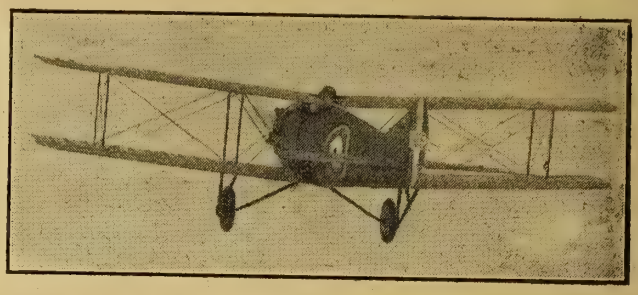
It is probably unknown to the majority of the people at home, even to many in the R.A.F., that much of the most valuable technical work in the war has been done overseas. The various Aircraft Depots and Aircraft Supply Depots in France number among their personnel some of the cleverest engineers yet produced in connection with aeronautics. Many of them were professional engineers before the war, though some were not, and they have learned all that is worth knowing about aircraft in the hard school of active-service experience.

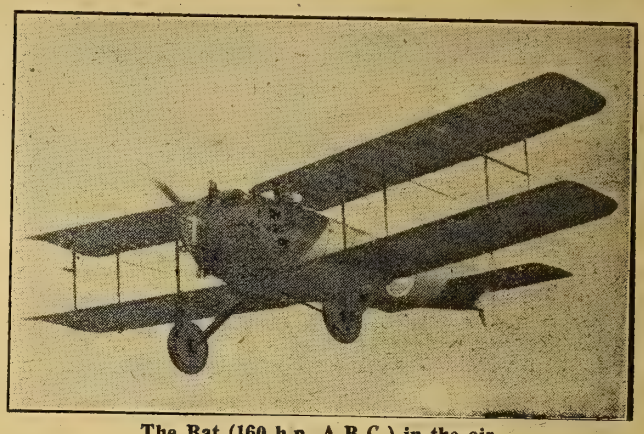
At the old R.F.C. Headquarters all the knowledge gained in this way has been collected by a group of singularly competent technical officers, and one is certain that if this knowledge had been properly appreciated and properly used by the people at the Bolo House, the R.F.C. would have been very much better equipped at the end of the war than in fact it was.

The experimental design work also done at Base G.H.Q. has been of high value and would have been of still greater value had the war continued. For example, certain difficulties in the stowing of parachutes in aeroplanes had been very ingeniously overcome, and several new types of very light and handy parachutes had been produced just when the war ended. Incidentally it is curious how the old hands keep on coming to the front, for certain of the most promising parachutes were the products of a technical officer on the Staff who was one of the early experimenters at Brooklands, and has returned to his fondness for invention after piling up a fine record of war flying, both in France and the East. One hopes to see more of these particular parachutes when commercial flying comes into being.

Parachutes.

There is no denying that the active-service people do want parachutes. Experts at home, who have never been to see the war, talk glibly about spoiling performance, and placing the pilot at a disadvantage by adding extra weight. That is all very well in theory, but when one knows how the performances of precisely similar machines vary in practice on active service one knows that a matter of 30 lbs. weight is of no account. It is only the equivalent of four gallons of petrol, or of a bomb or two, or the difference between a machine being left out in the wet for a night and one that has been kept under cover, or the difference between a machine which wants a coat of dope and one that has just had one, or the difference between a machine which is ordinarily well rigged and one which is perfectly rigged.





The Bat (160 h.p. A.B.C.) in the air.

No active-service pilot ever has a machine which is perfectly tuned-up for more than a day or two at a time, and 30 lbs. of extra weight does not worry him, whereas the knowledge that if his machine is set on fire he can get out of it with a sporting chance of coming down alive is going to make all the difference in the world to his methods of attack. Every experienced war pilot agrees that the moral effect of parachutes would increase the attacking value of fighting squadrons by fifty per cent. Yet the experts at home were still merely playing with the idea, although the practical men at Base G.H.Q. had already solved the difficulties for them.

Army K.Bs.

Writing of parachutes naturally reminds one of the kite-balloon wings operating with the Army, for they are the people who have had most experience of parachutes. There used to be an idea that the K.Bs. were the softest job in the war, both for the people on the ground and for the observers. As a matter of fact, so far as nerve-strain is concerned, probably a K.B. ob



The Bat biplane (160 h.p., Wasp, A.B.C.). The fastest aeroplane of its power in the world. In front of the machine are Mr. Frederick Koolhoven, the designer, and Manager of the British Aerial Transport Co., and Mr. Peter Legh, the firm's chief pilot.



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server has a worse time than an aeroplane observer, for he never has the excitement of a fight.

It was not so bad in the old days, when the K.Bs. lived well behind the lines with the big guns, but as the artillery gradually came to work close behind the infantry the job became less peaceful. And when the Germans invented clock-work shells it became particularly anxious. One has been told that unless a balloon was moved horizontally or vertically several thousands of feet the Hun was bound to get it in six shots, and one has heard of an observer being forced to make four or five parachute descents in one particularly busy day because of these shells.

When open war began, after the big advance in July, the K.Bs. suffered still worse, for they trundled along on the heels of the guns, and the guns never quite knew whether they were behind the infantry or in the middle of them or in front. It is said that one K.B. wing lost 200 men killed in the last six or seven weeks of the war simply because of everybody's keenness to be right up in the front of the hunt. Those killed, be it noted, were not observers, but officers, N.C.Os., and men operating the winches and handling the balloons and gas-cylinders on the ground, and they were killed by shell-fire, and occasionally by machine-gun fire.

These K.B. people were regular thrusters. One Wing-Commander in fact is credited with having captured a village—Honnechy by name. It is alleged that he and his Wing H.Q. Staff entered the village at one end, with a view to commandeering the best billets, as the retreating Huns went out at the other, and calmly proceeded to install themselves amidst a shower of shrapnel and long-range M.G. bullets.

Certainly the K.Bs. have more than justified their existence, for any gunner will tell one that he likes working with K.Bs., and any K.B. observer will prove mathematically on paper that a properly operated K.B. gives far better observation than does a comic R.E.8 plugging up and down behind the lines The K.B. belief seems to be that all short-range observation should be done by K.Bs., that artillery aeroplanes should only be used for long-range observation over the enemy's side of the lines, and that it is pure waste of men and material to use aeroplanes for art.-obs. on one's own side of the lines.

Personally one is strongly of the opinion that all K.Bs. and art.-obs. aeroplanes ought to belong to the Royal Regiment of Artillery, and ought to be manned and handled by gunners. And one is confident that they will be so in time to come. There is no more reason for them to belong to a separate flying corps, let alone to a separate Service, than there is for gun horses to belong to the cavalry, or to be administered by a Ministry of Horsemanship.

Wireless Telephones.

Of late there have been various paragraphs in the papers which would lead one to believe that the Americans had recently discovered wireless telephones and had adapted them to aeroplanes. It is therefore just as well to place on record the fact that the R.A.F. were using wireless telephones for verbal communications between one machine and another over the German lines in France during the summer of 1918, if not earlier. It would be unwise even in time of peace to say to what extent they were used, but we are so fond in this country of letting other people take the credit for our inventions that it is as well to take credit when it is due to us.

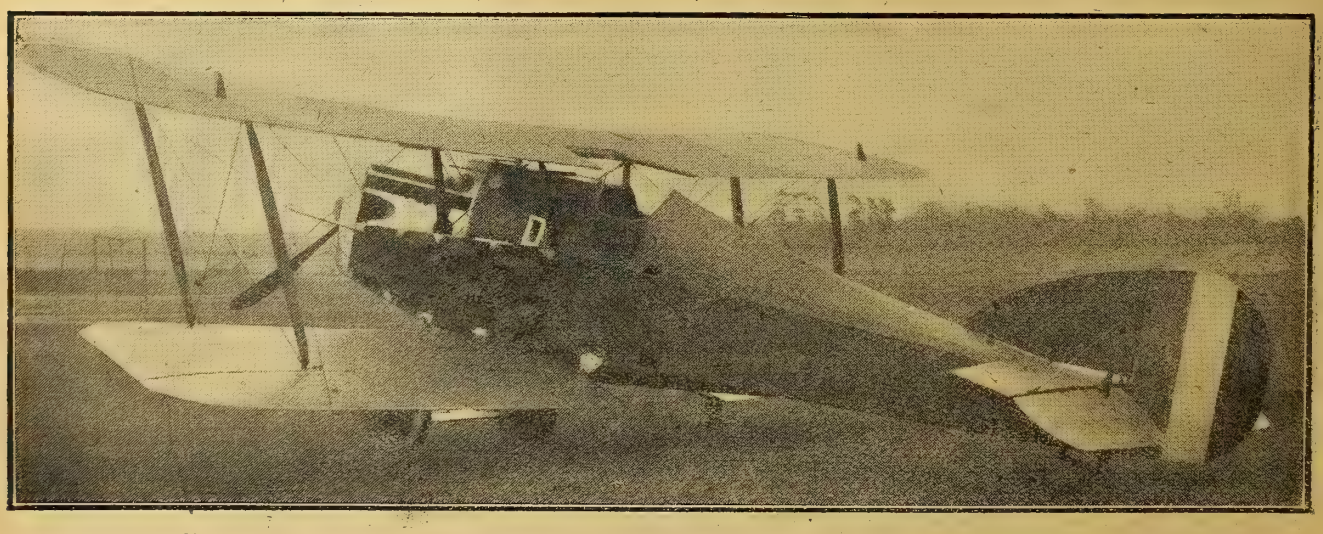
The R.F.C. started its experiments along these lines at Brooklands in 1915, and to-day there are large Schools of Wireless Telephony, and wireless telephone stations belonging to the R.A.F., in existence in various parts of the country. Wireless telephones have been used in action in France and during air-raid work in this country, so let that suffice for those who claim the credit for any other nation.

The Germans have not got wireless telephones in their aircraft, for, some time before the end of the war, German G.H.Q. was offering handsome rewards to soldiers who could bring in any parts of our new wireless apparatus. And it seems unlikely, for various reasons, that they ever got any.

The Independent Force.

Probably the hardest luck in the war was that which befell the Independent Force, R.A.F. One had not the good fortune to be able to pay it a visit, but Colonel Repington, the eminent military writer of the "Morning Post" who had that opportunity, described it some time ago as a beautifully organised little force, thoroughly well equipped and excellently commanded, and his estimate may be accepted as the exact truth. No force under Sir Hugh Trenchard could be otherwise.

General Trenchard's terse yet graphic dispatch, which was published last week, gives one an insight into the gallant work done by the I.F., and there is no need to gild the lily by trying to elaborate his account. The losses of the I.F. were heavy, but the results justified them. With the bigger forces which ought to have been provided, if things at home had been run properly, and with better matériel—for whose absence the technical people at home are again to blame—the losses would have been much lighter in proportion and the results much greater.



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However, General Trenchard is an adept in the gentle art of making bricks without straw, and so the work done by the little I.F. was more than a credit to it, and to its chief. The hard luck which befell it was the premature ending of the fighting. In another six days it would have achieved its heart's desire, the bombing of Berlin. In another six months it would have devastated many of Germany's most treasured cities.

The tragedy of the whole thing was that so great a leader as General Trenchard should have had so little opportunity to exercise his high qualities during the last ten months of the war. However, war has not yet ceased, and perhaps new opportunities may arise for him.

The East.

The work of the R.A.F. in the East carried on the fine traditions of the R.F.C. Everyone has read the official account of how, when General Allenby was making his great cavalry sweep along the coast of Palestine to cut off the retreat of the Turkish Armies, the R.A.F. sat in relays all day long over the Turko-German aerodrome and prevented even a single machine from leaving the ground, with the result that the Turkish command never learned what was happening on its right flank.

Also, something has been published of the havoc wrought by the R.A.F. when they caught seven miles of Turkish transport retreating along the single road open to the North and, in the words of one who was there, "bombed it to blazes." An officer who was with the R.A.F. at the time tells how, after the show was over, one of General Allenby's staff made his way along the seven miles of wreckage, and afterwards said to the R.A.F. officer who was in command of that particular job, "Your people aren't soldiers; they're a lot of bloody butchers!"—Which saying was, one gathers, intended and accepted as a compliment, after the manner of the man who refers to a successful fighting pilot as "a hired assassin."

These two great events were only the twin climax to months of steady, hard work in reconnaissance fighting and bombing flights, all the while on obsolete or obsolescent machines, till a few Bristol Fighters and two Handley Pages arrived to give an air of modernity to air war in the ancient East.

Of the R.A.F. in Mesopotamia and the Balkans little or nothing has been heard, but no doubt in time stories will trickle through. And it is at any rate known that these detachments worthily upheld the honour of the old R.F.C.

Out-of-the-Way Wars.

Similarly nothing has been heard so far of the R.A.F. on the Murman Coast and at Archangel, beyond the fact that some half-baked genius at home was seized with the idea that as the Bolsheviks had no aeroplanes it would be a good notion to mount our people on D.H.6s, presumably with a view to getting rid of the machines. It does not seem to have occurred to him that when flying over miles of morass and forest it is desirable to have the fastest possible machines, so as to get the job of reconnaissance over and done with before there is time for engine failure.

The responsible authority evidently did not care to learn from the Germans who at the outbreak of war sent all their best machines to the Russian front, and kept the duds for France. Truly we have brains at the Hotel Bolo.

Nor has anything been heard of the R.A.F. in Southern Russia and the Caucasus, but doubtless we shall hear in time. Moreover, we may hear a great deal more, for this seems to be the proper field of operations for a volunteer Army and Air Force intended to put Russia in order again. There are some thousands of youngsters in the R.A.F. who are bitterly disappointed at having missed the war in France, and it would be a charity to them, besides being a good investment for the Nation, to let them have a war training against the Bolsheviks, even if in what Lord Halsbury might call "only a sort of a war."

A Matter of Dispatches.

None can complain that the R.A.F. has lacked its share of honours and distinctions, but there is one matter which may distress those among the R.A.F. who have been soldiers. It is that while numberless individuals have been mentioned by name no mention has ever been made of R.A.F. units, except in Sir Hugh Trenchard's dispatch.

In General Allenby's dispatch one reads of infantry and cavalry units mentioned by name as taking part in various sections of his operations. In Field-Marshal Haig's dispatch infantry battalions are mentioned by name and number, as are Brigades and Divisions. But in none is there any mention of R.A.F. units. None except those on the inside know whether 56 Squadron or 54 Squadron is a crack squadron or is composed of the weaker brethren who can only be let out on a fine day. Nor is it known whether 203 is distinguished for fine bombing work or whether it has passed the war in peace and quietness.

Such sinking of identity is bad for *esprit de corps*, also it gives one the impression that though the R.A.F. works with the Army and though the value of its work is appreciated by the Army, it is not regarded as being of the Army. One hopes that in future wars, when the R.A.F., or R.F.C., or whatever it is to be called, is again under the War Office, the units of the Flying Service will receive from the General Officers Commanding the Armies with which they serve the same treatment in dispatches as the other arms of the Service. As concerns the present war, would it not be possible for Special Dispatches to be issued by Major-General Sir J. M. Salmond, covering operations in France and Italy, and by Major-General W. G. H. Salmond covering operations in the Balkans, Palestine, Mesopotamia, and the rest of his wide theatre of war, on lines analogous to the dispatch concerning the Independent Force issued by Sir Hugh Trenchard.

It is certain that such dispatches would be of intense interest to all who are concerned with aeronautics, that they would be of the highest historical value in the future, and that they would conduce to the increased efficiency of the units of the Flying Services. Those young men who must join the Service in time to come would be proud of their squadrons, and a tradition would be established which would strengthen the fighting ability of the Service.

Finally.

One hopes to return to this subject at a later date. For the present one has tried the patience of one's readers more than enough for one day. It only remains to say that at the end of the war in no part of the King's Armed Forces was loyalty, discipline, and the offensive spirit higher than in the units of the R.A.F. in the Field.

There is an anxious time before the R.A.F., but it will prove a useful period of weeding out. The commercially minded will return to their commerce. Those of weak nerve will leave the Service. At the finish there should remain a small but intensely efficient force of military aviators, loyal to their King, keen on their work, and intellectually interested in that most fascinating of sciences, the Science of War. Such a force will be the worthy successor of the First Five Squadrons, and of the British Expeditionary Force of which they formed a worthy part.—C. G. G.

ON THE NEW AIR MINISTRY.

There is an ancient and unusually veracious proverb which says that "Fools rush in where Angels fear to tread."

It was announced officially on January 11th that Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., has been appointed Under-Secretary of State for Air, and that he will preside over the Air Council.

One would not for a moment be guilty of the hypocrisy of pretending to believe that the Lord Weir is an angel, even of the terrestrial kind, and one hopes that it will be many years before he becomes a celestial angel. One regards him as a singularly shrewd Clyde-side Scot, gifted—or cursed, as the case may be—with an active imagination, a keen sense of humour, and considerable driving power.

Lord Weir's imagination enabled him to see the vast importance of aircraft in war, and his driving power enabled him to produce such activity in the Hotel Cecil—already known as the Hotel Bolo—as Controller of Aeronautical Supplies under the old Air Board that during the year 1917 the output of aircraft increased beyond all expectations and anticipations. But his shrewdness enabled him to see that the only way to get output was, to use an expression which has been, perhaps erroneously, credited to Lord Weir himself, "to push the whole mass along in front of him and not to attempt to evolve order out of chaos."

His imagination has enabled Lord Weir, as his recent speeches prove, to envisage the growth of civil aerial transport to the point at which it will become the peer of the railways and steamship lines in its importance as a conveyor of traffic. His resignation from the office of Secretary of State for the Air Force seems to indicate that his native shrewdness has enabled him to see that whoever essays to straighten out the tangles of Air Force misorganisation at the Hotel Bolo is bound to be broke in the process as surely as is any Chief Secretary for Ireland who tries to be honest and sympathetic in his dealings with the Irish people. And his sense of humour will enable him to appreciate fully the antics of his successor, in his frantic endeavours to disentangle himself from the wires in which he will coil himself in the manner of the great Brugglesmith.

Thus one fully understands Lord Weir's refusal to retain office as Air Minister during the forthcoming period of the reconstruction of the Royal Air Force, and his fearing to tread the stormy paths beset with demobilisation, disintegration, re-organisation, and general havoc which lie before the unfortunate Air Force. Lord Weir has deserved well of the Nation for his work in 1917, and it is gratifying to all who recognise that fact that he should retire with honour to resume his commercial pursuits instead of remaining to be worn out by the task of rebuilding the Air Force on a sound foundation.

Mr. Churchill.

It was rather hoped that Mr. Winston Churchill would be Lord Weir's successor at the Air Ministry if he did not take office as First Lord of the Admiralty. Instead he has been appointed Secretary of State for the War Office and the Air Ministry combined. This is in accordance with Mr. Churchill's belief—which is shared by many competent statesmen—that there should be a Ministry of War, which would combine under it the Ministries for the Navy, the Army and the Air Force, each in charge of an Under-Secretary.

In this way proper co-ordination of the work of the King's Armed Forces could be assured in time of war. And the best brains in all three services would be available for the organisation of combined strategy and tactics, instead of carrying on disjointed and frequently objectless operations as in this war.

None is better qualified to judge such a question than is Mr. Churchill. One has on many occasions expressed admiration for his energy, his moral and physical bravery, his foresight and his many statesmanlike qualities, but there is a germ of truth in the phrase used by his dearest enemy, the "Morning Post," when it says, "There is some tragic flaw in Mr. Churchill which determines him on every great occasion in the wrong course." It is not so much that he takes the wrong course as that, like General Henderson in his dealings with the R.F.C., he backs the wrong horse.

In his Gallipoli adventure he backed the Navy instead of the Army, which, after all, was natural, seeing that he was First Lord of the Admiralty and could force the Navy to do things at once, whereas persuading the Army to do them would have taken many months. His Antwerp adventure saved the Belgian Army and all the Channel Ports, yet to some extent it was a disaster, because again he backed the Navy, having—one emphasises the fact—nothing else to back.

A Real War Ministry.

Doubtless those experiences more than anything else confirmed Mr. Churchill in his belief that a War Minister should control the whole war instead of having independent Ministries carrying on separate wars on their own accounts. And, as the British Navy is much too conservative and stubborn, not to say stupid, to consent to such a proper re-organisation of Ministries, Mr. Churchill has gone as far as he could, and has brought the Air Ministry in as a joint-managership affair with the War Office, which verifies the statement made by the "Daily Express" a couple of weeks ago.

How this co-department of the War Office is going to control Civil Aerial Transport is not easily comprehensible. It is as if the Royal Army Service Corps (M.T. Section) were suddenly to become the paramount authority over all motoring. The better way would have been for the War Office to have taken over all army aviation and to have left the Air Ministry purely as a civilian authority, albeit on a semi-military basis of organisation, in the manner of the Irish police authority which has the Royal Irish Constabulary to enforce its edicts.

However, doubtless all such minor troubles will be straightened out in time, and the process of straightening promises unlimited joy to the onlookers during the next few months or perhaps until Mr. George's "lucky-bag" Cabinet comes the cropper which is awaiting it. The reason for this anticipation of hilarity is an extensive knowledge of the person who has rushed in to preside over the Air Council and to venture along the maze-like paths which so shrewd a humorist as Lord Weir has feared to tread.

J. E. B. Seely.

Major-General J. E. B. Seely is not known to the younger generation of those concerned with aeronautics. To them he is only familiar as the much-advertised O.C. of the Canadian Cavalry Brigade; to the Canadian Cavalry he is known by a variety of names. Therefore it seems necessary to explain that when flying first began this same Seely, then a Lieut.-Col. in the Territorial Force, was at the War Office as Under-Secretary to Lord Haldane, and that later on he became Secretary of State for War.

During this period he was convicted in the House of Commons by Mr. Joynson-Hicks of uttering the most amazing falsehoods concerning the strength of the R.F.C., and one had the pleasure of exposing in print some absolutely childish tricks which he played in his attempts to deceive the House of Commons and the Nation. On one occasion he stated that the R.F.C. had something like 100 aeroplanes in flying order. Mr. Joynson-Hicks proved that there were only thirteen capable of flying, despite the fact that Seely had sent myrmidons rushing round the country to try and buy aeroplanes to make up his numbers.

He bought something like half a dozen comic old machines from Mr. Grahame-White at Hendon and palmed them off as military machines, till his trick was exposed in this paper. Most of them were burnt without doing any real military work, but the money paid for them enabled Mr. Gates to re-equip the Grahame-White stable and to improve considerably the quality of the exhibition flying at Hendon. So the British Public did get something for their money after all.

Insensate Bravery.

Personally J. E. B. Seely is a brave man. Hence his rushing into the Air Ministry after having his mendacity and incapacity exposed so thoroughly in the past. One has no time at the moment to give details of his aeronautical fallacies and inaccuracies, but one hopes to deal with them at some length in an early issue, as a knowledge of them is necessary to a proper understanding of his future actions.

It may be recalled that as War Minister in 1914 he was broke over the Ulster affair, in which his falsehoods seem to have been regarded as more serious than those which he uttered concerning the R.F.C. After such a political career it takes a very brave man to show his face again. In his private life no doubt J. E. B. Seely is the soul of honour, but as a politician his word is not worth the paper it is written on—to quote a famous Irish statesman.

In the field of war his bravery is as great and as insensate as it is in the field of political honour. It is reported that quite early in the war Seely recommended his chauffeur for the V.C., on the grounds that wherever he went the chauffeur went also. As Seely has not the faintest trace of a sense of humour the story illustrates his esteem of his own bravery.

Whether Seely's contempt for personal risk is the result of fatalism, or of sheer mental incapacity to be afraid, or of that curious form of self-conceit which gives to some people the exquisite pleasure of sitting outside themselves—so to speak—and admiring their own bravery, one cannot determine. The chauffeur story tends towards the conceit theory.

On the other hand one of the bravest—because one of the most thoroughly frightened—officers in the R.A.F. tells a story of being hailed by Seely as he passed along a road, and being compelled to sit on a road-side bank and talk to him while the Hun searched the road thoroughly with heavy shell. The officer in question said that he was never scared so stiff in his life, but that Seely was utterly unmoved. Which seems to point to sheer mental incapacity on Seely's part.

The Cracking of Thorns.

Not that one would suggest for a moment that Seely is a brainless fool. Far from it. On the contrary he has one of those intensely active and yet utterly fatuous brains which enable a man to do many times as much harm as any ordinary fool could do. For example, the Army in France tells a story of Seely which may or may not be true. In any event it is so like the way in which Seely's mind works that it will serve as an illustration.

During General Byng's attack on the Hindenburg line in November, 1917, the British troops crossed the Scheldt Canal on the bridges at Marcoing and Masnières which the Huns in their haste had left intact. Advanced cavalry who crossed at Masnières were practically in Cambrai itself, and a big force thrown across the bridge at Masnières could have captured and held Cambrai. But Seely happened to hold a command at that point, and his active brain perceived that it was no use putting troops across a bridge if their transport could not follow them. So, having let the advanced cavalry cross, he decided to test the Masnières bridge, which was a stout single-span steel lattice-girder affair, quite up to the weight of the traffic of the country, including motor lorries.

By way of testing it he sent a tank across, with the result that as soon as the tank was precisely in the middle the girder buckled slightly, the ends cockled up, and the whole thing slid gracefully off its expansion-rollers flat into the canal. And there it is to this day—or was when one saw it a few weeks ago—with the French bridge at the bottom of the canal, the tank sitting on top of it, the wooden piles of a destroyed German bridge on top of the tank—which the Hun used as his central support—and a brand new English steel bridge on top of that.

However, in went the Masnières bridge, and no more troops or transport got across it till it was too late to capture Cambrai. By the time anything could be done the Hun rout had been stopped and fresh troops had been brought up to the ridge overlooking the canal and had established themselves in Rumilly, where they stopped till their big advance in March, 1918.

Whether Seely was the actual individual who ordered the tank across the bridge or not one cannot say, but the fact remains that it is known in certain sections of the Army as "Seely's tank," and besides, as one has said, the whole episode is so typical of the amazing activity and fatuity of the Seely brain that it would be quite fair to invent the whole story simply as an illustration.

Strategy or Stage-craft.

Anyhow, let it go at that. One has given a perfectly fair and more or less accurate sketch of the man to whom the affairs of the Air Force are henceforth committed. He may have been put into the job merely to add to the gaiety of nations, though the results may be tragic for serious Service aviators. On the other hand it is possible that Mr. Churchill, being very shrewd, albeit reckless at times, may have seen, as Lord Weir has seen, that the next President of the Air Council is bound to be broke over the intrigues of the Bolo House. And so it is possible that he chose the very sound plan of putting Seely into the job, thus providing a kind of official mop to absorb the mess and at the same time ridding our beloved Prime Minister of a blatantly incompetent follower persistently importunate in his clamour for office.—C. G. G.

THE FUTURE OF THE HOTEL CECIL.

The War Cabinet Committee on Accommodation are devoting their attention to the release of some of the big London hotels at present in the occupation of various Government Departments.

An official at the Office of Works, interviewed by the "Morning Post" correspondent, said:—

"The demand for accommodation in connection with demobilisation is so great, however, that it is rather interfering with the release of buildings in the occupation of War Departments. I hope that the Hotel Cecil, the Grand, and the Victoria will be ready for vacation by the Spring.

"The Air Ministry will have placed at its disposal a block of buildings near Whitehall for its permanent occupation, and the Ministry of Munitions staffs are being rapidly reduced."

THE WORK OF BRITISH AIRSHIPS IN THE WAR.

The Navy is often called the "Silent Service," and so ought the Airship Service to be called, for, if anything, it has been even more silent than the Royal Navy.

While everybody knows about the work of the aviator in his aeroplane, and the "balloonatic" in his balloon, very few know what the airship pilots and crews have done.

It is certainly more exciting flying for a few short hours over the lines in France or Flanders, but it is much more tiring and monotonous to fly in a "rigid" or "N.S." over the cold North Sea for 60 hours on end, and sometimes even longer, and knowing, if you meet a Hun seaplane, you are in for a very warm time, which, by the way, does not mean that big airships have no chance against a seaplane.

Later on, no doubt, the Censor will allow all kinds of details to come out about the work of "Zeros," Twins, Rigids, and all the other types of airships, so the present writer will only give a few details to "go on with."

At the Outbreak of War.

At the beginning of the war, there were two airship stations—Farnborough, under the command of Sqdn. Comdr. H. L. Woodcock, R.N., and Kingsnorth, under Wing Comdr. N. F. Usborne, R.N.

At Farnborough there was the Naval Parseval (Airship No. 4), Delta, Beta, and Eta, the Old Army airships, Gamma having been put on the scrap heap, and the old Willows, "No. 2."

As soon as war was declared, Naval Airship No. 4, under the command of Lt. (as he was then) J. N. Fletcher, R.E., and No. 3, the Astra Torres, under Comdr. Usborne, patrolled the Channel from the Thames to Ostend, etc., and many, no doubt, will remember photographs of No. 3 at Ostend. Beta also was inflated and did a few patrol flights sometimes under the command of Lt. T. G. Hetherington.

On one of these flights something went wrong with one of the propellers of No. 4, and the captain of the airship thought he would have to land, but one of the crew volunteered to ship a new propeller, and did so, while the airship was in mid-air.

Meanwhile Eta was inflated at Farnborough, and Lt.-Comdr. Woodcock, R.N., fouled one of his hands with her propeller, suffering thereby a very nasty wound, and had to go to hospital, Lt. R. G. Locke, R.N., commanding the station in his place.

In September and October, Eta made several flights, and for a short time was moored in the open near London, under the command of Capt. the Hon. J. D. Boyle, but severe gales sprang up and she had to be deflated and sent back to Farnborough. Beta took her place, and made several trips over London in connection with the lighting regulations.

War Time Experiments.

At Farnborough the old yellow-coloured envelope of Gamma was inflated with air, and experiments were carried on in regard to mounting machine-guns on the top of non-rigid airships. Maj. C. M. Waterlow, R.E., was experimental officer at that time.

No. 2 also had her car dismantled, and a new one was built for her. This had swivelling propellers, was fitted with dual controls, and seated three, its shape being rather like that of the car of Beta.

Meanwhile, it was decided to send an airship detachment to Belgium, and Eta was got ready to go, a large white ensign being painted on her vertical plane, Captain the Hon. J. D. Boyle being in command of her with a crew of about five.

She had no machine-gun, but carried a good wireless set, which was placed in the stern of her car behind her engines, while in the bow of her framework a small lamp was fitted.

On a Saturday afternoon early in November a party of Royal



THE S.S.9.—A small two-seater of the original "Blimp" type, in which the fuselage of a B.E. biplane formed the car and power-plant.

Marines and a few Naval ratings left Farnborough on lorries, Capt. Boyle seeing them off, and they had a fine send-off from the ratings left behind.

A few days later Eta herself started off and landed, after a journey through a snowstorm, in the grounds of Sir J. Colman's place near Redhill. Her envelope was thickly covered with snow.

She was moored for the night, but, unfortunately, a very heavy wind sprang up, and she was so severely damaged that she had to be deflated, and was later taken to the Kingsnorth Station.

Shortly afterwards, Beta was taken out instead, and was based at Dunkirk, Col. E. M. Maitland being in command of the airship detachment, Squad. Comdr. Delacombe, amongst others, being there.

Early in 1915, orders were given for the Airship Service to be expanded, and a station was built at Polegate, near Eastbourne, as well as in other places.

In March the airship detachment left Farnborough, and for the first time for over 20 years there were no lighter-than-air craft there. Some of the officers went to Wormwood Scrubs which had been brought into use as an airship station, and others to Polegate, Barrow, and Kingsnorth.

The Birth of the "Blimp."

At the beginning of 1915 Vickers were building a "Rigid," but work on this was stopped. However, some new Parsevals were built, and another Astra Torres, which was slightly larger than No. 3. Meanwhile, the S.S. Airship type was being evolved.

A B.E.2c aeroplane fuselage was used as a car, because these ships were wanted quickly and in large numbers, and though plenty of people could make B.E.2c bodies, very few could make airship cars. These fuselages had the additional advantage of being compact, light, and strong.

A 60,000 c.f. envelope was chosen, and these ships were to be capable of any speed up to about 50 m.p.h., and were to have good reserve lift.

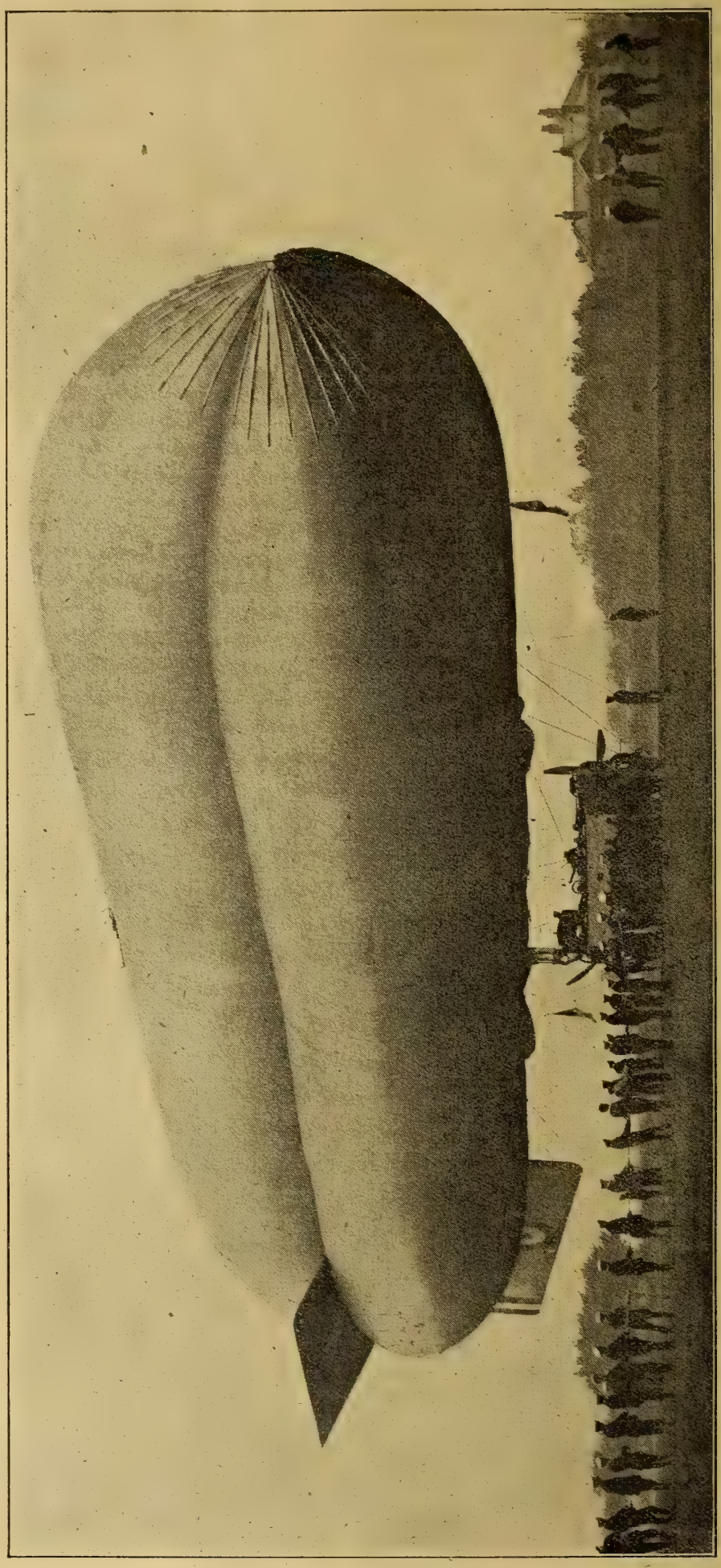
A B.E.2c fuselage was rigged experimentally to an old envelope, and the result was successful. One S.S., built by a private firm, was piloted on its first test by Major C. M. Waterlow. This vessel was a failure. Another firm's production was, however, successful.

Maurice Farman type cars were also used, and in some ways were found to be more suitable than the B.E.2c body. Wireless was fitted on these ships, and a crew of two was carried.

About this time Eta was rigged again with a new totally enclosed car, and her envelope coloured with an aluminium dope. The car was quite short, rather broad in the beam, and swivelling propellers were used. It had been tried on an experimental ship by Major Waterlow. Delta's envelope was also used for mooring experiments, and thus finished its career. Soon afterwards Major Waterlow was appointed to command Wormwood Scrubs, and Eta II soon fell into disuse. Early in the year Beta returned from Belgium.

The Submarine Destroyer.

Not long afterwards the first coastal type airships were built.



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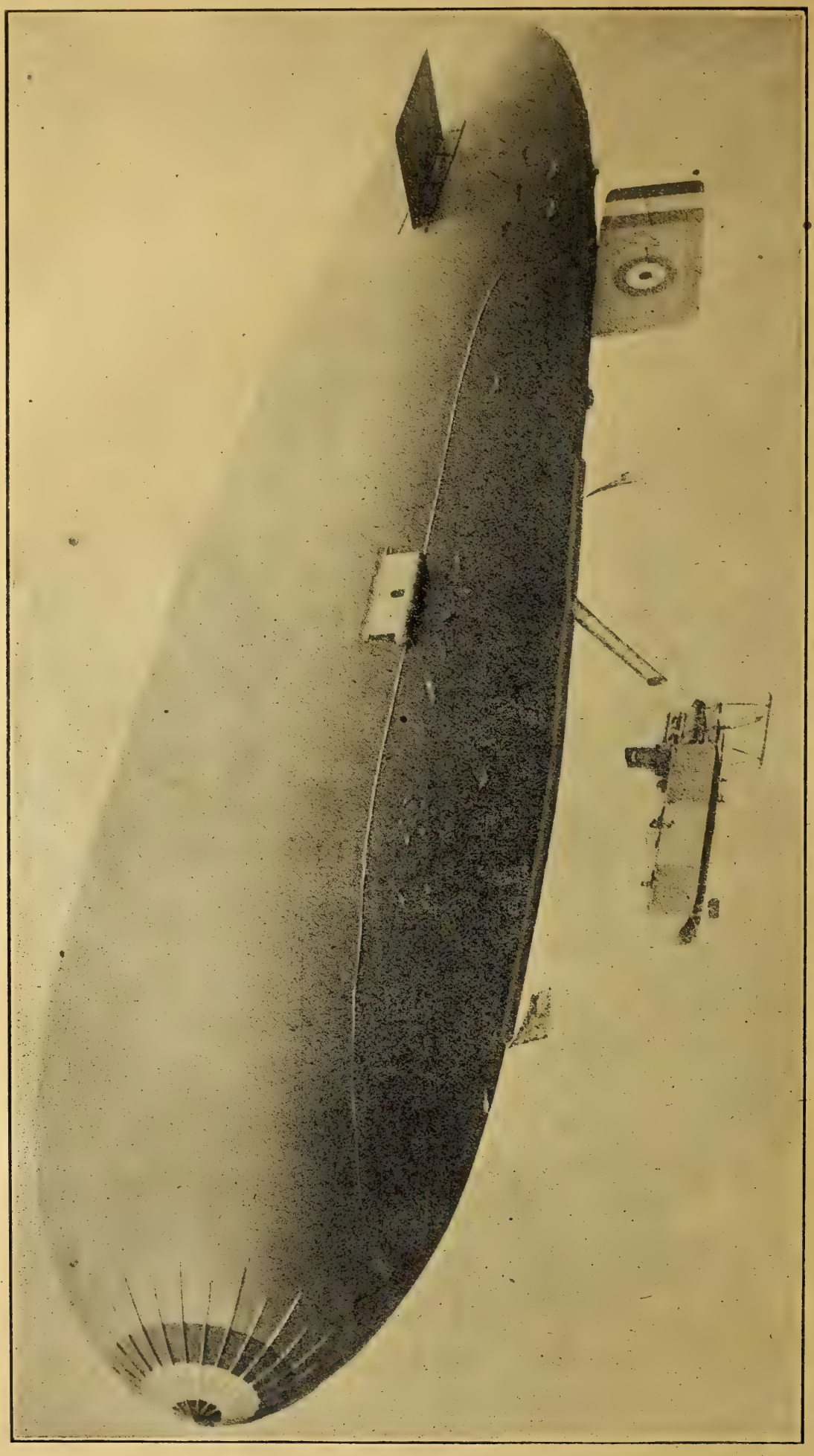
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THE S.S.P.1.—A non-rigid pusher type airship of small size. This was the first real development of the Submarine Scout, the original "Blimp" type being merely a compromise, originally suggested to Admiral Fisher by Mr. E. T. Willows, whose own small airships were in much the same class. The S.S. type was developed in the R.N.A.S. by the late Commander Usborne, R.N., and the P. type, as shown above, proved highly successful.

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These ships had a capacity of about 140,000 c.f., and were built on the Astra-Torres principle. They had two engines, one in the bows and one in the stern of the rather long car, and carried a crew of about five.

The S.Ss., "C" ships, and Parsevals soon proved their worth, and carried out long patrols over the North Sea and Channel.

During 1915 one or two B.E. S.Ss. were sent to the Dardanelles and did excellent work, and even flew over hostile territory on occasion.

In 1915 quite a number of submarines were destroyed by these airships, and many a convoy reached port in safety largely on account of these aerial escorts.

These ships also did quite a lot of mine hunting, and the patrols in the case of the S.Ss. usually lasted from six to ten hours, and often longer, while in the large Coastals flights of from sixteen to twenty hours were quite usual.

A Non-Rigid with the B.E.F., France.

In 1916 during the Somme battle an S.S. airship was sent out to work with the Army. Her envelope was painted black, and, of course, she operated only by night. She did excellent work, and showed that, at any rate, on certain occasions airships could be usefully employed over land with the Army.

Late in 1915 the "Rigid" that had been building at Barrow, and on which work had been stopped in January of that year, was being completed, and during the following years several "Rigids" were built. Several have been seen over London, and one type is certainly very like a pre-war Zeppelin of 1913.

No details may be given of these ships at present, but one can say that certain of them carry a crew of about 21, are fitted with swivelling propellers, and have something like 1,500 h.p. to drive them with. They were designed for long-distance scouting with the Fleet, and have done a great deal of good work.

Improvements in the S.S. Class.

Meanwhile, the various S.S. ships had been patrolling for U-boats, and a few ships of slightly different design (chiefly in the matter of the car) were built, such as the S.S.P. type, which had a pusher car with a single skid for an undercarriage.

The S.Ss. were easily built, for they were simple in design, and these ships (now obsolete) embodied quite new and untried ideas.

For instance, all previous types had a blower to supply air *via* the airpipe to the ballonets, driven either off the main engines or by a small auxiliary engine. The S.Ss., on the other hand, and all our later non-rigids, had no blower at all, the propeller-draught supplying the air in the ballonets, in order to keep up pressure *via* a blower-pipe made of aluminium, and rigged at a slant behind the propeller, thus doing away with the fan, etc., otherwise needed.

The air, after leaving the blower pipe, passes along a fabric hose which is attached to the underneath part of the envelope, and passes through the "crab pots" in the ballonets. Another novel idea was the fitting of two vertical planes and rudders at an angle to one another, instead of rigging only one as was previously the case. While naturally this arrangement is heavier owing to the extra plane, skids, etc., the ships were found to be much handier.

Early in 1916, Wing Commander N. F. Usborne was killed, together with Sqdn. Commander Ireland, R.N., who was the W/T specialist of the R.N.A.S. These two officers were carrying out an experiment at Kingsnorth in combining an aeroplane and airship, but, unfortunately, something went wrong.

The S.S.Z. Type.

During the summer of 1910, quite a new type of ship was evolved, known as the S.S.Z (S.S. Zero) type.

These ships were meant to be an all-round improvement in performance on the S.S. type, and were to be of 70,000 c.f. instead of 60,000, though some of the later S.S. ships were of 70,000, and were to have a proper airship car, and not an adapted aeroplane body, which had not been found roomy enough.

S.S.Z.I. was built by men of the Royal Naval Air Service, and proved a great success. She was faster than the S.S. ships, and was generally handier. These ships have been seen by a great many people now, and the public knows their appearance.

The car is the most outstanding feature, and is, roughly speaking, boat-shaped, with two 75-h.p. engines mounted side by side in the stern on bearers.

The Zeros have done many a weary hour in the air on the look-out for U-boats, etc., their usual patrol being, as a rule, not much less than eight to ten hours.

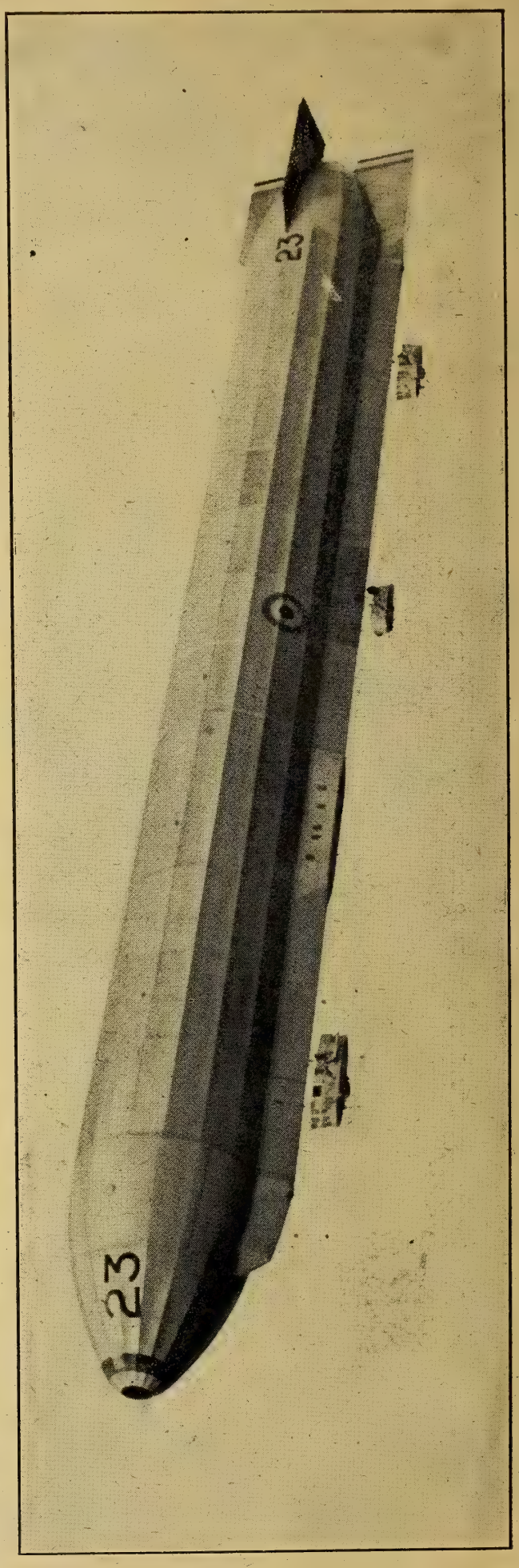
The North Sea Type Is Produced.

In 1917 a new type was projected, to be called the "North Sea" type (N.S.). These ships were to be fairly large and on the Astra-Torres principle, and were designed, as their name implies, for long scouting trips over the North Sea.

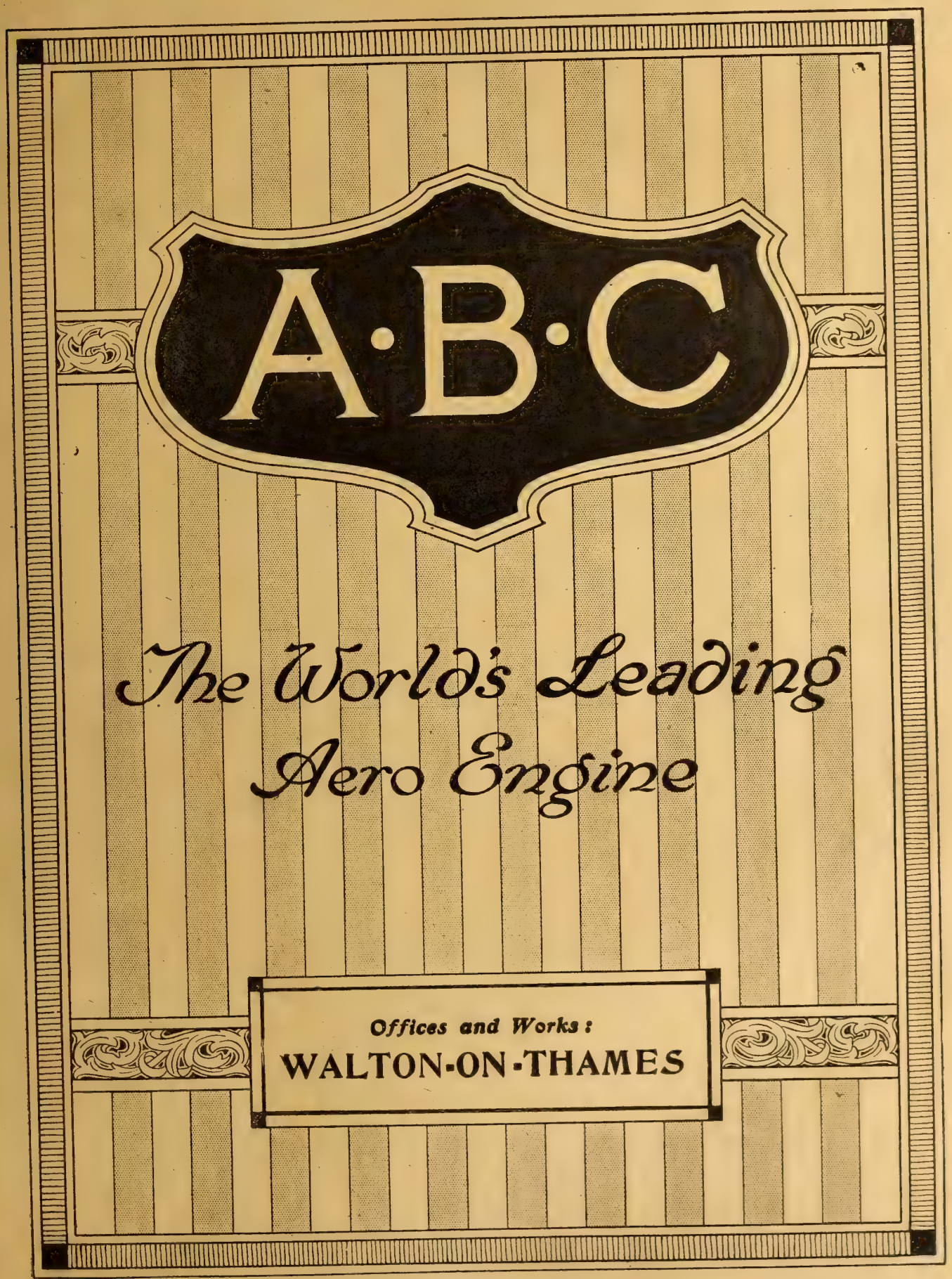
In December, 1916, a British "C" ship, operating from the Pulham Airship Station in Norfolk, was lost in action with a Hun seaplane.

1917 saw many "Zeros," "Rigids," and, later on, "North Seas" built.

The N.S. ships had a long enclosed car, with two engines



H.M.A.23.—A British Naval Rigid constructed on Zeppelin lines.


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mounted at the stern on a V-shaped framework; they also had a gun mounted on top of the envelope, as did also the "C" ships and, of course, the rigids. The new type soon made long flights, and ships are known to have been out on occasion for 60 to 80 hours on end.

In 1917, also, the "C. Stars" were built. These airships were improved "C" ships, the chief difference being that they had a better shaped envelope. S.S. ships with two engines were also built, and were known as S.S.Ts. or "Twins."

In July, 1917, the Airship Service sustained a great loss in the death of Lt.-Colonel C. M. Waterlow, R.E.

He had joined the Sappers in 1905, and in 1906 the old Balloon Company, R.E., and was concerned in all the airships used by the Army and Navy, from Nulli Secundus I of 1907 to the S.S ships, etc., of 1917. His death was due to a landing accident, and it was particularly sad, for he had only been married about six weeks.

Colonel Maitland, also one of our pioneers, and now "Superintendent of Airships" and a Brigadier-General, was appointed to the D.S.O. in 1917 as a reward for many experimental parachute descents and for valuable airship work.

1918.

On April 1st, 1918, the R.N.A.S. ceased to exist, and the Royal Air Force was formed, but, though the personnel for the airship service is provided by the R.A.F., the airships are still under the Admiralty.

To sum up, the British Naval Airships have proved invaluable in submarine hunting and in observing for mines, and have done a very great deal of really useful long-distance reconnaissance.

Because their losses seldom appear in public papers, many people seem to think that we have lost no airships during the war. As a matter of fact, we have lost several at sea from gales, etc., and also from hostile aircraft, while in July, 1915, there was a serious explosion of hydrogen at the Wormwood Scrubs Airship Station, resulting in several deaths among the naval ratings.

People who seem to think that airships have proved to be failures must remember that airships have not reached the same advanced stage of development as aeroplanes, though, as the following figures will show, aeroplanes are not the only forms of aircraft that have been improved.

A Comparison: 1914-1918.

In August, 1914, the best height that an airship was capable of reaching was roughly 10,000 to 11,000 feet, certainly not more, and even then they were "light"; now 20,000 feet and over has been reached. The record airship speed in 1914 was about 55 to 56 m.p.h.; to-day it is 70 m.p.h. at least.

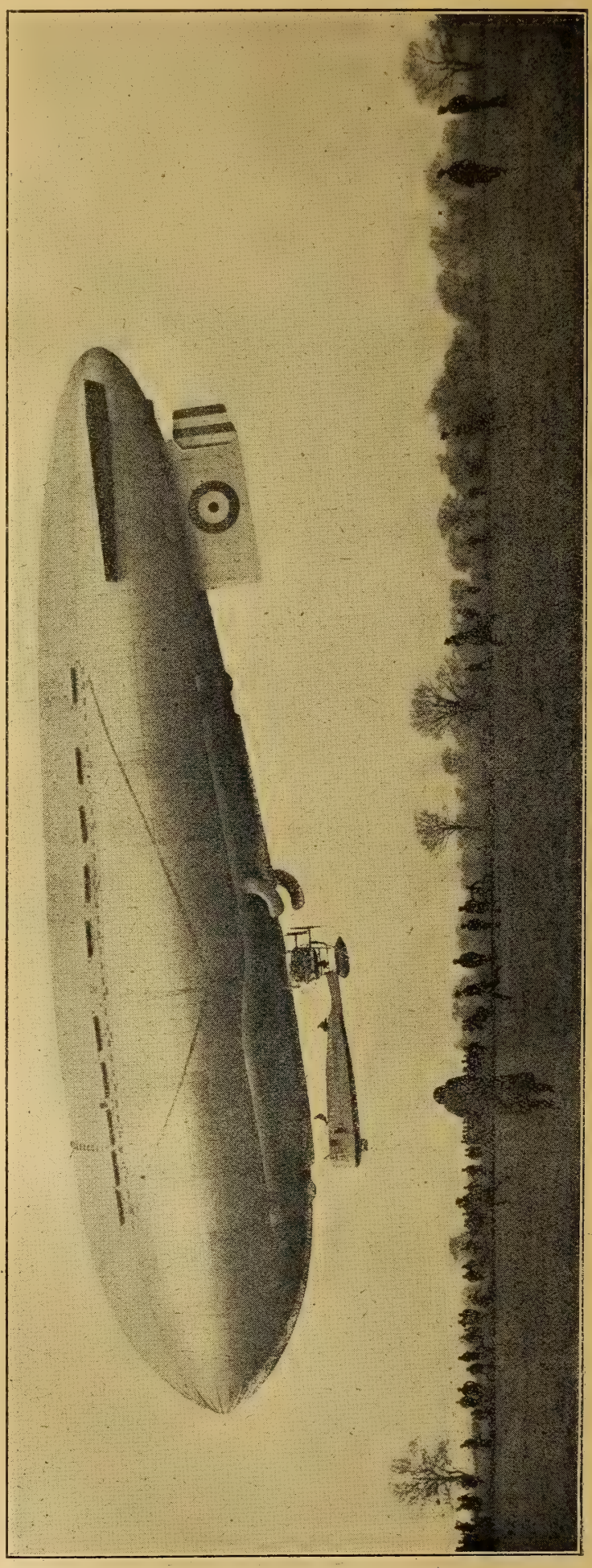
A 30 hours' flight was considered a matter of great moment before the war, now journeys of 70 to 80 hours in duration are common.

All one has to do in order to see that the powers that be, who in 1914 were certainly not believers in airships, seem to think that airships have proved their worth, is to remember that in August, 1914, there were only two airship stations in use and only two airships of real value, but now there are over twenty stations, and we have more than double the number of airships we had at the beginning of the war at many individual stations at present in existence.

Airships have done rather less than some of their supporters claimed for them, and much more than their enemies said they could do. Ensign.

R.A.F. RAVINGS: A REVIEW.

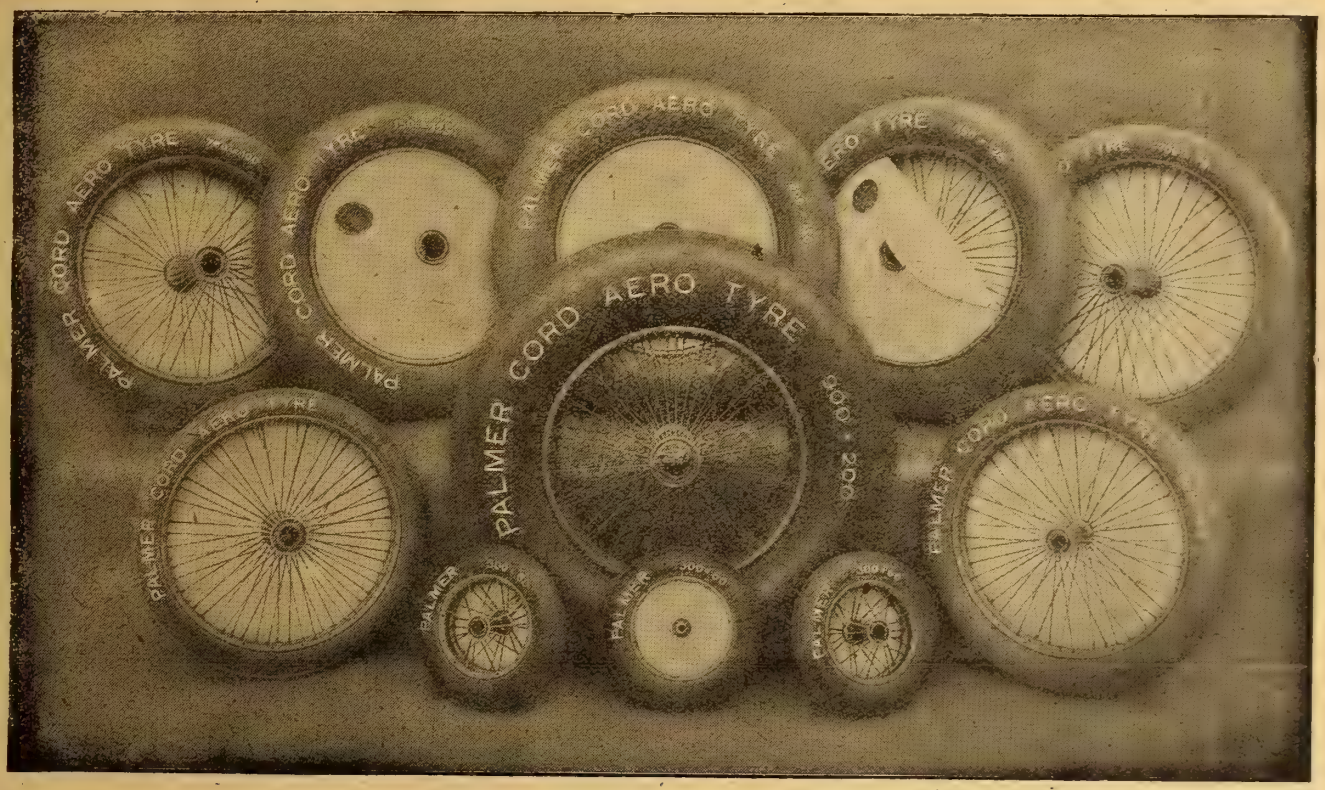
"R.A.F. Ravings," by Charles Payzant (Charles D. Clayton, Ltd., price 1s. 9d.), is a small book of illustrated verse. The verses, which are arrayed in alphabetical manner, are after the style of "Ruthless Rhymes." Some of the illustrations are almost funny, the most amusing part being the expression of the faces shown in the various sketches, particularly that on page 5. The book is printed on good paper, and the type is large and clear, which is a thing to be taken into consideration when buying a book in these days. If it does not please the children, it may at least charm the unsophisticated.



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300×60	16	111.12	25.4	Central	700×100	33	150.	38.09	Central	800×150	†41	185.	55.	Central
,,	17	72.39	12.7	Central	,,	77	178.	44.45	132/46	,,	82	185.	55.	135 50
450×60	30	89.	31.75	Central	,,	92	185.	55.	135 50	,,	85	185.	55.	Central
575×62	21	160.	28.	Central	,,	95	185.	55.	Central	,,	†205	185.	60.32	Central
,,	34	150.	31.75	104 46	,,	96	178.	55.	132/46	1000×150	97	250.	65.4	Central
,,	111	150.	38.09	104 46	,,	99	178.	38.89	132/46	,,	102	185.	55.	125/60
650×65	78	178.	44.45	132 46	,,	112	150.	40.	Central	,,	201	185.	60.32	125 60
,,	79	178.	44.45	Central	650×125	119	178.	55.	132/46	900×200	107	185.	55.	Central
,,	100	178.	38.09	132/46	750×125	33	150.	38.09	Central	,,	108	185.	55.	125 60
,,	101	178.	31.75	132/46	,,	77	178.	44.45	132/46	,,	120	185.	66.67	125 60
600×75	21	160.	28.	Central	,,	92	185.	55.	135 50	,,	202	185.	60 32	Central
,,	34	150.	31.75	104 46	,,	95	185.	55.	Central	,,	208	185.	60.32	125 60
,,	111	150.	38.09	104 46	,,	96	178.	55.	132/46	1100×220	134	222.	66.67	Central
700×75	78	178..	44.45	132 46	,,	99	178.	38.89	132/46	1250×250	136	250.	80.	Central
,,	79	178.	44.45	Central	,,	112	150.	40.	Central	1500×300	115	304.8	101.6	Central
,,	100	178.	38.09	132/46	800×150	36	185.	55.	135/50	,,	126	304.8	152.4	Central
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FULL SCALE AEROPLANE EXPERIMENTS.

On Wednesday, Dec. 18th, a meeting of the Royal Aeronautical Society was held at the Royal Society of Arts, John Street, Adelphi, when Capt. W. S. Farren delivered a lecture on "Full Scale Aeroplane Experiments."

Capt. Farren stated that up to the present time most of the full scale aeroplane experiments had been carried out at the Royal Aircraft Establishment, and that their cost had, therefore, fallen on the country at large, and he pointed out that where the results of the experiments have been considered of value by the Technical Department of the Department of Aircraft Production, they had been made accessible to all aeroplane designers under proper conditions as regards secrecy.

The lecturer pointed out that there was no means of bridging the gap between experimental model aeroplanes and full-size machines, because the size of experimental wind tunnels determined the size of models which it was possible to test.

Owing to questions of cost and convenience much experimentation had to be made with models, but it still had to be decided how far the results obtained from models could be applied direct and without modification. One was, therefore, faced with the necessity of undertaking full scale experiments in order to be able to use the model ones.

Capt. Farren thought that it was unnecessary to make full scale experiments agree with model experiments—all that was necessary was that the results should be capable of being compared.

Measuring the Atmosphere.

One of the most difficult problems in experimental work was to measure the physical condition of the atmosphere over which one had no control. As a medium in which experiments were to be conducted it could only be described as very unsatisfactory, especially when it is remembered that ultimately the assumption is always made that air can be considered as equivalent to a uniform still fluid.

All that could be done in the conduct of full scale experiments was to measure the temperature and pressure of the air near the aeroplane, and one was fortunate when one found a calm region in the air where the instruments carried on the aeroplane indicated steady temperature and pressure. Such a region could generally be found just above a layer of clouds, and much use was made of that fact in testing for stability and other similar work, though in these circumstances observation from the ground was impossible.

For measurements of performance, however, it was important to know that the atmosphere was in a steady state over a considerable area, and settled weather was therefore essential, when the state of the air might be taken as not very different from that indicated by the aeroplane instruments.

The speed of the aeroplane relative to the air was one of the fundamental quantities determining the forces exerted by the air on the various surfaces, and much labour had been spent making the measurements of speed as accurate as possible.

Any method which depended on timing over a measured length on the ground involved the velocity of the air relative to the earth, when an assumption had to be made of the mean wind velocity over the whole course; on the other hand, the method involving the use of a device, the operation of which depended on the relative motion of the aeroplane in the air, had to assume that there was no interference between the aeroplane and the air at the point where the instrument was placed.

Experiment had shown that such a point was difficult to find, and inconveniently far away from the aeroplane.

It would be convenient to divide the methods involving observation from the ground into classes (A) and (B), A representing those in which the aeroplane must be flown within narrow limits over a definite line on the ground, and B in which it was necessary only to pass across a certain line between two definite points on it, the direction of flight being more or less at right angles to the line. Class A might conveniently be called "speed course" methods, and Class B "camera obscura" methods.

The Ground Speed Course.

The first method used was what was generally termed a ground speed course, when the aeroplane was flown within a few feet of the ground. The course at Farnborough was 1,000 yards long and practically level. Two observers, with simple fixed sights, took the time of passing in each direction. From the times both the aeroplane speed and the wind speed could be determined. The effect of a light cross wind was eliminated by allowing the aeroplane to drift with the wind, the aeroplane being kept parallel with the length of the course.

The following system of timing was employed: Each observer had a stop-watch and there was a bell at each station which was operated by a key at the other. When the observer saw the leading edge of the wings of the aeroplane on his sight he started his watch and pressed his key. When B heard his bell he started his watch. When the aeroplane passed B, B stopped his watch and pressed his key, and when A heard his bell he stopped his watch. This system constituted a double check, and the mean time might be regarded as fairly accurate.

There were a number of advantages and disadvantages in the employment of the ground speed course—one of the most important of the latter being the necessity on the part of the pilot for keeping an eye on the ground and the consequent difficulty in keeping the speed of the machine steady.

The High-speed Course.

The natural extension of the ground speed course when required to measure speeds at any height above the ground was a high-speed course, the ends of which were determined by cross-wires in suitably arranged wide angle telescopes. The course existing at Farnborough had a length of about 4,000 yards. The telescopes gave no magnification, and were practically Aldis sights, having reflecting prisms in order to bring the eye-piece in a position convenient for observation.

The angular range was about 30 degrees, so that at 3,000 feet the aeroplane could be about 800 feet off the course laterally, and yet be in the field.

There was, with the use of this apparatus, the probability of an error always in one direction, owing to the fact that any actual course must be longer than the assumed straight one. There was, however, an attachment by which the reflecting prisms on the sights could be rotated about the axis of the sight, so that the aeroplane could be kept in sight over the whole course, and the deviation from the straight course estimated.

The main purpose of this rotating mechanism was to measure the aeroplane's height at each end. The mechanism at one end was thrown out of gear electrically by the signal at the other end, which recorded the aeroplane's passage, and a Veeder counter recorded the angular height directly, so that no error could arise in the short time which would be available for reading a vernier in a scale of degrees. All the times were recorded at one end by means of electrically operated styles on a travelling band of metallic paper. The most unsatisfactory feature of the high-speed course was found to be the measurement of the wind velocity which was determined by the observation of smoke puffs sent from the aeroplane, the paths of the puffs being traced in a camera obscura.

Proposals had been made at Farnborough for an extension of the high-speed course in the form of an additional station, arranged so that the three stations formed approximately an equilateral triangle. Flights could then be made in any or all of three different directions and components of mean wind velocity in these directions obtained directly. The chief disadvantages of the use of the

high-speed course were the difficulties in keeping direction, the limitations imposed by clouds and wind, difficulty in estimating wind velocity, and the elaborate nature of the necessary instruments.

So far as camera obscura methods were concerned the lecturer described those originally used at the Testing Squadron at Upavon. Two cameras were used, and the path of the aeroplane was traced in the cameras. From the traces of the aeroplane's path on the tables of the cameras, by a fairly simple calculation both the height and speed at any point could be obtained.

Instruments Carried by the Aeroplane.

Calculations by the use of instruments on the aeroplane itself made it necessary to ensure that there was no interference between the aeroplane and the air near the instruments. In order to cut out this interference it was quite conceivable that a kind of log might be developed which could be trailed behind the aeroplane.

The ordinary Pitot head fixed to a wing strut of an aeroplane was only accurate when it had been calibrated by some absolute method. It had been found that the speed registered by the ordinary aeroplane instrument when corrected for density and for instrumental errors was generally something below the true speed. It had, however, been found that by using a head attached to a wind vane, which could swivel in a vertical plane, the error, owing to the yawing of the pressure head due to the varying angle of incidence of the machine, could be eliminated, and thus the total error could be substantially reduced.

The best method of securing and keeping a good standard of accuracy in speed measurements was to calibrate one machine very carefully on a speed course of some type and to use it as a standard for calibrating others; under these conditions the two machines flew side by side, the standard machine flying at a steady indicated speed, and the other machine keeping level with it. By proper co-operation it should be possible in this way to calibrate instruments on any machine from those of a standard machine.

The lecturer then discussed respectively the merits of liquid U tube indicators and diaphragm instruments. In the case of diaphragm instruments, it had been found that the diaphragm tended to set in one position unless constantly in use.

In estimating low speeds of about 50 miles per hour the differential liquid velometer had been found superior to a diaphragm instrument, the lag on the diaphragm instrument being considerable.

Measuring Climb.

In measuring rate of climb primarily one measured the rate of change of pressure and temperature, which could be calculated by the use of the automatic recorder or barograph; an aneroid barometer and stop watch; or by a climbmeter. In the opinion of the lecturer either method was workable, and selection could be left to local conditions.

The climbmeter described by Colonel Tizard in his lecture two years before was an old balloon instrument under a new name, consisting of a thermos flask containing air connected to the external air by a very small hole. The change in pressure of the atmosphere caused a flow of air through the hole in the flask to change, the internal pressure trying to keep pace with the external, which could only take place slowly, on account of the size of the connecting tube.

A U tube showed the difference of pressure between the flask and the outside air, depending on the rate of change and pressure outside.

In research work one was not much concerned with the time taken to reach any particular height and the usual method adopted was what were known as partial climbs, consisting in measuring rate of climb at, say, 10,000 feet at speeds varying in steps of 5 mile per hour from the lowest convenient speed to well above the level speed, the latter observations being, of course, the rate of loss of height. All these tests were done with the engine at full throttle.

The actual measurement of rate of climb could be made in a number of ways. The time for 9,500 to 10,500 feet might be measured, or the height gained or lost in any interval of time, the length of which would vary with the actual rate of climb, in order not to put too much work on the engine. A combination of the two methods was generally found to be best, the first being used for moderate speeds when the rate of climb was large, and the second when the rate of climb began to approach zero.

In order that complete results could be obtained, information was necessary as to the engine power and airscrew efficiency, considerable difficulty being experienced with the latter quantity in particular, the only available direct measurement possible being the whirling arm at Farnborough, which had not been found a very satisfactory piece of apparatus; nevertheless, interesting results had been obtained from its use.

Engines and Airscrews.

It was customary to check engine power from test bed measurements, allowance being made for reduction in power at high altitudes. It was also possible to determine the variation of power with height by the observation of airscrew revolutions at various aeroplane speeds on full throttle. Given engine power and airscrew efficiency and the results of partial climbs, the total resistance of the aeroplane could be obtained by simple analysis.

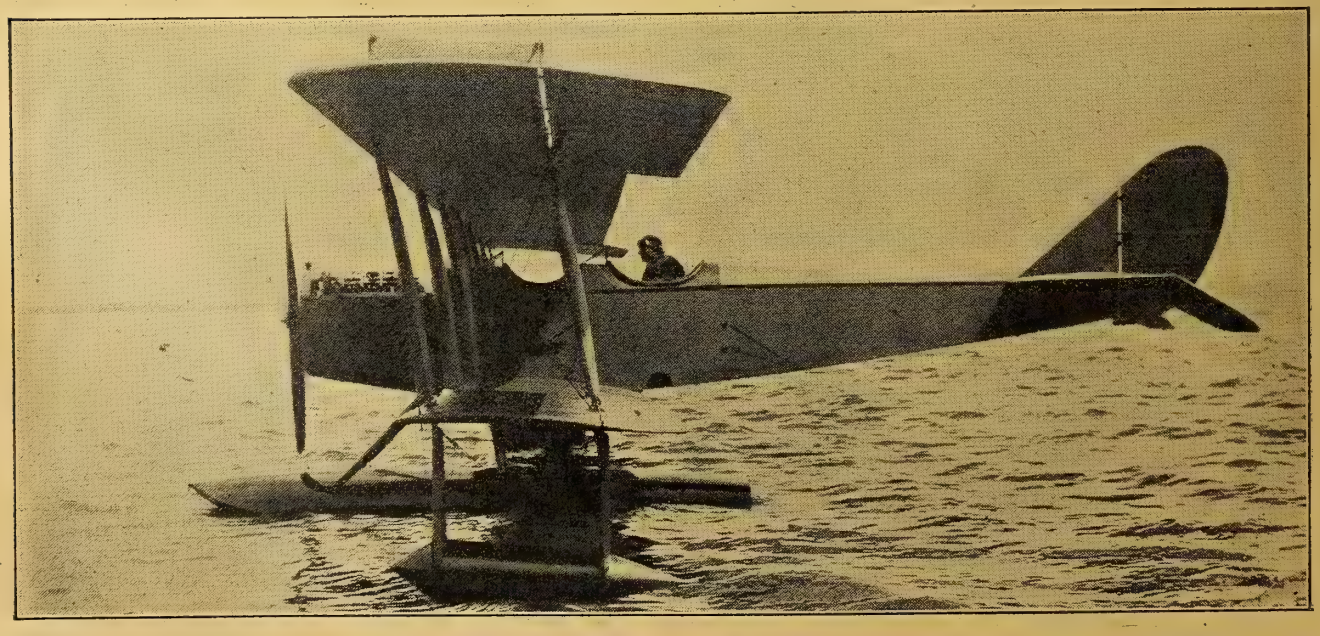
Direct measurement of airscrew thrust was desirable, but success in this direction had only been fair owing to the difficulty of devising suitable instruments; when these were obtained they would replace the use of the whirling arm.

Measurements of the resistance of the aeroplane could be made from glides with the airscrew stopped.

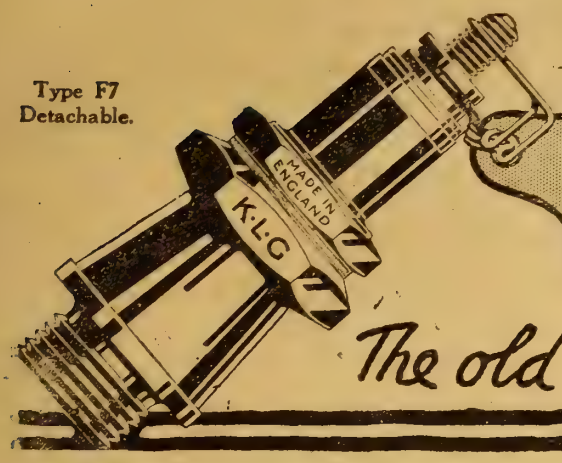
The lecturer then proceeded to discuss experiments in the measurement of air pressure distribution on the planes and auxiliary surfaces. This was simply carried out by running small tubes through the wings and bringing them out at the desired points, finished off flush with the surface, and connected with a number of manometer tubes, so arranged that the pressures could be recorded photographically on bromide paper. A similar method had been employed for measuring air pressure on other surfaces, tail planes, bodies, etc., and it was hoped to extend the method to airscrews in the near future.

Pressure distribution results over the wings could, if comprehensive enough, be analysed to give the centre of pressure of the wings.

In connection with stability the lecturer felt there was yet much to be learned. There were only two measurements in this connection which could be taken on a full scale aeroplane—namely, the period of oscillations and the rate of decrease of their amplitude. A simple method of recording the attitude of the aeroplane was to



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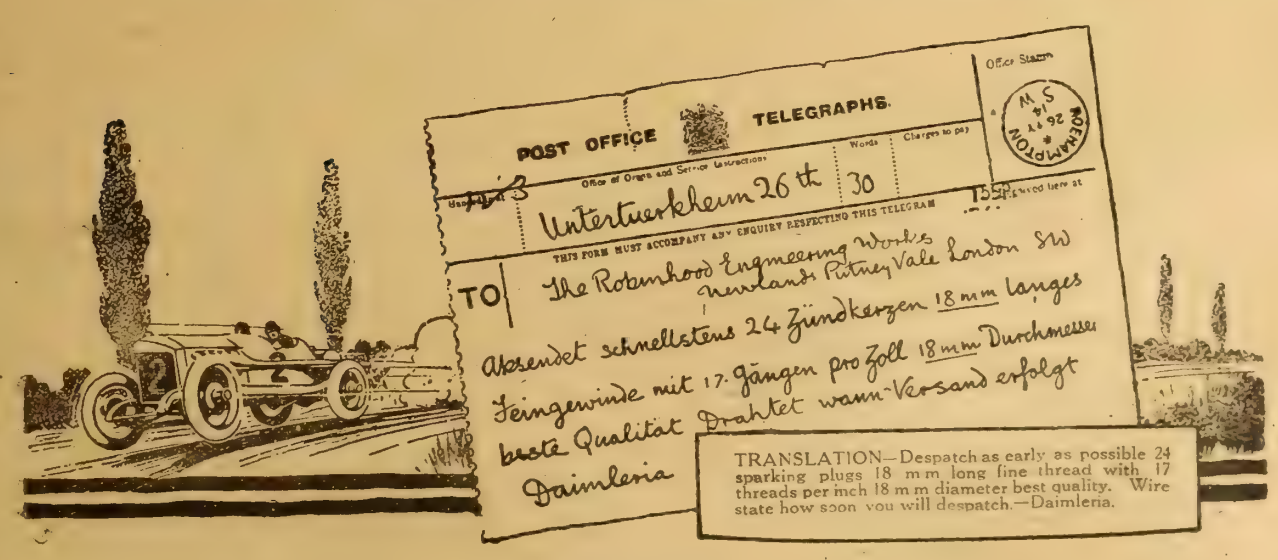
The old tag reversed!

German Admission of British Superiority

Before the war one observed the old tag everywhere—"Made in Germany"—and deplored the fact that we could not make our own commodities. An exception to the rule, however, was the

K.L.G. PLUG

for although Germany made plugs and flooded the British market with them, yet they admitted the superiority of the British by sending for them for the last Grand Prix race. The following facsimile of a telegram received from the manufacturers of the Mercédes car at Stuttgart—which by the way is the home of the Bosch Company—is particularly interesting as well as convincing, more so as the Mercédes finished 1st, 2nd and 3rd.



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trace the path of the shadow of a pin-hole cast by the sun on to a moving band of paper.

Lateral stability was found even more difficult to measure than fore and aft stability, and much had yet to be learnt in calculating it.

The controllability of an aeroplane should not be confused with its stability, and was even more difficult to measure—one of the simplest measurements which could be made was the rate of turn, i.e., the smallest circle in which the machine could be turned. When, however, one attempted to analyse lateral and directional control the motion could not be kept up indefinitely, and the personal element of the pilot in putting the controls in and out of operation affected the results a great deal.

Capt. Farren said that, if time had permitted, he would have liked to have gone into more detail on the subject and to have described the latest developments, the use of the cinematograph instrument for recording the movement of controls; device for replacing the pilot's hand by a definite force, or rate of movement of the control; the experimental investigation of spinning, etc.

The final remarks of the lecturer concerned the organisation of full scale experiments in which he showed how the greatest advantage had to be taken of the weather and of men's time; because when suitable opportunities for experimentation arose the services of many men were required, it was necessary to make arrangements for some kind of work on which they could fill in their spare time and yet be to hand at a moment's notice when circumstances permitted experimentation.

AN AMERICAN REVIEW OF AERONAUTICAL ENGINEERING.

A Commentary on an Address by C. F. Kettering, President of the Society of Automotive Engineers.

The Journal of the Society of Automotive Engineers (U.S.A.) for December last contains a report of President C. F. Kettering's address to a meeting of the Detroit section of his Society. To the audience the address may have been instructive, as well as entertaining; but it is somewhat superficial and disjointed, and, altogether, not such a presidential address as we expect, and generally get, on this side of the water. Frankly, it is rather disappointing, for one might be excused for expecting more from the president of a technical society—and the leading technical society at that—of a country that has done so much in aircraft manufacture in the war.

Mr. Kettering began his speech by a review of the work of the Wrights, and he made a remark, characteristically American, which some engineers may appreciate and some may not. "Thinking they might try something, the Wrights turned the glider around and glided it backwards, just as a matter of experiment, and the thing worked. Now, to me, that is a perfectly natural thing. If most engineers were to do just the reverse of what they have planned, they would succeed much oftener than they do."

When he entered upon the question of commercial and private aviation the lecturer gave some useful advice on the necessity for maintaining an adequate reserve of engine-power even in machines that are not primarily designed for high speed, or for carrying abnormally heavy loads. It must be admitted that many enthusiasts, now wrapped up in the future of commercial aviation, are given to overlooking this point, and to maintaining that power adequate to keep a machine in the air is good enough. No greater mistake could be made, for a satisfactory margin of safety rests on other factors than extra strength of constructional details.

Cost is always a fascinating question. We all have to consider either how much or what quality we can buy, or whether we can buy at all, and on this topic Mr. Kettering's remarks are worth quoting in full. He said "An engine costs about $15 per horse-power, and an expert would certainly not be satisfied with anything under 100 h.p. That is $1,500 for the engine. A cheap, good airplane would cost about $2,000. There must be a hangar for it, and a field of at least 40 acres. Then, if the flier does not happen to be a mechanic, he will need a motorman and a planeman. Just how can a man afford a thing like that on a salary of $25 or $50 per week? The foundation of an airplane is the engine, and until somebody can manufacture one to sell down to at least $5 per horse-power the plane will be more of a yachting than a Ford problem."

The speaker was discussing more particularly the prospects of the returned pilot as an aeroplane owner, and there are few who will be inclined to cavil at the sense and justice of his remarks.

But when he went on to say that there would in all probability be a popular aeroplane in the future with an engine of something like 40 h.p. and with a wing-spread of 15 or 20 feet, many of his listeners must have rubbed their eyes or ears. The speaker was, here, hardly consistent.

How will the machine of the future be constructed? At the present time it is less a matter of what we would like than of what we can get, but at this stage of development most of us will feel safer in an aeroplane made of wood than in one of metal. Metal construction is certainly a controversial subject at the present time, but the President's tongue may have been tied, or he may be largely unaware of developments that have taken place in this direction quite recently on this side the Atlantic. The all-metal aeroplane certainly looks like coming—some day.

Engine Matters.

"The engine is the biggest proposition in the future development of the airplane. Its running life must be lengthened." This was certainly hitting the nail full upon the head. The whole secret of aero economy might be epitomised by the phrase "longer engine life."

"The subject of engine economy is very interesting, especially to the Society of Automotive Engineers. I am perfectly willing to make a rash prediction to-night, and it is that inside of five years we will see the beginning of the end of the present type of internal combustion engines. I think the Lord has tolerated this foolishness of throwing away 90 per cent of the power in fuel as long as He intends to, and we must act and help ourselves a little. The average automobile engine is 10-12 per cent. efficient" (the more usual figure is 25-30 per cent.). "We are sending out a lot of energy into thin air through water-jackets and exhaust pipes, and the minute we begin to get engine economy we are doing things worth while, things making for cheaper operation. The great tractor and truck industries will be augmented to a degree we cannot anticipate by improvements in automobile engines."

Few people will be inclined to differ from Mr. Kettering on these broad lines, and he did not tie himself down to any definite points in respect of which improvements might be expected, nor to indications of the lines along which he thought development might most profitably proceed. A reference to our A.B.C. engines might be taken as meaning that he is looking forward to improvements as the result of the general adoption of air-cooling, but he did not definitely commit himself even to this fairly safe generalisation.

Possible Types of Machines for the Future.

From a review of military practice, the speaker turned to consideration of types of machines that may be expected in the future, but in this sphere neither his premises nor his conclusion are worthy of lengthy comment. The former were decidedly thin, and the latter undeniably controversial—controversial, that is, in the euphemistic sense of scarcely justifying controversy.

On the helicopter principle, he scored rather neatly when he said that, if we had such a type and ever ran out of gasoline, we should come straight down—a failing that the ordinary type of aeroplane does not possess, as engine failure at a height of one mile gives the pilot the chance to pick out a landing-place in a circle of some eight miles in diameter; really diameter should be radius, so that the chance is even better than he claimed.

English Criticism and Help.

Perhaps the soundest point of the whole address was practically the concluding one, and one for which the speaker admitted his indebtedness to an English "engineer"—most probably a pilot. This was that the greatest necessity of all things for the future successful development of aviation was absolute reliability of all those little things that count. What concerns the pilot more than the camber of his wings or the shape of his rudder is whether he can be sure that his tanks are free from dirt, and that no small but vital instrument will give up the ghost at a critical moment. There is still too much room for improvement in details that should have been perfected long ago.

The Discussion.

In the discussion which followed the address the President made the statement that he could start a Liberty engine with one hand, and this without the aid of any such device as a booster mag! What would not some broken-armed "Ack Emma" have given for the tip!

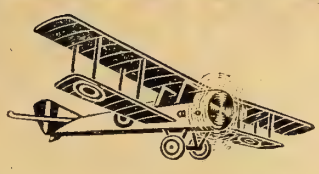
On the question of quantity production Mr. Kettering threw an interesting light when he said: "At the beginning of the war" (presumably, this means at the beginning for America), "the U.S.A. had about 100 airplanes, and I do not believe any were alike, because there had not been any large orders. Ten or 12 was a large order, and most of the fittings were made by hand. . . . We have made every type of tool that goes into the construction, but we could not make steel jigs and fixtures. We used ½-in. laminated wood, bored drill-holes, put steel bushes in and used that for drill jigs. All of our parts are interchangeable. Any plane will fit any chassis."

As already stated the address is, on the whole, rather disappointing, and the information contained in the last few words is all that is likely much to interest the English engineer.—Duo.

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III.—CO-OPERATION IN PURCHASE AND CONTROL OF RAW MATERIALS AND OTHER SUPPLIES.

Just as the German Iron Industry finds it worth its while to possess and run its own coalfields, so our Aeroplane Industry might conceivably be well advised to control its own sources of supply of certain woods, metals and fabrics.

This might be done either by the co-operative purchase of a controlling interest in existing concerns outside the Industry, or by the establishment of new concerns owned and run by the Industry for its own special benefit. If, for instance, there are certain qualities of wood which can best be grown under certain conditions and in certain districts, and which seem bound to form a fairly permanent necessary commodity of the Aircraft Industry, probably the right thing to do would be for the Industry to make an early move in the direction, not merely of contracting to take certain bulk supplies, but of purchasing certain tracts of land and growing its own timber and treating it from the start with the specific object of utilising it for certain purposes.

There are similar possibilities as regards the supply and treatment of various metals and alloys, and also of fabrics and dopes.

Purchase Supplies.

A somewhat less whole-hearted form of co-operation, tending in the same direction, might be achieved by manufacturers coming together in the matter of the purchase of their supplies, either of raw materials or of finished components.

An industry co-operating in this way ought to be able to get better prices than an individual firm, partly because its order would be larger and partly because it would be steadier. Thus, the total order would be less liable to fluctuation due to business shifting from one firm to another owing to the introduction in some quarter of a new machine of special excellence.

It is not suggested that the Industry should put all its eggs into one basket, and make itself entirely dependent upon any one source of supply for the whole of its requirements of any one kind. Without doing this it could still, by co-operation, distribute its orders in such a way as to bring about standardisation in the works of its suppliers and consequently to make it possible for those suppliers to sell at a lower price without sacrificing their legitimate profits.

Economy in Production.

Thus, for instance, if a shop which has been in the habit of producing tubes of about a hundred different sections is given only work to keep it busy entirely upon tubes of three or four sections, the resulting economy must be considerable. The output resulting from a given employment of men and machines will be much increased and lower prices can be quoted for the three or four sections manufactured than would have been possible when the output was divided up into small lots. Thus the aircraft manufacturer would benefit, while his suppliers would do just as well as before, and possibly better.

Reduction of Varieties.

Another point about co-operative purchase is that the adoption of the principle acts as an automatic spur towards reasonable standardisation. Thus, if a number of aeroplane or engine manufacturers, when they get together to buy co-operatively, discover that hitherto they have created a demand for a quite unnecessarily large variety in some small requirement, it would naturally follow that they would see an opportunity of getting their stuff cheaper by eliminating the unnecessary varieties and standardising up to that point.

We certainly do not want too much standardisation at present, but to refuse to standardise at all would be as unreasonable as for each manufacturer to persist in using his own particular screw threads instead of employing the standard threads.

I believe that co-operative purchase, adopted in quite a voluntary form, so that each manufacturer could participate just to the extent that he liked and no more, would be the best possible way of encouraging economy by standardisation, without forcing standardisation down everybody's throat and killing individuality. I quite admit that co-operative purchase is not without disadvantages and dangers, but I cannot see why these should not be overcome.

Moreover, it does not involve any financial amalgamation of the firms concerned, or tend seriously towards trusts. The purchasing body would merely be supported by as many manufacturers as liked to use it, and each manufacturer would guarantee his own accounts, perhaps supporting his guarantee by a reasonable deposit.

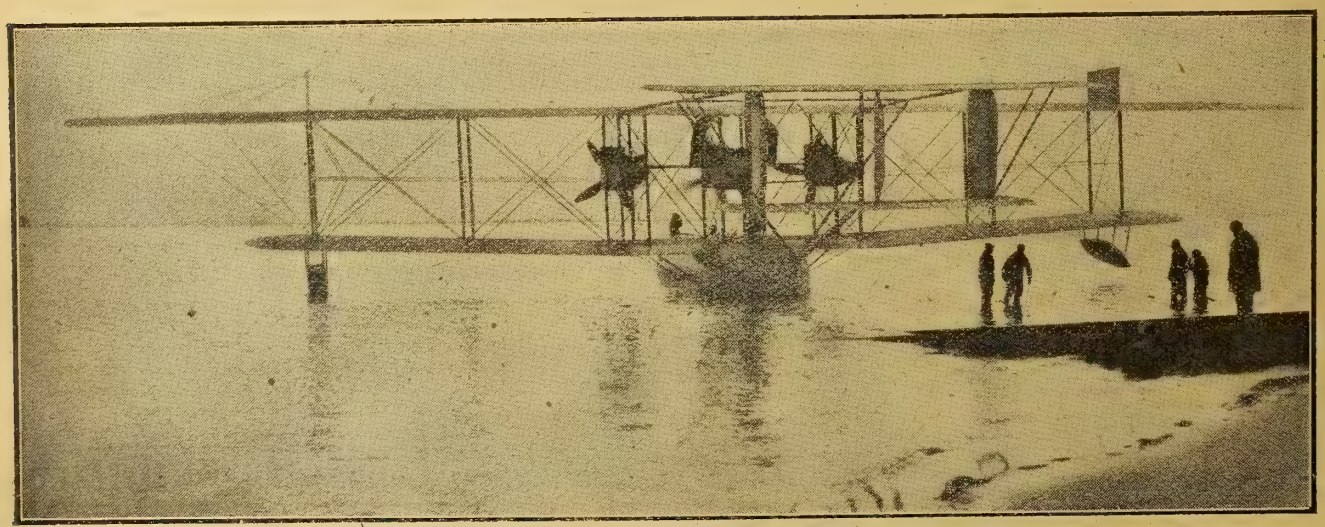
The idea does not involve any of the complications that arise directly one discusses co-operation in manufacture or even in sales.

(To be continued.)

A POSSIBLE NEW FUEL.

According to the "Air Service Journal," of Dec. 7th, Maj. O. B. Zimmerman, director of the U.S. War Department Research and Development Division, has issued a statement concerning a new fuel, discovered by U.S. army officials, which has been called "Liberty Fuel." The new preparation is based upon kerosene, with which are combined other ingredients of low cost. Many advantages over ordinary petrol are claimed for the new fuel, among the list being the following.—Easier starting; no residue of carbon; explodes at temperatures below zero (this seems a very great disadvantage!—Ed.); safe against premature explosion, igniting only from spark or flame (one is glad to know that it will not ignite from the heat of the pilot's head!—Ed.); its combustion requires less oxygen than petrol; it can be manufactured for less money than petrol; used in the Liberty engine, it is said to have shown itself superior to petrol as an aeroplane fuel. It has 17 per cent. higher fuel economy than export petrol.

One of the Bureau of Standard's reports showed that a three ton truck ran 286 miles, averaging 6¾ miles to a gallon of petrol, 63.5 miles to a quart of lubricating oil and 8½ gallons of water. With Liberty fuel the truck averaged 10.4 miles per gallon of fuel, 103.1 miles on a quart of lubricating oil and two gallons of water. [In the test with the ordinary petrol one is inclined to the belief that the radiator leaked.—Ed.]



A Rear View of the Three-engined Curtiss Seaplane, known locally as the "Colossus." It is alleged to have lifted 50 passengers, and to have a maximum speed of 75 miles an hour.

THE

NAPIER

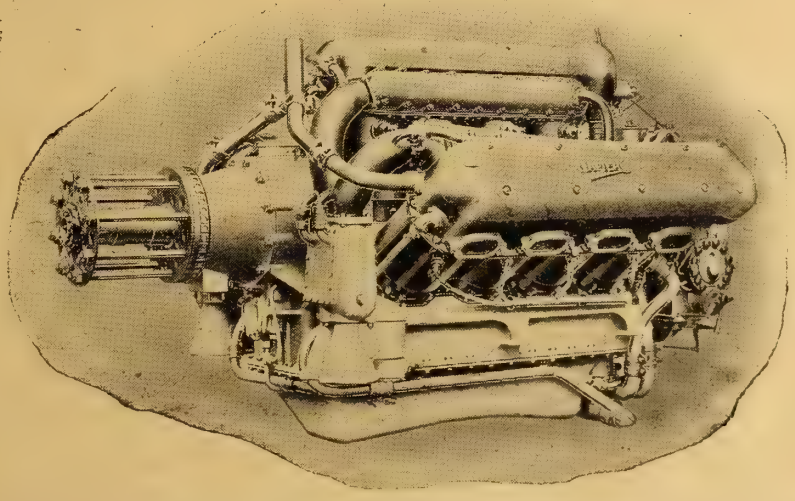
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The greatest Air feat in the World's history was accomplished on January 2nd last, when Capt. Lang, R.A.F., as Pilot, and Lieut. Blowes, as Observer, broke the World's record in ascending to the immense height of 30,500 feet on a D.H.9 Biplane, fitted with

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Both extraordinary and remarkable feats for a machine of this size and type.

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VARIATION OF B.H.P. WITH ALTITUDE.

BY CAPTAIN D. LUCKING, R.A.F., A.F.Ae.S.

The following is a method of computing from the performance trials of an aeroplane the extent to which the brake horse-power of the engine, at full throttle, decreases with increase of altitude.

The data required as a basis for calculation are :—

(1). A chart showing b.h.p. at ground level as a function of r.p.m.—found by means of a dynamometer in the usual way.

(2). R.p.m. for at least two different speeds at each of various heights from ground level to as near the machine's ceiling as possible.

The above information is usually given in official performance trial results, in which r.p.m. are noted at the best climbing speed and the level speed every few thousand feet. The r.p.m. at full throttle when at rest on the ground are also given as a rule.

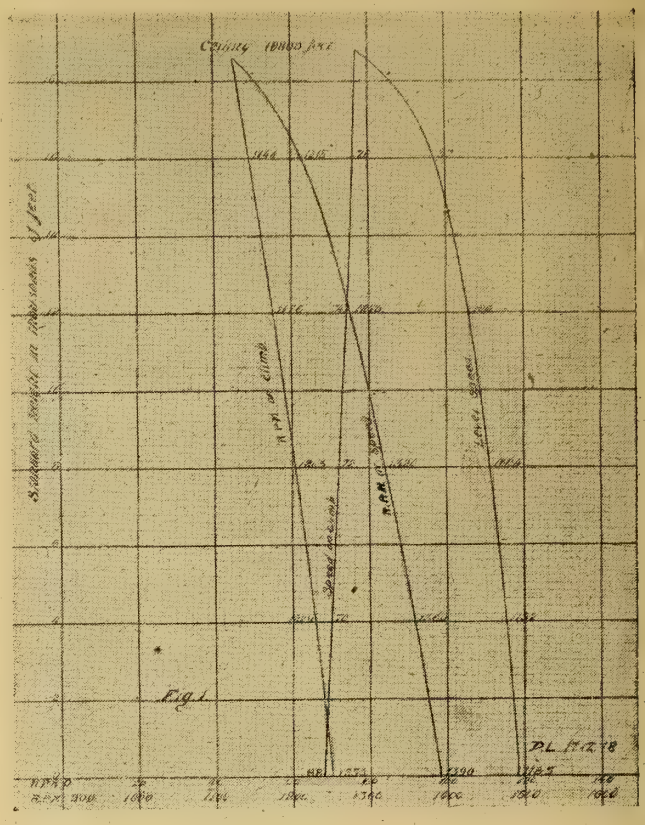
The assumption upon which the value of the calculation depends is included in the blade element theory of airscrews, and may be stated as :—

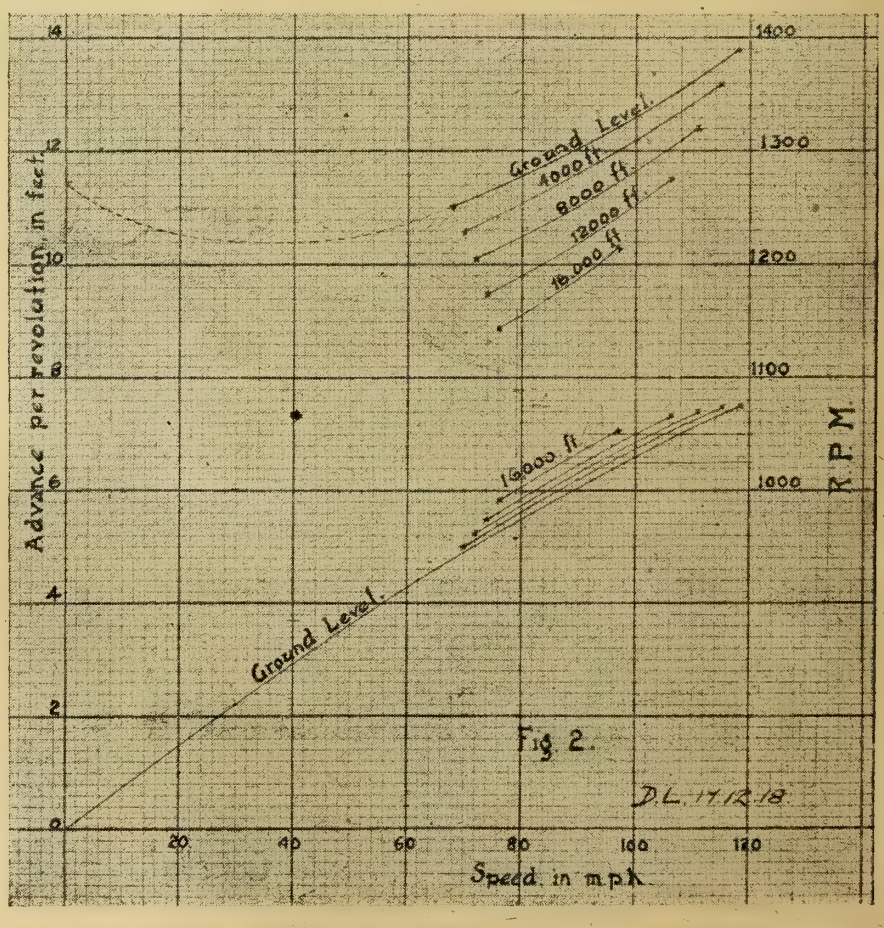
With a constant slip ratio, or a constant advance per revolution, the torque required by a given airscrew varies only as the square of the translational speed, and directly as the atmospheric density—i.e. :—

$B.H.P_H. = (B.H.P_o. \times R.P.M_H. \times V_H.^2 \times P_H.)/(R.P.M_o. \times V_o.^2 \times P_o.)$, (a) in another form, $B.H.P_H. = (B.H.P_o. \times R.P.M_H.^3 \times P_H.)/(R.P.M_o.^3 \times P_o)$, since $R.P.M_H./V_H. = R.P.M_o./V_o.$, where :

$B.H.P_H.$ = Brake horse power at height H.
$B.H.P_o.$ = " " " ground level.
$R.P.M_H.$ = Revs. per minute at height H.
$R.P.M_o.$ = " " " ground level.
$V_H.$ = Speed at height H.
$V_o.$ = " " ground level.
$P_H.$ = Atmosphere density at height H.
$P_o.$ = " " " ground level.

The data found by performance trials should be plotted as shown in Fig. 1. In the particular case under consideration the machine was a two-seater tractor aeroplane with a rotary engine of compression ratio 5.3-1. At every 4,000 ft. up to 16,000 ft. the figures for r.p.m. and speeds have been noted on the curves from which they have been taken. From these figures r.p.m. have been plotted as a function of forward speed for each of the same heights, as shown in the upper part of Fig. 2.





It should be noted that, for ground level, that portion of the curve below 60 m.p.h. has been dotted in, but its only use is to give some idea of the nature of the curve between the climbing speed and the level speed. The reason why the r.p.m. at rest should exceed those at the climbing speed, which often happens, may be explained by the blade element propeller theory and model tests which need not be gone into here.

Now $88V/r.p.m.$ = advance per revolution in feet, where V = speed in m.p.h., and the lower series of curves in Fig. 2 show this distance as a function of forward speed.

By drawing horizontal lines through the advance-speed curves, then drawing vertical lines upward through the points of inter-section to cut the r.p.m. — speed curve, the r.pm. and speeds corresponding to the same advance per revolution at various heights can be read.

From the density — height curve in Fig. 1, from Fig. 2, and from the b.h.p. — r.p.m. at ground level curve shown in Fig. 3, the various factors in equation (2) can be read, and the b.h.p. corresponding to r.p.m. at the various heights calculated. The results which were so obtained in this case have been plotted in Fig. 3.

The b.h.p. reduction factor for a given height seems to vary a little with the r.p.m., but an approximately correct curve for any rotational speed has been added to Fig. 4.

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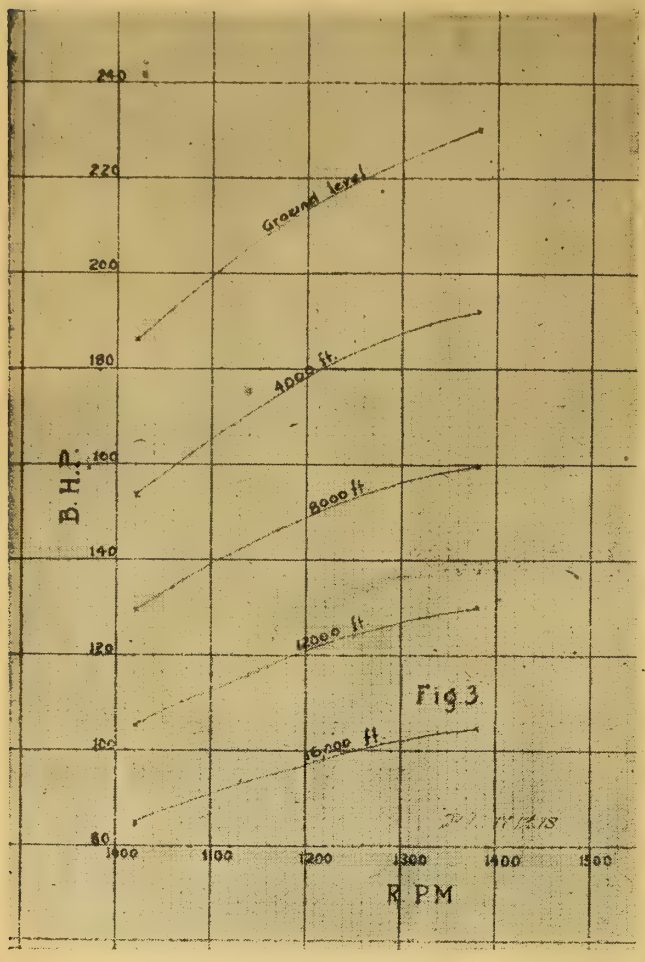
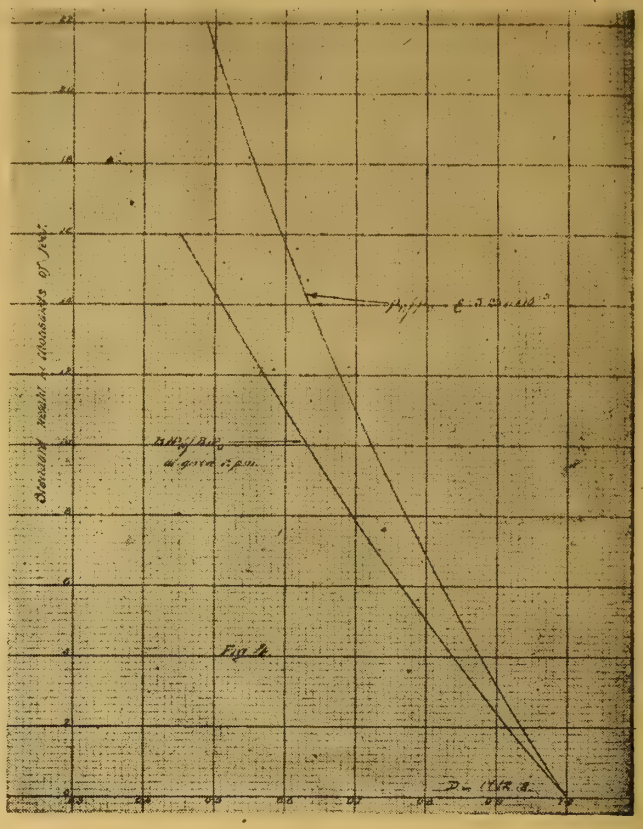


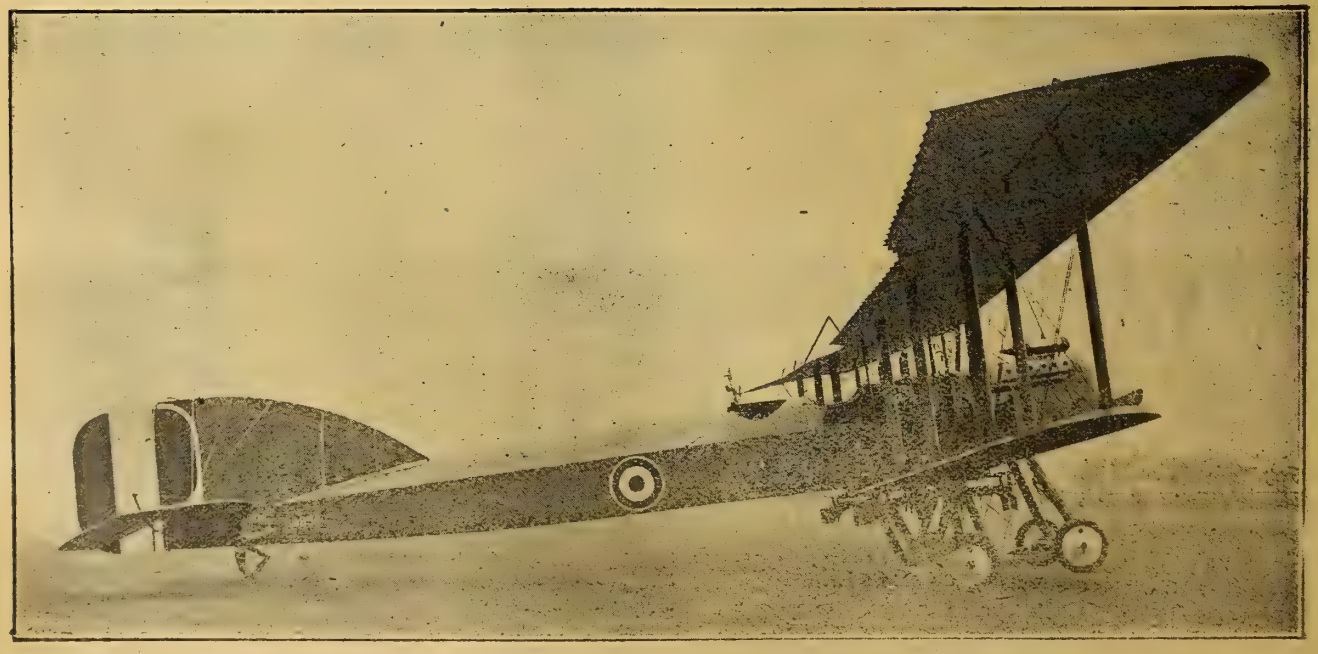
Fig 3.



It is interesting to note, in the cases so far investigated, that high compression engines are relatively more efficient at altitudes than are low compression engines, which is, of course, what one would expect, but there are many other factors which the large number of performance tests available should assist to evaluate.

TWENTY-THREE GUINEAS FOR SUGGESTIONS.

Regarding the Challenge Trophies and Medals presented by Sir Charles Wakefield, Bart., in connection with the R.A.F. Boxing Competitions, a prize of ten guineas is offered for the best suggestion for a trophy, and five guineas for the second prize. The design should be one specially appropriate to aviation, and also have some bearing on athletic training, and must be well adapted for reproduction in model form. A first prize of five guineas is also offered for the best design suitable for medals; three guineas being offered for a second prize for same. All designs should be addressed to Sir Charles Wakefield, Bart., c/o C. D. Clayton, Ltd., 52, Shaftesbury Avenue, W.1. Last day for receiving designs is January 31st.



A Short Bomber (225 h.p. Sunbeam), built by the Phœnix Dynamo Company of Bradford.

PATENT INDEX.

The subjoined list of recent inventions has been specially compiled by THE AEROPLANE from the current Official Patents Records :—

PATENTS APPLICATIONS.

Creed, F. G. Aerial postal transport, etc. No. 21545. Dec. 23rd.
Gendle, A. E. Pilot-balloon balance. No. 21834. Dec. 30th.
Holt, H. E. S. Parachutes. No. 21558. Dec. 23rd.
Mooney, D. J. Metal construction for aircraft. No. 21607. Dec. 24th.
Railton, R. A. Actuating controlling surfaces of aircraft by means of power other than effort of the pilot. No. 21510. Dec. 23rd.
Short, A. E. Balloons or airships of rigid type. No. 21623. Dec. 24th.
Short, A. E. Balloons or airships of rigid type. No. 21624. Dec. 24th.
Smith, W. T. Apparatus for indicating side drift of aircraft. No. 21703. Dec. 30th.
Starck, J. R. Anchoring device for aeroplanes. No. 21575. Dec. 23rd.
Travers, J. L. Flying-boats. No. 21886. Dec. 31st.
Tritschler, C. J. Airship for stage purposes. No. 21709. Dec. 30th.
Westbury, C. F. Tail-skids for aeroplanes. No. 21876. Dec. 31st.
Brown, A. W. Petrol pumps for aeroplanes. No. 26. Jan. 2nd.
Gurdon, J. Apparatus for enabling aviators to maintain a course of flight. No. 214. Jan. 3rd.
Jaffee, M. Aeroplanes. No. 232. Jan. 3rd.
Moss, A. E. Parachutes. No. 69. Jan. 2nd.
Smith, R. T. Means for facilitating landing of aircraft and goods, etc., from same. No. 137. Jan. 2nd.
Soc. Lorraine. Construction of aviation motors. No. 225. Jan. 3rd.
Sperry, E. A. Gyroscopical vertical or turning indicator. No. 287. Jan. 4th.
Tummer, G. N. Parachutes. No. 1. Jan. 2nd.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER JAN. 16th, 1919.

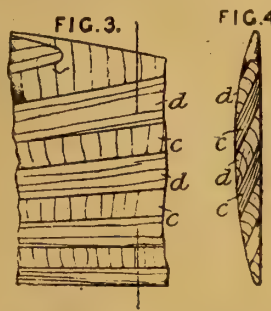
121504. Dec. 11th, 1917. Moore, J. K. Propellers for water and aircraft.
113964. Dec. 6th, 1915. Curtiss Motor Co. Flying-boats or hydro-aero-machines.
121552. March 2nd, 1918. Vickers, Ltd., McKechnie, Sir J., and Wallis, B. N. Bracing of structural or built-up girders.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER JAN. 23rd, 1919.

112438. Dec. 30th, 1916. Boiffin, P. J. B. System of propulsion in fluids by jets of gas, at high temperature, having a rotary movement around a horizontal common axis.
121657. Jan. 28th, 1918. Davis, R. H. Dress for airmen.
121661. Jan. 31st, 1918. Marchall, J. E. Level indicators for aeroplanes and the like.

ABRIDGMENTS OF RECENTLY PUBLISHED SPECIFICATIONS.

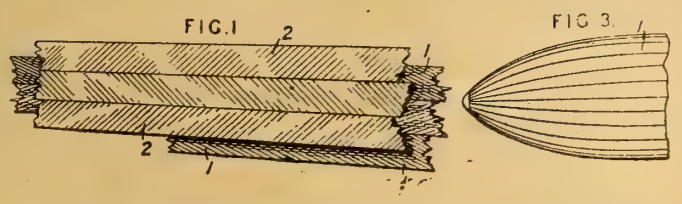
120,150. Screw-propellers. LEE, C. E., 23, Medlar Street; FELLOWS, G., 115, Camberwell Road; and PRATT, C. A., 56, Bovingdon Road, all in London. Jan. 14th, 1918, No. 800. [Class 114.]



In order to economise material and to prevent warping, wooden propellers are made by glueing together layers, parallel to the plane of rotation and perpendicular to the axis of rotation, consisting of strips *d* running lengthways of the blades, alternately separated by layers *c*, the grain of which is transverse to the longitudinal strips. The transverse layers may consist of a number of narrow strips laid side by side.

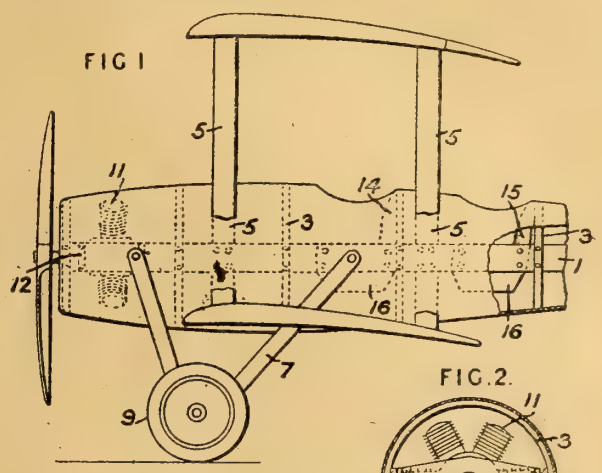
120,450. Fuselages; boats; floats. BLACKBURN AEROPLANE AND MOTOR CO., Olympia, and BOOTH, H., 5, Oakwood Avenue, Roundhay, both in Leeds.

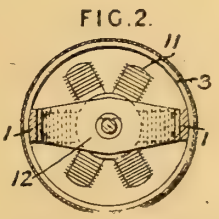
A fuselage, boat, or float in the form of a hollow elongated cone or tapering tube, and more particularly for a flying-machine, is composed of a plurality of layers of wood planking 1, 2, running lengthways from one end to the other, and of similar shapes and sizes in each layer, the planks being connected edge to edge with the joints in the several layers in staggered relationship,



as shown. The grain of the wood of an outer layer may extend in a different direction from the grain of an inner layer, and the grains of adjoining planks in a single layer may run in different directions. In order to obtain planks having the grain at right-angles or less to the length, a number of pieces of wood are joined edge to edge to produce the requisite length, and planks are then cut from such compound structure with the grain running at the desired angle.

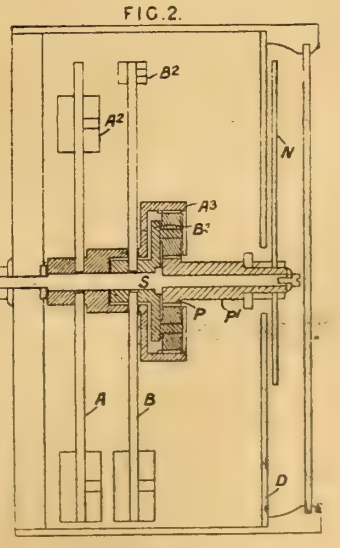
120,452. Aeronautics. MURRAY, J. J., Forty-second Street, and Broadway, New York, U.S.A.





CARS AND CABINS; FRAMEWORK; PLANES, ARRANGEMENT OF; LAND WHEELS; PROPELLING.—The main planes, engine, landing-gear, and if desired the seats, of aeroplanes are carried directly by two beams extending longitudinally of the fuselage. In the form shown, two beams 1, arranged within and connected to the transverse members 3 of the fuselage, carry the main planes by means of struts 5, the engine 11 by means of transverse bearers 12, the land wheels 9 by means of hangers 7, and the seats 14, 15 by means of hangers 16.

120,275. Clinometers. DAVIS, W. H., 46, High East Street, Dorchester.



An inclinometer for aircraft, stated to be unaffected by centrifugal and other accelerating forces, comprises two pendulums A, B, swinging on a spindle S and connected respectively to the toothed ring A^3 and the planet cage B^3 of an epicyclic gear, and a pointer N indicating on a dial D and fixed to a sleeve P^1 secured to the sun pinion P of the gear. One or each of the pendulums may extend above the spindle S and carry a weight A^2, B^2 adjustable in position thereon. Means for damping oscillations may be provided and may comprise two light blades secured to the sleeve P^1.

A CHANGE OF ADDRESS.

Those concerned are notified that all communications should be addressed to Naylor Brothers (London), Ltd., the well-known manufacturers of aircraft varnishes, at their office at Southall, Middlesex, and no longer to their West End office in Oxford Street, which in future will be devoted to export business only.

The firm's telephone number is 30 Southall, and the telegraphic address is "Naylor, Southall."

SOME AERONAUTICAL FALLACIES.

To the Editor of The Aeroplane.

Sir,—With respect to the fifth article by "Afraes" entitled "Some Aeronautical Fallacies" (that direct-driven screws are suitable for all aeroplanes), in your issue of November 13th, 1918, will you allow me to point out what, in my opinion, are errors in the same?

In the first place I do not consider that the above can be described as "a commonly held fallacy." As a rule, designers, both of aeroplanes and engines, are quite well aware of the advantage of high crankshaft revolutions and slow-running airscrews, but, if a satisfactory gear is not forthcoming, what is the designer to do? I am quite well aware that we have at the present time one or two engines with very satisfactory reduction gears between the crankshaft and the airscrew, but everyone knows of the recent lamentable failures of geared engines of very famous types and the return to the direct-driven screw.

One does not doubt for a moment that the geared engine will eventually return, but in the meantime we must use the most satisfactory type we have, and therefore the statement by "Afraes" "that putting high-speed screws into big, slow aeroplanes was just about analagous to trying to help an Atlantic liner along by spitting over the stern" would appear to be, at least, somewhat uncalled-for.

One cannot very well imagine any known aeorplane or engine designer standing at the stern of the vessel, performing in the manner suggested and expecting to achieve propulsive effort thereby.

The information to the effect that the efficiency of an airscrew is a function of its advance per revolution and that the efficiency of a screw of 6 ft. pitch making 1,500 r.p.m. would be 100 per cent. if the aeroplane was travelling forward at the rate of 9,000 ft. per minute appears to me incorrect. Surely the efficiency of a screw is the ratio of the amount of work performed by the screw. In the case of a machine flying horizontally this would be—

$$\frac{\text{Speed of machine in feet per minute} \times \text{Total head resistance of the machine in lbs. for that speed}}{33{,}000} = \text{HORSE POWER}$$

compared with the energy delivered to the screw—i.e., the horse-power of the engine.

The advance of the screw per revolution does not enter into the matter, since it has often been found that this has actually exceeded the pitch, owing to the suction on the back face of the airscrew. In this case, therefore, the screw blade is at a negative angle of incidence with its helical path, just as it has often been proved that some aeroplanes will fly horizontally with the wings at 0 deg. or even a negative incidence, the machine being supported solely by the suction on the top face of the aerofoil.

The efficiency of the above airscrew would, if calculated in the way suggested by "Afraes," work out at more than 100 per cent. Perpetual motion would be solved, and we should be able to drive the engine by the airscrew.

Norbert Chéreau,
Blériot and Spad Works, Addlestone, Surrey.
22/11/18.

To this letter "Afraes" replies:—

If Mr. Chéreau does not consider that the fallacy of direct-driven screws being suitable for all aeroplanes is a commonly held one, I must respectfully beg to differ from him. It is only comparatively recently that a very high-powered engine was proposed for certain types of bombing machines, and it was decided by authorities concerned that owing to the difficulties which had cropped up in regard to gears this particular motor should have a direct-driven screw.

Fortunately, the propeller experts were able to make their voices heard when they protested that unless a gear was incorporated they could not get more than 60 per cent. of screw efficiency even under the most favourable conditions. The engine authorities countered by telling the screw people that they must get more efficiency, upon which the latter conclusively proved to the high and mighty authorities that a greater efficiency without a gear was a physical impossibility.

If the fallacy finds a home in the heads of those vested with the dictation of aeroplane construction policy it may not, indeed, be commonly held, but this fact justifies its inclusion in my series, apart altogether that I am perfectly certain it is commonly held.

Even German aeroplane designers have hugged it to their bosoms, but the use of external gears on their four and five-engined bombers showed that they at last realised their mistake.

Nearer home, however, there have been other lamentable instances of this absurd fallacy. Goodness knows how much money was spent in installing in a big bombing machine four direct-driven engines originally designed for scouts. In its original state the aeroplane flew comparatively successfully with a total of 550 h.p. delivered through geared screws. With four engines of 800 h.p. driving direct it scarcely managed to get off the ground at all, and simply would not fly with full load. Anyone with a grain of sense could have shown that this ridiculous experiment was foredoomed to utter failure, and an enormous amount of effort and material could have been saved. Some people take a devil of a lot of teaching and will not believe that science has attained a level in which specific experiments can easily be avoided and their place economically taken by simple calculation. Experientia docet is sometimes misread experimentum docet, and the above was a good case in point.

Mr. Chéreau talks about "recent lamentable failures of geared engines of very famous types." In this he is justified by the fact that certain engine designers have shown themselves to be very incompetent in designing suitable gears. Some of them have evidently concluded that because a gear is satisfactory with 12 cylinders, the same sized gear will be equally satisfactory with a six-cylinder scheme of the same power.

The artful Hun, having standardised several six-cylinder direct types, was far too wise to try and incorporate an exiguous gear in any of them, but when he found that for his giant aeroplanes a gear was absolutely essential, promptly went in for something sensible, even though the contrivance weighed over 1 lb. per horse-power, and had the appearance of being part of a steam tractor.

Where gears are used with intelligence they perform perfectly satisfactorily, as is well exemplified in the Rolls engines, and also in the despised Raf motors.

So far as my Atlantic liner analogy is concerned, I admit, saving Mr. Chéreau's sense of humour, if any, that the illustration is decidedly exaggerated and possibly a little vulgar; but I believe it hits the case off with fair precision, and I shall certainly stick to it. Any aeroplane designer behaving as Mr. Chéreau suggests would certainly realise, if he were worth his salt, that his action did promote a propulsive effect, even though this might be negligible, and they would certainly be foolish to suppose that they were materially helping the boat to crack all existing speed records. However, I maintain that in using small high-speed screws for slow aeroplanes they have done something equally foolish, far more expensive, and certainly much more dangerous.

I agree that designers have been hampered to a certain extent by the fact that the number of engine types has been necessarily restricted, and that in some cases engine manufacturers have made sad failures which have forced the aeroplane builders to adopt anything else that happened to be available. If, however, they have still persisted in cutting their coats without sufficient regard for the cloth in stock, I hold them to be reprehensible, and in my view this is what certain individuals have done in the past.

Mr. Chéreau now makes a most extraordinary statement when he regards as "incorrect" the direct connection between airscrew efficiency and advance per revolution, for he immediately afterwards says that screw efficiency is a function of the speed of the machine, which, regarding revolutions as constant, amounts to exactly the same thing.

When he says that the advance of the screw per revolution does not enter into the matter, he is talking the merest bilge, and he only makes matters worse by dragging in the so-called "pitch," and the suction on the back face (*sic*) of the airscrew.

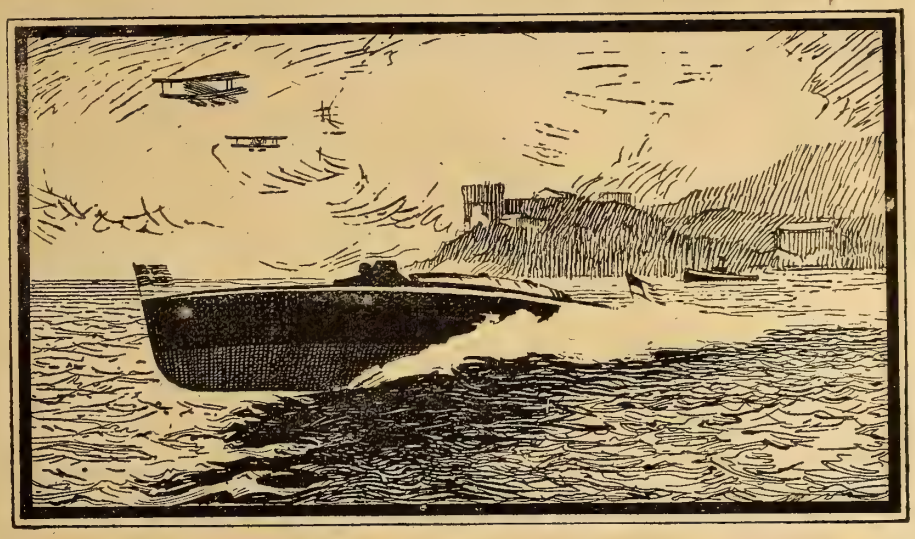
It is precisely because real pitch is an extremely difficult thing to measure, and is totally different from geometrical pitch, that the idea of "advance per revolution" is introduced. When I said "the efficiency of a screw of 6 ft. pitch, making 1,500 r.p.m., etc.," I was, of course, dealing in fundamentals only for the sake of clearness, and am perfectly well aware that it is possible for the advance per revolution to exceed the pitch. By the way, since both sides of the blade of a screw have to be taken into the calculation, how would Mr. Chéreau propose to determine the "pitch?"

It is refreshing to learn from so authoritative a source that "aeroplanes will actually fly horizontally with the wings at 0 deg., or even a negative incidence, the machine being supported solely by the suction on the top face of the aerofoil."

I don't quite understand "top" faces, "back" faces, and, presumably, "bottom" faces, but it all seems to depend how you measure your "angle of incidence." If you are so idiotic as to take it in relation to the chord of the under surface, you need not be surprised to find that you get positive lift with a negative angle. But a more intelligent method is to use the "angle of no lift" as the basis from which to measure the angle of incidence. If "pitch" is measured from the "angle of no lift" of the blade, it will be found that 100 per cent. efficiency, together with its concomitant perpetual motion, is not attainable in practice.

I must apologise to Mr. Chéreau for being such an unconscionable time in answering his criticism, aeronautical considerations having been forced into second place by pressure of political business.

"Afraes."



"Ursula" at Monte Carlo.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS

AERIAL SERVICES AND PRESS MATTER.

BY "MEDWAY."

Without doubt the Press will figure as a very important client of long-distance aerial transport services as soon as these are in regular operation. At the same time, the aerial service will in no sense supplant the cable service, though it will supplement it in a very useful and attractive manner. As regards daily papers, we know, from the success which has attended the publication of what may be called the picture papers, that there is an immense demand for news conveyed by means of photographs. The fact that the interest is maintained even if news of this kind is a few days out of date, is shown by the popularity of illustrated Sunday journals. There are, however, limits beyond which one can hardly go in the way of being behind the times.

An Aerial Service v. Cable Service.

If some event or a person is attracting great but quite transitory public attention, no good purpose can be served by illustrating it or him a couple of months after it has occurred, and when nearly everybody has forgotten the affair. The aerial service will provide a fairly near approach to the speed of the cable service in respect of the conveyance of illustrative matter. The day will come when no paper which ever publishes illustrations at all will consider that it is properly organised unless it has arranged for an aerial service of photographs from all parts of the world. Our papers will be able to illustrate interesting events that have occurred only four or five days earlier in South Africa or India. The delay as from North America will be even more brief, while it will be possible to illustrate Continental news almost as promptly as we are able to publish the news itself.

The Conveyance of Pictorial News.

A great incentive will be given to the reproduction of photographs in papers published all over the world, even if they are centred in places where local events alone do not justify this step. Very considerable competition will spring up in this matter of photographic services, and it is undoubtedly in this direction that the influence of aerial transport upon the contents of the Press will be most obvious to the general public.

Interviews by Aerial Post.

The consequences will not, however, be confined to the distribution of photographs. It not infrequently happens that the views of leading authorities, on some subject that is attracting great attention at the moment, can only be expressed at considerable length, and the prompt circulation of those views throughout the world is therefore hampered and the character of the views themselves is likely to be distorted in the attempt to convey the gist by cabling without repeating the details of the argument. Suppose, for instance, that, in the dead season, an engrossing correspondence on the inherent virtues of modesty were to start in the "Johannesburg Star." Think what it would mean to the Editor to be able to get the views of that leading exponent, Mr. Bernard Shaw, conveyed to him verbatim in the course of a few days at a cost which would not be altogether incompatible with their value. Consider again the delight of the editor of the "Melbourne Argus" on realising that he would be able to obtain at a reasonable price and publish with reasonable promptitude the opinion of Miss Marie Corelli or Mr. Wells on absolutely any event of world-wide importance.

Seriously, very great value may reside in this new possibility of the rapid transmission of literary matter, dependent for its value upon its completeness and its exact wording.

The Transport of Weekly Notoriety.

What is true of the daily papers is equally, if not more, true of those illustrated weeklies that profess to portray something more than the exact character of the smile on the latest cinema actress or the newest idea of some eccentric dancer as to how to wear as little as possible without getting into trouble with the Censor. These things are just as important in two or three months' time as they are to-day, and will then be swallowed with equal avidity. However, it is not every weekly that is able to retain its interest with such success. Many are concerned merely with more ephemeral matters, such as the great events which mould the history of the world. With these it is a case of now or never. An illustration published a month or two late might as well not be published at all.

The Magazines and the Reviews will be able to arrange for something very nearly approaching contemporary publication of essays and articles on important topical matters without that delay which would at present be involved in an attempt to do the same thing. It does not much matter whether the first chapter of a serial story, destined to be published in England and Australia, is held back in the one country until a copy of the manuscript has reached the other by the ordinary means; but when we are dealing with an essay, the interest of which to the reader is largely dependent on the date of the publication, the case is quite different.

Technical Treatises by Air.

Turning to the group of papers that are published in the interests of certain classes or sections of the community, we know that at present the custom is for matter communicated by distant correspondence to be sent by the ordinary postal method. Take, for instance, the case of a technical paper devoted to some particular movement or industry. The paper may have a dozen correspondents in different parts of the world, and the contributions sent by each of these correspondents may be of indirect interest only to a small percentage of the readers. Thus the cost of cabling is not justified. Moreover, the notes upon it need to be accompanied by illustrations in the form either of photographs or of drawings, the latter probably indicating the details of some new design or invention.

We shall certainly find that the more progressive papers will arrange to keep in aerial touch with distant correspondents. For example, the details of the novelties that may be shown in an aircraft or motor exhibition in

New York will be sent by air to this country. The natural competition between journals catering for the same public will always lead the most enterprising one to arrange for an aerial service at the earliest possible moment. The others will then have to fall into line or else drop hopelessly behind in the date of publication of really interesting news. An illustrative example of much shorter-distance work can be obtained from the same quarters. Say that an English motor paper goes to press on a Wednesday and the Automobile Salon in Paris opens on Tuesday. The men sent over to report the exhibition want to have every possible moment available for the work. For this reason it will doubtless be arranged for them and the copy to return to England by aeroplane especially chartered for the purpose.

Aeroplanes for Special Correspondents.

This brings us to a different phase of the whole question. Up to the present we have been dealing entirely with the possibility of utilising regular aerial services. It is obvious that the newspapers will also make great use of aeroplanes for the purpose of conveying their correspondents to places where events of importance have suddenly occurred or are known to be about to occur at short notice. Presumably, large publishing concerns will keep their own aeroplanes for this purpose, though in the first instance it may be found more economical and convenient to hire from some aerial transport company which runs, in addition to regular services, what may perhaps be best described as a fleet of aerial taxis. It will be found that in quite a number of cases the aeroplane will be able actually to beat the cable as a means of getting news home with the utmost possible rapidity. Events of great importance have an awkward habit of happening in places of no importance whatever, where telegraph facilities are strictly limited and any unexpected rush leads to very long delays before lengthy messages can be transmitted. In such a case, the man must come by aeroplane, and either make straight for home by the same means, or else would travel to some big city within a few hundred miles, scribbling his stuff on the way and cabling or telegraphing it without delay directly upon his arrival.

I should have liked to go further and discuss the utilisation of wireless in this connection. One can imagine the most heart-rending messages so dispatched by actual observers of some disaster on land or sea, still in progress, but viewed from above in comparative security by people not participating in it, but equally unable to prevent it. One can imagine, also, a lot of very ingenious work in the way of "jamming" and intercepting other people's messages. However, I am not qualified in any way to deal with the infinite possibilities of wireless, so for the moment I will leave my subject where it stands, in the hope that it may at least give food for thought to a certain number of people who ought to be among the early practical supporters of aerial transport.

THE PASSING OF THE MAIL SHIP.

BY "CHEVRON OR."

To state that not many years hence the time will be when the transoceanic mails of the world will no longer be carried by steamer would be considered by many to be rather a bold and sweeping assertion. This statement, however, has received the support of one of the biggest shipping magnates of this country, and with this backing it may be found interesting to read further.

The Flying Boat.

The substitute for the mail steamer exists to-day in the flying boat. Though there are as yet very many people who have not even heard of the flying boat, that does not disprove its existence, for there are many scientific implements of war which, having come to light during the last three years, are known to few persons except those who have the handling of them. Among them is the flying boat.

They are to be found round our coasts, hidden away when not in use in the hangars of the Royal Naval Air Service, and when in use they are to be found over the sea where there are but few persons to observe them.

Thus it comes about that this new vehicle of the air has made its debut and established itself as an offensive weapon of war without the public at large being very much the wiser. It is true that the official communiqués refer not infrequently to aerial exploits, wherein hostile coastal depots or submarines have been attacked by seaplanes, the word "seaplane" being used generally to express a flying machine intended for sea-flying operations.

Many of the craft referred to in these communiqués are seaplanes proper; but, at the same time, many of them are not seaplanes at all but flying boats. The use of the expression "seaplane" has probably become general for the reason that in the early days of the war sea-flying was done by land machines which had been converted into sea-machines by the removal of the wheels and the substitution of box-shaped floats therefor.

The creation of a large fleet of seaplanes, originating firstly from the hasty adaptation of the land machine and developing later into the special design and construction of such craft, is thus more or less responsible for the generic use of the term and the inclusion therein of the flying boat.

The latter is an American invention which had been but slightly taken up in this country when war broke out. As there were few facilities and little talent at that moment in Great Britain for the construction of flying boats the output of seaplanes was naturally much greater than that of flying boats.

But now, with their advantages for sea-flying appreciated, the manufacture and output has increased apace, and with the increase in output, and, consequently, of experience in their use, we now find ourselves in possession of a seagoing flying machine, which not only flies well, like the seaplane, but which can live in a rough sea, if it should be required for any reason to descend upon the surface. Now, the seaplane, though it has done excellent work in the past, is becoming out-classed by its rival, in which we find considerably more than the germ of an ocean seagoing flying machine.

The flying boat, as its name implies, is a boat (though not quite the same to look at as the ordinary boats that we know), and as such, it is meant to fly over and alight upon the seas, even though they be turbulent.

It started four years ago as a canoe, since when it has grown in size, until now it can be compared with a large launch, and it will grow bigger still. It is as yet early to say that when it attains full adolescence it will be a ship—there are technical reasons for thinking that it may not ever attain the size of a ship, though it will, undoubtedly, be much larger in a few years than it is now. And the while it has grown in size it has also grown in the equally important features of seaworthiness, airworthiness, speed and load capacity.

Its Uses in Peace Time.

In fact, we now have all round our coasts numbers of such aircraft which could, by substituting a load of mails or passengers for their present load of bombs, undertake commercial enterprises.

Now, it is not argued that the flying boat is, or ever will be, as seaworthy as the mailship—we are not really concerned with that. What does concern us is that it will be seaworthy enough, and, further, that its speed is at present about six times as great as that of the average mail steamer, and may, in a few years, be even ten times as great.

Lest it should be thought that the writer has skated delicately over the thin ice covering up the matter of seaworthiness, he thinks it would be wise to expand a little.

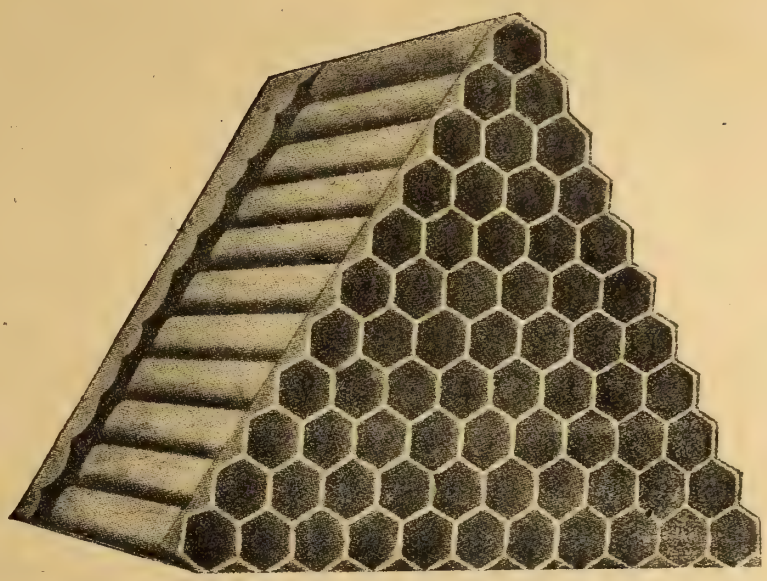
Seaplanes and Weather Conditions.

When he says that the flying boat is seaworthy enough, he means that there is no reason why the flying boat should be as seaworthy as the mail ship. It is like this: we may assume that a mail steamer starts upon a voyage of ten days' duration, in perfectly fine weather. During the period of the voyage the weather has, therefore, ten days in which to change from good to bad.

On the other hand, when the flying boat starts on such a voyage (which would take about 30 hours) the weather would have only that space of time in which to become vicious.

Now, as the flying boat of the future will be shepherded about by a system of wireless messages emanating from a staff of meteorological experts situated all over the world at a distance of a few hundred miles apart, it will be barely possible for it to be caught napping—in other words, the speed of the flying boat is so high that it can play musical chairs with the weather and never get caught out.

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While it will be admitted there is a tendency towards hurry in all questions of carrying His Majesty's mails, it has not been found possible to hurry the present-day mail steamer much beyond its present limit; in other words, the limit of the mail ship is reached at 20 knots, while that of the flying boat has not been reached at six times that speed.

Though there is this tendency for mail ships to be driven at high speeds it is not solely because they carry mails; it is to some extent due to the fact that the passengers themselves demand a high speed. Therefore, what is now forecast as to the future of the mail ship can be taken as applying also to the mail and passenger ship, for no ship carries mails alone.

The Flying Boat v. The Steam Mail Packet.

The forecast is this: that some years hence, when flying boats have grown to some degree bigger than they are now, the mail and passenger steamship, as we know it to-day, will not exist.

The object of the mail steamer is to make speed, and, in this direction, it has reached its paying limit; it will be replaced by the flying machine. When all this has happened, its speed will be allowed to drop, and it will be succeeded by cargo ships with no pretensions to speed.

Thus mails and passengers will fly while steamships carry cargo only.

As nothing has been said to forecast the doom of the cargo ship it may rightly be inferred that its future is not imperilled by the flying machine. It is the writer's view, and that of everyone else who has studied the matter, that there is as yet no indication whatever that as a carrier of cargo the flying machine has any serious commercial prospects, and, moreover, that it never can figure as a competitor to any cargo-carrying vehicle which does *not* have to support its own weight against gravity.

Though enormous advances have been made since the days of the Brothers Wright, though machines are in existence to-day which can carry a load of about five tons at speeds in the neighbourhood of 100 miles an hour, though distances of several hundred miles can be covered without a stop, we are as yet upon the outer fringe of the eventual development of aerial transportation.

Though we all think that colossal things have been achieved in the aerial world during the last few years the probability is that the position of to-day is relatively far behind the position of railway locomotion in the days of Stephenson's "Rocket."

CIVIL AERIAL TRANSPORT.

U.S.A.

For the purpose of locating suitable landing grounds to be used on the contemplated trans-continental aerial mail service, four military aeroplanes started from San Diego, California, on Jan. 4th, and reached Bolling Field, near Washington, on Jan. 7th.

The total flying time of the entire flight was 50 hours, and the estimated distance 3,600 to 4,000 miles. During the journey 20 stops were made, and the air-route was mapped across the southern part of the country.

GERMANY.

It is of interest to note that Germany has already schemes in being, and is considering many more, for the taking of an active part in future Commercial Aeronautics.

German insurance companies are endeavouring to persuade underwriters in neutral countries—especially Denmark—to cover presumably all risks whereby damage might be caused to aircraft factories and aeroplanes. Whether insurance is required to cover resulting damage during the whole serviceable life of the aeroplane, or only during the experimental and test trials, or whilst in the hangar, is not known.

It has been usual previously to cover the aeroplane against damage from the time when it leaves the factory until it is delivered into the hands of the purchaser. Although, if aircraft develop into passenger, goods and postal carrying vehicles, presumably insurance will be required to cover the whole life of the machine—as is done in the case of steamships.

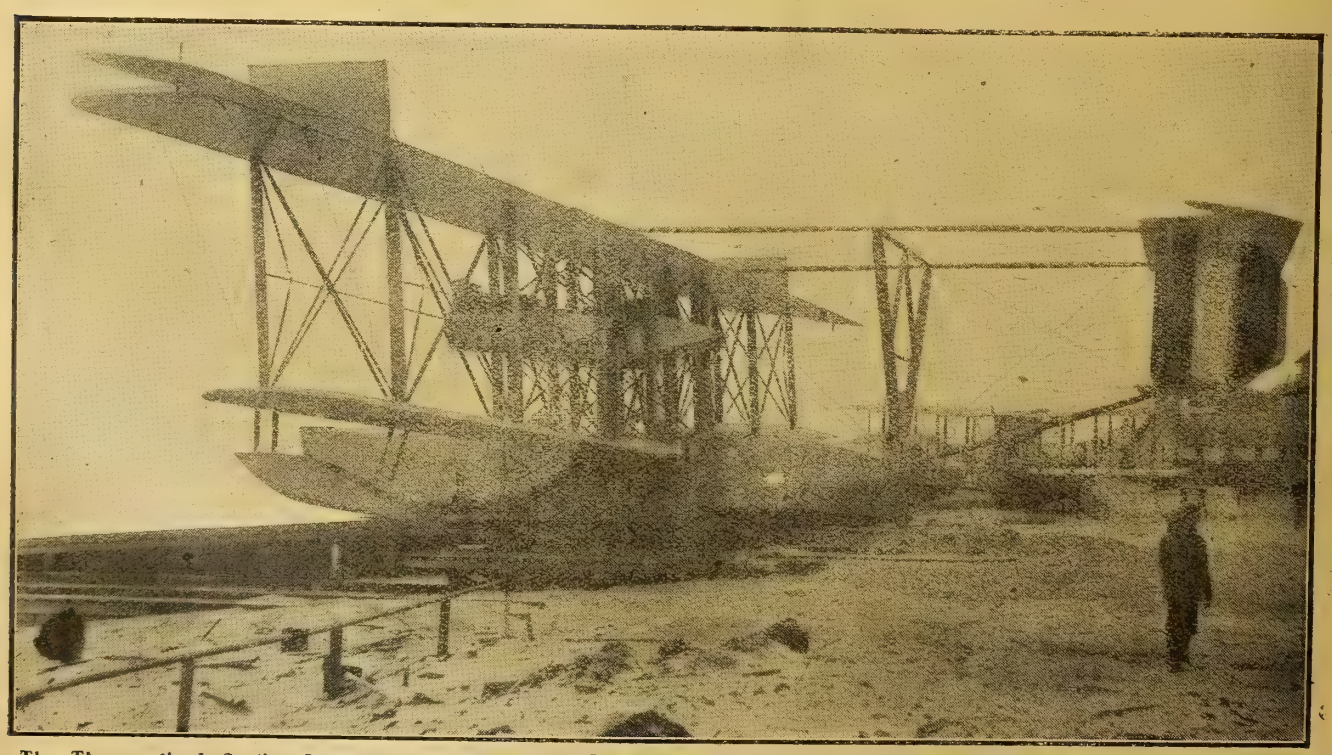
Factories throughout Germany are now being converted from war activities to the building of aeroplanes and their components for commercial purposes. Large staffs, including engineers, designers, and pilots are being trained.

Large hangars and flying stations are to be established in all the principal towns. The first step will be to link up the chief German centres with Berlin, and then Berlin will be linked with the great cities of the outside world, including Paris, London, and even New York.

Although Germany may not now regard lighter-than-air machines as of serious practical value, a Zeppelin may be used to make a trans-Atlantic flight in the spring, and will thus advertise the power of German aircraft. Presuming that this flight is accomplished, aeroplanes will subsequently be used for a regular service.

Each factory or group of factories is to specialise in a special type of aeroplane. The staffs are conducting elaborate experiments both on the ground and in the air in order to secure, as far as possible, immunity from accidents. These experiments were being made even before the signing of the Armistice conditions. It is of interest to learn that no insurances are being effected against personal injuries.—R. M.

According to a Danish correspondent, the A.E.G. Concern's aviation branch comprises now the following works besides its own aerodrome at Nieder-Neuendorf by Berlin: Old works at Henningsdorf. Osthavelland by Berlin, new aircraft works at the Johannisthal aerodrome and seaplane works by Stettin.



The Three-engined Curtiss Seaplane which recently carried 50 passengers. The use of booms for the tail support is reminiscent of the Sopwith "Bat-boats," a type which is likely to return to favour ere long.

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MARKET TOPICS.

THE OUTLOOK.

Since the last report appeared very important developments have taken place. The control of Non-Ferrous Metals has been suspended until further notice, and the markets for Tin, Copper, Brass, Lead, Spelter and Aluminium are now free.

There should now be a levelling-up of prices. In fact, the process has already commenced, and the general opinion is that prices will continue to decline. The Aeroplane Industry is still marking time so far as production is concerned, awaiting a declaration of Government proposals, and consumers are consequently only buying from hand to mouth. Other consumers, who have a Peace programme ready, although they are finishing their Government contracts, have now commenced to place substantial orders for their Peace requirements. Prices have already commenced to decline to a more reasonable level, and it is hoped that there will soon be a resumption of brisk Peace-time dealings.

The Ministry of Munitions has issued a list giving the stock of Non-Ferrous Metals held in ths country on Dec. 1st, 1918.

Copper	27,530	tons.
Spelter (G.O.B.)	18,768	,,
Spelter (Refined)	6 544	,,
Aluminium	10,215	,,
Soft Pig Lead	49,111	,,

The above figures are considered satisfactory, but they do not indicate the true position, as no indication is given of expected arrivals or quantities still to come against uncompleted contracts made by the Government. It is not yet possible to give even an approximate idea of the consumption of materials which will be required for aeroplane construction. It is, however, expected that the prices of the necessary raw materials will be much lower than those ruling at the end of 1918, when the demand for Peace requirements materialises.

COPPER.—Although prices are declining, buyers are exercising great caution, but when forward Copper declined to £86 a week ago buyers became active and the market was forced up. Prices have declined £20 this week, but buyers are still reticent and evidently expect the market to become easier, although the present price is below the lowest price in 1918, which was £100

The U.S.A. Copper market is now free, and developments are being anxiously watched. It is understood that large stocks are held and prices are expected to decline.

Jan. 7th, 1919	£92	0	0 per ton.
Last week	£112	0	0 per ton.
1917	£132	0	0 per ton
Average price, 1918	£115	0	0 per ton.

TIN.—Upon resumption after the holidays, there was a break in prices due primarily to the collapse of Eastern prices and the demand here being very poor. Prior to the holidays prices were £264 cash, and £256 three months. A week ago prices declined to £240 cash and £230 three months. The market immediately became very active and large orders were booked at these prices.

Taking all things into consideration, the prices ruling at present are not unreasonable, and while the demand is fairly good, it is more than likely that when consumers begin to cover their Peace requirements the large demands will force prices up. On the other hand, two important facts must not be lost sight of :—

1. The large stocks of Tin which must be held in Batavia owing to the Inter-Allied Executive not purchasing any Tin from this source.
2. The situation in U.S.A., where large stocks have been accumulated at fancy prices.

The market this week is much steadier and the demand is fairly good. The position in U.S.A. is very unsatisfactory, and very little business is being done. The trouble seems to be that the Steel Products Co., who were appointed by the American authorities to purchase all the Tin allocated by the Tin Executive, purchased a very large portion at prices very much higher than the prices ruling to-day, and supplies are still being delivered at these prices. The U.S. Government has now fixed a minimum price for Tin, apparently with the object of safeguarding the Steel Products Co. against loss, but the minimum price is in the vicinity of £340, and consumers are very bitter in their criticism of the control mismanagement.

COMPARATIVE PRICES.

To-day, Jan. 7th	£241	0	0 per ton.
Jan. 2nd	£235	0	0 per ton.
Dec. 30th	£250	0	0 per ton.
Lowest Price, 1918	£240	0	0 per ton.
Price, 1917	£181	0	0 per ton.

LEAD.—The market is very dull at present, the expected demand for manufactured Lead for building purposes not having materialised. It is interesting to learn that a parcel of American Lead was sold here at £35. The official price still remains unchanged at £40.

It will be observed from the comparison of prices given below that this price is very high, and there is a general feeling that it should be reduced.

COMPARATIVE PRICES.

To-day	£40	0	0 per ton.
Lowest Price, 1918	£28	10	0 per ton.
Price (Pre-War)	£21	0	0 per ton.

STEEL.—The demand for Aircraft Steels shows no signs of reviving, but a fair business is being done in other classes of Steel, and although it is expected in some quarters that there will not be any difficulty in finding a market for all the Steel which the producers are capable of turning out, America must not be ignored. In fact, the U.S. Government has already released the Iron and Steel Trades from all State control. The official prices for Aircraft Steels remain unchanged.

TIMBER.—The Controller continues to rescind many of the regulations which came into force during the war, and it should not be long before the Timber Trade is as free as it was in pre-war days.

It is still necessary to obtain permission to purchase Timber abroad, and the list of maximum prices for Home and Imported Timber still remains in force. Very little Timber for aeroplane construction is being purchased, and there is not much prospect at present of buyers coming into the market again. The present official price for Silver Spruce and substitutes is not unreasonable, and there would hardly be any reduction if the wood was released from the present control. This remark does not, however, apply to hardwoods, and where firms find it necessary to buy it is an unwise policy to buy for stock, as prices are very high, and there should soon be signs of a decline.

FABRIC.—The Fabric position remains unaltered, and no definite information has been received as to what the Government intend doing with the huge stocks which they have accumulated.

CEMENT CONTROL.

The control of the distribution of cement by the War Office by means of priority certificates has been brought to an end, and manufacturers and merchants are now at liberty to execute orders without certificates, provided priority is accorded to Government orders.

REDUCTIONS IN OIL PRICES.

Under the Petroleum Products (Wholesale Prices) No. 4 Order 1918, the following schedule of wholesale prices of oils will come into force from the dates mentioned :—

Dec. 16th-18th.—Gas oil in bulk ex wharf, 8¼d. per gall. ; fuel, oil in bulk ex wharf, £10 per ton.

Jan. 1st-18th.—Petrol in cans, No. 1, 2s. 10½d. per gall. ; ditto, No. 2, 2s. 9½d. per gall. ; ditto, No. 3, 2s. 8½d. per gall.

Paraffin.—Long-time burning oil, in bulk, 1s. 3d. per gall. ; No. 1, 1s. 3d. per gall. ; No. 2, 1s. 2d. per gall

Raw White Spirit as imported, ungraded and unrefined, sold by the Pool Board to manufacturers for distribution in accordance with licences issued by the Ministry of Munitions, 2s. 3d. per gall.

All delivery charges remain as before.

A CASTROL ACHIEVEMENT.

To the many fine performances achieved by aircraft engines lubricated with " Castrol " must be added the altitude test, when a D.H.9 with a Napier " Lion " engine reached 30,500 ft—according to barograph reading.

It is of interest to note that in all the British aircraft records established since 1910, " Castrol " has been used for lubricating purposes.

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AIRCRAFT FINANCE

CURRENT TOPICS.

PROSPECTS.

The volume of sound accompanying an argument does not necessarily intensify the profundity of the logic; many people seem to labour under such a misapprehension. Frequently this redundancy of vocal effort can be justly categorised as "hot air." One is prompted to these remarks after digesting some of the statements made in connection with the immediate prospects of aviation and, indirectly, the Aircraft Industry. These thousand-and-one embryonic projects for providing aviation facilities throughout the world may or may not be fundamentally sound; by the natural process of evolution they will probably become sound, but sometimes the process is unexpectedly painful, just like growing-pains during childhood.

ABNORMAL TIMES NO CRITERION.

It would indeed be fallacious to jump to the conclusion that because of the phenomenal progress of the past three or four years, and because of the multitude of schemes projected, on paper, that the immediate prospects of the Aircraft Industry are unquestionably brilliant. No one wants too much State supervision or help, and certainly not State control, but it is beyond doubt that the immediate future must be determined to a large extent by the relation of the State to the Industry. Some member of the Government—a member whose words carry conviction—ought to outline the policy of the Government in relation to aviation.

NO IMPOSSIBLE RESTRICTIONS.

If the Industry is to be left to develop on its own merits without any moral or material support by the State, and if the State intends to enact a host of regulations designed to protect the rights of the ordinary citizen and, incidentally, penalise the Industry, its commercial possibilities must necessarily suffer. Therefore it is clear that for the time being the commercial outlook is just a trifle obscure.

FAULTS OF THE PAST.

In default of being able to develop aircraft, pure and simple, the companies can, of course, concentrate more activity, mental and physical, in other directions Provided they are capable of an ordinary degree of adaptability they should be able to branch out efficiently and profitably. But in any case the lessons of the past must be taken to heart. The motor industry boomed once, seemed to possess wonderful potentialities of profitable development, of which it was robbed by inefficient management and a narrow-minded programme sometimes labelled a superiority of view. The common view may not appeal always to the man with a headful of ideas, but it pays to treat the ordinary, everyday view with respect and to stimulate it.

PHYSICAL AND FINANCIAL POSITION.

Physically and financially the Industry is well fitted for vigorous and efficient commercial development, because of the exceptional benefits conferred by the war. Plant has been enlarged and improved and efficiency increased. At the same time the financial position in almost every case has been materially strengthened. The future depends upon the management and the policy to be adopted by the State. In relation to the financial side it must be confessed that the position has been vitiated here and there by the rather too common procedure of increasing the capital.

WATERING THE CAPITAL.

No doubt there is ample justification for this policy of capitalising profits which, because of the exceptional circumstances, had become inextricably mixed up with ordinary working capital. To have paid cash dividends commensurate with the abnormal earning capacity of the companies would in some cases have been impossible and at the same time economically disadvantageous, inasmuch as the State would have claimed more tax. But, on the other hand, if, instead of capitalising these excess profits, the money had been left in the business, the benefits in the long run would likely be more substantial. The inherent financial position would have been more sound and the profit-earning capacity better. This burden of capital arising out of the capitalisation of reserves will become more evident as time goes on. Before long the influence of the Excess Profits Duty will become less vicious. While admitting that in some cases the higher capitalisation can be justified, one cannot throw over the belief that the policy has, generally speaking, been overdone and the Industry will suffer. Excessive capitalisation has always been, and possibly always will be, an objectionable trait of British industry, which one may put forward as an explanation rather than an excuse for what has happened in this particular case.

GOVERNMENT POLICY MUST BE DEFINED.

This apart, however, it is important to know what policy the Government will adopt in regard to the Aircraft Industry. It has rendered invaluable assistance to the nation during the war, and, therefore, it would only seem logical enough to assume that the Government, stimulated by this knowledge and actuated by a desire to keep the country to the front in the world of aviation, with its immense potentialities, will devise some adequate means to encourage and foster the manufacture and development of aero-engines and aircraft. Admittedly, there are difficulties to be faced, but these could be surmounted with a little commonsense and judicious scientific training. Given that and sound management, coupled with quiet development methods, the Industry ought to be able to help itself along the road to success. But there must not be any comparison with war-time achievements so far as profits are concerned.

FRENCH CONCERNS.

It is stated that the French Motobloc Co. is not likely to make any interim dividend this year. The aeroplane construction department was obliged to cease operations before any deliveries had been made, and it does not appear, therefore, that the state of the trading will permit of any dividend.

The Zebra Motor Co., a French undertaking, is reorganising and increasing its capital. The existing 500 franc shares are to be divided into five shares of 100 francs, and the 500 founders' shares into 5,000 shares. The capital is to be raised from 1,200,000 francs to 5,000,000 francs, but it is not proposed to issue the additional amount in its entirety at one time, nor to offer preferential rights thereto to the existing shareholders.

TRIPLEX PROFITS EXPAND.

As might have been expected, the Triplex Safety Glass Co. has done well. The net profit earned during the year to Nov. 30th was £30,927, in comparison with rather less than £20,000 for the preceding period. It is proposed to write off the balance (£2,000) of the Development Account. The dividend is maintained at 10 per cent., and the substantial surplus of £30,067 is carried forward.

CANADIAN RIGHTS SOLD.

The Company sold its Canadian rights to a New York syndicate for a cash consideration and a share interest in the new venture about to be formed there. The accounts under review include this cash consideration, viz., £2,500, and it is said that 7,500 shares of the new company will be received, the total capitalisation being 100,000 shares.

An examination of the balance-sheet shows the elimination of the Development Account, but figuring among the assets is the Purchase Account, being the consideration under agreement with the vendor, £34,104. One is pleased to note that this is reduced to £31,604, by means of the cash received for sale of the Canadian rights. It would seem sound policy to reduce this item as soon as practicable. It reminds one of the very common practice of including goodwill among the assets. This practice has been overdone. In some cases, goodwill can be seriously regarded as an asset, but not always, and in nine cases out of ten, it would not fetch anything like the value given in the accounts.

SUNBEAM'S NEW CAPITALISATION.

The Sunbeam Co. intends to increase its capital from £320,000 to £700,000. so that after capitalising £250,000 of the reserve fund and providing the good bonus to shareholders, there will remain 130,000 unissued shares. When and how these will be placed does not transpire. The report now out shows a profit for the year to Aug. 31st last of £94,265, in comparison with £110,000.

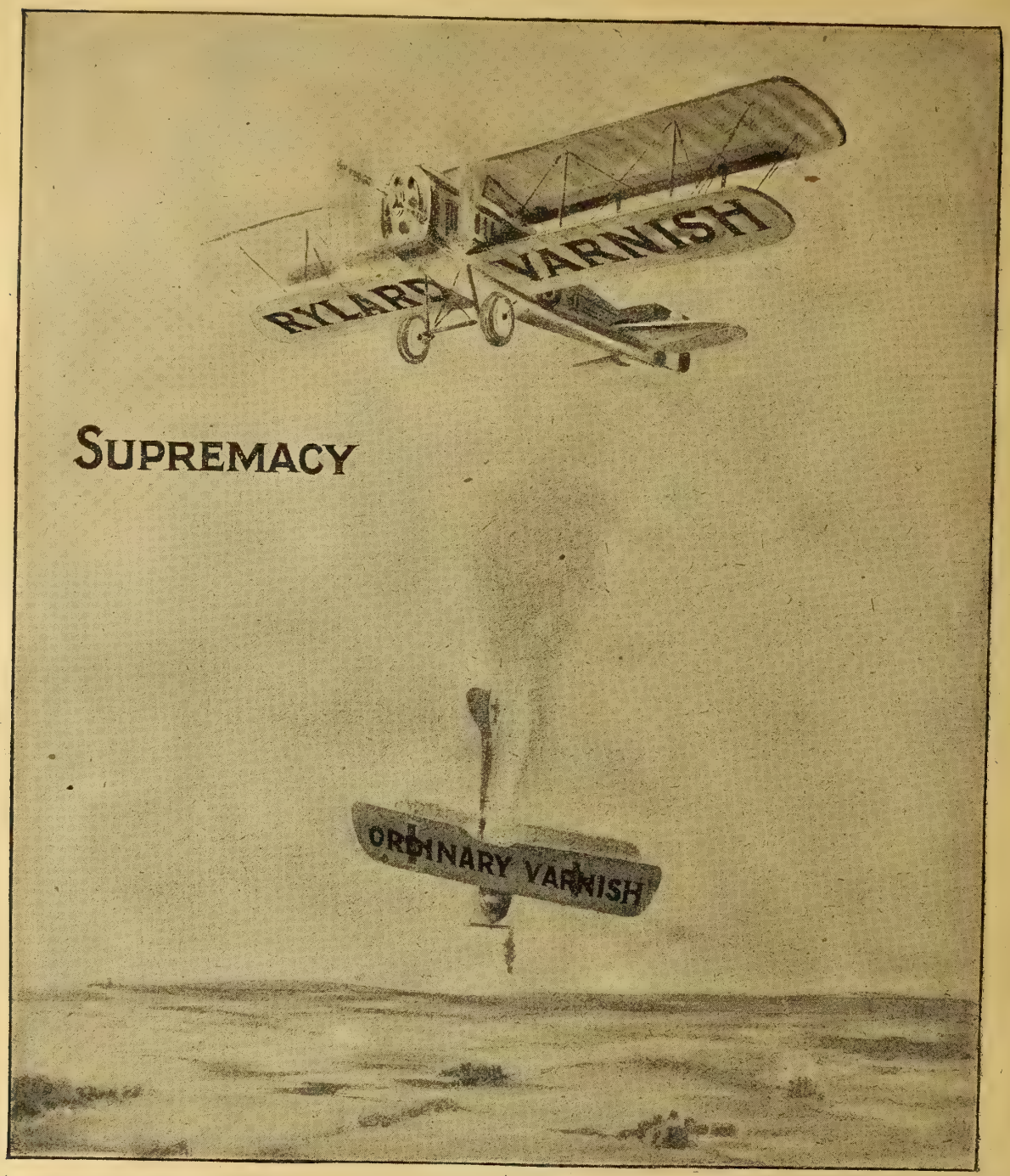
AUSTIN'S MILLION PROJECT.

The Austin Motor Co. is preparing to raise £1,000,000 additional capital in order to launch out its big post-war development programme. This is one of the biggest financial schemes in the history of the trade. If the programme in contemplation is sound without being too ambitious so much the better.

MORTGAGES, CHARGES AND SATISFACTIONS.

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FRENCH AVIATION AND THE WAR.

BY W. L. WADE.

Although at the present time it is difficult to give very much detailed information concerning French war-time military aviation, especially with regard to administration, it may be possible to give an outline of the work which has been done in the field, with mention of some of the machines which have been employed.

At the outbreak of war the Service d'Aviation Militaire enjoyed a theoretical numerical strength only exceeded by the German Flying Corps, but unfortunately its organisation and the general condition of French military machines left much to be desired.

The chief defect was that there were no direct-entry aviation officers, and that the whole of the officer personnel was borrowed from the three regular arms, namely, infantry, cavalry, and artillery, who in many cases were not interested in aviation except from the point of view of pay, and so put in the minimum possible amount of flying time. Whole escadrilles were composed of "sapeur-aviateurs"—private soldiers—who knew their jobs thoroughly, but were commanded by officers who knew little of aviation and cared less.

This being the case, many of the aeroplanes were not in regular use, which was detrimental to their preservation in good condition, and the amount of flying practice which was possible to some of the military aviators did not keep them up to a high standard of flying efficiency, although there were a large number of military aviators who were so fortunate as to fly regularly and who were fully competent to enter the field.

Fortunately, however, the French Government had fostered and encouraged the French Aircraft Industry, and in consequence there was a large number of first-class civilian pilots available, most of whom had received more than the rudiments of military education, and these civilians did a lot to stiffen up the ranks of the Service d'Aviation. Such pilots as MM. Gilbert, Garros, Garaix, Verrier, Noël, Védrines, and Brindejonc-des-Moulinais came forward. Working as a rule in a two-seater in co-operation with a regular officer, as often as not an artilleryman, they did much splendid work in the very first months of the war, in almost every case as N.C.O. pilots, because there was no provision in the Service d'Aviation for the granting of commissions.

The Early Types.

Most of the machines to be used in the first months were of types well known to early students of aviation, such as the 80-h.p. Blériot two-seater, the 80-h.p. Morane two-seaters and single-seaters, including the "parasol" type, the 80-h.p. Henry Farman two-seater, 70-h.p. and 100-h.p. Maurice Farman two-seaters, both of the "longhorn" type and "shorthorn" type, Voisin steel two-seaters with 130-h.p. Salmson engines, and the 80-h.p. Caudron biplane. The work so done earned early approval from General (later Marshal of France) Joffre, as may be gleaned from the Army Order of the Day dated September 10th, 1914, in which he praises work done on September 8th, particularly in the region of Triaucourt against the 16th German Army Corps, most valuable work being performed by the French aeroplanes in registering shells fired against the German artillery, when eleven enemy batteries were severely punished by French artillery fire, many caissons being exploded and other material completely destroyed.

He also speaks well of the strategical work performed by aeroplanes, and he makes some reference to bomb-dropping, stating that this work can only be carried out after efficient artillery service has been assured.

General Joffre's first Order of the Day to deal specifically with military aviation speaks, therefore, of tactical and strategical reconnaissance and of bomb-dropping. Apparently at that date aerial fighting had not reached sufficient importance to be worthy of mention. It is interesting also to note that in the opinion of General Joffre at that time, reconnaissance flying was of secondary importance as compared with collaboration with artillery, and only the smallest possible number of aeroplanes should be devoted to reconnaissance, and that, if possible, there should be one aeroplane for each "regiment" of artillery, a regiment corresponding to the British artillery brigade.

This Army Order was promptly followed on Sept. 27th by another in which he once more praises the work of aeroplanes in conjunction with long-range batteries engaging enemy artillery of heavy calibre. He also mentions that, when the carrying capacity of the machines permitted, they achieved material results by dropping bombs on enemy batteries which could not be reached by French artillery while, apparently, ranging on enemy artillery within reach of the French guns. He also mentions the dropping of fléchettes or small arrows upon the crews of enemy batteries, and the dropping of bombs on enemy reserves.

The Army Order of Oct. 8th, 1914, praises the Service d'Aviation for the courage and enthusiasm of its aviators and the observers of artillery fire, and states that their work exercised a great influence over the enemy *moral* as well as obtaining important material results.

The attack of aviators against concentrations of troops and other important enemy positions is recorded, and the Order speaks of the destruction by flechettes of a kite balloon. Mention is also made of the destruction of an enemy aeroplane by machine-gun fire from a French aeroplane.

Mention in another paragraph of a bombardment squadron which threw bombs on enemy batteries, assemblies, on columns on the march, and on military parks and stations, seems to suggest that the paragraph praising aviators for attacking troops, transport units, etc., refers to reconnaissance aviators dropping bombs on enemy formations on the ground, and constituting, therefore, a kind of prelude to the aerial offensive which is associated with the history of later years.

An Order of Oct. 24th points out that as the result of aerial reconnaissances of a particularly brilliant and difficult nature the observer concerned has been cited in Army Orders without reference to the name of the pilot of the machine. The Order, therefore, points out that in every aeronautical mission executed by two people the risks are shared equally by the pilot and passenger, and, therefore, the merit, and that they will both be mentioned in dispatches as well as in recommendations for rewards.

Although in these early days French aeroplanes, like British aeroplanes, had to be put to the most urgent use of the moment, so far as it was possible, the heavy Voisin biplanes were used principally for bombing; Blériots, Farmans of all kinds and Caudrons were used chiefly for artillery observation and other forms of reconnaissance, as were the Morane parasols; and the Morane monoplanes of the ordinary type were used for aerial fighting because of their superior speed and manœuvreability.

Most of the early bombs to be used were of small size, and were, as often as not, dropped over the side of the machine by hand, and the fléchettes were packed up in bundles of 50 and discharged through a kind of hopper.

The crews of the reconnaissance machines were armed sometimes with automatic pistols and rifles, and when possible, when the machine happened to be a "pusher," a machine-gun was placed in the nose of the nacelle. In the case of single-seater artillery observation machines, the pilot generally had to do his work very much hoping for the best, and quite prepared for the worst, should he be attacked by enemy aircraft.

Aerial Fighting.

As regards fighting machines, pending the evolution of a satisfactory interrupter gear, a fitting which was badly neglected by the French, the Germans and by ourselves, it was customary to mount machine-guns on the tops of the cabanes of Morane and other monoplanes in such a manner that the bullets cleared the airscrew blades, or alternatively, when the machine was a two-seater, to equip the passenger with automatic pistols, a couple of carbines, and possibly a machine-gun, which would fire sideways or backwards.

Then some of the great fighting pilots such as Védrines and Garros struck the brilliant idea of fitting steel deflector plates to the back of the airscrew and fixing a machine-gun firing straight ahead in line with the pilot's eyes. Machines so fitted became very formidable, despite the interference of these plates, and the damage done to the engine by bullets striking the said plates with great force. It was not long before a proper interrupter gear was fitted, which ensured that the machine-gun did not fire as the airscrew blades crossed the path of the bullets.

For a considerable time nothing very startling was evolved in France in connection with war aeroplanes, the authorities being content, apparently, with existing types of machines, so long as they were not absolutely overwhelmed by new types of German aeroplanes, a policy which, at any rate, had the advantage of expediting quantity production, although one rather gathers that, when some of these machines were put out to sub-contract, the originally delicate fittings designed and used satisfactorily by the makers became objects of terror to real aeronautical engineers when made by blacksmiths and the like.

However, the need for better aeroplanes arose, and one or two interesting machines were produced, notably the Nieuport biplane, which became known as the "one-and-a-half plane." This machine was a small tractor biplane, the most unusual feature of which was a lower plane which was extremely narrow in chord.

The upper plane was of normal proportions, and was connected to the lower plane by a single pair of struts on either side, running from its main spars to the single main spar of the lower plane, so that the two struts together formed a "Vee."

The main object of the design was to provide a machine of small surface, and therefore of high speed, which was at the same time a sound structural job. The small size of the lower plane also resulted in an increase in visibility downwards.

The first machine of the type was a two-seater, in which the machine-gun was raised above the top plane, so that it fired over the airscrew, and the passenger stood up on his feet in order to aim and fire it.

Shortly afterwards this machine was turned into a single-seater, the position of the gun being retained, the pilot firing with the

help of a Bowden control and aiming through sights placed in line with his eyes and parallel with the gun. When the interrupter gear became the fashion some of the Nieuports were also fitted with machine-guns placed on the cowl and firing forwards through the airscrew.

The Nieuport biplane was quite a revolution in French fighting machines, and so good was it that with quite minor improvements and more powerful engines it was used right up to the end of the war.

So far as bombing aeroplanes were concerned, the original Paul Schmitt biplane, on which the heroic Garaix did some astonishingly good bombing work, was improved in many ways and became a standard bombing machine. The old type of steel Voisin continued to retain most of its principal features and peculiarities, and was altered chiefly in the matter of engines, and that in certain instances the nacelle was armoured.

A Twin-Engined Bomber.

The designers of the Caudron biplane produced a large twin-engined machine, which retained most of the principal characteristics of the Caudron type, such as out-rigger booms for tail supports and flexible trailing edges to the wings, but the engines were housed in small nacelles, one on either side, and the gunner-observer took the place of the single engine which used to be fitted in the front of the central nacelle. This machine climbed exceptionally well for its time, and on occasion even passed over the barrage formed by the much vaunted Fokker monoplanes, simply by out-climbing them and returning from its objective without descending to low levels.

For some time these two types of aeroplanes represented all that was new in the French Aviation Service, except that the machines were fitted with more powerful and more reliable engines, and, as a result, at times it was necessary for the French Government to buy British aeroplanes and for French manufacturers to make British machines under licence. Variants of the Farman machines, such as the all-steel Henry Farman, were made, and the "Horace" Farman, but there is little of note to record until the evolution of the Spad biplane gave French fighting pilots a place once more in the sun. Up to that time the most amazing results had been obtained with the machines to hand, especially where bombing raids with Voisin biplanes were concerned.

The Spad biplane was, and is, a single-seater tractor fighter, built chiefly for high-speed and good manœuvreability, and it began its work at the front in 1916. It is chiefly notable for its compact appearance and for the extraordinary way in which the wing bracing is arranged; there being two bays of struts on either side of the fuselage, but only one set of flying and landing wires, which cross as they pass the middle interplane struts. The standard type of engine to be fitted was the Hispano-Suiza, and on this machine most of the French "Aces" made their fame.

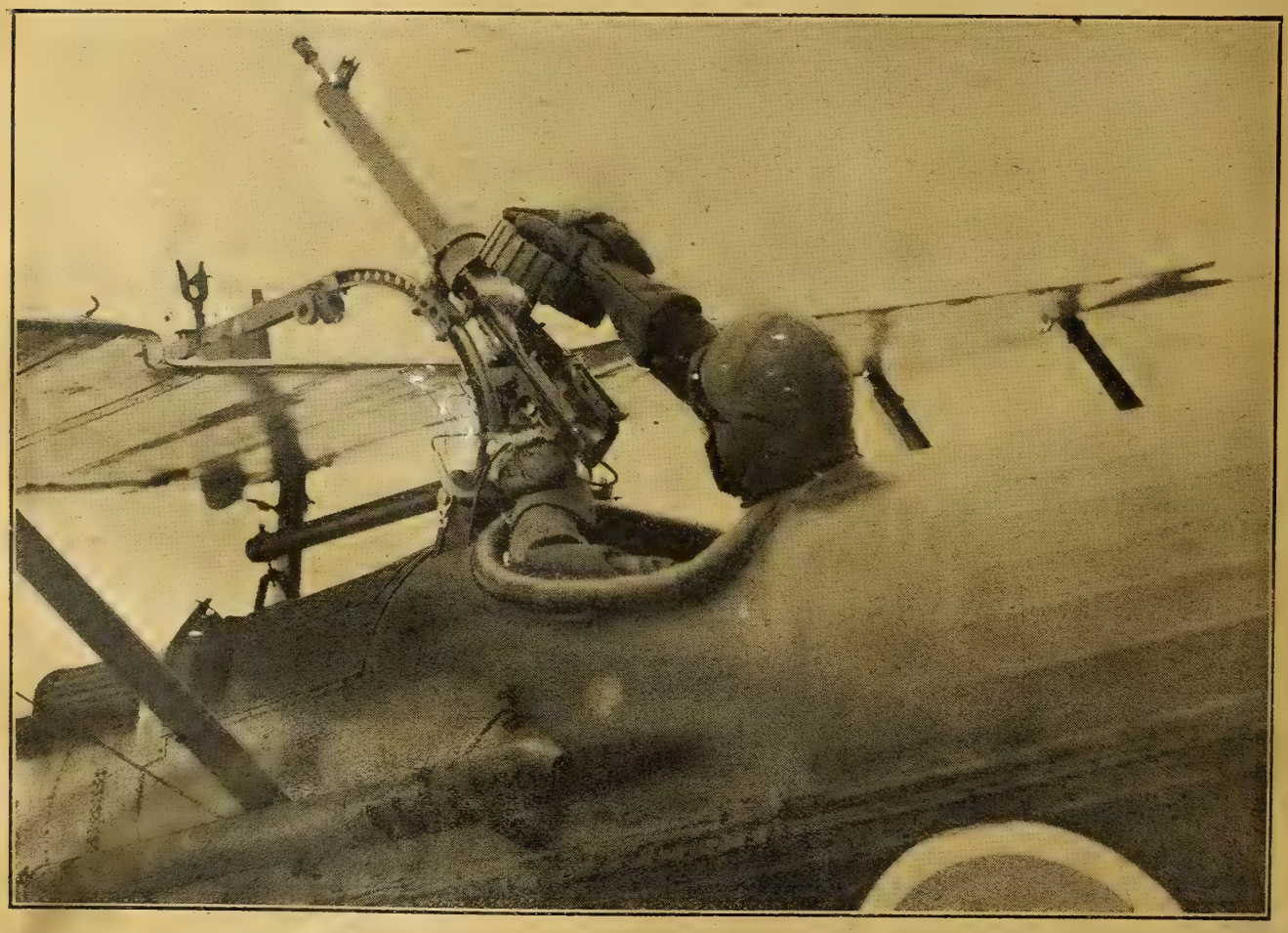
The French were fairly late to use the ordinary two-seater fuselage biplane for reconnaissance work, but finally the Dorand and Bréguet biplanes were evolved, the latter being very different indeed from the curious steel tube Bréguet of peace time.

Apart from experimental machines, giant aeroplanes of French make were infrequent until comparatively recent dates, although a number of medium-sized twin-engine bombers were produced, notably the twin-engine Voisin, the Letord twin-tractor, and the Morane-Saulnier twin-tractors. More recently, however, some enormous machines have been turned out, notably the Voisin triplane with four Salmson engines.

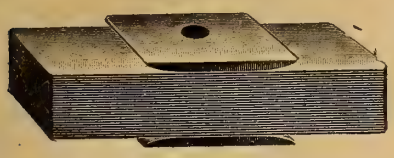
As regards the later operations carried out by the French Aviation Service little need be said, as most of the work done was on lines similar to those of Great Britain. The French were very early in the field so far as bombing German towns was concerned, the French Government wasting but little time in discussing the ethics of the matter.

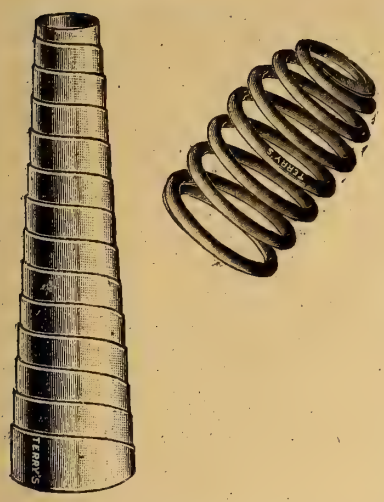
Throughout the war France has made great use of N.C.O. pilots, and so has overcome in a large measure the difficulty of employing first-class aviators who for one reason or another could not hold commissions, and this policy, particularly in connection with aerial fighting, has been proved to be sound; some of the most appalling reprobates turning out to be brave and enthusiastic fighting pilots. It is generally known that a number of Americans first saw active service in France in a special squadron known as the Lafayette Escadrille, and distinguished themselves in many ways, and, as they would put it, collected a very large number of enemy scalps.

The foregoing brief outline of the French Aviation Service is lacking many details, which, for various reasons, cannot be included. When, however, the time comes and a complete history can be written it should make extraordinarily interesting reading.



An S.E.5a biplane fitted with a Lewis machine-gun, which fires over the top planes, as well as a Vickers gun on the cowl firing through the airscrew. The pilot is seen changing a Lewis drum.





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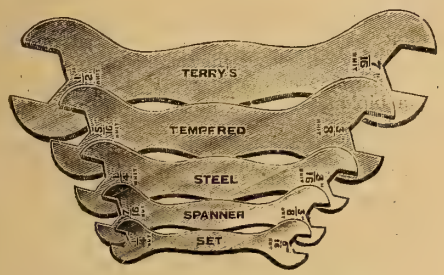
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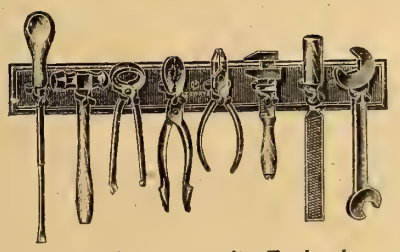
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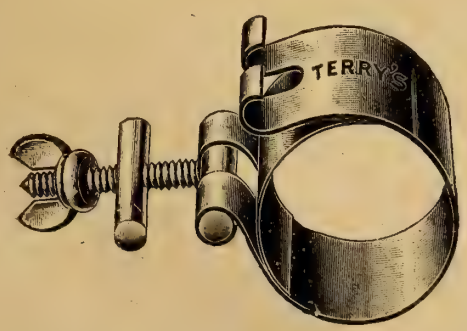
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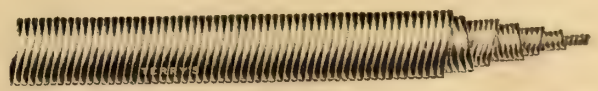
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THE ABDUCTION OF AMANDA.

Without apologies to the writers of pseudo-scientific romances.

By E. P. B.

The gilded tea-rooms were ablaze with light and life. Alone in a corner sat Ralph Rippersley, young, bronzed, and handsome; at the next table two foreign-looking men were whispering together.

They were speaking Czecho-Slovak, a language which Ralph's service in the war had made as familiar to him as his own.

"She is supping at the Savoy," said the man with the yellow whiskers. "At four o'clock Stepan and I will bring her down in a bag. You will be driving the Mercédès: the moment we are in, go right off north, and don't stop till we reach the aeroplane."

"What sort of a girl is she?" grinned the Slovak, a huge, ill-formed man in a tartan kilt.

"Por Dios, you may see for yourself. There, alone at that table. That is the richest woman in England—Amanda Mex, the Petrol Princess. But come, Slimpowicz, you haven't taken the oath. Remember the Brothers of Boguslavsky!"

The Slovak trembled, spilled the milk on the tablecloth, and repeated:

"τὸν δ' ἀπομειβόμενος προσεφὴ ποδὰς ὠκυς 'Αχίλλης."

And with this fearful oath they rose and passed from the room.

Ralph sat for a few moments trying to collect his thoughts. Had he overheard a plot of abduction and murder, or was it a rehearsal of the next revue at the Alhambra? Then he looked towards the girl they had mentioned, and his heart beat fiercely. In one glance he knew that he loved her. Besides, she was the Petrol Princess. He got up and sat beside her.

"I love you," he breathed, looking into her deep blue eyes.

She repulsed him.

"Put your hat on before your brain skids, bud," she said, and beckoned to the head waiter.

Ralph Rippersley retired, but undaunted. The accents of her wonderful voice echoed in his ears.

"She shall be mine," he said to himself, "or I will take a job as salesman in an automobile shop." He had to.

These meditations carried him to a crowded thoroughfare. A beautiful green motor-cycle was coming towards him, piloted by an elderly gentleman. It stopped as Ralph held up his hand.

"I represent the Ministry of National Reconstruction," said Ralph, boldly. "War has been declared between China and Peru, and I have been instructed to commandeer your motor-cycle to take urgent dispatches to the Prime Minister in Scotland. Call any day with your claim at the Ministry of Reconstruction in the Cecil."

He drew an envelope from his pocket, but the old gentleman was already convinced.

"Take it, my lad, and God bless you!" he said. "Remember to retard the carburetter when you exchange gears, and, above all, *don't* forget to oil the exhaust valve. Good-bye."

Ralph examined his capture with growing joy. It was a new 20 h.p. B.C.A., with automatic ignition, three large cylinders, and a foot-pump. The famous B.C.A. adjustable fly-wheels and reciprocating trunnions made it a machine that any motor-cyclist would delight to handle. Ralph felt that his beloved was his already.

He visited a gunsmith, and the office of a registrar, and spent the evening in an electrical works, altering and perfecting some complicated device in a black box

Four o'clock in the morning found the Savoy still crowded with a gay and reckless throng. The wild reaction following on the repeal of "Dora" was still at its height. Many people of normally quiet habits now spent the night in celebrating their new-found liberty with wild excesses. Nothing was too burlesque for these hunters of pleasure. The sight of two masked men carrying a large and struggling sack out of the lift created nothing more than a mild stir. But near the door a young man in evening dress strode forward with the evident intention of accosting the pair—only to fall back under a terrible blow dealt by a confederate lounging behind him.

Ralph Rippersley collapsed into the arms of a porter, who knew him well.

"Best cinema show I've seen for years," said the porter, wiping his eyes.

Ralph left him, and pushed past the revolving door There was no sign of the scoundrels, or of his Amanda

All hope was not lost. He ran to the waiting B.C.A., touched the starting handle, and in a moment was racing down the Strand. Then, remembering the Czecho's words, he turned for the Great North Road.

The great machine swept along with a thunderous roar. The Marble Arch flung past in a blaze of lamps, flickering on the Lewis gun mounted on the handlebars. Vague policemen were running. Then, an instant later, Hendon and the Edgware Road were things of the past. Leaning low over the bars, Ralph coaxed every ounce of speed out of the throbbing gudgeon-pins. And so, with a twisting of levers and pressing of pedals, the miles flew past.

Near St. Albans the mighty roar turned into a staccato pulse: the pistons seized, the red-hot cylinders blazed far into the night, and the engine gave signs of imminent collapse. Desperately the young man twiddled his levers, till the old gentleman's words flashed back upon him. Seizing an oil-can, he poured streams of the vital fluid upon the exhaust valves of the crankshaft, and soon the alarming symptoms disappeared, and the chains raced round with renewed vigour.

The dawn was spreading over the eastern sky in aureoles of purple and crimson when first the villains were sighted. Ralph saw two motor-cars in the dim distance, and pressed the button of his Lewis gun. A howl of mingled rage and astonishment attested the accuracy of his aim. The rear car stopped, and drew across the road. The three men in it were firing rapidly with rifles.

The battle lasted several minutes. Bullets spattered round the undaunted hero. The motor-cycle was pierced in the carburetter and a dozen other vital parts. Once a stinging pain shot through his right arm. But he flicked the wasp off, and stuck to his gun, until at last it stuttered and ceased for ever. The feed pawl spring retaining stud was broken. But its work was done.

The three villains were dead, perforated by a hundred holes.

Ralph patched the B.C.A. hastily, pouring sealing wax in the carburetter, and urged it again in pursuit of the Mercédès which bore so precious a burden.

Nobody will ever know how the next few miles were conquered. Ralph's amazing knowledge of machinery enabled him to force the battered motor-cycle along. Many a time he leaned down and turned round a broken cog-wheel or stretched out a short circuit. And at last round a corner they came on the missing Mercédès standing by the side of the road. It was empty.

From a field near by a biplane was rising slowly into the air. Ralph seized his black box with a cry of despair.

* * * * * * * *

Amanda recovered from her long faint, and succeeded in making a small hole in the sack. Enlarging it, she put her head out and gazed around.

A strange medley of wires and ropes met her eyes, while her ears were assailed by the mighty roar of twenty huge cylinders. The truth flashed upon her. She was in an aeroplane!

The ground was visible below, and a motor-cycle, and a figure that seemed strangely familiar. The figure was pointing a black box upwards, and turning a handle. A cinematograph, perhaps. And was it the young man who had been so rude in the Trocadero? But Amanda's anguished thoughts had scarcely got so far when the roar of the engine ceased suddenly.

Ralph Rippersley had depolarised the carburetter.

This strange technical phenomenon can be explained quite simply. By combining a negative voltage into an atomised condenser, and increasing the current in a special resistance coil, he had caused the diatonic molecules of the armature pole-pieces in the carburetter to disintegrate, thus dragging the aeroplane to earth by its own dihedral angle.

As the biplane fell, Ralph Rippersley raced to meet it, revolver in hand. But the villainous pilot, owing to his electrical contact with the machine, had been depolarised too, and Ralph stepped over the corpse and drew his loved one into safety at last.

"My hero!" she sighed, ecstatically.

"Splendid!" said Ralph. "I bought a special licence last night. Come on."

AN ESCAPE FROM PERSIA.

An officer in the Royal Air Force was, some months ago, forced to land through engine trouble in Persia in an enemy occupied area. He destroyed his aeroplane and then walked southwards through the hilly country until he reached a village, where, exhausted and hungry, he determined to ask the assistance of an aged Persian, whose appearance was kindly. He coupled his request with a promised gift of £300 in Persian money. The Persian provided him with clothes and had him shaved and decorated to represent a Persian peasant.

Doubting the honesty of his aged friend, he left in secrecy and set out in the direction of the British lines. Four days later he met a British motor-cyclist orderly, and shortly afterwards an Air Force lorry, which conveyed him to headquarters. His food during the four days' tramp was six berries and a grape. And with this the story ends.



NAVAL & MILITARY ·AERONAUTICS·



GEOFFREY WATSON

FROM THE "LONDON GAZETTE."

WAR OFFICE, Jan. 7th.

The following extract is taken from a dispatch received by the Secretary of State for War from Field-Marshal Sir Douglas Haig, K.T., G.C.B., G.C.V.O., K.C.I.E., Commander-in-Chief of the British Armies in France :—

ROYAL AIR FORCE.

During the past year the work of our airmen, in close co-operation with all fighting branches of the Army, has continued to show the same brilliant qualities which have come to be commonly associated with that Service; while the ever-increasing size of the Royal Air Force and the constant improvement in the power and performance of machines, combined with the unfailing keenness of pilots and observers, have enabled intense activity to be maintained at all times.

Some idea of the magnitude of the operations carried out can be gathered from the fact that from the beginning of *January*, 1918, to the end of *November*, nearly 5,500 tons of bombs were dropped by us, 2,953 hostile aeroplanes were destroyed, in addition to 1,178 others driven down out of control, 241 German observation balloons were shot down in flames, and an area of over 4,000 square miles of country has been photographed, not once but many times.

The assistance given to the infantry by our low-flying aeroplanes during the battles of March and April was repeated during the German offensives on the Aisne and Marne, on both of which occasions British squadrons were dispatched to the French battle front and did very gallant service. During our own attacks, hostile troops and transport have been constantly and heavily attacked with most excellent results.

Both by day and night our bombing squadrons have continually attacked the enemy's railway junctions and centres of activity, reconnaissance machines have supplied valuable information from both far and near, while artillery machines have been indefatigable in their watch over German batteries and in accurate observation for our own guns. In these latter tasks our balloons have done most valuable work and have kept pace with admirable energy and promptness with the ever-changing battle line.

AIR MINISTRY, Jan. 7th

R.A.F.—The following temp. appts. are made at the Air Ministry :—Staff Officers, 2nd Cl.—And to be actg. Majs. whilst so empld. if not already holding that rank :—Sec. Lt. (Hon. Lt.) (actg. Lt.) P. M. Greenwood, Dec. 18th, 1918; (P.) Capt. (actg. Maj.) A. Murray, Dec. 16th, 1918.

Staff Officers, 3rd Cl.—(P.) Capt. H. de B. C. Garnt, Dec. 10th, 1918; (Q.) Lt. (actg. Capt.) J. M. Bell, and to retain his actg. rank whilst so empld., vice Sec. Lt. (Hon. Lt., actg. Capt.) C. M. Hennell, Dec. 11th, 1918 (substituted for notification in "Gazette," Dec. 10th, 1918).

The following temp. appts. are made :—Staff Officer, 1st Cl.—J. M. Home (Bt. Col. in Army), and is granted a temp. commn. as Col., April 14th, 1918, with seny. from April 1st, 1918 (substituted for notification in "Gazette," May 3rd, 1918, p. 5365).

Staff Officers, 2nd Cl. (Higher Grade).—And to be actg. Majs. while so empld. if not already holding that rank :—Capt. (actg. Maj.) A. D. Pearce, Aug. 22nd, 1918; Capt. H. R. Coningsby, Oct. 25th, 1918; (P.) Capt. E. W. T. Beck, D.S.O., M.C., Dec. 10th, 1918.

Staff Officer, 3rd Cl. (graded for purposes of pay at Air Ministry rates).—Capt. E. E. W. Butt, Oct. 28th, 1918

Staff Officer, 3rd Cl.—(Q.) Capt. G. Palmer, Dec. 21st, 1918.

FLYING BRANCH.—Capts. to be actg. Majs. while empld. as Majs. (A.) :—R. M. Drummond, D.S.O., M.C., Sept. 2nd, 1918; A. E. Godfrey, M.C., Sept. 23rd, 1918.

Capt. (actg. Maj.) E. O. Grenfell, M.C., to be Capt. (A.), from (S.O.), and relinquishes the actg. rank of Maj., Dec. 21st, 1918.

Capts. to be graded for pay as Capts. while empld. as Capts. (A.) :—J. F. Roache, Nov. 5th, 1918; B. J. W. Brady, D.S.M., Dec. 20th, 1918.

Lts. to be Lts. (A.), from (O.) :—E. R. Lickfold, May 25th, 1918 (substituted for notification in "Gazette," Aug. 3rd, 1918, concerning E. E. Lickford); A. V. Farrier, Aug. 14th, 1918; G. Dania, Sept. 26th, 1918 (substituted for notification in "Gazette," Oct. 15th, 1918); F. C. Farrington, Sept. 28th, 1918 (substituted for notification in "Gazette," Oct. 15th, 1918); F. C. Lyall, Nov. 6th, 1918 (substituted for notification in "Gazette," Nov. 29th, 1918); L. H. McKay, Nov. 17th, 1918 (substituted for notification in "Gazette," Dec. 10th, 1918).

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their ranks as Sec. Lts. (A.) :—J. C. Fraser, June 27th, 1918; H. T. McKinnie, July 23rd, 1918; J. Jackson, July 24th, 1918; G. Smith, July 27th, 1918 (since killed).

Prob. Flt. Officer G. A. Elliot (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (A.), Sept. 30th, 1918. (Substituted for notification in "Gazette," Nov. 1st, 1918.)

F. H. Ryder (Lt., New Brunswick R., C.E.F.) is granted a temp. commn. as Sec. Lt. (A.), and to be Hon. Lt., Aug. 17th, 1918. (Substituted for notification in "Gazette," Sept. 13th, 1918, concerning F. H. Ryder (Lt., British Col. R.).

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts. (O.) :—J. W. Benton, May 29th, 1918 (substituted for notification in the "Gazette" of Nov. 12th, 1918); R. J. Broad, June 21st, 1918.

The following are granted temp. commns. as Sec. Lts. (O.) :—H. T. G. Robey (temp. Sec. Lt., attd. K.O.S.B.), May 11th, 1918; N. W. Walmsley (temp. Lt., Lan. Fus.), and to be Hon. Lt., May 15th, 1918 (substituted for notification in the "Gazette" of July 30th, 1918, p. 9013); L. Wilmot-Johnson (temp. Capt., Suff. R.), and to be Hon. Capt., May 25th, 1918; H. B. Barwise (temp. Sec. Lt., R.G.A.), Sept. 13th, 1918; V. Ross (temp. Sec. Lt., R.E.), Oct. 4th, 1918, J. A. Bell (temp. Sec. Lt., attd. North'd. Fus.), H. G. B. Booth (temp. Sec. Lt., North'd. Fus.), J. A. Callaghan (Sec. Lt., N. Lan. R., T.F.); A. J. Gwynn (Sec. Lt., W. Yorks R., Spec. Res.), E. J. Price (Sec. Lt., N. Lan. R., T.F.), Nov. 9th, 1918; E. H. Whitmore (Sec. Lt., N. Staff. R., T.F.), Nov. 17th, 1918.

The following Flt. Cadets are granted temp. commns. as Sec. Lts. (O.) (substituted for notification in "Gazette," Dec. 10th, 1918) :—1534 G. G. Dow, 110936 A. W. Glover, 236755 W. A. Vallance, Nov. 27th, 1918.

Prob. Flt. Officer K. P. Kirkwood (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (S.), July 12th, 1918.

Sec. Lt. (Hon. Lt.) H. C. Heintzman (Lt., Can. F.A.) relinquishes his commn. on ceasing to be empld., Dec. 30th, 1918.

Capt. (actg. Maj.) E. Henty relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Maj., Jan. 8th.

The following relinquish their commns. on account of ill-health, and are permitted to retain the rank of Capt :—Capt. W. A. Daniell (contracted on active service), Lt. (actg. Capt.) E. T. Morrow, D.F.C. (caused by wounds), Jan. 8th.

The following Lts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank :—T. E. Carley, C. Kennard, D. J. M. Miller, A. K. Prentice, E. J. Stockman, D. J. W. Walker, P. J. Williams, G. A. Wood, Jan. 8th.

The following Lts. relinquish their commns. on account of ill-health caused by wounds, and are permitted to retain their rank :—A. J. S. Doble, W. G. Duthie, E. B. Smyth, Jan. 8th.

The following relinquish their commns. on account of ill-health, and are permitted to retain their rank :—T. V. Brake, C. K. Crocker, E. F. Driver, G. A. Forrest, Jan. 8th.

Lt. O. V. St. J. Williams (Shrops. Yeo., T.F.) relinquishes his commn. on account of ill-health, Jan. 8th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—R. R. Bragg, A. Camp, S. Castle-Smith (contracted on active service), H. Draper, R. H. French, H. Hitchon, J. A. Fayne, A. Reid, W. W. Routledge (contracted on active service), J. W. Taylor, C. F. H. Thriscutt, Jan. 8th.

Sec. Lt. A. C. Simmons (Devon R., S.R.) relinquishes his commn. on account of ill-health, Jan. 8th.

The following Officers are antedated in their appts. as Sec. Lts. (A. and S.) with effect from the dates stated :—A. J. Girardot, April 21st, 1918; H. A. McGrath, Aug. 1st, 1918.

The notification in "Gazette," Sept. 6th, 1918, concerning Lt. J. Jackson is cancelled.

The notification in "Gazette," Nov. 26th, 1918, concerning T. R. Nichols is cancelled.

The notification in "Gazette," Nov. 26th, 1918, concerning J. Macintosh is cancelled.

The notification in "Gazette," Nov. 26th, 1918, concerning H. A. Campbell is cancelled.

The notification in "Gazette," Nov. 29th, 1918, concerning J. Ferguson is cancelled.

The notification in "Gazette," Dec. 13th, 1918, concerning A. B. Richardson is cancelled.

The notification in "Gazette," Nov. 29th, 1918, concerning G. Cockburn is cancelled.

The surname of J. R. Fairman is as now described, and not as in "Gazette," Dec. 17th, 1918.

The surname of T. V. Smyter is as now described, and not as in "Gazette," Dec. 17th, 1918.

The surname of F. G. Aplin is as now described, and not as in "Gazette," May 17th, 1918.

The surname of H. B. Mercier is as now described, and not as in "Gazette," Sept. 13th, 1918.

The notification in "Gazette," Oct. 11th, 1918, concerning Lt. J. W. New is cancelled.

The notification in "Gazette," Oct. 15th, 1918, concerning V. Rose is cancelled.

The notification in "Gazette," Nov. 8th, 1918, concerning W. D. Blatch is cancelled.

The notification in "Gazette," Aug. 23rd, 1918, concerning K. P. Phillips is cancelled.

The surname of E. Charge is as now described, and not as in "Gazette," Nov. 19th, 1918.

The notification in "Gazette," Dec. 10th, 1918, concerning G. Brownrigg is cancelled.

The surname of Sec. Lt. F. A. Downes is as now described, and not Downer, as in "Gazette," Nov. 29th, 1918.

The notification in "Gazette," Dec. 24th, 1918, concerning Sec. Lt. F. W. Dunnett, M.C., is cancelled.

ADMINISTRATIVE BRANCH.—Maj. L. L. Greig, M.V.O., to be graded for purposes of pay as S.O. 2 (1st Gr.), June 1st, 1918.

H. Ellershaw (Maj., Manch. R.) is granted a temp. commn. as Maj., Sept. 14th, 1918, seny. April 1st, 1918, and to be graded for purposes of pay as S.O. 2 (1st Gr.).

The following are granted temp. commns. as Capts., seny. April 1st, 1918 :—C. W. Curd (temp. Capt., Gen. List), June 24th, 1918; E. A. Taylor (temp. Capt., Gen. List), Aug. 28th, 1918; J. E. Morris (Capt., Welsh R., T.F.), Nov. 11th, 1918.

Lt. (actg. Capt.) J. A. Stevenson, M.C., retains his actg. rank whilst empld. as Capt. from (K.B.), and to be graded for purposes of pay as S.O. 3, Nov. 30th, 1918.

To be actg. Capts. whilst empld. as Capts., and graded for purposes of pay as S.O. 3 :—Lt. J. W. D. Farrell, from (A.), Nov. 30th, 1918; Sec. Lt. (Hon. Lt.) I. P. Venner, from (K.B.), Dec. 1st, 1918.

Lt. (actg. Cat.) L. H. Seccombe to be graded for purposes of pay as Capt., Aug. 19th, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. :—L. E. Cording, M.C., June 1st, 1918; A. E. Burrowes, July 1st, 1918; W. A. Dewhurst, Aug. 1st, 1918; A. D. Carey, Sept. 3rd, 1918; G. Southern, Oct. 20th, 1918; L. V. Boxer, Nov. 1st, 1918; H. N. E. Row, from (A.), Nov. 4th, 1918.

Sec. Lts. (T.) to be actg. Capts. while empld. as Capts. :—R. J. Bright, Nov. 7th, 1918, R. R. Trout, Nov. 19th, 1918.

Sec. Lt. C. W. Braddy to be actg. Capt. (with pay and allces. of Lt.) while empld. as Capt., Aug. 28th, 1918.

C. G. Darwin, M.C. (Lt., R.E.) is granted a temp. commn. as Lt., with seny. from April 1st, 1918, and to be actg. Capt. while empld. as Capt., July 8th, 1918.

Lts. (A.) to be Lts. :—V. F. Long, Sept. 16th, 1918; R. G. Smith, Sept. 30th, 1918; J. Metcalfe, Oct. 8th, 1918; J. A. Stedman, Oct. 28th, 1918; L. W. Elledge, G. Rainbow, Oct. 31st, 1918; H. E. Startin, Nov. 11th, 1918; (Hon. Capt.) A. C. Chibuall, Nov. 20th, 1918; R. M. Chiswell, Nov. 25th, 1918; J. T. Denman, Nov. 26th, 1918; R. G. Smith, Dec. 3rd, 1918; C. B. Stenning, Dec. 23rd, 1918.

Lt. J. Powell to be Lt., from (K.B.), Oct. 29th, 1918.

Lts. (O.) to be Lts. :—J. D. D. Renfrew, Oct. 9th, 1918; L. H. Phelps, Oct. 29th, 1918; R. G. Green, Nov. 1st, 1918; J. F. Gibson, Nov. 20th, 1918.

The following are granted temp. commns. as Lts., with seny. from April 1st, 1918 :—R. J. Whitley (temp Lt., R. Suss. R.), May 23rd, 1918 (substituted for notification in "Gazette," June 4th, 1918); H. N. Penlington (Lt., Worc. R., T.F.), R. Northover (Capt., Lancs. Fus.), and to be Hon. Capt., June 1st, 1918; R. Kane (Qrmr. and Lt., R. Mar.), Sept. 23rd, 1918.

I. P. Muller (temp. Sec Lt., R. Fus.) is granted a temp. commn. as Sec. Lt., seny. April 1st, 1918, and to be actg. Lt. while empld. as Lt., June 1st, 1918

S. S. Vanderhook (temp. Sec. Lt., Glouc. R.) is granted a temp. commn. as Sec. Lt., July 10th, 1918, seny. April 1st, 1918.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their ranks as Sec. Lts. :—J. Whittaker, Oct. 1st, 1918; F. C. Taylor, Nov. 16th, 1918.

Sec. Lts. to be Sec. Lts., from (A.) :—G. E. Shipp, Sept. 16th, 1918; O. J. Dear, Sept. 26th, 1918; W. E. G. Heanly, Oct. 3rd, 1918; W. Molineaux, Oct. 30th, 1918; E. W. Thomson, Nov. 6th, 1918; H. M. Towlson, Nov. 29th, 1918; L. S. Harvey, Dec. 6th, 1918; T. Sykes, Dec. 7th, 1918.

Sec. Lts. to be Sec. Lts. :—MacD. Goodall, from (T.), Nov. 18th, 1918; H. B. Elbourne, from (O.), Dec. 30th, 1918.

Maj. C. A. Walker-Leigh (T.F. Res.) relinquishes his commn. on account of ill-health, Jan. 8th.

Capt. A. L. Edwards resigns his commn., Jan. 8th; Sec. Lt. (Hon. Capt.) A. Cleave relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., Jan. 8th.

Lt. (actg. Capt.) D. I. V. Gatty (R.G.A., Spec. Res.) relinquishes his commn. on account of ill-health contracted on active service, Jan. 8th.

The following Lts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank :—A. W. Coulson, C. R. Lamrock, Jan. 8th.

Sec. Lt. A. H. Ross is transferred to unempld. list, Jan. 1st.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—H. H. Brown (caused by wounds), C. J. Hellett, J. E. Lewis, S. S. Russell (contracted on active service), H. J. Selley, R. H. Storey, W. P. Strank, Jan. 8th.

Sec. Lt. J. B. Coutts resigns his commn., Jan. 8th.

The date of appt. of actg. Capt. J. D. Lyons is Sept. 7th, 1918, and not as in "Gazette," Nov. 1st, 1918.

The date of appt. of actg. Capt. R. E. Martin is June 27th, 1918, and not as in "Gazette," Nov. 29th, 1918.

TECHNICAL BRANCH.—Lt. (actg. Capt.) C. A. Doherty to be actg. Maj. whilst empld. as Maj., Oct. 30th, 1918.

The following temp. Lts. (R.N.V.R.) are granted temp. commns. as Capts. (Gr. A), Aug. 15th, 1918, and with seny. from April 1st, 1918 :—A. J. Prince-Cox, H. F. Jackson, E. W. Barlow (substituted for notification in "Gazette," Sept. 13th, 1918).

Lts. to be actg. Capts. whilst empld. as Capts. (Gr. A.) :—H. Jones, July 27th, 1918; L. F. Peaty, Nov. 1st, 1918.

Lt. C. A. Hoy, M.C., to be actg. Capt. whilst empld. as Capt. (Gr. B), Oct. 25th, 1918.

Sec. Lts. to be actg. Capts. whilst empld. as Capts. (Gr. A) :—(Hon. Capt.) A. D. Allen, B. G. Bryan, (actg. Lt.) A. N. Meier, (actg. Lt.) F. P. Williams, Nov. 1st, 1918.

Lt. C. B. D. Campbell to be Lt. (Gr. B), from (Ad.), Sept. 16th, 1918 (substituted for notification in "Gazette," Oct. 29th, 1918).

Sec. Lt. (actg. Lt.) C. W. Grey to be Sec. Lt. (Gr. A.), and to retain his actg. rank of Lt. whilst specially empld., Nov. 15th, 1918 (substituted for notification in "Gazette," Dec. 13th, 1918).

Lts. to be Lts. (Gr. B.) :—L. E. Porter, from (O.), July 15th, 1918; L. H. Chamberlain, from (K.B.), Oct. 4th, 1918; R. B. Bond, from (Ad.), Nov. 18th, 1918.

Sec. Lt (Hon. Capt.) H. M. Eldridge to be actg. Lt. while empld. as Lt. (Gr. A), Nov. 1st, 1918.

Sec. Lt. W. Renshaw to be actg. Lt. while empld. as Lt., Nov. 5th, 1918.

S. W. Bryant (Lt., S.R.E.S.) is granted a temp. commn. as Lt., Nov. 11th, 1918, with seny. from April 1st, 1918.

Sec. Lts. to be Sec. Lts. (Gr. A), from (Ad.) :—J. Calderwood, Nov. 10th, 1918; A. J. Bull, L. E. S. Barrett, Nov. 16th, 1918; J. M. England, L. A. Parker, N. R. Rice, Nov. 30th, 1918; F. H. Lake, Dec. 9th, 1918; C. White, Dec. 12th, 1918.

The following are granted temp. commns. as Sec. Lts. (Gr. A) :—J. R. Gardiner (Sec. Lt., Gen. List), H. Parker (Sec. Lt., Gen. List), May 1st, 1918.

Sec. Lts (A.) to be Sec. Lts. (Gr. B) :—C. A. Pierpoint, Sept. 16th, 1918 (substituted for notification in "Gazette," Oct. 29th, 1918); H. Marsden, Sept. 19th, 1918 (substituted for notification in "Gazette," Nov. 12th, 1918); W. Pollard, Nov. 18th, 1918.

Sec. Lts. (Ad.) to be Sec. Lts. (Gr. B) :—J. O. Miles, Sept. 16th, 1918 (substituted for notification in "Gazette," Oct. 29th, 1918); I. G. Bathwaite, Oct. 4th, 1918; H. G. Gasson, Nov. 6th, 1918; H. R. White, J. MacPherson, H. Miller, Nov. 16th, 1918, F. S. Willsie, Nov. 21st, 1918 (substituted for notification in "Gazette," Dec. 13th, 1918); A. T. Taylor, Dec. 4th, 1918.

Sec. Lt. (Hon. Lt.) (actg. Capt.) C. M. Hennell relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt., Dec. 11th, 1918 (substituted for notification in "Gazette," Dec. 10th, 1918).

Capt. (Hon. Maj.) G. De L. Wooldridge is transferred to unempld. list, Jan. 1st.

Capt. E. A. Hoghton relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 8th.

Lt. (actg. Capt.) J. Wingate resigns his commn. to resume his medical studies, and is permitted to retain the rank of Lt., Jan. 8th.

Lt. H. J. G. Dyer relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 8th.

Lt (actg. Capt.) W. T. Taylor (Capt., N. Lanc. R.) relinquishes his commn. on account of ill-health contracted on active service, Jan. 8th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—C. H. J. Evershed, H. Gray, A. Hill, J. A. Rennie, C. W. Tuck, C. D. Watt, Jan. 8th.

The surname of Sec. Lt. A. F. Johnston is as now described, and not Johnstone, as stated in "Gazette," Nov. 5th, 1918.

The notification in "Gazette," Nov. 12th, 1918, concerning Sec. Lt. P. S. Beaufort is cancelled.

The notifications in "Gazette," Dec. 24th, 1918, concerning the following Sec. Lts. are cancelled :—H. G. Hawkes, N. F. S. Hecht, J. L. Tait.

GYMNASTIC STAFF.—Capt. B. T. Metcalfe to be actg. Maj. while empld. as Maj., and to be graded for purposes of pay as S.O. 2 (1st Gr.), June 1st, 1918.

F. G. Sherriff (Capt., York and Lanc. R.) is granted a temp. commn. as Capt., seny. April 1st, 1918, and to be actg. Maj. while empld. as Supt. of Gymnasia, June 1st, 1918, and graded for purposes of pay as S.O. 2 (2nd Gr.).

Lts. (actg. Capts.) to be actg. Majs. while empld. as Area Supts. of Gymnasia :—T. Knowles, F. K. Moncur, June 1st, 1918.

MEDICAL BRANCH.—C. E. C. Stanford (Surg. Comdr., R.N.) is granted a temp commn. as Lt.-Col., Oct. 1st, 1918, seny. April 1st, 1918.

J. L. Birley (temp. Maj.) (actg. Lt.-Col.), R.A.M.C., is granted a temp. commn. as Maj., Oct. 1st, 1918, seny. April 1st, 1918.

Maj. J. L. Birley to be actg. Lt.-Col. while empld. as Lt.-Col., Oct. 1st, 1918, seny. May 28th, 1918.

The following are granted temp. commns. as Majs., Oct. 1st, 1918, seny. April 1st, 1918 :—W. W. Shorten (Capt., actg. Maj., R.A.M.C.), F. H. Stephens (Staff Surg., R.N.), A. V. J. Richardson (Staff Surg., R.N.), T. J. Kelly, M.C. (Capt., actg. Maj., R.A.M.C.), H. H. Robinson, M.C. (Capt., actg. Maj., R.A.M.C., T.F.).

The following are granted temp. commns. as Capts., and to be actg. Majs. whilst specially empld., Oct. 1st, 1918 :—M. N. Perrin (temp. Capt., actg. Maj., R.A.M.C.), with seny. from June 24th, 1918; J. H. Porter, M.C. (temp. Capt., actg. Maj., R.A.M.C.), with seny. from June 27th, 1918.

The following are granted temp. commns. as Capts., Oct. 1st, 1918, with seny. from April 1st, 1918 :—C. F. A. Hereford (Surg. Lt., R.N.V.R.), T. B. Dixon (Surg. Lt., R.N.V.R.), W. A. S. Duck (Surg. Lt., R.N.), F. B. Gilhespy (temp. Surg. Lt., R.N.), D. Ross (temp. Surg. Lt., R.N.), R. W. Meller (temp. Surg. Lt., R.N.), A. L. Dykes (temp. Surg. Lt., R.N.), d'A. Power, M.C. (Capt., R.A.M.C., Spec. Res.), J. H. Owen (Capt., R.A.M.C., Spec. Res.), A. Sutcliffe (Capt., R.A.M.C., T.F.), J. M. Wyatt (Capt., R.A.M.C., T.F.), F. A. Hampton, M.C. (temp. Capt., R.A.M.C.), L. S. Goss (temp. Surg. Lt., R.N.), N. C. Graham, M.C. (temp. Capt., R.A.M.C.), A. G. H. Smart (temp. Capt., R.A.M.C.), L. W. Shelley (temp. Capt., R.A.M.C.), C. P. Sells, M.C. (Capt., R.A.M.C., T.F.), E. W. Craig, M.C. (temp. Capt., R.A.M.C.), W. J. McKeand (temp. Capt., R.A.M.C.), A. G. H. Moore (temp. Capt., R.A.M.C.), R. B. Adams (temp. Surg. Lt., R.N.), W. S. T. Connell (temp. Capt., R.A.M.C.), J. Freeman (temp. Capt., R.A.M.C.), G. Cranstoun (temp. Capt., R.A.M.C.), W. Waugh (temp. Capt., R.A.M.C.), D. S. Stevenson (temp. Surg. Lt., R.N.), C. F. Graves (temp. Capt., R.A.M.C.), J. H. M. Sandison (temp. Surg. Lt., R.N.), B. McLean (temp. Surg. Lt., R.N.), D. H. Fraser (temp. Capt., R.A.M.C.), W. H. Cam (temp. Capt., R.A.M.C.), J. W. Keay (Capt., R.A.M.C., T.F.), A. D. Kennedy (Capt., R.A.M.C., T.F.), J. E. Lascelles (Capt., R.A.M.C., T.F.), C. H. Thompson (temp. Capt., R.A.M.C.), J. E. Dunbar (Capt., R.A.M.C., T.F.), V. T. Ellwood (Capt., R.A.M.C., T.F.), J. H. Cooke (temp. Capt., R.A.M.C.), P. H. Young (temp. Capt., R.A.M.C.), J. Chambre (temp. Capt., R.A.M.C.), T. N. Wilthew (temp. Capt., R.A.M.C.), D. A. Macpherson (Surg. Lt., R.N.V.R.), A. Leitch (Capt., R.A.M.C.). (Substituted for notification in "Gazette," Nov. 26th, 1918)

The following are granted temp. commns. as Capts., Oct. 1st, 1918 :—C. K. Attlee (temp. Capt., R.A.M.C.), with seny. from April 27th, 1918; C. W. W. James (temp. Capt., R.A.M.C.), with seny. from Aug. 15th, 1918.

W. B. Dove (temp. Capt., R.A.M.C.) is granted a temp. commn. as Capt., Oct. 1st, 1918.

G. D. M. Beaton (temp. Lt., R.A.M.C.) is granted a temp. commn. as Lt., Oct 1st, 1918, seny. April 1st, 1918.

MEDICAL (ADMINISTRATIVE).—E. Haynes, D.C.M. (Capt. and Qrmr., R.A.M.C.) is granted a temp. commn. as Capt., Oct. 1st, 1918, seny. April 1st, 1918.

DENTAL BRANCH.—The following are granted temp. commns. as Capts., Oct 1st, 1918, seny. April 1st, 1918 :—J. Barratt (temp. Capt., Gen. List, Dental Surg.), G. Dawson (temp. Dental Surg. Lt., R.N.V.R.).

L. S. Woodiwis (temp. Dental Surg. Lt., R.N.V.R.) is granted a temp. commn. as Capt., Oct. 1st, 1918, seny. April 10th, 1918.

CHAPLAINS BRANCH.—Rev. H. D. L. Viener, M.A. (Chap., R.N.), to be Chaplain-in-Chief, with the relative rank of Brig.-Gen., Oct. 11th, 1918.

MEMORANDA.—Lt.-Gen. Sir D. Henderson, K.C.B., D.S.O., is granted the hon. rank of Lt.-Gen., Jan. 1st.

G. Palmer (Capt. and Qrmr., Dev. R.) is granted a temp. commn. as Capt., June 22nd, 1918, seny. April 1st, 1918.

L. A. W. Merchant is granted the hon. rank of Capt., Oct. 25th, 1918.

Sec. Lt. S. G. Lewis to be Hon. Lt.

Sec. Lt. D. G. Fraser to take rank and prec. as if his appt. as Sec. Lt. bore date Oct. 3rd, 1918.

Hon. Capt. W. E. Guttentag relinquishes his commn. on ceasing to be empld., and is permitted to retain the rank of Hon. Lt., Dec. 12th, 1918.

The following Capts. are transferred to the unempld. list :—(Actg. Maj.) S. R. Axford, A. J. Dawson, from (S.O.), W. J. Salaman, from (S.O.), Jan. 1st.

WAR OFFICE, Jan. 8th.

REGULAR FORCES. — ESTABLISHMENTS. — R.F.C.—MIL. WING.—SCHOOLS OF INSTN.—SCHOOLS OF MIL. AERONAUTICS.—Asst. Instr.—(Graded as an Equipt. Officer, 2nd Cl.)—Temp. Lt. A. D. Broughton, Gen. List, relinquishes his appt. on reposting as a Flying Officer, Oct 5th, 1917.

CENTRAL CHANCERY OF THE ORDERS OF KNIGHTHOOD.

ST. JAMES'S PALACE, S.W.1, Jan. 8th.

The King has been graciously pleased to give orders for the following promotions in, and appointments to, the Most Excellent Order of the British Empire for services in connection with the war :—

To be Knight Commander of the Civil Division of the said Most Excellent Order.

CECIL LINDSAY BUDD, Esq., C.B.E.
Member of Non-ferrous Materials Department, Ministry of Muni-

tions; Chairman of the Copper Committee, and British Representative on the Inter-Allied Non-Ferrous Materials Committee.

To be Dame Commander of the said Most Excellent Order.

HENRIETTA CAROLINE, Lady HENDERSON.

To be Commanders of the Civil Division of the said Most Excellent Order.

Maj. JOHN LAWRENCE BENTHALL, T.D.
Director, Messrs. Vickers, Ltd.

KATHLEEN, Countess of DROGHEDA.

DUDLEY SINCLAIR MARJORIBANKS, Esq.
Local Director, Messrs. Sir W. G. Armstrong, Whitworth, and Co., Ltd.; Vice-Chairman, Engineering Employers Advisory Committee.

Lt.-Comdr. HENRY EDWARD CLARENCE PAGET, O.B.E., R.N.V.R.
Head of the Observation Service, Metropolitan Special Constabulary.

JAMES STIRLING ROSS, Esq
Deputy Assistant Financial Secretary, Air Ministry.

Maj. ROBERT HOBART MAYO.
Section Director, Aircraft Technical Department, Ministry of Munitions.

To be Members of the Civil Division of the said Most Excellent Order.

ARTHUR JOSEPH ALLNUTT, Esq.
Surveyor, Department of the Administrator of Works and Buildings, Air Ministry.

CHARLES HENRY ANDREWS, Esq.
Civil Engineer, Department of the Administrator of Works and Buildings, Air Ministry.

EDITH HELEN, Lady BARNES.
Royal Air Force Aid Committee.

HARRY PERCY BAXTER, Esq.
Steelworks Manager, Messrs. Edgar Allen and Co., Ltd

JOHN HENRY HEATH, Esq.
Staff Clerk, Finance Department, Air Ministry.

Capt. HERBERT MEDCALF.
Works Engineer, Royal Aircraft Establishment, Ministry of Munitions.

Maj. FREDERICK ERNEST POLLARD.
Sub-Section Director, Technical Department, Aircraft Production, Ministry of Munitions.

Miss ETHEL BLANCHE ROLFE.
Production Officer, Aircraft Supply Department, Ministry of Munitions.

LEWIS WILLIAM SMITH, Esq.
Chief Foreman, Howitzer Shop, Messrs. William Beardmore and Co., Ltd.

NOEL WILLIAM KELLAND ISBISTER SMITH, Esq.
Assistant Private Secretary to the Secretary of State for Air.

WILLIAM LEES STENNING, Esq., J.P.
Works Officer, Timber Supplies Department.

Capt. GEORGE SYKES, R.A.F.
Purchasing Department, British War Mission in U.S.A.

Capt. DAVID THOMSON.
Aeronautical Timber Supplies, British War Mission in U.S.A.

Capt. CHRISTOPHER WILLIAM WHEATLEY.
Late Chief Assistant Director of Aeronautical Supplies, British War Mission in U.S.A.

ALBERT GEORGE WILLIAMS, Esq.
Principal Observer, Optics Division, National Physical Laboratory.

AIR MINISTRY, Jan. 10th.

R.A.F.—The following temp. appts. are made:—Col. (Staff).—Lt.-Col. (actg. Col.) A. C. H. MacLean, and to retain his actg. rank while so empld., Aug. 1st 1918, to Dec. 6th, 1918.

Staff Officers, 2nd Cl. (Higher Grade).—And to be actg. Majs. while so empld., if not already holding that rank:—(P.).—Lt. (actg. Capt.) L. Tunks, Aug. 24th, 1918; Maj. D. Illingworth, Dec. 13th, 1918; Maj. A. P. Pargiter, M.C., Dec. 24th, 1918; Capt. (actg. Maj.) E. H. C. Bald, M.C., Jan. 3rd. (Q.)—Capt. G. H. L. Sweet, Capt. P. J. Wise, Aug. 24th, 1918.

Staff Officers, 3rd Cl.—And to be actg. Capts. while so empld.:—(Air.—G. R. Westmacott, D.S.O. (Lt., G. Gds.), and is granted a temp. commn as Lt., July 11th, 1918, to Dec. 14th, 1918; Lt. C. B. Godfrey, Aug. 24th, 1918. (P.)—Sec. Lt. (Hon. Lt.) E. F. Colman, Aug. 24th, 1918. (T.)—Lt. A. Graham, Aug. 24th, 1918.

FLYING BRANCH.—Lt.-Col. C. R. J. Randall to be actg. Col. whilst empld. as Col. (A.), Oct. 24th, 1918.

Lts. to be Lts. (A.) from (O.):—(Hon. Capt.) C. M. Manson, Oct. 16th, 1918; C. F. Straughan, Oct. 25th, 1918; R. C. Mitchell, L. A. G. Dalziel, Oct. 28th, 1918.

Lt. C. Unbeham to be Lt. (O.), from (A.), Sept. 25th, 1918.

Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their ranks as Sec. Lts. (A.):—W. N. A. Roberts, June 11th, 1918; R. D. Clerk, June 12th, 1918; R. H. Craig, J. H. M. Woods, Sept. 25th, 1918.

The following are granted temp commns as Sec Lts. (A.):—F. H. Humphrys (Maj., Ind Pol. Ser.), and to be Hon. Maj., April 1st, 1918; E. M. Matthews, July 16th, 1918.

H. B. C. Nicholls (Lt., E. Surr R., T.F.), and to be Hon. Lt., Oct. 23rd, 1918; A. F. Moyles (temp. Lt., Norfun R.), and to be Hon. Lt.; S. A. Packman (Lt., R.A.F.), and to be Hon. Lt., Oct. 25th, 1918; K. Wiggins (Sec. Lt., Hamps R., Spec. Res., attd. S.W. Bord. R.), Oct. 27th, 1918; C. E. Bowden (Capt., D. of Corn. L.I., T.F.), and to be Hon. Capt., Oct. 26th, 1918; E. F. Briggs (temp. Sec. Lt., R.F.A.), Oct. 30th, 1918.

Sec. Lt. V. H. Neuson (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Obsr. Officer), Aug. 10th, 1918.

Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts. (Obsr. Officers) (substituted for notification on page 14708 of "Gazette," Dec. 13th, 1918.) F. B. Cox, C. Thomas, July 14th, 1918.

The following are granted temp. commns. as Sec. Lt. (Obsr. Officers):—W. Willmer (Lt., R. Scots, T.F.) and to be Hon. Lt.; R. M. C. Vaughan (Lt., R. Dub. Fus., Spec Res.), and to be Hon. Lt., Sept. 25th, 1918; H. Mercer, M.C. (temp. Sec. Lt., Devon. R.); N. Greenslade, M.C. (temp. Capt., Devon. R.), and to be Hon. Capt., Oct. 18th, 1918; C. H. Harwood (temp. Sec. Lt., Notts. and Derby, R.), Oct. 19th, 1918.

The following Flt. Cadets are granted temp commns. as Sec. Lts. (Obsr. Officers). (Substituted for notification in the "Gazette" of Dec. 10th, 1918):—177447 T. E. Williams, 47978 C. C. Rollason, 177725 G. J. Sansum, 29678 J. Mitchinson, Nov. 13th, 1918; 177403 S. W. Cobb, 178724 P. Rockley, 179083 W. M. Smith, 177310 H. H. Southern, 177572 A. H. Stent, Nov. 18th, 1918; 271036 R. W. Charlton, 177273 R. Harris, Nov. 21st, 1918.

The following are transferred to unempld list:—Sec. Lt. A. W. G. Luke, Sec Lt. J. R. Woods, Dec. 29th, 1918; Lt. E. W. Harber, Dec. 30th, 1918; Lt. S. A. Odell, Jan. 1st; Lt. (Hon. Capt.) O. C. W. Johnson (Capt., R.F.A.), Lt. G. F. Webb, Jan. 2nd.

Capt. (actg. Maj.) J. Forgan-Potts relinquishes his commn. on account of ill-health contracted on active service, and retains the rank of Maj., Jan. 11th.

Lt. (actg. Capt.) G. A. Harrison relinquishes his commn. on account of ill-health contracted on active service, and retains the rank of Capt., Jan. 11th.

Lt. (actg. Capt.) H. Briggs, D.F.C., relinquishes his commn. on ceasing to be empld., and retains the rank of Lt., Jan. 11th.

Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—W. F. Hiam (contracted on active service), T. J. Knight, J. C. O. Nelson (contracted on active service), B. G. Nicholson, P. F. Paton (contracted on active service), G. E. Reffell (contracted on active service), A. Slack, W. C. Tadgell (contracted on active service), E. E. Wallace (contracted on active service, Jan. 11th.

Lt. L. D. Hammond (High. L.I., T.F.) relinquishes his commn. on account of ill-health contracted on active service, Jan. 11th.

Lt. G. W. Lecomber (Lt., R.W. Fus.) relinquishes his commn. on account of ill-health, Jan. 11th.

Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—E. Barrett, F. Binns, H. J. Boyle, R. G. Hamilton, J. Levy, H. A. Lye, J. T. Potts (contracted on active service), Jan. 11th.

Sec. Lt. R. M. Herbert relinquishes his commn. on ceasing to be empld. and retains his rank, Jan. 11th.

Sec. Lt. S. J. Griffin relinquishes his commn., and retains his rank, Jan. 11th.

Sec. Lt. E. B. Flanagan resigns his commn., Jan. 11th

The following Officers are antedated in their appts. as Sec. Lts.:—(A. and S.), with effect from the dates stated:—B. W. Hopkins, April 26th, 1918; N. E. Lashbrook, May 10th, 1918.

The following Officers are antedated in their appts. as (Obsr. Officers), with effect from the dates stated:—H. Rapier, May 15th, 1918; F. L. Wolf, June 6th, 1918.

The surname of Flt. Cadet D. B. Halley is as now described and not as stated in "Gazette," July 19th, 1918.

The Christian names of Flt. Cadet John Purvis Gibb are as now described, and not as stated in "Gazette," Nov. 22nd, 1918.

The surname of Flt. Cadet W. H. Stiles is as now described, and not as stated in "Gazette," Dec. 6th, 1918.

The notification in "Gazette," Oct. 15th, 1918, concerning Flt. Cadet R. S. Nicholl is cancelled.

The notification in "Gazette," Nov. 12th, 1918, concerning Flt. Cadet W. Leslie is cancelled.

ADMINISTRATIVE BRANCH.—H. W. Stratton (Capt. and Qrmr.) (Unatt. List) is granted a temp. commn. as Capt., (Oct. 21st, 1918, seny. April 1st, 1918), and to be actg. Lt.-Col. whilst empld. as Lt.-Col., Oct 31st, 1918.

Capt. J. S. Shaw to be Capt., from (A.), Nov. 26th, 1918.

The following are granted temp. commns. as Capts., seny. April 1st, 1918:—J. E. Harrison (Capt., Drag. Gds., Spec. Res.), June 1st, 1918; G. S. Kilby (Capt., Lond. R., T.F.), Sept. 14th, 1918) (substituted for notification in "Gazette," Nov. 19th, 1918.).

Lt. J. M. J. C. J. I. Rock to be actg. Capt. whilst empld. as Capt., Oct. 23rd, 1918.

Lt. (actg. Capt.) W. A. C. Ricketts to be Lt., from (S.O.), and relinquishes the actg. rank of Capt., Nov. 25th, 1918

Lts. (A.) to be Lts.:—J. M. J. C. J. I. Rock, June 26th, 1918; F. R. B. Williams, Oct. 1st, 1918; W. T. Jourdan, Oct. 22nd, 1918; R. E. Coppinger, Nov. 1st, 1918; N. M. Smith, Nov. 4th, 1918; St. G. C. Payzant, Nov. 5th, 1918; R. O. Phillips, Nov. 8th, 1918; J. B. Fitzgerald, D. McAlary, Nov. 14th, 1918; E. J. Stedman, Nov. 19th, 1918; V. W. Hatton, Dec. 2nd 1918.

Lts. (O.) to be Lts.:—H. T. Allman, Oct 23rd, 1918; W. H. Steele Oct. 30th, 1918; S. H. Short, Nov. 1st, 1918; H. G. L. Fletcher, Nov. 16th, 1918.

Lts. to be Lts.:—S. H. Atherley, from (A. and S.), Nov. 23rd, 1918; E. M. Smith, from (S.O.), Nov. 26th, 1918

Sec. Lt. (Hon. Lt.) R. W. Banks to be actg. Lt. while spec. empld. Sept. 16th, 1918.

The following are transferred to unempld list:—Lt. B. C. Scott, Dec. 21st, 1918; Capt. C. J. Pike, Dec 25th, 1918; Capt. L. W. David, Dec. 27th, 1918; Lt. (actg. Capt.) H. A. T. Trier, Jan. 1st; Maj. G. C. Tosswell (Capt. R.D.C., T.F.), Jan. 2nd; Lt. H. Spurr (London R., T.F.), Jan. 3rd; Lt. Hon. M. Greville, Jan. 6th, and retains the rank of Lt.; Sec Lt H. Friend, Jan. 11th.

The following Lts. relinquish their commns. on account of ill-health:—L. S. Hiscott (temp. Lt., R.G.A.); C. H. Lawrence (Sec. Lt., York and Lanc. R.); J. R. Maloney (Lt., Dev. R.) (caused through wounds), Jan. 11th.

Sec. Lt. H. H. Webb resigns his commn. to resume medical studies, Dec. 26th, 1918.

Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—E. H. Everitt (contracted on active service), T. S. Hill, K. D. Kayler, S. Wilson, Jan. 11th.

The surname of Maj. (actg. Lt.-Col.) E. C. Mulgrue is as now described, and not as stated on page 14822 of the "Gazette," Dec. 17th, 1918.

The notification on page 12620 of the "Gazette," Oct. 25th, 1918, concerning Lt. (Hon. Capt.) G. Prater is cancelled.

The notification on page 15052 of the "Gazette," Dec 24th, 1918, concerning Lt. G. G. Bittles is cancelled

TECHNICAL BRANCH.—Lt. (Hon Capt.) R. Godfrey to be Lt., from (A.), April 1st, 1918 (substituted for notification in the "Gazette," Dec. 17th 1918.

Lts. to be Lts. (Gr. A):—C. E. Channing, from (Ad.), Nov. 4th, 1918; L. E. Vine, from (A.), Dec. 31st, 1918.

Sec. Lts. (actg. Lts.) retain the actg. rank of Lt. whilst empld. as Lt. Gr. A.):—J. Mytton, from (Ad.), Dec. 18th, 1918; B. S. Higgs, from (Gr. B.), Dec. 24th, 1918

W. B. L. Easton (Lt., Roy. Sco.) is granted a temp. commn. as Lt. (Gr. B), Oct. 7th, 1918.

The following are transferred to unempld list:—Sec. Lt. A. C. Middlemas, Dec. 21st, 1918; Lt. A. S. Hordern, Jan. 1st.

Lt. P. Hardy relinquishes his commn. on account of ill-health, and retains his rank, Jan. 11th.

Sec. Lt. E. Noble relinquishes his commn. on account of ill-health, and retains his rank, Jan. 11th.

CHAPLAINS BRANCH.—E. C. Storr (temp. Chaplain to the Forces, 4th Cl., A.C.D.) is granted a temp. commn. as Chaplain, with the relative rank of Capt., Dec. 23rd, 1918

MEMORANDA.—Lt. actg. Capt.) W. E. Phillips is granted the local rank of Maj. (without pay and allowances of that rank) whilst specially empld., Dec. 23rd, 1918.

The following are transferred to unempld. list:—Sec. Lt. T. A. Cousins (R.F.A. Spec. Res.), Dec. 20th, 1918, Capt. (actg. Maj.) A. S. Barnfield, from S. O., Dec. 23rd, 1918; Sec. Lt. R. Davis, and retains his rank; Lt. (actg. Capt.) F. W. Memory, from S.O.; Lt. (actg. Capt.) G. S. Steel, from S.O.; Sec. Lt. (actg. Lt.) P. D. Stonham, Jan. 1st.

WAR OFFICE, Jan. 11th.

His Majesty the King has been graciously pleased to approve of the following awards to the undermentioned Officers in recognition of their gallantry and devotion to duty in the Field:—

A BAR TO THE MILITARY CROSS.

Lt. ADRIAN HORATIUS ERSKINE LINDOP, M.C., I.A.R.O., attd. 37th Dogras, now attd. R.A.F. (Mesopotamia.)

For conspicuous gallantry and devotion to duty. He forded a river, passed through the enemy picquet line, and brought back most valuable information. On a previous occasion he reconnoitred the sluice at the head of the river, although fired on continuously. (M.C. gazetted Aug. 25th, 1917.)

THE MILITARY CROSS.

Capt. JAMES EVERIDGE, Surrey Yeo. and R.A.F. (Mesopotamia.)

For conspicuous gallantry and devotion to duty. He performed bold and daring work on reconnaissance, artillery co-operation and contact patrol, and also carried out many successful bombing raids by day and night. He rendered excellent service.

Temp. Lt. ROBERT BRUDENELL BRUCE SIEVIER, R.F.A. and R.A.F. (Mesopotamia.)

For conspicuous gallantry and devotion to duty. He carried out particularly difficult artillery co-operation with great success, displaying skill and coolness. On one occasion, when flying at night, after having landed behind the enemy's lines in flames, he got back 24 miles into his own lines, carrying a Lewis gun.

Lt. ALFRED ERNEST LIONEL SKINNER, Norfolk Yeo. and R.A.F. (Mesopotamia.)

For conspicuous gallantry and devotion to duty. He carried out many long distance reconnaissances alone, bringing back most valuable information. He fought many battles in the air, and succeeded in bringing down an enemy machine behind our lines. He did fine work.

Capt. LEWIS WILSON SHELLY, R.A.M.C., attd. No 1 Aeroplane Supp. Depot, R.A.F.

For conspicuous gallantry and devotion to duty. When this depot was heavily bombed in a night air raid he organised a dressing station at the Repair Park, attending the wounded in the open. Several bombs fell close to him, wounding those around him, but he stuck to his work and saved the lives of many by his coolness and courage.

CANADIAN FORCE.

Lt. JOHN OLIVER ALLISON, W. Ontario R., secd. to R.A.F. (Mesopotamia.)

For conspicuous gallantry and devotion to duty. Often he descended to within a few hundred feet of the ground and, regardless of danger, bombed and machine-gunned the enemy. On one occasion he carried out four bombing raids in one day at low altitudes.

ADMIRALTY APPOINTMENTS AND PROMOTIONS.

JAN. 9th.—Gunner.—C. P. Bennett, to "Furious."

JAN. 10th.—Lts.—R. C. M. Pink (Maj., temp Lt.-Col., R.A.F.), R. J. Bone, D.S.O. (Major, R.A.F.), J.W. O. Dalgleish (Maj., temp. Lt.-Col., R.A.F.), to rank of Lt.- Comdr., seny. Dec. 31st.

JAN. 11th.—R.N.R.—Mid. (tempy.).—J. H Lobley, to "Argus," Jan. 10th.

JAN. 13th.—Women's Royal Naval Service.— Assist. Prin.—Miss E. A. Abbott, to No. 18 Group, Harborough, R.A.F., Dec. 20th.

THE CASUALTY LIST.

MILITARY.

Reported Jan. 8th.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Alder, Lt. S., Sher. For. and R.F.C.; Baerlein, Sec. Lt. R., R.F.A. and R.F.C.; Baynton, Lt. G. R., R.F.C.; Clark, Sec. Lt. W. B., Yeo., attd. R.F.C.; Cook, Capt. C. W., R.F.C.; Cross, Lt. R. W., R.F.C.; Deason, Lt. T. G., Yeo., attd. R.F.C.; Fraser, Lt. A., R.F.C.; Griffith, Lt. J. C., R.F.C.; Hills, Sec. Lt. F. E., R.G.A., attd. R.F.C.; Hills, Sec. Lt. W. B., Hamps. R., attd. R.F.C.; Kaizer, Lt. M. M., R.F.C.; Kingsland, Lt. W. R., R.F.C.; Macgregor, Lt. R. R., R. Scots and R.F.C.; Mallous, Lt. C. G., R.F.C.; Miles, Sec. Lt. A. A., R.F.C.; Molloy, Lt. T. P. L., Dorset R. and R.F.C; Moody, Sec. Lt. B. C., Lond. R., attd. R.F.C.; Parkes, Lt. G. A. H., R.F.C.; Robertson, Lt. G. P., R.F.C.; Rothery, Lt. H., R.F.C.; Sharpe, Capt. T. S., D.F.C., Glouc. R., attd. R.F.C.; Shum, Lt. C. A. R., R.F.C.; Taylor, Lt. A., R.F.C.; Thornton, Lt. C. P., R.F.C.; Uniacke, Lt. D. P. FitzG., R. Ir. Rif. and R.F.C.; White, Lt. T. W., R.F.C.

Reported Jan. 9th.

CANADIAN FORCES.—PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Boger, Lt. W. O., Can. Cav., attd. R.A.F.

Foord, Lt E. A., Man. Regt., attd. R.A.F.

PREVIOUSLY MISSING, NOW REPORTED BY THE GERMAN GOVERNMENT KILLED OR DIED OF WOUNDS.—Goodale, Lt W. H., Sask. Regt., attd. R.A.F.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Grosset, Lt. W. E., High. Cyc. Bn., attd R.A.F.

CANADIAN FORCES.—French, Lt. C. E., E. Ont. R., attd. R.A.F.; Godard, Lt. J. S., Can. Eng., attd. R.A.F.; Kantel, Lt. F. W., Can. F. A., attd. R.A.F.; Scott, Lt. W. A., Can. For Corps attd. R.A.F.

Reported Jan. 10th.

The following officers, who were prisoners of war in Germany, have been released and have arrived in England:—

Newenham, Lt. G. A., R.F.C.; Tidmarsh, Capt. D. M., M.C., R.F.C.

The following officers, who were prisoners of war in Germany, have been released, and have been retained in Denmark:—

Clark, Lt A. L., R.F.C., Gray, Lt W. J., R.F.C.; Turner, Lt. K. K., R.F.C.; Watts, Lt. R., R.F.C.

Reported Jan. 11th.

AUSTRALIAN FORCE.—DIED.—Mills, Lt. F. C. M., F.C.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Kirkham, Lt. F. J., R.F.A., attd. R.F.C.

AUSTRALIAN FORCE.—Couston, Lt. A., F.C.; Kilsby, Sec. Lt. M. J., F.C.; Nelson, Lt. R. C., F.C.; Ward, Lt. L. N., F.C.

Reported Jan. 14th.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Davies, Sec. Lt. J. E., Lond. R., attd. R.F.C.; Johnston, Capt. J. E., Ches. R., attd. R.F.C.; Thompson, Lt. C. D., H.A.C., attd. R.F.C.

AUSTRALIAN FORCE.—Rackett, Lt. A. R., F.C.; Taplin, Lt. L. T. E., F.C.

The following soldier, who was a prisoner of war in Germany, has been released, and has arrived in England:—

JAN. 3rd.—R.F.C.—Robinson 10387 2nd Cl. Air Mech. T. N. V. (Longton)

The following soldier, who was a prisoner of war in Turkey, has been released, and has arrived in England:—

JAN. 2nd.—R.F.C.—Campbell 445 Flt. Serjt. H., D.C.M. (Sherborne).

AIR FORCE.

Reported Jan. 9th.

KILLED.—McGuire, Sec. Lt. T. F.

DIED.—Mackenzie, Lt. E. C.

Pineo, Lt H. McD.

REPATRIATED.—Adams, Lt. A. T.; Allan, Lt. A. M.; Allen, Sec. Lt. J. M.; Ball, Lt. A. C.; Beaumont, Lt F.; Biddington, Lt. H. V.; Birch, Lt. D. C.; Bird, Lt. A. F.; Bird, Lt. C. B., M.C.; Boote, Lt. R. S. L.; Boumphrey, Lt. J. W.; Boyce, Lt. H. B. P.; Braithwaite, Lt. B. F.; Burry, Lt. H. W.; Caldecott, Lt. R.; Carr, Lt. J. H. T.; Cartledge, Lt. R. A.; Chubb, Lt. J. A.; Clark, Capt. C. C.; Clark, Lt. J. G.; Cocking, Lt. L. G.; Coghill, Lt. W. H.; Copeland, Capt. A. H. M.; Cowan, Lt. A. R.; Davidson, Capt. T.; Dougall, Lt. H. F.; di Balme, Count, Lt. L. T. B.; Dodds, Lt. A.; Elworthy, Lt. L. M.; Dunn, Sec. Lt. M. W.; Gage, Sec. Lt. C. R.; Grout, Lt. E. J.; McCallum, Capt. A. H.; Miller, Lt. A. W.; O'Lieff, Lt. P. H.; Patrick, Capt. W. D.; Quilter, Lt. E. G. S.; Rudman, Lt. W., M.C.; Rogers, Lt. F. I.; Salmond, Capt. H. G.; Smith, Lt. N. A.; Strange, Lt. M. H.; Walker, Lt. R. D.; Wallace, Sec. Lt. P. M.; Webster, Sec. Lt. T. M.; Wilmott, Capt. E. P., M.C.; Willcox, Lt. W. T.; Whitworth, Lt. H.; Youens, Lt. H. St. J. E.

Reported Jan. 10th.

REPATRIATED.—Angus, Sec. Lt. K. R., Archibald, Sec. Lt. L. M., Armstrong, Sec. Lt. R. H., Arnold, Sec. Lt. J., Blake, Lt. A. G. S., Bryan, Lt F. F. H., Burbury, Lt. A. V., M.C., Burrill, Lt. T. F., Carter, Maj. A. D., D.S.O., Clarke, Lt. C. H., Craig, Lt. F. C., Crane, Lt. C. G., Crawford, Lt. O. G. S., Crickmore, Lt. E. B., Dean, Lt. A. C., Farrand, Lt. E. S., Gilbert, Lt. F. C., Glasspoole, Lt. G. H., Goodbehere, Lt. P., Griffiths, Lt. F. W., Holman, Lt. L., Hopewell, Lt. D. C., Hopkins, Lt. G. M., Illingworth, Lt. F. W., Jackson, Lt. G. G., Jones, Lt. A. R., Kane, Lt M. H. K., M.C., Kemp, Lt. F., Knight, Lt. N. L., Knowles, Capt. M. B., Laurie, Sec. Lt. K. S., Lees, Capt. A., Lines, Sec. Lt. T. H., McGown, Lt. J. C., McGrath, Lt. W. S., Mackay, Lt. W. B., McKeown, Lt. C. J. W., McRae, Lt. J. P., Mallett, Lt. H. P., Malloch, Lt. A. C., Mardock, Capt. P. W., Matson, Lt A. W., Melvin, Lt. D. L., Milani, Lt. R. S., Muir, Sec. Lt. A., Parkinson, Lt. J. A., Peile, Sec. Lt. A. H., Pewell, Maj. F. J., M.C., Pretty, Sec. Lt. H. J., Read, Lt. L., Reid, Lt. J. E., Risk, Sec. Lt. J. B., Robinson, Lt. J. C., Ryall, Lt. A. G., Scarborough, Lt. F., Scholtz, Lt. E., Sibley, Capt. S. J., Steeves, Lt. C. T., Sturgess, Lt. T. M., Styles, Sec. Lt. W. B., Tasker, Lt. W. T. B., Telfer, Sec. Lt. H. C., Thompson, Lt. A., Thornton, Sec. Lt. W. R., Townsend, Lt. H. E., Warburton, Sec. Lt. E. D., Ward, Sec. Lt. A. A., Wilkins, Capt. H. O. D., Willis, Lt. N. D., Wookey, Lt H. C., Yates, Lt. R. A., Yeomans, Sec. Lt. F. L.

Reported Jan. 11th.

REPATRIATED.—Arthur, Lt. T. J., Beattie, Lt. A. G., Boyd, Lt. J., Cameron, Sec. Lt. I. D., Caunt, Lt. H. V., Cassels, Sec. Lt. H. K., Clark, Lt. F. S., Crole, Capt. G. B., M.C., Crosbee, Lt. C. H., De Selincourt, Capt A., Diamond, Lt. W. E. de B., Ellerbeck, Lt. E. A. V., Elliott, Lt. G. L., Fluke, Lt. W.G., Hanna, Lt. A. S., Hicks, Lt. G. E., Hill, Sec. Lt. A. B., Holcroft, Lt. A. B., Huggard, Lt. J. C., Insoll, Lt. F. N., Jeffs, Lt. C. H., Kent, Sec. Lt. T. J., Kantel, Lt. F. W., Kert, Lt. L., Lee, Lt. E. B., Lewis, Lt M., Lewis, Sec. Lt. H. M., Linnell, Lt. H. G. B., Luxmoore, Capt. F. L., McKissock, Lt. C. W., Middleton, Lt. A. H., Miller, Lt. D., Ogden, Lt. C. E., Palmer, Lt. A. W., Pope, Capt. E. E., Prier, Lt. W. J., Ringer, Lt. E. C. S., Scadding, Lt. E., Shaw, Lt. J. W., Smith, Lt. B., Manners-Smith, Lt. J. A., Stewart, Lt. J. D. M. Tatnall, Sec. Lt. E. W., Taylor, Lt R. C., Taylar, Lt. W. H., Taylor, Lt. L. G., Thompson, Lt. S., Topliss, Lt. R. H., van Baerle, L. P. E. H., van Tilburg, Lt. J. A., Warren, Lt. A. P., Wells, Sec. Lt. S. R., Wells, Lt. N. B., Wensley, Lt. J. H., Wilford, Lt. J. R., Williams, Sec. Lt. L. J., Wills, Lt. S. T., Windle, Lt. B. C. W.

Reported Jan. 13th.

REPATRIATED.—Adams, Capt. R. G. H., Baker, Lt. R. P., Birks, Lt. N. A., Blake, Sec. Lt. H. P., Bryuone, Lt J., Campbell, Lt. K. D., Casey, Lt. P. J., Colledge, Lt. G., Coutts, Lt. R. W., Cowan, Lt. R. H., Cross, Lt. R. W., Davies, Lt. H. E., Davis, Capt. G., Dodson, Lt. L., Dogherty, Lt. F. W., Doyle, Lt. D. C., Drew-Brook, Lt. T. G., Edwards, Sec. Lt E. L., English, Lt W., Fitz-Gibbon, Lt. C. J., Fraser, Lt. A., Galer, Lt. H. E., Gold, Sec. Lt. D. G., Goode, Lt R. J. E. P., Greenslade, Lt. R. S., Greig, Capt. O., Grierson, Lt. C. D., Hall, Lt. W. E., Harker, Lt. G. T., Hewitt, Lt. H. A., Holmes, Lt. C. W. D., Howes, Lt W. H., Ivamy, Lt. W. G., Kemp, Lt. N. H., Kendall, Lt. S., Law, Lt. J. R., Lefevre, Lt. F. E., M.C., Manley, Lt. G. A. C., Martin, Lt. D. A., Metson, Lt G. F., McMillan, Lt. R. E., Minifie, Capt. R. P., Nixon, Lt. L. G., Park, Sec. Lt. S. M., Pepper, Lt. A. C., Phelan, Lt. R. S., Ross, Lt. W., Rush, Sec Lt. A. W., Sen, Sec. Lt. E. S. C., Skinner, Lt. A. H., Skinner, Lt W. R. K., Smith, Lt. R. N., Thomas, Lt. G. P. F., Turner, Lt. G. F., Vaughan, Lt. D., Walker, Lt. W. R., Waters, Lt. C. B., Waters, Lt. H. E., Weaver, Capt. J., White, Lt. H. W., Williams, Capt. S. W., Wilson, Sec. Lt. T. S., Wynne, Lt. A. F.

Reported Jan. 14th.

REPATRIATED.—Adamson, Lt. C. P., Anderson, Lt. D. S., Askin, Lt. S. C. J., Beldam, Lt. C. H., Belliveau, Lt. A. H., Booth, Capt. H. H., Bowers, Lt. P. T., Bowring, Lt J. V., Boys, Sec. Lt. R. H. G., Brown, Lt. H. M., Burton, Lt. E., Carter, Lt. R. N., Castle, Lt. A. F., Chainey, Lt. F. H., Chalklin, Sec. Lt. W. J. N., Challis, Sec. Lt. M. E., Clutterbusk, Lt. L. C. F., Coleman, Lt. C. B.,

Coombes, Lt. V. C., Crammond, Lt. G. R., Cudmore, Lt. E. O., Cullen, Lt. W. D., Cutbill, Lt. E. H., Dawes, Lt. A. F., Dean, Lt. H., Duke, Lt. R. E., Durkin, Lt. F. V., Fenton, Lt. C. B., Garratt, Lt. J. C., Garrett, Lt. B. N., Hall, Sec. Lt. W. E., Hedley, Capt. J. H., Henry, Lt. F. R., Hills, Sec. Lt. J., Hopgood, Lt. F. J., Hunt, Lt. K. F., Isbell, Lt. A. T., Killick, Sec. Lt. C. H. P., Kirkman, Capt. K. R., M.C., Knowlden, Lt. W. E., Laurence, Cpt. C., Leggatt, Lt. C. W., Lewis, Lt. A., Lowson, Lt. J. H., Mahony, Lt. M. F. J. R., Mase, Lt. H. F., Mayne, Lt. R. A., Molloy, Lt. T. P. L., Papworth, Sec. Lt. A. S., Patey, Capt. H. A., Roberts, Lt. H. J. W., Rose, Sec. Lt. D., Rose, Sec. Lt. R. H., Sutcliffe, Lt. J. E. T., Swayze, Lt. W. K., Thatcher, Sec. Lt. A. R.

Reported Jan. 15th.

REPATRIATED.—Anderson, Lt. A., Andrews, Lt. G., Briggs, Lt. S. P., Burnard, Lt. R. A., Cairnes, Lt. D. S., Chance, Lt. W. H. S., Cole, Lt. K. R., Crisp, Lt. A. R., Cushing, Lt. D., Davies, Lt. C. W., Dingley, Lt. R. L., Dunn, Sec. Lt. R. H., Dunster, Lt. C. H., Easom, Lt. A. T., Elphinston, Lt. C., Falkenberg, Lt. G. D., Faraday, Lt. M. S., Fenwick, Lt. T. B., Ferguson, Lt. J. A. A., Gray, Sec. Lt. G. M., Haight, Lt. J. L., Hallam, Lt. H. A., Harris, Lt. H., Haseler, Lt. G. F., Helder, Lt. L. B., Hewson, Sec. Lt. F. A. A., Hills, Lt. F. E., Hodge, Lt. G. G., Inman, Lt. H., Jay, Lt. T. M., Johns, Lt. T. M., Jones, Lt. W. H., Keller, Capt. C. F., Kennedy, Sec. Lt. C. J., Loyd, Lt. E. E. F., McConnell-Wood, Lt. A., Mann, Lt. F. A., Mathew, Lt. C. G., Middlebrook, Lt. N., Money, Lt. R. R., Newman, Lt. C. D. Nicholson, Lt. G. H., Nightingale, Capt. A. J. Organ, Lt. D. F., Palmer, Sec. Lt. G. H. Pinkerton, Lt. A. L., Redpath, Lt. H. S., Reynell, Lt. A. W., Roberts, Lt. C. L., Sams, Lt. F. D. H., Smith, Lt. E. A. L. F., Smith, Lt. J. S., Smith, Lt. V., Spearpoint, Lt. H. G., Stephens, Lt. C. H., Sutcliffe, Lt. C. A., Wadden, Lt. G., Watson, Lt. M. J., Wigley, Lt. L., Wilson, Capt. R. E., Woodland, Lt. P. M.

CASUALTIES AMONG AIRMEN OF THE R.A.F. THE DATES ARE THOSE OF THE OFFICIAL LIST.

DIED.

JAN. 9th.—Aldridge 126605 2nd Air Mech. F. (Fawley); Banfield 13652 1st Air Mech. H. (Hammersmith); Foskett 145484 3rd Air Mech. W. G. (London, S.E.); Hooper 119519 2nd Pte. A. (Cheltenham); Jakes 43679 2nd Air Mech. L. F. (Crawley); Kightly 127770 2nd Pte. W. G. (London, S.W.); Parry 219055 Flt.-Clk. J. (Holyhead); Russell 402364 2nd Air Mech. T. (Carluke); Turner 20461 1st Air Mech. W. H. (Manchester); Wilson 43166 3rd Air Mech. G. L. (Failsworth).

REPATRIATED.

JAN. 9th.—Ayre 222617 1st J. S. (Whitehaven), Archer 5251 Cpl. Mech. F. (Burton-on-Trent); Brammer 126577 Serjt. C. (Hoveringham); Conlin 106942 1st Pte. P. (Barrow-in-Furness), Everix 3277 Serjt.-Mech. M. H. (Reading), Harper 344641 C.P.O. R. (Royton); Hoggard 49929 3rd Air Mech. T. H. (Bridlington); McNeill 99749 Serjt.-Mech. W. T. (Dundee); O'Connor 20379 3rd Air Mech. H. (Leeds); Organ 4630 Flt.-Serjt. W. (Shurdington); Snelling 78217 1st Pte. E. (Holloway, N.); Walker 96465 Serjt.-Mech. R. (Glasgow).

PERSONAL NOTICES.

NAVAL.

ENGAGEMENT.

HALSTED—HEATON.—The engagement is announced between Capt. F. Neville Halsted, D.S.C., D.F.C., R.A.F., only son of Mrs. Halsted, Edenholme, Reigate, Surrey, and Marjorie, elder daughter of Mr. and Mrs. R. G. Heaton, Northaw House, Northaw, Hertfordshire, and granddaughter of the late Capt. Henry Heaton, of Worsley, Lancashire.

MILITARY.

DEATHS.

SAUNDERS.—Sec. Lt. James Oscar Reginald Stewart Saunders, R.A.F., was the third son of Mr. and Mrs. George Saunders, of Cross Lanes Farm, Woking, and the grandson of the late D. H. Saunders, of Craigmill, Blairgowrie. He was born in 1898 in Berlin, where his father was then Correspondent of the "Times." He was educated at Summer Fields-on-Sea and at Lancing College, where he was a keen member of the O.T.C. While still under military age, he made himself useful at Lechlade (Glos.), where he was learning farming, by drilling the local lads and the Volunteers. In August, 1916, he enlisted in the Public Schools Battalion of the Royal Fusiliers, and afterwards served at Edinburgh in the 104th T.R.B. as an N.C.O. and instructor. He entered the R.F.C. as a cadet in November, 1917, and obtained his wings in July, 1918. He went to France in the following September as an officer of the Independent Air Force, and, according to trustworthy information, was killed in action on his first flight across the German lines, in bad flying weather, on Oct. 21st, when seven machines of his formation were reported missing. Mr. Saunders was 20 years of age.

STRUBEN.—Sec. Lt. Leicester F. Struben, 7th Dragoon Guards, attd. R.F.C., who was previously reported missing, is now believed to have been killed in an air fight over the enemy's lines on Nov. 16th, 1916. He was the only surviving son of Mr. and Mrs. Fred. P. T. Struben, Spitchwick Manor, Ashburton, S. Devon. He was 23 years of age.

ENGAGEMENTS.

COCUP—HANMER-STRUDWICK.—The engagement is announced of Capt. Charles Hubert Richard Cocup, London Irish Rifles and R.A.F., son of Mr. and Mrs. H. C. H. Cocup, of Rosherville, Gravesend, to Marjorie Annie Elizabeth Hanmer-Strudwick, second daughter of the Rev. Charles Hanmer-Strudwick and Mrs. Hanmer-Strudwick, of The Vicarage, Whetstone, Leicester, and granddaughter of the late John Cottrell Hanmer-Strudwick, of Stratford Park, Gloucestershire.

LEWIS—WARDEN.—The engagement is announced between Lt. T. Douglas Lewis, K.O.R.L. and R.A.F., youngest son of Mr. and Mrs. Frank Lewis, Newport, Mon., and Dorothy Hamilton Warden, daughter of Mrs. Maltby, Bexhill, and granddaughter of Mr. Arthur Warden, Edgbaston, Birmingham.

PRESTWICH—KAY.—The engagement is announced of Mr. J. G. Prestwich, A.S.C. and R.A.F., second son of Mr. and Mrs. James Prestwich, of Bank House, Lytham, Lancs., and Helen, elder daughter of Mr. and Mrs. R. H. Kay, of "West Bank," Lytham.

MARRIAGES.

CHIDSON—DE BRUYN.—On Jan. 9th, at the English Church, The Hague, Lt. Montagu Reanev Chidson, R.G.A., R.A.F., only son of Mr. and Mrs. H. A. Chidson, of London, was married to Marie Josephine (Betty) de Bruyn, only daughter of Monsieur and Madame G. A. L. M. E. de Bruyn, of Rotterdam, by the Rev. H. Ratford.

TAYLOR—YORKS.—The marriage between Capt. A. L. Taylor, 28th Batt. Canadian Infantry, attd. R.A.F., and Kathleen, only daughter of the Rev. and Mrs. H. W. Yorke, Laverstoke Rectory, took place on Jan. 14th in Winchester Cathedral.

BIRTH.

BABINGTON.—On Jan. 10th, at Rothmans, Great Baddow, Chelmsford, the wife of Lt.-Col. Philip Babington, M.C., A.F.C., R.A.F., of a daughter.

* * *

Will any officer or man returning from the Western Front (repatriated prisoner or otherwise) and has seen or heard anything of Lt. Richard John Grandin, A.S.C., attached R.F.C., reported "Missing" on May 18th, 1917, and afterwards officially reported "Killed in action on that date," very kindly communicate with his wife, who would be very grateful, as she has never received any information or details? He was last seen diving at two German two-seaters about 8 o'clock in the morning in the Arras district. Mrs. R. J. Grandin, 58, Anson Road, London, N.7.

AIR FORCE.

DEATHS.

GRAHAM.—Edward Graham, of the 56th Squadron R.A.F., died on Jan. 3rd in France as the result of a flying accident.

WILLIS.—Sec. Lt. George Willis, R.A.F., aged 19, has been killed while flying in France. The accident occurred near Boulogne-sur-Mer. Two mechanics who were accompanying the young officer also lost their lives. Mr. Willis was one of the two sons of Alderman Charles Willis, formerly for four consecutive years Mayor of Rochester.

ENGAGEMENTS.

HARTFORD—HARTFORD.—A marriage has been arranged, and will shortly take place, between Major I. H. B. Hartford, A.F.C., R.A.F., third son of the late Dr. H. W. Hartford, of Christchurch, Hants, and Dorothea Ramsay, widow of Capt. H. I. St. J. Hartford, the Cheshire Regiment.

MORE—PARKER.—The marriage arranged between Brig.-Gen. Robert Henry More, C.M.G., R.A.F., son of the late Jasper More, M.P., of Linley, Shropshire, and Phyllis Blanche, younger daughter of the Hon. Francis and Mrs. Parker, of Wilton House, Eaton Square, will take place at St. Peter's Church, Eaton Square, on Thursday, Jan. 16th, at 2.30 p.m. All friends will be welcome at the church.

NEAL—SYMONDS.—An engagement is announced between Mr. Austin E. Neal, late lieutenant R.A.F., son of the late Thomas Neal, of Spondon, Derby, and Nora Winifred, younger daughter of the late Daniel John Symonds, of Symondsbury, and Mrs. Symonds, of Upwey, Dorset.

MARRIAGES.

FILDEW—MACKENZIE.—On Jan. 11th, at St. Mary's, Acton, W., 1st Cl. A.M. Charles Colin Fildew, R.A.F., younger son of the late John Charles Fildew, of Shalunar Gardens, Acton, W., was married to Margaret Annabell, second daughter of Duncan Mackenzie, of "Dunain," Springfield Park, Acton, by the Rev. Walter H. Gregory.

HALL—ROUTLEDGE.—On Jan. 1st, at St. John's, Holland Road, Capt. Robin Hall, R.A.F., eldest son of Dr. and Mrs. Hall, of Belfast, was married to Elsie, daughter of Mr. and Mrs. Gerald Routledge, of Glazbury Road, West Kensington.

STRINGER—GRANT.—On Jan. 1st, at St. James's, Freiston, Capt. Louis Bruce Stringer, R.A.F., Med. Service, second son of Mr. Justice Stringer and Mrs. T. W. Stringer, New Zealand, was married to Maud, third daughter of Mr. and Mrs. John Grant, of Freiston, Boston, Lincolnshire.

THOMSETT—BALAAM.—On Jan. 10th, 1919, at the Church of the Good Shepherd, Lee, Cpl. Edgar L. Thomsett, R.A.F., elder son of Mr. and Mrs. L. Thomsett, of Lee, was married to Esther, only daughter of Robert Balaam, Esq., of 17, Corona Road, Burnt Ash Hill, S.E., by the Rev. J. A. Owen, vicar of Lingfield, Surrey.

WEBB—MILLS.—On Dec. 23rd, at Castletown Church, Lt. D. J. Gordon Webb, R.A.F., youngest son of Mr. C. C. and Mrs.

Webb, Kilmore, Nenagh, was married to Cornelia Mary, eldest daughter of the late A. H. and Mrs. Mills, Curraghbawn, Nenagh, by the Dean of Killaloe and the Rev. J. Cowan, rector of the parish.

WRIGLEY—HOWARTH.—On Jan. 7th, at St. Stephen's Church, Sydenham Hill, Major N. V. Wrigley, R.A.F., was married to Kathleen, younger daughter of the late Mr. and Mrs. J. R. Howarth, of Freshfield, Lancashire.

BIRTHS.

CLARIS.—On Jan. 8th, at 44, Bankside, Hendon, the wife of Lt. S. D. Claris, R.A.F.—a son.

DOWDING.—On Jan. 9th, at Moseley, Carr Lane, Acomb, York, to Clarice, wife of Brig.-Gen. H. C. T. Dowding, C.M.G., R.A.F.—a son.

FERGUSON.—On Jan. 6th, at 12, Claremont Terrace, Glasgow, to Capt. A. A. Ferguson, R.A.F., and Mrs. Ferguson—a daughter (premature).

INGLEBY.—On Jan. 10th, at Sedgeford Hall, Norfolk, the wife of Major Clement Ingleby, R.A.F., of a daughter.

WINGATE.—On Jan. 6th, at The Walnuts, Hertford, to Betty, wife of Capt. G. M. Wingate, R.A.F.—a son.

* * *

Any information regarding Lt. Keith W. A. Symons, R.A.F., of the 73rd Squadron, 9th Wing, who has been missing since July 30th last while flying between Soissons and Château Thierry, will be gratefully received by Mrs. Symons, 12, Oaklands Road, Bedford.

* * *

Sec. Lt. J. R. Desy, R.A.F., has been missing since Oct. 27th, 1918. If anyone who can give information concerning him will they please communicate with J. E. Desy, Strand Palace Hotel, London?

U.S.A.

Lt. Edward H. Gardiner, 50th Aero Squadron, American Army, reported missing in action near St. Mihiel on Sept. 12th. Would any returned prisoner of war or others who can give information kindly communicate with Mrs. Cabot, care of Messrs. Thicknesse and Hull, 5, Little College Street, Westminster, S.W.1?

THE CHAPLAIN-IN-CHIEF R.A.F.

The Rev. H. D. L. Viener, M.A., late Chaplain R.N., who was lent by the Admiralty last year to organise a Chaplains' Department for the Royal Air Force, has been gazetted the first Chaplain-in-Chief for the R.A.F. He is in charge of the Church of England Chaplaincy Service.

DEMOBILISATION.

On Jan. 7th the Air Ministry issued the following statement explaining the principles on which demobilisation of the Royal Air Force is based, and the steps which have been taken to carry it out:—

(1). Under arrangements between the Army Council, the Air Council, and the Ministry of Labour, the dispersal of all personnel of the Royal Air Force will be carried out through Army channels on the same general lines as the Army, except when conditions peculiar to the Royal Air Force require special treatment. The personnel which it will be necessary to retain to store and safeguard the machines and equipment until the cessation of hostilities must consist of certain definite proportions of each of the technical trades peculiar to the R.A.F., and the release of individuals is therefore governed to some extent by this factor.

(2). It is necessary to provide for the maintenance on a war-footing, until peace is concluded, of certain R.A.F. units oversea and with the Royal Navy. These units may be required for use in an emergency or to co-operate with an army of occupation. When these have been arranged for, all others serving oversea will be considered surplus to the existing requirements, and will be available for demobilisation. The arrangements for demobilisation in France and in other theatres of war are being made in conjunction with the military authorities, on whom the R.A.F. will depend for transport arrangements. In pursuance of this policy, Headquarters R.A.F. in France and in other theatres of war are in close touch with the G.H.Q. of the various Expeditionary Forces, and arrangements have been made for the release of R.A.F. personnel concurrently with Army personnel.

(3). The broad principles of the demobilisation of the R.A.F. are the same as those laid down for the Army. The general procedure to be adopted by employers who wish to obtain the release of officers or airmen is the same as that to be followed in the case of officers and other ranks in the Army and has already appeared in the Press.

(4). As a special measure peculiar to the R.A.F., the Air Ministry has decided upon, and has already issued, instructions for the immediate release or disposal of all individuals (with certain exceptions) serving with the R.A.F. under training in aviation who have not so far progressed in their training as to have joined a flying training unit. The disposal or employment of men from oversea under training in aviation is forming the subject of agreement between the Air Ministry and the authorities of the Dominions and Colonies concerned. This will include the repatriation by the Air Ministry, subject to individual desires, of all such personnel who are not held on the strength of Oversea Colonial Forces.

(5). In addition to the individuals under training in aviation mentioned in par. 4, to whom the special conditions of the R.A.F cannot allow an option of continuing training, a similar disposal or employment is being arranged for those aviation pupils who have actually joined flying training units but express a desire to discontinue such training.

(6). Arrangements are in train for the disbandment of certain anti-submarine units which the exigencies of the service no longer require. The personnel of such units will be absorbed into other establishments and treated for purposes of demobilisation or employment on the same lines as those adopted for the Royal Air Force generally.

(7). Medical officers who wish for release will submit their applications to the Ministry of National Service.

R.A.F. DEMOBILISATION IN FRANCE.

The general scheme of demobilisation for the R.A.F. in France is the same fundamentally as that of the Army.

The actual demobilisation is, of course, being carried out by Headquarters, R.A.F., but after demobilisation, dispersal of personnel is through Army channels. Each officer or man on demobilisation will be sent to the Military Dispersal Station in the United Kingdom nearest to his own home.

The Priority scheme laid down by the War Office is being observed in the R.A.F.

Before actual demobilisation began "Demobilisers" and "Pivotal men" were sent home, or, if not already sent, are to go immediately.

A certain number of R.A.F. units in France are, for the time being, to be maintained on a war footing. The remainder of the units in the field will then become "Surplus Units."

Priority men are to be withdrawn from the "war footing" units being replaced by non-priority men from "surplus units," the latter thus acting as a reserve for the former units, until the necessary interchange of personnel has been effected. As soon as this has been completed, the remaining personnel of the "surplus units" will be sent home.

When all personnel has left the cadre of the unit, the cadre itself will be sent home with all unit records, etc. These cadres will consist only of one or two officers, clerks, batmen, etc.

In certain cases "surplus units" may be sent home as units. This, however, will in no way affect the course or priority of demobilisation of personnel in such units.

Officers will be demobilised on the same principles as other ranks, no preference being given on the score of rank.

"Surplus squadrons" will fly their machines to England to aerodromes specified by the Air Ministry. Observers will not go by air. In the case of two-seater machines, an air mechanic will accompany the pilot.

R.A.F. GRATUITIES.

The following letter, which appeared recently in the "Morning Post," raises an interesting point in connection with gratuities to R.A.F. officers who are leaving the King's Service:—

Sir,—A very unjust ruling appears to have been made by the Air Ministry regarding officers' gratuities on leaving the Service. The gratuity at present is based on the pay the officer receives the day he is discharged. In a large number of cases this will mean that as the result of wounds or illness contracted while on active service the gratuity given will be far less than it would otherwise have been. For example, in my own case, I was receiving up to August last 22s. a day, whilst since then I have been receiving only 11s. 6d. a day, a medical board having passed me as unfit for further flying. I am told officially that the gratuity would have been based on 14s. a day (22s., less 8s. flying pay) if I had received my discharge in August, but that now it will be calculated on 11s. 6d. a day I have lately received as an administrative officer, and, therefore, the two years' flying I have done will count for nothing. The difference of 2s. 6d. may at first sight appear to be a very small amount to worry about, but when it is multiplied by two hundred or more days' service it will be seen that the country is robbing us—it is hardly too strong a term to use—of a sum varying in amount, but scarcely ever less than £20.

I returned in August, 1914, from the further end of Canada to join up in the Old Country—the Old Country appears to be treating me most unfairly. There must be many far harder cases than my own,—Yours, etc., FLYING OFFICER (lately Discharged).

AN OFFICIAL DICTUM.

In reply to the query of a reader as to whether the Ministry of Labour has recommended to officers leaving the Army a course of instruction in aeronautical engineering at the Aeronautical Institute, the Ministry of Labour, Appointments Department, issues the following dictum:—

"Your informant has probably seen a circular which was issued, under a misapprehension, in an unauthorised form by an official of this Department who is no longer in its service. It has been withdrawn, and Mr. Desbleds, of the Aeronautical Institute, has been informed that he is not entitled to use the name of the Ministry of Labour or represent that he is working in conjunction with or under the recognition of the Ministry."

MAJOR McCUDDEN'S MEMOIRS: A REVIEW.

("Five Years in the Royal Flying Corps." By J. T. B. McCudden, V.C., D.S.O., M.C., M.M., and Croix de Guerre. The Aeroplane and General Publishing Company, Ltd. Price 7s. 6d. net.)

Saluting aloofly his Fate, he made swift with his story;
And the words of his mouth were as slaves spreading carpets of glory
Embroidered with names of the Djinns—a miraculous weaving—
But the cool and perspicuous eye overbore unbelieving,
Till he returned me to earth and the visions departed;
But on him be the Peace and the Blessing; for he was great-hearted!

Masjid-al-Aga of Sayid Ahmed.

The old leaders of feudal warfare could not write three legible letters, but they could sometimes speak literature. Douglas, when he hurled the heart of Bruce in front of him in his last battle, cried out, "Pass first, great heart, as thou wert ever wont." When Cyrano de Bergerac twits Christian in the play the latter replies:

"Bah! on trouve des mots quand on monte à l'assaut;
Oui, j'ai un certain esprit facile et militaire."

Thus in the writing of James McCudden, direct and natural, unschooled, perhaps, in the tricks of the trade, but curiously vivid and effective, you will find much to remind you of earlier chroniclers; that Prince of war correspondents, Sir John Froissart, for instance, who says, "Be it so—if the Duke of Ireland desires a battle, he shall have it; we will not shut a gate for his 15,000 men." Or familiar Homer:

"He said, and forceful pierced his spacious shield:
Through the strong brass the ringing javelin thrown,
Ploughed half his side, and bared it to the bone."

There is a certain fine chivalry common to all, for in the year 1918 you will find young McCudden, who had brought down fifty-seven German aeroplanes, writing in this fashion of his enemies:

"The German aviator is disciplined, resolute, and brave, and is a foeman worthy of our best. The more I fight them the more I respect them for their fighting qualities. I have on many occasions had German machines at my mercy over our lines, and they have had the choice of landing and being taken prisoners or being shot down. With one exception they chose the latter path." It is interesting to have such a statement from an authority, after all the abject nonsense that has been written in the daily Press about the Germans consistently declining battle.

Theirs was no light task, nor cheaply won victory, those pilots of the early days of whom we read in the early part of the book; gay-hearted boys, ever ready to take a windy chance with poor equipment, never declining battle, but rather trailing their coats across the heavens.

I have read many books on the noted French aces, Guynemer, and the others, many of them wonderfully well written; and I have often felt a twinge of regret that no one has done a like service for our own men, who, I felt, were no less fine, though the tradition of a Service which rightly has it that

"The game is more than the player of the game,
And the ship is more than the crew,"

forbade them the prominence accorded to the great fliers of France. Some of these books have been masterpieces of literary craftsmanship; and yet, do you know, I seem to know McCudden better than any of the great knights across the Channel, now that I have read his book. For one thing, he is not a super-man, nor a kind of avenging Michael scouring the heavens with a sword. Just a plain man doing a job of work, and doing it wonderfully well. The Destroying Angel, for instance, would not have spoken a phrase which occurs several times in this book: "That Hun was too good for me." Nor would that Scourse of God ("Fléau de Dieu," I cull it from the French)—nor would he have done this:

"While getting my height at about 4,000 feet and feeling rather bucked with life, I thought I would try a loop; so I pushed the machine down till the speed got up to 90 m.p.h., took a deep breadth and pulled the stick back. Half way up the loop I changed my mind, and pushed the stick forward, with the result that I transferred my load from my flying to my landing wires. The resultant upward pressure was so great that all my ammunition drums shot out of my machine over my top plane and into the revolving propeller, which, being a pusher, was of course behind me. There was a mighty scrunch and terrific vibration as three out of my four propeller blades disappeared in a cloud of splinters. I at once switched off and removed my gun from my knees, where it had fallen after having been wrenched from its mountings and thrown into the air owing to the terrific vibration caused by my engine doing 1,600 revs. per minute with only one propeller blade. The machine was wobbling badly, and I had just about wits enough to pick



A Vickers Experimental Two-seater Fighter.—Type F.B. 14.

out a field, and make a landing successfully. I got out of the machine and thanked God for my salvation."

There you have it: I don't think the Avenging Angel could have muffed a loop in that gorgeous way, and then have wriggled out of the mess with a grin. In fact, McCudden is a man and a brother, and he has a sense of humour.

He is the more likeable, too, for the tributes which he pays to the men around him :—

"I saw another S.E. in amongst four black and white Albatroses. This S.E. was fighting magnificently, and simply could be none other than Rhys-Davids, for if one was ever over the Salient in the summer of 1917 and saw an S.E.5 fighting like Hell amidst a heap of Huns, one would find nine times out of ten that the S.E. was flown by Rhys-Davids." Rather a fine tribute to have paid one.

Ever a fighter himself, McCudden is always anxious to give honour where honour is due :—

"The Hun triplane was practically underneath our formation now, and so down we dived at a colossal speed, I went to the right, Rhys-Davids to the left, and we got behind the triplane together. The German pilot saw us and turned in a most disconcertingly quick manner, not a climbing nor Immelmann turn, but a sort of flat half spin. By now the German triplane was in the middle of our formation, and its handling was wonderful to behold. The pilot seemed to be firing at all of us simultaneously, and although I got behind him a second time, I could hardly stay there for a second. His movements were so quick and uncertain that none of us could hold him in sight at all for any decisive time.

"I now got a good opportunity as he was coming towards me nose on, and slightly underneath, and apparently had not seen me. I dropped my nose, got him well in my sight, and pressed both triggers. As soon as I fired, up came his nose at me, and I heard clack-clack-clack-clack, as his bullets passed close to me and through my wings. I distinctly noticed the red-yellow flashes from his parallel Spandau guns. As he flashed by me I caught a glimpse of a black head in the triplane with no hat on at all.

"By this time a red-nosed Albatros scout had arrived, and was apparently doing its best to guard the triplane's tail, and it was well handled, too. . . . At one time I noticed the triplane in the apex of a cone of tracer bullets coming from at least five machines simultaneously, and each machine had two guns. By now the fighting was very low, and the red-nosed Albatros had gone down and out, but the triplane still remained. I had temporarily lost sight of him whilst changing a drum of my Lewis gun, and when I next saw him he was very low, still being engaged by an S.E. marked 1, the pilot being Rhys-Davids. I noticed that the triplane's movements were very erratic, and then I saw him go into a fairly steep dive, and so I continued to watch, and then saw the triplane hit the ground and disappear into a thousand fragments, for it seemed to me that it literally went to powder.

"Rhys-Davids came in for a shower of congratulation, and no one deserved them better, but as the boy himself said to me, 'Oh, if I could only have brought him down alive!'"

On the other hand, poor manœuvring or cowardice enraged him. "That Hun was a dud," is his scornful comment, when an opponent declines to fight, wriggling unskilfully away. Towards the last he had a Hispano-Suiza engine with high-compression pistons fitted in his S.E., and he tells us with relish how keen he was to get it going "and then go up and see the Rumpler pilots' hair stand up on end as I climbed past them like a helicopter."

McCudden joined the Service in April, 1913, when the total effective strength of the Royal Flying Corps was thirteen aeroplanes in flying order. He worked as an air mechanic, and took to it like a duck to water, privily snatching a flight whenever occasion offered. Throughout the retreat from Mons he was busily tinkering with Parasols, mixing with famous men, and learning—always learning. A Rumpler-Taube came over once, and everyone started blazing away at it, and the young mechanic was considerably chipped for standing on a petrol can to try and increase his Webley's trajectory! Aero-engine making was a very young art in those days, and he got opportunity to obtain that familiarity with every least working part of his machine which was to be of such great service to him in the better days that were to come.

Men would set out to bomb Laon station with sixteen hand grenades, two shrapnel bombs (each one in a rack on the outside of the fuselage, out of which the pilot had to throw them by hand), and a melinite bomb tied on to an upper fuselage longeron with string, "so that when he wanted to unload this bomb he had to cut the string first with a knife, and then push the bomb overboard." Great gales sprang up, and he remembers seeing a Henri Farman "tied down with 14 ropes absolutely flying, with its wheels off the ground, straining to the full extent of the ropes."

The sombre Retreat went on, the officers shepherding and heartening the men as best they might. McCudden qualified as an observer, and flew a lot with Major Hewitt. "I had so much faith in him," says he, "that if he had said, 'Come to Berlin,' I would have gone like a shot." At last he qualified as a pilot—"flew the machine with great vigour, and felt very pleased. The C.O. was pleased, too, but I am sorry to say that he was killed the same evening."

In those days good men were going thick and fast, nor was the reason far to seek : "It was great fun watching an unfortunate 2c staggering along with two 112 lb. bombs."

The Fokkers came out and took toll. McCudden began to settle down to his life-work, "I simply loved these shows in the summer evenings, and asked for nothing better than to be in a scout squadron with a lot of good fellows doing this sort of work daily." Soon he was made a commissioned officer, and his C.O. called him—not without reason—"A young tiger."

He was impressed by Ball, "this keen-eyed pilot with his determined jaw," and we may be sure that Ball, in his turn, was impressed by the lively Irish lad, who had risen from the ranks, and wore three ribbons, like himself. "He said he would like a French one, too, referring to my Croix de Guerre."

They gave him a little Le Rhône engined Bristol Scout, which he liked so much that he did six loops with it on his first flight. Intensely interesting as these pages describing the early days are, they are sad, for nearly all the men described are dead. He was in England on that morning of the 13th of June when the Germans flew in formation over London. He tore up from Croydon at 105 miles an hour, thirsting for the fight which was denied him. Later, he sprayed lead into the Gothas on the occasion of the Dover raid, but ran out of ammunition, and was able to do nothing more than "fly alongside the Huns and make faces at them." For 25 minutes he flew within 200 yards of the rear Gotha without a shot to fire at him, getting handsomely peppered himself.

Again, while he was at Rochester, instructing, the "Take Cover" warnings were sent round, and he fled at illegal speeds to Dartford on his motor-cycle, jumping into the ready machine, and getting his tail well up in five yards, barely clearing a scared B.E. which was just rolling in. But his prayers for good hunting were not answered until he got back to France once more, where a man could get his fill of fighting.

Again and again he was within an ace of getting his Hun, but had trouble with his guns; for all he made himself the butt of the squadron because of the care he lavished on them. But later, on his faithful S.E., he got into his stride, and, on one occasion, accounted for three two-seaters in 30 minutes.

So we see him to the end—a wretched, futile accident that occurred on his return to France. Fighting gaily and boldly, with a queer zest; laughing when he could, and when matters were too grave for a laugh, setting his teeth and going through with it. Quietly remembering a particular Hun here and there who had downed a friend of his, against the time when a moment's absorption or inattention would give him the opportunity for a swift and perfect vengeance. Taking his amazing life as it came, making no excuses for himself, and fighting, ceaselessly fighting. At least no German ever had the better of him, and such as he should be long remembered by the country which they served so well.

R. H. B.

H.M.S.

"When Homer launched his epic on the literary sea
The critics were as merciful as they can ever be:
'We take it that the author did the best that he can do,'
'And the book should be remembered for at least a year or two. . . .'
But Homer let the critics go, and listened with a smile,
For he had heard a verdict that was better by a mile,
In a code that only Homer as a husband understood—
'You *are* a funny clever thing—I'd no *idea* you could.'"

In the face of that genial dedication, which heads "H.M.S." by "Klaxon" (W. Blackwood and Sons, 6s.) could one say aught but kindly things? And I might add that the disarming little gesture is hardly needed, for the book that it ushers in is good—extraordinarily good; a volume to place between Kipling's tales of Emmanuel Pycroft the unforgettable and the early stories of Bartimeus. My despairing family relinquished the attempt to get an intelligible word out of me until I had finished it. They made pungent remarks concerning my gurgles over it, so that I retired upstairs clutching the thing, like a dog with a bone.

I like the tale of the dead-beat sparrow, beaten out over the North Sea by westerly winds and fog, long leagues from his native Yorkshire hedgerow, flying drearily and desperately. "A faint droning noise to the north made him turn, and low over the straight-ruled horizon he saw a silvery-white line that every moment grew larger. He headed towards it, but at a mile range swerved away. It was not an inviting object for even a lost sparrow to rest on. With engines running slowly—so slowly that the blades of the great propellers could be easily seen—with a broad white-and-black ensign flapping lazily below and astern, the Zeppelin droned on to the south'ard, a thing of massive grace and beauty on such a perfect summer's day."

The sparrow followed, "fluttering and dipping in pathetic confidence . . . suddenly the Zeppelin tilted like a hunter at a high fence, and the note of his engines rose to a dull roar." The great beast had panicked at a bit of wreckage, and started to bomb it furiously; then, perceiving its mistake, made off with the shamed air of a performing elephant after doing a particularly foolish trick. In that auspicious moment a British submarine emerged coyly. The weary bird fluttered straight to it. And this is the end:—

"Here you are, Lizzie. Skipper said I was to let him go soon's we got in, but I just brought 'im to show you. We've 'ad 'im aboard five days now, and 'e can't 'alf eat biscuit. 'E's as full as 'e can 'old now. Open the window, old girl, and we'll let 'im out. . . ."

There is a grimmer story, "Light Cavalry," of two men in a seaplane who have the choice between laying a safe course for home, and stopping to wait for a hunted submarine to emerge once more, with the practical certitude that there is not enough petrol in the tank to see them safely back. They get the sub. just as she pokes an apprehensive eye out of the water, and wheel about, but . . . "after a while the engines gave a premonitory splutter . . . missing more and more frequently." They glide down, and then follows a mercilessly vivid description of the long misery of wet and cold in the slowly foundering craft. A destroyer flotilla passes, full tear after some Huns. In response to the Very light signal from the derelict, "a searchlight whirled round . . . steadied blindingly on their faces a moment, and was switched off again on the instant." Night, with the cold and wet once more, and the seaplane settling ever lower. A flurry of snow falls.

With their last cartridge they signal to the returning destroyer—the rest is warm beds, hot toddy. "Your joss was in, because the snow came down and they put up a smoke-screen and ceased fire, so we lost touch, and I hadn't far to come back to look for you. Got a Fritz, did you? Good man. The Huns? Yes, they lost their rear ship right off, and the others were plastered good and plenty. . . . I sank your plane just now—tied a pig of ballast to her. . . ."

"An Urgent Courtship" and "Two Children" are gentle stories, deftly told, and you may learn much of the way of the under-sea boats from "Between Tides" and "A War of Attrition." His pen well charged with corrosive, the writer has written a "Hymn of Disgust" that voices the sentiments of all of us; in fact, the occasional verse is one of the charms of the book.

The salt tang of the sea is in all these stories, with never a taint of the damnable bathos with which the work of the Navy is so often beslavered. To my mind, one of the best, because the most English, is the yarn of the British submarine commander loafing around just under water, and within reach of the guns of Helgoland. Through the periscope he sees that the place is a sportsman's Promised Land—"Thousands and thousands of teal and mallard—and we can't get a shot at them!" The temptation is too much to resist, and the commander grabs a rifle—"there was a clatter and the sound of quick passing orders; the boat's bow tilted up, and to the sound of roaring air she broke surface fairly in the middle of the great colony of swimming wildfowl. The hatch fell back with a clang, and a rush of cold air beat on the excited faces of the men below the conning-tower. Immediately there came the Crack-crack-rack of magazine fire from the bridge above, and the descendants of bowmen who had risked mutilation and death to steal the Conqueror's deer forgot their discipline and began to mount the ladder that lead to the sunlight and a clear view. . . ."

But on the Island all was tumult and affright. "At six thousand five hundred metres—all guns—Gott strafe der schmutzige . . . he has dived!"

Safe down under the water the Captain and the First Lieutenant stood "looking solemnly at the mallard, which lay on a gory newspaper in the very centre of the table . . . There was a pause while the First tucked an extra fold of newspaper beneath the corpse—then, after a quick glance and nudge for the Pilot's benefit, he spoke in a detached and dispassionate voice: 'Of course, it was poaching.'

"The Captain's brown face began to slowly take on the colour of the gore on the table—then he exploded: 'But it's offshore. Why shouldn't I shoot their duck? It's not preserved, either. Poaching! I never poached anything—not since I was at school anyway.' He scowled at the duck and the officers impartially. The officers clutched each other by the arms, then the Pilot walked hastily to a low-set bunk, and buried his head in the pillow.

"The Captain changed his frown for a smile as the situation dawned on him; then, snatching the parallel rulers from the chart table, he began to belabour the most accessible portion of his gurgling subordinate's anatomy."

I have quoted lavishly enough, believing the book to be its own best commendation, but as for the rest of this jolly entertainment—the bookseller round the corner will provide it, or THE AEROPLANE Publishing Department at No. 61, Carey Street, W.C.2.—R. H. B.

MILITARY AVIATION IN THE UNITED STATES

An announcement issued by the U.S. War Department states that officers of the Air Service who remain in the reserve corps following their discharge from the Regular Service will be permitted to fly Army aeroplanes even after their release from active duty. It is the present intention to call up reserve officers of the Air Service for duty at aerodromes for a period not to exceed two weeks each year. As a precaution against lack of practice the initial flights will be made on dual control machines, but notwithstanding, it will be interesting to see to what extent a useful standard of efficiency can be maintained by two weeks per annum of flying.

THE SURRENDERED GERMAN AIRCRAFT.

Mr. H. Patrick Devitte, the "Daily Express" correspondent at Geneva, states that on Jan. 3rd three British naval officers arrived at Friedrichshafen, thoroughly examined the airship factory, and took charge of the surrendered airships and aeroplanes.

MAJOR-GEN. SIR F. H. SYKES, K.C.B., ON COMMERCIAL AVIATION.

The Right Hon. Lord Desborough, K.C.V.O. (President of the London Chamber of Commerce), presided over a very largely attended meeting at the Cannon Street Hotel on Jan. 7th, which had been convened by the Chamber of Commerce, to listen to an address on "Commercial Aviation in the Light of War Experience," by Maj.-Gen. Sir F. H. Sykes, K.C.B., Chief of the Air Staff.

The Chairman said that it was represented to him by members of the London Chamber of Commerce that such was the interest now taken in the possibilities of flying for commercial purposes in the future, that they would very much welcome an address by one competent to give it on this great and increasingly important subject.

He had approached Gen. Brancker in the hope that he would be able to supply a competent lecturer, but little did he dream that the Chief of the Air Staff himself would be good enough to prepare an address and give it to the London Chamber of Commerce.

Maj.-Gen. Sykes began his interest in flying as long ago as 1910 and 1911, when he studied and reported on the developments in progress both at home and abroad, and, having assisted to draw up the original organisation of the R.F.C., was appointed to raise and command the Military Wing on May 13th, 1912. Prior to this he was in a cavalry regiment and had also done much work on the Staff, principally in the Intelligence Branch.

Cavalry was at one time, when war was not a war of movement, somewhat unpopular, but the cavalryman could turn his hand to anything, not least to flying. In August, 1914, he went out to France as Chief Staff Officer of the Royal Flying Corps squadrons which accompanied the original British Expeditionary Force, and remained there until the summer of 1915, when he was sent to the Dardanelles in command of the Royal Naval Air Service units ashore and afloat operating in that theatre.

In March, 1916, he left aviation and was first on the Directorate of Organisation at the War Office until November, 1917, and then on the Staff of the British Section of the Supreme War Council at Versailles until April, 1918, when he was brought back to the Royal Air Force in the position of Chief of the Air Staff, which he now holds.

Maj.-Gen. Sir F. H. Sykes then delivered his address:—

The subject on which you have kindly asked me to speak is Commercial Aviation in the light of war experience, and I am proud that it is, I think, the first time that the Chief of Staff of a fighting service has spoken publicly in regard to the commercial aspect of his Service.

I hope perhaps this departure may betoken a new and helpful method of assisting in the working out and fusion of the efforts of the service and civil side.

Aviation in any form is but a dozen years old, a fact we are all apt to forget until we are reminded of it by some such event as was described a few days ago in the papers as the laying of the foundation of a statue at Le Mans to Wilbur Wright, whose efforts and patient work culminated in the mastery of the air.

There is something very striking and even prophetic in the perfect sequence of events when we consider that the problem of flight should have been solved just in time to have rendered possible, not only the great part which aviation has played in the struggle and victory we have just achieved, but also to profit by the well-nigh incredible impetus which the stress of war has given to its development. So it comes about that in most countries aviation is to-day a child of war and a military development pure and simple.

The Unification of the Air Service.

It is not possible within the time at my disposal to deal with the past and the future, and I propose, therefore, to confine myself almost entirely to the latter. I have, however, had prepared an account of the development and effort of the Air Forces of the Empire during the war, and this will, I hope, be published before long, and will serve as an introduction to the study of the problems of the future with which I propose to deal to-day. I do not doubt that, when the facts are known, the unification of the Air Services and the creation and the maintenance of an Air Ministry will be amply justified. In the Ministry is concentrated in the written records and in the experience of the various branches all the data at present existing, not only of Naval and Military, but also the major portion of Commercial knowledge, the dissipation of which could only lead to confusion and redundancy.

I believe that air forces have become and will remain a leading consideration in questions of national and Imperial defence. The day is, indeed, not far distant when aircraft will rank equally with, rather than supplement, other and older forms of war material, and strategy will consequently be profoundly modified.

Aircraft in Peace-time.

A feature which distinguishes aircraft from other forms of warlike preparation lies in the peaceful and useful employment to which they, unlike tanks, for instance, are also adapted. They constitute a means of undertaking public and political work of the highest value. They can be employed in opening up far distant and inaccessible portions of the Empire, in survey and mapping, and in postal and other communication services in districts as yet unreached by private enterprise.

Aviation is now on the threshold of a new existence in the realms of civil and commercial life. The opportunity is, I think, unrivalled, the conditions ideal, and we must guide it along right lines.

Above all, its progress and development must inspire confidence on the part of the public and the business community. There must be no flash in the pan or exploitation of a new industry by ignorant or unscrupulous persons. If public confidence, either in the safety and security of flying, or in the ability of aviation to take its proper place in relation to other and older-established means of transportation, should once be shaken, a set-back may be experienced from which it may take many years to recover. Sure steps are necessary and no attempt must be made to achieve the impossible.



Helsingfors, Finland, as seen from a German aeroplane. A possible aerial port of the future.

THE DEVELOPMENT OF COMMERCIAL AVIATION.

Consideration of the future development of Commercial Aviation naturally leads us along certain main lines of thought.

First, there is the technical aspect—here we shall pit the brains of our inventors and engineers against those of the whole world, and we have no reason to fear the issue. It is true that in some other lines of inventive work we have left it to others to gather the fruits of our pioneering. In aviation, however, we have gained for ourselves the foremost place in design and technique of aircraft and engines, and British manufacturers may safely be trusted to maintain and improve their position. State assistance in design and research work, it is agreed on all hands, must continue. A policy of "safety" must prevail, and the aerial "Plimsoll" line and the "A1 at Lloyd's" must brand every British aircraft with the hall-mark of quality and security.

THE DANGERS OF FLYING.

I would like to make a passing reference to a subject on which there is a very considerable amount of popular misconception. I refer to the risk and danger of flying. This in reality is very much less than is often supposed. The improvements which have taken place in the design and construction of aeroplanes and engines have brought us to a position in which, with prudence and judgment, the risks of flying are very small, apart from the danger attached to the process of the training of pilots. Even here, the records of our training organisation clearly indicate that a considerable proportion of the accidents which occur are due to higher war training in aerial fighting and close formation flying and to the arduous conditions under which this training is carried out. Even under these conditions fatal accidents have been surprisingly few recently, and the average has now reached the high figure of 1,170 hours per fatal casualty.

Some idea of the risks of flying may be gained from the following facts:—Since January, 1916, 3,340 officers have been killed on the Western Front. The strenuous nature of the fighting is well known, and nearly all these have been due to battle and only a small proportion to accidental causes. The total flying done during the same period has been close on one million hours, or 114 years.

It is also very satisfactory to note that with the disappearance of the enemy's bullets has disappeared the principal cause of fire occurring in aircraft. I think we may say that under present-day conditions the chances of a passenger safely reaching his journey's end in a modern machine conducted by a skilful pilot and operated under proper conditions are not far short of his chances of safe arrival by the older and more familiar means of transportation.

I do not propose to deal with the financial aspect, but I want to emphasise the necessity of keeping in mind the two independent industries involved: the constructive and the operational, and to indicate that it is necessary to work on the analogy of other forms of transport, such as shipping, in which you have the great building firms and the firms which operate the traffic. In regard to the operational possibilities and limitations of commercial flying:

LEGISLATION AND CIVIL AVIATION.

I want, first of all, to make a little official statement and explanation. As you know, all civil flying has been prohibited during the war, and, although fighting has ceased, we are still at war. As Lord Weir announced recently in a public speech, draft legislation for the governance of civil flying is being prepared and is being pushed on with all speed. But the work and difficulties involved are very great, and it is most important that, even at the expense of a little delay, a really sound position should be arrived at. At the same time the Air Ministry recognise fully the necessity of early action so that the present restrictive orders may be as far as possible removed. Otherwise we might easily find ourselves at a disadvantage as compared with other countries in the early development of civil flying.

It has now been found that this private and domestic legislation depends for its character on the findings of the International Conference, and, to avoid delaying the commencement of private flying in this country, a preliminary set of regulations have been drafted, and it is hoped will come into force during the first few weeks of the new Parliament.

THE "DAILY MAIL" PRIZE.

This brings me naturally to the subject of some of the competitions which have been discussed, and particularly to the magnificent offer of the "Daily Mail" of £10,000 for the trans-Atlantic flight. With the enacting of those interim regulations I have referred to, this flight will, as far as Great Britain is concerned, be made open to all-comers, including our friends in America—i.e., opening up that competition to all-comers at the earliest possible date. I should like to say a little about what is involved in this particular enterprise. It has long been under consideration at the Air Ministry—not, of course, with a view to the prize—and last June arrangements were seriously commenced with a view of testing the possibility of bringing aerial reinforcements from America to help win the war, and also of being in a position to render all possible assistance to those wishing to make the attempt.

ITS SCIENTIFIC REQUIREMENTS.

The problem is not so much one of endurance of the machine and personnel, but principally of navigation, meteorology, and wireless. I shall say more on those subjects later, but as regards the first, you will appreciate that a straight course must be kept, both by day and night, in thick or fine weather, in winds whose force and direction it is difficult to gauge in the absence of any fixed points of reference. For instance, a small error in bearing may easily be sufficient to miss entirely so small a point in the Atlantic as the Azores.

The meteorological difficulties are due, first, to our lack of knowledge of upper air conditions in the mid-Atlantic, and, secondly, to the fact that the prevailing winds in this area set from west to east. The Atlantic is large enough for a complete low-pressure system to exist in the centre without being discernible or measurable at the sides; and this not only adds to the dangers of actual flight but also complicates the navigational problem. A large quantity of meteorological data exists for the mid-Atlantic, but it is all founded on mariners' reports of conditions from sea level, with nothing for the upper air.

There is generally a belt of two or three hundred miles of fog around Newfoundland, and unless a strong westerly wind is blowing, the weather is always changeable, so that it may generally be predicted that when the wind is assisting the flight westwards the weather is stormy, with thick cloud and with rain and mist on the coast of Ireland.

ITS ORGANISATION.

The accomplishment of this flight demands an organisation capable of centralising at the starting point all information about the immediate weather conditions all along the route, in order that the rare opportunities when suitable conditions exist may be seized. This fact, coupled with the complementary fact that existing machines, even if navigated with extreme accuracy, have a very small margin of endurance beyond the distance to be accomplished, has led to the conclusion that this flight should not be undertaken lightly and should be viewed at present as a demonstration rather than a commercial proposition.

THE ORGANISATION OF AERIAL ROUTES.

Dealing next with overland projects, amongst the many branches of the subject, one of the greatest importance will be the selection and equipment of aerial routes. This will be governed partly by geographical and, increasingly, by commercial conditions. Preparations on a large scale and much subsidiary organisation are needed to ensure the success of any chosen route. Landing grounds must be provided, and conspicuous marks and indications given. Repair facilities must be established where skilled personnel is available. The stopping places must be linked up with centres of distribution, of postal and other merchandise and arrangements made for the control of traffic both by day and night.

Here it is that private enterprise will derive the greatest benefit from the work that has been done by the Governments of the countries during the war. The greater part, however, still remains to be done.

ENGLAND TO INDIA.

To take an example. You have probably all read of the recent overland flights between Egypt and India. Here I want specially to emphasise the fact that all the Royal Air Force has had in mind when these long-range and special flights have been undertaken has been in order to blaze the trail and gain experience. The possibilities of this flight, with its bearing on the delivery of mails between England and India, have now been broadly demonstrated. The organisation, however, of the route into one of continuous commercial utility will involve a large amount of work.

THE POST-BELLUM ROUTE.

In good weather a machine starting from London will doubtless fly direct to Marseilles without stopping; then, with a short stop at Piza or Rome, to Taranto. Inspection and minor repairs will here be needed before the machine commences its long journey overseas. The next point of stoppage will be Suda Bay, in Crete, where an English aerodrome at present exists. Here, again, repair facilities are needed. Leaving Suda Bay, the machine proceeds to the coast of Africa at Sollum, a subsidiary aerodrome where petrol is taken on or minor repairs effected. Then, with a possible stop at Mersa Matruh, the machine proceeds to Cairo. It will probably be advisable for mails here to be transferred to another machine in order that the one which has flown from London may be given a complete overhaul before return to England. Cairo must be considered and equipped as a first-class store and repair base, as it is the half-way house to India.

Continuing our journey, the route lies by way of Damascus and Bagdad, both possessing subsidiary aerodromes and repair

facilities. The next point will be Basra, on the Tigris, which will require to be developed, if this route is permanently adopted, into a first-class repair and stores base. Next to Bushire and along the coast to Bander Abbas, India being reached in the next stage at Charbah-Karachi, Hyderabad and Jodhpur are the remaining steps to Delhi. The stages I have described average some 350 miles each, the total distance, London-Delhi, being approximately 6,000 miles. As to the time that will be required, I think we are justified in looking forward to the approach of a weekly mail service by air between London and India, the time of passage not exceeding seven or eight days, which would appear to be advantageous from the commercial point of view.

The Cost of an Overland Service.

Close calculations and much experience will be necessary to arrive at the cost of operating and maintaining such a service. All we know for certain is that postal rates by aeroplane will be high at first by comparison with present charges. You have to pay for speed. The cheapest and lowest form of transport is, I suppose, by means of the donkey; the quickest by means of the aeroplane. Business men—and there may be some in this room to-day—I venture to predict, will not hesitate to pay high postage rates, perhaps a few shillings an ounce, for urgent letters with the consequent saving of delay on the one hand or heavy telegraph charges on the other.

The Cape to Cairo Route.

Another route of great interest which the Royal Air Force hope to open up, if there is time in the interim period to which I have already referred, is the "All Red" route from Cairo to the Cape. Survey parties have already been sent out from Cairo to report on such facilities as exist and to secure information to enable an accurate estimate of future requirements to be made. Survey parties are already in Central Africa looking for aerodromes. This flight will be undertaken both by flying-boat and by aeroplane. In each case the route follows the Nile to Lake Tanganyika. It is hoped to provide landing grounds every 200 miles passing through Assouan, Wadi Halfa, Abu Hamed, Khartoum, Kodok, Lake No, Bor, Lake Albert, Jinja (Lake Victoria Nyanza), Ujiji (Lake Tanganyika).

The route for the flying-boat will then be:—Karonga (Lake Nyassa), Blantyre, Beira, Lorenzo Marques, Durban, Port Elisabeth, Cape Town, 5,700 miles in all; and for the aeroplane: Elisabethville, Livingstone, Bulawayo, Pretoria, Johannesburg, Bloemfontein, Cape Town—5,300 miles.

The routes throughout are over British soil excepting between Lake Tanganyika and Lorenzo Marques, which is Portuguese East Africa; and between Lake Victoria Nyanza and Lake Tanganyika, which was lately German East Africa.

The Short Routes at Home.

Although it is in connection with long-distance work that aviation has most to offer; at the same time it is well not to overlook the possibilities of such routes as London to Dublin and London to Glasgow. In the former case the distance is 288 miles and in the latter 360. Study is now being given by the Air Ministry to these in connection with their possibilities for urgent mails and newspaper work. Newspaper proprietors may easily find it advantageous to use high-speed aeroplanes for conveyance of copy, stereotypes, photographs, and so on between such centres as London, Paris, Glasgow, Dublin, for use in the simultaneous publication of identical issues of their newspapers.

I should like next to say a few words on the prospects of individual passenger services between large centres separated only by a few hundred miles of distance. We have all been told in the papers how, before very long, business men and others will be telephoning to near-by aerodromes and ordering out their machines to convey them to Paris, Brussels or some other point. Well, there is really no reason why this should not come about. It will interest you, I am sure, to hear what has been the experience of the Royal Air Force in this connection.

Military Aerial Transport

Quite apart from the numbers of officers who have been transported to France by aeroplane in machines going out as reinforcements, we established, in the summer of this year, a small organisation called the Communication Squadron. It was organised on comprehensive lines and consisted of two flights of D.H.4s, with Rolls-Royce engines, and a few other machines, with a personnel of 61 officers and men. Between August and November there were made no fewer than 279 passenger cross-country flights, such as to Paris, Nancy, Dunkirk, Manchester, York, and Birmingham, and, I am glad to say, that there has not been a single case of a crash occurring to any machine with passengers on board. (Applause.) Many very distinguished people were transported, including several members of the British, French, American, and Dominion Governments. One hundred and thirty-one visiting machines were also received and attended to.

On one occasion two D.H.4 machines were required to transport Mr. Paul Cravath and Mr. Crosby, of the American Mission, and a record trip was made to Paris and back on the same day in 4 hours and 20 minutes.

On another occasion a trip was made from Manchester, a distance of 170 miles, in an hour and 25 minutes, steering on a compass course above the clouds for a large portion of the distance.

One of the pilots of this squadron, who is over 40 years old, has now flown across the Channel as pilot no less than 287 times, frequently in bad weather.

The Channel Ferry.

Another organisation which the Royal Air Force has found it necessary to maintain has been the single-machine Channel Ferry from Lympne to Marquise, the establishment of which became necessary in order rapidly to return to England the large number of ferry pilots who were engaged in taking out new machines to France. In this way it was possible to conduct the general dispatch of reinforcing machines to France with a smaller number of pilots.

The results are of interest. During the four months, July, August, September, and October of this year, 227 trips were made, 8,085 miles crossed, and 1,843 passengers transported. Of the 123 days in those four months, cross-channel flying was possible on 71 days, or approximately 60 per cent.

Seaplanes and Oversea Routes.

Turning now to flying-boats from sea bases may not be out of place. One outstanding feature has been the fact that, although there were many engine failures in the early part of the war, they seldom resulted in the loss of the boat and the crew.

They cannot, however, be operated with regularity and ease from an extemporised station, and it must be remembered that all forms of seaplanes are, on the whole, more bound by weather conditions than are aeroplanes, and this disadvantage is intensified if they are not operating from a good harbour. As a result of our experience and development during the past four years, we have discovered the conditions under which flying-boats can operate with regularity; these are that there should be a properly equipped stations, involving large expenditure and slipways, sheds and repair shops. In addition, we must have good motor-boats, with experienced crews, and ample mechanical assistance for hauling the machines up the slipways. We have just commenced to develop a system, which promises to be successful, of operating such craft from specially designed docking lighters. The flying-boat, on conclusion of its journey, floats into a docking lighter, which then pumps or blows out tanks and rises in the water, providing sufficient opportunity for minor overhauls, running repairs, etc., and for an easy start for the next trip.

The Future of Airships

All that I have said so far has had special reference to heavier-than-air craft, but it may well be that, for commercial purposes, the airship is adapted for long-distance journeys involving non-stop flights. The airship has the inherent advantage over the aeroplane that there is practically no limit whatever to its range provided it can be made large enough.

The large rigid airship is still in an embryonic stage, but sufficient has already been accomplished to show that with increased capacity there is no reason why they should not be built capable of completing the circuit of the globe.

A Record Airship.

As an instance of what has already been accomplished in the way of a long-distance flight, a Zeppelin airship flew from Jamboli in Bulgaria to German East Africa carrying 12 tons of ammunition for the relief of a force operating there. Fortunately, on her arrival in Central Africa she was informed by wireless that the force had surrendered. She thereupon set out for home, and reached the base in safety, having been in the air four days without landing.

There need not necessarily be competition with the aeroplane, and the aim should be to undertake such journeys as are unsuitable for heavier-than-air craft. One of their objections has been the great expense of construction of sheds large enough to house the rigid airship of the future and the taking of them in and out of their sheds in anything but calm weather. It is possible that these difficulties may be solved by the method of mooring them to masts or cables, and, if this is successful, the airship would then need only to be taken into the shed for overhaul and repairs, in the same way as the steamship enters dry dock for a periodical refit.

Schemes for the development of the airship for commercial purposes may belong to the future more than to the immediate present. Its possibilities should, however, not be forgotten. Some day, perhaps, when the problems are solved and subsidiary organisation has been built up, it may be possible to run a continuous airship service between England and America.

AERIAL SURVEYS.

While on this subject it may not be out of place to refer to the very wide scope that exists for the use of aircraft in general mapping and survey work. It is now possible by introducing the necessary corrections for distortion to prepare complete maps showing the fullest detail of any required localities. The advantages of this method in hitherto uncharted countries are obvious; rivers, lakes, boundaries of woods and forests, roads and tracks, land under crops, grazing land, etc., can be accurately surveyed and plotted. The Dardanelles was entirely re-mapped by means of aircraft. Our atlases need no longer show uncertain and dotted lines to represent the supposed head waters of the Nile or the Tigris, or the position of lakes, ravines, etc., in such areas. Photography from the air will definitely fix their positions. Preliminary railway surveys in such countries as Australia and Canada will be much facilitated by aerial photography. The contour of reefs, shoals, and islands, whether exposed or not, can be far more accurately fixed upon marine charts than by the older methods.

Even yet I feel sure we have not touched on all the possible commercial uses for aircraft which the future may hold in store. Perhaps even they may be of value in the whaling and fishing industries as allies to the trawlers when they return to their normal business of catching fish instead of mines

THE ORGANISATION OF COMMERCIAL AVIATION.

I come now to the next great division of the subject of commercial aviation, the organisation and "machinery" which will be so necessary to the successful operation of commercial flying. During the war a great amount of experience has been gained, and though it is true that the conditions of war and peace differ widely, and that the most economical methods may not always have been adopted, certain fundamental conditions have become apparent, which will undoubtedly govern commercial flying in the same manner that they have governed war flying.

It is here that the experience gained by the Royal Air Force will be of inestimable value to commercial aviation. They are, indeed, so far as this country is concerned, the sole experts upon the subject, and their work must form the foundation of commercial aviation practice.

I want to say a few words about the many difficulties which will have to be overcome in fully developing air routes. Firstly, there is the International Conference with regard to aviation about which I have spoken, but even when agreement has been reached, much diplomatic machinery remains to be set in motion before aerial services can be actually started. The Royal Air Force has lately been engaged, for instance, in preparations for a postal service across the North Sea, but in regard to these, as we are still legally in a state of war, there is, for instance, the difficulty of the three-mile territorial water limit, upon which agreement must be reached.

WEATHER ORGANISATION.

One of the most important of the attendant problems to be solved is the influence of the weather on the operation of any flying service. At present the weather still is the great natural enemy of aviation. That it will before long be fully conquered there is very little doubt, but the development and improvement of the meteorological facilities of the country is a matter of the first importance. Flying has developed the use of meteorological information to an enormous extent. Whereas before the war one was content with looking at the weather report in the paper and glancing at a wind cone on the aerodrome before starting, now practically every station is equipped with a weather office, and every pilot or aerial navigator before proceeding on a flight ascertains the direction and strength of wind at various heights at his station, at the station he is about to proceed to, and over the locality he will pass through. He will inquire at what heights are the clouds, what visibility he may meet with, and will, in fact, know what weather conditions lie before him at each stage of the journey.

The study of the wind met with at great height is being taken in hand very seriously and the solution of this problem is essential.

There are at present 31 Royal Air Force Meteorological Stations in the United Kingdom alone, and there seems every likelihood of this number increasing rather than decreasing if the Royal Air Force is allowed to continue the control of this Meteorological service which is so important to aerial navigation and pilotage.

NIGHT FLYING.

An interesting fact is that a night service is often less liable to suspension, owing to unsuitable weather conditions, than a day-service. For instance: It would probably be possible to make a trip from London to the Rhine on 100 days and on 130 nights of the year, in June, three or four times each week, and during the winter months one trip a week.

The maintenance of any regular long-distance service such as this necessitates a complete network of meteorological stations.

AERIAL NAVIGATION.

Closely connected with the subject of Meteorology is one of equal importance—Aerial Navigation. Here also great progress has been made, especially in navigation in fog and misty weather.

At the commencement of the war the only instruments available for navigation were the compass and map. Since then, compasses have been much improved and many other instruments developed.

The Aerial Navigator has to work under difficult conditions. He is in a confined space and navigates a craft whose speed is double or treble that of water-craft. In place of tidal currents he has to contend with the winds of anything up to 50 miles per hour; changing in direction and velocity at different heights, and carrying his craft with them at their own speed and direction.

The first step forward was an instrument to determine the angle between the direction in which the machine was pointing and the direction of her path over the ground. That has been solved.

CLOUD FLYING.

Flying through clouds still remained a matter of much difficulty, owing to the entire loss of all sense of direction, until the introduction of the turn indicator, an instrument designed to show on a dial the slightest turning movement of the machine, the indications being obtained by balancing the relative velocity of the tips of the wings.

Experiments are being made with aerial sextants for taking astronomical observations, and, under favourable conditions, there is every probability of these being of use. At present, however, it is only possible definitely to fix the position at dusk and dawn.

DIRECTIONAL WIRELESS.

The development which will be of the greatest use for enabling machines to fly in all weathers is the direction finding wireless apparatus carried in aircraft for ascertaining the bearing of ground wireless transmitting stations. This method is at present secret, and was developed in the Service during the war.

It may be claimed that it will probably be one of the greatest factors in facilitating and increasing the safety of flying overseas, and above the clouds.

Aircraft so equipped can fix their position frequently, can report to their base at any moment where they are, what course they are steering, or if they are in any difficulty.

A good example of the use of Directional Wireless Telegraphy is seen in the recent test flight of a large aeroplane from London to Paris in which an Aerial Navigator gave all directions as to steering, and stated periodically where the machine was without ever looking out. The route included passing over several towns not in the direct line between London and Paris. Paris was reached in a fog within five minutes of the time calculated by the Navigator. On the return journey the Officer, on stating the machine should be over Brighton at that moment, was found to be less than one mile away from that town.

It is, to my mind, essential that the development of both meteorology and wireless telegraphy should take place along broad Imperial lines. British aircraft will soon be as widely spread as is the British Empire.

I think, perhaps, the extent of the problem and the methods adopted for its solution can best be visualised if I give you a short account of the procedure employed almost nightly by the Royal Air Force in conducting their bombing raids over the German lines. Subtract the enemy and his attendant complications from the picture, and you have a scene of a future aerial Clapham Junction by night.

AERODROMES AND NIGHT FLYING.

Let us say a raid is to take place to-night, and the orders have been issued by the Commanding Officer. I will only deal with what takes place after the machines are wheeled out of their sheds ready for action. From this point every machine and crew come under the orders of the Raid Officer, who controls the operations of starting up, moving off, getting away, signalling from ground to machines while in the air before proceeding and on return from the raid, landing the machines and moving them back to their sheds. The Raid Officer must be on the alert for emergencies, which are part of every raid. Something may happen out of the routine laid down, and if the machines are not properly controlled an accident results. He takes his position on a raised platform with a few men attached to him, and controls the whole aerodrome either by telephone or visual signalling. He has telephones and electric switches controlling flare-lines and searchlights, complete Morse signalling outfit, and Very's pistols with coloured lights. In case of breakdown of all the electric and signal services he has rockets which he uses as emergency signals.

First, he gives the distinguishing letter by visual signal of the machine to start first. Just as she moves off he throws in the switch of the flare-line, and the machine takes off up the flare-line. By this time a second machine, or a number of machines, may have been signalled for and are moving in their proper order

to the foot of the flare-line, but do not proceed until given the clearance from the Raid Officer on the control platform. This clearance is never given until the preceding machine is well clear of the aerodrome. If a machine fails to get away in her proper sequence the next machine takes her place and she waits till the last.

Sometimes, after a machine leaves the ground, trouble develops and she is forced to land; she notifies the Raid Officer by a Very's light. The Raid Officer then, if the flare-line is clear, gives her right of way to land as soon as possible.

Landing by Night.

On returning from a raid, if the machines come in singly, the question of landing them is fairly simple; but if, on the other hand, the machines return all together, the question is much more complicated. When, as sometimes happened, ten machines and upwards were flying round waiting to land, possibly some with trouble or wounded on board and enemy machines about, the matter became an emergency operation requiring an extremely cool head on the part of the Raid Officer. First of all, he decided whether he could land the machines on his own aerodrome, or whether to send them elsewhere. If he decides to land them he keeps them up until he has made certain that the flare-line is clear of all obstructions such as bomb-holes, etc., and then picks the machines out, one at a time, by their own distinguishing letter and lands them, giving preference always to machines which signal that they have trouble in any way.

If a machine stops on the flare-line all others must be warned not to land until either the flare-line has been moved or until the machine in question has been towed clear of the line. Sometimes it is necessary to move the flare-line to avoid crashed machines, etc. On large aerodromes two or more flare-lines are sometimes used.

The process outlined above may seem easy, but when it is considered that often the work had to be performed on a pitch black night, with no moon, and it was impossible to show even a match, as the enemy were sitting above waiting to bomb the first light that was shown, the matter became delicate and tricky.

The Best Type of Pilot.

One frequently hears the opinion expressed that in the future the pilot of the aeroplane will correspond to a driver of a car. This I regard as a fallacy; a much higher type of intelligence and a much higher type of courage is and will be required for aircraft than for any form of land transport. A pilot is something more than a mere driver; he must be something of an engineer, using that term in its broadest sense. He must be the type of man who has got weather, navigation, machinery and speed in his bones. He is a wonderful fellow.

Though not necessarily a trick flier he will certainly need as much courage as is required for trick flying. A good pilot should possess the faculty which enables men to make mental calculations or to reason rapidly from cause to effect, in other words, he must not get flurried. He requires, in fact, the qualifications which go to make successful seamen and horsemen. I could imagine the ideal pilot for important commercial work would be one who, having served his apprenticeship in a sailing vessel, passed in navigation and worked in steam, had joined the cavalry at the beginning of the war, transferred to the Air Service, and has been employed on long reconnaissances and long-range night-bombing raids. That is my ideal of a pilot in the future.

Fortunately, there are many even of the ideal type I have mentioned, and a much larger number in this country than any other in the world. History goes to show that the British race possesses naturally all the characteristics of the ideal commercial type of pilot in a latent form, and just as the Elizabethan seamen and the buccaneers of a later date prepared the way for the race of modern merchant seamen, so the war pilots of to-day have paved the way for the evolution of a British Merchant Air Service.

I have come, Gentlemen, very nearly to the end of my allotted time and have only a few minutes to show you some views on the screen which I think are always helpful in endeavouring to visualise a problem and grasp its possibilities.

The Period of Transition.

The period of transition in which aviation in this country, and, indeed, all over the world, is at this moment a very difficult one, both for those who are waiting impatiently to put into practice their plans for commercial development, and also for those who have held aviation in their grip for the last five years, and who are now about to relax it.

I have also indicated some of the steps that are to be taken to place aviation on a proper commercial basis, and I want to assure you once more that everything possible is being done by the Air Ministry to hasten matters forward and to mature plans for the transition of aviation from a war to a peace basis with the least possible delay and confusion.

May I, in conclusion, quote a few lines from Adam Smith's "Wealth of Nations," written 100 years ago, which yet bears on our subject as fitly as though it had been written to-day. "The judicious operations of banking, by providing, if I may be allowed so violent a metaphor, a sort of waggon-way through the air enable the country to convert a great part of its highways into good pastures and cornfields, and thereby to increase very considerably the annual produce of its land and labour." His metaphor was not so violent after all, and the "waggon-way" through the air is about to be realised.

A number of most interesting views were then thrown on the screen.

LONG-DISTANCE FLYING.

On Jan. 8th Mr. F. Handley Page delivered to a large juvenile audience assembled in the Central Hall, Westminster, one of a series of lectures arranged by the Royal Aeronautical Society, and gave a description of the flights which have been made by aeroplane to Constantinople and India. He showed a number of lantern slides from photographs, including many taken from aeroplanes.

Lt.-Col. Burgoyne, M.P., who presided, introduced the lecturer as a great and successful pioneer in the development of aircraft, and urged that attempts should not be made to discourage the pioneers in flight such as were made to discourage the railway pioneers by placing timber on the rails and the pioneers of motor traffic by requiring mechanically-driven vehicles to be preceded by a man on foot carrying a red flag.

The lecturer invited his audience to travel to Constantinople and to India on what he described as the up-to-date magic carpet, or with the seven-leagued boots, which would take the places of those of their fairy tales. He showed photographs, first, of the aeroplane driven by two engines, each of 350 h.p., which flew from Hendon to Constantinople to carry out a bombing attack on the "Goeben." The crew consisted of Major Savory, Capt. Maclennan, Capt. Rawlins, and two air mechanics.

He also showed photographs of one of the aeroplanes which would have bombed Berlin had not the armistice been signed. He said that some consolation might be found in the reflection that perhaps the armistice would not have been agreed to had not the Germans known of the intended air raid on their capital.

The length of the planes of this second machine was 130 ft., or double the length of its tail. In the front of the machine was a place for a bomber and a gun; farther back was the seat of the pilot; behind this was the place of the mechanic who looked after the engine equipment; still farther to the rear was a compartment for two gunners; and right at the tail of the aeroplane was another gun with which attacks from the rear might be beaten off.

The bombing trip to Constantinople was made in 1916 with an aeroplane having twin engines, by way of Paris, Marseilles, Pisa, Naples, Otranto, Salonika, and the Isles of Greece.

More recently a flight to India was made with a twin-engined aeroplane which followed the same route as far as Otranto, and passed on to Crete, across the Mediterranean to Cairo, thence to Damascus and Baghdad, along the Persian Gulf and on to Delhi and Calcutta. On this journey the pilot was Capt. Ross-Smith. Brig.-Gen. Borton, travelled in the machine from England, and Major-Gen. W. G. H. Salmond, G.O.C., R.A.F., in the Near and Middle East, joined the machine at Cairo.

The latter trip was being repeated with a bigger machine having four Rolls-Royce engines each of 350 h.p. The distance travelled over the Mediterranean was increased greatly by a deviation made on account of the unfavourable meteorological conditions prevailing south of Italy and Greece.

This four-engined machine could lift 15 tons, and had carried 40 passengers in addition to its pilot. It was, the lecturer remarked, somewhat like a motor-omnibus with wings, and could carry more passengers than an omnibus. He looked forward to the starting of passenger services with this and smaller types of aeroplanes as soon as the coming international convention had reached an agreement concerning air-traffic. To the younger generation the aeroplane should make a wonderful appeal; and just as in the past the imagination of the boys of these islands had been fired by tales of voyages and adventure and they had been led to take to a mariner's life and had made us supreme on the sea, so in the future the same taste for adventure would lead them to take to the air.

THE ATLANTIC FLIGHT.

On Jan. 9th, in an article on the Atlantic Flight Competition, the "Daily Mail" stated that Service pilots flying Government machines are debarred by regulations from accepting the £10,000 prize.

It was also stated that technically an R.A.F. pilot attached to a civilian firm by permission of the Air Ministry would be under the same regulations.

AIRCRAFT AND RADIO-TELEPHONY.

A mail message from Reuter's Washington correspondent gives some particulars of the use of radio-telephony in the war of the air, but it must not be assumed that the use of the invention has been confined to the Americans alone. The message says: "Squadrons of American aeroplanes fighting in France up to the moment of the armistice were manœuvred under the vocal orders of the squadron commander that reached each pilot by radio-telephone. News of the successful development of this device, hitherto a military secret, has been allowed to become public by Mr. John E. Ryan, Director of Aircraft Production 'I have myself,' he declared, 'standing on the ground, given orders to a squadron flying in the air, and watched them manœuvre accordingly. The transmission of the voice is clear enough to be heard distinctly through the sound of the aeroplane motor.' For some months it had been possible for American offices in Washington to hear aeroplanes flying over the city talking to each other and to the ground as the experimenters worked out and perfected the device. The fact that radio-telephones were a regular part of American aerial equipment, however, has only been permitted to become known since the capture of a German order to aerial squadrons, demanding that an American aeroplane with wireless telephone equipment be shot down and brought to the rear for examination."

WIRELESS TELEGRAPHY.

It was stated recently in the daily press that when commercial flying becomes a practical concern Mr. Godfrey Isaacs, of the Marconi Wireless Telegraph Companies, Ltd., proposes to found a wireless service similar to that which the Marconi Company run in connection with the Mercantile Marine.

It is proposed to supply every aeroplane at a fixed yearly charge with a combined wireless and telegraph installation and a qualified operator, and keep the apparatus up to date and maintain it in proper working order.

Charts will be issued giving the exact position of a number of Marconi stations in all parts of the world, and these will be furnished with direction finders to give the operator the exact position of the aeroplane.

Record charts will be issued from time to time showing these reports, which will serve as comparisons of disturbances in the air and will furnish valuable information for the guidance of pilots.

General weather reports will be issued from the different stations both at home and abroad in respect of which the associated companies in foreign countries will take part.

The Marconi Company are erecting stations in China, on the frontier of Cashmere, and on the Chinese side of Siberia. It is stated that Mr. Handley Page is arranging for the transport of all materials by aeroplane, so that the journey to China will take about three days instead of three months.



The end of an aerial fight. A British Flying Boat after being brought down by a Brandenburger monoplane.



The return to station of a German seaplane in the past Summer.

NEW GAS FOR BALLOONS.

The following statement was transmitted by the wireless stations of the U.S. Government on Jan. 12th:—

Maj.-Gen. George O. Squire, Chief Signal Officer of the United States Army, in an address to the American Institute of American Engineers, said that the accomplishments of the United States Air Service had been most creditable. Statistics showed that the United States had a lower percentage of fatalities than any other Allied country. He added that during 1918 more than 19,000 Liberty engines were produced. He noticed the striking accomplishments in the development of the giant seaplane, which in a test carried 51 passengers. One of the greatest scientific achievements from the technical standpoint was the production of helium gas for balloons in large quantities. This gas was non-inflammable. Its pre-war scarcity could be appreciated from the statement that up to two years ago not more than 100 cubic feet could be obtained, and the usual selling price was about $1,700 (about £340) per cubic foot. At the cessation of hostilities they were able to have compressed on the deck of a vessel ready for floating 147,000 cubic feet of pure helium, and the plants under construction would give at least 50,000 cubic feet daily, at an estimated cost of 10 cents (5d.) per cubic foot. Continuing, he said that the record of the production and development of the Liberty engine conclusively proved the wisdom of the decision to concentrate efforts on this one engine. The Liberty engine was an achievement which, for saving, constructive imagination, and far-sightedness, would ever be a cause of pride to the American people.

SAGE AIRCRAFT.

In the issue of THE AEROPLANE of January 8th, under the heading "Mr. Gordon England's Move," a paragraph was published intimating that, Frederick Sage & Co., Ltd, having given up their aircraft work, the agreement between the firm and Mr. Gordon England had terminated. Frederick Sage & Co., Ltd., intimate that this statement is entirely untrue inasmuch as aircraft work has during the past three or four years formed, and still is and will continue permanently, to be a substantial part of their business. It is a pleasure to correct the inaccuracy which appeared in that previous issue, and one desires to express regrets for any annoyance that has been caused Frederick Sage & Co., Ltd., or Mr. Gordon England in consequence.

R.A.F. CADETS.

With reference to the notice published last week concerning demobilised Cadets of the Royal Air Force being permitted to extend their service, as misapprehensions may arise it is pointed out that such Cadets can only extend their service as ordinary airmen and not as Cadets.

THE PEACE CONFERENCE.

According to a report issued by the Air Ministry, Gen. Sir. F. H. Sykes, Chief of the Air Staff, proceeded on Jan. 11th to Paris by air to take part in the Peace Conference.

Mr. Bonar Law, accompanied by his Secretary, flew by aeroplane to France for the Peace Conference. He left Hendon in a Handley Page machine on Saturday morning, Jan. 11th.

FRENCH AIR MINISTRY CHANGE.

It was announced on Jan. 9th that M. Dumesnil, Under-Secretary of State for Aviation, had resigned.

M. Dumesnil rendered good services to the cause of French aviation, and his resignation is due primarily to the fact that it has been decided to concentrate Military and Naval aeronautics under the Ministry of War.

The severe ill-health from which he has been suffering has also something to do with M. Dumesnil's decision. In his letter of resignation he pointed out to M. Clemenceau that his work had now come automatically to an end, and he thanks the Premier for the continuous confidence he has reposed in him.

He stated further: "I shall for ever regard it as an honour to have been placed at the head of the magnificent soldiers and the unrivalled mechanics who, at the decisive moment of the war, won the mastery of the air."

M. Clemenceau, in reply, expressed his regret that, owing to the reorganisation of the War Ministry, it had become necessary for M. Dumesnil to relinquish his duties. M. Dumesnil, he stated, succeeded in equipping France with an aviation service worthy of her Army. The Premier's letter concludes: "Now that victory has been gained it must be exploited in all domains of national activity. This is a heavy task. I do not for a moment doubt that you will devote yourself to it with fresh zeal, once your health is restored, and that in peace as in war you will always be in the first rank of those who serve their country well."

A REWARD FOR GALLANTRY.

The following statement was issued by the Board of Trade on Jan. 6th, 1919:—

The King has been pleased, on the recommendation of the President of the Board of Trade, to award the Silver Medal for Gallantry in Saving Life at Sea to Cornelis van den Heuvel, coxswain of the lifeboat at Cadzand, Holland, and to Jac. Misielje, Jac. La Gasse, J. C. Galles, I. Colpa, A. Bos, E. Dyselynck, and B. Daelman.

On Aug. 16th last a British aeroplane containing two officers was badly damaged by anti-aircraft guns over Zeebrugge. Van den Heuvel observed that the machine was in trouble and ran and informed a Dutch medical officer in case his services were needed, and this officer telephoned to Costburg for a motor ambulance.

In the meantime Van den Heuvel called for volunteers to man the lifeboat, and the other men named above responded to his call.

The damaged machine was well within the line of Dutch territorial waters and was still being attacked by two German planes. Van den Heuvel accordingly shouted to the coast battery to open fire and the Germans then hurried away.

The British machine was unable to make the beach and was obliged to alight on the minefield off Cadzand, with the upper plane flush with the surface of the water.

Notwithstanding the great risk incurred, the lifeboat then proceeded to the rescue of the two occupants, one of whom was found to be badly wounded. The injured officer was gently drawn into the lifeboat, in an almost unconscious state, while another boat, belonging to a patrol steamer, rescued his companion. The injured officer was rowed ashore and was then driven to Costburg, where his arm was amputated the same evening.

U.S. HOME DEFENCE AIRCRAFT.

For the aerial defence of the American coast-line, the U.S. Navy Department intend to establish 90 stations, distributed along the Atlantic and Pacific coasts, and including Panama, Hawaii, Guam, Alaska, and the Philippines, where very fast triplanes and rigid airships will be based.

The cost is estimated to be $85,769,300 for the next fiscal year. The fleet of airships would include four large vessels of the rigid type, costing $1,500,000 each, 12 smaller airships to cost about $250,000 each, and a number of a still smaller type, costing each about $75,000.

The operation of the coastal stations would cost about $8,000,000; training stations, $3,000,000; and experimental stations, another $3,000,000. The U.S. Navy Department has issued the following list of stations either established or under consideration, and the probable number of aeroplanes each would require:—

Chatham, Mass., 24; Narragansett Bay, R.I., 24; Rockaway Beach, 24; Cape May, N.J., 18; Hampton Roads, Va., 24; Cape Lookout, N.C., 12; Brunswick, Ga., 18; Miami, Fla., 12; Key West, Fla., 24; Galveston, Tex., 24; Panama Canal Zone, 24; St. Thomas, W.I., 12; San Francisco, 24; San Diego, Cal., 24; Seward, Alaska, 6; Pearl Harbour, Hawaii, 24; Hilo, Hawaii, 12; Guam, 12; Cavite, P.I., 12.

Besides these, Fort Angelus, Wash., and the mouth of the Columbia River are under consideration as possible stations.

In addition to the bases on the Pacific Coast it is intended to establish 25 stations for the storage of aircraft fuel and supplies, and to provide landing places

The value of the rigid airships was questioned, but Admiral Taylor pointed out to the Committee engaged on the question of Home Defence that a Zeppelin had flown during the war from Berlin to German East Africa. He predicted inter-continental flights in the near future of such vessels.

The large Curtiss-Kirkham triplane is to be used, and it is also proposed to construct 108 escort machines at a cost of $10,000 each.

U.S. FIGHTING RESULTS.

An officially issued report contains the names of 63 members of the U.S.A. A.S. who have brought down five or more enemy aeroplanes. The list is headed by Capt. E. J. Rickenbacher, who is credited with 26 victories.

R.A.F. PIGEON SERVICE.

With the advent of wireless telegraphy the Admiralty decided in 1908 to disband the then Naval Pigeon Service; and this was accordingly done. But, on the outbreak of hostilities, it was found that small vessels such as minesweepers and patrol-boats which did not carry wireless installations needed some means of communication with the shore. And when seaplanes had been forced to land on the water, their wireless became useless for communication with the base. So the Pigeon Service was reorganised, and since the beginning of the war the personnel and pigeons have carried out their respective duties very well.

The first pigeon loft was established at the R.N.A.S. station at Dunkirk, followed a little later by pigeon lofts at all the principal R.N.A.S. stations. Upon the inauguration of the R.A.F., it was decided that all aircraft belonging to the sea patrol should carry pigeons, and lofts were built in large numbers in all theatres of war. Pigeon-fanciers were very patriotic and presented their best birds to the Air Ministry; so many were received that it was never necessary to spend public money on purchasing stock.

Before pilots and observers were able to handle pigeons and attach messages, a course of lectures and training was necessary; and it will be realised, therefore, how much the success of the Pigeon Service is due to the fact that the personnel is composed entirely of specialists who have had years of experience with pigeons. The liberation of a pigeon from a seaplane in flight requires a certain amount of dexterity, as the bird is liable to be caught in the slip-stream of the airscrew and dashed against the tail group.

The Royal Air Force Pigeon Service has proved its value on many occasions by saving the lives of flying-boat and seaplane crews, and sometimes the machines as well. Since April 1st, 1918, no fewer than 717 messages of distress have been sent by pigeons from aircraft down on the surface of the water. In carrying these messages the birds have covered an aggregate of 20,000 miles.

The speed of the pigeon, of course, depends upon the atmospheric conditions. Cases have been known where pigeons have exceeded 60 m.p.h. In one instance a pigeon flew 22 miles in 22 minutes with a message which resulted in the necessary action being taken to save the crew of a Short seaplane.

In another case a pigeon brought an important message 200 miles in 5 hours—an average of 40 m.p.h.

Recently, 13 of the R.A.F. pigeons that had been employed on sea work were exhibited in London. These birds were collected from all parts, and their splendid condition was favourably commented on by many experienced pigeon-fanciers. The 13 pigeons between them had been responsible for saving more than 12 lives and also a number of machines.

PROPAGANDA DISTRIBUTION.

In 1916 the work of dropping propaganda literature from aeroplanes was commenced; but when British aviators engaged on this task were captured by the enemy they were court-martialled, and, in many cases, sentenced to long terms of imprisonment. Therefore, it was decided that small balloons should be used for the purpose.

The propaganda balloon was made of paper, cut in 10 longitudinal panels, with a neck of oiled silk about 12 inches long. The circumference was about 20 ft., and the height, when inflated, over 8 ft. The absolute capacity was approximately 100 cubic ft., but the balloons were liberated when not quite taut, containing 90 to 95 c.f. of hydrogen.

In the earlier experiments the neck of the balloon was tied after inflation, and to allow for expansion the balloon was only filled to a little over two-thirds of its capacity; but this was found to be unsatisfactory for several reasons. Therefore, the balloon was inflated to nearly its full extent and liberated with the neck unfastened, or a slit cut in the base of the neck.

For releasing the leaflets, a suitable length of prepared cotton wick, similar to that used in flint pipe-lighters, and burning evenly, at the rate of five minutes to the inch, was securely threaded to a wire by which it was attached to the neck of the balloon. Not only was this a good method of releasing the literature, but it also served the purpose of ballast.

This method of dropping propaganda has been very successful, and the results achieved have amply repaid the trouble.

HOT AIR FUNERALS.

The following document, which was received last week, is really too precious to be lost to an admiring world. It is reprinted with the original spelling exactly as sent :—

SKY BURRIAL FOR PILOTS.

AIRMEN'S REMAINS SCATTERED TO THE WINDS.

BY MRS. ALEC-TWEEDIE.

How inappropriate it seems that these wonderful airmen, whose work has been in the skies should be laid to rest in the cold earth. And accidents are always possible to airmen.

Would it not be more appropriate for the boys of the Air Force who have fought for their country so valiantly, and now, perchance lose their lives through some silly yet dangerous ailment like influenza, to have their ashes scattered to the winds of heaven.

Cremation has everything to recommend it. Earth burial has nothing. Why not institute Sky Burial for Airmen. This would mean cremation first, which is hygenic, cheap, and only an ancient custom revived on modern lines After cremation the pure white ash (weighing a few pounds only) could be taken up into the air by a pilot, and as the service was read below that pure ash could be scattered above the clouds, and borne away on the winds of the world.

A pretty ending surely to a heroic life of adventure and hardship. Only pilots and observers should have this honour for they, and they only, are the real airmen. They are the men who risk their lives in the clouds, ever in a spirit of adventure even in peace time. The other men of the Air Force are as far removed from them as the poles. They risk nothing and are as safe on the ground below as any ordinary civilian going about his usual daily occupation.

Let us institute as an honour—a real honour—to our pilots and observers—those boys of the mists and the zephyrs—the scattering of their remains to the winds of the heavens, if and when, they pass on.

Let that be the true airman's funeral rite.

Although one agrees that cremation may be more hygienic than burial—one prefers the orthodox spelling of both words—one regards it as wasteful, in that the human body disappears in the form of gas, and does no particular good, whereas when buried in the ordinary way it is quite a good fertiliser. At any rate, it helps to retain the bulk of the earth, or to fulfil some useful purpose, as is indicated in the lines :—

" Imperial Cæsar, dead and turned to clay,
May stop a hole to keep the draughts away."

Incidentally, one is under the impression that the etymology of the word " burial " has to do with the word " burrow," and one fails to see how ashes scattered to the wind can burrow in the sky. However, if cremation is preferred, perhaps the scattering of the ashes to the wind is better than keeping them in an urn. It does, at any rate, prevent the tragedy which is alleged to have occurred in the home of a Cremationist family some time ago.

A visitor who knew not the family habits came down to breakfast on the first morning of his stay and remarked : " So awkward ! My man forgot to put my tooth-powder in my bag, but fortunately I found some of yours in that little box on the mantelpiece. Hope you didn't mind my using it ! " His hostess shrieked, and then recovering herself said with a voice choked with sobs : " Good heavens ! You've cleaned your teeth with poor dear Auntie ! "

One might have taken Mrs. Alec-Tweedie's (not forgetting the hyphen) proposition a trifle more seriously, but for the flamboyant style in which it is made. The R.A.F. is a trifle tired of being cracked up as " valiant boys of the Air," and sky heroes, and so forth. It is quite proud to be placed on the same level of gallantry as the P.B.I.—otherwise the foot-sloggers—and most of it regards the P.B.I as the heroes and itself as the folk who have had the best job in the war.

Furthermore, it is sheer rot to say that the men of the R.A.F. other than pilots and observers " are as safe on the ground below as any ordinary civilian." It is a fact that hundreds of the air mechanics and ground officers have been killed by bombs and artillery fire. One kite-balloon wing alone lost 200 men of the ground crews killed in the last six weeks of the war. Even in peace time the air mechanic's job has plenty of danger attached to it.

Mrs. Alec-Tweedie would be better employed in writing female novels than in obtruding her fantastic ideas on the long-suffering R.A.F.—C. G. G.

INDISCIPLINE IN THE R.A.F.

It is understood that, during the last few days, members of various R.A.F. stations have held meetings demanding fewer parades and quicker demobilisation.

The personnel of the Royal Air Force, No. 1 School of Aerial Gunnery, Hythe, numbering about 500 men on Jan. 8th marched to headquarters to consult the Officer Commanding. They returned to duty on learning that a demobilisation officer would meet them later in the day.

On the same day about 2,000 men of the R.A.F. objected to parade at Felixstowe. The cause of the trouble was alleged to be too many parades and the delay in demobilisation. They were promised immediate investigation of the grievances, and they then returned to duty.

Six hundred men in the Royal Air Force stationed at Westerham Hill Aerodrome, Kent, also demonstrated, and a committee, representing eight flight sections, after a conference with the Commanding Officer, Col. Grenfell, left in a motor-lorry for Whitehall to urge that the men be sent home on leave pending demobilisation, as there is no work for them to do at the aerodrome.

On the morning of Jan. 9th the R.A.F. motor drivers at Westerham Hill (Kent) Aerodrome, who are employed daily in conveying civilian workers at the aerodrome to and from their homes in South-East London, refused to take out the lorries. As a consequence some of the workmen had to walk six or eight miles to their work.

Civilian drivers were formerly employed on this duty, and the R.A.F. drivers claim that they should receive civilian rates of pay. Work was, later in the day, resumed at the aerodrome, the men responsible for the demonstration having received a promise that officers from headquarters should be sent to investigate their grievances.

Probably those men who have positions awaiting them, and are only doing the work of a domestic servant in the Forces, are entitled to priority of demobilisation, but it must be remembered that the men signed on for the duration of the war—and Britain is still in a state of war. Although one may agree with their grievances, one imagines that the situation in Europe is too grave to warrant general demobilisation. Even if it did, those men who have served several years on Active Service should, in all fairness, be the first to be released.

However, one would again emphasise the inadvisability of men, who have not positions awaiting them, clamouring to be demobilised. The internal arrangements of this country are in a serious condition, not only as regards the increased cost of living, but also the labour market is much overcrowded.

And those men in the R.A.F. who entertain hopes of obtaining situations in the Aircraft Industry—as many do—will be disappointed. Until the Industry has settled down—which may not be for some time yet—no more men can be employed. In fact, a great deal of temporary war labour has been discharged.

It would be better for everyone concerned—the soldier, because he would be provided with free board, lodging and clothes, and receive his daily pay; the Government, because it would have time to provide employment for all—if those men who have not positions awaiting them stayed in the Service—at least, for some months.—R. M.

INDUSTRIAL CHAOS.

Owing to some 2,000 workers having been discharged from the National Aircraft Factory at Croydon, about 1,000, including a number of discharged soldiers, marched to the Town Hall on Jan. 13th to interview the Mayor. The deputation complained that the factory, which cost a million pounds to build, and contained £800,000 worth of machinery, was to be used as a salvage store. The shop stewards had put forward a scheme by which they contended it could be made to serve a useful purpose, and could be used for constructional work, including the making of wood-work for new houses under the Government programme. Another complaint was that some discharged soldiers who were being retained were, contrary to the Wages Regulation Act being employed at a reduced rate. The Mayor promised to communicate with the Ministry of Munitions, recognising that the closing of the factory would be detrimental to the town.

From the " Daily Mail " of Jan. 14th :—

For 10 days, the Labour Party say, they have been trying unsuccessfully to find the Government department which controls the aircraft factories at Waddon, Aintree, and elsewhere to discuss urgent matters.

Letters were sent to the War Office, the Minister of Reconstruction, and the Minister for Munitions, asking for a deputation to be received.

The War Office replied that the matter was one for the Air Ministry, the Minister of Reconstruction said the Minister for Munitions was responsible, and the Minister for Munitions said it should be dealt with by Sir Eric Geddes's Inter-Departmental Committee on Civil Demobilisation.

The Air Ministry later referred the Labour Party to the Ministry of Munitions and the Ministry of Reconstruction : Sir Eric Geddes suggested Brig.-General W. Alexander, of the Aircraft Production Department ; and Mr. G. N. Barnes, M.P., thought it was a matter for Sir Thomas Munro, of the Ministry of Labour.

At the end of 10 days the Labour Party is still trying to find out who is responsible. Meanwhile, one factory has been closed and 1,400 men discharged.

THE ENEMY AIRCRAFT SHOW.

It is announced that over 200,000 people have visited the Royal Air Force Exhibition at the Agricultural Hall, Islington, since it was opened to the public on Nov. 18th.

The Exhibition, the proceeds of which are devoted to the R.A.F. Hospital, finally closes to the public on Saturday, Jan. 18th.

THE W.R.A.F. WRANGLE.

The following letter appeared in the "Daily Telegraph" of Jan. 8th:—

Sir,—We wish to draw attention to the fact that a serious position which affects the public service has been allowed to run on for four months, unobserved and unchallenged. Miss Violet Douglas-Pennant was summarily dismissed by Major-General Brancker, on Aug. 28th, from the post of Commandant of the Women's Royal Air Force, a week after she had been assured by his predecessor, Sir Godfrey Paine, that the Air Ministry had every confidence in her and would not allow her to resign.

In answer to a question in the House of Commons on Aug. 7th, Major Baird, on behalf of the Air Ministry, stated that the Air Ministry had every confidence in her ability and discretion. Miss Douglas-Pennant only worked one day under Major-General Brancker, during the course of which she was away in Berkshire, settling a strike of over 1,000 women. The next day Major-General Brancker told her she was to leave immediately. He informed her that she was dismissed—not because she was inefficient—but because it was alleged that she was unpopular.

We do not wish to enter into the merits of the case in this letter; but those who know Miss Douglas-Pennant's long years of work on the London Education Committee and many other public bodies are very far from satisfied with the reasons given by Major-General Brancker for his drastic action. Miss Douglas-Pennant is one of the National Health Insurance Commissioners (Wales), a post she has held for nearly seven years. We understand that she felt it her duty to tell the Prime Minister, under whom she holds that office, that she could not return to that responsible post until the reason for her summary dismissal had been cleared up.

The Prime Minister appointed Mr. Cecil Harmsworth, M.P., to inquire into the matter. He concluded his investigations six weeks ago, and he strongly urged that, in justice to Miss Douglas-Pennant, a full inquiry should be held. Miss Douglas-Pennant was assured that this full inquiry would shortly be arranged. We now understand that the Prime Minister's secretary has written to inform Miss Douglas-Pennant that the Prime Minister has decided not to interfere, as Lord Weir does not consider that there are any grounds for an inquiry.

What can be the reason for this volte-face? Surely, the Air Ministry would not wish to deny justice to a public servant. It is in the hope that the publication of this letter in your powerful journal will help to unravel this mystery that we venture to ask you to find space for it in your columns.—Your obedient servants,

Ellen Askwith.	Amptihill.
Frances Balfour.	Wilfrid Ashley.
Nina Boyle.	Henry Cavendish Bentinck.
Louise Creighton.	J. H. Thomas.
Mary MacArthur.	D. Lleufer Thomas.
E. Picton Turbervill.	

Jan. 6th.

The Hon. Miss Violet Douglas-Pennant, lately Commandant of the Women's Royal Air Force, has decided to relinquish all official and semi-official duties until a judicial inquiry has been made into the circumstances of her dismissal.

In an interview with a representative of the "Evening Standard" on Jan. 8th, Miss Pennant said:—

"I was asked to take over the position on May 13th—unlucky day—last year, and at first declined, but afterwards agreed to take a month's look around, and I took up my duties officially on June 13th.

"I knew that there had been serious difficulties before the post was offered me, but I was promised every facility for providing efficiency if I would only undertake the work. I may say that for seven years I had been one of the National Health Insurance Commissioners.

"Immediately I started on my duties as commandant I was brought up against a particular officer who told me he had promised five ladies high posts, and asked me to recommend them to the Air Ministry for those positions. I had nothing whatever personally against these ladies, but I could not honestly recommend them for those important duties.

"I pointed out the difficulties and suggested that I should put them in positions where they would receive the training necessary for the work. Lord Weir and Sir Godfrey Paine agreed with my views, and the ladies were told that they were either to take the junior posts or the Air Ministry would not require their services. I told these ladies that I would help them for all I was worth for the sake of the corps. They, however, refused to take the junior posts.

"I became the subject of the most bitter attacks. I found that officers who had never seen me were against me. However, I worked on. I saw the necessity for training the right type of woman officer.

"The conditions in the camps were in many cases not only very bad, but, in some cases, were really scandalous. One camp had over a thousand women with no woman officer in control. I had never even been informed of the existence of that camp, but as soon as I heard of the difficulties, which resulted in a strike, I appointed six women officers.

"In fact, I took every step I could to get the machine running on proper lines. The difficulties were not lessened by the fact that my only means of communication with the commanding officers of the areas and with the outside headquarters was through the offices I have mentioned.

"Then I had unfortunately to decline to take over what, to my mind, was very unsuitable accommodation for the women, and that brought me against another body of people. They had no idea of what was required.

"I was getting well into the work, but the obstacles put in my way were such that I felt compelled to tender my resignation, and told Sir Godfrey Paine that I must be allowed to resign. He would not listen to this, but instead appointed another officer, with whom it was a pleasure to work.

Then three days afterwards Sir Godfrey Paine took another post, and another officer came along. I only saw him for a few minutes as I was on my way to settle the strike. The next day I was sent for by this officer, who merely said: 'You have got to go, as no work can be done while you are there. You have got to go not because you are inefficient—you are very efficient—but because you are so unpopular.'

"I asked him if there was anything more to be said, and he replied 'No.' So I went.

"When I took over the command I found the place stacked with arrears of work, and we worked night after night to clear up the arrears, and the moment all the arrears were cleared up was chosen to dispense with my services. I asked why I was not allowed to resign a week earlier when I had tendered my resignation, but could get no reply until I was told that Mr. Cecil Harmsworth was to hold a full inquiry.

"No one could have been more fair than he. He concluded his inquiry, and he told me in writing and verbally that he was strongly urging the Prime Minister to make a full judicial inquiry. I was told that as I was going to have a further inquiry Mr. Harmsworth's report could not be made public

"I was told that the matter was settled and that Lord Weir would communicate with me; then the Prime Minister said he saw no reason for interfering with Lord Weir's decision.

"Practically I have been cashiered, and I am now under the stigma of the gravest misconduct. I am urging and pressing for a full inquiry, for it is manifestly and grossly unjust that people with a record of long and good service can be shot out at a moment's notice, and I maintain that no one should be dismissed on the ground of unpopularity."

W.R.A.F. WASTAGE.

The following letter was taken from the "Daily Telegraph" of Jan. 10th:—

Sir,—Please spare me a small space for a few words relative to the W.R.A.F. It was in August I saw in the papers an urgent appeal for women to join the W.R.A.F. I offered myself as candidate for hostel administrator, but was rejected as unsuitable by the ladies on the selection board, Sept. 6th, at Manchester. I had not been on "work of national importance," to their minds. Registered as a farm labourer—I had been on the land 3½ years, not wearing the garb of the Government land workers—my work was counted of "no importance."

After being rejected for this, I attended several recruiting meetings where we were still urgently needed in any capacity. I joined up as a carpenter, and after six weeks, which time I filled up cooking and assisting in a V.A.D. hospital, I was called up and sent to a reformatory for a week near Birmingham instead of to some place for a "month's training in any trade," which we were promised. A few drills was all the training I received.

I was then drafted to an aerodrome, where a place was made for me in the carpenter's shop. I am tolerated by the men as another military nuisance. There I have been six weeks, spending eight hours a day (most days) in that shop, and have never yet done one single day's work since I joined the W.R.A.F. on Oct. 28th, there not being work even for a quarter of the men already employed there.

When the Armistice was signed I asked for my discharge, thinking the Government would be glad to release anyone who wished to be released, as there are hundreds in that camp who will not willingly give up their well-paid jobs. I am still refused my discharge, although I have applied for it now on compassionate grounds.

If I did not know that there is still a great deal of work to be done in the hospital where I worked and in many others, I should go on like the rest, enjoying my drills, physical and otherwise, and my hockey and dances, but I have a conscience. My working age is 45 (born 1868), so I appeal for something to be done to prevent the wicked waste of the public's money, as this useless body of women are doing. Hence this protest.—Yours faithfully,

Jan. 2nd. A W.R.A.F. on Leave.

RECKLESS FLYING.

The attention of the duly constituted disciplinary authority is directed to the reckless flying of Avro E.3756 over the area bounded by St. Paul's School, Baronscourt, and Hammersmith Road, at 12 noon on Sunday, Jan. 11th. The pilot of this machine was behaving in a manner unbecoming of an officer and gentleman, and was endangering His Majesty's property. It is hoped that the necessary action will be taken.

IPSWICH-INDIA FLIGHT.

The Handley Page aeroplane, carrying General McEwan on the flight to India, which was detained at Mersa-Matruh by bad weather, arrived at Heliopolis on Jan. 3rd, leaving again on Jan. 12th.

THE STORY OF THE POMEROY BULLET.

According to an interview recently published, Mr. John Pomeroy, a New Zealander, thought at least eighteen years ago that should war break out in Europe the airship would be an important factor in its prosecution. Thinking that the simplest and surest method of destroying airships was to set the hydrogen gas alight, he set to work on a series of experiments which ended in the production of the Pomeroy incendiary bullet.

The bullet was tried in 1908 by Lt. (now Commander) Dinwiddie, of H.M.S. "Encounter," then in New Zealand waters, and it did all that was expected of it. At the outbreak of hostilities, Mr. Pomeroy submitted the invention to the War Office in London as an anti-Zeppelin bullet, but it was not adopted in view of the express prohibition of the use of incendiary or explosive bullets in the Articles promulgated by The Hague Convention, and the inventor returned sadly to New Zealand.

News of the Zeppelin raids on England reached him there, and he returned to England by way of America. At Fort Ben Harrison he gave a demonstration of the powers of the bullet, which resulted in a recommendation for its adoption by the U.S. Chief of Ordnance.

In June, 1915, the bullet was tried by the British authorities at Fort Grange, Gosport, and destroyed all the aeroplane wings against which it was directed. Again, however, it was not adopted, as the authorities still considered it desirable to adhere strictly to the Articles of The Hague Convention.

After writing to various influential people and not receiving much help, Mr. Pomeroy's funds began to dwindle. Finally, he managed to interest a financier in Piccadilly, who agreed to finance the undertaking on the condition that he received half of any payment that might be made for the invention.

Towards the end of the summer of 1916 the Government issued an order for a quantity of the bullets, and Mrs. Pomeroy, wife of the inventor, made the first 5,000 in a room at the top of Adastral House, which was lent for the purpose.

Mr. Pomeroy was awarded £20,000 for the invention (half of which went to his financier) and £5,000 for his personal services.

A SUGGESTION FOR AIRMEN.

As is only natural, practically all the thoughts of the airmen belonging to the R.A.F. are centred on demobilisation. If these men only realised the present state of affairs in civilian life, they would be quite prepared to accept the offer of the Air Ministry to stay in the Service.

Demobilised men will notice the greatly increased cost of clothing and food. In fact, the cost of living at present is more than double the cost before the war. In addition, there is the great dearth of suitable situations, and this is probably the most important point of all.

The majority of R.A.F. men wish to obtain situations in the Aircraft Industry, but there are not sufficient vacancies to meet the demand. Probably, in the course of a few months, when the Industry has settled down, there may be opportunities for skilled men. Even then, one does not foresee many vacancies for unskilled labour.

Therefore, if a man is really anxious to obtain a position in the Aircraft Industry, the most advisable course for him to take is to remain in the Service for the present. He will then be certain of receiving free board, lodging, clothing, and his daily pay. If he stays in the R.A.F. for four years, he will secure the £50 bounty, and will gain sufficient practical experience to obtain a position in any aircraft factory.

All airmen would be well advised to follow this suggestion, and when they come home for the leave promised to re-engaged men, they will realise the difficulties which beset the paths of civilian life.

THE LONDON TELEPHONE GIRLS.

On Jan. 1st the Lord Mayor, with the Sheriffs and their wives, visited the Central, City, and London Trunk exchanges.

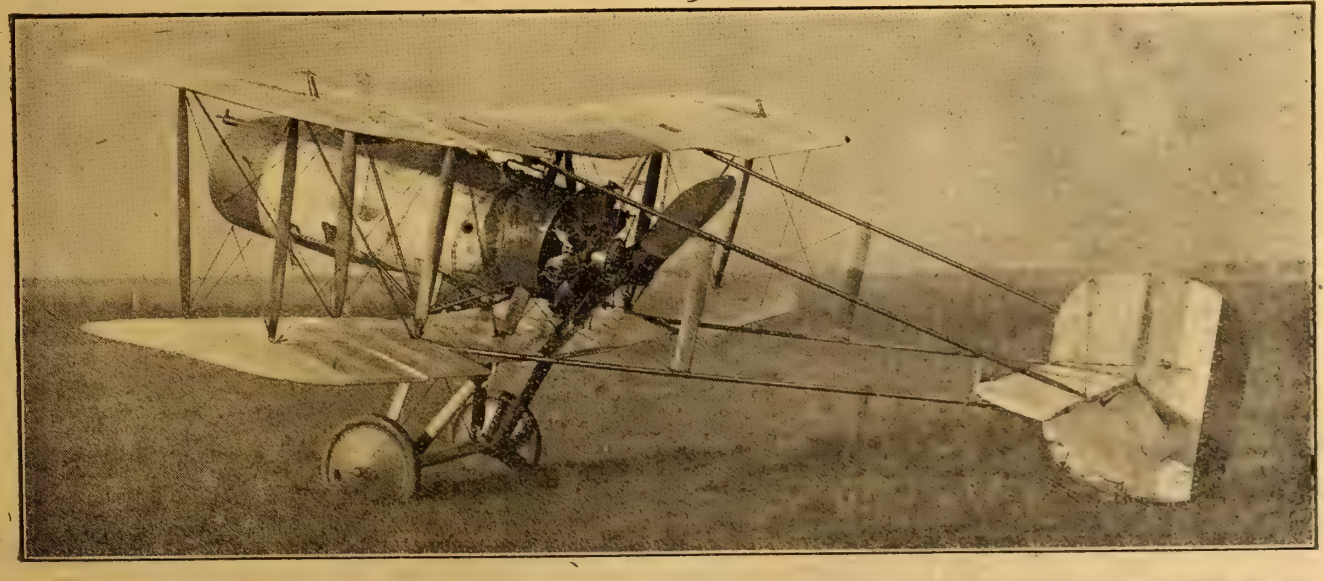
Numerous instances were related of the courage and devotion to duty displayed by the telephone girls during air raids, among them being the case of a telephonist who, when in charge of an exchange on the occasion of an explosion at a T.N.T. factory near by, remained on duty although warned that a worse explosion might follow. Another operator, when a serious explosion wrecked her home, reported for duty immediately after she had made arrangements for the welfare of her parents—the father was blind and the mother an invalid. After a bomb had exploded near an exchange, another, who had often reported for duty before during night raids, groped her way in the dark to the test room and changed over the ringing which had failed. A day telephonist, when a raid was in progress, the severity of which caused the operating staff to take shelter, volunteered to return to the switchboard to connect calls for the local hospital. Another, in a district which suffered heavily from air raids, was never known to miss reporting for duty when a raid was expected, and on one occasion did so after an evening's voluntary duty at a hospital. Another operator remained on duty all night although she knew that the neighbourhood of her home had been bombed. On returning in the morning she found her home uninhabitable.

Each of the volunteer operators for air raid duty has received a gilt and enamel badge with the initials L.T.S. worked in white enamel in the centre and bearing the motto "Ducit Amor Patriae." Several have also received the medal of the O.B.E.

THE ACHIEVEMENT OF A CARBURETTER.

The Claudel-Hobson Co., makers of the world-famous Claudel-Hobson car and aeroplane carburetters, have made a special study of the requirements of aero-engine carburetters which are intended to be used through great variations in atmospheric pressure, and they have been eminently successful.

The latest result of the efficiency of the Claudel-Hobson carburetter in altitude flying was the high flight performed by Captain Lang, R.A.F., when the altimeter showed a height of 30,500 feet. Atmospheric conditions at such an altitude would be extremely trying to any aero engine, and that the correct mixture should have been fed to the engine during the whole length of such a long climb, is a sufficient tribute to the merits of the Claudel-Hobson carburetters, with which the engine was fitted.



A VICKERS SINGLE-SEATER PUSHER FIGHTER.—This machine, various examples of which were fitted with Rotary Engines of different makes, had a very high performance.

ON R.N.

For what is probably the first time in the past five years, the writer of this article finds occasion to differ in opinion from the Editor.

On Dec. 4th an article entitled "The British Navy and Aviation" was published in The Aeroplane. Several weeks have passed since the appearance of this article, but one had two reasons for keeping silent for so long.

In the first place, it was hoped, vainly as has now been proved, that some Naval officer would see fit properly to defend his Service. Secondly, being English oneself, it has taken some time for the true meaning of the said article to sink in.

Strangely enough, the usual method of replying to such a charge as is contained in this article is mere personal abuse coupled with the reiterated statement that the writer of it is a liar. It is always the same whether one attacks the Services or Parliament For that reason, it has been left to an ignorant and inexperienced person to attempt to defend a Service so infinitely old—and wise—as the R.N., and if one goes astray at times, therefore, may one be forgiven.

Also, one apologises beforehand to the Army, as, for purposes of one's own, it is necessary to be extremely rude to them. However, no offence is meant.

To begin at the beginning and take the introduction first. The cross-head, "The Effete English," worries one. "The war was finished at sea by an Irishman . . . on land . . . by a Scot . . . and . . . politically . . . by a Welshman."

Could it have been finished at all, and might it not very easily have been lost, if it had not been for the effete and foolish Englishman; who stayed in the mud and filth of the trenches, or put up with the heat and discomfort of the tropics, when he ought by all rules of commonsense to have run away?

The Lancashire Fusiliers are an English regiment, but they did not do so very badly in Gallipoli, and, if one remembers aright the English regiments have done pretty well in Flanders.

The very English civilians of one's social acquaintance have not made much fuss about the petty—but exceedingly trying—hardships of war, even when air raids and war-diet were destroying their nerves and slowly killing them. And these people were not young when the war began.

The effete Englishman has not forgotten how to wait, and there is a certain proverb about "Him who waits."

"So the Admiralty is getting away quite nicely with the general impression that it really won the war."

Anyway, the Navy—as distinct from the Admiralty—did win the war. Supposing, for example, that the Army had had a pretty little war of their own in England, owing to invasion, besides the big war in France? And how would the Army have got to all their foreign fronts without Naval escort?

"The first 'Goeben' and 'Breslau' affair was a mess. The failure to break through the Dardanelles . . . was worse still."

Admitted! But "Gloucester" put up a plucky fight. A light cruiser against a battle-cruiser and a light cruiser is not bad odds. "Gloucester," outclassed, fought a running fight until called off by wireless.

The Dardanelles was a sorry mess up, whichever way you look at it, the only redeeming feature being the wonderful courage of those concerned with the actual fighting. But the fault was surely political. The men on the spot were badly let down, and the political support was but half-hearted.

"Their few submarines, handled ruthlessly, as weapons of war . . . obliged us to raise and maintain a force of submarine-hunters, of all sorts. . . . We shall show up . . . as a collection of abject asses, who allowed ourselves . . . to be scared to death at the prospects of famine . . . because we lacked the brains to tackle the Hun submarines . . . with aircraft."

Concerning which, the fact remains that a good fright once in a while does the Englishman good, and the people of the English middle-classes—who always get the worst of it—never doubted the issue. The Navy had to discover the best way. It is not only the Navy that tries the wrong way first. There was a campaign in Mesopotamia once, another in Palestine, and one in East Africa. Besides, the R.N.A.S. have not always shown themselves worthy of trust.

"It is almost impossible to find any real live intelligence inside a Naval uniform which bears more than three stripes on its sleeve."

A splendid testimony, surely, to the "new" way of training the Naval cadet; originated, one believes, during Lord Fisher's term of office, somewhere about 1904. The days of specialisation are indeed past, but one must be careful that Jack, knowing all trades, does not become "master of none."

"The R.N.A.S. did the Army's work in Mesopotamia, and lent machines to the R.F.C. as well. The R.N.A.S. did likewise in Palestine, in the Balkans, and in Belgium."

You see, the Army is always perfect, is it not? Yet the Navy is allowed to have no faults. After all, this is the first modern war the Navy has ever had. One must make allowances for a little strangeness. And the Board of Admiralty was never the same twice running, which must have been confusing and a little annoying.

"The technical people, although they possessed the finest seaplanes in the world, refused to order them, and so the time arrived when the German Navy had the upper hand in the air over the North Sea."

One calls to mind similar sayings concerning the R.F.C. In 1915 and 1916, if one remembers correctly, the R.F.C. did not have things entirely their own way, and it was decided by certain people that the cause was the inefficiency of their technical advisers. But no one blamed the British Expeditionary Force in the Field, or Home Forces, or, as far as one remembers, the War Office. Why, therefore, blame the R.N. and the Admiralty for a similar state of things?

The German Navy, which, if the British Navy is not intelligent, may be, presumably, taken as intelligent, does not seem to have made great use of their torpedo aeroplanes, or of their seaplane-carriers, though that fact does not for a moment excuse the Admiralty's negligence in this direction.

Airships are an unknown quantity, so one willingly concedes this point. But one has heard rumours of Zeppelins, which beat anything yet known.

As for sending pilots on sea-patrols on land machines, this, again, seems to be the fault of the technical people and the advisers in general, and one can scarcely see how the various crews of the battleships at Scapa could help it.

Certainly, the R.N. and the R.N.A.S. might have pulled together better during the late war than they did, but, at least, they disagreed no more than, if as much, as did the representatives of the people of the United Kingdom at Westminster.—S. F. B.

THE MAN WHO STAYED AT HOME.

There seems to be a good deal of feeling among active service pilots and observers, and also among the active service ground staffs, that upon their return to civilian life, under the demobilisation scheme, they will suffer a considerable handicap as compared with a very large number of fortunate beings whose share in the war has not taken them far from the amenities of the home or of London life.

It is no State secret that the Air Force personnel concerned with administrative work on the home front numbers many thousands, and although in common justice one must point out that a considerable proportion of this personnel has rendered honourable service on the field of battle, the remainder has never run any risk or privation which is greater than that endured by any other member of the civilian population.

One has no quarrel with this fortunate class of individual; but, at the same time, it does not seem just that he should start his peace programme with an advantage over the active service man.

The peculiar difficulty which is exercising the minds of the men who have borne the brunt of the fight is their lack of knowledge concerning practical aircraft construction and the Aircraft Industry generally, into which they hope to enter to earn their peace-time livelihood. On the other hand, there are large numbers of people connected with the administrative side of the Air Force who, in 1914, knew nothing about aeroplanes or, in fact, about anything concerning aeronautical engineering. Their official positions have put them in possession of all manner of invaluable information concerning not only practical production, but as regards buying, selling and organisation, and although some of us have been inclined to laugh at some of these war-time experts, there is no doubt that many of them have, in the fulfilment of their Government duties, acquired all manner of useful information which they will be able to put to good use in the coming struggle for a living.

Although, on occasion, knowledge so acquired during the progress of the war has been abused by the persons concerned acquiring a pecuniary interest in private enterprises, one can be safe in saying that in most cases no advantage has been taken of officially acquired information during the war, but once these officials receive their discharge they will, not unnaturally, consider that any claim which the Government may have had upon their confidence has ceased, and they will accordingly enter the field determined to make the utmost use of their knowledge.

This they are doubtlessly fully entitled to do, but should there appear to be any attempting on the part of such persons to use their exclusive knowledge obtained from Government service, to the exclusion of the people who have been doing the fighting, some effort must be made to protect the men who have earned more honour than shekels during the past four years. Obviously, no legal action can be taken, and the only factor which could possibly defeat an attempted monopoly of the aircraft market in such a way, is public opinion in the Aircraft Industry, supported by the accredited organisation of the Aircraft Industry, namely, the Society of British Aircraft Constructors.

One hopes, therefore, that should any attempt be made to create an "Inner Circle" among people who have figured only on the administrative side of the Royal Air Force, or of the old R.N.A.S. or R.F.C., full publicity may be given to the matter, so that counter-measures can be taken to protect those who have been courageous enough to risk their lives and limbs in the defence of the country.—W. L. W.

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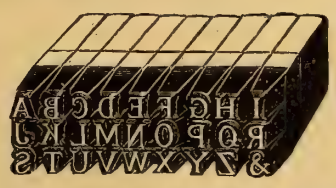
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FLYING IN NEW ZEALAND.

The "Lyttelton Times," N.Z., of June 18th, 1918, gives an interesting account of the progress made at the Canterbury Aviation Co.'s flying school at Sockburn, where excellent work had been done in the previous year. The report reads as follows:—

It will probably be found that the first aeroplane passengers ascended from the Sockburn aerodrome a year ago to-day. Mr. C. M. Hill, the Canterbury Company's instructor, who had just arrived from Hendon, had as his first New Zealand passenger the Hon. H. F. Wigram, chairman of the company. Afterwards Mrs. Wigram made a flight, and then the first six pupils of the school were taken up in turn. Therefore, June 19th, 1917, has come to be regarded as the opening date of the school, and it was with the utmost satisfaction that Mr. Hill and his staff were able on Monday morning to turn out their hundredth pilot in less than a year of training.

No doubt, it is easy now for the founders of the company to look back on the very disheartening delays and difficulties that beset their early efforts to do what the Government had failed to do in training aviators for the front. Even after the ground had been laid out, the aeroplanes shipped, and training commenced, there was one very gloomy day when the first pupil of the school just fouled a hedge while landing and "piled" the only machine in the school, entailing a long delay for repairs. Meanwhile, a second machine was being built at the school, under Mr. J. G. Mackie's supervision, but it was more than a month after the opening date that the first solo flights were taken by the pupils.

The first six pupils, ticketed on August 24th, before Colonel Sleeman, I.G.S., and three others, including Mr. J. C. Mercer, the present second instructor, had passed by Sept. 15th. Since that date, owing to greatly enlarged pupils' quarters, staff and aeroplane reserves, the tickets have averaged 10 a month, with the prospect of further increases. New machines and engines are being built or imported, and the hangars and workshops, which have been most favourably commented on by visiting flying officers, are being extended to house new machines.

A Year's Good Work.

A year's retrospect of flying in Christchurch must commence with a very well-earned tribute to the excellence of Mr. C. M. Hill's instruction. Mr. Hill has been untiring in his efforts to bring his pupils to a complete mastery of their machines, and possibly owing to the possession of a typical colonial temperament, and extreme patience and kindness, he has become popular with every pupil who has entered the school, and letters from those abroad all testify to the loyalty of the "boys" to their old instructor.

Another matter for congratulation in the case of the Canterbury flying school has been the consistently high standard of pupils offering for admission. The first pupil was a Christ's College boy, and the hundredth was a Wanganui College boy, both typical representatives of the Rugby-playing school-boys of New Zealand. Between the first and the hundredth there have been youths from all parts of New Zealand, many of whom have shown a wonderful aptitude for flying. It is a striking fact that only one entrant to the school has failed to complete his course and qualify as a pilot, and this was the case of a pupil who was medically rejected. The hundredth entrant was also the hundredth "ticket."

Those of the early boys going home were extremely keen on flying, and E. T. Sutherland, the first Maori to offer himself for the R.F.C., had the pleasure while in America of being looped six times running, and then brought down in a spinning nose-dive. At latest advices he was in Scotland studying hard for an opportunity to try his paces against the Huns.

Other pupils are in Egypt, but wherever they are they send home word which tells of constant study and a great keenness to be about their real work in the air.

The school is turning out many young men of the same stamp and the same good spirits, and there is every prospect that the second century will be on the board before the second year is nearly out.

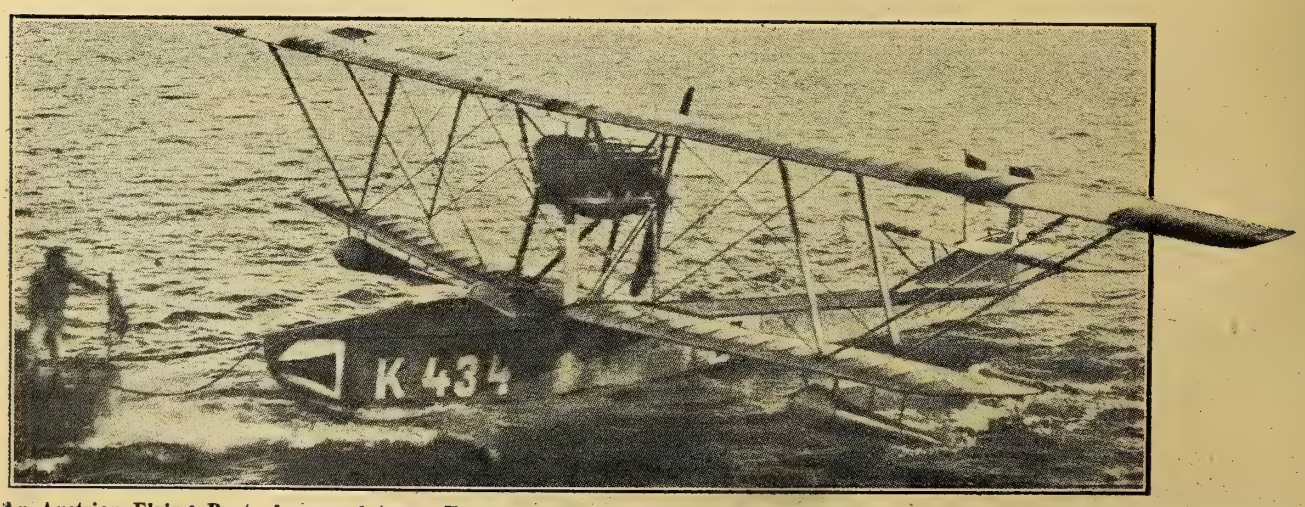
Mr. Hill, at the commencement of the year, never thought that the company would be so successful in getting engines, machines and additional instructors, and he anticipated that, everything going smoothly, about 50 pupils would pass through the school in a year. For his own part, he told a "Star" representative yesterday, he had found himself capable of averaging one ticket a week at Hendon, under the conditions there, but in Canterbury, with a reserve of machines, the conditions were greatly improved.

On reference to his records, Mr. Hill stated that the first hundred pupils made 14,791 distinct flights, both dual control and solo, an average of nearly 150 flights per man. There were 353 hours 46 minutes of dual control instruction in the air, and 286 hours 26 minutes of solo flying. At the average speed of the machines this record represented about 30,000 miles flown. Commenting on these figures, Mr. Hill said that as soon as the pupil entered the dual control machine he was in charge of it, although his instructor was present to correct any faults that might threaten danger.

A Canterbury pupil on the average had over three and a half hours' flying in the dual-control machine and nearly three hours' solo flying, which was a very full period in the air for training. Before he left England, Mr. Hill added, the Royal Flying Corps was paying private instructional schools £125 for each pupil who took the Aero Club's certificate, and it was stipulated that the actual flying period should not exceed five hours, which was cut up into three hours' dual-control work, and two hours in the solo machine. The instructor was given a free hand to reject the pupil absolutely if he did not show an aptitude for flying in the first hour, and the Royal Flying Club would not pay for the pupil if his training required more than five hours' flying.

Mr. Hill did not approve of this system altogether, in view of the incentive to take a risk with the pupil in the endeavour to turn him out in the time. He commented favourably on the liberal flying time averaged at Sockburn. Mr. Hill was asked for his opinion of Canterbury weather for flying, and he replied that, on the whole, he could not say that it was better than Hendon weather. They had had more powerful engines at Sockburn, and had been able to fly in stronger winds than a pupil would be sent up in at Hendon, where the machines in use were chiefly of 40 or 50 horse-power.

Canterbury conditions were excellent in the autumn and winter, as might be seen from the increased number of tickets lately; but in summer the only flying time was in the early morning, and rarely or never in the evening. In summer the winds were too strong, and the brilliant sunshine made the air very bumpy, owing to up-and-down currents of air, caused by the earth's heat. The nor'-wester, also, hours before it commenced to blow, made the air very "bumpy" and useless for tuition. Of course, an experienced pilot could fly in any Christchurch weather, with a reasonably powerful machine, but autumn and winter were undeniably favourable for flying.



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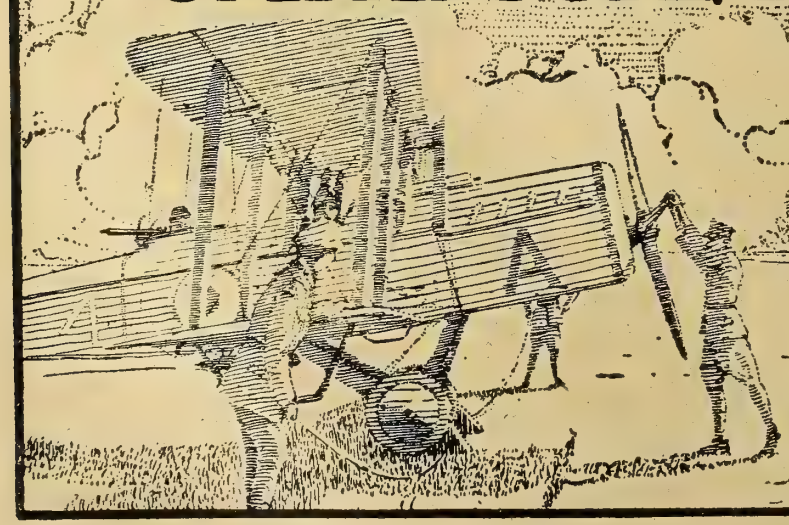
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R.A.F. HONOURS IN 1918.

[The following list includes the names of all officers and men of the Royal Air Force on whom orders and decorations have been bestowed during 1918, and of those who have been mentioned in dispatches.

Those honours which have appeared on or since January 1st, 1919, are not included, as the official lists of New Year's Honours are not yet complete. These will be published in a special Supplement on the Declaration of Peace.—Ed.]

ORDERS.

ORDER OF THE BATH.

COMPANION (MILITARY DIVISION).

Lt.-Col. (temp. Brig.-Gen. ROBERT MORSLAND GROVES, D.S.O., A.F.C., R.A.F. (Gazetted Aug. 14th.)

Col. (temp. Brig.-Gen.) ARTHUR VYELL VYVYAN, D.S.O., R.A.F. (Gazetted June 3rd.)

ORDER OF ST. MICHAEL AND ST. GEORGE

COMPANIONS.

Lt.-Col. (temp. Brig.-Gen.) JOHN HAROLD WHITWORTH BECKE, D.S.O., R.A.F. (Gazetted June 3rd.)

Lt.-Col. (temp. Brig.-Gen.) BERTIE CLEPHANE HAWLEY DREW, R.A.F. (Gazetted June 3rd.)

Lt.-Col. (temp. Brig.-Gen.) CUTHBERT GURNEY HOARE, R.A.F. (Gazetted June 3rd.)

Lt.-Col. (temp. Brig.-Gen.) ALFRED HUGGINS, D.S.O., R.A.F. (Gazetted June 3rd.)

Maj. (temp. Lt.-Col.) CHARLES FREDERICK LEE, R.A.F. (Gazetted June 3rd.)

Lt.-Col. JOHN CYRIL PORTE, R.A.F. (Gazetted June 3rd.)

Lt.-Col. ROBERT STEWART ROY, R.A.F. (Gazetted Oct. 8th.)

Lt.-Col. (temp. Brig.-Gen.) WILLIAM WARD WARNER, R.A.F. (Gazetted June 3rd.)

Maj. (temp. Lt.-Col.) RALPH KIRBY BAGNALL WILD, R.A.F. (Gazetted June 3rd.)

THE VICTORIA CROSS.

Capt. (actg. Maj.) WILLIAM GEORGE BARKER, D.S.O., M.C., No. 201 Sqdn. R.A.F.

On the morning of Oct. 27th, 1918, this officer observed an enemy two-seater over the Forêt de Mormal. He attacked this machine, and after a short burst it broke up in the air. At the same time a Fokker biplane attacked him, and he was wounded in the right thigh, but managed, despite this, to shoot down the enemy aeroplane in flames.

He then found himself in the middle of a large formation of Fokkers, who attacked him from all directions, and was again severely wounded in the left thigh, but succeeded in driving down two of the enemy in a spin.

He lost consciousness after this, and his machine fell out of control. On recovery he found himself being again attacked heavily by a large formation, and singling out one machine, he deliberately charged and drove it down in flames.

During this fight his left elbow was shattered and he again fainted, and on regaining consciousness he found himself still being attacked, but, notwithstanding that he was now severely wounded in both legs and his left arm shattered, he dived on the nearest machine and shot it down in flames.

Being greatly exhausted, he dived out of the fight to regain our lines, but was met by another formation, which attacked and endeavoured to cut him off, but after a hard fight he succeeded in breaking up this formation and reached our lines, where he crashed on landing.

This combat, in which Maj. Barker destroyed four enemy machines (three of them in flames), brought his total successes up to 50 enemy machines destroyed, and is a notable example of the exceptional bravery and disregard of danger which this very gallant officer has always displayed throughout his distinguished career. (Gazetted Nov. 30th.)

Lt. ALAN JERRARD, R.A.F. (frmly. of the S. Staff. R.).

When on an offensive patrol with two other officers he attacked five enemy aeroplanes and shot one down in flames, following it down to within 100 ft. of the ground.

He then attacked an enemy aerodrome from a height of only 50 ft. from the ground, and, engaging single-handed some 19 machines, which were either landing or attempting to take off, succeeded in destroying one of them, which crashed on the aerodrome. A large number of machines then attacked him, and whilst thus fully occupied he observed that one of the pilots of his patrol was in difficulties. He went immediately to his assistance, regardless of his own personal safety, and destroyed a third enemy machine.

Fresh enemy aeroplanes continued to rise from the aerodrome, which he attacked one after another, and only retreated, still engaged with five enemy machines, when ordered to do so by his patrol leader. Although apparently wounded, this very gallant officer turned repeatedly and attacked single-handed the pursuing machines, until he was eventually overwhelmed by numbers and driven to the ground.

Lt. Jerrard had greatly distinguished himself on four previous occasions, within a period of 23 days, in destroying enemy machines, displaying bravery and ability of the very highest order. (Gazetted May 1st.)

Sec. Lt. ALAN ARNETT MCLEOD, R.A.F.

Whilst flying with his observer (Lt. A. W. Hammond, M.C.), attacking hostile formations by bombs and machine-gun fire, he was assailed at a height of 5,000 ft. by eight enemy triplanes, which dived at him from all directions, firing from their front guns. By skilful manœuvring he enabled his observer to fire bursts at each machine in turn, shooting three of them down out of control. By this time Lt. McLeod had received five wounds, and whilst continuing the engagement a bullet penetrated his petrol tank and set the machine on fire.

He then climbed out on to the left bottom plane, controlling his machine from the side of the fuselage, and by side-slipping steeply kept the flames to one side, thus enabling the observer to continue firing until the ground was reached.

The observer had been wounded six times when the machine crashed in "No Man's Land," and Sec. Lt. McLeod, notwithstanding his own wounds, dragged him away from the burning wreckage at great personal risk from heavy machine-gun fire from the enemy's lines. This very gallant pilot was again wounded by a bomb whilst engaged in this act of rescue, but he persevered until he had placed Lt. Hammond in comparative safety before falling himself from exhaustion and loss of blood. (Gazetted May 1st.)

Lt. (actg. Capt.) ANDREW WEATHERBY BEAUCHAMP-PROCTOR, D.S.O., M.C., D.F.C., No. 84 Sqdn., R.A.F.

Between Aug. 8th, 1918, and Oct. 8th, 1918, this officer proved himself victor in 26 decisive combats, destroying 12 enemy kite balloons, 10 enemy aircraft, and driving down four other enemy aircraft completely out of control.

Between Oct. 1st, 1918, and Oct. 5th, 1918, he destroyed two enemy scouts, burnt three enemy kite balloons, and drove down one enemy scout completely out of control.

On Oct. 1st, 1918, in a general engagement with about 28 machines, he crashed one Fokker biplane near Fontaine and a second near Ramicourt, on Oct. 2nd he burnt a hostile balloon near Sevigny; on Oct. 3rd he drove down, completely out of control, an enemy scout near Mont d'Origny, and burnt a hostile balloon; on Oct. 5th the third hostile balloon near Bohain.

On Oct. 8th, 1918, while flying home at a low altitude, after destroying an enemy two-seater near Maretz, he was painfully wounded in the arm by machine-gun fire, but, continuing, he landed safely at his aerodrome, and after making his report was admitted to hospital.

In all he has proved himself conqueror over 54 foes, destroying 22 enemy machines, 16 enemy kite balloons, and driving down 16 enemy aircraft completely out of control.

Capt. Beauchamp-Proctor's work in attacking enemy troops on the ground and in reconnaissance during the withdrawal following on the Battle of St. Quentin from March 21st, 1918, and during the victorious advance of our Armies commencing on Aug. 8th, has been almost unsurpassed in its brilliancy, and as such has made an impression on those serving in his squadron and those around him that will not be easily forgotten. (Gazetted Nov. 30th.)

Lt. (actg. Capt.) FERDINAND MAURICE FELIX WEST, M.C., R.A.F. (fmly. of the Spec. Res., R. Munster Fus.), in recognition of his outstanding bravery in aerial combat

Capt. West, while engaging hostile troops at a low altitude far over the enemy's lines, was attacked by seven aircraft. Early in the engagement one of his legs was partially severed by an explosive bullet, and fell powerless into the controls, rendering the machine for the time unmanageable. Lifting his disabled leg, he regained control of the machine, and, although wounded in the other leg, he, with surpassing bravery and devotion to duty, manœuvred his machine so skilfully that his observer was enabled to get several good bursts into the enemy machines, which drove them away. Capt. West then, with rare courage and determination, desperately wounded as he was, brought his machine over our lines and landed safely. Exhausted by his exertion, he fainted, but on regaining consciousness insisted on writing his report. (Gazetted Nov. 8th.)

A SECOND BAR TO THE DISTINGUISHED SERVICE ORDER.

Lt. (temp. Capt.) E. MANNOCK, D.S.O., M.C. (fmly. R.E.)

This officer has now accounted for 48 enemy machines. His success is due to wonderful shooting and a determination to get to close quarters; to attain this he displays most skilled leadership and unfailing courage. These characteristics were markedly shown on a recent occasion when he attacked six hostile scouts, three of which he brought down. Later on the same day he attacked a two-seater, which crashed into a tree. (Gazetted Aug. 3rd.)

A BAR TO THE DISTINGUISHED SERVICE ORDER.

Capt. (temp. Maj.) W. G. BARKER, D.S.O., M.C.

A highly distinguished patrol leader whose courage, resource, and determination have set a fine example to those around him. Up to July 20th, 1918, he had destroyed 53 enemy aircraft—21 of these since the date of the last award (second Bar to the Military Cross) was conferred on him. Maj. Barker has frequently led formations against greatly superior numbers of the enemy with conspicuous success. (Gazetted Nov. 2nd.)

Lt. (temp. Maj.) RAYMOND COLLISHAW, D.S.O., D.S.C., D.F.C. (late R.N.A.S.).

A brilliant squadron leader of exceptional daring, who has destroyed 51 enemy machines. Early one morning he, with another pilot, attacked an enemy aerodrome. Seeing three machines brought out of a burning hangar he dived five times, firing bursts at these from a very low altitude, and dropped bombs on the living quarters. He then saw an enemy aeroplane descending over the aerodrome; he attacked it and drove it down in flames. Later, when returning from a reconnaissance of the damaged hangars, he was attacked by three Albatros Scouts, who pursued him to our lines, when he turned and attacked one, which fell out of control and crashed. (Gazetted Sept. 10th.)

Lt. (Hon. Capt.) BERNARD ARTHUR SMART, D.S.O. (Sea Patrol).

Led his flight for 160 miles over sea and land, and destroyed by bombs an important enemy airship shed. This service was carried out under exceptionally difficult circumstances, requiring great skill, and was most creditably performed. (Gazetted Sept. 10th.)

THE DISTINGUISHED SERVICE ORDER.

Maj. (temp. Lt.-Col.) JOHN EUSTACE ARTHUR BALDWIN. (Gazetted June 3rd.)

Lt. (temp. Capt.) H. J. BURDEN, D.F.C. (Can. Forestry C.)

Since joining his squadron in February this officer has accounted for 17 enemy machines—12 crashed, two driven down out of control, and three destroyed in flames on the ground during an attack on an aerodrome. On the morning of Aug. 10th he led his patrol in three attacks, and himself destroyed three enemy machines. In the evening of the same day he destroyed two more. Two days later he attacked a large number of Fokkers, seven of which were destroyed, accounting for three himself. In this encounter Capt. Burden led his patrol with exceptional skill and daring. (Gazetted Nov. 2nd.)

Lt. W. G. CLAXTON, D.F.C.
Between July 4th and Aug. 12th this officer destroyed 10 enemy aeroplanes and one kite balloon, making in all 30 machines and one kite balloon to his credit. Untiring in attack in the air or on the ground, this officer has rendered brilliant service (Gazetted Nov. 2nd.)

Lt. (temp. Capt.) A. H. COBBY, D.F.C. (A.F.C.).
On Aug. 10th this officer led an organised raid on an enemy aerodrome. At 200 ft. altitude he obtained direct hits with his bombs and set on fire two hangars; he then opened fire on a machine which was standing out on the aerodrome. The machine caught fire. Afterwards he attacked with machine-gun fire parties of troops and mechanics, inflicting a number of casualties. On the following day he led another important raid on an aerodrome, setting fire to two hangars and effectively bombing gun detachments, anti-aircraft batteries, etc. The success of these two raids was largely due to the determined and skilful leadership of this officer. (Gazetted Nov. 2nd.)

Lt. S. D. CULLEY (Sea Patrol).
Ascended to a height of 19,000 ft., at which altitude he attacked an enemy airship and brought it down in flames completely destroyed. This was a most difficult undertaking, involving great personal risk, and the highest praise is due to Lt. Cobby for the gallantry and skill which he displayed. (Gazetted Nov. 2nd.)

Lt. (Hon. Capt.) WILLIAM FORSTER DICKSON (Sea Patrol).
Displayed great skill and gallantry on the occasion of a long-distance bombing raid. He succeeded in dropping bombs on an airship station from a low altitude with destructive effect, and although subjected to severe fire from the enemy obtained valuable information. (Gazetted Sept. 10th.)

Sec. Lt. T. B. DODWELL.
On a recent occasion this officer, when acting as observer, performed a very gallant and meritorious action. In diving to the assistance of another machine, his own machine commenced to fall out of control. Despite this, he continued to engage three enemy machines that were attacking him, and eventually drove them off, an operation that called for great coolness and skill, as the shooting platform was most unsteady. Realising that the machine was out of control owing to the loss of lift in the tail plane, half of this being shot away, he left his cockpit, and, climbing along the wing, lay down along the cowling in front of the pilot, enabling the latter to obtain partial control of the machine and head for home. When nearing the ground he climbed back into his cockpit to allow the nose to rise, and the pilot succeeded in safely landing. The presence of mind and cool courage of this officer undoubtedly saved the machine, and deserve the highest praise. (Gazetted Nov. 2nd.)

Lt. (temp. Capt.) J. GILMOUR, M.C. (fmly. A. and S. Highrs.)
He is a most inspiriting patrol leader who has destroyed 23 enemy aircraft, and shot down eight others out of control. While leading an offensive patrol he shot down one enemy biplane in flames and drove down a second. A short time afterwards he, with four others, attacked about 40 enemy scouts. He himself destroyed one in the air, drove another out of control and a third in flames, successfully accounting for five enemy machines in one day. (Gazetted Aug. 3rd.)

Capt. (temp. Maj.) BENJAMIN HENRY NOEL HANS HAMILTON (Gazetted June 3rd.)

Maj. ALWYN VESEY HOLT. (Gazetted June 3rd.)

Lt. (temp. Capt.) C. E. HOWELL, M.C., D.C.F.
This officer recently attacked, in company with one other machine, an enemy formation of 15 aeroplanes, and succeeded in destroying four of them and bringing one down out of control. Two days afterwards he destroyed another enemy machine, which fell in our lines, and on the following day he led three machines against 16 enemy scouts, destroying two of them. Capt. Howell is a very gallant and determined fighter, who takes no account of the enemy's superior numbers in his battles. (Gazetted Nov. 2nd.)

Lt. (temp. Capt.) J. L. T. JONES, M.C., D.F.C., M.M.
Since joining his present brigade in May last this officer has destroyed 28 enemy machines. He combines skilful tactics and marksmanship with high courage. While engaged on wireless interception duty he followed a patrol of nine Fokker biplanes, and succeeded in joining their formation unobserved. After a while two Fokkers left the formation to attack one of our artillery observation machines. Following them, Capt. Jones engaged the higher of the two, which fell on its companion, and both machines fell interlocked in flames. (Gazetted Nov. 2nd.)

Lt. F. R. MCCALL, M.C., D.F.C. (fmly. Alberta R.).
A brillian and gallant officer who has accounted for 14 enemy machines. On a recent date he destroyed four during a patrol in the morning, and another in the evening, in each case closing to point-blank range with his opponent. His courage and offensive spirit has inspired all who serve with him. (Gazetted Aug. 3rd.)

Capt. EDGAR JAMES MCCLAUGHRY, D.F.C. (Aust. F.C.). (France.)
A bold and fearless officer, who has performed many gallant deeds of daring, notably on Sept. 24th, when, attacking a train at 250 ft. altitude, he obtained a direct hit, cutting it in two, the rear portion being derailed. He then fired a number of rounds at the fore portion, which pulled up. Sighting a hostile two-seater, he engaged it and drove it down. Proceeding home he observed seven Fokker biplanes; although he had expended the greater part of his ammunition, Capt. McClaughry never hesitated, but engaged the leader. During the combat that ensued he was severely wounded by fire from a scout that attacked him from behind; turning, he drove this machine off badly damaged. His ammunition being now expended he endeavoured to drive off two hostile scouts by firing Very lights at them. Exhausted by his exertions, he temporarily lost consciousness, but recovered sufficiently to land his machine safely. This officer has destroyed 14 machines and four balloons, and has repeatedly displayed an utter disregard for danger in attacking ground targets. (Gazetted Dec. 3rd.)

Lt. (temp. Capt.) A. W. BEAUCHAMP-PROCTOR, M.C., D.F.C.
A fighting pilot of great skill, and a splendid leader. He rendered brilliant service on Aug. 22nd, when his flight was detailed to neutralise hostile balloons. Having shot down one balloon in flames, he attacked the occupants of five others in succession with machine-gun fire, compelling the occupants in each case to take to parachutes. He then drove down another balloon to within 50 ft. of the ground, when it burst into flames. In all he has accounted for 33 enemy machines and seven balloons. (Gazetted Nov. 2nd.)

Capt. (temp. Maj.) DAVID EDMUND STODART, D.F.C.
Whilst commanding a flight of the Royal Air Force the whole of the flying officers had become incapacitated through sickness or wounds, and their duties were then performed by himself in addition to his administrative work as commanding officer. During this period Maj. Stodart dropped 115 bombs on the enemy's position, exposed 326 negatives over enemy territory, and acted as observer for 163 rounds of our heavy artillery. In a period of 21 days this officer was 37 hours in the air, performing all the duties of an entire flight, a record which it would be difficult to surpass. (Gazetted Sept. 10th.)

Maj. and Temp. Lt.-Col. J. E. TENNANT, M.C. (fmly Bt. Maj., Scots Guards.)
For service in operations in Mesopotamia. (Gazetted Aug. 3rd.)

Maj. (temp. Lt.-Col.) ARTHUR COURTNEY BODDAM-WHETHAM. (Gazetted June 3rd.)

Capt. A. H. WHISTLER, D.F.C. (Dorset R.).
During recent operations this officer has rendered exceptionally brilliant service in attacking enemy aircraft and troops on the ground. On Aug. 9th he dropped four bombs on a hostile battery, engaged, and threw into confusion a body of troops, and drove down a hostile balloon, returning to his aerodrome after a patrol of one and a half hour's duration with a most valuable report. He has in all destroyed 10 aircraft and driven down five others out of control. (Gazetted Nov. 2nd.)

Capt. (temp. Maj.) WARWICK WRIGHT. (Gazetted June 3rd.)

A SECOND BAR TO THE DISTINGUISHED FLYING CROSS.

Lt. (temp. Capt.) ARTHUR HENRY COBBY, D.F.C., Aust. F.C. (Gazetted Sept. 10th.)

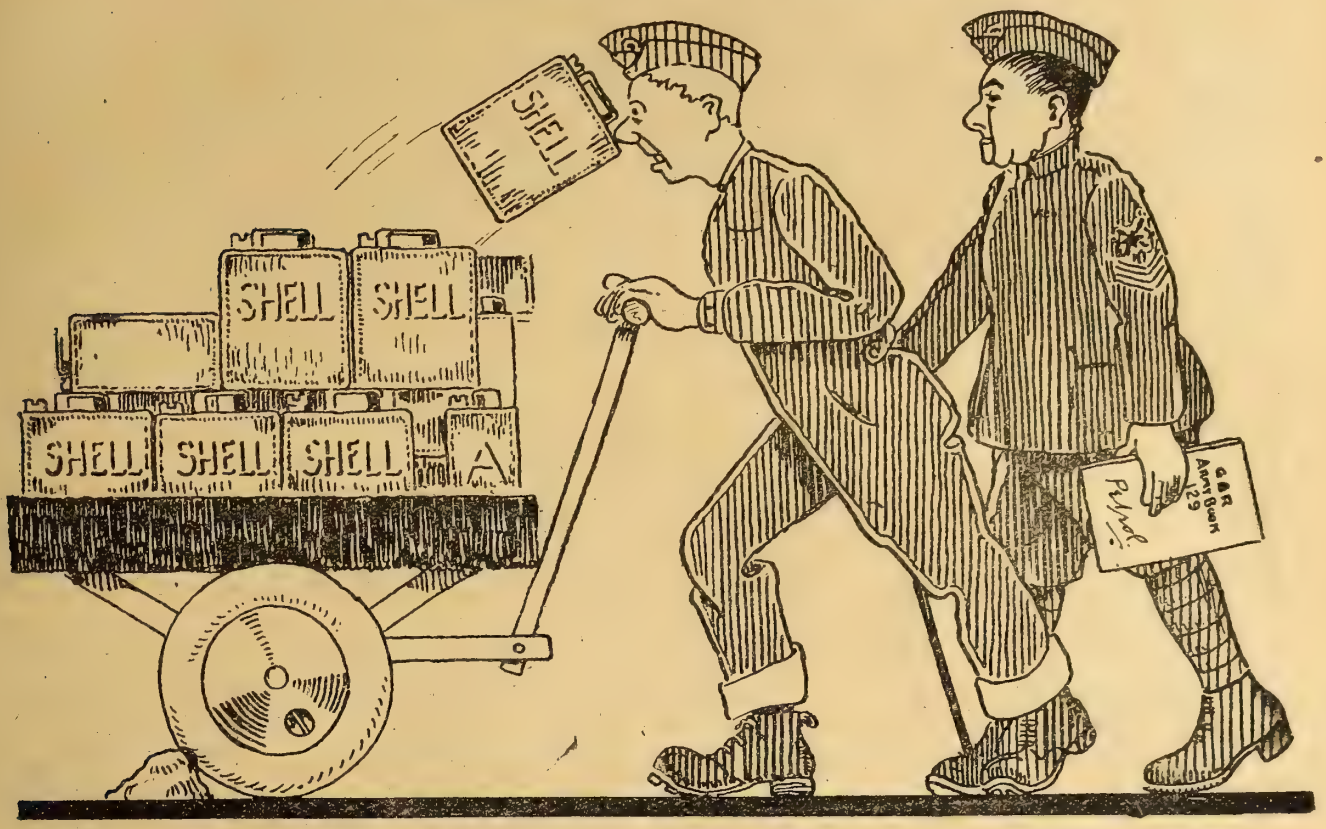
A BAR TO THE DISTINGUISHED FLYING CROSS.

Lt. (actg. Capt.) OWEN MORGAN BALDWIN, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) RONALD BURNS BANNERMAN, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) HORACE DALE BARTON, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) REGINALD CAREY BRENTON BRADING, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) COLIN PETER BROWN, D.F.C. (Sea Patrol, Flanders.) (Gazetted Dec. 3rd.)
Lt. WILLIAM GORDON CLAXTON, D.F.C. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) ARTHUR HENRY COBBY, D.F.C., Aust. F.C. (Gazetted Sept. 10th.)
Lt. H. B. DAVIES, D.F.C. (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) CARL FREDERICK FALKENBERG, D.F.C. (Quebec R.). (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) GEORGE BRIAN GATES, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. THOMAS SINCLAIR HARRISON, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) WILLIAM FREDERICK JAMES HARVEY, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) T. F. HAZELL, M.C., D.F.C. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) C. R. R. HICKEY, D.F.C., Sea Patrol (Can. Mtd. Rif.). (Gazetted Nov. 2nd.)
Capt. R. HILTON, M.C., D.F.C. (R.G.A.) (Gazetted Nov. 2nd.)
Capt. WILLIAM HENRY HUBBARD, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) WILLIAM ROY IRWIN, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) JAMES IRA THOMAS JONES, M.C., D.F.C., M.M. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) S. C. JOSEPH, D.F.C. (Sea Patrol.) (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) S. M. KINKEAD, D.S.C., D.F.C. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) EDGAR JAMES MCCLAUGHRY, D.F.C., Aust. F.C. (Gazetted Sept. 10th.)
Lt. CLIFFORD MCEWEN, M.C., D.F.C. (15th Res. Bn., Can. Inf.). (Italy.). (Gazetted Dec. 3rd.)
Sec. Lt. (actg. Capt.) HAMISH DUNCAN MCLAREN, D.F.C. (Sea Patrol), Flanders.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) ROBY LEWIS MANUEL, D.F.C. (Aust. F.C.). (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) JOHN STANLEY FLEMING MORRISON, D.F.C. (Gazetted Sept. 10th.)
Lt. CROYE ROTHES PITHEY, D.F.C. (France.) (Gazetted Dec. 3rd.)
Sec. Lt. (actg. Lt.) HERVEY RHODES, D.F.C. (York. R.) (France.) (Gazetted Dec. 3rd.)
Lt. ARTHUR EDEN REED, R.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) CHARLES GORDEN ROSS, D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) WILLIAM ERNEST STATON, M.C., D.F.C. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) EDWIN SWALE, D.F.C. (Sea Patrol, Flanders.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) ADRIAN JAMES BOSWELL TONKS, D.F.C. (Sea Patrol, Flanders.) (Gazetted Dec. 3rd.)
Sec. Lt. (Hon. Lt.) G. N. THOMSON, D.F.C. (H.L.I.) (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) C. J. VENTER, D.F.C. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) J. L. M. WHITE, D.F.C. (Can. M.G.C.) (Gazetted Nov. 2nd.)
Lt. (actg. Capt. FRANK ROY WALKER, D.F.C. (Middx R.) (France.) (Gazetted Dec. 3rd.)
Lt. H. N. YOUNG, D.F.C. (Gazetted Nov. 2nd.)

THE DISTINGUISHED FLYING CROSS.

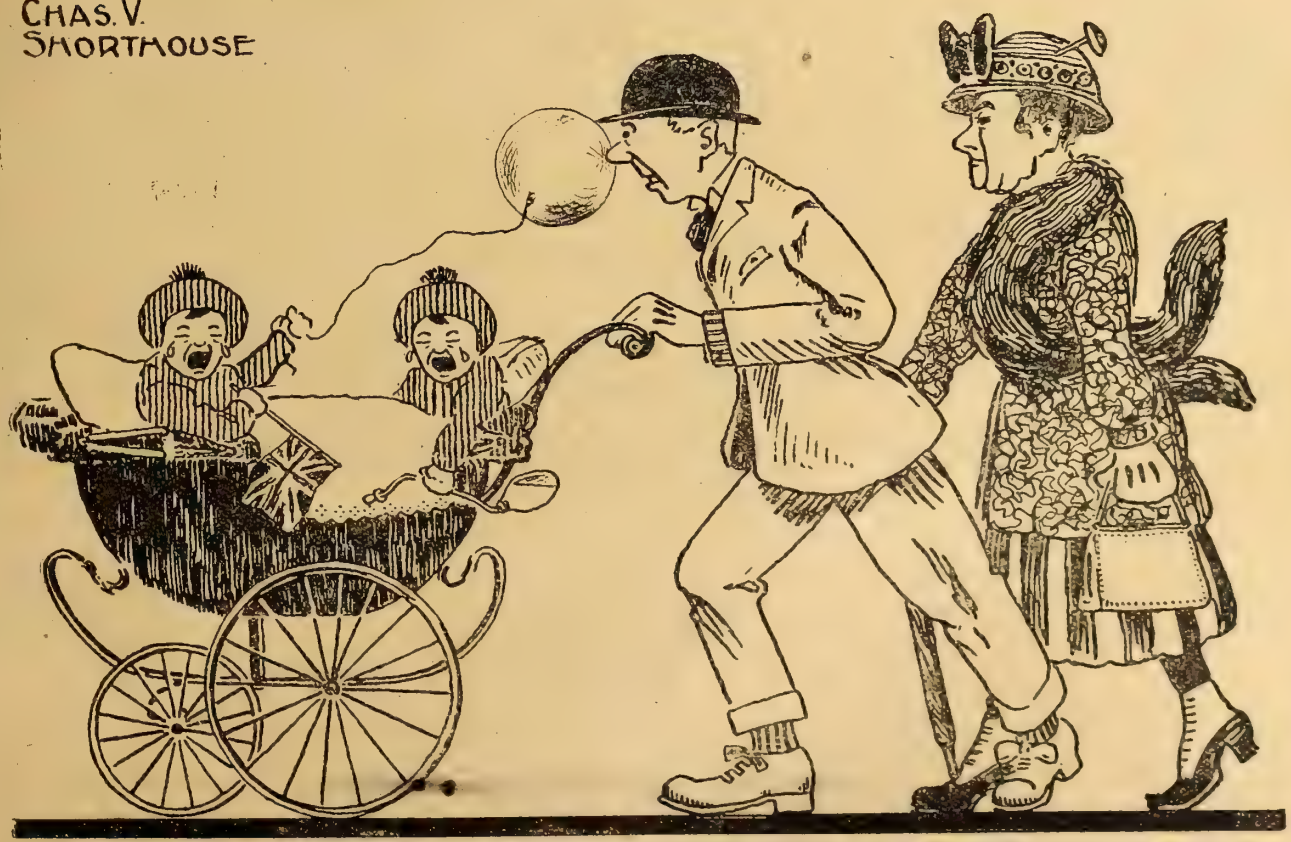
Lt. (actg. Capt.) EDWARD JOHN ADDIS. (Sea Patrol, North Sea.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) R. AFFLECK. (Gazetted Aug. 3rd.)
Lt. CHARLES EDWARD HAMILTON ALLEN. (France.) (Gazetted Dec. 3rd.)
Sec. Lt. C. F. AMBLER (R. Ir. Fus.). (Gazetted Nov. 2nd.)
Lt. EDGAR OXENHAM AMM. (France.) (Gazetted Dec. 3rd.)
Sec. Lt. A. M. ANDERSON (Obsr., No 6 Sqdn.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) S. ANDERSON. (Gazetted Aug. 3rd.)
Lt. CHARLES TORR ANDERSON. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) SYDNEY ANDERSON (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (Hon. Capt.) WILLIAM HOPTON ANDERSON, A.F.C. (Gazetted June 3rd.)
Lt. (Hon. Capt.) THOMAS COCHRANE ANGUS (Hon. Art. Co.). (Gazetted Sept. 10th.)
Sec. Lt. PERCIVAL EWART APPLEBY. (Gazetted Nov. 2nd.)
Lt. GORDON FRANK MASON APPS. (Gazetted Sept. 10th.)
Lt. R. C. ARMSTRONG (A.F.C.). (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) DURBAN VICTOR ARMSTRONG. (France.) (Gazetted Dec. 3rd.)
Lt. L. A. ASHFIELD. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) E. D. ATKINSON. (Gazetted Aug. 3rd.)
Capt. R. N. G. ATKINSON, M.C. (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) JOHN AUSTIN-SPARKS. (France.) (Gazetted Dec. 3rd.)
Lt. H. AXFORD, (Can. Inf.). (Gazetted Nov. 2nd.)
Lt. G. G. BAILEY. (Gazetted Aug. 3rd.)
Lt. T. L. BAILLIEU (Aus. F.C.). (Gazetted Nov. 2nd.)
Lt. L. K. BAKER. (Gazetted Nov. 2nd.)
Lt. OWEN MORGAN BALDWIN. (Gazetted Sept. 10th.)
Lt. R. B. BANNERMAN. (Gazetted Nov. 2nd.)
Sec. Lt. THOMAS HARRY BARKELL (Aus. F.C.). (France.) (Gazetted Dec. 3rd.)
Capt. ARTHUR THOMAS BARKER (Sea Patrol). (Gazetted Sept. 10th.)

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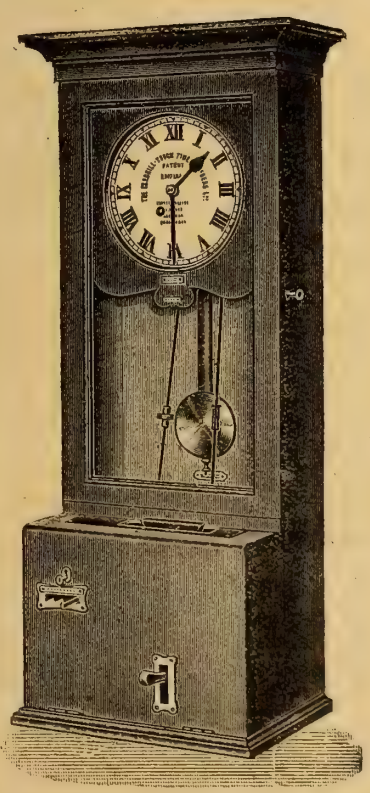
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Lt. Henry Balfour Barwise. (Gazetted June 12th.)
Capt. T. A. Batchelor. (Gazetted Aug. 3rd.)
Lt. David Claud Bauer. (Gazetted June 3rd.)
Lt. (Hon. Capt.) O. L. Beater. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) A. W. Beauchamp-Proctor, M.C. (Gazetted Aug. 3rd.)
Lt. (actg. Capt.) Alexander Beck. (France.) (Gazetted Dec. 3rd.)
Lt. Robert Stevenson Bell. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) G. G. B[illegible] (E. Ontario R.). (Gazetted Nov. 2nd.)
Lt. John Ross Bell (Dorset R.). (Gazetted Sept. 10th.)
Lt. (actg. Capt.) Frank Belway. (France.) (Gazetted Dec. 3rd.)
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Lt. R. C. Bennett. (Gazetted Nov. 2nd.)
Lt. (Hon. Capt.) Claver Victor Bessett. (Gazetted June 3rd.)
Capt. Eric Bourne Coulter Betts, D.S.C. (Sea Patrol). (Gazetted Sept. 10th.)
Capt. F. Billinge (Manch. R.). (Gazetted Nov. 2nd.)
Sec. Lt. Harold Frank Birchal, R.E. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) Robert Alexander Birkbeck. (Gazetted June 3rd.)
Capt. (temp. Maj.) W. A. Bishop, V.C., D.S.O., M.C. (fmly. Canadian Cavalry). (Gazetted Aug. 3rd.)
Lt. (actg. Capt.) Henry Arthur Richard Biziou. (France.) (Gazetted Dec. 3rd.)
Lt. George Godfrey Leigh Blake, D.C.M. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) W. O. Boger (Strathcona's Horse). (Gazetted Nov. 2nd.)
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Sec. Lt. S. A. Brabner (Sea Patrol). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) R. C. B. Brading. (Gazetted Nov. 2nd.)
Capt. (actg. Maj.) Christopher Joseph Quintin Brand, D.S.O., M.C. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) S. G. Brearley (Aus. F.C.). (Gazetted Nov. 2nd.)
Lt. H. Briggs. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) F. T. Bright. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) D. R. Brook. (Gazetted Nov. 2nd.)
Lt. E. G. Brookes. (Gazetted Aug. 3rd.)
Lt. Frank Crossley Griffithes Broome. (France.) (Gazetted Dec. 3rd.)
Lt. Albert James Ernest Broomfield. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) C. Bowman. (Gazetted Nov. 2nd.)
Lt. Le R. L. Brown (fmly. 2nd Canadian D.S. Column). (Gazetted Aug. 3rd.)
Lt. Colin Peter Brown (Sea Patrol). (Gazetted Sept. 10th.)
Lt. J. M. Brown (35th Sqdn.). (Gazetted Nov. 2nd.)
Lt. Archibald Buchanan, 210th Sqdn. (Sea Patrol, Flanders.) (Gazetted Dec. 3rd.)
Capt. Geoffrey Sebastian Buck, M.C. (Lond. R.). (Gazetted Nov. 2nd.)
Lt. R. F. Buick. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) H. J. Burden (Can. Forestry C.). (Gazetted Nov. 2nd.)
Lt. (Hon. Capt.) E. J. P. Burling. (Gazetted July 2nd.)
Lt. E. A. Burn. (Gazetted Nov. 2nd.)
Lt. (actg. Flt. Comdr.) M. H. Butler (Sea Patrol). (Gazetted Nov. 2nd.)
Capt. (temp. Maj.) Egbert Cadbury, D.S.C. (Pilot). (Gazetted Sept. 10th.)
Lt. Richard Claude Cain. (Gazetted Sept. 10th.)
Capt. (actg. Maj.) Keith Logan Caldwell, M.C. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) R. D. Caley. (Gazetted Nov. 2nd.)
Lt. John Geoffrey Sadler Candy. (Gazetted June 3rd.)
Sec. Lt. (temp. Lt.) E. H. Canning (Glouc. R.). (Gazetted Nov. 2nd.)
Capt. Douglas Hugh Moffatt Carbery, M.C. (R.F.A.). (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) Walter Macfarlane Carlaw. (France.) (Gazetted Dec. 3rd.)
Lt. S. Carlin, M.C., D.C.M. (R.E.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) F. M. Carter. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Bernard Purvis Broackes Carter. (Gazetted June 3rd.)
Sec. Lt. (actg. Lt.) Robert Francis Casey (R. Innis. Fus.). (Indt. Force, France.) (Gazetted Dec. 3rd.)
Lt. Oliver Chance Cassels. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) B. E. Catchpole, M.C. (Gazetted Nov. 2nd.)
Lt. A. W. Chadwick. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) John Foster Chisholm, D.S.C. (Sea Patrol). (Gazetted Sept. 10th.)
Lt. Leonard Arthur Christian (late R.N.A.S.). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) A. R. Churchman. (Gazetted Aug. 3rd.)
Sec. Lt. Ernest John Clark. (France.) (Gazetted Dec. 3rd.)
Lt. Henry Edward Clark (Sea Patrol). (Gazetted Sept. 10th.)
Lt. W. G. Claxton. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) A. Claydon (fmly. Can. F. Arty.). (Gazetted Aug. 3rd.)
Lt. (Hon. Capt.) W. F. Cleghorn. (Gazetted Aug. 3rd.)
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Lt. J. E. Croden. (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) Alfred Richard Cross. (France.) (Gazetted Dec. 3rd.)
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Capt. S. Dalrymple. (Gazetted Nov. 2nd.)
Temp. Lt. J. A. E. R. Daley (fmly. B.W. Indies R.). (Gazetted Aug. 3rd.)
Lt. Douglas Darby (Scottish Rif.). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) C. H. Darley, D.S.C. (Gazetted Aug. 3rd.)
Lt. G. W. F. Darvill. (Gazetted Nov. 2nd.)
Capt. Roydon Englefield Ashford Dash. (Gazetted June 3rd.)
Lt. D. A. Davies (Wilts R.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Francis James Davies. (Gazetted Sept. 10th.)
Lt. H. B. Davies. (Gazetted July 2nd.)
Lt. (temp. Capt.) Richard Jeffrey Dawes. (Gazetted Sept. 10th.)
Lt. Samuel Dawson (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (actg. Capt.) Frederick William Deans (R. Ir. Rif.). (Air Raid Service.) (Gazetted Nov. 30th.)
Capt. Roger Amedee Delhaye. (France.) (Gazetted Nov. 30th.)
Sec. Lt. J. G. Dennis. (Gazetted Nov. 2nd.)
Lt. (Hon. Capt.) Hippolyte Ferdinand Delarue (Sea Patrol). (Gazetted Sept. 10th.)
Sec. Lt. Edward Alphonse Dew. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) H. R. De Wilde. (Gazetted Nov. 2nd.)
Sec. Lt. Thomas Archibald Dickinson. (Gazetted Nov. 2nd.)
Lt. (Hon. Capt.) Evan Dickson, D.S.C. (late R.N.A.S.). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) John Charles Oswald Dickson. (Gazetted June 3rd.)
Lt. David Frederick Dimsey (Aus. F.C.). (France.) (Gazetted Nov. 30th.)
Sec. Lt. William Frank Dollery (R.G.A.). (France.) (Gazetted Nov. 30th.)
Sec. Lt. B. Donald. (Gazetted Nov. 2nd.)
Capt. Grahame Donald (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) M. L. Doyle (Quebec R.). (Gazetted Nov. 2nd.)
Lt. V. Dreschfield. (Gazetted Aug. 3rd.)
Lt. Gordon Metcalfe Duncan. (France.) (Gazetted Nov. 30th.)
Sec. Lt. S. L. Dunlop. (Gazetted Nov. 2nd.)
Lt. William Stanley Eastaugh. (France.) (Gazetted Nov. 30th.)
Lt. Cedric George Edwards. (Gazetted Sept. 10th.)
Sec. Lt. Harold Edwards. (France.) (Gazetted Nov. 30th.)
Lt. Cyril Norman Ellen. (Sea Patrol, Mediterranean.) (Gazetted Nov. 30th.)
Lt. (temp. Capt.) W. B. Elliott. (Gazetted Nov. 2nd.)
Lt. Harold Robert Wake Ellison. (Sea Patrol, Flanders.) (Gazetted Nov. 30th.)
Capt. Albert James Ensyone, D.S.C. (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (actg. Capt.) Dudley Lloyd Evans, M.C. (Wales Bord.). (France.) (Gazetted Nov. 30th.)
Lt. (temp. Capt.) Carl Frederick Falkenberg (Quebec R.). (Gazetted Nov. 2nd.)
Lt. H. Fall. (Gazetted Aug. 3rd.)
Lt. Conway Macalister Gray Farrell. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) William Hastings Farrow. (Gazetted Nov. 2nd.)
Lt. Alfred Juan Oswald Farina. (Sea Patrol, Irish Sea.) (Gazetted Dec. 3rd.)
Capt. Stanley John Fetherston (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) M. H. Findlay, D.S.C. (Gazetted Aug. 3rd.)
Lt. Gordon Aird Flavelle. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) H. E. Fletcher. (Gazetted July 2nd.)
Lt. (temp. Capt.) Ernest William Fletcher (Essex R.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) J. H. Forman. (Gazetted Aug. 3rd.)
Capt. H. G. Forrest (Aus. F.C.). (Gazetted Aug. 3rd.)
Lt. George Buchanan Foster. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) R. M. Foster. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Gordon Fox-Rule. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Reginald George David Francis (Aus. F.C.). (Gazetted Sept. 10th.)
Lt. Thomas Howell French. (Gazetted June 3rd.)
Sec. Lt. Norman Frederick Frome. (Gazetted Nov. 2nd.)
Lt. Charles Franklin Galbraith. (Gazetted Nov 2nd.)
Capt. John Osborn Galpin, D.S.C. (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Richard John Gammon. (Gazetted Nov. 2nd.)
Lt. Harold Archibald Edward Gard. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) William Charles Gardiner. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Cecil Vernon Gardner. (Gazetted Nov. 2nd.)
Lt. George Cecil Gardner. (Gazetted June 3rd.)
Lt. George Brian Gates. (Gazetted Nov. 2nd.)
Lt. Oswald Robert Gayford (Obsr.) (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (actg. Capt.) George Everard Gibbons, M.C. (France.) (Gazetted Dec. 3rd.)
Capt. (actg Maj.) Evan James Leslie Warren Gilchrist, M.C. (9th Lancers.) (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) John Gordon Gillanders (18th Squ.) (Gazetted Nov. 2nd.)
Lt. Frederick Warrington Gillett. (Gazetted Nov. 2nd.)
Capt. D. Gilley. (Gazetted Aug. 3rd.)
Lt. J. M. Glaisher. (Gazetted Aug. 3rd.)
Capt. Arthur Willoughby Falls Glenny, M.C. (A.S.C.) (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) Clive Beverley Glynn (Lpool. R.). (France.) (Gazetted Dec. 3rd.)
Temp. Capt. F. Godfrey (late Middx. R.). (Gazetted Aug. 3rd.)
Sec. Lt. (Hon. Lt.) Frank Godson (Linc. Yeo.). (Gazetted Nov. 2nd.)
Lt. (Hon. Capt.) Harold Harrison Gonyou. (Gazetted June 3rd.)
Sec. Lt. (actg. Capt.) Harry King Goode. (Italy.) (Gazetted Dec. 3rd.)
Capt. James Lindsay Gordon (Sea Patrol). (Gazetted Sept. 10th.)
Capt. John Farquhar Gordon (Gord. Highrs.). (Gazetted Nov. 2nd.)
Sec. Lt. (temp. Lt.) Robert MacIntyre Gordon (Sea Patrol). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Norman Goudie. (Gazetted Nov. 2nd.)
Lt. John Gould-Taylor (A.F.C.). (Gazetted Nov. 2nd.)
Lt. Gavin Lynedoch Graham. (Gazetted Nov. 2nd.)
Lt. William Edrington Gray (Sea Patrol). (Gazetted Nov. 2nd.)
Lt. Arthur Edward Grigson (A.F.C.). (Gazetted Nov. 2nd.)
Capt. John William Boldero Grigson.
Lt. John Edmund Greene. (Gazetted June 3rd.)
Lt. (actg. Capt.) Wilfred Barrat Green. (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) William Edward Green. (France.) (Gazetted Dec. 3rd.)
Lt. Gerald Aloysius Griffin (R. Dub. Fus.). (France.) (Gazetted Dec. 3rd.)
Lt. John Sharpe Griffith. (Gazetted Sept. 10th.)
Capt. Arthur Cecil Haywood Groom. (Ind. Force, France.) (Gazetted Dec. 3rd.)
Lt. Victor Emmanuel Groom. (Gazetted Nov. 2nd.)
Lt. William Grossart. (Gazetted Sept. 10th.)
Lt. J. E. Gurdon. (Gazetted Aug. 3rd.)
Sec. Lt. Charles Gordon Haigh. (France.) (Gazetted Dec. 3rd.)
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Lt. (temp. Capt.) R. Halley. (Gazetted Aug. 3rd.)
Lt. H. N. Hampton. (Gazetted Aug. 3rd.)
Lt. Ernest Hardcastle. (Gazetted Nov. 2nd.)
Lt. Edward Delta Harding. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Frederick George Darby Hards, D.S.C. (Gazetted June 3rd.)
Lt. (temp. Capt.) George Henry Harrison. (Middx. R.). (Gazetted Sept. 10th.)
Lt. Thomas Sinclair Harrison. (Gazetted Sept. 10th.)
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Lt. (Hon. Capt.) Edwin Tufnell Hayne, D.S.C. (late R.N.A.S.). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Tom Falcon Hazell, M.C. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Reginald Stacey Hellier (S. Lanc. R.) (Gazetted Nov. 2nd.)
Sec. Lt. (Hon. Lt.) Norman William Helwig (C. Ontario R.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Alfred Stewart Hemming. (Gazetted Nov. 2nd.)
Lt. Francis Herbert Ronald Henwood, (Gazetted June 3rd.)
Lt. Horace Robert Hern. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) James Edmund Hibbert, M.C. (S. Lanc. R.) (Gazetted Nov. 2nd.)
Lt. C. R. R. Hickey. (Gazetted Aug. 3rd.)
Lt. Sidney William Highwood. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) William Carroll Hilborn. (Gazetted Nov. 2nd.)
Sec. Lt. (Hon. Capt.) Alan Morton Francis Hill, K.R.R.C. (France.) (Gazetted Dec. 3rd.)
Capt. Richard Hilton, M.C. (R.G.A.) (Gazetted Sept. 10th.)
Capt. (temp. Maj.) Thomas Hinshelwood (Sea Patrol). (Gazetted Sept. 10th.)
Sec. Lt. Thomas Godwin Hobbs. (France.) (Gazetted Dec. 3rd.)
Temp. Lt. G. H. Hobson, (fmly Northd. Fus.). (Gazetted Aug. 3rd.)
Lt. Philip Terence Holligan. (Gazetted Nov. 2nd.)
Lt. Leslie Norman Hollinghurst, Middx. R. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) Jeffrey Batters Home-Hay, M.C. (Arg. and Suthd. Highrs.). (Gazetted Sept. 10th.)
Sec. Lt. R. J. Hook (late Rifle Brigade). (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Cedric Ernest Howell. (Gazetted Sept. 10th.)
Lt. (actg. Capt.) Ernest Charles Hoy. (France.) (Gazetted Dec. 3rd.)
Lt. Will Hubbard. (Gazetted Nov. 2nd.)
Capt. W. H. Hubbard. (Gazetted Aug. 3rd.)
Lt. David James Hughes. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) John Ellis Langford Hunter, D.S.C. (Sea Patrol). (Gazetted Nov. 2nd.)
Lt. William George Hurrell. (Gazetted Nov. 2nd.)
Sec. Lt. Joseph Harold Huxley. (France.) (Gazetted Dec 3rd.)
Lt. Gordon Frank Hyams. (Gazetted June 3rd.)
Lt. Paul Thayer Iaccaci. (Gazetted Sept. 10th.)
Sec. Lt. (Hon. Lt.) Robert Kirk Inches (R.E.) (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Harold Mervyn Ireland. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) G. Irving. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) William Roy Irwin. (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) Ronald Ivelaw-Chapman. (France.) (Gazetted Dec. 3rd).
Lt. (Hon. Capt.) William Douglas Jackson (Sea Patrol). (Gazetted Sept. 10th.)
Lt Mansell Richard James. (Gazetted Nov. 2nd.)
Sec. Lt. Robert McKinley Jamison (R. Ir. Rif.). (Gazetted Nov. 2nd.)
Lt. Arthur Eygeum de Montaigne Jarvis (E. Ont. R.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Victor Frederick Jaynes. (Gazetted Nov. 2nd.)
Lt. John Kingsley Jeakes (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Thomas Gordon Jefferies (R.F.A.). (Gazetted Nov. 2nd.)
Sec. Lt. William Stanley Jenkins. (Sea Patrol.) (Gazetted Nov. 2nd.)
Lt. Wilfred James Pardo Jenner. (Sea Patrol, Flanders.) (Gazetted Dec. 3rd.)
Lt. Laurence Arthur Jessop. (Sea Patrol, Mediterranean.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) Edgar Charles Johnson. (Gazetted Nov. 2nd.)
Lt. Edward Haines Johnson. (Gazetted Nov. 2nd.)
Lt (temp Capt.) Norman Cyril Jones (R.F.A., T.F.). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) J. I. T. Jones, M.M. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Lionel Herbert Jones. (Gazetted Nov. 2nd.)
Lt. W. E. F. Jones. (Gazetted Aug. 3rd.)
Lt. (actg. Capt.) R. T. Jones. (France.) (Gazetted Dec 3rd.)
Lt. (actg. Capt.) S. Jones. (France.) (Gazetted Dec. 3rd.)
Capt. Allen Murray Jones, M.C. (A.F.C.). (Gazetted June 3rd.)
Lt. (temp. Capt.) Ernest James Jones (A.F.C.). (Gazetted June 3rd.)
Lt. Gordon Sheppard Jones-Evans (A.F.C.). Gazetted Sept.10th.)
Lt. (Hon. Capt.) William Lancelot Jordan, D.S.C. (late R.N.A.S.) (Gazetted Sept. 10th.)
Lt. Solomon Clifford Joseph (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Noel Keeble, D.S.C. (Sea Patrol). (Gazetted Sept. 10th.)
Lt. J. E. Kendrick (Northd. Fus.) (France.) (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) B. G. H. Keymer (Sea Patrol, Mediterranean). (Gazetted Dec. 3rd.)
Lt. Ralph Edmund Keys (Pilot) (Sea Patrol) (Gazetted Sept. 10th.)
Lt. (actg. Capt.) R. King (A.F.C.) (France). (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) Charles Ley King, M.C. (Gazetted Nov. 2nd.)
Lt. Sec. Lt. (temp. Capt.) C. F. King, M.C. (Gazetted Aug. 3rd.)
Lt. (Hon. Capt.) E. M. King. (Gazetted July 2nd.)
Lt. G. A. King (Obsr.). (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) S. M. Kinkead, D.S.C. (Gazetted Aug 3rd.)
Lt. A. Kiteley (R.F.A.) (France). (Gazetted Dec. 3rd.)
Lt Harold Albert Kullberg. (Gazetted Nov. 2nd.)
Lt. A. T. Laccaci. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Camille Henri Raoul Lagesse. (Gazetted Nov. 2nd.)
Lt. F. J. Lain (late Border R.). (Gazetted Aug. 3rd.)
Sec. Lt. (actg. Capt.) H. P. Lale. (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) W. C. Lambert. (Gazetted Aug. 3rd.)
Capt. Herbert Joseph Larkin. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Frederick Andrew Laughlin. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Dennis Latimer, M.C. (Gazetted Sept. 10th).
Lt (temp. Capt.) Harold Aidan Laycock (Gazetted June 3rd.)
Capt. M. Le Blanc-Smith. (Gazetted Aug. 3rd.)
Lt (temp Capt.) Robert Leckie, D.S.O., D.S.C. (Obsr.). (Gazetted Sept. 10th.)
Lt. W. H. Leete. (Gazetted Aug. 3rd.)
Lt (Hon. Capt.) H. de V. Leigh. (Gazetted July 2nd.)
Lt. (temp. Capt.) Alfred Alexander Leitch, M.C. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Gwilyn Hugh Lewis (Northamptonshire Regt.). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) A. O. Lewis-Roberts. (Gazetted Aug. 3rd.)
Capt. (temp. Maj.) Gerald Edward Livock (Sea Patrol). (Gazetted Sept. 10th.)
Sec. Lt. E. N. Lohmeyer, (Gazetted Aug. 3rd.)
Lt. Harry Fearnley Longbottom. (Gazetted Nov. 2nd.,
Lt. Walter Hunt Longton (A.F.C.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Frederick Ives Lord. (Gazetted Nov. 2nd.)
Capt. C. N. Lowe, M.C. (Gazetted Aug 3rd.)
Lt. Emile John Lussier. (Gazetted Nov. 2nd.)
Lt William Myron Macdonald. (Gazetted Nov. 2nd.)
Capt. D. K. G. Mackay (Ind. Force.) (France). (Gazetted Dec. 3rd.)
Lt. John McMillan MacLennan. (Gazetted Nov. 2nd.)
Lt. Arthur William Macnamara. (Gazetted Nov 2nd.)
L.-Col. William Foster MacNeece, D.S.O. (R.W. Kent R.). (Gazetted Nov. 2nd.)
Lt William Ewen Macpherson. (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) W. E. G. Mann (France). (Gazetted Dec 3rd.)
Lt. R. L. Manuel (A.F.C.) (Gazetted Aug 3rd.)
Lt. Keith Douglas Marshall. (Gazetted Nov 2nd.)
Lt. Charles Midgley Maud. (Gazetted Nov. 2nd.)
Lt. Norman William Reginald Mawle (Lond R.). (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) W. R. May (France). (Gazetted Dec. 3rd.)
Maj. Wilfred Ashton McCloughry, M.C. (A.F.C.) (Gazetted Nov. 2nd.)
Lt. R. K. McConnell (France). (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) J. D. R. McDonald. (Gazetted Aug. 3rd.)
Sec. Lt. (actg. Lt.) J. McDonald (Obsr., No. 9 Sqdn.) (France). (Gazetted Dec. 3rd.)
Lt. V. H. McElroy (Can. Engrs.) (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) Malcolm Charles McGregor. (Gazetted Nov. 2nd.)
Lt. A. McGregor. (Gazetted Aug. 3rd.)
Sec. Lt. (temp. Lt.) Hamish Duncan McLaren (Sea Patrol) (Gazetted Nov. 2nd.)
Lt. Robert McLaughlin. (Gazetted Nov. 2nd.)
Lt. Douglas William Mackintosh Miller. (Gazetted Nov. 2nd.)
Lt. H. A. S. Molyneux (Can. Forces and 56th Sqdn.) (France). (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) G. N. Moore (France). (Gazetted Dec. 3rd.)
Lt (temp. Capt.) Ernest Thomas Morrow. (Gazetted Nov. 2nd.)
Lt. Claud Louis Morley. (Gazetted Nov. 2nd.)
Lt George Chisholme Mackay. (Gazetted June 3rd.)
Lt. (temp. Capt.) Donald Roderick MacLaren, M.C. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) William Man.
Lt. Roy Manzer. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) J. M. Mason, D.S.C. (Gazetted Aug. 3rd.)
Capt. G. J. C. Maxwell, M.C. (Gazetted Aug 3rd.)
Lt. F. R. McCall, M.C. (fmly. Alberta R.). (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Edgar James McClaughry (A.F.C.) (Gazetted Sept. 10th.)
Lt. M. McConville, M.C. (late West Yorks. R.) (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) G. E. H. McElroy, M.C. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) George Edward Henry McElroy, M.C., D.F.C. (R.G.A.). (Gazetted Sept. 10th.)
Lt Christopher McEvoy. (Gazetted Sept. 10th.)
Lt. C. McEwen, M.C. (Gazetted July 2nd.)
Lt. Clifford McEwen, M.C. (Can. Inf., Res. Bn.). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Evans Alexander McKay, M.C. (Gazetted Sept. 10th.)
Lt. (Hon. Capt.) Harold Thomas Mellings, D.S.C. (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) T. P. Middleton. (Gazetted Aug. 3rd.)
Lt. (Hon. Capt.) V. Millard (Gazetted July 2nd.)
Sec. Lt. (Hon. Lt.) A. Mills. (Gazetted Aug 3rd.)
Lt. (temp. Capt.) James Mitchell, M.C. (Gazetted Sept. 10th.)
Lt (temp. Capt.) J. Mitchell, M.C. (Gazetted July 2nd.)
Lt. Edward Stanley Morgan. (Gazetted Nov. 2nd.)
Lt. (temp. Cpt.) John Stanley Fleming Morrison. (Gazetted June 3rd.)
Lt. (temp. Capt.) Harry Munden (Som. L.I.). (Gazetted Nov. 2nd.)
Lt. Thomas Walter Nash (Sea Patrol). (Gazetted Nov. 2nd.)
Lt. M. A. Newnham (France). (Gazetted Dec. 3rd.)
Lt. George Oakley Newton. (Gazetted Nov. 2nd.)
Sec. Lt. W. Noble (fmly. Essex R.) (Gazetted Aug 3rd.)
Lt. (temp. Capt.) Allen Robert Nock, Sea Patrol (R. War. R.) (Gazetted Nov. 2nd.)
Lt. Philip John Nolan. (Gazetted June 3rd.)
Sec. Lt. F. S. Occomore (France). (Gazetted Dec. 3rd.)
Lt. James Henry O'Connell. (Gazetted Nov. 2nd.)
Sec. Lt. (temp. Lt.) W. O'Reilly-Patey (fmly. London R.). (Gazetted Aug. 3rd.)
Lt. William John Pace. (Gazetted Nov. 2nd.)
Lt. Martheinus Theunis Steyn Papenfus. (Gazetted Sept. 10th.)
Sec. Lt. G. L. Pargeter (R. Fus.) (France). (Gazetted Dec. 3rd.)
Lt Joshua Parke. (Gazetted Sept. 10th.)
Lt. C. Parry. (Gazetted Aug. 3rd.)
Lt. (Hon. Capt.) Thomas Cooper Pattinson. (Gazetted June 3rd.)
Maj. Lawrence Arthur Pattison, M.C. (R. Fus.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Herbert Andrew Patey (Sea Patrol). (Gazetted Sept. 10th.)
Sec. Lt. William Russell Patey (R. Ir. R.). (Gazetted Sept. 10th.)
Lt. C. W. Payton (Sea Patrol, Flanders) (Gazetted Dec. 3rd.)
Lt. William James Peace. (Gazetted Nov. 2nd.)
Lt. (Hon. Capt.) Arthur Henry Pearce. (Gazetted June 3rd.)
Lt. (actg. Capt.) H. A. Pearson, M.C. (Italy). (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) Edward Robert Pennell. (Gazetted June 3rd.)
Lt. (Hon. Capt.) Samuel Richard Penrose Welsted. (Gazetted June 3rd.)
Lt. (temp. Capt.) A. A. N. Pentland, M.C. (Gazetted Aug. 3rd.)
Lt. (Hon. Capt.) Cecil Lodge Philcox. (Gazetted June 3rd.)
Capt. R. C. Phillipps, M.C. (A.F.C.) (Gazetted Aug. 3rd.)
Lt W. R. Phillips (Lond. R.). (France). (Gazetted Dec. 3rd.)
Lt. Alan MacMillan Phillips (Sea Patrol). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) S. N. Pike. (Gazetted Aug. 3rd.)
Lt. (Hon. Capt.) John William Pinder. (Gazetted June 3rd.)
Lt. C. F. Pineau (Sea Patrol, Flanders). (Gazetted Dec. 3rd.)
Lt. C. R. Pithey (Gazetted Aug. 3rd.)
Sec. Lt Desmond Philip Podson. (Gazetted Sept. 10th.)
Lt. B. G. Porter (France). (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) Walter George Presion. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Harry Puckle (Leic. R.). (Gazetted Nov. 2nd.)
Sec. Lt. Hartly Pullan. (Gazetted Sept. 10th.)
Sec. Lt. Francis James Ralph. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) John Steele Ralston, M.C. (Scottish Rifles, T.F.). (Gazetted Sept. 10th.)
Capt. Arthur Clunie Randall. (Gazetted Nov. 2nd.)
Lt. J. R. F. Randell (Sea Patrol, Mediterranean). (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) F. C. Ransley. (Gazetted Aug. 3rd.)
Sec. Lt. Cyril Lancelot Rayment. (Gazetted Sept. 10th.)
Lt (Hon. Capt.) Robert Redfern (Sea Patrol). (Gazetted Sept. 10th.)
Lt. (Hon. Capt.) W. O. Redgate. (Gazetted Aug. 3rd.)
Lt. R. H. Reece. (Gazetted Aug. 3rd.)
Lt. Arthur Eden Reed. (Gazetted Nov. 2nd.)
Temp. Capt. George Thomas Reid (Can. Forestry C.). (Gazetted Nov. 2nd.)
Lt. A. C. Reid (fmly. R.E.). (Gazetted Aug. 3rd.)

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Lt. Norman Roberts. (Gazetted Sept. 10th.)
Sec. Lt. A. W. Robertson. (Gazetted Aug. 3rd)
Sec. Lt. E. Robinson. (Gazetted July 2nd.)
Capt. John Robinson. (Gazetted June 3rd.)
Sec. Lt. A. A. Robinson, M.C. (Lpool. R.) (France.) (Gazetted Dec. 3rd.)
Capt. Leonard Henry Rochford, D.S.C. (Gazetted Nov. 2nd.)
Lt. O. J. Rose (France). (Gazetted Dec 3rd.)
Lt. Thomas Rose. (Gazetted Nov. 2nd)
Lt Charles Gordon Ross. (Gazetted Nov. 2nd)
Lt. (temp. Capt.) Charles Ross. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) H. L. Rough. (Gazetted Aug. 3rd.)
Lt. Edward Fearnley Rowntree (A.F.C.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Benjamin Roxburgh-Smith. Gazetted Nov. 2nd.)
Lt. Indra Lal Roy. (Gazetted Sept. 10th)
Lt. Horace William Russell. (Gazetted Nov 2nd.)
Sec. Lt. John Bernard Russell. (Gazetted Nov 2nd.)
Maj. G. S. Sansom, M.C. (France). (Gazetted Dec. 3rd.)
Lt. A. W. Saunders. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Hugh William Lumsden Saunders, M.C., M.M. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) R. C. Savery. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) George John Scaramanga (N. Staffs. R.). (Gazetted Nov. 2nd.)
Capt. G. J Scott (R.F.A.) (France). (Gazetted Dec 3rd.)
Sec. Lt. (Hon. Lt.) B. E Scott, M.C. (late Can. F.A.) (Gazetted Aug. 3rd)
Lt. (actg. Capt.) W. A. Scott, D.S.C (France). Gazetted Dec. 3rd.)
Lt. Thomas Robertson Scott. (Gazetted Nov. 2nd)
Lt. H. E. Searson (France) (Gazetted Dec. 3rd.)
Sec. Lt. G. N. Sellers (fmly. W. Yorks R.). (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Wilfred Selwyn. (Gazetted Nov. 2nd.)
Lt. Frank Alyn Sewell (A.F.C.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Thomas Sydney Sharpe (Clouc R.). (Gazetted Sept. 10th.)
Lt. Richard George Shaw (Sea Patrol). (Gazetted Sept. 10th.)
Lt. William Ernest Shields. (Gazetted Nov. 2nd.)
Lt. L. R. Shoebottom. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) G. E. Siedle. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Benjamin James Silly, M.C. (Gazetted Sept. 10th.)
Lt. Walter Carl Simon. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) T. L. Simpson (A.F.C.) (Gazetted Aug 3rd.)
Sec. Lt. Edward Arthur Simpson. (Gazetted Nov 2nd.)
Lt. Charles John Sims (Sea Patrol). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) J. A. Slater, M.C. (Gazetted Aug 3rd.)
Lt. (Hon. Capt.) P. J. Slater (S. Staff. R.) (France). (Gazetted Dec. 3rd)
Lt. Austin Edward Smith (Dorset R.). (Gazetted Nov. 2nd.)
Lt. James Lee Smith (A.F.C.). (Gazetted Nov. 2nd.)
Lt. Frank Woolley Smith (Notts. and Derby. R., T.F.). (Gazetted Sept. 10th.)
Lt. D. R. Solomon (R.F.A.) (France). (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) Walter Alfred Southey. (Gazetted Nov. 2nd.)
Lt. Charles Basil Slater Spackman. (Gazetted June 3rd.)
Sec. Lt. A. T Sprangle (France). (Gazetted Dec. 3rd.)
Lt. Arthur Rowe Spurling. (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) S. Stanger, M.C. (Italy). (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) William Ernest Staton, M.C. (Gazetted Sept. 10th.)
Capt. Charles Ronald Steele (York R.). (Gazetted Nov. 2nd.)
Lt. Harold Waller St. John (Sea Patrol). (Gazetted Sept. 10th.)
Lt. William Samuel Stephenson, M.C. (Gazetted Sept. 10th.)
Lt. (actg. Capt.) R. Stephenson (Ches R.) (France). (Gazetted Dec. 3rd.)
Lt. A. W. Stevenson (France). (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) William Gordon Stevenson. (Gazetted Nov. 2nd.)
Lt. Earle Richard Stewart. (Gazetted Sept. 10th.)
Lt. James Alexander Stewart. (Gazetted Nov. 2nd.)
Lt. Malcolm Gilbert Watson Stewart. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) David Arthur Stewart, M.C. (Gazetted Nov. 2nd.)
Capt. (temp Maj.) David Edmund Stodart. (Gazetted June 3rd.)
Lt. (Hon. Capt.) A. Storey (France). Gazetted Dec 3rd.)
Lt.-Col. Louis Arbon Strange, M.C. (Dorset R.). (Gazetted Nov. 2nd.)
Lt. Denys Lane Paschel Stuart Stuart-Shepherd. (Gazetted June 3rd.)
Lt. (temp. Capt.) John Stevenson Stubbs (S. Lancs. R.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Theodore Quintus Studd (Sea Patrol). (Gazetted Sept. 10th.)
Lt. Alan Victor Stupart. (Gazetted Nov. 2nd)
Lt. Edwin Swale (Sea Patrol). (Gazetted Nov 2nd.)
Lt. (temp. Capt.) John Romilly Swanston (Sea Patrol). (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) T. S. Symons (R. Suss. R.) (France). (Gazetted Dec. 3rd.)
Lt. Leonard Thomas Eaton Taplin, A.F.C. (Gazetted June 3rd.)
Sec. Lt. Bryan Samuel William Taylor. (Gazetted Nov. 2nd.)
Capt. Edmund Roger Tempest, M.C. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) W. D. Thom. (Gazetted Aug 3rd.)
Capt. (temp. Maj.) G. L. Thomson, D.S.C. (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Samuel Frederick Henry Thompson, M.C. (A.S.C.) (Gazetted Nov. 2nd.)
Lt. Cecil Robert Thompson (France). (Gazetted Dec. 3rd.)
Lt. William McKenzie Thomson, M.C. (Gazetted Nov. 2nd.)
Lt. George Thomson (K.O.S.B.). (Gazetted Sept 10th.)
Sec. Lt. (Hon. Lt.) Graham Noble Thomson (High. L.I.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) J. Todd, M.C. (fmly. No. 70 Sqdn.) (Gazetted Aug. 3rd.)
Lt. J. M. Todd (Obsr.) (Gazetted Aug. 3rd.)
Lt. (temp. Capt.) Adrian James Boswell Tonks (Sea Patrol). (Gazetted Nov. 2nd.)
Sec. Lt. Joseph Town (France) (Gazetted Dec. 3rd.)
Lt. Frederick Dudley Travers (Herts Yeo) (Salonika) (Gazetted Dec. 3rd.)
Lt. Ernest Henry Tredcroft. (Gazetted Sept. 10th.)
Capt. Francis McDougal Charlewood Turner, M.C. (Gazetted Nov. 2nd.)
Sec. Lt. (temp. Lt.) Ronald William Turner (York R.) (Gazetted Nov. 2nd.)
Lt. Edward Eric Turner. (Gazetted June 12th.)
Lt. Stanley Turner. (France.) (Gazetted Dec. 3rd.)
Sec. Lt. Alfred Alexander Tutte (France.) (Gazetted Dec. 3rd.)
Lt. E. F. Van Der Riet. (Gazetted Aug. 3rd)
Capt. (temp. Maj.) Awdry Morris Vaucour, M.C (Gazetted June 3rd)
Lt. C. J. Ventner. (Gazetted Aug. 3rd.)
Lt. Arthur Whitehair Vicers, M.C. (R.E.) (Gazetted Nov. 2nd.)
Lt. (Hon. Capt.) Stephen Wynne Vickers, M.C. (Gazetted June 3rd.)
Capt. Lawrence James Wackett (A.F.C.) (France.). Gazetted Dec. 3rd.)
Sec. Lt. Eric Walker. (Gazetted Nov. 2nd.)
Lt. William Beresford Walker (H.L. Inf.) (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Frank Roy Walker (Middx. R.). (Gazetted Nov. 2nd)
Lt. (temp. Capt.) William Walker (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Hazel Le Roy Wallace. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) William Young Walls. (Gazetted June 3rd.)
Lt. Henry Charles Wilcox Walters. (Gazetted Nov. 2nd.)
Lt. Wilfred Beckwith Ward. (Gazetted Nov. 2nd.)
Capt. Richard Percyvale Ward, M.C. (R. Welsh Fus.) (Gazetted Sept. 10th.)
Lt. Guy Wilbraham Waring. (France.) (Gazetted Dec. 3rd.)
Lt. Edward Francis Waring (Sea Patrol, North Sea). (Gazetted Dec. 3rd.)
Lt. John Weston Warner (France). (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) Leslie Reginald Warren (late R.N.A.S.). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Eric Waterlow, M.C. (Gazetted Sept. 10th.)
Lt. Donald Jayne Waterous. (Gazetted Sept. 10th.)
Lt. H. G. Watson (A.F.C.). (Gazetted Aug. 3rd)
Sec. Lt. Alfred Horace Watters. (Gazetted Nov 2nd.)
Lt. Edward George Kinton Weakley. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Eric John Webster (Sea Patrol) (Gazetted Sept. 10th.)
Lt. Patrick Eliot Welchman (K.O.S.B.). (Gazetted Sept. 10th.)
Lt. George Hedley Welsh. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Bert Sterling Wemp. (Gazetted June 3rd.)
Lt. D. J. Weston. (Gazetted Aug. 3rd.)
Lt. (actg. Capt.) Arthur Treloar Wheatley, D.S.C (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt.) A. H. Whistler. (Gazetted Aug. 3rd.)
Lt. (actg. Capt.) James Butler White. (France.) (Gazetted Dec. 3rd.)
Lt. C. C. White. (Gazetted Aug. 3rd.)
Lt. J. L. M. White (late Can. Machine Gun Corps). (Gazetted Aug. 3rd.)
Lt. Robert Kenneth Whitney (60 Sqdn.) (Gazetted Nov. 2nd.)
Lt. Ernest John Whyte. (Gazetted Nov. 2nd)
Lt. Harold Wickett. (Sea Patrol, Mediterranean.) (Gazetted Dec. 3rd.)
Lt. Basil Syers Wilcox. (France.) (Gazetted Dec. 3rd.)
Lt. (Hon. Capt.) Arthur Watts Williams. (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) Robert Owen Williams. (France.) (Gazetted Dec. 3rd.)
Lt. (temp. Capt) Frederick Williams, M.C. (Gazetted Sept. 10th.)
Lt. Norman Edmundson Williams (Sea Patrol) (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Thomas Melling Williams, M.C. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Clarence Edward Williamson-Jones (Manch. Regt.). (Gazetted Sept. 10th.)
Lt. Eric Constant Willis. (France.) (Gazetted Dec 3rd.)
Lt. (temp. Capt.) Frank Beamish Wilson. (Gazetted Nov. 2nd.)
Sec. Lt. (Hon. Capt.) Hugh Brian Wilson (A.S.C.) (Gazetted Sept. 10th.)
Lt. Joseph Charles Wilson. (Gazetted Sept. 10th)
Lt. Claude Melnot Wilson. (France.) (Gazetted Dec 3rd.)
Lt. R. Wilson. (Gazetted Aug. 3rd.)
Sec. Lt. (temp. Lt. Frederick Charles Wilton. (Gazetted Nov. 2nd.)
Lt. E. A. B. Wimbush. (Gazetted July 2nd.)
Lt. Laurence Arthur Wingfield. (Gazetted June 3rd)
Capt. Lionel Mostyn Woodhouse, M.C. (Essex Yeo.) (Gazetted Nov. 2nd.)
Lt. Basil Raymond Worthington. (Gazetted June 3rd.)
Lt. Walter Albert Yeulett (Sea Patrol). (Gazetted Sept. 10th.)
Lt. James Roy Stephen Young. (Sea Patrol, Mediterranean.) (Gazetted Dec. 3rd.)
Sec. Lt. J. McK. Young, D.S.M. (Gazetted Aug. 3rd.)
Lt. H. N. Young. (Gazetted July 2nd.)
Lt. N. N. Young (Pilot). (Gazetted Aug. 3rd.)
Capt. W. F. Young. (Gazetted Aug. 3rd.)
Lt. (Hon. Capt.) Archibald Buchanan Yuille (E. Lancs. R.) (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) George Frederick William Zimmer. (Gazetted June 3rd.)

THE AIR FORCE CROSS.

Capt. R. S. Aitken, M.C., R.G.A., Lt. A. M. Alexander, Capt. A. D. W. Allen, D.S.C. (All Gazetted Nov. 2nd.)

Lt. (temp. Capt.) Valentine Henry Baker, M.C., Capt. (temp. Lt.-Col.) Robert Benedict Bourdillon, M.C., Maj.-Gen. William Sefton Brancker, Maj. (temp. Col.) Charles Dempster Breese (All Gazetted June 3rd.)

Capt. John Auguste Boret, M.C., R. W Surrey Regt. (Gazetted Sept. 10th.)

Maj. F. C. Baker (D.C.L.I.), Capt. A. G. Bishop (R. Mar.), Lt.-Col. (temp. Brig.-Gen.) A. E. Borton, D.S.O. (K. Highrs.), Capt. N. H. Bottomley (E. Yorks. R.), Capt. K. G. Boyd, Capt. P. Brend, Sec. Lt. D. L. Brocklesby, Lt. (temp. Capt.) W. Bruce, Lt. (temp. Capt.) P. W. S. Bulman, M.C., Lt. R. H. Burrows. (All Gazetted Nov. 2nd.)

Capt. W. H. E. Campbell, Maj. R. H. Carr, D.C.M., Lt. W. Catchpole, Maj. H. F. Champion (Rif. Brig.), Lt. C. E. Channing (A.S.C.), Lt. L. Chivers, Capt. B. C. Clayton, Sec. Lt. S. R. Clutterbuck, Maj. (temp. Lt.-Col.) H. L. Cooper (Hants Yeo.), Capt. (temp Maj.) C. R. Cox (Manch. R.), Lt. J. G. Crang. (All Gazetted Nov. 2nd.)

Lt. C. K. C. Dagg. (Gazetted July 2nd.)

Lt. (temp. Capt.) Henry Duncan Davis, Lt. Robert William Dobbie. (Both Gazetted June 3rd.)

Capt. C. B. Dalison, Capt. E. P. M. Davis, Capt. J. F. A. Day, Lt. E. S. Dean, Capt. F. G. Dunn, Lt. A. N. Dupont (Leic. R.). (All Gazetted Nov. 2nd.)

Lt. Llewellyan Lewis Meredith Evans. (Gazetted June 3rd.)

Sec. Lt. (temp. Capt.) Ll. Edwards, Capt. H. L. Everitt. (Gazetted Nov. 2nd.)

Maj. (temp. Col.) The Honourable William Francis Forbes-Sempill, Master of Sempill. (Gazetted Nov. 3rd.)

Capt. C. D. Fellowes, M.C. (Staffs. Y.), Capt. A. W. Fletcher, Lt. J. C. Foden, Capt. (temp. Maj.) F. Fowler, D.S.C., Lt.-Col. I. G. V. Fowler, Capt. (temp. Maj.) C. T. Freeman, D.S.C. (All Gazetted Nov. 2nd.)

Capt. Percy Edward Lovell Gethin, Lt.-Col. (temp Brig.-Gen.) Robert Marsland Groves, D.S.O. (Both Gazetted June 3rd.)

Lt. E. J. Garner. Capt. E. S. Goodwin, Capt. N. Grabowsky, Maj. J. B. Graham, M.C., Lt. S. Graham, Capt. S. T. L. Greer (R.A.), Capt. (temp. Maj.) E. O. Grenfell, M.C. (R.G.A.), Capt. I. O. Griffith (All Gazetted Nov. 2nd.)

Lt. Thomas Hayes, Lt. (temp. Capt.) Albert Goodeff Henshaw. (Both Gazetted June 3rd.)

Capt. (Hon. Maj.) R. M. Hill, M.C., Squadron Commander, Experimental Flight. (Gazetted Aug. 3rd.)

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Capt. (temp. Maj.) Bennett Melville Jones. (Gazetted June 3rd.)

Capt. (temp. Maj.) E. L. Johnston, Capt. (temp. Maj.) H. Jullerot, Capt. W. E. Kemp (R. Lancs. R.), Capt. H. W. Kendall, Sec. Lt. A. P. Knightsbridge. (All Gazetted Nov. 2nd.)

Lt. Walter Hunt Longton, Lt. Archibald Charles Lutyens, M.C. (Both Gazetted June 3rd.)

Capt. C. T. Lally, M.C., Lt. (temp. Capt.) J. F. Lawson (R.G.A.), Lt. (temp. Capt.) W. W. Leete (Ches. R.), Capt. P. E. M. Le Gallais (R. Suss. R.), Lt. (temp. Capt.) F. Lindsay (Lond. R.), Lt. (Hon. Capt.) J. Line (A.S.C.), Lt. K. B. Lloyd (R. W. Fus.). (All Gazetted June 3rd.)

Lt. Laurence Newton Mitchell. (Gazetted June 3rd.)

Capt. (actg. Maj.) A. S. C. MacLaren, M.C. (Egypt.) (Gazetted Nov. 30th.)

Lt. A. V. McKisver, Lt. M. C. Mossop (Gazetted July 2nd.)

Capt. P. E. Maitland, Lt. A. B. Massey, Capt. D. G. McGregor, Capt. F. W. Merriam, Lt. J. R. Moore, Capt. F. W. Musson (N. Lancs. R.) (All Gazetted Nov. 2nd.)

Sec. Lt. H. A. Nester, Lt. C. H. Noble-Campbell. (Both Gazetted Nov. 2nd.)

Lt. John Oliver. (Gazetted June 2nd.)

Lt. C. Osenton (Can. I.), Lt. W. R. Cuiton (Ches. R.), Capt. H. L. H. Owen (Dorset R.). (All Gazetted Nov 2nd.)

Capt. J. Palethorpe, M.C., Lt. C. Pern, Capt. (temp. Maj.) L. H. Peter, M.C. (R.E.), Lt. W. H. Poole, M.M., Capt. E. L. Pralle, Lt. H. O. Prout. (All Gazetted Nov. 2nd.)

Lt. K. M. Pennington (Mesopotamia). (Gazetted Nov. 30th.)

Capt. (temp. Maj.) Humphrey Rivaz Raikes. (Gazetted June 3rd.)

Capt. C. A. Rea, Lt.-Col. L. W. B. Rees, V.C., M.C. (R.G.A.), Capt. A. C. Reid, Lt. R. R. Richardson, Lt. (temp. Capt.) H. V. Robins, M.C. (K.R.R.C.), Lt. W. S. Rope, Capt. F. Rose (W. Yorks. R.), Capt. H. B. R. Rowell (R.E.). (All Gazetted Nov. 2nd.)

Maj. (temp. Lt.-Col.) Robert Raymond Smith-Barry; Lt. Charles Gordon Sturt. (Both Gazetted June 3rd.)

Capt. Sidney Robert Stammers. (Gazetted Sept. 10th.)

Capt. T. E. Salt (R. War. R.), Lt. W. Sanderson, Maj. F. E. Sandford, Capt. K. F. Saunders, D.S.C., Capt. J. E. Scott, D.S.C., Capt. V. R. Scriven, Capt. W. H. N. Shakespeare, M.C., Lt. E. A. Simson (R.F.A.), Lt. F. A. Smith, Maj. (temp. Lt.-Col.) S. Smith, D.S.O. (R.F.A.), Maj. A. Somervail, M.C. (K.O.S.B.), Maj. J. Sowrey, Capt. (temp. Maj.) O. Stewart, M.C. (Middx. R.), Lt. (temp. Capt.) J. S. Stubbs (S. Lancs. R.) (All Gazetted Nov. 2nd.)

Lt. Terence Bernard Tully. (Gazetted June 3rd.)

Capt. A. G. Taylor (Yeo.), Lt. F. G. Taylor, Capt. S. W. Taylor, M.C., Lt. C. J. Thompson, Capt. (temp. Maj.) H. K. Thorold, D.S.C., Lt.-Col. H. T. Tizard, Lt. A. C. Townend, Lt. J. E. Tratman, Capt. E. F. Turner. (All Gazetted Nov. 2nd.)

Maj. G. C. C. Usborne (Can. M.G.C.), Capt R. H. C. Usher, M.C. (Wilts. R.). (Both Gazetted Nov. 2nd.)

Capt. S. F. Vincent. (Gazetted Nov. 2nd.)

Capt. E. P. Will, Seaplane Pilot. (Gazetted Aug. 3rd.)

Capt. F. W. Walker, D.S.C., Lt. W. P. T. Watts, Lt. W. G. Westcott, Lt. G. R. Whitaker (R.F.A.), Lt. C. G. Wigglesworth, Maj. (temp. Lt.-Col. E. V. S. Wilberforce, Lt. G. J. Wilde, Capt. (temp. Maj.) J. S. Williams, M.C., Capt. T. B. Williams, Capt. H. A. Wilson, Capt. J. H. Woolner, Lt. (Hon. Capt.) P. K. C. Wright (A.S.C.), Capt. A. M. Wynne. (All Gazetted Nov. 2nd.)

Lt. W. A. G. Young. (Gazetted Nov. 2nd.)

A BAR TO THE DISTINGUISHED FLYING MEDAL.

67162 Serjt.-Obsr. ARTHUR NEWLAND, D.F.M. (Enfield Wash). (France.)

This non-commissioned officer sets a splendid example of courage, skill, and determination to the other non-commissioned officers of his squadron. During the month of August he crashed six enemy machines. (Gazetted Dec. 3rd.)

THE DISTINGUISHED FLYING MEDAL.

222763 Serjt. Percy John Adkins, D.S.M. (Woolacombe) (Gazetted Sept. 10th.)

202615 Cpl. (Aerial Gunlayer) Leonard Albert Allen (Henly-in-Arden). (Gazetted Sept. 10th.)

204157 Cpl. (E.) William Norman Blacklock, D.S.M. (Hendon). (Gazetted Sept. 10th.)

J/70544 Serjt.-Obsr. Gilbert Barlow (Failsworth, Manchester). (Sea Patrol, Flanders.) (Gazetted Dec. 3rd.)

402108 Serjt.-Mech. Frank William Bell (Egremont) (Gazetted Nov. 2nd.)

52874 Serjt.-Mech. James Henry Bowler (Notting Hill). (France.) (Gazetted Dec. 3rd.)

K/3007 1st Pte. Aerial Gunner Sydney Frank Briggs (Brighton). (Gazetted Sept. 10th.)

206181 Serjt.-Mech. Thomas Caird, D.S.M. (Edinburgh). (Gazetted Sept. 10th.)

224573 Serjt.-Mech. William George Chapman, D.S.M. (Streatham, S.W.). (Gazetted Sept. 10th.)

223740 1st Cl. Pte. (Gunlayer) James Chapman (Percy Main, Newcastle-on-Tyne). (Gazetted Sept. 10th.)

65289 1st Cl. Pte. (actg. Serjt.) Ernest Clare (Chorley). (Gazetted Sept. 10th.)

F/9689 Actg. Air Mech (W/T.) Albert Edward Clark (Woodford). (Gazetted Sept. 10th.)

F/9689 Actg. Air Mech. W/T. Albert Edward Clark (Woodford). (Gazetted June 3rd.)

207112 Serjt.-Mech. Leonard Augustus Cornes (Folkestone) (Sea Patrol, Mediterranean.) (Gazetted Dec. 3rd.)

202067 Serjt.-Mech. Sydney Hinton Crook (Horley, Surrey). (Gazetted Sept. 10th.)

228395 Air Mech. 3rd Cl. (W.F.) Cyril Rupert Deeley (Birmingham). (Gazetted Sept. 10th.)

202839 Serjt.-Mech. (Pilot) Leslie Alexander Deli (Hanwell, S.W.). (Sea Patrol, Flanders.) (Gazetted Dec. 3rd.)

121180 Serjt. William Dyke, D.C.M. (Nuneaton). (Gazetted Sept. 10th.)

P/22398 Serjt. Malcolm Fletcher (attd from Training Res. Bn.). (Gazetted Nov. 2nd.)

210359 Air Mech., 2nd Cl. (W/T.) George Alfred Gibbs (Plaistowe). (Gazetted Sept. 10th.)

100425 Serjt.-Mech. James Grant (Sandbank, Argyllshire). (France.) (Gazetted Dec. 3rd.)

113763 Serjt. John Charles Hagan (Ulverston). (Gazetted Sept. 10th.)

210675 Pte., 2nd Cl. (Gunlayer), Arthur Tom Harman (Edmonton, N.). (Gazetted Sept. 10th.)

222927 1st Pte. (Aerial Gunner) Albert Edward Humphrey (Plumstead, S.E.). (Gazetted Sept. 10th.)

20261 3rd Air Mech. (W.) Frederick George Hayward (Corfe Mullen, Dorset). (Sea Patrol, Irish Sea.) (Gazetted Dec. 3rd.)

P/6434 Serjt.-Mech. Hubert Cecil Hunt (late Bedf. R.). (Gazetted Nov. 2nd.)

S/35453 Serjt.-Mech. Meyrick Jones (Cricklewood, N.W.). (France.) (Gazetted Dec. 3rd.)

204706 A/A.Mt. (G) Gunlayer William Jones (Ealing). (Gazetted Sept 10th.)

225232 Air Mech., 1st Gr. (E), Douglas William Kirby (Swindon). (Gazetted Sept. 10th.)

7054 Serjt.-Obsr. Frederick Lee (Ockley) (Gazetted Sept. 10th.)

406346 Serjt.-Mech. Charles Lines (Ipswich). (Gazetted Nov. 2nd.)

F/16604 A.C.1 (Gunlayer) William James Middleton (Woodford Green). (Gazetted Sept. 10th.)

203962 Air Mech., 2nd Cl. (Gunlayer), David Lewis Moxey (Kennington, S.E.). (Gazetted Sept. 10th.)

208711 Air Mech., 1st Cl., Alexander Robertson Moyes (Lewes). (Gazetted Sept. 10th.)

67162 Pte., 1st Cl., Arthur Newland (Enfield Wash). (Gazetted Sept. 10th.)

211300 Serjt. Cecil Arthur Otway (Harringay, N.). (Gazetted Sept. 10th.)

21530 Air Mech., 1st Cl., Cecil Herbert Palmer (Weston-super-Mare). (Gazetted Sept. 10th.)

242008 Serjt.-Mech. William James Palmer (Chelsfield, Kent). (Gazetted Nov. 2nd.)

205416 Cpl. Mech. Thomas Mayne Reid (Banbridge, co Down). (Gazetted Sept. 10th.)

206515 Serjt.-Mech. (E) Henry Robert Stubbington (Southsea). (Gazetted Sept. 10th.)

232650 2nd Air Mech. (W.T.) Bernard Edward Guy Taplin (Southampton). (Sea Patrol, Mediterranean.) (Gazetted Dec 3rd.)

221580 Cpl. (Gunlayer) George Ernest Thrift (Bordon, Hants). (Gazetted Sept. 10th.)

J26800 Serjt. Edmund West Wadey (Polegate, Sussex). (Gazetted Nov. 2nd.)

225673 Pte., 1st Cl. Gunlayer, Douglas Wentworth (Erith). (Gazetted Sept. 10th.)

207013 Air Mech., 2nd Cl. (actg. Cpl.) Horace Walter Williams (Folkestone). (Gazetted Nov. 2nd.)

222589 Cpl. Fred Wilkinson (Chorley). (Gazetted Nov. 2nd.)

THE AIR FORCE MEDAL.

206930 Ch. Mech. W. L. Bate (Finchley, N.), 227647 Cpl. Mech. J.S. Bliss (Waltham Abbey). (Both gazetted Nov. 2nd.)

208252 Serjt.-Mech. R. H. Derry (Peckham, S.E.). (Gazetted Nov. 2nd.)

224802 1st Air Mech. John Alfred Francis (Stapleford, Notts). (Gazetted Dec. 3rd.)

213223 Serjt.-Mech. Raymond George Goldfinch (Fielding, New Zealand). (Gazetted Dec. 3rd.)

J25560 Cpl. F. Harris (Eltham, Kent), 210361 Cpl.-Mech. W. J. J. Hibbert (Battersea, S.W.). (Both gazetted Nov. 2nd.)

21929 Signalman Colin Hazlewood (Obsr.). (Gazetted Sept. 10th.)

217554 Serjt. A. W. Marshall (Holloway, N.), 3266 Serjt.-Mech. H. Mitchell (Renfrew, N.B.). (Both gazetted Nov. 2nd.)

11680 Serjt. Samuel James Mitchell (Handsworth, Birmingham). (Gazetted June 3rd.)

3747 Serjt.-Mech. R. T. Parry (Ross, Herefordshire). (Gazetted Nov. 2nd.)

J246875 2nd Air Mech. H. Richards (Cranwell), 2172 Serjt.-Mech. A. L. Robinson (Sheffield). (Both gazetted Nov. 2nd.)

220399 Cpl. A. N. Smith (Blakeney), 222551 2nd Air Mech. (W.) A. C. Smith (Stoke Newington, N.), 204118 Ch. Mech. G. H. Stratton (Gt. Yarmouth). (All gazetted Nov 2nd.)

106100 Serjt. Frederick Charles Tucker (Birtley, Durham). (Gazetted June 3rd.)

F5746 Ch. Mech. I. R. Veitch (Camden Town). (Gazetted Nov. 2nd.)

219734 Cpl. Mech. R. E. Wright (Crouch End, N.). (Gazetted Nov. 2nd.)

THE MERITORIOUS SERVICE MEDAL.

2875 Flt. Serjt. J. C. Alexander (Billericay, Essex); 5195 Flt. Serjt. F. T. Angell (Crowthorne, Berks); 15252 Cpl. (actg. Serjt.) A. W. Ashbee (Keynsham, Bristol); 5705 Cpl. R. E. Ashbolt (Ilford). (All gazetted June 3rd.)

59991 Pte., 1st Cl., Stanley Addison Seaman (Gislingham, Suffolk). (France.) (Gazetted Dec. 3rd.)

246 Temp. Serjt.-Maj. C. W. Baker (Pewsey, Wilts); 36427 Cpl. W. N. Baldwin (Grimsargh, Lancs.); 33948 Flt. Serjt. D. Barnett (Birkenhead); 3481 Serjt. (temp. Serjt.-Maj.) J. W. Benson (Leeds); 16008 Temp. Serjt.-Maj. J. F. Bentley (Bow, London); 8886 Temp. Serjt.-Maj. J. F. Biggs (Isleworth); 232 Temp. Serjt.-Maj. B. Billing (Bury St. Edmunds); 22996 Flt. Serjt. S. F. Bonnett (Bedford); 3908 Serjt. G. H. Bowater (West Bromwich); 10730 Cpl. R. W. Broom (Cromer); 15615 Cpl. H. T. Brown (Fulham); 10149 Flt. Serjt. R. C. Bruce (Bristol); 43511 1st Air Mech. G. E. Bryant (West Ealing); 17536 1st Air Mech. H. Burman (Walthamstow); 24086 Temp. Serjt.-Maj. B. C. Burnett (Enfield). (All gazetted June 3rd.)

F/142 P.O. (R.H.) J. W. Baglee (Drayton Park, N.). (Gazetted July 2nd.)

21707 1st Air Mech. Leonard Betteridge (Monmouth) (France.) (Gazetted Dec. 3rd.)

629 Temp. Serjt.-Maj. H. Carrington (Norwich); 90 Temp. Serjt.-Maj. C. S. Carden (Enfield); 4741 Flt. Serjt. F. W. C. Catchpole (Maidstone); 29063 Temp. Serjt.-Maj. P. J. C. Clarke (Wallasey); 11712 Flt. Serjt. J. E. Clifton (Birmingham); 11955 Serjt. H. Collins (Eastbourne); 36034 Temp. Serjt.-Maj. C. H. Cooper (Hammersmith), 1953 Temp. Serjt.-Maj. E. H. Cooper (Shoreham); 188 Serjt. (temp. Serjt.-Maj.) E. E. Copper (Beckenham, Kent); 2302 Temp. Serjt.-Maj. A. R. Cox (Gosport); 12651 Cpl. H. W. Crawford (Redcar); 4316 Flt. Serjt. A. Creighton (Lancaster). (All gazetted June 3rd.)

73213 Actg. Cpl. G. Clifford (Canada). (Canada.) (Gazetted Dec. 3rd.)

30054 Cpl. A. W. T. Davey (Highgate); 11254 Flt. Serjt. R. Dickenson (Salford). (Both gazetted June 3rd.)

1745 Temp. Serjt.-Maj. W. Eccles (Stockport). (Gazetted June 3rd.)

8457 Flt. Sergt. W. H. Finch (Waltham Cross); 4248 Flt. Serjt. C. F. Ford (Chichester); 10232 Flt. Serjt. F. G. Ford (Brixton).

2673 Serjt. (actg. Flt. Serjt.) A. Gibson (Maidstone); 22645 1st Air Mech. A. R. Gilbert (Kilburn); 8398 Temp. Serjt.-Maj. G. Gillman (Farnham); 49095 Cpl. T. J. G. Grout (East Dulwich). (All gazetted June 3rd.)

11442 Cpl. R. A. R. Hill (King's Cross); F/405 P.O. Mech. J. W. Hodgson (York); 45311 Temp. Serjt.-Maj. J. J. Hollyhead, M.M. (Malvern); 6360 Serjt. A. H. M. Hoy (Winsley, Wilts); 23280 Flt. Serjt. S. E. Hughes (Tufnell Park, N.); 19479 Serjt. O. G. Hunter (Hendon). (All gazetted June 3rd.)

9546 Cpl. M. J. Horne, Aust. F.C.; 92534 1st Air Mech. W. H. Howard (Tavistock). (Both gazetted July 2nd.)

43137 1st Cl. Air Mech. J. I. Hardy (Belper), (Gazetted Aug. 6th.)

20236 Temp. Serjt.-Maj. C. W. James (Plumstead); 320 Serjt.-Maj. H. James, M.M. (Eltham, Kent); 321 Temp. Serjt.-Maj. A. Jarman (Plum-



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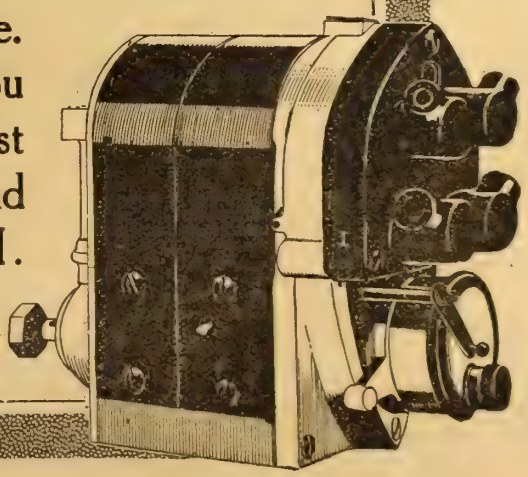
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Steau.; 12565 Cpl. M D. Jones (Godrergraig, Glam.). (All gazetted June 3rd.)

24840 Serjt. J. Kerr (Paisley); 18609 Flt. Serjt. F. W. Kirby Wortham, Suffolk). (Both gazetted June 3rd.)

7914 Flt.ª Serjt. W. A. Legg (Cullen, Banffshire). (Gazetted June 3rd.)

404020 Cpl. J. C. McMichael (Gatehouse, N.B.); 30513 Serjt. C. L. Marks (Lewisham); 16211 Flt. Serjt. F. B. Matthews (Portsmouth); 107 Flt. Serjt. (temp. Serjt.-Maj.) A. R. May (Plumstead); 1464 Temp. Serjt.-Maj. S. H. May (Folkestone); 1607 Flt. Serjt. R. H. Millman (Lower Edmonton). (All gazetted June 3rd.)

26692 Flt. Serjt. A. S. Norman (Cove, Hants); 14088 1st Air Mech. J. Needham (Alderley Edge, Cheshire); 1518 Temp. Serjt.-Maj. E. S. Olney (Willesden, N.W.); 18629 Temp. Serjt.-Maj. A. W. Osborne (Westcliff); 942 Serjt. (temp. Serjt.-Maj.) C. J. O.'Toole (Dublin); 25960 1st Air Mech. S. Owen (Armedale, Midlothian). (All gazetted June 3rd.)

42174 Pte. A. Mill, R.A.M.C., attd. R.A.F. (Cowdenheath). (Gazetted Aug. 6th.)

4960 Temp. Serjt.-Maj. J. J. Pathe (Carrigalong Biss, Co. Tipperary); 10700 1st Air Mech. R. Peacock (Morecambe); 6468 Flt. Serjt. L. Pellatt (Whitehaven, Cumberland); 37965 Cpl. J. Phillips (Leeds); 3642 Cpl. L. Poole (Leeds). (All gazetted June 3rd.)

10515 Serjt. W. H. Roberts (Merthyr); 28924 Serjt. J. C. Robertson (West Hampstead); 943 Temp. Serjt.-Maj. J. Robinson (Gillingham); 25765 Cpl. P. Roche (Rochdale); 18319 Flt. Serjt. S. C. Rogers (Highgate); 15098 1st Air Mech. J. Rundle (Par, Cornwall); 14047 Flt. Serjt. W. J Ryman (Hersham, Surrey). (All gazetted June 3rd.)

281161 Pte., 2nd Cl., Charles Arthur Reeder (Huddersfield). (France.) (Gazetted Dec. 3rd.)

30214 Flt. Serjt. S. J. Scott (Wandsworth); 29690 Flt. Serjt. W. Scott (Dysart); 59337 2nd Air Mech. G. Shaylor (Hornsey); 32399 Flt. Serjt. F. Shipman (Sheffield); 2039 Temp. Serjt.-Maj. J. H. Shone (Bangor); 467 Temp. Serjt.-Maj. E. Smalley (Liverpool); 55477 2nd Air Mech. A. E. Smith (Reading); 26072 1st Air Mech. E. Stevens (Basingstoke); 1626 Flt. Serjt. J. Stevenson (Stourbridge); 78312 Temp. Serjt.-Maj. H. L. Stidworthy (Edmonton); 16919 Cpl. E. G. Strange (Wootton Bassett, Wilts); 403928 Cpl. G. F. Surtees (Mill-on-Lyne); 15566 Cpl. F. Swift (Bradford). (All Gazetted June 3rd.)

Z/116 Serjt. A. E. Swain (Banbury); 812 1st Air Mech. E. L. Spike, Aust. F.C. (Both gazetted July 2nd.)

20564 Cpl. A. Tarlington (Sparkbrook); 16625 Flt. Serjt. G. Thom (Alloa); 57895 Serjt. C. J. Thompson (London, W.); 7759 1st Air Mech. H. W. Triggs (Nunhead, S.E.); F/14193 C.P.O. W. J. Tuckwell (Henley-on-Thames). (All gazetted June 3rd.)

126 Flt. Serjt. J. Waeland (Canning Town); 8387 Serjt. C. G. Ward (Rochester); F/385 C.P.O. 3rd Gr. (E.) A. J. Wheeler (Felixstowe); 45811 Flt. Serjt. A. Wilkinson (Manchester); 30216 Flt. Serjt. F. W. Winter (Croydon); 1452 Serjt (temp. Serjt.-Maj.) G. H. Withers (Ripon); 3882 Flt. Serjt. J. Wright (Glasgow); 6309 1st Air Mech. (actg. Cpl.) L. Wright (Woking). (All gazetted June 3rd.)

MENTIONS IN DISPATCHES.

May 20th.

The following officers, N.C.Os. and men of the R.A.F. are mentioned in a dispatch, dated April 7th, which has been received by the Secretary of State for War from Field-Marshal Sir Douglas Haig, K.T., G.C.B., G.C.V.O., K.C.I.E., Commander-in-Chief of the British Armies in France. The dispatch covers the period from Sept. 25th, 1917, to midnight, Feb. 24th-25th, 1918 :—

Staff.

Maj. and Bt. Lt.-Col. (temp. Brig.-Gen.) J. H. W. Becke, D.S.O., N. and Derby R.; Maj. and Bt. Lt.-Col. (temp. Brig.-Gen.) H. R. M. Brooke-Popham, D.S.O., O. and B. L.I.; Maj. and Bt. Lt.-Col. (temp. Brig.-Gen.) L. E. O. Charlton, C.M.G., D.S.O., Lanc. Fus.; Maj. and Bt. Lt.-Col. (temp. Brig.-Gen.) F. L. Festing, C.M.G., Northd. Fus.; Maj. and Bt. Lt.-Col. (temp. Maj.-Gen.) J. M. Salmond, C.M.G., D.S.O., R.A.F.; Capt. J. Selwyn, R.A. and Gen. Staff, attd H.Q.

* * *

Lt. (temp. Capt.) B. E. Baker, D S.O., M.C., Gen. List; Lt. (temp. Lt.-Col.) J. E. A. Baldwin, Hrs.; Capt. (temp. Lt.-Col.) A. S. Barratt, M.C., R.A. and H.Q., R.A.F.; Temp. Capt. H. H. W. Bean, Gen. List; Capt. (temp. Lt.-Col.) A. V. Bettington (S.R.); Temp. Major E. M. Bettington, Gen. List and R.A.F.; Capt. (temp. Lt.-Col.) H. Blackburn, M.C. (S.R.); Lt. (temp. Maj.) G. H. Bowman, D.S.O., M.C., R. War. R.; Temp. Lt. P. M. Brambleby, Gen. List; Temp. Sec. Lt. (temp. Capt.) E. J. Briscoe, Gen. List; Sec. Lt. (temp. Maj.) T. Bullen, Som. L.I.

Sec. Lt. (temp. Capt.) J. D. Campion (S.R.); Maj. A. D. Carter, D.S.O., New Brunswick R.; Temp. Sec. Lt. W. C. Clark, Gen. List; Flt. Comdr. R. J. O. Compston, D.S.O., R.A.F.; Temp. Sec. Lt. O. G. S. Crawford, Gen. List; Sec. Lt. (temp. Capt.) E. F. B. Curtiss (S.R.).

Sec. Lt. (temp. Capt.) R. Donald (S.R.); Lt. (temp. Maj.) W. S. Douglas, M.C., R.F.A. (S.R.); Sqdn. Comdr. C. Draper, R.A.F.; Temp. Lt. T. E. Drowley, Gen. List; Temp. Capt. E. Drudge, Gen. List; Temp. Maj. J. D. Drysdale, Gen. List; Lt. (temp. Maj.) C. S. Duffus, M.C. (S.R.).

Lt. (temp. Capt.) P. G. Emery (S.R.); Temp. Lt. W. B. Everton, Gen. List.

Lt. (temp. Capt.) W. B. Farringdon, D S.O., N. and Derby R.; Sec. Lt. A. C. Flavell, Mon. R.; Lt. (temp. Capt.) W. F. N. Forrest, R.F.A. (S.R.); Lt. C. C. French, R.F.A. (S.R.), attd. Balloon Section.

Capt. (temp. Maj.) A. G. R. Garrod, M.C., Leic. R.; Lt. (temp. Capt.) G. E. Gordon-Duff, Cam. Highrs; Capt. (temp. Lt.-Col.) C. G. S. Gould, R.A. and R.A.F.; Lt. (temp. Maj.) A. Gray, M.C., A. and S. Highrs.

Lt. (temp. Capt.) E. W. Havers (S.R.); Lt. J. R. Hembrough, R.A.F. (S.R.); Temp. Sec. Lt. J. A. Higham, Gen. List; Lt. (temp. Capt.) F. H. Hodgson (S.R.); Capt. (temp. Maj.) A. V. Holt, R. Highrs.; Capt. (temp. Maj.) A. F. A. Hooper, N. Staff. R.; Temp. Lt. A. Howard, Gen. List; Capt. (temp. Col.) G. B. Hynes, D.S.O., R.A., and R.A.F.

Lt. (temp. Maj.) A. W. H. James, M.C., Hrs.; Temp. Capt. E. D. Johnson, Gen. List; Sec. Lt. W. W. Jones, Lond. R.

Hon. Capt. and Qrmr. E. J. Langridge, N. Staff. R.; Lt. (temp. Capt.) O. Lindquist (S.R.); Lt. (temp. Capt.) G. L. Lloyd, M.C., Yeo.; Sec. Lt. E. E. Lockwood, K.R.R.C.

Sec. Lt. (temp. Capt.) J. T. B. McCudden, V.C., D.S.O., M.C., M.M., Gen. List; Temp. Sec. Lt. A. F. McGlashan, Gen. List; Sec. Lt. (actg. Capt.) A. E. McKeever, D.S.O., M.C. (S.R.); Temp. Capt. F. Maden, Gen. List and R.A.F.; Temp. Lt. R. G. Meech, Gen. List; Lt. (temp. Capt.) T. G. Mellanby (S.R.); Lt. (temp. Maj.) K. D. P. Murray, M.C. (S.R.).

Temp Sec. Lt. (actg. Capt.) G. B. Neale, Gen List; Maj. A. L. C Neame, R.E.; Lt. J. P. Nickalls, R.A. and R.A.F.

Temp. Lt. J. H. O'Connell, Gen. List.

Lt. (temp. Capt.) E. A. Packe, O. and B. L.I.; Temp. Capt. (temp. Maj.) E. B. Palmer, A.S.C.; Capt. H. W. M. Paul, M.C., Middx. R.; Temp. Capt. W. R. G. Pearson, Gen. List; Temp. Sec. Lt. E. Pybus, Gen. List.

Lt. (temp. Capt.) J. V. Read (S.R.); Lt. (temp. Capt.) J. E. Rendle (S.R.); Temp. Capt. F. X. Russell, R. Mun Fus.; Capt. C. E. Ryan, M.C., R.F.A.

Temp. Capt. R. C. Scudamore, M.C., Gen. List (killed); Capt. (temp. Maj.) J. P. C. Sewell (S.R.); Sec. Lt. (temp. Capt.) K. Shelton, E. Kent R. (S.R.) (died of wounds); Bt. Lt.-Col. (temp. Brig.-Gen.) G. S. Shephard, D.S.O., M.C., R. Fus. and R.A.F. (killed); Lt. (temp. Capt.) S. J. Sibley (S.R.); Lt. (temp. Maj.) W. R. Snow, D.S.O., M.C. (S.R.); Lt. (temp. Maj.) B. E. Sutton, D.S.O., M.C., Yeo.

Lt. (temp. Capt.) O. V. Thomas (S.R.); Temp. Capt. F. S. Thomas, Gen. List; Lt. (temp. Capt.) B. B. Toms, R. War. R. (S.R.), Actg. Flt. Lt. G. L. Trapp, Naval Sqdn.; Lt. (actg. Maj.) J. F. A. Trotter, R.F.A. (S.R.); Temp. Lt. (temp. Capt.) T. K. Twist, Gen. List.

Temp. Lt.-Col. H. A. van Ryneveld, M.C., Gen. List; Sec. Lt. (temp. Capt.) R. T. Vernon (S.R.).

Sec. Lt. G. G. Walker, N. Lanc. R.; Temp. Capt. H. H. Walmsley, Gen. List; Temp. Sec. Lt. E. Waterlow, Gen. List; Temp. Capt. A. B. Wiggin, Gen. List; Temp. Maj. G. L. Wightman, Gen. List; Temp. Capt. P. Worthington, Gen. List.

Sec. Lt. H. N. Young, Gen. List.

21786 Serjt. F. Barry; 17971 Cpl. F. P. Corpe; 13876 Flt. Serjt. F. W. Field; 2355 Temp. Serjt.-Maj. S. J. Guthrie; 113763 Serjt. J. C. Hagan; 8111 Cpl. P. Halliday; 33699 Cpl. J. Harrison; 15664 Flt. Serjt. F. C Jarrett; 107453 Serjt. J. H. Jones; 279 Serjt.-Maj. C. E. King, D.C.M.; 13962 Flt. Serjt. G. E. Lee; 6533 Serjt. H. Lovelock; 11592 Serjt. L. E. V. Meazza; 43984 2nd Cl. Air Mech. F. S. Newson, R.G.A.; 12142 Flt. Serjt. J. E. O'Shea; 19533 Cpl. E. Parren; 49043 Serjt. J. R. Roberts; 23648 Serjt. H. J. Rose; 113031 Serjt. J. Ryan; 2235 Flt. Serjt. G. H. Sidebotham; 34430 Serjt. E. Smith; 45296 Serjt. S. A. Smith; 38361 Cpl. E. Taylor; 8078 Serjt. F. J. Udell; 21835 Serjt. H. Varey.

Australian Flying Corps.

Maj. C. L. Bailleau; Maj. D. V. J. Blake; Maj. W. O. Watt.

May 30th.

The following names are mentioned for distinguished and gallant services and devotion to duty with British Forces in Italy in a dispatch which has been received by the Secretary of State for War from General Sir Herbert C. O. Plumer, G.C.B., G.C.M.G., G.C.V.O., A.D.C. :—

Royal Air Force.

Lt. H. E. (late Gen. List) Ambrose; Lt. (temp. Capt.) W. G. Barker, D.S.O., M.C. (late Gen. List); Lt. (temp. Capt.) A. E. Blackmore (late (S.R.); Capt. (temp. Maj.) C. H. B. Blount, M.C. (late R. W. Surr. R.); Lt. (temp. Capt.) J. J. Breen (late R.Ir.R.), Sec. Lt. A. L. Cockburn (late R.R.); Capt. H. A. P. Disney (late Cambs. R.); Lt. (temp. Capt.) M. B. Frew, D.S.O., M.C. (late Gen. List); Lt. (temp. Capt.) S. C. Godfrey, M.C. (late R.S. Fus.); Lt. H. Hadley (late Gen. List); Lt. and Hon. Capt. J. W. Higgins (late R.F.A.); Lt.-Col. P. B. Joubert de la Ferté, D.S.O. (late R.A.); Capt. C. S. Macnab (late Cam. Highrs.); Maj. (temp. Lt.-Col.) R. P. Mills, M.C. (late R. Fus.); Temp. Sec. Lt. S. E. Mills (late Gen. List); Lt. C. Lambert (late S.R.); Capt. (temp. Maj.) A. M. Vaucour, M.C. (late R.A.); Lt.-Col. (temp. Brig.-Gen.) T. I. Webb-Bowen, C.M.G. (late Bedf. R.); 15737 1st Air Mech. A. J. Allen; 10298 1st Air Mech. (actg. Cpl.) A. W. Baker; 17188 1st Air Mech. E. C. Barnes; 18953 Flt. Serjt. H. E. Beauchamp; 11149 1st Air Mech. J. Bentley; 8023 Serjt R. Clark; 5743 Flt. Serjt. J. Creek; 12228 Flt. Serjt. J. Edmond; 27374 1st Air Mech. A. W. Goodwin; 32751 Cpl. J. Hampson; 8487 1st Air Mech. E. H. Lambert; 9097 1st Air Mech. D. E. O. Nicholson; 12492 Cpl. G. Nicholson; 2006 Flt. Serjt. W. H. Payne; 128 T./S.M. W. G. Turner.

June 3rd

The following officers and other ranks of the Royal Air Force have been mentioned in dispatches and reports for distinguished services :—

Capt. (temp. Maj.) W. H. Adkins, Ensign F. G. Allen (U.S. Naval Air Service), Lt.-Col. R. J. Armes, Lt. (temp. Capt.) E. A. O. Auldjo-Jamieson.

Maj. (temp. Lt.-Col.) R. K. Bagnall-Wild, Lt. (Hon. Capt.) H. J. Bath, Maj. (temp. Lt.-Col.) A. W. Bigsworth, D.S.O., Capt. C. G. Beatson, Lt. (temp. Capt.) S. Bell, Maj. (temp. Lt.-Col.) E. G. O. Beuttler, Lt. (Hon. Capt.) A. G. Bishop, Lt. T. H. Boyd.

Lt. (Hon. Capt.) C. J. Clayton, Lt. (temp. Capt.) F. Cleary, Lt. (temp. Capt.) J. P. Coleman, Lt. J. P. Colin, M.C., Capt. G. M. Croil.

Lt. (temp. Capt.) C. Death, Lt.-Col. (temp. Brig.-Gen.) B. C. H. Drew, Sec. Lt. W. H. Dunton, Lt. (temp. Capt.) A. Durston.

Lt. (Hon. Capt.) D. S. Earp, Lt. (Hon. Capt.) W. H. Evens.

Lt. (temp. Capt.) H. G. Ford, Lt. (temp. Capt.) J. Fowler.

Lt. (temp. Capt.) J. O. Galpin, D.S.C., Capt. J. Gardiner, Lt. (Hon. Capt.) E. S. Goodwin, Sec. Lt. R. Gowing, Lt. (temp. Capt.) P. G. Gundry.

Capt. (temp. Maj.) T. D. Hallam, D.S.C., Lt. (temp. Capt.) A. H. Handman, Sec. Lt. W. J. Harris, Lt. (Hon. Capt.) C. S. Hay, Capt. F. W. Hill, Lt.-Col. (temp. Brig.-Gen.) C. G. Hoare, Lt. (Hon. Capt.) A. Holland, Lt.-Col. (temp. Brig.-Gen.) A. Huggins, D.S.O.

Flt. Obsr. W. B. L. Jones (deceased).

Lt. H. B. Kerruish, Maj. (temp. Lt.-Col.) C. F. Kilner, D.S.O.

Lt. (temp. Capt.) C. F. Latimer, Maj. (temp. Lt.-Col.) C. F. Lee, Lt. (Hon. Capt.) H. A. H. Leetham, Lt. (temp. Capt.) F. J. Linnell.

Lt. (Hon. Capt.) A. J. H. MacColl, Lt. H. L. Macro, Lt. (Hon. Capt.) N. A. Magor, D.S.C., Maj. (temp. Lt.-Col.) F. K. McClean, Lt. (temp. Capt.) W. G. McMinnies, Lt. (Hon. Capt.) B. A. Malet, Lt. (temp. Capt.) T. Martin, Capt. (temp. Maj.) J. D. Maude, Sec. Lt. J. F. Mehigan, Capt. (temp. Maj.) G. A. N. Mitchell, Capt. (temp. Maj.) R. F. S. Morton, Lt. (temp. Maj.) A. Murray.

Capt. (temp. Maj.) C. H. Nicholas.

Maj. E. Osmond.

Maj. (temp. Lt.-Col.) R. E. C. Peirse, D.S.O., Lt.-Col. J. C Porte.

Lt. (Hon. Capt.) C. A. Rea, Lt. (Hon. Capt.) L. Ritson.

Lt. (temp. Capt.) C. W. Scott, Lt. (temp. Capt.) L. G. Scott.

Lt. (temp. Capt.) H. Thrower, Lt. K. C. Tilman, Sec. Lt. J. Tozer-Mitchell.

Col. (temp. Brig.-Gen.) A. V. Vyvyan, D.S.O.

Lt.-Col. (temp. Brig.-Gen.) W. W. Warner, Lt. (temp. Capt.) J. S. Wheelwright, D.S.C., Maj. H. Wyllie.

F/20540 Actg. 1st Air Mech. R. Bance, 18233 1st Air Mech. F. C. Cattermole, F/5665 C.P.O. 3 (E) A. Fensom, F/6637 C.P.O. 3 (E) W. J.

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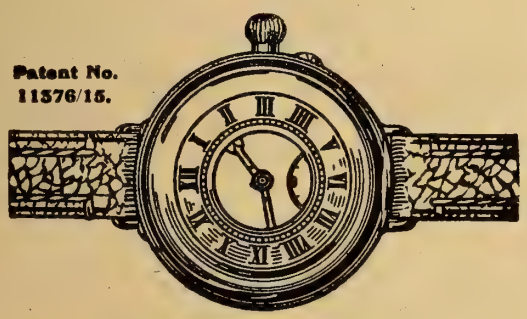
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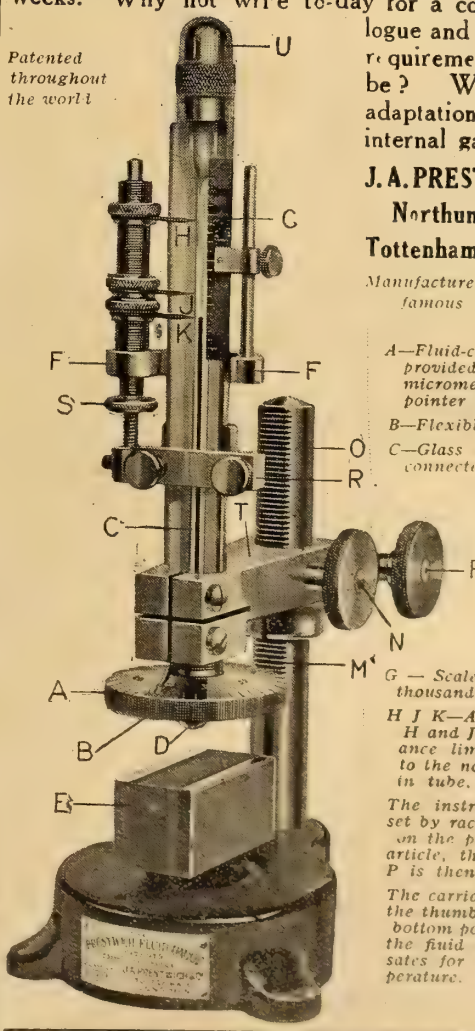
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D—Hardened steel anvil of diaphragm B.
E—Fixed anvil.
F—Carrier provided with scale and three adjustable pointers.
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H J K—Adjustable pointers. H and J indicate the tolerance limits and K is set to the normal level of fluid in tube.

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The carrier F is adjusted by the thumb nut S to keep the bottom pointer K level with the fluid and thus compensates for variations of temperature.

Goodchild, Ch./17014 C.P.O. 3 (W/T.) E. A. Homer, 31026 1st Air Mech. R. H. Ibbertson, F/611 C.P.O. 3 (C) E. W. Monk, 12368 Cpl. H. R. E. Sanders.

June 11th.

The following are mentioned for gallant conduct and distinguished services rendered during the period from Sept. 21st, 1917, to Feb. 28th, 1918, in a dispatch which has been received by the Secretary of State for War from Lt.-Gen. G. F. Milne, K.C.B., D.S.O., Commander-in-Chief, British Salonika Force :—

Royal Air Force.

Lt. C. Booth (fmly. Gen. List); Lt. P. A. A. Boss (fmly. Gen. List). Maj. J. O. Davis, M.C. (fmly. Gen. List); Lt.-Col. G. W. P. Dawes, D.S.O. (fmly. R. Berks. R.).

Temp. Obsr. Sub-Lt. C. N. Ellen.

Capt. G. D. Gardner, M.C. (fmly. York. R., T.F.); Sec. Lt. H. J. Gates (fmly. E. Kent R.); Lt. G. E. Gibbs, M.C. (fmly. Gen. List); Lt. (temp. Capt.) C. H. Gimingham, R.F.C. (died of wounds).

Lt. and Hon. Capt. M. Hodge (fmly. R.F.C., S.R.).

Sec. Lt. J. S. Jones, M.C. (fmly. R.G.A., S.R.).

Lt. (temp. Capt.) W. R. B. McBain, M.C. (fmly. R.F.A., T.F.).

Lt. H. Riley (fmly. Gen. List).

Lt. (Temp. Capt.) F. G. Saunders, M.C. (fmly. Gen. List); Capt. C. H. Smith (Res. of Officers, R.F.A.), attd. R.A.F.

Lt. F. D. Travers (fmly. Herts. Yeo., T.F.).

3751 Serjt. A. Dawe; 5519 Flt. Serjt. H. F. Ewell; 8457 Flt. Serjt. W. H. Finch; 45039 1st Air Mech. (actg. Cpl.) F. T. Griggs; 43618 2nd Air Mech. J. W. Guerin; 29991 Serjt. W. L. Reeve; 7697 Flt. Serjt. W. Shepherd; 5650 Serjt. R. Sprot; 4368 Cpl. J. C. Steadman; 21631 2nd Air Mech. E. Wilkinson; 4705 Serjt. T. E. Williams.

June 14th.

The following are mentioned for distinguished and gallant services and devotion to duty in a dispatch which has been received by the Secretary of State for War from Gen. Sir E. H. H. Allenby, G.C.M.G., K.C.B., General Officer Commanding-in-Chief, Egyptian Expeditionary Force :—

Royal Air Force

Capt. W. B. Adams; Capt. (temp. Maj.) J. O. Archer (fmly. R.F.A., S.R.); Capt. (Hon. Maj.) W. R. G. Atkins (fmly. R.F.C., S.R.).

Lt. (temp. Capt.) A. H. S. Baker; Maj. (temp. Lt.-Col.) A. C. Boddam-Whetham (fmly. Lt., Res. of Officers, A. and S. Highrs.); Lt. (temp. Capt.) F. G. Brown (fmly, R.F.A.)

Lt. T. Chilton (fmly. R.F.A.); Lt. (temp Capt.) H. P. S. Clogstoun (fmly. R.F.C., S.R.); Capt. (temp. Maj.) E. F. Clarke; Lt. H. R. P. Coliett; Sec Lt. (Hon. Lt.) K. A. C. Cresswell (fmly. R.F.C., S.R.); Capt W. G. M. Crothers (fmly. Suff. R.); Lt. Ian Cullen (fmly. Yeo.), Lt. F. F. Dutton, M.C (fmly. Ches. R.). Lt. (actg. Capt.) P. G. Du Val (fmly. Lond. R.).

Lt. G. M. Eiloart.

Lt. W. T. Fraser (fmly. R.F.A.).

Maj. (temp. Lt.-Col.) N. Goldsmith (fmly. R.A.); Lt. C. E. V. Graham (fmly. R.F.A.); Capt. A. Graves (fmly. R.E.); Lt. A. R. Gurney (fmly. M.G. Corps).

Capt. (temp. Maj.) N. M. Halcombe (fmly. R.E.); Lt. H. Haycock (fmly. R.F.C., S.R.).

Sec. Lt. M. J. James (fmly. R.F.C., S.R.); Temp Capt. F Jefcoate.

Capt. (temp. Maj.) W. D. Long (fmly. Gen. List); Lt. J. B. Low (fmly. H.L.I.).

Maj. (temp. Lt.-Col.) N. D. K. MacEwen, D.S.O. (fmly. A. and S. Highrs.); Sec. Lt. R. D. G. Macrostie (fmly Gen. List); Capt. D. F. Massy (fmly. Ind. Army); Lt. (Hon. Capt) W. G. B. Martin, M.C. (fmly. Alberta R., Can. Forces); Sec Lt. H. M. Matheson (R.F.C., S.R.) (died); Lt. W. J. May (fmly. Cambs R.); Capt. (temp. Maj.) C. R. H. Medhurst, M.C. (fmly. R. Innis. Fus.); Lt. F. H. H. Miles (fmly. Yeo.).

Lt. R. C. Nicholls (fmly. Bedf. R.).

Capt. (temp. Maj.) A. P. Pargiter, M.C (fmly. R. Ir. R.); Maj. (temp. Lt.-Col.) W. H. Primrose (fmly. A. and S. Highrs.)

Capt. the Hon. J. H. B. Rodney, M.C. (fmly. R. Bde.).

Lt. (temp. Capt.) H. L. Saunders (fmly. R.F.C., S.R.); Capt. (temp. Maj.) F. W. Stent (fmly. R.F.C., S.R.); Sec. Lt. T. C. Stuart (fmly. Gord. Highrs.).

Maj. (temp. Lt.-Col.) G. E. Todd (fmly. Welch R.).

Lt. F. S. Vaughan (fmly. R. W. Kent R.).

Capt (temp. Maj.) R. P. Willock; Sec Lt. W. F. Wood; Capt. (temp. Maj.) A. C. Wright (fmly. R.F.C., S.R.); Lt R. B. Waite (fmly. Yeo.); Sec. Lt. (Hon. Lt.) J. C. R. Watson (fmly. H.L.I.).

3337 Flt. Serjt. H. C. Adams.

6332 Cpl. H. Baldwin.

49586 Cpl. (actg. Serjt.) H. A. Cattell; 17071 Flt. Serjt. S. O. Clark; 1000 Serjt. G. Cooke; 23398 Flt. Serjt. A. S. Curtis.

5044 Cpl. G. V. Dowding.

391 Temp. Serjt.-Maj. C. G. Grimes.

41491 Cpl. J. Hall; 26861 Flt. Serjt. W. Halliday; 12893 Cpl R. Holmes.

28023 Cpl. J. Jones.

68121 1st Cl. Air Mech. A. J. Leak

33553 Flt. Serjt. W. Mendoza.

67695 Cpl. R. J Newman; 103710 1st Cl. Air Mech J. A. Nicholls; 49715 Flt. Serjt. F. Norton

6192 Serjt. J. P. O'Driscoll.

4075 Serjt. S. H. Philpott; 21460 Cpl. H. G. Platten.

37666 Cpl. W H. Reed; 36675 Cpl F. L. Rackstraw; 4893 1st Cl. Air Mech H. Ransome; 16324 Flt. Serjt. R. W. Rayner; 26818 Cpl. J. Roberts.

8030 1st Cl. Air Mech. C. A. Smith; 17582 Serjt. W. Swanston.

30476 Cpl. W. Thompson.

6285 Serjt. T. Vickerman.

4154 Serjt. R Watson; 7830 Serjt. T P. Wilkins; 35005 Cpl. G Williams; 2314 Flt. Serjt. (temp. Serjt.-Maj.) C. L. Winter; 32578 Cpt. T. Woodcock; 10151 1st Cl. Air Mech. (actg. Cpl.) E. A Wooley.

2454 Flt. Serjt. T. M. Yates.

Australian Imperial Force.
Flying Corps

Capt. A. M. Jones, M.C.

Aus/275 Cpl. J. M. Bennett, Aus/280 Serjt. J. E. Chalmers, Aus./384 1st Cl. Air Mech. C. Dawes, Aus./170-Cpl (actg. Serjt.) W. E. Kilburn, Aus./14129 1st Cl. Air Mech. L. C Matulich. Aus./315 Flt. Serjt. R. Reilly, Aus./150 Serjt. (actg. Flt. Serjt.) J. Thomas, Aus./182 1st Cl. Air Mech. H. E. Wadham, Aus./350 Flt. Serjt. B. Walford.

July 2nd.

The following officers and other ranks of the Royal Air Force have been mentioned in dispatches and reports for distinguished services :—

Lt. C. E. Hughes

Lt. (Hon. Capt.) W. R. Kempson.

Lt. (Hon. Capt.) A. E. Popham.

Lt. T. G. M. Stephens

F/993 C.P.O. (2 S.) H. J. Bagge, 6434 Actg. Air Mech. (1 E.) J. R. Beal, F/358 W.O. (2nd Gr.) A. J. Cambridge, F/7165 Actg. Air Mech. (1 E.) G. W. Chardin, F/428 P.O. (M.E.) F. H. Cross, M/3500 P.O. (R.H.) D. W Hamilton, F/4603 P.O. (W./T.) J. W. McPherson, M/2354 W.O. (2nd Gr.) J. Noonan, D.S.M., F/7643 P.O. (M.E.) L. H. Phillips, F/1502 P.O. (M.E.) W. A. Prince, Ldg. Mech. W. Robertson (late R.N.A.S.), F/19709 C.P.O. (3 P.H.) R. Wilkinson, W.O (2nd Cl.) (S.H.) A. T. E. Witt.

Aug. 3rd.

The following officers have been mentioned in dispatches and reports for distinguished services rendered :—

Lt. (temp. Capt.) P. Ll. Hunting (Mesopotamia).

Capt. L. M. Lilley (Mesopotamia).

Lt. (temp. Capt.) A. B. Shearer (formerly No. 3 Wing).

First Lt. S. R. Simmons, United States Air Service.—For very valuable services rendered on the occasion of a serious fire at an aerodrome.

Aug. 6th.

The names of the following have been brought to the notice of the Secretary of State for War by Lt.-Gen. Sir J. L. van Deventer, K.C.B., Commanding-in-Chief, British Forces, East Africa, for distinguished services during the operations from May 30th to December, 1917, described in his dispatch of Jan. 21st :—

Royal Air Force.

Sec. Lt. N. B. Arbuthnot (formerly R.F.C.).

Sec. Lt (temp. Lt.) G. Baillie (formerly R.F.C.).

Maj. (temp. Lt.-Col.) F. W. Bowhill, D.S.O. (formerly R.N.A.S.).

Lt. W. P. Brown (formerly Yeo.).

Capt. W. R. B. Gifford (formerly Middx. R.).

Lt. F. V. Way (formerly R.F.C.).

Z252 Serjt. H. Atkins, S.A., R.A.F.; Z213 1st Cl. Air Mech. C. A. Austen, R.A.F.; Z132 Cpl. H. A. Blyth, R.A.F.; Z126 Cpl. A. Booer, S.A., R.A.F.; Z177 Serjt. H. Chivers, R.A.F.; Z78 1st Cl. Air Mech. J. S. Elliott, R.A.F.; Z138 Cpl. L. S. MacLean, R.A.F.; Z273 1st Cl. Air Mech. S. C. Pearsall, R.A.F.; Z366 Cpl. C. Skitt, R.A.F.; Z528 2nd Cl. Air Mech. S. Stockman, R.A.F.; Z189 Serjt. E. Whitmill, R.A.F.; Z330 2nd Cl. Air Mech. H. Wilkinson, R.A.F.

Aug. 13th.

The names of the following have been brought to the notice of the Secretary of State for War for valuable services rendered in connection with the war, and, when applicable, an entry will be made in the records of service of officers and other ranks :—

Capt. and Bt. Maj. (temp. Brig.-Gen.) F. R. Ludlow-Hewitt, D.S.O., M.C., R. Ir. Rif., attd. R.A.F.

69753 2nd Air Mech. R. Roberts, R.A.F.

Aug. 23rd

The Secretary of State for the Colonies has received from the Governor-General and Commander-in-Chief, Union of South Africa, the following list of officers and other ranks whose names have been brought to notice by Gen. the Right Hon. Louis Botha for distinguished service in the field and in connection with the campaign in German South-West Africa, 1914-15 :—

Royal Air Force.

Lt (temp Capt.) H. V. Batten.

Lt. (temp. Capt.) G. S. Creed, Permt. Force (Staff).

Sub-Lt T. Hinshelwood, R.N.A.S.

Lt. (temp. Capt.) K. R. Van Der Spuy, M.C., Permt. Force (Staff).

Capt. (temp. Maj.) G. P. Wallace, D.S.O., Permt. Force (Staff).

Aug. 26th.

The following are mentioned for distinguished and gallant services and devotion to duty in a dispatch addressed to the Chief of the General Staff, India, by Lt.-Gen. W. R. Marshall, K.C.B., K.C.S.I., Commanding-in-Chief, Mesopotamian Expeditionary Force, and received by the Secretary of State for War :—

Royal Air Force.

Maj. R. A. Bradley (formerly N. Staff R.).

Capt. (temp. Maj.) H. De Havilland, D.S.O. (formerly R.F.C., Spec Res.).

Lt. F. V. Devonshire (formerly Hrs.).

Maj. J. L. Grinlinton, D.S.O. (formerly R.G.A.).

Maj. H. D. Jensen, M.C. (formerly R.F.C.)

Lt. A. H. E. Lindop, M.C., I.A.R.O.

Lt. (temp Capt.) G. Merton, M.C. (formerly R.F.C., Spec. Res.).

Capt B. G. M. F. Nixon, Dogras.

Capt. F. L. Robinson, M.C. (formerly R. Innis. Fus.).

Lt. R. B. B. Sievier (formerly R.F.A.).

Capt. R. D. Simpson (formerly R.F.C.).

Lt. (temp. Capt.) G. Somers-Clarke (formerly R.F.C., Spec. Res.).

Lt. G. L. Stedman (formerly R.F.C.).

Maj. (temp. Lt.-Col.) J. E. Tennant, M.C. (formerly S. Gds.).

Lt. J. W. W. Tregale, I.A.R.O.

78866 1st Cl. Air Mech. (actg. Serjt.) S. B. Ayling.

78867 Cpl. G. Downs.

3983 Flt. Serjt. P. W. Evans.

4115 Flt. Serjt. H. W. French.

2206 Flt. Serjt. J. Halstead.

32525 Serjt. W. T. James.

26059 Serjt. E. S. Linton.

28571 Flt. Serjt. T. A. Rhaney.

13641 Flt Serjt. A. G. Rogers.

Sept. 16th.

The under-mentioned officers and other ranks have been brought to notice in dispatches and reports, for valuable services rendered :—

Lt. Edward John Addis (Sea Patrol)

Capt. Rene Maurice Bayley (Sea Patrol).

Lt. Leslie Wallis Beal (Pilot, temp. Sea Patrol duty, 36th Squadron).

Maj. the Hon. Roger Coke (Airship Service)

Lt. Grahame Heath (Sea Patrol).

Lt. (Hon. Capt.) John Frederick Horsey (Sea Patrol).

Lt. Gordon Frank Hyams, R.F.C. (Sea Patrol).

Pilot-Ensign P. J. Ives, U.S.A. (Aviation Service).

Capt. Geoffrey Littleton Lowis (Aviation Service

Pilot-Ensign J. F. McNamara, U.S.A. Aviation Service (Sea Patrol).

Lt. Jaffray John Walter Nicholson (Sea Patrol).

Lt. Frederick William Pickup (Sea Patrol).

Lt. John Nettleton Raby (Obsr.), temp. Sea Patrol duty (36th Sqdn.).

Lt. Albert Cyril Sharwood (Sea Patrol)

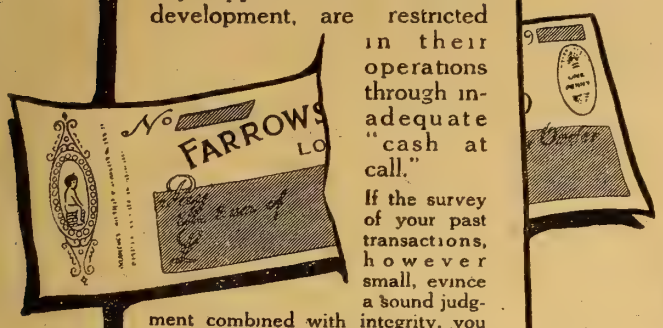
Capt. Charles Thomas Tyrer (Sea Patrol).

Sec. Lt. Thomas Willis (Sea Patrol).

208368 1st Cl. Clerk A. H. Ashton (Basingstoke), 204286 Serjt. Mech.

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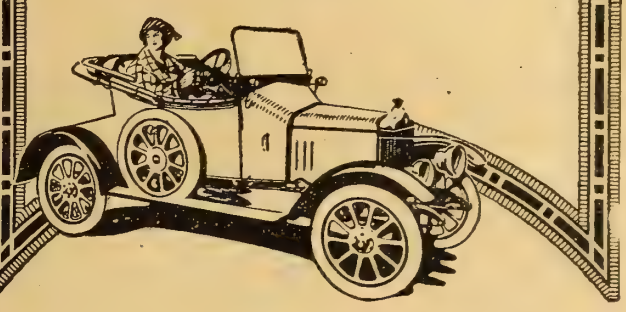
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R. H. (C) F. B. Clark (Folkestone), 219078 Serjt. (G) J. A. Hesden (New Cross, S.E.), 5485 Flt. Serjt. C. W. James (Tonbridge), 6312 Serjt. H. A. Longman (Wark-on-Tyne), 201149 Ch. Mech. (E) L. G. Miles (Harlesden), 208042 Serjt. Mech. (E) R. H. Powell (Brixton, S.W.), 208284 Air Mech. 1st Cl. (A) E. A. Stally (Hastings).

Oct. 8th.

The names of the undermentioned have been brought to the notice of the Secretary of State for War for valuable services rendered in connection with military operations in Hedjaz :—

Royal Air Force.

Capt. (temp. Maj.) F. W. Stent, M.C.
Lt. J. M. Watson.
1753 Chief Mech. (actg. Chief Master Mech.) G. A. F. Gibson
39122 Cpl. Mech. R. W. Forder.
49766 Cpl. Clk. A. Ross.
3326 Serjt. Mech. T. R. Stokes.

FOREIGN DECORATIONS.

FRANCE.

Legion d'Honneur.

Officier.

Lt.-Col. George William Patrick Dawes, D.S.O. (R. Berks R.) (Gazetted Sept. 10th.)
Col. (actg. Brig.-Gen.) R. E. Trower Hogg, C.I.E. (Ind. Army). (Gazetted Nov. 30th.)
Maj. (actg. Lt.-Col.) A. V. Holt, D.S.O. (R. Highrs.). (Gazetted Nov. 30th.)
Lt.-Col. R. P. Mills, M.C. (R. Fus.). (Gazetted Nov. 30th.)
Lt.-Col. (temp. Brig.-Gen.) Tom Ince Webb-Bowen, C.M.G. (Bedford Regt.). (Gazetted Sept. 10th.)

Chevalier.

Lt.-Col. William Avery Bishop, V.C., D.S.O., M.C., D.F.C. (Can. Cav. and Avia. Service) (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) O. M. Baldwin, D.F.C. (Gazetted Nov. 30th.)
Lt. (temp. Capt.) Gerald Ernest Gibbs, M.C. (Gazetted Sept. 10th.)
Lt. (actg. Capt.) G. L. Graham, D.F.C. (Gazetted Nov. 30th.)
Lt. (actg. Capt.) W. B. Green, D.F.C. (Gazetted Nov 30th.)
Capt. (temp Maj.) Gilbert Ware Murlis Green, D.S.O., M.C. (Gazetted Sept. 10th.)
Sec. Lt. (Hon. Lt.) C. P. Harrison, M.C. (Gazetted Nov. 30th.)
Capt. (temp. Maj.) Edwin Rowland Moon. D.S.O. (Gazetted Sept. 10th.)
Lt. (actg. Capt.) E. J. Salter. (Gazetted Nov. 30th.)
Capt. H. W. Woollett, D.S.O., M.C. (Linc. R.). (Gazetted Nov. 30th.)

Croix de Guerre avec Palme.

Maj. (actg. Lt.-Col) Herbert Arthur Reginald Aubrey, M.C. (Sea Patrol; Shrops. L.I.). (Gazetted Nov. 8th.)
Capt. René Maurice Bayley (Sea Patrol, S.A. Horse). (Gazetted Nov. 8th.)
Maj. Bertram Charles Bell, D.S.O., D.S.C. (Sea Patrol). (Gazetted Nov. 8th.)
Lt. (actg. Capt.) Robert Mathan Berthe (Sea Patrol). (Gazetted Nov. 8th.)
Lt. William Black, M.C. (Sea Patrol; Camn. Highrs.). (Gazetted Nov. 8th.)
Maj. Herbert George Brackley, D.S.O., D.S.C. (Sea Patrol). (Gazetted Nov. 8th.)
Lt. (actg. Capt.) Colin Peter Brown, D.F.C. (sea Patrol). (Gazetted Nov. 8th.)
Lt. Archibald Buchanan, D.F.C. (Sea Patrol) (Gazetted Nov. 8th.)
Lt.-Col. William Avery Bishop, V.C., D.S.O., M.C., D.F.C. Can. Cav. and Avia. Service). (Gazetted Nov. 2nd.)
Lt. Cecil Allchin Bridgland (E. Surrey R.). (Gazetted Nov. 2nd.).
Lt. Joseph Michael Carroll (R.E.). (Gazetted Nov. 2nd.)
Lt. James Henry Dewhurst. (Gazetted Nov. 2nd.)
Lt. (actg. Capt.) Arthur Hyde Flower. (Gazetted Dec. 3rd.)
Maj. Alexander Gray, M.C. (A. and S. Highrs.). (Gazetted Nov. 2nd.)
Col. (actg. Brig.-Gen.) Charles Laverock Lambe, C.M.G., D.S.O. (Sea Patrol). (Gazetted Nov. 2nd.)
Lt. George Selby Lewtas (Sea Patrol). (Gazetted Nov. 2nd.)
Sec. Lt. (actg. Lt) Hamish Duncan McLaren, D.F.C. (Sea Patrol). (Gazetted Nov. 8th.)
Lt. Ernest Harold Masters. (Gazetted Nov. 2nd.)
Maj. (actg. Lt.-Col.) Arthur Clinton Maund. D.S.O., 8th Can. Inf. and R.A.F. (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) Thomas Walter Nash, D.F.C. (Sea Patrol). (Gazetted Dec. 3rd.)
Maj. (actg. Lt.-Col.) Edward Osmond (Sea Patrol). (Gazetted Dec. 3rd.)
Lt. (actg. Capt.) Stanley Gordon Smith. (Gazetted Dec. 3rd.)
Capt. (temp. Maj.) Jerrold Bernard Solomon, M.C. (Oxf. and ucks. L.I.). (Gazetted Nov. 2nd.)
Lt. Ernest John Whyte, D.F.C. (Gazetted Nov. 2nd.)
Lt. William Wild. (Gazetted Nov. 2nd.)
Maj. John Tudor Whittaker, M.C. (A.S.C.). For Services in Italy. (Gazetted Nov. 8th.)

Croix de Guerre, avec Etoile en Bronze.

Lt. (temp. Capt.) Basil Everard Catchpole, M.C., D.F.C. (Gazetted Nov. 2nd.)

Croix de Guerre.

Sec. Lt. Allan Finlay Alexander. (Gazetted Sept. 10th.)
Lt. William George Barker, D.S.O., M.C. (Gazetted Sept. 10th.)
Lt. Thomas Henry Barry (R.G.A.). (Gazetted Sept. 10th.)
Capt. (temp. Maj.) Charles Edgar Bryant, D.S.O. (7th Hussars). (Gazetted Sept. 10th.)
Capt. Frederic Carr. (Gazetted Sept. 10th.)
Lt. Charles Reay Coffey. (Killed May 27th, 1918). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Stanley Beresford Collett (Durham L.I.) (Gazetted Sept. 10th.)
Capt. (temp Maj.) John Ogilvie Davis, M.C. (Gazetted Sept. 10th.)
Lt. Arthur Nooght Dufton. (Gazetted Sept. 10th.)
Lt.-Col. George William Patrick Dawes, D.S.O. (R. Berks. R.) (Gazetted Sept. 10th.)
Lt. Percy Evans. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Gerald Ernest Gibbs, M.C. (Gazetted Sept. 10th.)
Lt. Acheson Gosford Goulding, M.C. (Gazetted Sept. 10th.)
Capt. Augustus Francis Woodward Gregory. (Gazetted Sept. 10th.)
Lt. Reuben George Hammersley. (Gazetted Sept. 10th.)
Sec. Lt. Earl McNabb Hand. (Gazetted Sept. 10th.)
Lt. Charles Phillip Harrison, M.C. (R.E.). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Richard Harrison. (Gazetted Sept. 10th.)
Lt. Bertram Head, M.C. (Northd. Fus.) (Gazetted Sept. 10th.)
Maj. George Henderson (Indian Army). (Gazetted Sept. 10th.)
Lt. (temp. Capt.) James Duff Hewett. (Gazetted Sept. 10th.)
Lt. Harold Woolf Higham (Notts. and Derby). (Gazetted Sept. 10th.)
Lt. Hugh Pughe Lloyd, M.C. (Gazetted Sept. 10th.)
Capt. Frederick William Lowen. (Gazetted Sept. 10th.)
Capt. (temp. Maj.) William Robert Brown McBain, M.C. (Gazetted Sept. 10th.)
Sec. Lt. Anthony Nugent. (Gazetted Sept. 10th.)
Lt. Charles Dudley Palmer (A. and S. Highrs.). (Gazetted Sept. 10th.)
Capt. Samuel Richard Penrose-Welstead, D.F.C. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Geoffrey Arthur Henzell Pidcock. (Gazetted Sept. 10th.)
Lt. (temp. Capt.) Edmond Robert Harris Pollak, M.C. (R.A.) (Gazetted Sept. 10th.)
Lt. George Augustus Bellair Ross (Lpool Regt.) (Gazetted Sept. 10th.)
Lt. Stanislaus Thomas Rekofsky. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Edward Telford de Lauret Simpson. (Gazetted Sept. 10th.)
Capt. Richard Percyvale Ward, M.C. (R. Welsh Fus.). (Gazetted Sept. 10th.)
Lt. Frederick Williams. (Gazetted Sept. 10th.)
Sec. Lt. Percy Wilson. (Gazetted Sept. 10th.)
43689 2nd Air Mech. John Horace Cowper Man (Derby). (Gazetted Nov. 2nd.)
240289 Serjt.-Mech. (Obsr.) Francis Leonard Roberts (Finsbury Sq.). (Gazetted Sept. 10th.)

Medaille Militaire.

2249 Serjt.-Mech. H. W. Bush (Paddington, W.). (Gazetted Nov. 30th.)
140801 Pte., 1st Cl., E. R. MacDonald (Matheson, Ont., Can). (Gazetted Nov. 30th.)
15399 Serjt. S. B. Percival (Manch. R., attd R.A.F.) (Killed Aug. 14th, 1918). (Gazetted Nov. 2nd.)
240298 Serjt.-Obsr. F. L. Roberts (Finsbury, London). (Gazetted Nov 30th.)

ITALY.

Order of the Crown of Italy.

Grand Officer.

Maj. John Lawrence Baird, C.M.G., D.S.O., M.P. (Scottish Horse). (Gazetted Nov. 8th.)
Lt.-Gen. Sir David Henderson, K.C.B., D.S.O. (Gazetted Nov. 8th.)

Commander.

Maj.-Gen. William Sefton Brancker, A.F.C. (R.A.). (Gazetted Nov. 8th.)
Maj.-Gen. Sir Charles Edward Callwell, K.C.B. (fmly. attd. Air Board). (Gazetted Nov. 8th.)
Lt.-Col. (actg. Brig.-Gen.) Guy Livingston, C.M.G. (Lond. R.) (Gazetted Nov. 8th.)
Maj.-Gen. Sir Godfrey Marshall Paine, K.C.B., M.V.O. (Gazetted Nov. 8th.)
Maj.-Gen. John Maitland Salmond, C.M.G., C.V.O., D.S.O. (R. Lan. R.) (Gazetted Nov. 8th.)
Maj.-Gen. Sir Hugh Montague Trenchard, K.C.B., D.S.O. (Gazetted Nov. 8th.)

Officer.

Lt.-Col. Ivan Buchanan Davson. (Gazetted Nov. 8th.)
Capt. (temp. Lt.-Col.) Henry Anthony Patrick Disney (Cambs. R.) (Gazetted Nov. 2nd.)
Lt.-Col. (actg. Col.) the Hon. William Francis Forbes-Sempill, Master of Sempill, A.F.C. (Gazetted Nov. 8th.)
Maj. Claude Spence MacNab (Cam'n Highrs.). (Gazetted Nov. 2nd.)
Lt.-Col. (actg. Brig.-Gen.) Cyril Louis Norton Newall (Gurkha Rifles). (Gazetted Nov. 8th.)
Lt.-Col. (actg. Brig.-Gen.) James George Weir, C.M.G. (R.F.A.). (Gazetted Nov 8th.)

Cavaliere.

Capt. (temp. Maj.) Claude Gordon Beatson (Middx. R.) (Gazetted Nov. 2nd.)
Capt. (actg. Maj.) Fernley Turner Bridger. (Gazetted Nov. 8th.)
Capt. (temp. Maj.) Ernest Graham. (Gazetted Nov. 2nd.)
Capt. Francis Gordon Hogarth. (Gazetted Nov. 8th.)
Lt.-Col. Alexander Emil Jacques Reiss, O.B.E. (Gazetted Nov. 8th.)
Capt. Edward Webb Stubbs (Lpool R.) (Gazetted Nov. 2nd.)
Maj. Albert Victor Thompson. (Gazetted Nov. 8th.)
Maj. John Tudor Whittaker, M.C. (A.S.C.). (Gazetted Nov. 2nd.)

Military Order of Savoy.

Officer.

Lt.-Col. (temp. Brig.-Gen.) Tom Ince Webb-Bowen, C.M.G. (Gazetted Sept. 10th.)

Croce di Guerra.

Lt. Arthur Gabbetis Cooper. (Gazetted Dec. 3rd.)
Lt.-Col. (temp. Col.) Philip Bennet Joubert de la Ferté, D.S.O. (R. Art.). (Gazetted Nov. 2nd.)
Lt. (Hon. Capt.) George Francis Meager. (Gazetted Dec. 3rd.)
Sec. Lt. Tom Newey (Leic. R.). (Gazetted Nov. 2nd.)

Order of St. Maurice and St. Lazarus.

Officer.

Lt.-Col. (actg. Brig.-Gen.) William Alexander, C.M.G., D.S.O. (R. Highrs.). (Gazetted Nov. 8th.)

Cavaliere.

Lt.-Col. The Hon. John David Boyle, D.S.O. (Rifle Bgde.). (Gazetted Nov. 2nd.)
Lt.-Col. (temp. Col.) Arthur James Child, M.C. (Lond. R.). (Gazetted Nov. 2nd.)
Lt.-Col. (temp. Col.) Philip Bennet Joubert de la Ferté, D.S.O. (R. Art.). (Gazetted Nov. 2nd.)
Lt.-Col. Reginald Percy Mills, M.C. (R. Fus.). (Gazetted Nov. 2nd.)
Maj. (temp. Lt.-Col. in Army) Thomas Brocklehurst Philips (formerly connected with Air Board). (Gazetted Nov. 8th.)
Maj. The Hon. Edward Alexander Stoner. (Gazetted Nov. 8th.)
Capt. (actg. Maj.) John Evelyn Leslie Wrench, C.M.G. (Gazetted Nov. 8th.)

Silver Medal for Military Valour.

Maj. (temp. Lt.-Col.) Charles Hubert Boulby Blount, M.C. (R. W. Surr. R.). (Gazetted Nov. 2nd.)
Lt. Ralph Bolton. (Gazetted Nov. 2nd.)
Lt. Harold Koch Boysen. (Gazetted Nov. 2nd.)
Lt. Neville Isaac Brockbank. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Jack Cottle, D.F.C. (Gazetted Nov. 2nd.)
Capt. (temp. Maj.) Thomas Hinshelwood, D.S.C., D.F.C. (Gazetted Nov. 2nd.)
Lt. John Hodgson. (Gazetted Nov. 2nd.)
Maj. (temp. Lt.-Col.) Ralph James Jean Hope-Vere (Gazetted Nov. 2nd.)
Lt. James Kingsley Aldrich Jeakes, D.F.C. (Gazetted Nov. 2nd.)

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KINDLY MENTION "THE AERCFLANE" WHEN CORRESPONDING WITH ADVEPTISERS.

Capt. (temp. Maj.) John Stanley Fleming Morrison, D.F.C. (Gazetted Nov. 2nd.)
Capt. Robert Redfern, D.F.C. (Gazetted Nov. 2nd.)
Lt. Edwin Curtic Robinson Stoneman (Gazetted Nov. 2nd.)
Lt. Francis Stanley Symondson, M.C. (Glam Yeo.). (Gazetted Nov. 2nd.)
Capt. (temp. Maj.) Awdry Morris Vaucour, M.C., D.F.C. (R. Art.). (Gazetted Nov. 2nd.)
Maj. John Tudor Whittaker, M.C. (A.S.C.) (Gazetted Nov. 2nd.)
221380 Cpl. (G.) George Ernest Thrift, D.F.M. (Gazetted Nov. 2nd.)

BRONZE MEDAL FOR MILITARY VALOUR.

Lt. (temp. Capt.) Geoffrey Andrews. (Gazetted Nov. 2nd.)
Sec. Lt. Clarence Beagle (Man. R.). (Gazetted Nov. 2nd.)
Capt. Clive Oliver Bertram Beale, D.S.O. (Gazetted Nov. 2nd.)
Capt. David Cockburn Bell, M.C. (Middx. R.). (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Hilliard Brooke Bell, M.C. (Gazetted Nov. 2nd.)
Sec. Lt. Kenneth Oxenden Bracken (R.F.A., S.R.) (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Peter Carpenter, D.S.O., M.C. (Gazetted Nov. 2nd.)
Lt. Graham Waters Curtis. (Gazetted Nov. 2nd.)
Lt. Malcolm David George Drummond. (Gazetted Nov. 2nd.)
Capt. (temp. Maj.) Cedric Campbell Durston (Hon. Art. Co.). (Gazetted Nov. 2nd.)
Capt. John Charles Bradley Firth, M.C. (Gazetted Nov. 2nd.)
Lt. (Hon. Capt.) Joseph Eskel Hallonquist (Can. Inf.). (Gazetted Nov. 2nd.)
Capt. Harry Bradford Tancred Hawkins. (Gazetted Nov. 2nd.)
Lt. John Gaylor Horne. (Gazetted Nov. 2nd.)
Lt. Alan Jerrard, V.C. (S. Staff. R.). (Gazetted Nov. 2nd.)
Lt. Clifford McEwen, M.C., D.F.C. (Can. Forces) (Gazetted Nov. 2nd.)
Capt. James Mitchell, M.C., D.F.C. (Italy). (Gazetted Nov. 2nd.)
Capt. Robert Henry Sharp. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Thomas Frederic Williams, M.C. (Gazetted Nov. 2nd.)
Lt. (temp. Capt.) Percy Wilson, M.C. (Gazetted Nov. 2nd.)

BELGIUM.

THE ORDER OF LEOPOLD.

COMMANDER.

Maj.-Gen. John Maitland Salmond, C.M.G., C.V.O. D.S.O. (R. Lanc. R.). (Gazetted Nov. 8th.)

CHEVALIER.

Maj. the Hon. Edward Alexander Stonor. (Gazetted Dec. 3rd.)

THE CROIX DE GUERRE.

Sec. Lt. Robert Grechan Carr. (Gazetted Nov. 2nd.)
Col. (temp. Brig.-Gen.) Charles Laverock Lamb, C.M.G., D.S.O. (Gazetted Sept. 10th.)
Maj.-Gen. John Maitland Salmond, C.M.G., C.V.O., D.S.O. (R. Lanc. R.). (Gazetted Nov. 8th.)

ORDRE DE LA COURONNE.

OFFICIER.

Maj. (actg. Lt.-Col.) Alwyn Vesey Holt, D.S.O. (Gazetted Dec. 3rd.)

CHEVALIER.

Capt. Francis Gordon Hogarth. (Gazetted Dec. 3rd.)
Lt. John Cunninghaim Mitchell. (Gazetted Sept. 10th.)

GREECE.

CROSS OF COMMANDER OF THE ORDER OF THE REDEEMER.

Lt.-Col. George William Patrick Dawes, D.S.O. (R. Berks. Regt.). (Gazetted Sept. 10th.)

THE GREEK MILITARY MEDAL.

Maj. (temp. Lt.-Col.) Alfred Stanley Hellawell. (Gazetted Nov. 2nd.)

SILVER WAR MEDAL.

Lt. (Hon. Capt.) Charles Gilmour, D.S.C. (Gazetted Sept. 10th.)
Lt. (Hon. Capt.) Harold Thomas Mellings, D.S.C., D.F.C. (Gazetted Sept. 10th.)

THE CROSS OF MILITARY MERIT.

Mrs. Lilian O'Meard Doughty-Wylie, M.B.E., Matron of Limenaria Hospital, Thasos. (Gazetted Dec. 3rd.)
Surg. Louis Bruce Stringer, R.N., attd. R.A.F., Limenaria Hospital, Thasos. (Gazetted Dec. 3rd.)

JAPAN.

THE ORDER OF THE RISING SUN.

2ND CLASS.

Maj.-Gen. Sir Godfrey Marshall Paine, K.C.B., M.V.O. (Gazetted Nov. 8th.)

3RD CLASS.

Col. (actg. Brig.-Gen.) Harold Douglas Briggs. (Gazetted Nov. 8th.)
Col. (actg. Maj.-Gen.) Arthur Vyell Vyvyan, C.B., D.S.O. (Gazetted Nov. 8th.)

4TH CLASS.

Capt. (actg. Maj.) William Peer Groves. (Gazetted Nov. 8th.)

THE ORDER OF THE SACRED TREASURE.

3RD CLASS.

Lt.-Col. Harry Delacombe. (Gazetted Nov. 8th.)

TUNIS.

THE ORDER OF NICHAN IFTIKAR.

COMMANDER.

Capt. (temp. Maj.) Jean de Francia. (Gazetted Nov. 2nd.)

OFFICER.

Capt. Erik Edward Barnett. (Gazetted Nov. 2nd.)

CHEVALIER.

200672 Master Mech. Bert Arvoy (Putney). (Gazetted Nov. 2nd.)
210815 Cpl. Mech. Thomas Everitt Locke (Whittlesea). (Gazetted Nov. 2nd.)
204170 Cpl. Mech. Charles Richard Payne (Lavender Hill, S.W.). (Gazetted Nov. 2nd.)
210818 Pte. Henry Francis Sheere (Bridgwater). (Gazetted Nov. 2nd.)

THE ORDER OF THE BRITISH EMPIRE.

COMMANDERS (C.B.E.)

Brig.-Gen. Albert Fletcher, M.C., Director of Air Quartermaster Services, Air Ministry. (Gazetted June 3rd.)
Brig.-Gen. Francis Conway Jenkins, Director of Parks and Depots, Air Ministry. (Gazetted June 3rd.)
Col. John Dolben Mackworth, Deputy Director of Balloons, Air Ministry. (Gazetted June 3rd.)

OFFICERS (O.B.E.)

Lt.-Col. Ralph Harold Austin-Sparks, Staff Officer, 1st Cl., R.A.F. (Gazetted June 3rd.)
Capt. Frank Sowter Barnwell, Aeroplane Designer, British and Colonial Aeroplane Co., Ltd. (Gazetted June 3rd.)
Lt.-Col. Bernard John Wolfe Barry, Staff Officer, 1st Cl., R.A.F. (Gazetted June 3rd.)
Maj. Basil Binyon, R.A.F. (Gazetted June 3rd.)
Maj. James Bird, R.A.F. (Gazetted June 3rd.)
Lt.-Col. Robert Harvey Brand, Asst. Controller of Supplies in Directorate of Aircraft Equipment, R.A.F. (Gazetted June 3rd.)
Lt.-Col. John Adrian Chamier, D.S.O., Officer Commanding School of Instruction, R.A.F. (Gazetted June 3rd.)
Col. Thomas Edward St. Clare Daniell, M.C., Deputy Director of Aircraft Equipment, R.A.F. (Gazetted June 3rd.)
Col. Edward Humphrey Davidson, M.C., Deputy Director of Air Intelligence, R.A.F. (Gazetted June 3rd.)
Lt.-Col. Harcourt Gilbey Gold, Staff Officer, 1st Cl., R.A.F. (Gazetted June 3rd.)
Lt. Donald McNeill Greig, Supply Officer in Aeroplane Supply Branch, Air Board. (Gazetted Jan. 7th.)
Maj. Harold Grinsted, Chief Engineer, Royal Aircraft Factory. (Gazetted Jan. 7th.)
Lt.-Col. Francis Esme Theodore Hewlett, R.A.F. and Directorate of Aircraft Production (Gazetted June 3rd.)
Maj. Solomon James Lacey, R.A.F., Barrack-master, Seaplane Station (Gazetted June 3rd.)
Lt.-Col. Henry Edith Arthur Lindsay, Staff Officer, 1st Cl., R.A.F. (Gazetted June 3rd.)
Lt.-Col. Tom Darke Mackie, R.A.F., Air Service Constructional Corps. (Gazetted June 3rd.)
Lt.-Col. Thomas Anthony Monckton, Technical Officer, R.A.F. (Gazetted June 3rd.)
Lt.-Col. James William Ogilvy-Dalgleish, Asst. in the Directorate of Air Personal Services, Air Ministry. (Gazetted June 3rd.)
Lt.-Col. Edward Raymond Peal, D.S.C., Directorate of Aircraft Production, R.A.F. (Gazetted June 3rd.)
Lt.-Col. Alexander Emil Jacques Reiss, R.A.F.; Asst. Controller, Materials Branch, Aircraft Production Directorate. (Gazetted June 3rd.)
Capt. Tanner Montagu Rogers, Production Officer, Aeroplane Supply Branch, Coventry District. (Gazetted Jan. 7th.)
Lt.-Col. Francis Maude Roxby, R.A.F. (Gazetted June 3rd.)
Lt.-Col. Cyril Ambrose Shove, Staff Officer, 1st Cl., R.A.F. (Gazetted June 3rd.)
Lt.-Col. Alfred Drummond Warrington-Morris, Staff Officer, 1st Cl., R.A.F. (Gazetted June 3rd.)

MEMBERS (M.B.E.).

Maj. Charles Reginald Abbott, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Maj. Eustace Montagu Lafone Ainslie, Controller of a Reception Park, Aeroplane Supply Depôt, R.A.F. (Gazetted June 3rd.)
Maj. Michael Henry Percival Allen, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Maj. Cyril Rogers Andrews, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Capt. Wyndham Lindsay Birch, W. Yorks. R., attd. R.A.F. (Gazetted June 3rd.)
Capt. Percy Bishop, Asst. Engineer engaged on design of Aeroplanes at Royal Aircraft Factory. (Gazetted Jan. 7th.)
Sec. Lt. Percy Coombs, R.A.F., for an act of gallantry not in the presence of the enemy. (Gazetted Nov. 18th.)
Sec. Lt. Colin Goss Coleridge, R.A.F. (Gazetted June 3rd.)
Capt. Sidney Lewes Dashwood, Brigade Wireless Organisation Officer, R.A.F. (Gazetted June 3rd.)
Maj. Percy Granville Edge, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Capt. William Scott Farren, in charge of aero-dynamics at Royal Aircraft Factory. (Gazetted Jan. 7th.)
Maj. Charles William Gamble, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Capt. William Walker Gibson, special employment at a Port Depot, R.A.F. (Gazetted June 3rd.)
Maj. Robert Hall, Aircraft Park Commander, R.A.F. (Gazetted June 3rd.)
Maj. John Harris Hills, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Maj. Reginald Holloway, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Maj. Charles Frederick Krabbe, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Capt. Thomas Lewson, Officer-Clerk, R.A.F. (Gazetted June 3rd.)
Maj. Thomas Geoffrey Leith, Aircraft Production Directorate and R.A.F. (Gazetted June 3rd.)
Capt. Thomas Lyons, Dep. Asst. Director of Aircraft Equipment, Air Board. (Gazetted Jan. 7th.)
Maj. James McCrae, Commander of an Aircraft Acceptance Park, R.A.F. (Gazetted June 3rd.)
Lt. Percy Middlemas, Gunnery Officer, R.A.F. (Machine Guns). (Gazetted June 3rd.)
Maj. Arnold John Miley, Aircraft Production Directorate and R.A.F. (Gazetted June 3rd.)
Maj. Exley Livingston Millar, Controller of an Aeroplane Repair Section in the Field. (Gazetted June 3rd.)
Lt.-Col. Malcolm Nicholson, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Maj. James Edward Parkin, R.A.F., Recruits Training Depot. (Gazetted June 3rd.)
Maj. William Edward Plaister, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Capt. William Francis Prentice, Technical Officer, R.A.F., and Directorate of Aircraft Production. (Gazetted June 3rd.)
Capt. Charles Edmond Prince, Wireless Experimental Officer, 1st Cl., R.A.F. (Gazetted June 3rd.)
Capt. David Mackinlay Potter Riach, Production Officer, Engines Branch, Air Board. (Gazetted Jan. 7th.)
Capt. William Oswald Raikes, Staff Officer, 2nd Cl., Training Divn., R.A.F. (Gazetted June 3rd.)
Maj. John Clifford Savage, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Capt. Fred Hibbard Songhurst, R.A.F., in Charge of Workshops in an Overseas Aircraft Park. (Gazetted June 3rd.)
Maj. George Ernest Stagg, Staff Officer, 2nd Cl., R.A.F. (Gazetted June 3rd.)
Lt. Cyril John Strother, Technical Officer, (Wireless Duties), R.A.F. (Gazetted June 3rd.)
Capt. the Hon. Percy Mansfield Thesiger, R.A.F., conducting an Equipment Branch in the Field. (Gazetted June 3rd.)
Capt. Frederick Ernest Banister Whitfield, R.A.F. (Wing Adjutant). (Gazetted June 3rd.)

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CIVILIAN HONOURS.

THE ORDER OF THE BATH.

K.C.B. (Civil Division).

Sir Howard George Frank, Director-General of Lands, War Office, Ministry of Munitions and Air Ministry. (Gazetted June 3rd.)

THE ORDER OF THE CROWN OF ITALY.

Grand Officer.

Lord Weir of Eastwood, Secretary of State for the Royal Air Force. (Gazetted Aug. 30th.)

THE ORDER OF THE BRITISH EMPIRE.

Knights Commanders (K.B.E.).

Frank Baillie, Esq., Director of National Aeroplane Factory, Toronto. (Gazetted Jan. 7th.)

James McKechnie, Esq., Managing Director of Messrs. Vickers, Ltd., Barrow. (Gazetted Jan. 7th.)

Dame Commander (D.B.E.).

Mrs. Ethel Locke-King, Vice-President of North Surrey Division and Assistant County Director, Surrey, British Red Cross and Order of St. John of Jerusalem. (Gazetted Jan 7th.)

Commanders (C.B.E.).

Richard William Allen, Esq., J.P., Director and Manager of Messrs. W. H. Allen, Son and Company, Bedford. (Gazetted Jan. 7th.)

Maj. Thomas Gerard Hetherington, Services in connection with the origination of Tanks. (Gazetted Jan. 7th.)

Frederick Handley Page, Esq., Managing Director, Handley Page, Ltd. (Gazetted June 3rd.)

Arthur John Relton, Esq., Member of the Aircraft Insurance Committee. (Gazetted Jan. 7th.)

John Davenport Siddeley, Esq., Managing Director of the Siddeley-Deasy Co., Ltd. (Gazetted Jan. 7th.)

Thomas Octave Murdoch Sopwith, Esq., Chairman and Test and Experimental Manager of Sopwith Aviation Co., Ltd. (Gazetted Jan. 7th.)

Officers (O.B.E.).

George Stephen Baker, Esq., Superintendent of the William Froude National Tank, National Physical Laboratory. (Gazetted Jan 7th.)

Algernon Edward Berriman, Esq., Chief Engineer, Daimler Co., Ltd. (Gazetted Jan. 7th.)

George Bertram Cockburn, Esq., Inspector of Aeroplanes, Aeronautical Inspection Directorate. (Gazetted Jan. 7th.)

Reginald Ormsby Cary, Esq., Director and General Manager, Sopwith Aviation Co., Ltd. (Gazetted June 3rd.)

William John Cruddas, Esq., Section Director, Aircraft Production Dept., Min. of Munitions. (Gazetted June 3rd.)

Capt. Geoffrey de Havilland, Aeroplane Designer, Aeroplane Manufacturing Co. (Gazetted June 3rd.)

Basil Preston Everett, Esq., Head of Drawing Office, Air Board, Technical Department. (Gazetted Jan. 7th.)

William Henry ffiske, Esq., Managing Director, Messrs. Boulton and Paul, Ltd. (Gazetted June 3rd.)

Allen Edward Ford, Esq., Section Director, Aircraft Finance Department, Min. of Munitions. (Gazetted June 3rd.)

Miss Hilda Phœbe Hudson, D.Sc., Aero-Dynamics Technical Research, Aircraft Production Department, Min. of Munitions. (Gazetted June 3rd.)

Christopher Newman Knight, Esq., Section Director, Contracts Branch, Air Board. (Gazetted Jan. 7th.)

Frederic Osborne Simeon Leake, Esq., Chairman, Messrs. A. V. Roe and Co., Ltd. (Gazetted June 3rd.)

James Macartney, Esq., Chairman, Aircraft Fabric Committee; Member, Irish Sub-Committee, Flax Control Board. (Gazetted June 3rd.)

Arthur John McCormack, Esq., Managing Director, Messrs. Wolseley Motors, Ltd. (Gazetted June 3rd.)

John James McKeown, Esq., Manager, Vickers, Ltd., Barrow. (Gazetted Jan. 7th.)

Thomas Keppel North, Esq., Supt. at one of the establishments of Messrs. Vickers, Ltd. (Gazetted June 3rd.)

Robert John Addison Pearson, Esq., Local Director, Messrs. Vickers, Ltd. (Gazetted June 3rd.)

Thomas Charles Pullinger, Esq., Managing Director, Messrs. Arrol, Johnston, Ltd. (Gazetted June 3rd.)

Alliott Verdon Roe, Esq. Gazetted Jan. 7th.)

Frederick Henry Royce, Esq., Director and Chief Engineer, Rolls-Royce, Ltd. (Gazetted Jan. 7th.)

James Moloney Spaight, Esq., LL.D., Actg. Principal Clerk, Air Ministry. (Gazetted June 3rd.)

Charles Robert John Atkin Swan, Esq., M.B., B.Ch., Admin Med. Officer, R.A.F. Hosps. (Gazetted June 3rd.)

Members (M.B.E.).

Thomas Easton Allan, Esq., Messrs. Robey and Co., Ltd. (Gazetted Jan. 7th.)

Sydney Watson Attwell, Esq., Asst. National Physical Laboratory. (Gazetted Jan. 7th.)

Arthur William Burgess, Esq., in Charge of Aeronautical Supply Dept. Registry, Air Board. (Gazetted Jan. 7th.)

John Henry Cargill, Esq., for services in connection with the Red Cross and Aeroplane Funds, Jamaica. (Gazetted Oct. 4th.)

Miss Margaret Chalmers, Administrative Asst., Materials and Accessories Branch, Air Board. (Gazetted Jan. 7th.)

Miss Millie Gertrude Clutterbuck, Registry, Air Ministry. (Gazetted June 31d.)

Capt. Charles George Coe, Equipt. Officer, R.A.F. (Gazetted June 3rd.)

Bertram George Cooper, Esq., Head of Sub-Section of Air Board Technical Dept. (Gazetted Jan. 7th.)

Bernard Phineas Dudding, Esq., Asst, Nat. Physical Laboratory. (Gazetted Jan. 7th.)

Miss Helen Goodyear, Admin. Asst., Contracts Branch, Air Board. (Gazetted Jan. 7th.)

Harry George Hawker, Esq., Trade Pilot, Sopwith Aviation Co., Ltd. (Gazetted June 3rd.)

Robert Hinchliffe, Esq., Chief Draughtsman, Messrs. Armstrong, Whitworth, and Co. (Gazetted June 31d.)

Mrs. Margaret Lilian Cowper Jackson, Admin Asst. Supplies (Aeroplanes), Aircraft Production Dept, Min of Munitions. (Gazetted June 3rd.)

Thomas Kenyon, Esq., Asst. Manager, Gun Mounting Dept., Messrs. Armstrong, Whitworth, and Co. (Gazetted June 3rd.)

George Clarvis Kirby, Esq., Manager, Wood-working Dept., Messrs. Ruston, Proctor and Co., Ltd. (Gazetted June 3rd.)

Alfred Tabois Larter, Esq., Aeronautics Contracts, Contracts Dept, Min. of Munitions. (Gazetted Jan. 7th.)

Percy Maxwell-Muller, Esq., Works Manager at one of the establishments of Messrs. Vickers, Ltd. (Gazetted June 3rd.)

Walter Alfred Medrow, Esq., Air Dept., Admiralty. (Gazetted Jan. 7th.)

Alfred John Sutton Pippard, Esq., Head of Sub-Section in Technical Dept. of Air Board. (Gazetted Jan 7th.)

Charles Russell Pledger, Esq., Aeronautics Finance, Finance Dept., Min. of Munitions. (Gazetted Jan. 7th.)

Mrs. Ethne Philippa Pryor, Hon. Sec., Prisoners of War Dept., R.A.F Aid Committee. (Gazetted June 3rd.)

William George Rowe, Esq., Asst. Shipyard Manager, Messrs. J. S White and Co., Cowes. (Gazetted June 3rd.)

Jas. Scott, Esq., Dep. Asst. Inspr. of Aeroplanes, Aeronautical Inspection, Ministry of Munitions. (Gazetted June 3rd.)

Frank Seymour, Esq., Dep. Asst. Inspr. of Aeroplanes, Aeronautical Inspection, Ministry of Munitions. (Gazetted June 3rd.)

George Greig Sinclair, Esq., Actg. Civil Engineer, in charge of Works, R.N.A.S., Central Depot, Cranwell. (Gazetted Jan. 7th.)

Bertram Haylock Smale, Esq., Dep. Asst Inspr. of Aeroplanes, Aeronautical Inspection, Ministry of Munitions. (Gazetted June 3rd.)

Miss Constance Evelyn Winwood Smith, Personal Asst. to Director of Supply and Production, Air Board (Gazetted Jan. 7th.)

Miss Gertrude Vera Sorby, Administrative Asst., Supplies (Aeroplanes), Aircraft Production Dept., Ministry of Munitions. (Gazetted June 31d.)

John Hayward Spencer, Esq., Dep. Asst. Inspr of Aeroplanes, Aeronautical Inspection, Ministry of Munitions. (Gazetted June 3rd.)

Henry Charles Watts, Esq., Head of Sub-Section of Air Board, Technical Dept. (Gazetted Jan. 7th.)

Medal.

Herbert Sykes, for courage in testing aircraft in spite of severe accidents. (Gazetted Jan. 1st.)

MENTIONS FOR WAR SERVICES.

June 14th

The following ladies and gentlemen, employed by the Air Ministry, have been brought to the notice of the Secretary of State in respect of the valuable services they have rendered in connection with the war:—

Mrs. D. Alban, Blackheath; Miss D. M. Allen, Cricklewood; C. F. Ansell, Blandford.

L. B. Barclay, Ayr; A. E. Beresford, Mill Hill, Middlesex; Miss E. M. Blair, Earl's Court; Miss A. E. Boorer, Knightsbridge; Miss H. Boxall, Clapham Park; G. Brewer, F.Ae.S., Teddington; Miss I. Britten, Brondesbury, N.W.; Miss M. G. Byham, Battersea.

Mrs. M. E. Cant, Putney; Miss O. E. Cardew, W. Ealing; G. E. Caudle, Wimbledon; Miss A. E. Chase, Sydenham; Miss A. M. Clarke, Norbury, S.W.; W. C. Collins, M.D., Knightsbridge; Miss M. K. Cook, Peckham Rye, S.E.; Miss C. T. Copland, London, W.; W. A. Cuddihy, Camberley; Miss M. F. Cullen, Gerrard's Cross; N. Cummings, Bromley, Kent.

Miss M. F. Dakyns, Wimpole Street, W.; J. J. Dale, Ealing Broadway; Miss H. J. Davie, Streatham Hill, S.W.; Miss A. M. M. Davies, Eltham, Kent; Mrs. N. Davies, Bristol; Mrs. M. de Courcy Ireland, London, W.C.; Miss C. Dudley, London, W.; Mrs. M. R. Dundas, London, W.

J. D. Eadie, Clydebank; Miss F. Eaton, Ealing; Miss K. F. Edgar, Salisbury; J. Eyre, M.D., London, W.

Miss I. W. Fitzwilliam, London, S.W.; Miss H. Francis, London, S.W.; P. Franklin, F.R.C.S., London, W.; A. K. Fulton, Monifieth, Forfarshire.

Mrs. C. B. Gething, Fleet, Hants; Miss E. M. Gledhill, Kingston-on-Thames; Miss I. Gilchrist, Erith, Kent; Mrs. N. Godfrey, Finchley; Miss G. M. Godsal, London, W.; Miss B. M. Goodeve, Hanwell; J. Gosling, Howmill, Carlisle; Miss N. Gosset, Hyde Park, W.; Miss E. M. Grant, Tufnell Park, N.; W. F. Guiver, Rolls-Royce Co.

Miss M. Hall, Eastbourne; Mrs. A. J. Hallack, London, W.; Miss E. Harvey, Greenwich; Miss W. E. Hayward, Salisbury; Mrs. E. M. Hedges, Finchley; E. T. H. Hedges, Ayr; Miss E. Hedley, London, S.E.; H. G. Hickman, Rolls-Royce Co.; Mrs. E. G. Hingston, London, S.W.; Mrs. M. M. Hodges, Bowes Park, N.; Mrs. I. Hogg, Ealing; J. Hoyes, Blandford.

W. Jagger, M.B., London, W.

Mrs. U. M. Langton, London, S.W.; Miss D. C. Lawman, Upper Tooting; Miss D. R. Ley, Regent's Park, N.W.; Mrs. P. Lilley, South Kensington; Miss G. A. Lindsay, New Cross, S.E.; Miss L. Luff, Clapham; Miss K. L. Lyons, Balham.

Miss L. McEnerney, Chelsea; L. H. McGavin, F.R.C.S., London, W.; Miss M. D. Mackie, Sydenham; Miss R. L. MacLatchie, Forest Hill, S.E.; Miss M. E. Martin, Guildford; Miss M. V. Marriott, Beckenham, Kent; Miss E. M. Mason, Balham, S.W.; Miss M. E. Matthews, Surbiton; Miss M. E. Merry, Wandsworth Common; Miss M. E. Mills, Salisbury; Miss P. T. M. Moorcroft, Carshalton.

Miss O. W. Newman, Chiswick; R. M. Norton, Richmond.

Miss Madge Palmer, Hanwell; Miss P. B. Parker, Wilton House, Eaton Square, S.W.; Miss W. E. Parkinson, Forest Hill, S.E.; Miss S. Parsons, London, W.; Mrs. G. E. Pearce, Forest Gate, E.; Mrs. E. I. Petrides, Holland Road, W.; Miss E. G. Pollock, Kensington, W.; Miss G. L. Portch, Parsons Green.

Miss J. A. C. Rainie, Newton Manse, Ayr; F. H. Rogers, Thornton Heath; Mrs. H. M. Rouse, Hampton Wick; Miss N. M. Russon, Tufnell Park, N.; Miss M. Rye, Chiswick.

Miss M. de C. Somerset, London, W.C.; Miss P. M. Stagg, New Southgate, N.; A. P. Starkey, Harrow; Mrs. E. M. Steinberg, Kensington, S.W.; Miss B. M. Stinton, Salisbury; Miss D. Stutfield, Hampstead.

Mrs. G. Taylor, Chelsea; W. Taylor, Rolls-Royce Co.; Miss M. A. Thomson, London, W.; Miss F. Thorpe, London, W.

Mrs. A. M. Upton, Myatts Park, S.E.

Miss E. Vaughan, New Cross, S.E.

R. C. B. Wall, M.B., London, W.; Mrs. E. Waltham, Bristol; Miss G. N. Ward, Chelsea; Miss W. E. Watts, Leytonstone; Mrs. E. B. Whitaker, St. John's Wood, N.W.; Miss E. L. Wickham, Clapham; Miss V. Willby, Wandsworth; Mrs. D. W. Williams, West Kensington; Miss M. M. Wright, Muswell Hill, N.W.

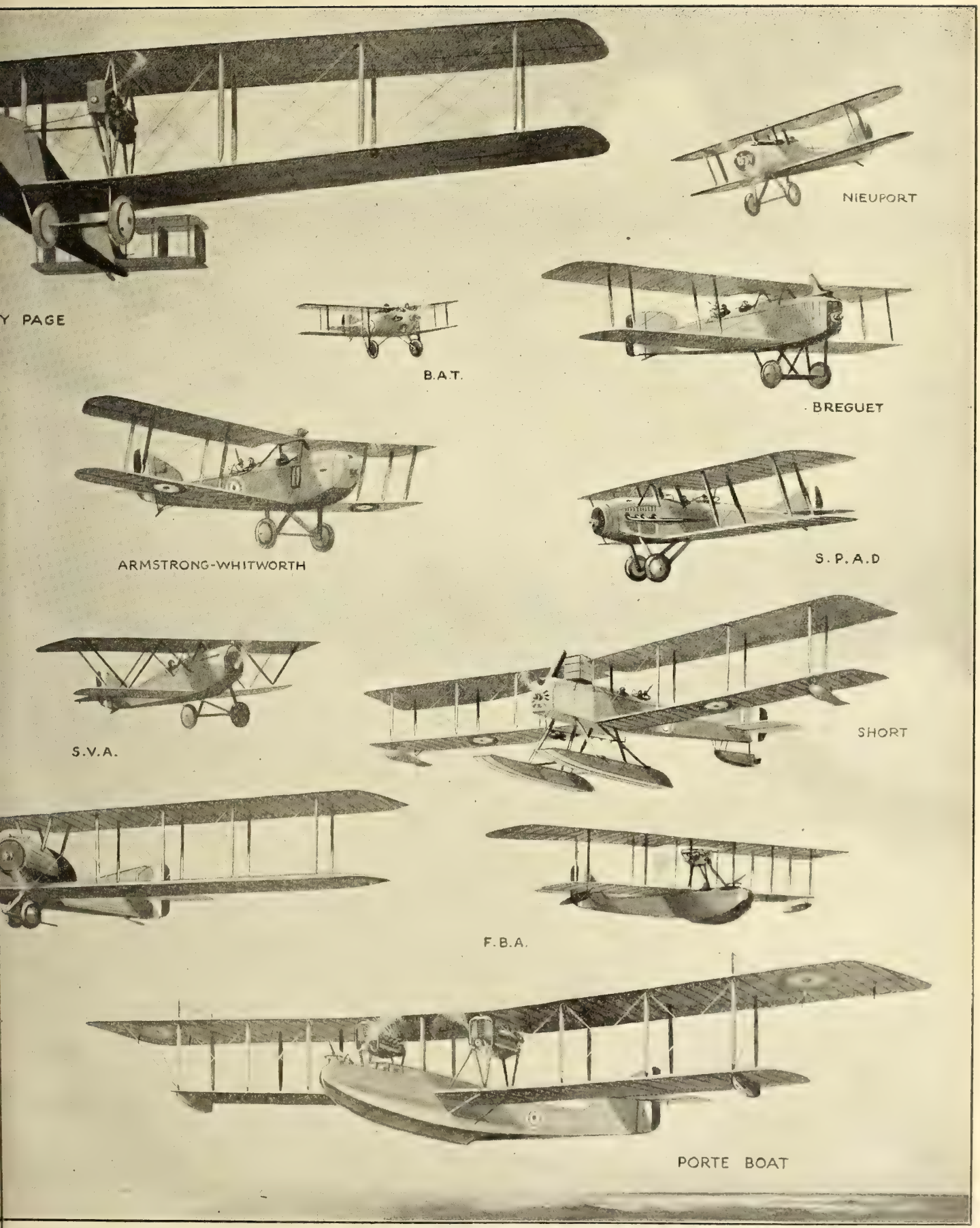
Sept. 5th.

The name of the undermentioned has been brought to the notice of the Secretary of State for War for valuable services rendered in connection with the War:—

Miss C. M. Godfrey, Central R.A.F. Hosp., Hampstead, London.



Allied Aeropl


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anes of 1918.

JANUARY 22, 1919. VOL XVI. NO. 3

The AEROPLANE

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ON AIRSHIPS AND THEIR FUTURE.

Though this paper happens to be called THE AEROPLANE, and has been chiefly concerned for the past eight years with the discussion of heavier-than-air craft, it is not thereby debarred from taking an interest in airships any more than it is from taking part in politics, in so far as they affect aeronautics as a whole. Also, if any technical excuse is needed, one may point out that airships are controlled by aerofoils—or aeroplanes—their rudders, elevators, and fins being simply planes performing functions identical with those fitted on heavier-than-air craft. Therefore one is well within one's proper radius of operations in discussing airships and their future.

There have been times when one has been frankly contemptuous of airships, dirigible balloons, peripatetic gas-bags, or whatever one called them at the moment. That was not because one did not realise the possibilities of airships, but because it was evident to anyone who was capable of serious thought that aeroplanes could be developed as weapons of war very much more quickly than could airships. And it was equally evident to the same one capable of serious thought that war with Germany was coming. Therefore it was a public duty, for the five years between the arrival of the practicable aeroplane and the outbreak of war, to do everything possible to develop the aeroplane.

A MATTER OF HISTORY.

Those whose knowledge of aeronautics is sufficiently antique will recall that, from its beginning in 1911, this paper continually warned this country of the coming war with Germany, and devoted itself almost entirely to Naval and Military Aeronautics. The reason why it paid so much attention to the aeroplane, as against the airship, was that, thanks to the peace-at-any-price policy of the Asquith Government, and the feeble support which military aeronautics received from the futile Seely—on whom, in his position at the War Office, the development of military aircraft depended—only an absurdly small sum of money was available for the pay and equipment of the Royal Flying Corps. Further, a very large portion of this sum was allocated to the Royal Aircraft Factory, an establishment as futile and as misleading as Seely himself.

It was obvious, therefore, that if the small balance left over was spent on airships we should not get very far in the development of aeroplanes by the time the German avalanche descended on us. It was possible to build fifty aeroplanes or more for the price, and in the time required for the building, of one big airship. Every aeroplane differed from every other, and so by building aeroplanes we achieved fifty generations of evolution for one generation of airships. Hence the need for a policy of aeroplane building.

Furthermore, it was evident that speed would be the first consideration in aircraft of war, and the best aeroplane was, and still is, twice as fast as the best airship, and is likely so to be for all time. That again was one of the reasons which made it so eminently desirable to push the claims of the aeroplane against airships.

THE GERMAN WAY.

The Germans, being a warlike and sensible people, prepared for air war in a sensible manner. They built airships as well as aeroplanes. And one is convinced that every airship which they built has paid for itself a dozen times over by the damage it has done to the Allies' output of munitions, or to the British Fleet, or by saving units of the German Fleet on various occasions.

Before the war this paper warned the country that Germany's aeroplanes were better and more numerous than ours, and events proved the truth of the statement. The Germans sent their worst aeroplanes to the West Front, and yet they were good enough to do all that the German artillery required of them, and to do all the reconnaissance needed by the Staff. Our poor little heroic Five Squadrons, and the unorganised, unequipped French *Service d'Aviation*, could do nothing to stop them.

The best German aeroplanes, meantime, were doing reconnaissances of 200 miles at a stretch over the vast Russian Front, serving the Austrian Army as well as their own, and so enabled the inferior numbers of the Central Empires to defeat the yellow hordes of his Imperial Majesty the Czar. On this front the German airships did good work even in daylight, for the Russian flying service was beneath contempt, thanks to bribery and corruption in the supply of material and to the brainless methods of the personnel, who tried to conduct air war—one of the most scientific branches of war—on the lines affected by a yelling mob of Cossack horsemen.

Besides equipping and training their excellent aeroplane force, which was finally overwhelmed by sheer weight of numbers and superiority in British aeroplane design, the Germans built and maintained an airship fleet which, in its achievements and in the efficiency of its personnel and matériel, has not yet been approached by any other country. We in England have more ships and a far greater establishment, but any British airship officer will acknowledge that up to the present the Germans have beaten us easily in the design, construction, and handling of big ships. Which is only natural, considering that the Germans have had ten years' start of us in serious airship work.

OUR FIRST ATTEMPT.

Neglecting the "Nulli Secundus" as a joke, our first serious attempt at building an airship was the late

lamented "Mayfly" of 1909. It is particularly worthy of note that much of the design of that ship, notably the properly streamlined stern and the symmetrical arrangement of fins, rudders, and elevators, was only adopted by the Germans in their later ships of 1917. "Mayfly" failed because of structural defects, and not because of an aerodynamic fault.

Why Our Airships Stopped.

If the officers responsible for that ship, Captain Murray Sueter and Lieuts. Boothby, Swann, and Usborne, all R.N., had been able to devote themselves to airship work, and had been allotted the amount of money which the Germans spent on their airships, we should have had better ships than theirs by the outbreak of war. But practically all Naval airship work was stopped by Mr. Winston Churchill, then First Lord of the Admiralty.

Mr. Churchill became an enthusiastic aeroplanist, and it was commonly believed in the Air Department of the Admiralty that he stopped airship work because he was hostile to airships. One pays his active brain the compliment of believing that he did so because he saw that the limited amount of money at his disposal could be better spent on aeroplanes.

Incidentally the airship people in the R.A.F. have been anxious about their future because of Mr. Churchill's supposed hostility to airships. Now that Mr. Churchill has gone to the War Office—though not for long, one expects—instead of to the Admiralty that anxiety has been removed, for one gathers that the Navy believes rather firmly in airships for Fleet work, more especially in the North Sea, where fog so often makes the use of aeroplanes impossible. In any case, it is more than probable that the airship personnel will go over wholly to the Navy in the near future, and in that case all will be well with them.

The Fathers of the Airship.

Captain (now Commodore) Sueter and Lieut. (now Brig.-General) Swann devoted themselves to building up the R.N.A.S., and thereby saved the Aircraft Industry—and ultimately the R.F.C.—from the mistaken policy of General Henderson and the imbecilities of Seely. The other officers remained on airship work, being appointed for duty with the comic little Army airships which came over to the Navy. Lieut. Usborne was killed in a peculiarly silly accident, but Commander Masterman (now Brig.-General R.A.F.) and Lieut. Boothby (now Lieut.-Col. R.A.F.) are still on airship work.

To them is largely due the remarkable success which has been achieved, in spite of all sorts of opposition and difficulties, with our present big airships. With them must be coupled the name of Captain (now Brig.-General) Maitland, one of the few soldiers who have remained faithful to airships through all their vicissitudes.

The Achievements of Airships.

The finest achievements of our airships are not yet available for publication, though one hopes that the Authorities will think it worth while ere long to tell the British taxpayer what his airships have done. Therefore one can best illustrate the possibilities of airships by quoting that extraordinarily fine performance by a modern Zeppelin to which Major-General Sir Frederick Sykes referred in his lecture which was published in this paper last week.

The voyage was a non-stop run (necessarily) from the Balkans to German East Africa and back, and covered a distance of something between 6,000 and 7,000 miles. It is therefore by far the finest airship voyage on record—which is not, incidentally, the same thing as a World's Record for Airships, as our sensational Press would hail it if it had been done by anything but a German ship.

It does, however, prove conclusively that a modern German airship can travel from Liverpool to New York *and back* without a stop. And it therefore proves that the trans-Atlantic trip can be made by airship just as soon as one of these modern ships cares to make the voyage under favourable weather conditions. Which, on the face of it, makes any trans-Atlantic aeroplane trip look rather small beer.

6,000 Miles by Airship.

That Zeppelin trip to German-East, as our South and Central Africans call it, has not received anything like the attention which it deserves. One has known of it personally for many months, and one has hinted at it from time to time in these pages, but one has not been at liberty to discuss it freely until General Sykes made it known officially the other day.

It seems likely, judging by one's earlier knowledge, that Sir Frederick Sykes has been misinformed as to some of the leading facts concerning that voyage. He stated quite definitely that the ship carried 12 tons of ammunition for General von Lettow's forces in German-East, that she did the journey in 4 (four) days, and that she returned because the Armistice had been signed.

It is possible that General Sykes obtained his facts through the Intelligence Department of the Air Ministry, who in turn received them from some junior officer who had been interviewing some German airship officer or man since the Armistice was signed, the said German being desirous of impressing the British representative with the high speed of the new Zeppelin and her enormous lifting capacity, as well as with the fact that the ship did not fail in her task in any way. But, whether one takes the distance as 6,000 miles (*id est* to the boundary of Central and East Africa), or as 7,000 miles (to the heart of German-East), and back one finds it hard to believe that the ship did that distance in 96 hours.

That well-informed writer the Aeronautical Correspondent of "The Observer" did a public service by drawing attention to this fact a week ago, and it is a pity that General Sykes did not notice the point and verify his figures. There seems every probability that the figure 4 was given him by an error in transcription. Most people know that curious Continental figure 7 which has a horizontal stroke across its stem. One has only to write it carelessly, with the top line pointing sharply down to the left, and it may easily be mistaken for an English figure 4.

The Earlier Story.

The story which reached one a good many months ago—some time, in fact, before the Armistice was signed—came indirectly through the Intelligence Department of one of the Senior Services, and, besides being on the face of it more probable, it is more likely to be accurate than any story told by Germans since the Armistice broke out.

This story is that the ship left Bukharest carrying a store of medical comforts for von Lettow's forces—a variant of it said that the ship was intended to bring von Lettow back to Germany. That disposes of a good deal of the 12 tons of ammunition, and would consequently leave more room for petrol.

The ship traversed the Balkans, the Mediterranean, and Egypt, where, it may be recalled, there was something in the nature of an airship scare some months before the Armistice. Thence she followed the Nile to Victoria Nyanza, and so crossed Central Africa to German-East.

How far she penetrated into that country is not known, and here there are three versions of the story. One is

that she was recalled by wireless because bad weather was threatening in Europe, one is that von Lettow's troops were then so dispersed in the brush that she could not find them, and one is that if she had gone any farther South in her search for them she would not have had enough petrol left to get home, so, as the ship was more valuable than any good which she could do to the wreck of von Lettow's force, she turned back and arrived safely in Europe.

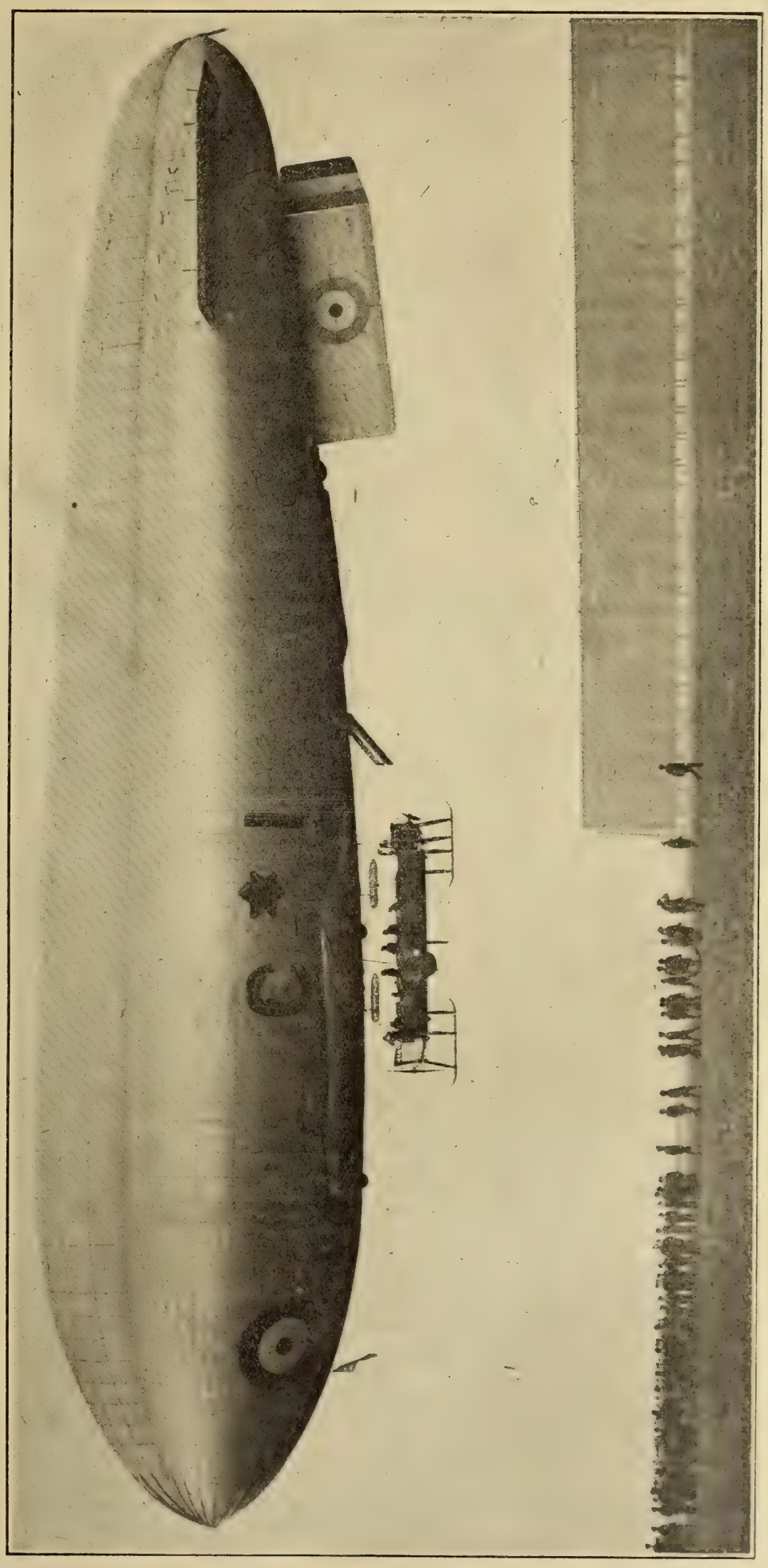
This journey is stated to have taken 7 (seven) days, which seems much more probable than the four days mentioned by General Sykes. Also, the medical stores seem more likely than ammunition. And, in any case, the journey was over and done with long before the Armistice with Germany was signed, and, one believes, some time before even the Bulgarians finally broke.

Perhaps when full and accurate details of the performance have been acquired, the Airship Department of the Admiralty will publish them.

FUTURE USES OF AIRSHIPS

From this voyage one can judge fairly well the future uses of airships. In the first place it is quite evident that a trans-Atlantic or London to India and Australia service for passengers and mails can be established by airships some time before regular aeroplane services can be run over the same routes.

No doubt in time the superior speed of aeroplanes will enable them to beat the airships, especially for mail-carrying on small, very fast machines. It is even probable that on the routes to India, Australia, and the Cape, aeroplanes will have the advantage from the very start, for, by running the machines on the relay system, short distances



A SUCCESSFUL BRITISH AIRSHIP.—The "C Star" type, with pusher and tractor airscrews, and an envelope built on the Astra-Torres principle.

up to 200 or 300 miles per stage can be covered at more than double the speed of airships.

But for long-non-stop voyages, especially over big expanses of sea, the superior size, the better accommodation, and the immediate use of directional wireless apparatus will almost certainly bring to the airship the bulk of the passenger trade.

This is the more certain now that it is said to be possible to produce helium gas in large quantities at commercial prices, for helium is non-inflammable, and therefore the ever-present fear of fire will be removed.

Airships will also have a great advantage in surveying unmapped areas of Africa, Australia, and South America, where it will be possible to keep in touch with meteorological warnings, so as to run for harbour if bad weather is arriving, and to be able to cruise for a week or more at a stretch when the weather is good over country where it would be impossible for an aeroplane to land without crashing. But it is as long-distance passenger-carriers that the airship has the greatest future.

Though it is slower than the aeroplane, it is so much faster than any ship, or than any except the fastest trains, that it can beat any other means of conveyance.

Further, it is not affected by fog or low clouds as are aeroplanes, and so can operate more regularly.

There is plenty of room in the future of aeronautics for both the aeroplane and the airship. Their respective parts may be compared to those of the motor-car and the railway respectively. There will always be rivalry between them, but it should be friendly emulation rather than active antagonism. Just as motor-'buses relieve or feed railways, so the short-distance aeroplane lines may assist the airship lines. It will therefore be well for the promoters of the various "Round the World" air-lines which are now in prospect to keep themselves well informed as to the uses of airships, and to make their arrangements so as to turn airships to their own advantage rather than to adopt an attitude of hostility towards them.

One confesses that at the moment one would face the prospects of a voyage to New York in a helium-filled airship with greater equanimity than one would regard the same trip by aeroplane. Even a hydrogen-filled ship would certainly involve less risk to-day, whatever may be the case in five years' time. And one imagines that, for all one's ten years' experience of aircraft of all sorts, one is, in the matter of journeys by air, merely an example of that very ordinary mortal, the man-in-the-street.—C. G. G.

THE FUTURE OF THE AIR MINISTRY.

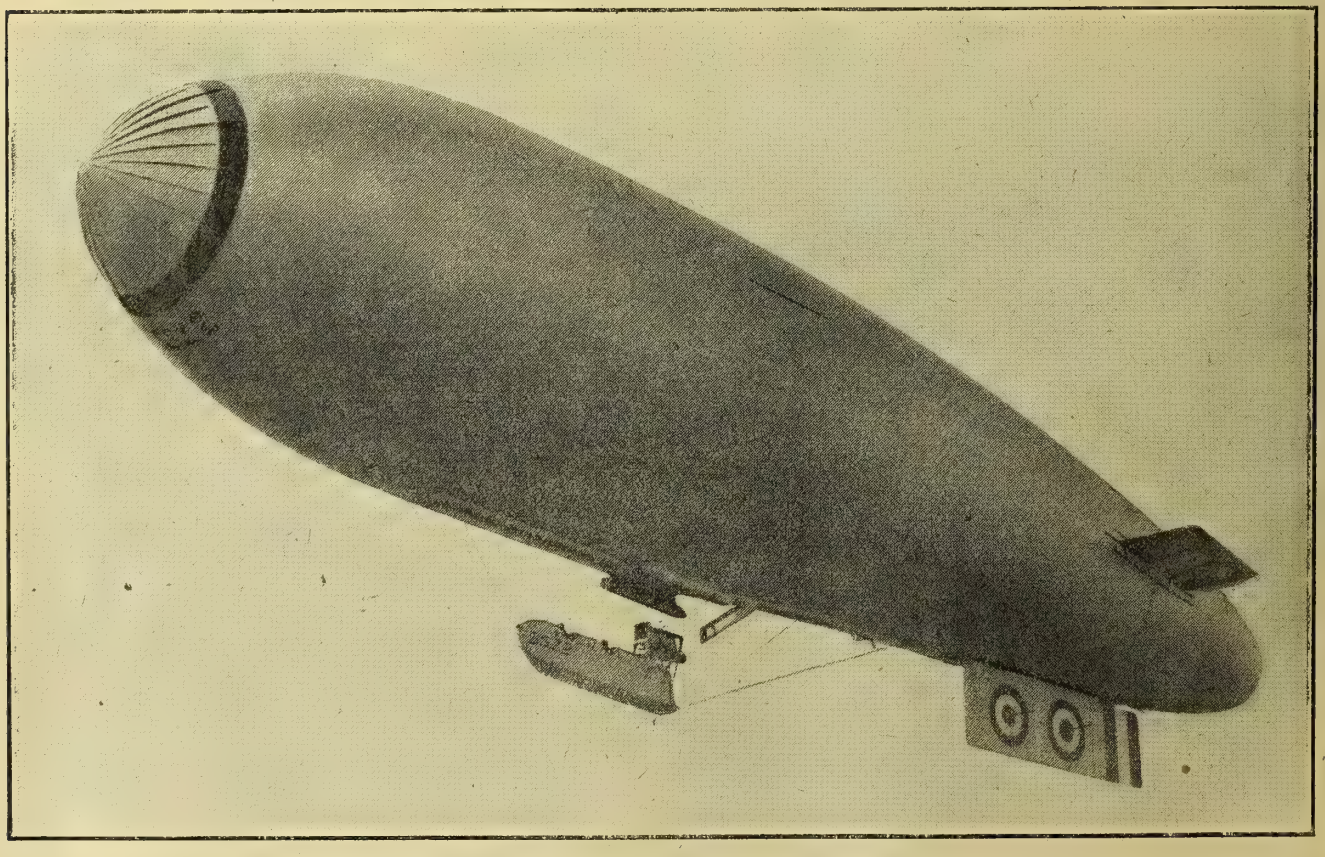
The following was issued for publication on January 15th:—

The Secretary to the Air Ministry is authorised to state that the status of the Ministry is in no way changed. It remains a completely separate and independent Ministry, the sole connection with the War Office being that one Secretary of State controls both departments. The Royal Air Force also remains a separate and independent force, its relations with the Navy and Army continuing unaltered.

The Air Ministry is proceeding, in general accordance with the recommendations of the Civil Aerial Transport Committee, to carry into effect legislation and international agreements required to enable civil aviation to be recommenced as soon as possible. To provide for the needs of civil aviation as well as for the needs of the Royal Air Force, re-organisation of the Air Ministry is necessary, and that re-organisation is being prepared.

Meanwhile the following arrangements will be made. The Orders in Council constituting the Air Council will be amended so as to provide that the Parliamentary Under Secretary of State (Major-General Seely, C.B., C.M.G., D.S.O.), who is ex officio Vice-President of the Air Council, will be charged with responsibility to the Secretary of State for all the business of the Air Council under the general direction of the Secretary of State.

The responsibility hitherto placed on the Parliamentary Under Secretary of State for the finance, contracts, and lands business of the Royal Air Force will be transferred to the Marquess of Londonderry, who will be appointed an additional member of the Air Council, and, at the request of Lord Curzon, will represent the Air Ministry in the House of Lords.



THE SUCCESSOR OF THE BLIMP: An early Zero type ship.

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OUR DEPARTING AIR MINISTER.

Now that the new Secretary of State for the Air Force and his underling have taken office, it seems but bare justice to set on record the high regard which is felt for the departing Secretary of State by all who have to do with aeronautics. It is seldom that any Cabinet Minister succeeds as Lord Weir has done in winning in both his personal and official capacity the esteem of those with whom he has to deal.

When William Weir took over the office of Controller of Aeronautical Supplies under the old Air Board early in 1917 the equipment of the R.F.C. was in a very bad state. Their machines and engines were out of date, and there were not enough of them. And people wondered whether a cautious Scot from Glasgow was quite the man to achieve the apparently impossible task of pulling up the leeway which had been permitted by incompetent officials before him.

A very short time showed that here at last a man had been found who had at the same time vision and driving force. Precedents were abolished. Routine was broken. Chances were taken in construction programmes. And by the end of 1917 the R.F.C. was the best-equipped flying service in the world, both as to quality and quantity. At the same time the enormously increased output allowed the R.N.A.S. to satisfy all its desires—so far as its own technical experts did not prevent it.

In 1918 came the fatal mistake of creating an entirely unnecessary Air Ministry, in what looked like the middle of a great war. The mistake was multiplied in effect by the appointment of a well-meaning but quite impossible Air Minister. When his inevitable downfall occurred, Sir William Weir, as he had then become, bravely stepped in to take his place. One's high estimate of Sir William Weir's intellect leads one to assume that he did not seek the office, but accepted it for fear lest a worse Minister than Lord Rothermere might be inflicted on aeronautics.

At the time one dared to express the fear that in gaining an excellent Air Minister we might lose a super-excellent Chief of Production. Unhappily this fear proved to be justified. In his high office as Secretary of State Lord Weir, as he deservedly became, was naturally occupied by so many great affairs that he could not give that immediate personal attention to design and production which he had done while supply was his whole concern.

As the result, production fell to pieces. Quantity was maintained, and even increased by the sheer impetus given to it by Sir William Weir. But quality deteriorated alarmingly. The best aeroplanes and the best engines were held back by ignorant or incompetent or possibly dishonest officials, and the R.A.F. finished the war with practically the same machines—with one or two trifling exceptions—as those which were in use at the end of 1917. And all the while far faster and more powerful machines and engines were flying about in this country, not merely refused orders, but actually refused facilities for construction except for single experimental machines.

This was not Lord Weir's fault, for he had not held office long enough to discover the crimes which were being committed in those lower levels of the Hotel Bolo which were below his personal ken. One feels sure that had the war continued for another year these crimes would have been discovered by about this present date and their effects would have been remedied in time for the Summer Campaign, though assuredly the R.A.F. would have had a very bad time in the Spring.

When once Lord Weir was informed as to where the faults lay he would have effected a reform in 1919 as drastic as that which he forced through in 1917. But, be that as it may, Lord Weir has deserved well of the Nation in general and of aeronautical people in particular. He gave us good aeroplanes and engines when we had almost none. He gave us a good Air Minister when we had none. He has done more than would have been possible to any except a big man. And if he failed to achieve the impossible in the seven months of the war during which he held office, and if the Hotel Bolo still deserved its name as thoroughly as ever when the Armistice was signed, one must remember that it took as much as six "days" for Omnipotence to create the World out of Chaos, and that seven months is therefore rather too little in which to expect the reform of the Air Ministry through mere mortal agency.

Therefore one may justly say that Lord Weir deserves the gratitude of the Nation, and especially of the Flying Services and of the Aircraft Industry. He was the first Minister to acknowledge openly that if the Services wanted the best design and construction they would get it from private enterprise and not from Government factories or establishments. His faith in the once-despised "Trade" has been more than justified.

As concerns the future, it is to be hoped that Lord Weir, returning to his manufacturing career, will become one of the leaders of the Aircraft Industry, which his firm only entered as a war undertaking. His expressed faith in civil aerial transport and his proved foresight confirm one's hope in this matter. Also, one gathers that the aircraft works of J. & G. Weir in Glasgow are continuing their building of aeroplanes as though no such thing as "break clauses" existed, so perhaps this may be taken as an outward and visible sign of an inward and spiritual faith in the future of aeronautics.

In any event, it is to be hoped that Lord Weir will retain his close and keen interest in aeronautics and will continue to let all of us have the benefit of his foresight, his sound common sense, and, above all, of his drily humorous philosophy. And so one may speed the parting Air Minister with the good wishes of all those among whom he has worked for two strenuous years.—C. G. G.

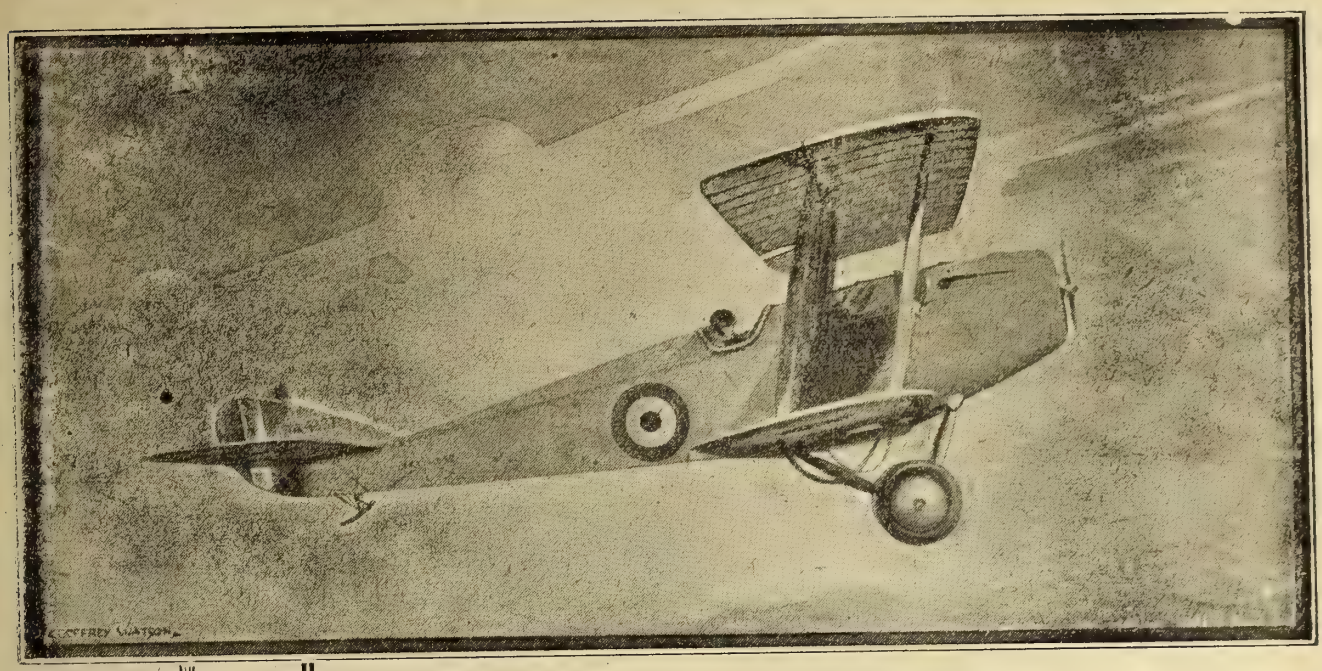
THE AIR MINISTRY IN THE HOUSE OF LORDS.

On January 17th it was announced that the Marquess of Londonderry is to represent the Air Ministry in the House of Lords and is to be Financial Secretary to the Air Ministry. The present head of a family of historic ability in statesmanship, himself experienced in the principles of politics, he is well qualified to assist in the control of one of the greatest of the new Departments of State.

Born in 1878, the eldest son of the sixth Marquess of Londonderry, a statesman of repute in the Tory Governments of the last quarter of the nineteenth century, he was gazetted to the Royal Horse Guards in 1897. During the first stage of the present war he served in France and Flanders as A.D.C. to General Sir William Pulteney. At the present time he is stated to be second in command of his regiment, the Royal Horse Guards. He was appointed a member of the Irish Convention as a representative of Ulster opinion, and it is understood that his undeviating adherence to well-considered principles in political economy exercised a marked influence throughout the sittings of the Convention.

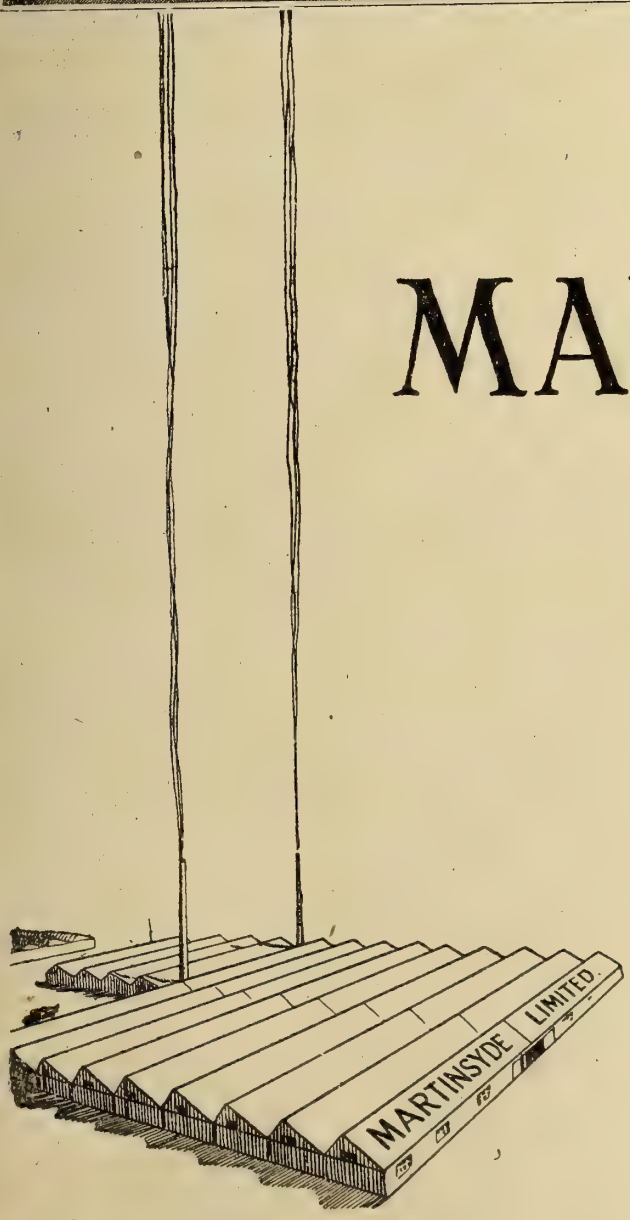
Since the death of his father in 1915 he has managed the great estates inherited by him. As both collieries and land are integral parts of his property, he has acquired experience in dealing with the people, both of the commercial and agricultural classes, which is an invaluable training for political life.

Those whose main interests in life are aeronautical regard the appointment of Lord Londonderry to office in the Air Ministry with high satisfaction.





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THE DEATH OF SIR BRYAN LEIGHTON.

Very many of those concerned with aeronautics will learn with deep regret of the death of Lieut.-Colonel Sir Bryan Leighton, of Loton Park, Shrewsbury, who died at Wellington Court, Knightsbridge, on Jan. 18th, from pneumonia and heart failure, following malarial fever.

Bryan Baldwin Mawddwy Leighton was the ninth Baronet. He was born in November, 1868, and succeeded his father in 1897. A keen soldier and a born fighting man, he had seen considerable service abroad. He was in the Bechuanaland Langberg campaign in 1897, and afterwards served under Sir Redvers Buller in the South African War. In the Russo-Japanese War he was in Manchuria, and in the Cuban affair he was with the United States Cavalry. He was with the Turkish Army in Thrace during the last Balkan War as correspondent for the "Illustrated London News," and at the beginning of the present war he commanded the Westmorland and Cumberland Yeomanry.

Early in the war he joined the Royal Flying Corps, and after passing through the Central Flying School at Upavon he served with the Royal Flying Corps in France in 1915, but was invalided home later, and thereafter devoted himself to helping the war in the various ways open to a man of wealth and influence who was out to help the Nation and not to gain personal advantages.

Sir Bryan, who was a Magistrate for Shropshire, married in 1890 Margaret, daughter of Major John Fletcher, of Saltoun. His eldest son, Major John Burgh Talbot Leighton, M.C., was killed while flying in France in 1917. His younger son and heir to the Baronetcy, Captain Richard Tihel Leighton, was taken prisoner after being shot down in France and badly wounded, and only returned to England early this month.

Sir Bryan Leighton was a sportsman of a kind which is unfortunately becoming rare in these days. In some ways he was an anachronism. If he had been born in the twelfth century he would have been a leader of a band of Crusaders, or one of the bold Barons who forced King John to sign Magna Charta. In the Wars of the Roses he would have raised his County for the Lancastrians. In Elizabeth's day he would have followed Sir Philip Sydney to Lutzen. In Cromwell's time he would have fought for the King against the oppression of a bourgeois Parliament.

Even in the peaceful days before this war he found chances of gratifying his love of fighting, and when condemned to fight no more he proceeded to risk his life in parachute experiments, dropping repeatedly from airships and kite-balloons, in order that others might benefit by the risks which he took. In the same spirit he mixed himself up in the intrigues which preceded and succeeded the Air Enquiry Committee and the fight for the better equipment of the R.F.C.

Hot-tempered, even violent at times, overbearing in manner to those who offended against his estimate of their proper place in the scheme of things, the embodiment of the hard-fighting, hard-living British territorial magnate of a by-gone age, Bryan Leighton was nevertheless one of the most generous and good-hearted of men, ever ready to do a good turn without prospect of reward, and ever ready to help the oppressed or those who were not getting what he considered to be a square deal. He made many enemies, but he made as many friends. Whatever were his faults, he was never dull, and the world is the poorer for his loss.—C. G. G.

TAXING GRATUITIES.

Sir,—If you have not already dealt in your columns with the subject of Officers' gratuities, would it not be as well to give some prominence to the injustice which is about to be levied upon those receiving it?

It is proposed to deduct Income Tax from the gratuity. Thus, an Officer, like myself, in receipt of consolidated pay of £500 a year, with four years' gratuity to be received, will be told by the Government that his pay, plus gratuity, amounts to £1,000 a year, and will be taxed accordingly. His income is nothing of the kind, and the gratuity in question, less the large tax involved, ceases to be a gratuity.

The idea of this gratuity, presumably, is a gift to an Officer for services rendered to the State on a small pay, and also to enable him to tide over a time of probable unemployment. Therefore, to tax such a gift is to give with one hand and remove with the other, a habit which appears to be shared by the War Office and the Admiralty in matters of pay.

There are also vast numbers of Officers, who, while serving their country, have lost their business, and those who have had to hold their business together as best they might by spending their money all the time. Surely, some consideration is due to these men. Army Agents themselves fully realise the hardship that will be entailed upon the older men, and agree that it is unfair; but, of course, are unable to do anything. In fact, we are all saying:— "Timeo Danaos et dona ferentes." but not so politely. (Signed) E. P. L.-B. (Captain, R.A.F.)

THE FORTUNE OF CADETS.

The following letters concerning the hard fortune of those who became R.A.F Cadets too late to take part in the war as pilots deserve the kindly consideration of those in high places:—

Sir,—I think it is quite time that the public knew of the scandalous treatment of R.A.F. Cadets after the signing of the Armistice just two months ago.

Those who like myself had completed their ground training and were appointed Flight Cadets ready to proceed to squadrons for flying instruction were held back (quite naturally), and made to take part of the previous training again.

Now, as you know, a Flight Cadet is a probationary officer, and, ipso facto, is supposed to behave, live and dress as an officer, and for that reason alone all persons of this rank usually provide their own kit, at least, as much as is necessary. That this is in order is shown by the fact that recently all Flight Cadets without officers' pattern uniform were provided with part of it instead of receiving the £15 allowance made to Cadets.

Now our grievance is that after being promised by our O.C. that those who desired could continue training, obtain their commission and allowances and be discharged as an officer, we were discharged before Christmas and are to get no recompense for the odd £30 to £50 spent as a proof of our keenness to serve in the R.A.F., little as it is liked after the old R.N.A.S. and R.F.C.

All who are concerned will be more than grateful if you can do anything to help matters at all.

* * *

Sir,—We, the Flight Cadets at this aerodrome, desire to bring to your notice certain doubtful points regarding our present and future positions in this rag-time Force. We feel sure you will be glad to take up this matter, as it is only since the R.A.F. came into being that these irregularities have commenced.

As you are probably aware, no more commissions are being granted, with the result that many of us who have graduated A or B still remain Flight Cadets. This is a gross injustice in view of the fact that in the good old R.F.C. commissions were granted to cadets on leaving a school of aeronautics.

Many of us have been here since April, compelled to wear officers' uniform, purchased at our own expense, and have not yet received one penny to pay for it. Add to this the fact that we are being demobilised as soldiers, without gratuity or kit allowance, and you will see a very good reason for our long faces, as we are not all fortunate enough to have means of our own.

The subject of many discussions amongst us is White Bands. Can you give a definite statement as to whether a Flight Cadet's uniform includes a white band? We are ordered to wear these in and out of camp and on leave, whereas it is within our knowledge that at other aerodromes, for example, the C.F.S., this is not done. We have worn white hat-bands for eight to twelve months, and that without any "lead-swinging."

The general treatment of Flight Cadets is not such as would encourage anyone to accept this rank (if it is a "rank"), but we hope to see some improvement now that the Air Ministry has gone to the War Office.

It is surprising to us that these matters have not been raised in Parliament or in your journal, and we believe that they only require ventilation to secure a great amelioration of our conditions.

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A ROYAL FLIGHT.

After leaving Charleroi in a motor-car en route for Cologne, H.R.H. the Prince of Wales, K.G., broke his journey at Spa, travelling the remaining distance by aeroplane.

PEACE CONFERENCE DELEGATES.

It is stated by the Air Ministry that on Jan. 14th Maj.-Gen. Sir F. H. Sykes, K.C.B., C.M.G., Chief of the Air Staff, returned to London by air from Paris, where he has been attending the preliminary meetings of the Peace Delegates.

AT THE PEACE CONFERENCE.

It is stated semi-officially that the Air Ministry is represented at the Peace Conference by 13 officials—a number of ill omen.

THE KING'S MESSENGERS.

It is understood that three official mail services have been established between Paris and London daily to convoy dispatches from the Peace Conference delegates. The route is stated to be by way of Folkestone, Cape Grisnez, Abbeville, Beauvoir, and Versailles. The journey is said to take 2¼ hours.

NIGHT-FLYING.

On Jan. 16th, Maj. C. L. Payne, M.C., R.A.F., and Maj. Charles Coe, R.A.F., flew on a Bristol fighter, with Rolls-Royce engine, from London to Edinburgh in six hours. An enforced landing was made in Northumberland owing to their having run short of petrol. According to the "Times," Maj. Payne is in charge of the training of the 6th Brigade, R.A.F.

LONG-DISTANCE FLYING.

It is reported from Khartoum by a correspondent of the "Daily Mail" that a Handley Page aeroplane, carrying Gen. Herbert and four other officers, arrived there at 3.55 p.m. on Jan. 15th. It is not stated whence the machine came, but it is presumed to be the machine which is employed on mapping out the Cape to Cairo Air Service.

THE IPSWICH-INDIA FLIGHT.

On Jan. 16th the Air Ministry announced that the Handley Page machine, fitted with Rolls-Royce engines, which left England recently en route for India, has arrived safely in that country.

U.S.A. AIR SERVICE CHANGES.

Maj.-Gen. Charles I. Menoher has been appointed to be Director of the U.S.A. Air Service, and Col. James A. Mars to Acting-Director of Aircraft Production.

These vacancies were caused by the resignation of Mr. John D. Ryan and Mr. William C. Potter, both of whom held important positions in the Air Service. It has now apparently been decided that military officers should hold these essentially military offices.

U.S.A. AEROPLANES IN FRANCE.

According to a cable from Maj.-Gen. Harbord to the Director of the U.S.A. Air Service, there were 39 American aeroplane squadrons operating in France on November 11th, 1918, these being distributed as follows:—

Pursuit, 20; night bombing, 1; day bombing, 6; Army observation, 5; Corps observation, 12; night observation, 1.

During their operations in France, American aviators brought down 845 enemy machines, of which the destruction of 491 was confirmed. Besides which, 82 enemy balloons were reported as destroyed, 57 reports being confirmed. In the same period, the U.S.A. Air Service lost 271 aeroplanes and 45 balloons.

Concerning casualties to commissioned personnel, it is reported that 109 were killed, 103 wounded, 200 missing, 27 prisoners and 3 interned; making a total of 442. Besides these, 159 all ranks are reported as having been killed whilst in training.

During the period from September 12th, 1917, to November 16th, 1918, the A.E.F. in France received from all sources the following machines:—

Pursuit, for service 3,337, and for schools 90; day-bombing, for service 421, for schools 85; observation, for service 3,421, for schools 664; and night reconnaissance, 31.

Eight different schools under American control were established in France and designed for training 3,800 officers and 11,7000 men.

ISLE OF MAN FLYING.

Capt. Elgie Jefferson, R.A.F.—the first Manxman to fly from England and alight on the Isle of Man—gave an exhibition of trick flying over Douglas on Saturday, Jan. 11th, 1918.

W.R.A.F. NOT TO FLY.

The Air Council has issued an order forbidding the personnel of the W.R.A.F. learning to fly. The reason for this is understood to be a lack of facilities owing to demobilisation, so that the restrictions may be of a temporary character only.

A CROSS-ATLANTIC ATTEMPT.

Parisian gossip speaks of a huge British aeroplane now under construction which, piloted by Lt. Fonck, a killer of German aviators during the Great War, is to be flown from Ireland to America, or as near as possible, some time in the early spring. The story appears to be based on an over-heated imagination, as it is no longer necessary for England to employ foreign aviators in the great aerial competitions.

MODEL AEROPLANES FOR TEST PURPOSES.

During last week a number of model aeroplanes were exhibited at the Royal Institution by the Aircraft Manufacturing Co. The models were used for determining the design of full-size machines.

The method adopted is to suspend the model in a 7ft. wind channel through which air is sucked at a speed of from 20 to 40 miles an hour. The model is mounted on a balance or balances capable of being set up to measure lift, drag, and movements about axes, such as pitching, rolling, and yawing, for any angle of incidence, yaw, or pitch, or for any tail, rudder, or aileron setting. The separate effects of these different factors can be ascertained by detaching parts of the models. To ascertain the corresponding effects on full-size machines, the forces measured in the wind tunnel, the apparatus in connection with which is from the design of Lt. R. Rolleston West, are scaled up, after numerous corrections, by the aid of an appropriate formula.

Occasionally the results of these tests come surprisingly near the actual performance of the full-size machines. In the case of a de Havilland 10A bombing machine, fitted with two 400 h.p. Liberty engines, actual tests showed a speed of 130 miles an hour at an altitude of 5,000 ft., of 124 miles at 10,000 ft., and of 117 miles at 15,000 ft., while the speeds anticipated from the model experiments were 129, 125½, and 119 respectively. Again, with a de Havilland 4, driven by a 370 h.p. Rolls-Royce Eagle engine, the expected speeds were 134 miles at 6,500 ft., 131 at 10,000ft., and 125 at 15,000 ft., and those realised were 136½, 133½, and 126. In one case, the de Havilland 15, a modification of No. 9, with a B.H.P. Atlantic engine of 500 h.p., the prediction and the performance exactly coincided—136 miles at 10,000 ft. and 128 miles at 15,000 ft.

JULES VEDRINES IN THE PRESENT AND THE FUTURE.

On Jan. 19th, Jules Védrines succeeded in winning the prize of £1,000 offered by the proprietors of the Galeries Lafayette, a year before the war, to the first aviator to alight on the roof of their premises. Védrines' feat was performed on a Caudron III biplane.

It is understood that Védrines has the intention of starting as soon as possible on a prolonged tour of the world. His plan is to begin by touring round Africa, to fly from there across Arabia to India, and then down to Australia, across the East Indies. From Australia he intends going to China, and reaching the American continent over the Behring Straits. He is to return to Europe with a landing at Iceland, and thence back to France after a flying visit to Great Britain.

All of which, one imagines, is an extremely ambitious itinerary.

R.A.F. LORRY DRIVER'S PAY.

It is understood that the R.A.F. lorry drivers at Westerham Hill (Kent) Aerodrome, who recently protested against the inadequacy of their pay, have been promoted from 3rd to 1st class air mechanics, thus increasing their pay to 4s. per diem. As an incitement to general indiscipline in the Royal Air Force this curious reward of mutiny is unexcelled in modern history.

TAX EVASION BY AEROPLANE.

The Munchener "Post," in a leading article written before Christmas, states that large quantities of private property have been transported by aeroplane from Frankfurt to Switzerland in order that the respective owners may avoid paying the Customs dues imposed on property leaving the country.

AN AIRCRAFT STRIKE.

About 1,000 employees of the Gloucestershire Aircraft Company, Cheltenham, ceased work on Jan. 11th in consequence of a dispute with the firm regarding pay and the number of working hours.

As a counter-action the employers issued a week's notice of discharge to the strikers, which was accepted.

AN AERODROME STRIKE.

About a thousand workers employed at Henlow aerodrome, near Hitchin, ceased work on Jan. 16th in protest against the dismissal of a discharged soldier employed by the contractors. The matter is being investigated by the Soldiers' Federation and the Trade Union officials.

THE CROYDON DISPUTE.

In continuance of the paragraph published last week, it is understood that the shop stewards' scheme for taking over the National Aircraft Factory at Waddon has been definitely turned down by the Ministry of Munitions. A letter received on Jan. 17th by the Mayor of Croydon, whom the dismissed workers interviewed on Jan. 13th, states that the Ministry is obliged to retain certain factories for the salvage of obsolete aeroplanes. Waddon is selected because the type of machine hitherto made there is no longer required, as the factory is eminently suited for the necessary and important salvage work. The decision must stand. As many workpeople as possible would be retained, particularly unskilled labour and disabled soldiers.

AN AIR FORCE RESERVE.

Adaptations of the Army Reserve regulations to be applied in forming the Air Force Reserve were notified in the "London Gazette" of Aug. 20th.

THE GUILD OF ST. MICHAEL FOR AVIATORS.

The recent paragraphs which have appeared in THE AEROPLANE concerning the Guild of St. Michael for Aviators have aroused so much interest among Roman Catholic members of the Royal Air Force that it seems well in the interests of readers who have not yet become acquainted with the Guild once more to draw attention to its work.

The Guild of St. Michael was founded by the Rev. A. N. Morgan, B.A., of the Presbytery, Ashford, Middlesex, and is intended to look after the spiritual welfare of Roman Catholics, aviators and others connected with the Royal Air Force. Father Morgan is anxious that it should be widely known that the Guild will continue its work in peace-time, and aviators concerned with commercial and civil flying are eligible for membership.

The Guild publishes a monthly four-page magazine, printed on good paper and in antique style, containing paragraphs of interest to aviators, and subscriptions are invited.

The suggestion has already been made in THE AEROPLANE that someone interested in Protestant aviators should form a Guild on similar lines, which would only rival St. Michael's Guild in the doing of good works.



Saint Michael.

THE NAVAL STAR.

It is officially announced that the 1914 Star is now ready for issue to officers and men of the Navy who are qualified to receive it. Instructions are given as to the mode of application. The announcements are made in the following form :—

THE NAVY.

Notice is given that the "1914 Star" is now ready for issue to the officers and men of the R.N., R.M., R.N.A.S., R.N.R., and R.N.V.R., who actually served in France or Belgium on the establishment of Naval units landed for shore service between Aug. 5th and midnight of Nov. 22nd-23rd, 1914.

Provided their claims are approved by the Admiralty, officers and men of the following Naval units are, among others, entitled to the Star :—

R.N.A.S., Dunkirk; R.N.A.S., No. 1 and No. 3 Wings; R.N.A.S., Armoured Cars.

Those who have deserted, or been dismissed with disgrace, since the date of the qualifying service will not be granted the Star.

Applications from officers and men not now serving should be made to the Accountant-General of the Navy (Medal Branch), London, S.W.1, and should be accompanied by certificates of service or discharge. The decorations earned by deceased officers and men will be issued to their legatees or next of kin entitled to receive them. Claims addressed as above should be accompanied, when available, by the certificate of the inspector of seamen's wills issued in respect of their Naval assets.

ON OPPORTUNITIES.

Surely the saddest thing of all in this world is the lost opportunity. Even when—as occasionally does happen—one is given a second chance, the opportunity is never quite the same. Something is missing that can never again be found, and even if one lives down that first bad slip there is always, behind the greatest success, the feeling that one might have done still better, if one had availed oneself of the first opportunity.

So with the R.N.A.S. that unfortunate mistake of April 1st, 1918, will take many a long year to live down. It will take more living down than will ever the slips of the previous years. The latter were owing to bad discipline, the former to bad policy.

If only the Admiralty had stood firm; surely they had the power to keep the R.N.A.S. if they had wished? Or was it merely that, since they were children in this matter they allowed themselves to be swayed by their advisers? Whatever the reason, it was a great opportunity missed.

In a little book of stories, written by a naval officer, the following quotation occurs :—

"Not now; not now; not yet!"

By whom it was originated does not appear, but it sums up the situation well.

Since the very beginning of the war, until the signing of the armistice, those six words have been the motto of the Royal Navy. To their sound Admiral Cradock and his squadron went down off Coronel; Gallipoli was evacuated; the victory at Jutland almost turned to defeat, and the R.N.A.S. lost.

Yet, in moderation, that phrase is a very good thing to hold by. If those who are responsible for the R.A.F. had taken note of it, the R.A.F. would never have been formed—presumably, only to be broken again.

Judging by that little paragraph which appeared recently in a well-known morning paper, the Admiralty is to be given a second opportunity. Of course, nothing is specifically mentioned regarding the R.N.A.S., but none who knows the official way would have expected it.

To leave the Naval people in doubt as to their ultimate fate; to give them the impression that that fate is absorption in the Army is the right way to promote good feeling between the various branches of the R.A.F. and between the three Services.

Rivalry, in a moderate degree, is all to the good. But, between the Services, it has, of late, been carried too far.

Rivalry was responsible in no small degree for the formation of the R.A.F. For certain misguided people chose to imagine that if the R.N.A.S. and the R.F.C. were one and indivisible all rivalry would cease.

Instead, there grew up a third Service—the Independent Force, R.A.F., and the R.N.A.S. remained in essence the R.N.A.S. And even R.A.F. khaki and Bolo Blue could not disguise the fact that the R.F.C. were still soldiers. So, instead of healthy rivalry between two Services, one had the underhand inter-Service intrigue that makes the name Hotel Bolo peculiarly appropriate.

For the sake of the future of the Royal Navy the Admiralty should take the R.N.A.S. back. For the time will come when, despite all the objections raised in Naval circles, the R.N.A.S. will absorb the R.N.; battleships, battle-cruisers, destroyers, submarines and all.

Sea-power in the days to come lies not with the fleet upon the seas but with the fleet above the seas. Sooner or later the Power with the greatest Air Service must take command of the seas.

Germany, alone of all the Powers, fully realises the worth of her Air Services. She has used, all through the war, aeroplanes and airships, as the British Fleet well knows.

There is the Fleet's testimony to the usefulness of the Zeppelin airship, and the R.N.A.S. can testify to the efficiency of the Brandenburger seaplanes.

It was only the size and the luck—the supreme and wonderful luck—of the Royal Navy that prevented Germany from winning the Command of the Seas.—S. F. B.

R.A.F. FASHION NOTES.

One is indebted to the Proprietors of "Punch" for permission to reproduce the following paragraphs to supplement certain "R.A.F. Fashion Notes" which appeared in THE AEROPLANE some time ago.

THE MOULT.

Further letter from Major, now General, Sir Fawcett Gear, O.B.E., R.A.F. (late Deputy Director of Mechanical Transport Brake-linings at the Air Ministry), to Messrs. Profitt, Profitt and Profitt, Aeronautical Tailors, Savile Row, W. :—

Dear Sirs,—I was astonished on receiving your bill for the kit you supplied to me in September to note the exorbitant charge you make for the garments in question. As you know, through recent events my presage has proved inaccurate and I am on the point of retiring from the Army—I mean the Air Force. The kit is, therefore, of no use to me.

This reminds me that I require a complete outfit of mufti, so, perhaps, you would be good enough to send a representative down to me at your earliest convenience and give him instructions regarding the other matter.

Please note that I have moved from Golders Green. My address is: Per Ardua Lodge, Overseas Never.

Yours faithfully, Fawcett Gear.

P.S.—Could you send me another pair of those ponyskin flying-gauntlets? Failing these, leopard-skin would do. I find them essential when driving in this cold weather.

* * * * *

Letter from the same to Messrs. Marsh and Mallow, De Vere Street, W. :—

Dear Sirs,—The accompanying fancy-dress garments I wish to have transformed to fit my wife. Lady Gear will be calling in a few days' time, when you will doubtless be in a position to advise her as to the best action to take in the matter.

Yours faithfully, Fawcett Gear

GEORGE WASHINGTON REDIVIVUS.

Inefficient Major, promoted by accident, no decorations, not so young as he used to be, wants job; salary every consideration; not too much work.—Box T.250, "The Times."

A BAD LANDING.

On Dec. 19th an aeroplane, the pilot of which had missed his way in the fog, dropped on two houses in Bounds Green Road, Wood Green. Although some damage was done to the houses, the two occupants of the machine were uninjured.


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NAVAL & MILITARY AERONAUTICS



FROM THE "LONDON GAZETTE."

ADMIRALTY, Jan. 9th.

Lts. to be Lt.-Comdrs.:—R. C. M. Pink (Maj., temp. Lt.-Col., R.A.F.), Bone, R. J., D.S.O. (Maj., R.A.F.), Dalgleish (Maj., temp. Lt.-Col., R.A.F.).

AIR MINISTRY, Jan. 14th.

R.A.F.—The following temp. appts. are made:—Brig. Comdr.—Maj.-Gen J F. A. Higgins, D.S.O., and to be graded for purposes of pay as Brig.-Gen. whilst so empld., Jan. 4th.

Staff Officers, 1st Cl.—(Air) The date of appt. of Capt. (actg. Lt.-Col.) T. E. Longridge is April 1st, 1918, and not as stated on page 8001 of "Gazette," July 26th, 1918; (Q.) E. P. A. Melville (Maj. in Army), and is granted a temp. commn. as Maj., and to be actg Lt.-Col. whilst so empld., April 1st, 1918 (substituted for notification on page 5365 of "Gazette," May 3rd, 1918.

Staff Officer, 2nd Cl. (Higher Grade).—(Air) Maj. (Hon. Col.) Sir W. R. Lawrence, Bt., G.C.I.E., G.C.V.O., C.B., July 4th, 1918, to Dec. 1st, 1918.

Staff Officer, 3rd Cl.—(Q.) Lt. C. A. Borrett, and to be actg. Capt. whilst so empld., Oct. 14th, 1918.

Staff Officers, 4th Cl. (2nd Gr.).—And to be actg. Lts. whilst so empld., if not already holding that rank.—Lt. R. B. Fricker, Sec. Lt. E. O. Johnson, Lt. C. T. S. Mendl, Aug. 21st, 1918, Lt. E. A. de Spain, Aug. 25th, 1918; Lt. J. D. S. Denholm, Lt. L. B. Goodyer, Aug. 27th, 1918; Lt. F. S. Potts, Lt. R. V. Tivy, Sept. 13th, 1918; Lt. F. H. Austin, Sec. Lt. V. Lowe, Sept. 20th, 1918; Sec. Lt. (actg. Lt.) P. Gent, Oct. 5th, 1918.

FLYING BRANCH.—Capt. C. H. Stocks to be actg. Maj. while empld. as Maj. (A.), Oct. 16th, 1918.

Capt. H. L. Nunn, D.S.C., to be graded for pay as Capt. while empld. as Capt. (S.), April 1st, 1918.

Lt. R. P. M. Whitham, M. C., to be actg. Capt. while empld. as Capt. (A.), July 18th, 1918.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their ranks as Sec. Lts. (O.):—J. T. White, April 4th, 1918; F. Bower, April 7th, 1918; W. Rowley-Redwood, A. H. Mitchener, April 12th, 1918; D. A. Cox, May 13th, 1918; T. D. Raby, May 14th, G. A. Allenby, A. P. Williams, May 20th, 1918; J. G. B. MacMillan, May 28th, 1918

T. S. Campbell (Lt., W. York. R., Spec. Res.) is granted a temp. commn. as Sec. Lt. (O.), and to be Hon. Lt., Nov. 8th, 1918 (substituted for notification in "Gazette," Dec. 10th, 1918).

The following are transferred to unempld. list:—Lt. A. E. Smith, D.F.C., Dec. 29th, 1918; Lt. (Hon. Capt.) C. T. Sanctuary (R.H. and R.F.A.), Dec. 31st, 1918; Capt. N. A. Bolton, Lt. H. J. Buchanan-Wollaston (Dor. Yeo., T.F.), Lt. A. C. G. Menzies, Sec. Lt. G. H. Powe, Jan. 1st: Sec. Lt. (Hon. Lt.) R. L. R. Gale, Jan. 2nd; Lt. H. V. Quick, Capt. H. J. T. Saint, D.S.C., Jan. 3rd; Sec. Lt. L. Springett, Sec. Lt. D. A. Thomson, Jan. 6th; Sec. Lt. (Hon. Lt.) W. V. Trubshawe, Jan. 11th.

Capt. H. P. Watson relinquishes his commn., Jan. 7th.

Capt. H. J. Welch relinquishes his commn. on account of ill-health, contracted on active service, and is permitted to retain his rank, Jan. 15th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—W. Armit (contracted on active service), H. L. Bluck, W. A. Curtis, J. A. Nolan, A. J. O'Byrne (caused by wounds), J. L. Younghusband (contracted on active service), Jan. 15th.

Sec. Lt. (actg. Lt.) M. Poole-Connor relinquishes his commn. on account of ill-health caused by wounds and is permitted to retain the rank of Lt., Jan. 15th.

The following relinquish their commns. on account of ill-health:—Lt. W. Grossmith, Capt. B. H. E. Howard, M.C. (Manch. R.), Jan. 15th

Lt. J. J. Carroll resigns his commn., Jan. 15th

The following Sec. Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank:—C. Brooke, A. E. Brown, E. J. Corbett (contracted on active service), A. S. Helmer, P. T. Mollard, T. A. Scowcroft (contracted on active service), Jan. 15th.

The following Sec. Lts. relinquish their commns. on account of ill-health:—C. G. Mobbs (Northn. R.), J. M. Robertson (High. L.I.) (contracted on active service), Jan. 15th

The number of 100251 Flt. Cadet J. L. Fisher is as now described, and not as stated in "Gazette," Nov. 15th, 1918.

The number and Christian names of 800520 Flt. Cadet Frank Eric Birkett are as now described, and not as stated in "Gazette," Dec. 10th, 1918.

The notifications in "Gazette," Dec. 24th, 1918, concerning Sec. Lts. R. C. E. Vernede and E. F. Murphy are cancelled.

The notification in "Gazette," July 5th, 1918, concerning Flt. Cadet T. J. Leighs is cancelled.

ADMINISTRATIVE BRANCH.—Lts. (A.) to be Lts.:—P. W. Sim, Nov. 7th, 1918; G. Walker, Nov. 18th, 1918; W. C. Stewart, Nov. 25th, 1918; A. Chapman, Dec. 30th, 1918.

Lts. (O.) to be Lts.:—T. C. F. Paice, Oct. 9th, 1918; J. K. Fisher, Oct. 22nd, 1918; M. J. Dalton, Dec. 14th, 1918.

C. A. Borrett (Lt., R.H.A.T.F.) is granted a temp. commn. as Lt., Sept. 6th, 1918, seny. April 1st, 1918.

Sec. Lt. T. A. Rowland to be actg. Lt. whilst specially empld., Oct. 11th, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts.:—C. E. Beeson, Sept. 16th, 1918; F. L. Reynolds, from (T), Dec. 6th, 1918.

The following are transferred to unempld. list.—Lt. J. More (R. Sco. Fus.), Dec. 31st, 1918; Capt. (actg. Maj.) H. Waddington, Jan. 1st; Lt. H. H. Wrong (Oxf. and Bucks L. I., T.F.), Jan. 2nd; Lt. F. Morton Smith, Jan. 3rd; Maj. C. M. Hay, Lt. G. H. Leonard, Sec. Lt. H. J. Mordaunt, Jan. 6th.

The following relinquish their commns. on account of ill-health:—Maj. T. W. Best (Leic. Yeo., T.F.) (caused by wounds), Capt. (actg. Maj.) C. J. Orde (Capt., R.A.S.C.), Jan. 15th.

Lt. A. S. Batchelor relinquishes his commn. on account of ill-health, and retains his rank, Jan. 15th.

Sec. Lt. R. S. Coldrey resigns his commn. to resume medical studies and retains his rank, Jan. 15th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—H. C. Ind, C. C. Sergeant (contracted on active service), E. Seymour (contracted on active service), Jan. 15th.

Sec. Lt. J. W. Baxter resigns his commn., Jan. 15th.

The date of appt. of Lt. (actg. Capt.) C. F. Powell is April 27th, 1918, and not as in "Gazette," July 2nd, 1918.

The date of appt. of Sec. Lt. (actg. Capt.) G. P. Abbot is June 1st, 1918, and not as stated in "Gazette," Sept. 27th, 1918

The date of appt. of Sec. Lt. A. J. Corbett is Oct. 7th, 1918, and not as in "Gazette," Dec. 20th, 1918.

The surname of Sec. Lt. T. A. Rowland is as now described, and not Rowlands as in "Gazette," Sept. 27th, 1918.

The notifications in "Gazette," Jan. 7th concerning the following officers, are cancelled:—Maj. L. L. Grieg, M.V.O., Lt. H. N. Penlington, Lt. R. Northover.

TECHNICAL BRANCH.—Capt. E. D. Dent to be Capt. (Gr. A) from (A), Sept. 21st, 1918.

Sec. Lt. W. B. Close to be actg. Capt. whilst specially empld., Jan. 1st.

Sec. Lt. (Hon. Lt.) E. A. Horan to be actg. Capt. whilst empld. as Capt. (Gr. B), Sept. 18th, 1918.

The following are transferred to unempld. list.—Sec. Lt. (actg. Lt.) R. W. Lane, Sec. Lt. (Hon. Lt.) F. Ward, Jan. 1st; Sec. Lt. C. T. Keble, Jan. 2nd; Capt. H. F. McLoughlin, Lt. S. G. Waine, Jan. 3rd; Sec. Lt. (Hon. Lt.) J. E. S. Long, Maj. R. R. Seward, Jan. 6th; Sec. Lt. J. Mutimer, Jan. 9th; Sec. Lt. J. Elgood, Lt. F. J. Game, Jan. 15th.

The following Capts. relinquish their commns. on account of ill-health contracted on active service:—J. D. Waddell (Welsh R., T.F.), T. I. Walker (Lond. R.), Jan. 15th.

Lt. W. S. Matthews relinquishes his commn. on account of ill-health contracted on active service and retains his rank, Jan. 15th.

The following Sec. Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank:—W. L. Clark (caused by wounds), G. V. Vantausk (contracted on active service), Jan. 15th.

Sec. Lt. P. K. Armstrong is cashiered by sentence of Gen. Court-martial, Jan. 15th.

PHYSICAL TRAINING BRANCH.—Maj. L. L. Grieg, M.V.O., to be graded for purposes of pay as S.O.2 (higher rate), June 1st 1918, to July 31st, 1918.

V. C. Hollender (Capt., R. Lanc. R.) is granted a temp. commn. as Capt., with seny. from April 1st, 1918, and to be Asst. Superintendent of Gymnasia, June 1st, 1918.

Capt. V. C. Hollender to be actg. Maj. and graded for purposes of pay as S. O.2 (higher rate) while empld. as Comdt., Aug. 1st, 1918, to Sept. 13th, 1918.

Capt. (actg. Maj.) V. C. Hollender to be Capt. while empld. as Asst. Superintendent of Gymnasia and relinquishes the actg. rank of Maj., Sept. 14th, 1918.

F. G. Sherriff (Capt., York and Lanc. R.) is granted a temp. commn. as Capt. with seny. from April 1st, 1918, and to be actg. Maj. while empld. as Superintendent of Gymnasia, and graded for purposes of pay as S.O.2 (2nd Gr.), June 1st, 1918.

To be actg. Majs. while empld. as Area Superintendents of Gymnasia:—Lt. (actg. Capt.) T. Knowles, Capt. T. B. Metcalfe, Lt. (actg. Capt.) F. K. Moncur, June 1st, 1918; Lt. (actg. Capt.) A. H. A. Gem, M.C., June 4th, 1918.

R. Northover (Capt., Lanc. Fus.) is granted a temp. commn. as Capt., with seny. from April 1st, 1918, and to be Asst. Superintendent of Gymnasia, June 1st, 1918.

H. N. Penlington (Lt., Worc. R., T.F.) is granted a temp. commn. as Lt., with seny. from April 1st, 1918, and to be actg. Capt. while empld. as Capt., June 1st, 1918.

The notifications in "Gazette," Jan. 7th, under Gymnastic Staff, are cancelled.

MEDICAL BRANCH.—C. G. Galpin (temp. Capt., Ret. Pay) is granted a temp. hon. commn. as Maj., Nov. 14th, 1918.

Capt. G. Fehrsen relinquishes his commn. on ceasing to be empld., and retains his rank, Jan. 15th.

CHAPLAINS BRANCH.—Rev. C. A. B. Allen (Chap. R.N.) is granted a perm. commn. as Chaplin with the relative rank of Capt., Nov. 22nd, 1918.

The following are granted temp. commns. as Chaplains with the relative rank of Capts.:—Rev. H. McCalman (temp. Chap. to the Forces, 4th Cl., A.C.D.); Rev. C. C. Wilson (temp. Chap. to the Forces, 4th Cl., A.C.D.), Jan. 10th.

The surname of the Rev. J. R. Towers is as now described and not as stated in the "Gazette" of Nov. 26th, 1918.

MEMORANDA.—R. G. Millar is granted the hon. rank of Lt. Col., Nov 20th, 1918.

Capt. (actg. Maj.) H. O'N. de H. Segrave relinquishes his appt. as S.O. and actg. rank of Maj., Dec. 13th, 1918.

Sec. Lt. N. H. Manners to take rank and prec. as if his appt. as Sec. Lt. bore date Oct. 4th, 1918.

The following are transferred to unempld. list:—Capt. Hon. A. O. Crichton, Capt. (actg. Maj.) F. W. Newman, Jan. 1st; Capt. V. W. H.

Ranger, M.C. (Bucks. R., T.F.), Jan. 3rd, Capt. (actg. Maj.) G. A. Sinclair-Hill from (S.O.), Jan. 6th; Lt. H. D. Savoury (Q.O. Oxf. Hus., T.F.), Jan. 15th.

Capt. J. F. Hedley relinquishes his commn. on account of ill-health and retains his rank, Jan. 15th.

The notification in "Gazette," Jan. 3rd, concerning Capt (actg. Lt.-Col.) E. P. A. Melville is cancelled.

WAR OFFICE, Jan. 16th.

The name of the under-mentioned has been brought to the notice of the Secretary of State for War by Maj.-Gen. F. C. Poole, C.B., C.M.G., D.S.O., G.O.C., North Russian Expeditionary Force, for valuable and distinguished services rendered in connection with the operations in North Russia:—

MAUND, temp. Lt.-Col. A. C., D.S.O., R.A.F. (Capt., Manitoba R.).

ADMIRALTY Jan 17th.

The King has been graciously pleased to approve of the award of the following honour to the undermentioned Officer:—

To be Companion of the Distinguished Service Order.

Wing-Comdr. CHARLES EDWARD HARRY RATHBORNE, R.N.A.S. (Capt., R.M.L.I., now Lt.-Col., R.A.F.).

In recognition of his gallantry and devotion to duty during the course of a long-distance air raid in which he acted as pilot of a fighting machine which formed part of the escort. Wing-Commander Rathborne was brought down whilst protecting the bombing machines, his engine having been put out of action. It was owing to the gallantry and self-sacrifice of this officer and those of the other fighting machines that all the bombing machines returned safely from the raid.

FOREIGN DECORATIONS.

The following decoration has been conferred by His Majesty the King of Italy:—

ORDER OF THE CROWN OF ITALY.

Cavalier.

Sub-Lt. Roy L. Cantle, R.N.V.R. (now Lt., R.A.F.).

His Majesty has given unrestricted permission for the officer to wear the decoration in question.

AIR MINISTRY, Jan. 17th.

R.A.F.—The following temp. appts. are made at the Air Ministry:—Staff Officers, 2nd Cl.—And to be actg. Majs. while so empld.:—(P.) Capt. J. H. Tyler, M.B.E., Oct. 18th, 1918; Sec. Lt. (actg. Capt.) H. Jones, Nov. 10th, 1918.

The following temp. appts. are made:—Staff Officer, 1st. Cl.—(O.) Lt.-Col. A. V. Bettington, vice Lt.-Col. R. C. Donaldson-Hudson, D.S.O., Nov. 9th, 1918, to Dec. 4th, 1918.

Staff Officer, 2nd Cl. (Higher Rate).—(Air.) Maj. N. M. Martin, Dec. 30th, 1918. The notification in "Gazette," Aug. 6th, 1918, concerning Capt. (actg. Maj.) C. S. Macnab is cancelled.

Staff Officer, 3rd Cl.—(Air.) Capt. H.R.H. Prince Albert, K.G., vice Capt. F. D. Lord Doune, M.C., Dec. 29th, 1918.

Staff Officers, 4th Cl. (2nd Gr.).—Lt. E. G. Roberts, Sept. 22nd, 1918; Lt. A. A. Kennedy, Nov. 28th, 1918.

FLYING BRANCH.—Lts. (O.) to be Lts. (A.):—E. C. Kelly, May 29th, 1918 (substituted for notification in "Gazette," Aug. 2nd, 1918); R. B. Beevor, Nov. 19th, 1918.

Lt. H. Tatton to be Lt. (O.) from (T.), June 9th, 1918.

The following are transferred to unempld. list:—Lt. O. B. Howell, Jan. 1st; Sec. Lt. W. L. F. Nuttall, Jan. 2nd; Sec. Lt. L. Arnold, Sec. Lt. A. H. E. King, Jan. 3rd; Lt. C. W. Lambert, Lt. D. F. Murmann, Maj. G. S. Sansom, M.C., D.F.C., Sec. Lt. M. de V. Summers, Lt. (actg. Capt.) J. Todd, M.C., D.F.C., Sec. Lt. J. E. Warner, Sec. Lt. A. T. Wiltshire, Jan. 5th; Lt. (Hon. Capt.) A. W. Merchant (Lond. R.), Lt. H. J. H. Spreadbury, Jan. 6th; Lt. H. Entwistle, Jan. 7th; Lt. P. A. Russell, Lt. R. G. Smith, Lt. (actg. Capt.) J. H. Thompson, Jan. 8th; Lt. R. J. Brown, Lt. J. R. English, Sec. Lt. E. J. H. Wright, Jan. 9th; Sec. Lt. S. D. Sayer, Jan. 10th; Sec. Lt. J. S. Downward, Jan. 13th; Capt. P. H. Martin, Jan. 16th; Lt. J. E. Atkinson, Jan. 18th.

Lt. (Hon. Capt.) H. Ward relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., Jan. 18th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—A. G. Bewes (contracted on active service), S. G. Punnett, F. E. Robinson (contracted on active service), A. E. Ryan (contracted on active service), Jan. 18th.

Lt. G. K. Rice-Oxley (Lt., A.S.C., Spec. Res.) relinquishes his commn. on account of ill-health, Jan. 18th.

Sec. Lts. to relinquish their commns. on account of ill-health, and are permitted to retain their rank:—W. C. Saville (contracted on active service), H. St. J. Smith, A. L. Stephens (contracted on active service), A. J. Willox, Jan. 18th.

Sec. Lt. L. C. D. Palmer (Sec. Lt., R.F.A.) relinquishes his commn. on account of ill-health contracted on active service, Jan. 18th.

The following are antedated in their appts. as Sec. Lts. (A. and S.) as stated:—J. P. Bernigaud, May 13th, 1918; W. A. Spence, June 13th, 1918.

Sec. Lt. W. T. J. Hall is antedated in his appt. as Sec. Lt. (Obsr. Officer) with effect from April 26th, 1918.

The date of appt. of Sec. Lt. O. R. Schoonraad is June 28th, 1918, and not as stated in "Gazette," Dec. 6th, 1918.

The surname of Sec. Lt. J. W. M. Probert is as now described, and not Hopkins as stated in "Gazette," Nov. 19th, 1918.

The surname of Sec. Lt. H. S. Boocock is as now described, and not as stated in "Gazette," Oct. 15th, 1918.

The Christian name of Sec. Lt. Edward Wilson is as now described, and not as in "Gazette," Sept. 13th, 1918.

The surname of Sec. Lt. J. S. Downward is as now described, and not as in "Gazette," July 28th, 1918.

ADMINISTRATIVE BRANCH.—Capt. J. W. Somers to be Capt. from (A.) Dec. 12th, 1918.

Lt. F. Pratt to be actg. Capt., and graded for purposes of pay as S.O. 3 while empld. as Capt. from (K.B.), Nov. 30th, 1918.

Sec. Lt. (Hon. Capt.) W. H. P. Rees to be actg. Capt. whilst empld. as Capt., from (T.), Oct. 15th, 1918.

Lts. to be Lts.:—A. B. Bullock, from (A.), Sept. 16th, 1918; J. M. Atkinson, from (O.), Nov. 18th, 1918.

Sec. Lts. to be Sec. Lts., from (A.):—T. D. Drury, Aug. 28th, 1918; J. H. McKenzie, Oct. 11th, 1918; B. A. Ross, Oct. 22nd, 1918; A. N. Ryles, Oct. 25th, 1918; R. A. H. Hamilton, Nov. 7th, 1918; J. E. Price, Dec. 8th, 1918.

Sec. H. T. Duke to be Sec. Lt., from (T.), Sept. 13th, 1918.

Sec. Lts. to be Sec. Lts., from (O.):—H. S. G. Palmer, Sept. 17th, 1918; G. F. Wilson, Oct. 12th, 1918; S. G. Birch, Nov. 6th, 1918; E. A. Mann, Nov. 14th, 1918.

The following are transferred to unempld. list:—Sec. Lt. H. G. Bright, Sec. Lt. C. H. Swan, Jan. 3rd, Sec. Lt. J. W. D. Smith, Jan. 5th; Capt. H. L. U. Clark, Sec. Lt. T. Goff, Sec. Lt. V. Lowe, Jan. 6th; Sec. Lt. S. H. Horler, Sec. Lt. (Hon. Lt.) (actg. Maj.) T. H. McArthur, Jan. 7th; Sec. Lt. S. A. Farr, Lt. E. W. Keep, Jan. 8th; Capt. C. W. C. Hutton (Capt., Yorks. R.), Capt. E. V. Sassoon, Lt. A. W. Todd (Capt., Cyc. Batt., E. Yorks. R., T.F.); Capt. E. H. Wilding, Jan. 9th.

Lt. T. W. Costello is removed from the service, his Majesty having no further need for his services as an officer, Jan. 18th.

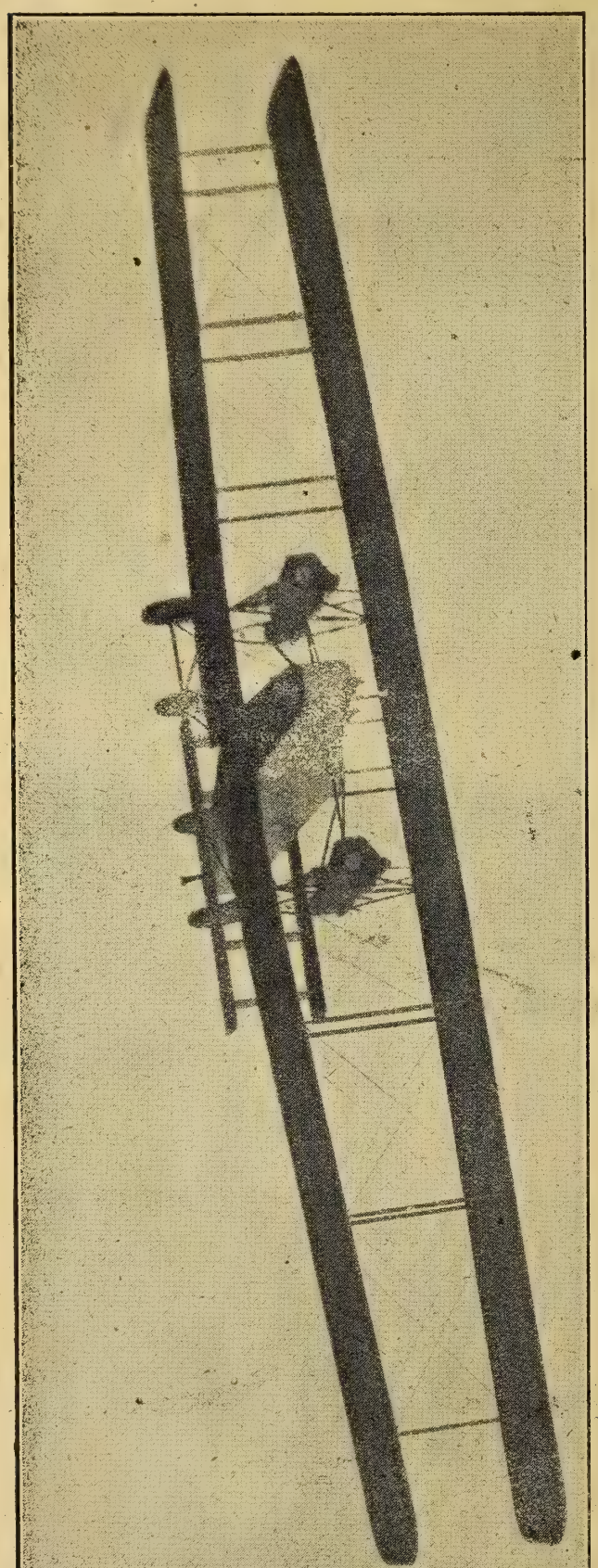
Sec. Lt. R. D. Ogden relinquishes his commn. on account of ill-health and retains his rank, Jan. 18th.

Sec. Lt. W. J. Meager resigns his commn., Jan. 18th, 1918.

The date of appointment of Sec. Lt. G. E. Shipp is Nov. 15th, 1918, and not as in "Gazette," Jan. 7th.

TECHNICAL BRANCH.—Lts. to be Lts. (Gr. B), from Admin.):—L. Strudwick, Nov. 6th, 1918; R. F. Sinclair, Dec. 21st, 1918.

(*Continued on page* 419.)



A GIANT AT PLAY: One of the Four-engined Handley Page biplanes in the air, carrying pleasure passengers, in default of bombs.

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THE BRITISH AIRCRAFT INDUSTRY. *(Second Series.)*

BY R. P. HEARNE.

XV.—THE SELSDON AERO AND ENGINEERING CO., LTD.

To have signed a lease for a new motor factory a few days before war broke out placed a man in a nice predicament. Mr. G. Campling, the founder of the Selsdon Aero and Engineering Company, fell into this predicament, and, to make matters worse, it was his first venture in running an engineering concern of his own.

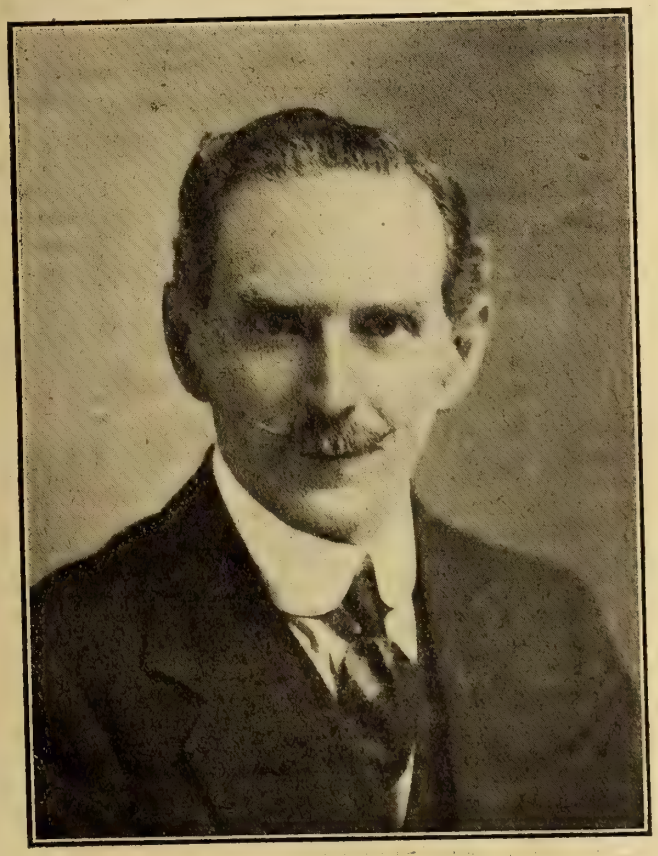
Most men would have tried to back out of the undertaking, even at the risk of cutting the losses, for in August, 1914, the authorities had no idea that factories would be of any use in winning the war. The established engineering works were sacking their skilled men under the patriotic plea of encouraging them to enlist—and enlisting itself was a hard job.

Some months had to elapse ere the shell-making craze in the curate's back parlour took the fancy of the Press and the nation; but in the interval none of the leaders of public opinion paid any attention to the mechanical equipment of war. It was a freezing-out time for engineering enterprises, and it looked an act of madness to set anything new in motion.

None the less Mr. Campling held on with his project, and got his little works going in Croydon. His peace-time intentions had been to develop motor repairing and general engineering, and he soon displayed his adaptability when war contracts began to trickle out.

From the first he showed the disposition to tackle any and every job, and he was encouraged in this enterprise by his colleague Mr. R. Brown. I need hardly say that this young firm did not get any of the soft or highly profitable contracts; and without much delay they realised that their best chance lay in specialising along some new line where merit and individuality could make themselves felt more readily than in making shell cases or buttons. Thus it was that the Selsdon Company, after a varied experience with the commonplaces of war munitions, laid themselves out for aircraft work, of which they saw the coming need long before the bigwigs realised it. Mr. Campling as a motorist had been attracted by the new locomotion.

When the demand for aircraft became marked, everybody wanted to do the fancy work, and most of the newcomers had aspirations of blossoming out at once as the makers of the finest aeroplane or aero-engine ever known. In every case there were



MR. R. BROWN.



MR. G. CAMPLING.

many complicated or troublesome parts and fittings which the glory hunters would be glad to buy, thus saving themselves the brain fag of making.

Here it was that the Selsdon Company found their real opportunity, and they made the most of it. They attacked the most intricate work; they faced blue prints that would confuse even an R.A.F. super-expert, and by dint of skill and patience they turned out a well-made article from what often looked a hopeless specification.

We all know that aircraft designers in the early days hated standardisation and simplicity as much as they hated the Kaiser, and each man carried his individuality down to the smallest item. Take Interrupter Gears, for example. Very little is known of these devices outside the Services and the places where the gears have been designed and made. It has been my good fortune, however, to make a tour of the main R.A.F. stations as the guest of the Air Ministry, and I was particularly interested in the gunnery section where the interrupter gear is such an important item. For the uninitiated I might explain that the function of the interrupter gear is to enable a machine-gun to fire safely through the path of a revolving propeller. It requires delicate mechanism to effect this under modern high-speed conditions, and I am correct in saying that our aerial gunnery knocked spots literally and figuratively off the Huns.

A Difficult Job.

The Selsdon Company turned out big numbers of cams for the K.S. interrupter gear, and they had practically all the cams to make for the well-known C.C. gear. I have seen the working details of this gear, and I must say that the Selsdon Co. had an exceedingly difficult job. Another special task successfully accomplished was the production of huge numbers of the A.M.C. pump. These tasks alone would have made the reputation of any engineering firm, for the work was new and highly intricate, and war requirements were urgent. I understand that the Selsdon Company manufactured the first set of synchronising gear fitted to an aeroplane.

I need not go into details concerning the many and highly varied jobs which have been carried out so successfully in the Selsdon Works. Suffice it to say that as the war wore on they became more and more relied upon for solving knotty problems in aircraft engineering.

As the latest instance of Selsdon enterprise I may mention that this very young company has been appointed British manufacturers for the famous A.B.C. aero-motors. There is a very novel and interesting commercial project behind this output of medium-powered aerial engines which I hope to discuss at another time, but the point of importance here is that the Selsdon Company should have been entrusted with such a high-class engineering job as the manufacture of a group of A.B.C. engines, for the designers of the said engines have a high reputation to maintain, and are very jealous of it.

Mr. Campling, however, comes of old motoring stock, and he has advanced ideas of his own on the future development of the aerial engine, not only in low but in high powers. I was very pleased to find him a keen advocate of scientific standardisation in all the basic parts of the motor, whilst giving the genius of the designer free play in matters where originality was desirable.

I may go so far as to state that the Selsdon Company is well ahead on an aerial engine programme which will keep them busy when other firms probably will have left this highly specialised branch of engineering. Mr. Campling, as a young and go-ahead man, has the courage of his convictions, and, certainly, during the war, he has made good under circumstances which would have put most firms out of the running.

Illustrative of his good sense I may remark that he has not been carried away by his success, and this is shown in one way by the fact that he has been remarkably conservative in expanding his factory. The Selsdon Works have been kept at a comfortable size, and thus the reconstruction programme, due to the premature collapse of the war, has not left them twiddling their thumbs and wondering whether they will make gramophones or sewing machines—the two stock things, as far as I can determine, which perplexed British manufacturers have decided to take up, pending the next war: though how in the world they all hope to find a market for the abominable squawking machine, and the home-sweating machine, is a puzzle to me—more especially with women now going into Parliament!

Mr. Campling is a man who will go far, I think, in aerial work. In four years he has built up a robust concern without the use of "hot air," or other ultra modern aids. He has followed a most difficult path in deliberately undertaking jobs which other firms would seek to avoid as being too troublesome or intricate.

Advice to Newcomers.

Most of these tasks called for rare patience and determination, coupled with mechanical ingenuity and resource. The experience gained has been invaluable, and to every budding aircraft engineer I can give no better advice than to recommend him to accept the most difficult Air Ministry contracts and sub-contracts, and stick at them until he evolves something really good from the official blue prints. The result may not be what the officials expected. I sometimes wonder if they expected anything could come from the Futurist drawings they presented to engineers. But the Ministry was clever all the same, for it was training the engineers to think boldly, which is better even than thinking imperially.

Mr. Campling is very fortunate in having associated with him from the outset a valuable colleague in the person of Mr. R. Brown. Of wide engineering experience, Mr. Brown is able to blend this with ripe business knowledge, and thus, in two capacities, he helps to steer the Selsdon Company successfully. Whilst Mr. Campling devotes the major part of his time to the works at Croydon, Mr. Brown looks after the business side in London; but, in case of need, the work could be made interchangeable, and thus the firm has been able to carry on through the most critical times.

TECHNICAL INFORMATION IN AERONAUTICS.

Numerous applications for technical information having been received since the Armistice, the Deputy Controller of the Technical Department, Aircraft Production, Ministry of Munitions, desires it to be generally known that arrangements are being made for the early publication through H.M. Stationery Office of all technical reports and data. These documents will be "Advisory Committee Reports," but will be issued separately as ready. They will also be published in volume form annually.

Arrangements are also being made for the preparation and early publication of a new series of reports and memoranda embodying the information not already covered by existing reports.

THE DEATH OF MR. JOHN SHORLAND.

Those concerned with the Stewart Precision Carburetter Company will regret to hear of the death of Mr. John Shorland at the early age of 38 on Jan. 8th. Mr. John Shorland was a brother of Mr. Frank Shorland, of Clement Talbot, Ltd.

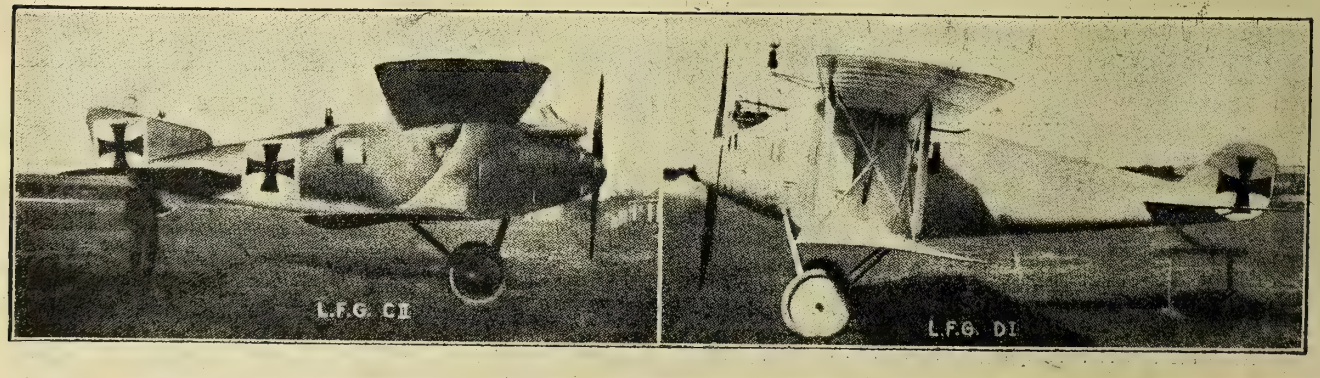
THE NEW LOENING MONOPLANE.

An American paper says:—

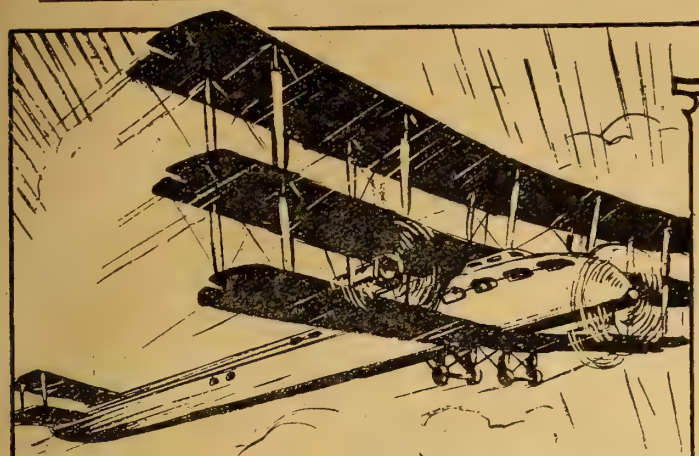
Washington, D.C., Dec. 3rd.—Development of a new American type of two-seater monoplane was announced to-day by the War Department in a statement disclosing that in a recent test at Dayton, O., the machine attained a speed of 145 miles an hour with full military load and an altitude of 25,000 ft. with two passengers in remarkable time, exceeding the record of any European single-seater combat machine.

The plane, known as the Loening, is American designed and American built and embodies new and original ideas. It weighs about 2,400 lbs. loaded for service and is driven by a 300 h.p. engine.

The statement says the machine was designed and built by Grover Cleveland Loening, of Long Island City, N.Y., an aeronautical engineer and author of a number of text-books used by American Air Service cadets.



TWO INTERESTING HUNS: The Roland C2 (L.F.G.) Two-Seater Fighter (175 h.p. Mercédès) and the Roland D1 (L.F.G.) Single-seater Fighter.



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MEERLOO

CO-OPERATION.

By "MEDWAY."

IV.—THE EVOLUTION AND ENFORCEMENT OF A COMMON POLICY.

Finally, let us go back to the form of co-operation which we already know can be achieved, and is actually being achieved at the moment. This sort of co-operation finds its expression in the existence of a representative manufacturers' society. Such a society can, though the fighting is over, be an immense asset not only to its own members but also to the Government.

Suppose, for example, it is required to frame the terms of a contract which the Government proposes to enter into with a large number of manufacturers. Evidently an immense amount of labour on the part of the Government is saved if the whole of the negotiations can be conducted once and for all with a single society, instead of being conducted separately with each individual firm.

In practice, this has proved to be the fact and the results have been so satisfactory that Government departments, instead of being thoroughly suspicious of manufacturers' organisations, are now steadily coming to the conclusion that it is worth their while to encourage them and to negotiate with them on all possible occasions.

What is true of the framing of contracts is equally true in scores of other spheres. If the whole of an industry can be informed of some development, or the whole co-ordinated opinion of that industry can be taken with regard to some problem, by simply conducting one negotiation, obviously the work of the civil servant who is concerned with any industrial matter is much lightened.

A Focus of Opinion.

On the other hand, from the point of view of the Industry itself, a central association serves to focus all opinions, and to eliminate trifling differences as regards details which might otherwise obscure the main issue. If an industry is suffering under a grievance, the whole influence of the industry can be used as one substantial force to secure redress.

This is particularly valuable to the small firm. A large concern of world-wide repute can get a hearing in the House of Commons, or in the Press, if it has a good case to put up, but a small firm, which is not generally known, cannot arrange to bring sufficient pressure to bear to get much consideration for its just complaints unless it secures the active support of the whole industry of which it is a member. In point of fact, the small firm benefits more in proportion to its size than the large one by participating in a manufacturers' association, though this fact is often lost sight of when the small firm is asked to pay a subscription which is larger in proportion to its capital than that paid by a big concern.

A Clear Policy.

In previous articles I have advocated co-operation for scientific and industrial research. There is no need to advocate in a similar way co-operation for the formation of a coherent policy, and for the purpose of getting that policy adopted by the powers that be.

All the machinery for this class of co-operation is already to hand, is in working order, and has been thoroughly tested. There is only a danger that its prompt operation may be interfered with to some extent by the necessity, not merely for recognising the just aspirations of labour, but of making that recognition take the form of handing over all important dispositions to joint bodies respresentative both of the manufacturer and of his employee.

A Matter of Principle.

This is admirable as a matter of principle, but in practice is likely to cause damaging delays, because labour cannot readily be divided up under the heading of industries and consequently it is difficult for any particular industry such as, for example, the Aircraft Industry, to form a committee truly representative of its own labour, possessing a full knowledge of the industry and not confusing it with other distinct branches of engineering.

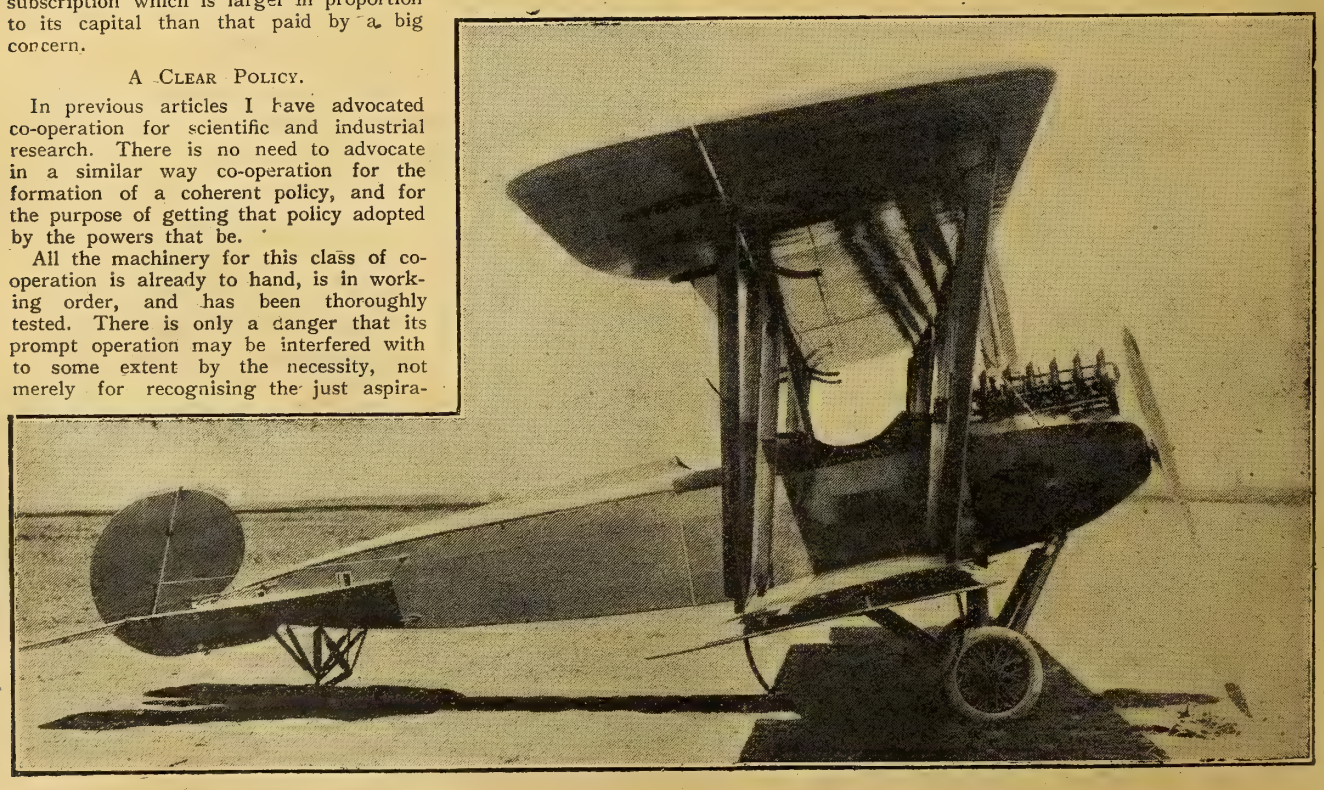
My fear is that the admirable scheme advocated in the Whitley Reports, and formally adopted as a national policy, may operate in such a way as to hinder the Government from taking and considering the opinion of industries. This would be most regrettable, but so long as the engineering mechanic has to be considered and provided for in accordance with the general character of his employment rather than with the character of the product which he helps to construct, I cannot see how it is possible to form a really satisfactory Industrial Reconstruction Committee for any one branch of the engineering industry.

Such a committee could be formed to represent engineering as a whole and I cannot understand why, if this were done, there should be any objection to the manufacturers' societies and associations putting up the views of their respective branches of the industry.

The engineering reconstruction committee, representative of labour as well as of capital, would then act as the sieve through which all such views would pass on to the Government, and this should be sufficient safeguard for labour. I am, however, drifting rather away from my subject, but my excuse is that I feel that in the Society of British Aircraft Constructors and similar bodies we have the machinery for what is at the moment the most important form of co-operation, and that it would be a thousand pities if this machinery were to be compelled to stand comparatively still at a time when it could be of immense assistance in helping to tackle the reconstruction problems upon the solution of which our whole industrial future depends.

THE PRICE OF STANDARD LIGHT CARS.

The Standard Motor Car Co., Ltd., of Coventry, announces that the price for the 1919 model Standard 9.5 h.p. light car, fully equipped with lighting set, etc., has been fixed at £285.



AN AMERICAN TRAINING MACHINE.—The Side View of the Model R. Wright-Martin Training Biplane (125 h.p. Hall Scott).

ROLLS-ROYCE

PASSENGER FLIGHTS.

Extract from Statement made by Major-General Sir F. H. Sykes, Chief of the Air Staff, at a Meeting of the London Chamber of Commerce, at the Cannon Street Hotel, London, January 7th, 1919.

. . . "We established in the summer . . . a small organisation called the Communication Squadron. It was organised on comprehensive lines, and consisted of two flights of D.H.4's with **Rolls-Royce** engines and a few other machines with a personnel of 61 officers and men. Between August and November there were made no fewer than 279 passenger cross-country flights, such as to Paris, Nancy, Dunkirk, Manchester, York and Birmingham, and there was not a single case of a crash occurring to any machine with passengers on board. On one occasion two D.H.4 machines were required to transport Mr. Paul Cravath and Mr. Crosby, of the American Mission, and a record trip was made to Paris and back on the same day in four hours and twenty minutes."

"*The Times*," *Jan. 8th*, 1919.

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ROLLS-ROYCE

AN INTERESTING SINGLE-SEATER BIPLANE.

Many of the old-timers in British aviation will remember the flying exploits of Mr. J. V. Martin and his wife at the Grahame-White Aviation Company's School at Hendon, notably on the Grahame-White "Baby" biplane. Thereafter Mr. Martin returned to the United States, where from time to time he produced various types of aeroplanes, some of which displayed considerable ingenuity.

His latest production, known as the K.3, is a single-seater, which displays much originality of thought, and constitutes a distinct contribution to the problem of producing a cheap and small machine for peace-time flying.

Among other features, the machine includes a two-cylinder horizontally opposed engine of 45 h.p., of what has been called in this country the "pop-bottle" type, which, as a matter of fact, has much to recommend it when a low-power aero-engine is required.

The fuselage construction is also worthy of note, which consists almost entirely of 3-ply timber. The system of wing bracing also is unusual, as is the arrangement of the undercarriage, which makes it possible for the wheels and their struts to be folded into the fuselage during flight with a resultant reduction of head resistance.

Originally the K.3 was designed as an altitude fighter, provision being made for oxygen tanks and electrically heated clothing.

The dimensions of the machine are extremely small, the total span being under 18 ft., and it is claimed that the machine can therefore comfortably start from any country road. The overall length of the machine is 13 ft. 4 ins. and its height 7 ft. 4 ins. The total area of the wings is 100 ft. and the total weight 350 lbs., including engine.

No figures are yet available concerning the actual performance of the machine, but the estimate prepared by the designer suggests a speed of 135 miles per hour at ground level—of 112 miles per hour at 10,000 ft.—and 97 miles per hour at 25,000 ft. In his opinion, when fitted with a 60 h.p. motor, the speed at 10,000 ft. would be 145 miles per hour. It will be interesting to compare these with the figures shown by actual test.

The main planes have neither stagger nor dihedral. The wing section is known as Ofenstein 1, which at 40 miles per hour has a lift-drag ratio of 22 to 1. This fact, though, is not very informative, as the machine is intended for high speeds.

The upper plane is a single continuous structure, and the principal main spar is 14½ ins. from the leading edge. The front of this spar is coincident with the greatest forward travel of the centre of pressure. The lower plane is constructed in two sections, attached one on either side of the fuselage.

The interplane struts are of the "K-bar" construction similar to that found in some of the Curtiss aeroplanes, the actual wing bracing consisting of the minimum possible number of wires—namely, a flying and landing wire in each bay.

The ailerons are a new departure so far as modern practice is concerned, being placed at the ends of the top planes with their leading edges somewhere in the neighbourhood of the centre of pressure of the machine. They have a symmetrical double convex surface, and are so balanced that their operation requires very little effort, and naturally such a disposition gives them a considerable degree of effectiveness. M. Louis Blériot used somewhat similar ailerons on some of his earliest monoplanes.

The overall length of the fuselage from the engine plate to the stern post is 10 ft. 10½ ins., and its comparatively great depth—namely, 3 ft., is largely responsible for the squat appearance of the machine.

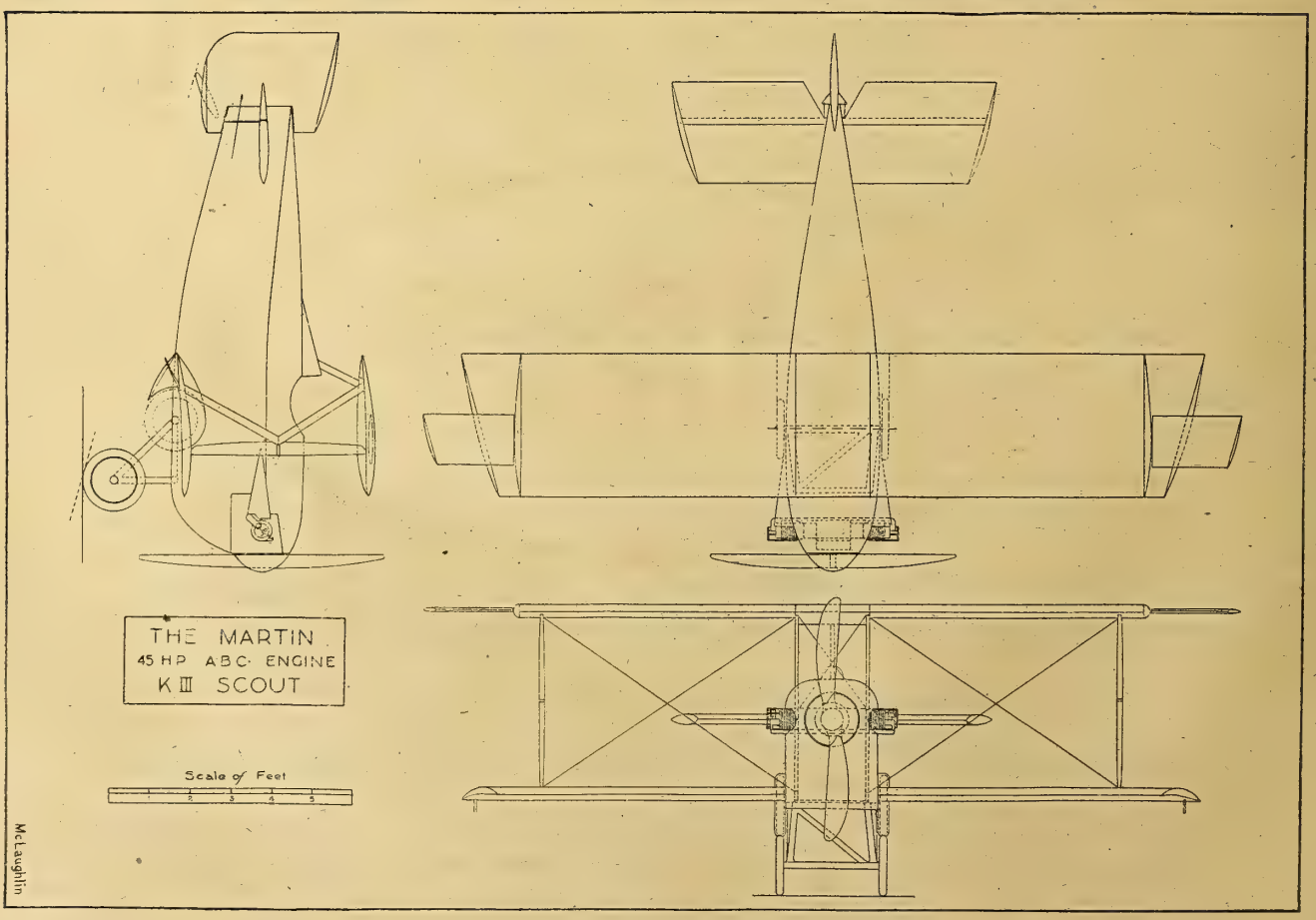
The fixed tail plane has a span of 7 ft. 6 ins. and a chord of 2 ft. 6 ins., and is placed in line with the centre of thrust at such an angle as to exert no lift. Behind this is a pair of elevator flaps, the junction of which, with the tail plane, is screened by rubber fabric, giving a smooth unbroken outline.

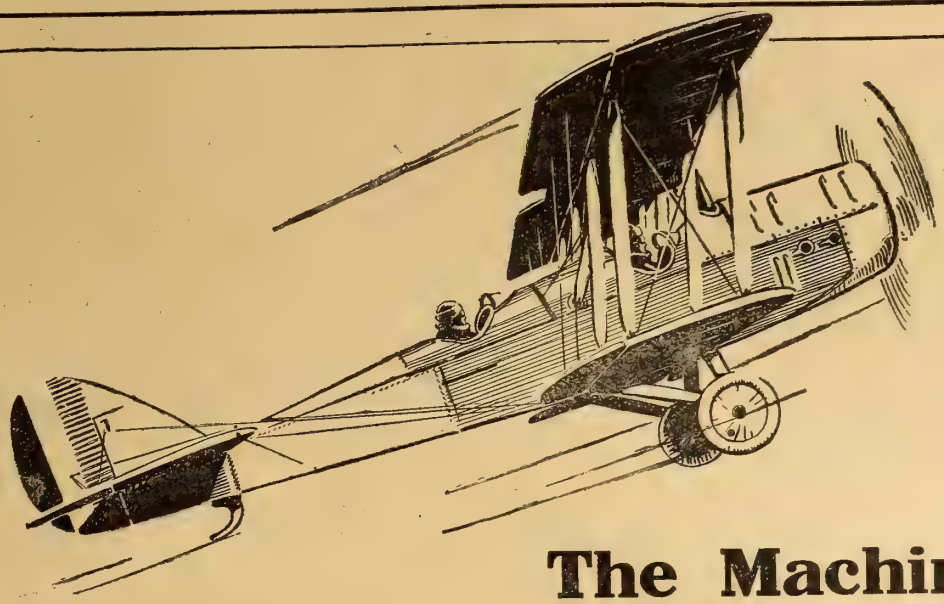
The rudder, which is substantially constructed, has balanced portions above and below the fuselage. An interesting feature is the enclosure of the tail skid in the thickness of the rudder, its pivot being fixed through the bottom of the rudder post. The combination of rudder post and tail skid effects a considerable saving of weight, and also presumably assists steering on the ground.

The engine is an air-cooled 2-cylinder opposed "Gnat" A.B.C. engine which develops 45 h.p. at 1,915 r.p.m. The fuel consumption is said to be 0.56 lbs. per h.p. per hour, the total weight of the engine being 50.4 lbs. The fuel tank is placed in the upper main plane above the fuselage, and has a capacity of 9 gallons, sufficient for a flight of two hours.

The undercarriage is simple in the extreme, consisting of a pair of "Vee" struts connected by a cross-stay and a rigid cross axle, which carries a pair of Ackerman wheels. These "Vee" struts are hinged and can be drawn up into the fuselage, thus bringing the wheels also partially within the fuselage and reducing head resistance.

The mounting of the horizontally opposed engine in the nose of the machine and the hemispherical pot on the airscrew boss gives the machine a very neat appearance, and, although it cannot claim to possess the beautiful lines found in many modern aeroplanes, it is full of useful and original ideas.





The Machine which broke the Altitude Record

THE striking achievement of two R.A.F. officers in reaching the unprecedented height of 30,500 feet on a D.H.9 machine proves yet again the remarkable lifting power, climb and endurance of Airco Machines.

Known as the D.H. or Airco 9, this machine was designed by Capt. Geoffrey de Havilland, Technical Director of the Aircraft Co., and is fitted with a "Napier" Lion Engine.

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PROSPECTIVE AEROPLANE METALS.

By WALTER J. MAY.

At the present time only a limited number of metals and alloys are used in aeroplane construction. Until Government control ceases that number is not likely to be increased, but when the control ceases there is no reason why other materials should not be utilised where they show advantages over those at present in use.

Of course it must be always borne in mind that both strength and weight are important points. Cost also has to be considered. But given the two former items the mere monetary consideration may be more than compensated by gains in time or less weight per article, or by other production items which may occur in different places.

Thus for certain parts of some aeroplanes malleable iron castings are used. These are liable to possess defects of a serious character. They also take a long time to produce even in quantity. For small parcels it is not an unusual time to wait seven or eight weeks for delivery.

The reason is quite a simple and readily understandable one to those acquainted with the manufacture of malleable castings, for unless one can charge an annealing oven with castings for one order—probably two tons or more form the charge—it is necessary to wait until one has sufficient castings taking the same time to anneal accumulated. Or as an alternative one loses money unless one can charge a sufficiently high price to cover costs. This is for the simple reason that it takes as much time and trouble to anneal two hundredweight as it does two tons (assuming that is the oven capacity).

As against this one can produce wrought-iron castings which can be used the day following the making, the pattern and moulds being made and the casting poured on the same day in urgent cases. Fettling and delivery can take place on the following morning and any machining necessary can be done straight away. Also the finished work will stand greater stresses than the annealed castings.

It is quite true that for this work it takes a greater heat to melt the metal and that it must be free from carbon at all stages—so far as this is possible—but one has no greater cost than with the annealed castings, and in addition one has the advantage of quick delivery.

In this particular case one gains on time and one is not restricted as to quantity, for each crucible of metal produces about 60 lbs. of finished castings as an average. This, in pre-war times, would cost less than 3d. per lb. in small goods, and under 2½d. per lb. for larger pieces up to 10 lb. weight.

Again, one can produce a practically incorrodible zinc-bronze that will roll, draw, machine, or can be used direct from the mould, and in this up to 20 per cent. of carbon-free wrought iron can be used, different percentages of iron being needed for various purposes as experience suggests. Such a bronze has a higher strength than the ordinary alloy, while it costs less. Some which the writer made up cost only 4¾d. per lb. for metal as against gun-metal at 7d., but of course all new metals were at a low cost just then.

There is nothing particular in this alloy because it simply follows the not particularly well-known fact that iron and copper will alloy together in almost any proportions provided both metals are free from carbon—a condition not difficult to secure.

Grey cast iron will not alloy with copper, however, except to a very limited extent, and even then zinc or aluminium has to be present as an intermediary as a rule, the burning out of either of these metals usually causing the liberation of the iron, which in this case is only held as a mechanical alloy because the carbon prevents true alloying.

Monel metal, a natural alloy of nickel, iron, and copper, when free from carbon possesses great strength and casts well under proper conditions. Artificial modifications can be made to meet any requirements both as to strength—within certain limits—and ductility, this metal for many purposes being suitable for taking the place of malleable iron.

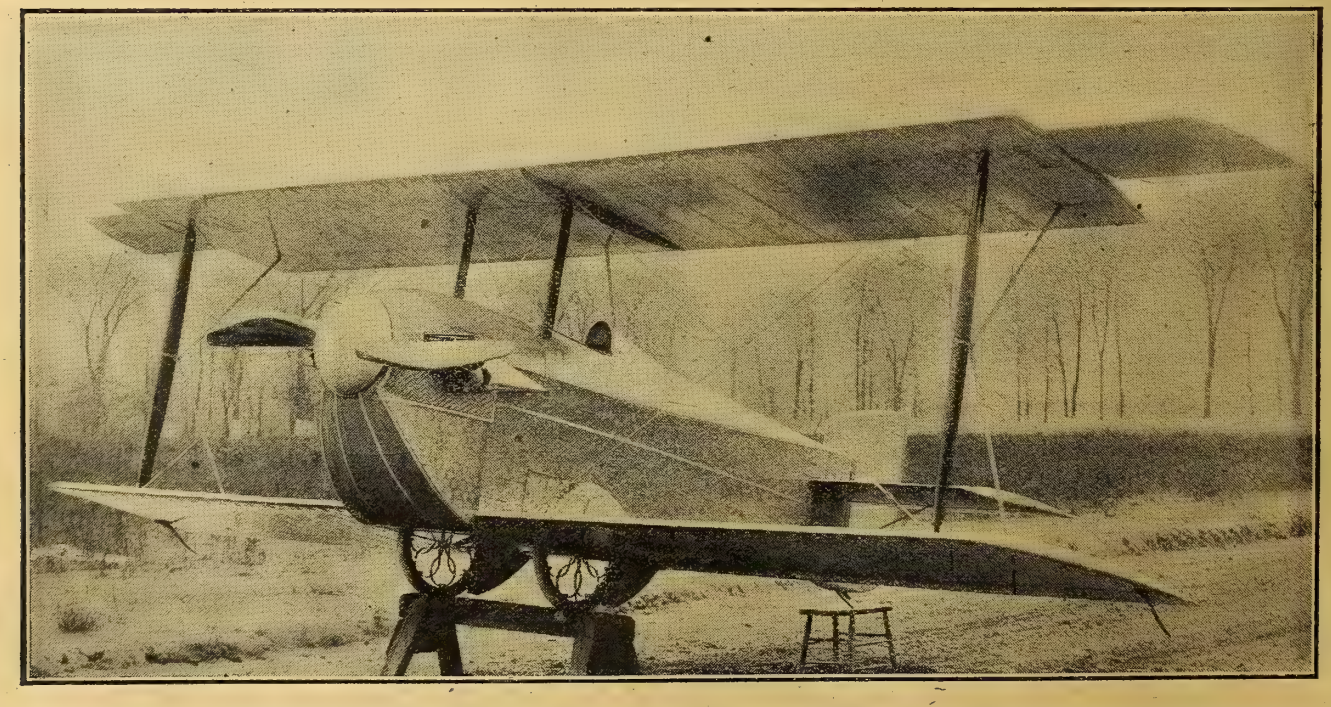
The cost of making is about that of nickel silver, and, as it does not readily tarnish or corrode, it would be suitable for a large amount of aeroplane work at a not prohibitive cost. The exact percentage of metals in this alloy would have to be ascertained by experiment in regard to particular requirements.

These are all what may be termed "high temperature" metals and need special furnaces for melting either the iron or nickel. They must all be made with metals free from carbon, and in either clay crucibles or plumbago crucibles having liners free from carbon. There is no special difficulty in dealing with these things, and, as all are ready for use as soon as cold from the mould, all questions of time delay are obviated by their use.

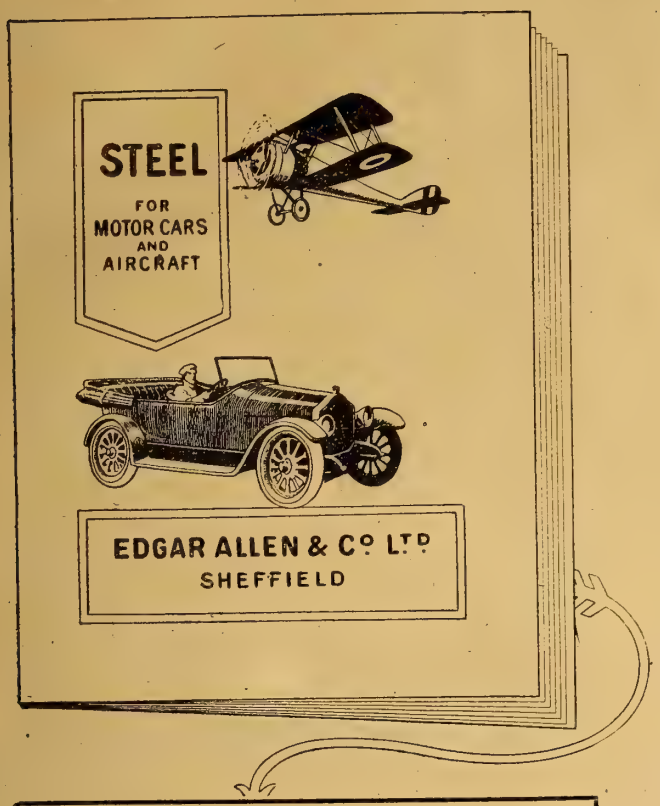
Amongst the ordinary metals copper castings, either soft or chemically hardened, might very well take the place of rolled or otherwise wrought copper for many purposes. In these the usual conductivity is maintained, but necessarily the tensile strength is less in cast than in wrought metal.

There should be no trouble in making copper castings in dry sand moulds, but where porous castings occur it is well to clean the metal when melted by the use of a small percentage of boron suboxide prior to adding anything to produce definite hardening or other effects. It is usually occluded oxides which produce porosity, for clean copper will cast as "dead" as lead when poured into proper moulds.

In aluminium alloys probably the use of some small percentage of silicon will be adopted where stiffness is required as up to about 1 per cent. can be put in without making the metal tender. This of course is added by using silicon-copper, for aluminium and its alloys have to be melted in plumbago crucibles specially to prevent the reduction of silica from the crucible.



AN AMERICAN EXPERIMENT.—The Martin K 3 Scout with "K-Bar" interplane strut, retractable undercarriage, wing-end ailerons, and shock-absorbing rudder. Designed and built by Capt. J. V. Martin, formerly of the Grahame-White Co.



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THE GALLAUDET D4 SEAPLANE.

An American hydro-aeroplane built to the designs of Mr. Edson Gallaudet, of the Gallaudet Aircraft Corporation, has been adopted by the U.S.A. Navy Department for light bombing operations, the machine being named the "Gallaudet D4."

In general it follows somewhat the lines of the earlier type Gallaudet seaplanes, but the earlier machine was driven by two 150 h.p. Duesenburg engines, whereas the "Gallaudet D4" is provided with a single 400 h.p. Liberty "Twelve" engine.

Several refinements in detail have been incorporated in the newer design, the machine being very fast, having a maximum speed of 126 m.p.h. Its manœuvreability is said to be exceptionally good, despite difficulties encountered in seaplane design in this direction.

The fuselage is of streamline shape, with a circular section blunt, rounded nose. Steel tubing is employed in the framework. The gunner's cockpit is located forward, where twin Lewis guns are mounted on a Scarff ring. A very wide field of fire is provided for the gunner, both he and the pilot obtaining an unobstructed view in all directions. The gunner is, however, unable to protect the tail of the machine from attack, and that is considered the most vulnerable point.

As in the case of the earlier machine, the power plant, which is placed in the fuselage aft of the pilot, between the upper and lower planes, drives through a shaft a ring surrounding the fuselage, to which the four-bladed airscrew is attached. The reason for employing this method of construction is that it permits the advantages of the enclosed fuselage usually employed in tractor machines, whilst the airscrew is located in "pusher" position, permitting the advantageous placing of occupants and engine.

The planes, which have no dihedral angle, are moderately staggered, with a pronounced sweep back. Ailerons are only fitted to the upper plane, the centre section of which contains a 38-gallon fuel tank, with a supply pipe running straight down to the engine below it. Besides this, a 75-gallon fuel tank is placed in the main float at the centre of gravity. The fuel system employs twin windmill pumps with overflow return.

Two radiators are located in the centre section at either side of the gravity fuel tank, which are set into and conform in outline with the wing section.

The central pontoon or main float is built up of mahogany, and has 16 water-tight bulkheads or compartments. The two wing-tip floats have each five compartments.

The interplane and float struts are of streamline shape, and, in common with the main spars, are of steel tubing. Throughout the entire construction of the machine, the fittings are of aluminium bronze.

On December 12th, 1918, a series of tests of the D4 seaplane were carried out during a two-hours flight over Nanagansett Bay by Lieut. E. F. Stone, U.S.N. The tests proved the machine to be capable of flying normally at a speed of 78 m.p.h., at 1,260 r.p.m. At this speed the fuel consumption was 16 gallons per hour, and the cruising radius 7.19 hours, in which time a distance of 561 miles could be covered.

The general particulars of the machine are as under:—

Span, upper plane	46 ft. 6 ins.
Chord, both planes	7 ft.
Gap between planes	7 ft.
Total wing area	612 sq. ft.
Weight, machine empty	3,800 lbs.
Weight of useful load	1,600 lbs.
Weight, fully loaded	5,400 lbs.
Maximum speed	126 m.p.h.
Slowest alighting speed	42.6 m.p.h.
Slowest rising speed	46.0 m.p.h.
Climb in two minutes	2,100 ft.
Flying radius at full power	3 hours

The useful load is made up of the following:—

Water	115 lbs.
Pilot and observer	350 lbs.
Fuel and oil	650 lbs.
Ordnance	95 lbs.
Bombs	390 lbs.
Total	1,600 lbs.

MACHINE TOOL PRODUCTION.

Comments by Mr. Judson, of the Judson-Jackson Company, Ltd., of Cheltenham, in the discussion after the reading of Mr. Duckett's paper at the Coventry Engineering Society's meeting on Friday, January 10th, 1919.

[The columns of The Aeroplane are open to the expression of all views, but the Editor can accept no responsibility for Mr. Judson's statements.]

I have been very interested to hear what Mr. Duckett has had to say in regard to gears and gear production, and one thing has struck me very forcibly—that is, the plant which Mr. Duckett appears to use for the production of gearing. From the lantern slides one would gather that the majority of the machine tools in use at the Moss Gear Co. are of foreign manufacture.

The lantern slides and samples of work which have been shown and exhibited are mostly parts for aircraft engines, and Great Britain has to rely upon machinery from abroad for producing such parts, which cannot be described as anything less than a national calamity. Aircraft engines in future will, without doubt, be the means of providing the first arm of defence and offence. Further, aircraft engines will be used for commercial purposes.

I certainly do not like to attack the British machine tool industry in a city like Coventry, because you happen to have at least one firm who hold their own with any machine tool makers in the world, but the fact that such a firm exists here does not save the British machine tool industry in general. To my mind, it is absolutely necessary that the British machine tool industry as a whole should be improved very considerably, and there is not the slightest doubt but that under-finance is one of the chief troubles.

To compare the British machine tool industry with the American it is necessary to peruse copies of the American issue of "Machinery" and then peruse a copy of the British edition of "Machinery," which latter is about one-tenth the size of the American and is very largely concerned in advertising furnaces, steel, etc., and quite a good proportion of American machinery being sold by agents in this country.

With regard to possible German competition, I intend to give a few figures of their production during the past years, and I hope this information will not bore you. About a month ago Mr. Kellaway, the Parliamentary Secretary to the Ministry of Munitions, addressed the Industrial Reconstruction Council, and he mentioned that the British machine tool production was 66 per cent. higher in 1917 than in 1914. On the other hand, he mentioned that the German production had only gone up 23 per cent.

Well, gentlemen, this has a tendency to put us into a state of satisfaction. Mr. Kellaway pointed out that the British output of machine tools in 1914 was four million pounds, and in 1917 six and a half million pounds, based on pre-war prices, but he omitted to mention what the German figures were, and it might interest you to hear figures which were mentioned in "The Ironmonger," May 11th, 1918. They pointed out that the output of German tools was:—

In 1913	£12,500,000 sterling.
In 1914	16,250,000 ,,
In 1917	20,000,000 ,,

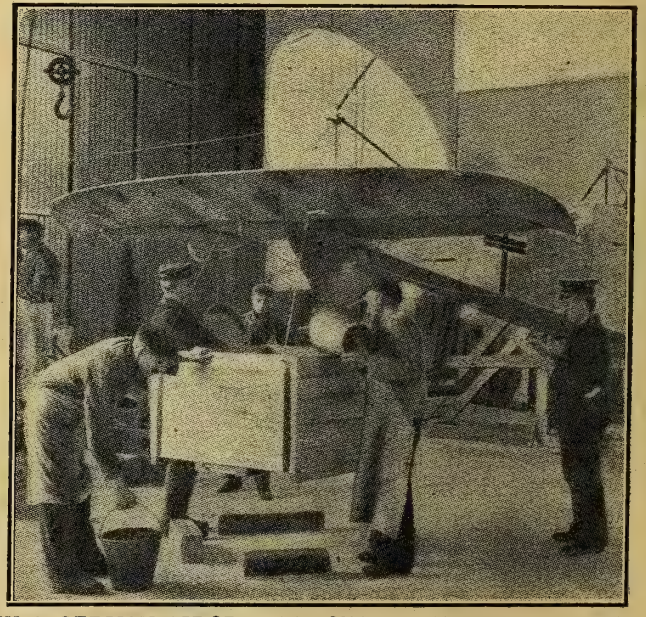
the latter based on pre-war prices.

Mr. Kellaway also mentioned in his address that "prior to the war" we had to rely on America to a great extent for precision machine tools, also automatics. Such a report would make the layman believe that we had not to rely on America during the war or at the present time for such machines, but the fact remains that we have to do so.

I think you will agree that it is a bad state of affairs when Great Britain cannot put down an all-British plant for the making of aeroplane engines, and it is a fact that in America they can put down an all-American plant for manufacturing their engines, while in Germany there is not the slightest doubt but that they can put down an all-German machine tool plant for building such apparatus.

I must apologise for speaking at such length on machine tool matters, but this is in view of the fact that gearing, which has been the subject to-night, is so closely related to machine tools.

With these remarks, I wish to thank you for your attention.



IN A GERMAN AIRCRAFT FACTORY.—Testing the strength of the tail of a German aeroplane by sand-loading.

PATENT INDEX.

The subjoined list of recent inventions has been specially compiled by THE AEROPLANE from the current Official Patents Records.

PATENTS APPLICATIONS.

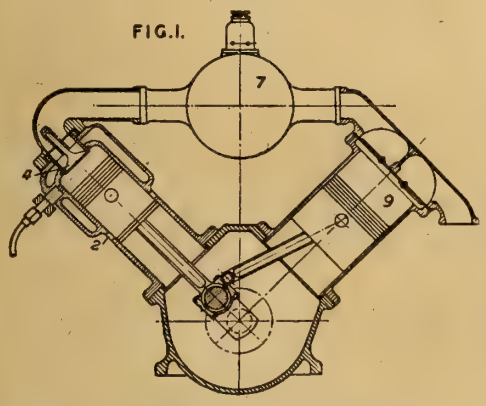
Boulding, R. S. H. Locating ships or aircraft at sea. No. 777. Jan. 10th.
Chinnock, W. J. Spring seats, backs of seats, cushions, etc., for aeroplanes, motor-cars, etc. No. 563. Jan. 8th.
Cotton, J. H. Aerial craft. No. 535. Jan. 8th.
Davis, W. J. Aeroplanes. No. 494. Jan. 7th.
Garrard, A. Nose-stiffening device for airships. No. 485. Jan. 7th.
General Aeronautical Company. Indicating-devices. No. 833. Jan. 11th.
Green, J. Screw propellers. No. 368. Jan. 6th.
Harris, A. W. E. Means for bracing aircraft members. No. 610. Jan. 8th.
Hill, W. B. Means for controlling flight of aircraft. No. 575. Jan. 8th.
Hunn, A. E. M. Aerial machines, etc. No. 576. Jan. 8th.
Jones, F. C. Device for bracing wires of aircraft. No. 507. Jan. 8th.
Metelski, J. Aeroplane tail. No. 419. Jan. 7th.
Mooney, D. J. Aeronautical machines. No. 720. Jan. 10th.
Neighbour, R. C. Mechanical toy aeroplane. No. 724. Jan. 10th.
Pinney, L. Apparatus for releasing aviators, merchandise, etc., from flying-machines, etc. No. 527. Jan. 8th.
Scatchard, F. Determining velocity of aeroplanes, etc. No. 305. Jan. 6th.
Scott, A. A. Struts or ties. No. 434. Jan. 7th.
Soc. Salmson. Valve gear for aviation engines. No. 750. Jan. 10th.
Soc. Salmson. Aviation engines having radial cylinders. No. 751. Jan. 10th.
Spencer, J. A. Aeroplanes. No. 582. Jan. 8th.
Swan, P. Aircraft controls. No. 442. Jan. 7th.
Thurston, A. P. Members of thin metal suitable for aircraft. No. 608. Jan. 8th.
Tucker, J. B. Device for measuring speed of vehicles, aerial and water craft. No. 648. Jan. 9th.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER JAN. 30TH, 1919.

112,775. Jan. 26th, 1916. Maiche, C. Means for stopping way or maintaining equilibrium of aeroplanes.
121,813. Jan. 2nd, 1918. Dover, H. W. Panels and like open-work frames or structures covered or filled with celluloid or like material in sheet form.
121,838. Jan. 18th, 1918. Jakeman, R. G. Protective garments or coverings for use by airmen and others.

ABRIDGMENTS OF COMPLETE SPECIFICATIONS RECENTLY PUBLISHED.

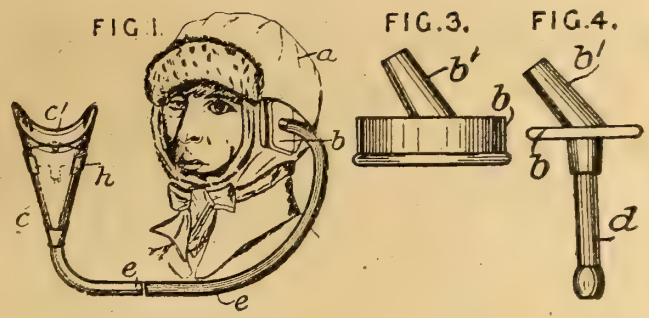
120,480. Internal-combustion engines. BOULTON & PAUL, Aircraft Works, Norwich, and NORTH, J. D., The Cottage, Burgh Apton, Norfolk.



TWO-STROKE-CYCLE ENGINES.—Aero-engines are supplied with air at an approximately uniform pressure at all altitudes by compressing it by the pump 9 into a reservoir 7 with a spring-loaded escape valve whence it flows into the engine through a beat valve 4 when the piston uncovers the exhaust ports 2.

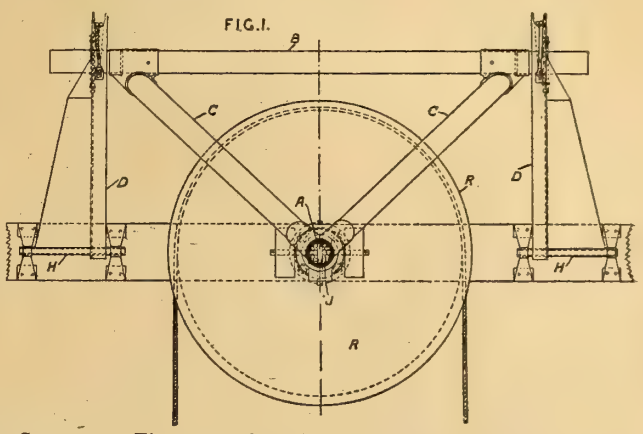
120,253. Telephone apparatus; speaking-tubes. WAILS, R. R., 15, Victoria Street, London. Oct. 30th. 1917, No. 15843. [Classes 40 (iv) and 118 (ii).]

The helmet or head-gear *a* of an aviator's or like acoustic transmission apparatus is fitted with an earpiece or earpieces *b* adapted to enter the ear passage and to fit closely against the ear. As shown in Figs. 1 and 4, the earpiece comprises a flange *b* of rubber or like material provided with a flexible tubular projection b^1 for insertion into the ear passage, and with a connecting-piece *d* to receive a flexible speaking-tube *e*, the opposite end of which is fitted with a mouthpiece *c*. The flange *b* is fitted to and embedded in the helmet *a* and forms a sound insulator and ear-protector. The mouthpiece *c* is shaped to fit the face and is edged

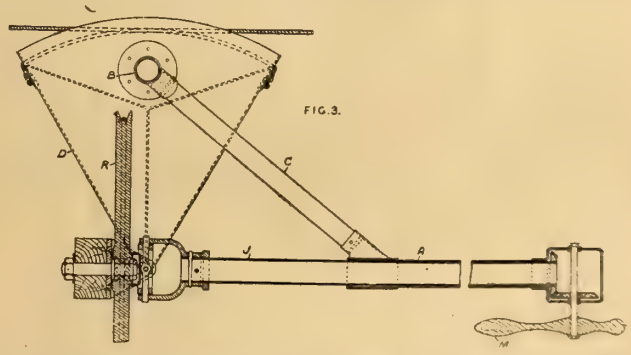


with rubber, leather, etc., c^1. When not in use, it is suspended in a bracket *h*. In a modification, shown in Fig. 3, the connecting-piece *d* is omitted, and the flange *b* is shaped to fit over a telephone receiver carried by a head-band. The ear-pieces may communicate with telephone receivers by flexible tubing, or with the ear-pieces and mouthpiece of another head-gear.

120,463. Aeronautics. STEVENIN, L. A., 19, Glenthorn Road, West Jesmond, Newcastle-on-Tyne.



STEERING.—Figs. 1 and 3 show a device for effecting simultaneous movements of ailerons in the same or opposite directions at will and for controlling the elevators of aircraft. A vertical tubular lever A is connected by arms C to a transverse member B loosely supported in quadrants D pivoted about axes H. A tube J passes through the lever A and has a forked lower end univer-



sally jointed to a pulley R. The upper end of the tube J is geared to a handle M. The aileron cables are secured to the quadrants D and the elevator cables to the pulley R. Lateral movements of the lever A move the quadrants D oppositely, fore-and-aft movements move the quadrants in the same direction, and movements of the lever M turn the pulley R.

A SUCCESSFUL ADVERTISING SPECIALIST.

Capt. A. Peake-Jones, R.A.F., who figures as a recipient of a "substantive captaincy in recognition of distinguished services" in the List of New Year Promotions, was previously well known in connection with the clever Avon advertising. The posters and the arresting and striking illustrations which have appeared in the press generally will be well known to readers, and, although the Avon is a splendid tyre in every way and it is said that a good thing advertises itself—it is doubtful if the Avon tyres would be such great favourites with the motoring public without this attractive advertising.

Before joining the Service, Capt. Peake-Jones was greatly interested in extending the export sales of his company's products and in regaining for this country those markets on which the Germans had been concentrating. When the time of his release from the Air Force arrives no doubt he will be found at the Newman Street offices of the Avon India Rubber Co., Ltd.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AIRCRAFT TRADER

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

JAN. 16th.

COPPER.—Notwithstanding the recent decline in values, business is still very quiet, and there is a strong feeling that prices are even yet too high to encourage buyers. On the other hand, it must be borne in mind that other influences are also responsible for the hesitancy of consumers.

The position in U.S.A. is still very uncertain, and it is stated that producers have definitely decided to reduce their production by 30 per cent. of the average output during 1918, and are seriously considering a further reduction of 20 per cent., making the output 50 per cent. of the 1918 total. This is due to the huge stocks which are held at present and the decline in demand.

Certain sections of the American non-ferrous metal trade are anxious to raise the authority of the U.S. metal exchange to the level of London. It has been pointed out by one influential American authority that America produces the bulk of the world's supply of basic metals, copper, lead, and spelter, but before the war the market prices were based on London quotations. Consequently, America followed the London metal exchange, and the latter, it is alleged, exploited these metals. It has been suggested that the country should possess a metal exchange worthy of the name, to which the world would look for American prices for American metal, produced by American labour and American finance, instead of America anxiously awaiting foreign cables indicating the price of American produced metals.

The price of Refined Strong Sheets has been reduced £15, making the price £135 per ton.

COMPARATIVE PRICES.

	£	s.	d.	
To-day, 15th	92	0	0	Cash.
Last week	95	10	0	,,
Last month	112	0	0	,,
Highest price, 1918	122	10	0	,,
Lowest price, 1918	100	0	0	,,
August, 1914	49	0	0	

TIN.—This market is showing a fairly firm tone at present, although a period of unsettlement has been experienced since the last report, owing to the Federated Malay States Government interfering with the market.

It appears that the Government decided to assist local producers by taking all their ore output at a fixed price, which equals about £252 delivered U.K. No indication has been given as to the period during which this arrangement is to remain in force, but it is expected that it will terminate when the American market is free from control.

The position in U.S.A., as indicated last week, is most unsatisfactory, and the huge stocks held there will have to be sold before the market is free. Consumers, especially Tinplate manufacturers, are very indignant, and the latter state that the low price of Tin in England will give the Welsh firms an advantage over them.

COMPARATIVE PRICES.

	£	s.	d.	
To-day, 15th	252	0	0	Cash.
Last week	257	10	0	per ton
14 days ago	236	0	0	,,
Highest price, 1918	399	0	0	,,
Lowest price, 1918	240	0	0	,,
August, 1914	120	0	0	,,

LEAD.—This market still continues to be quiet, and buyers are holding aloof. There is a general feeling that prices must decline soon. Notwithstanding the decline in the output of American Lead, it is believed that large stocks are held in U.S.A., and it is stated that offers have been made at £35 c.i.f.

The Government price here is still unchanged.

	£	s.	d.	
To-day's price (official mean)	37	10	0	per ton
August, 1914	19	10	0	,,

STEEL.—Although certain classes of Steel are being bought, the situation generally remains unchanged. Buyers are not placing contracts owing to the uncertainty of price fluctuations, although it is expected that prices should advance when the subsidies are discontinued. Consumers must not lose sight of the downward trend of prices in U.S.A., as this must affect the market here.

The American Steel producers have formed a corporation for dealing exclusively with all the iron and steel produced by some of the largest producers in U.S.A. This corporation is already at work and is opening branches throughout the world wherever the introduction of American Iron and Steel products make it desirable.

In view of the foregoing, although it is not expected that prices will decline to pre-war levels, it is not at all certain that prices will advance as much as certain interested parties expect.

There are ample supplies of High Speed and Cast Steels—in fact, the supplies of the former are expected to exceed the demand for some time to come, unless makers regain the overseas trade which they have lost during the war. Prices at present remain unchanged.

TIMBER.—Very little Aeroplane Timber has been imported recently, and business is very slow, with no prospects at present of the demand being revived.

There are ample supplies available at present. Orders must, of course, still be submitted to the Air Ministry, although, as far as Mahogany and Walnut are concerned, all restrictions have been removed; and one assumes that consumers are in a position to purchase their supplies direct from merchants, although private importing is not allowed.

The Government holds large stocks of Hardwoods, but it is finding difficulty in disposing of it at present prices. Buyers are holding aloof, as it is understood that the Government price will be revised every month, and there are indications that a reduction will be necessary.

FABRIC.—The mills are going slow, and it is stated that even when the control is removed prices will be higher owing to the price of Flax; on the other hand, it will take some time to exhaust the Government stocks.

BRITISH MAGNETOS.

A very interesting working exhibit of British magnetos has been made by members of the British Ignition Apparatus Association at the exhibition of British Science Products which has been held during the past fortnight at the College of Technology, Sackville Street, Manchester, under the presidency of the Rt. Hon. the Lord Mayor of Manchester.

The firms represented included:—British L.M. Ericsson Manufacturing Co., Ltd., Beeston, Notts.; British Thomson-Houston Co., Ltd., Coventry and Willesden; E.I.C. Magnetos, Ltd., Birmingham; M.L. Magneto Syndicate, Ltd., Coventry; North and Sons, Ltd., Watford and London; Thomson-Bennett Magnetos, Ltd., Birmingham; C. A. Vandervell & Co., Ltd., Acton, London, W.

Large numbers of people visited "Room 5," which was specially set apart for this display and were obviously much impressed by the finish, efficiency and great variety of the machines exhibited, and by the striking evidence provided of the remarkable development of the British magneto industry.

EFFICIENCY METHODS.

Two public lectures will be delivered at the London School of Economics and Political Science (University of London), Clare Market, Portugal Street, Kingsway, W.C.2., at 7.30 p.m. on Wednesday, Jan. 22nd and 29th.

The first subject will be "Costing in Relation to Government Control, Efficiency and Economy." the lecture to be delivered by Lt.-Col. James Grimwood, D.S.O., incorporated accountant; and the second, "Costing as Applied to General Engineering," by Mr. C. E. Lewton, of D. Napier & Son, Ltd., Acton.

Admission will be by ticket, which may be obtained from the Secretary. Early application is advised in view of the limited accommodation.

A DEMOCRATIC CHOICE OF HOURS.

Mr. George Steel, the works manager of C. A. Vandervell and Co., Ltd., the well-known electrical engineers of Acton Vale, suggested to the staff they should hold a secret ballot on the 47 hours week.

The shop stewards, in conjunction with the management, supervised the voting, which resulted in the 7.30 to 5 p.m. scheme being selected by a very great majority. Not a single paper was spoiled.

A NEW APPOINTMENT.

Mr. G. H. Humphrey, of John Dawson and Co. (Newcastle-on-Tyne), Ltd., and Fairby Construction Co., Ltd., has joined the board of the Grosvenor Carriage Company, Ltd., of Willesden.



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LIMITED.

CONTRACTORS TO H.M. GOVERNMENT

MANUFACTURERS AND SOLE LICENSEES IN THE BRITISH EMPIRE

"CLERGET" PATENT AERO ENGINES.

ENGINEERS, LONDON.

"GWYNNE, LONDON."

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

COMMERCIAL AERONAUTICS

SALARIES AND TAXI-PLANES.

BY "MEDWAY."

I will start these disjointed remarks with two quotations. The first is a glaring headline from an evening paper which simply reads "Taxi-plane, Sir!" The second is a dictum by Captain Swinton in the "Times" which reads, "It is fair assumption that the time value of such individuals" (that is to say, people who will take business flights) "would not be less than fifteen hundred pounds per annum, or four pounds a day."

These two quotations appear to have little or nothing to do with one another, but I suggest that they are of the highest importance to the pilot of the future, if and when the implied prophecy of the evening paper in question comes to be fulfilled. Personally, I am a bit afraid of the glaring headline as applied to commercial aeronautics. It is just a trifle apt to be misleading.

The query "Taxi-plane, Sir!" calls up visions of aero-cab ranks in City streets. Presumably, the machines are standing like dragon-flies at rest, with their wings neatly folded. Mr. Jones dashes hurriedly from his office and hails a taxi-plane and takes his seat, and, again presumably, the machine rises vertically into the air, only unfolding its wings as it clears the house-tops.

It then conveys him in the course of two or three minutes to his desirable villa residence at Wimbledon or Streatham Hill. Having reached that point, it again drops vertically and alights in the road immediately opposite the front gate of "The Laurels."

Of course, if a motor-'bus happens to be coming along at the psychological moment, there will be a nasty smash, and the question of Mr. Jones's earnings need not further concern us or the pilot. If, however, he succeeds in reaching home alive, it will obviously be his duty to tip the cabby.

TIPPING THE PILOT.

Now, this is where the point comes in. The "cabby" has an unwritten guarantee that Mr. Jones is earning at least fifteen hundred a year; otherwise he has no business to be flying at all.

Under the circumstances, it is obviously incumbent on Mr. Jones to tip the cabby handsomely. If he fails to do so, he may presently become a marked man. The next time he wants an aero-cab he will have to call in the assistance of the police to get the driver to carry him.

Having forced his way on board, his journey is likely to develop into a series of most appalling stunts, as a consequence of which his nervous system and his "time value" will be so far depreciated as to put him out of the pale of the select individuals who are privileged to travel by air.

Getting back to earth, metaphorically speaking, what I really started to point out was that there ought to be an injunction against evening papers to prevent headlines of this sort being published at all. They merely mislead an ignorant public and bring ridicule upon the whole movement.

THE VALUE OF TIME.

At the same time I wanted to emphasise the point, which, by the way, I have made before, that the economic soundness of aerial travel will depend just as much upon the value of the traveller's time as upon the cost of operating the aeroplane. Whatever the latter may be, there must be some limit of time value above which the traveller will be justified in using the aeroplane rather than the railway train or a motor vehicle, for any journey long enough to give an aeroplane a chance of saving time.

If it costs £3 to make a journey by train and £7 to make it by aeroplane, then the latter method is the cheaper if the traveller can save anything over £4 worth of time. The business man of the future will have to assess his own time value and that of his employees, compare the fares and speeds of aerial and railway traffic, and decide accordingly.

The nervous employee will see to it that his time is never of sufficient value to justify high-speed aerial travel on his part. His employer will benefit thereby as regards his salary bill. On the other hand, the enterprising man who does not suffer from nerves will endeavour strenuously to reach the standard qualifying him to enjoy aerial travel. The employer will benefit in the improved quality of his work due to this incentive.

Of course, each of these arguments cuts both ways, but it is always well to look at the bright side. I hope in a forthcoming article to deal with this subject of "time value" rather more thoroughly and seriously.

AVIATION AND POLAR EXPLORATION.

Now that fighting has ceased, talk has arisen of exploring the Polar regions by aeroplane, and even experienced explorers seem quite confident that the aeroplane will be invaluable in this connection. It is necessary, therefore, to utter a serious word of caution that great risks attach to the attempted use of an aeroplane in extremely cold atmospheres. Reference to any work concerning Arctic exploration will tell one that one of the most striking phenomena experienced in extremely low temperatures is that steels and other metals become extraordinarily brittle. For instance, a piece of steel spring dropped on the ground will shatter like glass.

Since this is the case, searching investigation into the physical properties of the various aircraft steels when subjected to very low temperatures would seem essential, because if special provision cannot be made, it seems more than likely that long before the crew of the aeroplane reached the Pole, either the engine or the "tin clips" and bracing cables of the machine itself would disintegrate.

The considered opinion of an Arctic explorer on this point after consultation with an aero steel metallurgist would be most interesting. In the meantime it would seem well for those who are asked to support schemes for Polar exploration by air to act with the most studied caution.

Aviators who have flown in Europe to altitudes varying from 20,000 to 30,000 ft. have complained bitterly of the cold which they experienced, but that cold is nothing compared with the low temperatures found in Polar regions, and no inference, therefore, should be drawn from the fact that a well-founded aeroplane can fly comfortably in Europe five or six miles above the surface of the earth.

ARMSTRONG-WHITWORTH OUTPUT.

Included in the large war output of Armstrong, Whitworth & Company, as disclosed by the Lord Mayor of Newcastle-on-Tyne, were 1,075 aeroplanes and three airships.

FLYING THE ATLANTIC.

BY ALFRED E. DAVIS.

[This article is published in order to entertain readers of this paper, and not because the Editor agrees with any of the statements or suggestions therein].

The question of trans-Atlantic flight on a business and commercial basis is one that must be considered from many points of view.

Seeing that it is a connecting-link between the New World and the Old, this route will in course of time be the most important one of the main air routes of the world.

If its value as a traffic route is to be utilised to the full it must compare in every respect, and especially with safety and convenience, with all other main routes.

It is obvious that this cannot be the case if the first essential to its completion is the necessity of making specially designed aeroplanes to accomplish the flight.

On land routes, any and every type of reliable aeroplane made, capable of carrying loads or passengers at a profit, will be put into service, and these should be equally available for flight on every route, including that across the Atlantic.

If it is assumed that at the present day the average reliable aeroplane can be expected to make a sustained journey of 100 miles, then it is obvious that in order to safely journey from Ireland to Newfoundland—a distance of about 1,600 miles—15 floating stations or aerodromes will be required across the route.

Marine Aerodromes.

The production and maintenance of these aerodromes forming the route calls for the co-operation of the shipbuilders and the Governments of Britain and America.

If those who make and use the aeroplanes state the requirements necessary to form a safe and reliable route, the shipbuilders can design and manufacture the aerodromes required to these conditions and the Governments finance the undertaking, keep it in the necessary repair, and supply the necessary staff of trained pilots from the R.A.F. to work the route.

In order to raise discussion on the many points involved, it will be profitable to describe the whole system of operations as would take place in working conditions in full swing, and, in order to do this, to quote figures and costs.

Both these latter must needs be only approximations for this purpose, and subsequent discussion will help to reduce them to figures of reasonable probability.

In the first case, take the capacity of the route as a whole. This will be the capacity of any single station to receive and handle aeroplanes passing in each direction—east and west.

Take this as being 12 per hour each way or a total of 24 per hour, giving a total number of aeroplanes handled per 24 hours of 568, or 256 each way.

The day traffic would probably be composed of mixed passenger traffic and mails, and the night traffic of mails only.

Passengers and mails from Britain and the Continent would arrive by various routes at the main starting stations on the south-west point of Ireland, where each machine would then be taken in charge by one of the regular staff of pilots, and its time of departure fixed according to schedule.

Each pilot before leaving is given his correct course as modified by the speed of his machine and the direction and strength of wind then existing between there and his next destination. The time of his departure and expected time of arrival are then transmitted by wireless to the next station.

Take, first, the case of passenger traffic and assume that travelling across the ocean is allowed only between the hours of 6 a.m. and 6 p.m., and that the speed is 100 miles per hour.

The schedule starting time being, say, 11 a.m., the first station would be reached at noon, where a stop of an hour would be made for lunch.

Starting again at 1 p.m., the second stage would be reached at two, the third at three, and the fourth at four, where a short stop would be made for tea, and the sixth stage reached shortly after 6 p.m.

A Halt for the Night.

At this stage the machine would be housed in one of the hangars, and overhauled ready for the morning start, and the passengers would dine and sleep in a floating hotel.

The size of the floating aerodrome would be such that sufficient accommodation could be provided equal to that provided on the best liners, both in number and quality.

A very large number of passengers to whom time is not of the first moment, but who would take the trip partly for the advantage of time spent on the sea under luxurious surroundings, would elect to stay several days on board and to continue later.

The income from these aerodromes thus run as modern, up-to-date floating hotels would undoubtedly be more than sufficient to pay the interest on the capital invested.

Starting again at 6 a.m. next morning, number eight station would be reached at 8 a.m., and a stop made for breakfast.

Re-starting at 9 a.m., number eleven station would be reached at noon in time for lunch, and the final landing stage on Newfoundland reached at 6 p.m.

From here the journey would split up to all points of Canada and the United States, and being then once more a land proposition, passengers would continue either by aeroplane or train.

In order to be a real commercial success, travel by air must approximate in conditions to travel by train and motor-car, but not by steamship.

Every foot of space and every pound of available carrying capacity must be utilised to earn money and to pay expenses.

Now take the case of the mail service.

Mail matter from every point of America would be constantly arriving at the last eastward land station on Newfoundland, and from here forwarded at regular intervals every five minutes across the ocean stage.

In this case particularly, every available pound of mail possible must be carried, and the non-paying load cut down to one pilot with sufficient petrol and oil to carry him with a really safe margin to the next ensuing stage.

Here, immediately on arrival, a new supply of petrol and oil would be secured and the journey continued without delay, either by the same pilot, or, if his shift on duty is completed at that stage, by a fresh pilot for the next three or four stages.

Each aerodrome would carry its full complement of pilots, mechanicians, fitters, repair shops, spare parts, spare machines, etc., to ensure a complete and constant service along the route.

The complete staff of managers, dispatchers, wireless operators, mechanics, hotel staff, etc., would, during their term of duty, live on the aerodromes with periods of shore leave.

The passage of mails being a continuous run both by day and night, the passage from Newfoundland to Ireland would be covered in 16 hours.

On arrival at the Irish station, mails would be dispatched in bulk, having been previously packeted in America for delivery to the main distributing stations.

Distribution of Mails.

The delivery to these stations would then be undertaken along the various mainland routes and handled according to local arrangements.

In travelling under these conditions from stage to stage situated at comparatively short distances apart, the risks are reduced to a minimum. Travelling by compass and time alone the pilot should be able to locate his next station within very close margins indeed. By daylight, in clear weather, the approaching station would be within sight before the last was out of sight, as his maximum distance from either would thus be reduced to 50 miles.

On clear nights, as each station would be equipped with powerful searchlights and a brilliantly lit landing stage, the stations would be more conspicuous than by day.

In cloudy and foggy weather the lights would be supplemented by powerful syrens, and, in the case of probably all passenger machines, with wireless telephone.

The absolute essentials for a passenger-carrying trade, apart from price, are safety and comfort.

The larger the number of floating stations employed and the shorter the distance between them the greater the safety.

As this stage will become an international highway, carrying passengers from every quarter of the globe, it will be a fitting duty for the navies of the world, and more especially our own and that of America, to supply constant patrols between the landing stages and thus further reduce the effective distances from which help can be obtained in case of accidents.

No matter to what pitch of excellence aircraft may eventually be brought, these are always bound to occur, and every precaution taken for life-saving.

If the war vessels taken over by the Allied nations from Germany are not to be otherwise disposed of, no more fitting use could be found for them than to be converted into such patrol ships, and thus assist in the advance of peace and civilisation.

Costs.

Coming now to the question of cost.

The cost of a single aerodrome may be taken as being £250,000, and the cost of 15 would, therefore, be £3,375,000.

Allowing for a useful life of 30 years, redemption would cost £125,000 per annum.

With 500 machines per day, and 300 flying days in the year, this will give 150,000 trips per annum, calling for a charge of 16s. 8d. per machine for each journey.

The actual flying time per crossing being 16 hours, equivalent to two eight-hour pilot shifts, the cost per machine for pilots would be £1 13s. 4d.

If it requires an average of eight men to handle each machine on landing and re-starting, filling up with petrol oil, etc., and allowing ten minutes for each halt, this would take for the 15 stops a total of 2½ hours for eight men, or 2½ full shifts for one man, or, say, 13s. 4d.

(Overhauling and repairs for breakages, etc., when required, would be a separate charge.)

Hotel accommodation for passengers would also be a separate charge apart from the ordinary fare for the actual carriage across



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from land to land, and would depend upon the actual time spent at each stage. This would necessarily be optional for the passengers, many of whom would only cross in fine weather, taking advantage of the same from hour to hour to perform successive stages.

For mail-carrying purposes, assume a single-seater machine capable of carrying 500 lbs. of mail in addition to pilot and fuel, doing 15 miles per gallon, petrol at 1s. per gallon and postal rates at 1d. per ounce.

The journey of 1,600 miles would thus require 107 gallons, costing £5 7s., and oil, say, 10s., a total of £5 17s. Assume the cost of such machine to be £2,000, with an effective flying life of 500 days—that is to say, that at the end of this time it would either be entirely worn out in every part, or entirely renewed at the above cost, then the cost per machine per day (depreciation, repairs, interest, etc.) would be £4, or for the journey of 16 hours, £2 13s. 4d. The total cost of a single trip would therefore be as follows :—

Aerodrome charge for crossing	£0	16	8
Pilots	1	13	4
Handling charges	0	13	4
Petrol and oil	5	17	0
Depreciation of machine	2	13	4
Cost per trip	£11	13	8

The income received for 500 lbs. of mail matter at 1d. per ounce, or 1s. 4d. per lb., amounts to £33 6s. 8d.

In other words, the carriage of the mail across the ocean stage of the whole route would cost about 1s. 3d. per oz.

Before going further, let it again be distinctly stated that the above figures are only quoted as a starting-point for discussions that will bring the real figures within view, but they will serve as a rough basis to show how an estimate may be arrived at as to whether in the future the cost of a letter by aerial post to America will be likely to be 1d. per ounce or 1s. per ounce.

On the same basis, now consider the cost of passenger traffic between the same points.

Assume a machine capable of carrying 20 passengers, 1 pilot, and 1 mechanic.

Assume the cost to be £10,000, and again an effective life of 500 flying days.

Then the depreciation of the machine would be £20 per 24 hours, or for the 16 hours' trip, £13 3s. 4d.

The petrol consumption for the 1,600 miles would probably be about 1,000 gallons, costing £50, and oil, say, £2. Then the cost of a single trip figured as before would be :—

Aerodrome charges for crossing	£0	16	8
Pilots and mechanicians	3	6	8
Handling charges	0	13	4
Petrol and oil	52	0	0
Depreciation of machine	13	3	4
Cost per trip	£70	0	0

The receipt per passenger for crossing from point to point exclusive of hotel charges, say, £10 per head. The total receipts per trip, £200.

With regard to this particular route several points must be borne in mind.

Of all the main air routes of the world, for many years to come, this one will carry a greater number of passengers and greater tonnage than any other, from the simple fact that all the routes from the Eastern hemisphere and all those of the Western will converge to this one route.

From the experience gained from the running of this route, other routes will in time be laid down to supplement the increasing traffic and shorter branch routes across smaller stretches, as on the Mediterranean, North Sea, Baltic, etc., put into use, but will never exceed this in length or importance.

It will always be necessary for the naval branch of the R.A.F. to keep a large reserve of trained pilots who are accustomed to long flights across the water, and this offers an immediate prospect for such a supply.

As all the staff of pilots, mechanics, attendants, etc., required on such a route would probably be regular members of the naval division of the R.A.F., part at least of the cost of their salary and maintenance would be borne by the Government, and not debited directly to the air route in the same way that the main land routes will be laid out and maintained by the Army for strategical purposes.

THE WORLD'S AIR ROUTES AND THEIR REGULATION.

THE MATHEMATICS OF AERIAL LAW.

By "CHEVRON OR."

"I would remark here that unless we are to have lawlessness and anarchy in the regions of the air there must be efficient control . . . by police pilots."

(Extract from lecture by Lord Montagu of Beaulieu).

Let P. be the pilot of an aeroplane, and let S. be his speed. Also let A.C. be the aerial constabulary, of which Si. = sergt., I. =inspector, and P.M. =police magistrate.

If a sufficiently high value be assigned to S., S. will eventually come within the limit of A.C. A.C. may be neglected, however, when the value of S. is small, though when the value of the latter is high it naturally leads us to consider the question of $(A.C.)^2$. A.C. after thus squaring, whatever the sign exhibited before being squared, invariably assumes a positive and often a reciprocal value with regard to P.

The relationship of these three quantities is set forth in the following equation :—

$$A.C. + \pounds \text{ s. d.} = (A.C.)^2 \qquad \text{(i).}$$

whence $\pounds$ s. d. $= (A.C.)^2 - A.C.$

$\therefore$ $\pounds$ s. d. $= A.C.\ (A.C. - 1)$ (ii).

From this we see that when the numerical value of A.C. is not greater than unity, the expression A.C. (A.C. —1) becomes a vanishing quantity, under which conditions the value of £ s. d. necessary for the quadration of A.C. can be neglected.

Now, when the inherent stability of P. from the banking aspect is small, or if, similarly, the quantity £ s. d. relative to P. is small, then the quadration of A.C. may be effected by an alternative method.

For, in all circumstances similar to these, we find that the substitution of

x^N (=xxx. . . .) for £ s. d., gives an easier solution.

Thus A.C. + x^N = $(A.C.)^2$ (where index of x is not lower in value than 3, which value has been found from experience to be the lowest to effect the necessary quadration).

So that $x^N = A.C.^2 - A.C.$

$\therefore$ as before x^N or xxx. . . . $= A.C.\ (A.C. - 1)$. (iii).

Similarly from (ii) when A.C. is not greater than unity A.C. (A.C. —1) vanishes, and with it xxx., but when A.C. is greater than unity xxx. remains a real quantity.

If the quantity x^N be assumed an infinitely high value, it will be found that the cube of A.C. will also rapidly expand to a maximum, while A.C. will for the moment rapidly vanish.

This leads us to a seeming mathematical paradox, in that the cube of A.C. is a maximum, when A.C. is at the vanishing limit. This method of quadration, so successfully used in the older theories of pre-war days, is often now difficult to apply owing to the fact that the law of limitations of such products have made xxx. an illusory if not imaginary quantity.

Let us now introduce the fourth dimension, time, into our investigations.

If "t" equals an infinitely small increment of time, we find that at the limiting value "T" of "t" A.C. may have evolved into a condition of higher magnitude that can only be expressed by Si. or I. or at the uttermost limits of conception by P.M.; this process of evolution is ipso facto greatly accelerated when the original difference between P. and A.C. be large.

As Si^2, I^2, or $P.M.^2$ are irrelevant quantities (such quadrations being almost impossible to effect), the problem calls for great nicety of method and precision of thought. For it is generally accepted that the differential co-efficient of I, Si, or P.M. with regard to P. be large, it invariably leads us to the following equation :—

$$P - \pounds \text{ s. d.} = o.$$

and not infrequently transforms P. into an almost insignificant quantity whose position lies within the limits, l x b x d, of an infinitely small cubic or rectangular figure, whence P. will not emerge until many increments "t" have passed.

When Si., I, and P.M. are irrational (or ab—surd) quantities (which throughout this theorem they are assumed to be), the value assigned by them to Si, varies largely from the value assigned by P. hence the question of differences.

When £ s. d. is a rapidly vanishing quantity with regard to P., the above methods of "Least squares" should be and can be used with advantage, and give the best solution, though if the position of A.C., etc., is such that the locus of P. is in a curved path round A.C., etc., there is no need to effect *any* quadration.

But when P. be moving in the straight line A.C.P., no matter with what velocity, it being impossible to describe a curve of any order round A.C., then unless a negative value can immediately be assigned to S. it will be seen, without going into the theory of fluxions, that P. and A.C. will coalesce.

This will involve a simple disintegration of both P. and A.C. to a degree which is a variable function of S. (the velocity at the time of impact) and g, the acceleration due to gravity. No value of £ s. d. nor any quadration of A.C. can diminish the force of such impact or the gravity of the fall.

There is then no solution to the problem under these circumstances, which as will be seen eventually involves the dissolution of P. and A.C.

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CIVIL AERIAL TRANSPORT.

The United Kingdom.

Although an announcement was made to the effect that negotiations are in progress with a view to establishing an aerial postal service between London, Brussels, and Paris, it is understood that, while the possibilities of utilising aeroplanes to accelerate mail deliveries are under consideration, no scheme has yet been prepared.

Lord Weir stated at Manchester on Dec. 21st, 1918, that before flying between different countries could be organised it would be necessary to secure an International Aircraft Convention. The articles of this convention had been drafted, and were being submitted to our Allies. Lord Weir expected that in four or five months an agreement would be reached. Pending that agreement, no aerial postal services could be commenced. And that appears to be the situation at present.

Besides waiting for International Legislation, there are other difficulties which will have to be overcome before aircraft can be employed for commercial purposes. For instance, an aerial postal service would have to be regular in order to be of value. But, under these circumstances, the weather would be a great obstacle.

When aircraft is developed sufficiently to compete with the present vehicles of transport, wireless telegraphy will be just as necessary as it is to a steamship.

Under these circumstances, it is of interest to note that the Marconi Wireless Telegraphy Company are prepared to furnish all over the world information concerning meteorological conditions, and particulars concerning the conditions obtaining at the various heights at which it is necessary to fly.

The Marconi Company will also, as in the case of ships, furnish operators, apparatus and everything that is necessary. This company will attend to maintenance, so that the installations on aeroplanes will be kept fully up to date at an annual charge or rental, as the case may be.

It is understood an aerial commercial service between Hull and the Continent is under consideration, and if negotiations are successful, Hull will be selected as one of the principal air stations on the East Coast.

The Hull Chamber of Commerce has been approached by two firms on the subject. Hull is also regarded as a likely station for a mail service to the Continent and the Baltic ports.

Africa.

The Air Ministry has dispatched to Central Africa two parties of aviators with machines and equipment to prospect and survey an aerial route from Cairo to Cape Town.

It is understood that as soon as the exploration party recently sent out has decided upon which route will be used and at where stops can be made, the Air Ministry will commence an aerial mail service between London and Cape Town. In all probability the route selected will be London, Paris, Marseilles, Naples, Crete, Egypt, Valley of the Nile, Northern Rhodesia, Victoria Falls, Johannesburg, and Cape Town, a distance of about 7,800 miles. As far as possible it is hoped to establish stations along the route for supplying fuel, etc., at intervals of 400 miles.

It is understood that Handley Page machines have been selected for the prospective aerial mail service, and will be piloted by ferry pilots. Whether these men will remain in the Service whilst thus engaged is not known.

It is quite possible that Cairo may be used as a junction for aeroplanes going to India and South Africa.

India.

At present the route to India follows the Italian coast to the south-east of Italy, then to Crete and Egypt; but, at least during the winter months this will probably be changed to Rome, Sicily, and Malta, in view of the fact that prevailing westerly winds will afford assistance in the Malta-Egypt flight.

There are, however, two points against this route; the first being the difficulty experienced in landing a machine at Malta, owing to the smallness of the Marsa, and the second the longer journey to Egypt.

A possible route from India to Australia, *via* Singapore, is being investigated.

France.

According to the "Excelsior," Paris, Col. Leclerc, who has just been appointed to establish on French territory a scheme for future aerial communications, said:—

"The first lines to be opened will be one from London to Marseilles, *via* Calais, Paris, Dijon, and Lyons, which might be continued to Corsica and Tunis; then a line from Brussels to Paris, Clermont Ferrand, Montpellier, Barcelona with a possible extension to Carthagena and Algeria; another from Paris to Tours, Bordeaux, Bayonne, Madrid, and thence to Morocco. Finally, cross-lines will be established from Brest to Strasbourg and Bohemia; from Nantes to Dijon and Italy; from Bordeaux to Lyons; from Bordeaux to Nice, and from Nice to Geneva, Strasbourg, Metz, Mézières, Lille, and Calais.

It is understood that an aerial postal service between Paris and Brussels, with a stop at Lille, will begin immediately. The distance is over 180 miles.

United States of America.

On Dec. 18th the first regular aerial mail between New York and Chicago started from Belmont Park at 6.30 a.m., the machine being a De Havilland 4 driven by a Liberty engine, the pilot being Mr. L. D. Smith. The first stage of the journey was to Lehighton, Pa. Owing to engine trouble, however, he had to land at State College, Pa. His 10 sacks of mail were to be transferred to another machine which was to leave Bellefonte for Cleveland at 10.45. This, however, could not be done and the mail had to be sent by train.

The pilot who was to relieve him at Lehighton, finding that Smith did not turn up, started for Cleveland without any mail! He, however, landed 10 miles east of his destination, being unable to locate the aerodrome, and remained there all night, although searchlights were displayed from the aerodrome in case he decided to risk a night flight. In the meantime one Lyman W. Doty, flying a reserve machine, turned turtle near Painesville, Ohio, sustaining a broken airscrew.

Delay at the Chicago end was caused by the inability of the machines to reach that city from Cleveland, whence they had to come before they could commence their journey in the direction of New York. One machine while attempting to land at Defiance, Ohio, was partly wrecked by impact with a fence while the pilot was attempting to avoid a woman carrying a baby who had emerged from the crowd of spectators. The other machine finally reached Chicago at seven minutes past four p.m. There the pilot stayed the night, intending to fly to New York on the following day. Thus the first day's work cannot be called successful.

On the following day a pilot left Belmont Park at 7.10 a.m. and safely performed the first stage to Bellefonte, having been followed by a second machine in case it should meet with an accident. No other news is available except that no machine had been started on that day from the Chicago end of the line owing to mechanical trouble with all the available machines.

American postal aeroplanes, therefore, do not seem to have attained the degree of reliability which would make it possible to conduct urgent business with their help.

The feasibility of establishing a weekly or semi-weekly aerial mail service between Washington and Rio de Janeiro, with a view to promoting closer relations between the U.S.A. and Brazil, is now under discussion at the national capital.

Italy.

It is understood that Signor Caproni has entered into a contract with the Brazilian Government to carry mail by aeroplane from Genoa to Rio de Janeiro. According to the provisions of the contract the service shall begin six months after the close of the war.

It is understood that a daily aeroplane service may be established between Rome and Malta in the spring.

Canada.

It is expected that the Canadian Government will send an exploring party to Labrador on board the "Montcalm," under the command of Capt. Jancy. The expedition will be equipped with aeroplanes and seaplanes in order to explore Ungava (the northern part of the Labrador peninsula).

Sweden.

It is understood that the purchase of aeroplanes from Germany and other countries to the value of £14,000 has been sanctioned by the Swedish Government.

It is hoped that the British Aircraft Industry is included in the "other countries," with a good proportion of the total amount.

When the Swedish King recently thanked the Navy for its loyal work during the war, His Majesty's thanks included not least the Air Service. The latter has all the time been on guard duty, chiefly executing patrol work in the early war days, and lately keeping a look-out for mines in the Kattegat.

Denmark.

When the Danish neutrality guard was established in August, 1914, a base was formed at Slipshavn by Great Belt for submarines and flying-boats, the latter having to look after the Danish mine belt laid out.

The Germans had, according to the Armistice conditions, to remove their minefield in the belt by island Langeland. Nothing has as yet been done by them, as the maps of the position of the mines have been mislaid. So a Danish mothership has arrived, and sheds have been erected by the lighthouse, and two naval flying-boats have begun the observation for the position of the mines, which are then to be removed by Danish minesweepers and destroyers.

Germany.

One of the old hands of the German aviation, Lieut. of the Reserve Engineer Reichardt, certificate 55 of Feb. 3rd, 1911, was killed in an accident on Sept. 3rd last.

AIRCRAFT FINANCE

ENLARGING FOREIGN BUSINESS.

The development of the country's export trade is one of the biggest problems of the moment; in the case of the aircraft industry, especially, the question of inaugurating and developing business overseas, is pregnant with possibilities.

Even a moderate volume of foreign orders would mean such a lot in establishing with some sort of permanency the wonderful elaborate and efficient economic structure erected during the war.

Anticipating the Hun.

Confessedly, the time is fully ripe for the comfortable development of a good foreign connection; the Hun exporter, with his thousand-and-one tricks and facilities for securing foreign business, is muzzled and is likely to remain so for some time, for, apart from the blockade, his industrial fabric is running erratically.

At the same time, one cannot ignore the fact that our own domestic position still presents some difficulties against free and unrestrained progress in foreign trade. State interference is still a nuisance in some respects; the financial machinery is not working to perfection, and the problem of shipping facilities is sometimes serious.

Neutrals Full of Money.

Against all this, however, it must be remembered that the majority of neutrals, European and elsewhere, have made tons of money out of the war, and therefore ought to be able to purchase foreign goods very heavily and at a profitable price to the British exporter.

There are signs that the United States is already prepared to work up a foreign trade in aircraft; probably this will be the most serious competitor for a few years to come, but whether the economic situation in the States will adapt itself to the development of an export trade as promisingly as that at home is open to question.

What the Chili Consul Says.

Opportunely one reads in the "Board of Trade Journal" that "there is a prospect, according to H.M. Consul-General at Valparaiso, of aeroplanes being used in Chili between the ports and the nitrate factories. At present the journey from a nitrate officina to the port of loading involves a number of days, while by air it could be accomplished in a number of hours. It is stated that an application has already been made by a firm in Valparaiso for a British aeroplane agency."

Incidentally, one may point out that the great bulk of the Chilian nitrate companies are financed by British investors, and that the executive is mostly British. But there is an obnoxious German element in the country.

Enormous Imports Last Year.

Last year, by the way, foreign aircraft trade of the United Kingdom was all to our disadvantage. This is the outcome of the vigorous policy adopted by the State in connection with winning the war from the air. The official statistics eloquently testify the extent of the rush. Thus, in December the imports of "aircraft, airships, balloons, and parts thereof," represented a value of £1,258,322, in contrast with £82,646 for the corresponding month of 1917 and a modest £6,335 for 1916.

Inconclusive Statistics.

There was a time when those responsible endeavoured to make the country self-contained as regards aircraft production.

That is an interesting thought, and the year's total of aeroplane imports provides an instructive reply, though not such a convincing answer as could be obtained if one were acquainted with the statistics of domestic output. Such statistics are not likely to be published for some time, if ever, in a reliable form. That apart, however, it is somewhat surprising to find that for the whole of 1918 "aeroplane, etc." imports aggregated £6,859,081, compared with only £409,304 for 1917 and the magnificent total of £42,120 for 1916.

Comparison of Exports.

Export trade, the companion picture, is not so inspiring; military exigencies naturally operated against domestic business; but when this and other things are taken into consideration the work is not really bad. Thus exports during December figured at £53,712, against £19,160 for the corresponding month of 1917 and £43,481 for 1916. This gives a total export for the whole of 1918 of £392,483, compared with £660,986 for 1917 and £282,187 for 1916, plus £1,100 of foreign and Colonial stuff re-exported in 1918, £394 in 1917, and £4,518 in 1916.

Destination not Published Yet.

It would be very instructive and interesting, not to say helpful, in many ways if the destination of exports were published. As yet, however, the business has not sufficiently progressed to merit such a distinction, or it may be that some degree of secrecy is considered desirable, though one seriously doubts that.

CURRENT TOPICS.

Some of the details of the Sunbeam Motor Company's results for the financial year to August last have already been given. Nevertheless, the following table of the profits of the past six years should be instructive. The fluctuations have been violent, remarkably violent, in fact. In some measure this is due to adjustments rendered necessary by the exceptional nature of war business:—

Year.	Profit.
1912-13	£94,909
1913-14	67,243
1914-15	241,357
1915-16	50,025
1916-17	115,110
1917-18	94,265

The average yearly profit for this period works out at about £110,000.

Government Aero Contracts.

At the adjourned meeting of the Sunbeam Motor Co. the chairman expressed the opinion that everyone would agree that there was a great future for the aeroplane, not only for war purposes but for various needs where the saving of time was important. The company had supplied hundreds of aero-engines to the Government, and if other countries bought from them, as he had reason to believe they would, they would need the larger capital. It was hoped that the Government would be able to supply the company with contracts for aeroplane engines which would materially supplement the expected good business in motor-cars.

Dumping Liberty Engines.

This indicates the general expectation of British aero constructors, and therefore one does not relish the talk about the thousands of superfluous "Liberty" engines to be dumped here regardless of cost. Some sort of protection is called for.

Sunbeam Programme.

The chairman, in moving the necessary resolutions, said: "As you know, the directors have never divided the full amount of profits realised; instead they have contented themselves with recommending an average dividend sufficiently handsome. The volume to which the world's motor manufacturing enterprise has attained is such that a company with approximately a quarter of a million capital is inadequately financed to embark on any such scale of business as your firm has achieved during the past ten years, and must necessarily exploit if its future is to be one of maintained development. In industry there is no such thing as standing still; either you must go backward or forward, and your board is resolved that your business shall go forward. That is a duty no less patriotic than has been the work we have undertaken, with might and main, in producing the best aircraft engine and staff cars possible while the campaign lasted. It is impossible to release from the business the funds now proposed to be dealt with and to pay them to you in cash.

"The company's capital is at present inadequate, in view of the growth of the concern. We hope, under peace conditions, to be able to reduce the amount of stock, but the whole question requires, and will receive, the careful attention of the board. At any rate, one thing is clear, and that is that the sum now proposed to be dealt with will be permanently required as capital in the business. Under these circumstances, it seems better to let the Ordinary shareholders have it in the form of fully-paid shares, and if our business continues to prosper we hope to be able to build up a reserve account by appropriations from time to time, so that this desirable item may not disappear from our balance-sheet. I want to point out to you that this is really a paper transaction. We may not be able to pay the same rate of dividend when the number of shares has been multiplied by two. I do not intend to make any prophecies about future dividends, but I wish to point out that this transaction will not of itself bring in fresh money to the company's coffers."

Manchester to London by Air.

The Manchester-London Air Service, Ltd., has just been registered with a nominal capital of £25,000 divided into 24,500 Ordinary and 500 Deferred shares of £1 each. The sponsors are the

Lancashire and Yorkshire Industrial Development Trust, which is to receive £500 for formation expenses.

A distinguishing feature is that the capitalisation differs from the majority of recent registrations, inasmuch as these have usually run to a modest £100 nominal. The trust Company does not seem to be generally known; anyway the Manchester-London Air Service, Ltd., fails to convince one that the London and North-Western, the Midland, the Great Northern, or the Great Central Railways are in jeopardy as regards their passenger or goods service between London and Manchester. And possibly Pickford's and Carter Paterson will still be able to maintain a profitable service between the two cities.

How Lloyds Could Help.

The mere hint that Lloyds was tentatively preparing some sort of a standard for aerial transport, parallel with marine risks, would stimulate commercial aeronautics powerfully. Of this there can be not the slightest question, because in the calculations of any commercial proposition the item of insurance is an almost vital factor. Therefore, one is cheered by all the recent statements concerning Lloyds and Aeronautics. These are extremely appropriate, but possibly premature in the opinion of Lloyds.

Lloyds waits for business to come to it rather than search for business, and, though it is obvious that if Lloyds were to devise a classification for aircraft construction with, perhaps, a few commonsense regulations, the results would be profitable enough, one is sceptical whether it will take up the matter seriously. The pioneering risks of commercial aviation, one supposes, will devolve upon the Aircraft Industry itself. Of course, Lloyds would be willing to entertain any risk that is offered on its own terms, just the same as it accept insurance against twins. But that is not the point. If any underwriters had a run of bad luck with aviation risks, the premium might be advanced to a still more prohibitive level. But how much better would it be if there was a certain reasonable standard for a specified class of aircraft, working on the various routes under the control of a pilot possessing certain qualifications.

Given such a standard there would be a working basis for commercial aviation and its development would be stimulated. As it is understood that some of the leaders in the shipping world are taking more than an academic interest in aviation, perhaps they could further the matter to the advantage of the Industry as a whole.

Some of the New Borrowers.

It is significant that among the many new issues of capital projected is a Five per Cent. Tax Free Debenture stock. This is a novelty, but will probably go like hot cakes simply because of the fact that the company pays income-tax instead of the investor.

Blériot Liquidator's Payment.

In a way, it is very encouraging to learn that the receiver and liquidator of the Blériot Manufacturing Aircraft Co. finds it possible to further payment to the Ordinary shareholders. This is the second and also the final payment, being 5s. 2 1-5d. per £1 share, and it makes a total of 15s. 2 1-5d. The loss, therefore, has not proved so substantial as was at one time thought, but it is quite serious enough. For such a satisfactory result it is said that the energetic action of the independent directors in the early days is to be thanked.

Voluntary Liquidation: Croydon Aviation and Engineering Co., Ltd., Aviation Engineers, London.

Pursuant to section 188 of the Companies (Consolidation) Act, a meeting of the creditors in this matter was held on Jan. 15th at the Institute of Chartered Accountants, Moorgate Place, E.C., when the liquidator, Mr. H. de C. Moore presided. Mr. Moore stated that the meeting had been called under the Act, but it was a purely formal matter. The creditors, however, would probably like to have some details of the present position.

According to the statement of affairs as at Dec. 28th, 1918, the date on which the liquidation commenced, the liabilities to creditors for goods, including some small amounts due to the directors, were £13,679. In addition there was a liability of £7,903, representing monies advanced by the London City and Midland Bank on the guarantee of one of the governing directors. This brought the total liabilities to £21,582. In addition to this there was a contingent liability in respect of certain leases and contracts, but he had not estimated that this liability would rank.

The assets consisted of cash in hand £30, book debts £6,421, including a sum of £6,000 due from the Ministry of Munitions on balance, furniture £639, tools, fixture and fittings £3,716, stock and work in progress (as valued by the technical manager) £23,258. This made a total of £34,067, so that there was a surplus as regards creditors of £12,484. This surplus would, said the chairman, most likely be increased by reason of the profit on the work in progress and in respect of which nothing had been included in this statement.

Since the date of his appointment he had been in touch with the Ministry, and they had practically concluded arrangements for working out the contracts, and in such a way that the company could utilise the whole of its material, and it was expected that these contracts would ultimately be invoiced at roundly £30,000. He thought, therefore, that there was little doubt that the creditors might reasonably expect payment of their claims in full.

The company was incorporated in July, 1917, to deal with aircraft contracts. It made losses in the early stages, but these losses were entirely recouped by the profits made later on, and the company was not only solvent as regards creditors, but equally so as regards its shareholders. The share capital was 11,750 preference shares of £1 each and 11,750 ordinary shares of £1. The object of the reconstruction now contemplated was to permit the business to turn its attention to a peace industry. The meeting, which was of a character entirely sympathetic to the directors, ratified the appointment of Mr. Moore as liquidator.

TRADE IN SIAM.

Mr. H. Leatherbarrow, of Barrow, Brown and Co., the well-known engineers and merchants, proposes to leave Bangkok for Europe in February, and will probably leave Hongkong on or about Feb. 26th, travelling *via* China, Japan, and the United States, and can be communicated with in regard to new or existing business at c/o Messrs. John Birch and Co., Ltd., 2, London Wall Buildings, London, E.C., and to Messrs. Robertson, Cole Company Singer Building, Now York.

Messrs. Barrow, Brown and Co. have supplied in the past the bulk of the needs of the Royal Siamese Flying Corps, and firms in this country who are wishful of business in that country will do well to get into touch with Mr. Leatherbarrow.

AIRCRAFT INSURANCE.

The Board of Trade announces that no new insurances will be granted under the Government aircraft and bombardment insurance scheme after Jan. 31st. Aircraft policies which are still in force cover the risk of damage by aircraft of the Royal Air Force, and aircraft and bombardment policies cover in addition the risk of damage by the explosion of mines which drift on the coast. Risks hitherto insurable by the Government policies are now left to the open market.

No enemy air raids or bombardments having taken place for several months, claims for such damage as has occurred will not be considered unless already notified and unless particulars be furnished before Jan. 31st.

NEW COMPANIES.

Aero and General Pump Manufacturing Co., Ltd.—Private company. Registered Jan. 15th. Capital, £5,000 in £1 shares (1,000 7½ per cent. cumulative preference and participating). Manufacturers of and dealers in pumps for aero, marine, and other engines, etc. The subscribers (each with one share) are:—F. W. Webb, The Mount, Purley, Surrey, company director; W. M. Campbell, 58, Burnaby Gardens, Chiswick, W.4. First directors: F. W. Webb, N. G. Boggs, H. D. Grant, and L. A. Whitby. Registered office:—Finsbury Pavement House, E.C.

Anglo-Czecho-Slovak Trading Co., Ltd.—Private company. Registered Jan. 1st. Capital £100,000 in 95,000 ordinary shares of £1 each, and 100,000 deferred shares of 1s. each. To create and foster mutual trading between Great Britain and her Colonies and Dependencies and the Czecho-Slovak Republic and their respective commercial houses and traders, etc., and to carry on the business of carriers by land, sea and air, general storekeepers, motor and flying machine manufacturers, suppliers of couriers, agents and interpreters, food producers, boot dealers, clothiers, wine and spirit merchants, tobacconists, mineral water manufacturers, timber merchants, corn, flour, rye and maize importers and exporters, newspaper proprietors, etc. Subscribers (each with one ordinary share) are:—F. P. Woodcock, 5, Holborn, E.C.1, solicitor; A. H. Freeman, 5, Holborn, E.C.1, secretary. First directors are not named. Solicitor: F. P. Woodcock, 5, Holborn, E.C.1.

Cabal Construction and Supply Co., Ltd.—Private company. Registered Jan. 13th. Capital, £5,000 in £1 shares. Aeronautical and automobile constructors, carriers by aircraft and otherwise, railway and forwarding agents, bonded and common carmen, shipbuilders, furniture manufacturers, cabinet makers, builders, joiners, wood workers, electrical engineers, etc. The subscribers (each with one share) are:—W. Lewis, 80, Leadenhall Street, E.C.3, hotel proprietor; N. Lewin, 3, Grosvenor Gardens, Cricklewood, N.W.2, aeronautical constructor. First directors:—M. Bowman, N. Lewin and W. Lewis. Solicitor:—H. E. Robertson, 40, Chancery Lane, W.C.

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(Continued from page 372B.)

Sec. Lts. to be Sec. Lts., from Admin. (Gr. A):—P. R. Williams, Nov 17th, 1918; E. Le Couteur, Nov. 22nd, 1918; J. Binns, J. W. Watts, J. J. Somerville, T. H. Sutherland, N. C. Clements, B. G. Fletcher, Nov. 28th, 1918; W. Andrews, J. S. Begg, Dec. 11th, 1918; I. F. A. Klapper, Dec. 12th, 1918; H. E. Brain, S. Calam, F. G. Brooker, Dec. 17th, 1918; K. C. H. Newman, Dec. 18th, 1918.

Sec. Lts. to be Sec. Lts., from Admin. (Gr. B):—C. McPherson, Dec. 1st, 1918; C. A. Wilkin, S. R. Lewis, Dec. 9th, 918, A. S. G. Baker, E. B. Maclaren, D. A. Angus, Jan. 3rd.

The following are transferred to unempld. list:—Lt. F. H. Cooke, Lt. M. R. Grover, Jan. 2nd; Capt. R. M. M. Perks, Jan. 3rd; Lt. G. H. Brown, Sec. Lt. R. G. Fullager, Sec. Lt. G. G. Gilby, Capt. (actg. Maj.) J. N. D. Heenan, Sec. Lt. (Hon. Lt.) W. W. Henderson (Lt., Dur. L.I., T.F. Res.), Sec. Lt. R. E. H. Martin, Jan. 6th; Capt. P. R. Callard, Capt. G. Dugdale, Sec. Lt. P. C. Smith, Maj. C. H. Stevens, Jan. 7th; Lt. W. A. Barnes, Capt. H. M. Beddall, Lt. (actg. Capt.) M. F. A. Paine, Lt. (actg. Capt.) F. W. Wright Jan. 8th, Capt. (actg. Maj.) C. M. Carington, M.C., Jan. 10th; Sec. Lt. W. Blairman, Jan. 13th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—V. W. Lawson, G. E. Suter, Jan. 18th.

Sec. Lt. (Hon. Lt.) W. E. Hinton (R. Lanc. R.) relinquishes his commn. on account of ill-health, Jan. 18th.

The notification in "Gazette," Dec 24th, 1918, concerning Maj. S. J. L. Vincent is cancelled.

MEDICAL BRANCH.—Capt. J. A. Watson relinquishes his commn. on ceasing to be empld., Jan. 14th.

CHAPLAINS' BRANCH.—H. C. Eddowes (temp. Chap. to the Forces, 4th Cl., A.C.D.) is granted a temp. commn. as Chap., with relative rank of Capt., Jan. 15th.

MEMORANDA.—Sec. Lt. O. W. Owen to take rank and precedence as if his appt. as Sec. Lt. bore date Oct. 25th, 1918.

The following are transferred to unempld. list:—Maj. H. Ingram (from S.O.), Jan 1st; Maj. (actg. Lt.-Col.) C. H. Butler, D.S.O., D.S.C., Jan. 7th; Lt. J. J. Bartlett, Capt W. P. M. Newman, Jan. 8th; Lt. (actg. Capt.) T. Smith, Jan. 10th.

Capt. E. J. Wickens relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 18th.

WAR OFFICE, Jan. 18th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—MIL. WING.—Staff Capt.—Temp. Lt. D. N. Thomson, M.C., and to be temp. Capt. whilst so empld., from 1st to 31st March, 1918.

FROM THE COURT CIRCULAR.

YORK COTTAGE, SANDRINGHAM, Jan. 14th.

His Majesty held a Council at Buckingham Palace at 12.30 o'clock.

The following received the Seals of Office, took the Oath, and kissed hands upon appointment:—The Right Hon. Winston Spencer Churchill, M.P. (as Secretary of State for War and the Royal Air Force).

Previous to the Council, the Lord Weir (Secretary of State for the Royal Air Force) had an audience of the King and delivered up the Seals of his Office.

ADMIRALTY APPOINTMENTS

The following appt. has been made:—

JAN. 15th.—R.N.R.—Payr. Lt.—H. J. Ridger (temp.), to Engadine.

THE CASUALTY LIST.

MILITARY.

Reported Jan. 15th.

The following officers, who were prisoners in Germany, have been released, and have arrived in England:—

Allabarton, Lt. S. F., R.F.C.; Barton, Lt. A. E. S., R.F.A., attd. R.F.C., Beldam, Lt. C. H., Camb. R., attd. R.F.C.; Denison, Lt. E. B., R.F.C.; Hamilton, Lt. H. D., R.F.C.; McDonald, Lt. D. P., Yeo., attd. R.F.C.; Nobbs, Lt. C. H. F., R.F.C.; Sharpe, Capt. F., R.F.C.; Sharpe, Lt. S. A., R.F.C.; Smith, Lt. R. M., R.F.C.; Stead, Lt. G. C., R.F.C.; Stead, Lt. M. W. B., R.F.C.; Wyman, Lt. J. B. H., R.F.C.

Reported Jan. 17th.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Capon, Lt. R. S., King's (Lpool. R.), attd. R.F.C.; Chalmers, Sec. Lt. B. G., Gord. Highrs., attd. R.F.C.; Crisp, Lt. A. E., Norf. R., attd. R.F.C.; Martin, Lt. A. W., Yorks. R., attd. R.F.C.; Rogerson, Lt. H., L.N. Lanc R., attd. R.F.C.; Schreiber, Lt. R. T. B., Suff. R., attd. R.F.C.; Stewardson, Lt. E. A., Queen's (R.W. Surr R.), attd. R.F.C.; Winkler, Lt. W. O. B., R.G.A., attd. R.F.C.

CANADIAN FORCES.—Belliveau, Lt. A. H., Can. For. Corps, attd. R.A.F.; Heath, Lt. E. E., Cent. Ont. Regt., attd. R.A.F.; MacDonald, Lt. D. A., Can. For. Corps, attd. R.A.F.; Raymond, Lt. A. B., Can. A.S.C., attd R.A.F.; Smythe, Lt. C., M.C., Can. F.A., attd. R.A.F.; White, Capt. P. R., E. Ont. Regt., attd. R.A.F.; Zieman, Lt. J. R., E. Ont. Regt., attd. R.A.F.

The following officer, who was a prisoner of war in Turkey, has been released, and has arrived in England:—

AUSTRALIAN FORCE.—White, Capt. T. W., F.C.

Reported Jan. 18th.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Butler, Sec. Lt. J., K.O. (Yorks. L.I.), attd. R.F.C.; Cairns, Lt. J. A., Arg. and Suth. Highrs., attd. R.F.C.; Denison, Sec. Lt. N. C., K.O. (Yorks. L.I.), attd. R.F.C.; Goodall, Capt. J. H. H., York and Lanc. R., attd. R.F.C.; Lees, Lt. J. C., K. Sco. Fus., attd. R.F.C.; Lodge, Lt. C. F., Worc. R., attd. R.F.C.; Strange, Sec. Lt. L. A. T., Buffs (E. Kent R.), attd. R.F.C.; Sutherland, Lt. A. M., Northd. Fus., attd. R.F.C.; Upson, Sec. Lt. R. H., Queen's (R.W. Surr. R.), attd. R.F.C.

Reported Jan. 20th.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Costello, Capt. W. H., R.G.A., attd. R.F.C.; Dougall, Lt. C. R., Arg. and Suthd. Highrs., attd. R.F.C.; Lloyd, Lt. E. A., Yeo., attd. R.F.C.; McMichael, Lt. G. B., Hereford R., attd. R.F.C.; Maxted, Lt. O. D., Buffs. (E. Kent R.), attd. R.F.C., Samuel, Lt. J. R., Welsh R., attd. R.F.C.; Savory, Lt. A. J., Yeo., attd. R.F.C.

Reported Jan. 21st.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Leighton, Capt. R. T., Yeo., attd. R. F. C.; March, Lt. C. H., R.F.A., attd. R.F.C.; Mare-Montembault, Lt. M. J. J. G., M.C., Yeo., attd. R.F.C.; Mitchell, Lt. A. P., Middx. R., attd R.F.C.; Orr-Ewing, Lt. A. J., Yeo., attd. R.F.C.

The following soldiers, who were prisoners of war in Germany, have been released, and have arrived in England:—

JAN. 7th.—R.F.C.—Dangerfield 170 Serjt. J. (Shepherd's Bush, W.); Harding 3467 1st Cl. Air Mech. H. A. (Swindon); Irwin 3389 Serjt. B. (Penzance); Law 0537 1st Cl. Air Mech. L. O. (Harrogate); Morton 2173 Serjt. G., M.M. (Manchester); Moult 77562 2nd Cl. Air Mech. A. (Nottingham); Nicol 103362 2nd Cl. Air Mech. W. (Forres).

JAN. 8th.—R.F.C.—Bascroft 19130 Serjt. J. (Carrington); Long 103725 2nd Cl. Air Mech. W. T. (Cardiff), Richman 61852 2nd Cl. Air Mech. W. (Ulverston).

JAN. 14th.—R.F.C.—Holden 2259 1st Cl. Air Mech. W. (Warrington).

AIR FORCE.

Reported Jan. 16th.

REPATRIATED.—Adams, Lt. F.; Alder, Lt. S.; Ballance, Lt. G.; Birkhead, Lt. J. B.; Blackall, Lt. J. H.; Broughall, Lt. H. S.; Chalmers, Lt. B. G.; Clark, Lt. W. B.; Cock, Capt. G. H., M.C.; Colbert, Lt. L. A.; Cook, Sec. Lt. C. W.; Deane, Lt. G. S.; Deason, Capt. T. G.; Fitzgerald, Lt. J. J.; Fitzgerald-Uniacke, Lt. D. P.; Godard, Lt. J. S.; Grosset, Capt. W. E.; Hammond, Sec. Lt. H. T.; Handley, Lt. J.; Heagerty, Lt. J. S.; Heath, Lt. E. E.; Hervey, Lt. H. E., M.C.; Hills, Lt. W. B.; Ingleson, Lt. W.; Johnston, Capt. J. E.; Kaizer, Sec. Lt. M. M.; Kent-Jones, Lt. D. W.; Kingsland, Lt. W. R.; Lamont, Lt. W.; Lawton, Lt. J. B.; Leavitt, Lt. H. J.; Lewis, Lt. D. G.; Macintosh, Lt. R. R.; Mallous, Lt. C. G.; MacGregor, Sec. Lt. R. R.; Mitchell, Lt. H.; Moody, Sec. Lt. B. C.; Osborn, Sec. Lt. C. E.; Potts, Sec. Lt. W. J.; Powell, Lt. D. G.; Roberts, Lt. R. M.; Robertson, Lt. G. P.; Rothery, Lt. H.; Shadwell, Sec. Lt. L. M.; Shum, Lt. C. A. R.; Smith, Lt. C.; Smythe, Lt. C.; Spiro, Lt. S. G.; Stevens, Lt. A.; Taylor, Lt. A.; Thompson, Lt. C. D.; Thornton, Sec. Lt. C. P.; Tysoe, Lt. C. G.; Wellby, Lt. H. S.; White, Capt. P. R.; Whittle, Capt. O. L.; Williamson, Lt. J. C.; Wingate-Gray, Lt. A. G.

Reported Jan. 17th.

REPATRIATED.—Baddeley, Sec. Lt. E. L.; Boyle, Sec. Lt. J. C.; Breckenridge, Lt. W.; Connolly, Sec. Lt. S. M.; Cox, Lt. G.; Davies, Sec. Lt. H.; Evans, Sec. Lt. W. D.; Harrison, Sec. Lt. A. G.; Johns, Sec. Lt. W. E.; Kier, Sec. Lt. J. N.; Kelly, Sec. Lt. R.; Lacy, Sec. Lt. J. B.; Latimer, Capt. D., M.C.; Leighton, Lt. K. A. W.; Lipsett, Sec. Lt. R. S.; Loudoun, Capt. L. G.; Miller, Sec. Lt. A. M.; Milne, Sec. Lt. C. G.; Mitchell, Lt. G. W.; Partridge, Lt. A. T.; Porter, Sec. Lt. A. C.; Powell, Capt. F. G.; Preston, Sec. Lt. A.; Shedel, Capt. W. G.; Shipman, Lt. T. T.; Summers, Capt. J. K., M.C.; Tapping, Sec. Lt. A.; Thorpe, Sec. Lt. C. E.; Tison, Sec. Lt. M.; Tratman, Lt. L. W. D.; Yates, Lt. J. A.; Yelverton, Sec. Lt. C. N.

Reported Jan. 18th.

KILLED.—Dobbie, Capt. R. W.
Ellercamp, Lt. W. A. H.
Hurndall, Sec. Lt. C. D.
Nicholls, Sec. Lt. O. L.
Palmer, Sec. Lt. J. W.
Williams, Sec. Lt. T. L.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Dyke, Sec. Lt. E. P. W.

DIED OF WOUNDS.—Lindsay-Young, Capt. L. H.

DIED OF INJURIES.—Williams, Sec. Lt. E. A.

DIED.—Graham, Lt. E. W.
Kee, Capt. W. J.
Parfitt, Sec. Lt. B. N.
Teunon, Sec. Lt. J. M.

REPATRIATED.—Campbell, Sec. Lt. J., Carter, Lt. G. L., Daltrey, Lt. F., Down, Sec. Lt. R. T., Edelston, Lt. R. H., Gormley, Lt. A. J. C., Guild, Sec. Lt. C., Harley, Lt. V., Henderson, Sec. Lt. A. B., Hughes, Sec. Lt. R. D., Hutchinson, Lt. W. J., Illingworth, Sec. Lt. C. F. W., Johnson, Lt. F. R., Kemp, Sec. Lt. J. E., Lloyde, Lt. J. P., Mauley, Lt. P. S., Marchant, Lt. E. A., McPhee, Lt. R., Nuttall, Lt. J. C., Pitman, Lt. R. C., Richardson, Sec. Lt. J. B., Sinclair, Lt. A. S., Taylor, Lt. L. G., Taylor, Lt. R. E., Yerex, Lt. L.

CORRECTION.—DIED.—Plenty, Capt. E. P., R.A.F., should read Plenty, Capt. (temp. Maj.) E. P., R.A.F.

Reported Jan. 20th.

REPATRIATED.—Andrew, Lt. W. L., Barrie, Sec. Lt. F., Barton, Lt. A. E. S., Blaxhill, Sec. Lt. F. H., Blaney, Sec. Lt. B. W., Bollins, Lt. A. V., Boughton, Lt. C. B., Boulton, Lt. F. E., Brockhurst, Sec. Lt. G. N., Bull, Lt. J., Burns, Lt. V. L. A., Capon, Lt. R. S., Carr, Lt. C. V., Clarke, Lt. H. A., Claye, Capt. H., Cowan, Lt. W. E., Cross, Lt. A. S., Hempsall, Sec. Lt. H. T., Hewitt, Lt. N. D. M., Holland, Lt. C. B., Jennings, Sec. Lt. E. D., Kent, Lt. R. L., Knapp, Lt. F. R., Lane, Lt. L. C., Law, Lt. C. B., Le Roy, Lt. H. L., Lomax, Sec. Lt. C. N. L., MacDonald, Lt. D. P., Martin, Lt. A. W., Nash, Capt. G. E., Newenham, Sec. Lt. G. A., Peat, Lt. R. W., Penruddocke, Lt. N. F., Phillips, Lt. A. W., Phillips, Sec. Lt. P. L., Price, Lt. H. J., Reece, Lt. S. B., Robinson, Sec. Lt. H. G., Robson, Lt. C. C., Scott, Lt. W. A., Scott-Kerr, Lt. W. F., Smith, Lt. J. L., Stewardson, Lt. E. A., Strickland, Lt. W. A., Sutton, Lt. M. F., Tansley, Lt. H. E., M.C., Tempest, Lt. W. C., Tidmarsh, Capt. D. M., M.C., Trattles, Sec. Lt. R., Turner-Coles, Lt. W., Tylor, Lt. C. E., Vick, Lt. H., Webster, Lt. J., White, Lt. T. W., Wilson, Lt. W. K., Windrum, Lt. C., Winkler, Lt. W., Woods, Lt. M. E., Zieman, Lt. J. R.

Reported Jan. 21st.

REPATRIATED.—Anderson, Lt. W., M.C., Birch, Lt. S., Butler, Lt. L., Cairns, Lt. J. A., Collis, Capt. D. P., Crisp, Lt. A. E., Denison, Lt. N. C., Dugan, Lt. H. G., Furlonger, Lt. C. A. M., Goodall, Capt. J. H. H., Hadrill, Sec. Lt. G. C. T., Hamilton, Lt. W. N., Handley, Lt. F. A. W., Hill, Lt. T. R. V., Holden, Lt. A., Kirkham, Sec. Lt. F. J., Lane, Sec. Lt. C. W., Law, Sec. Lt. E. R., Lawson, Lt. R. G., Lee, Lt. A. C., Lees, Lt. J. C., Lingard, Lt. J. R., Lister-Tibbetts, Lt. J., Lodge, Lt. C. F., MacDonald, Lt. D. A., McTavish, Lt. D., Mather, Lt. A. S., Milling, Lt. H. B., Mitchell, Capt. A. P., Moore, Lt. E. S., O'Brien, Lt. C. R., Paris, Lt. D. K., Peers, Lt. L. A., Ratcliffe, Lt. T., Rogerson, Lt. H., Russell, Lt. D. J., Schrieber, Lt. R. T. B., Shepard, Lt. T. A., Sutherland, Lt. A. M., Stedman, Lt. F., Stewart, Lt. D. J., Strange, Lt. L. A. T., Tannenbaum, Lt. H., Upson, Lt. R. H., Wainwright, Sec. Lt. B. M., Watson, Lt. N. T., Westcott, Lt. G. F., Whitlock, Sec. Lt. H. H., Wilson, Lt. F. H., Worsley, Sec. Lt. R. S. L.

Reported Jan. 22nd

KILLED.—Dallas, Sec. Lt. W. R.
Milligan, Sec. Lt. J.
O'Grady, Sec. Lt. J. H.
Poole, Sec. Lt. R. B.
Willis, Sec. Lt. G. W.

DIED.—Beesley, Sec. Lt. A. B.

REPATRIATED.—Abbott, Lt. E. D., Ackers, Lt. C. H. S., Alderson, Lt. A. G. D., Bourinot, Lt. A. S., Briggs, Capt. L. R., Cabrisac, Capt.

R. B., M.C., Chidson, Lt. M. R., Clarke, Lt. T. H., Cribb, Lt. A. G., Davies, Lt. H. R., Dilnutt, Lt. E. J., Gayford, Lt. D. B., Gilbert, Lt. C. G., Gilmour, Lt. L. C., Gordon, Lt. E. G. S., Gray, Sec. Lt. C. G. D., Green, Lt. E. G., M.C., Green, Lt. W. H., Holley, Capt. T. G., Hollis, Lt. J. A., Kerr, Lt. C., Lander, Capt. T. E., M.C., Long, Lt. G. R., Pughe-Evans, Lt. H., Richardson, Lt. D. D., Taylor, Lt. W. G. E., Tulloch, Sec. Lt. K. E., Woolliams, Lt. F. H.

CASUALTIES AMONG AIRMEN OF THE R.A.F. THE DATES ARE THOSE OF THE OFFICIAL LIST.

KILLED.

JAN. 20th. Foster 134962 1st Pte. W. (Padiham)

DIED OF INJURIES.

JAN. 20th.—Evans 40975 Cpl.-Clk. T. E. (Golder's Green.)

DIED.

JAN. 26th.—Belfitt 45614 1st Air Mech. W. A. (New Whittington); Greenwood 211158 Cpl. Mech. H. H. (Fallowfield, Manchester); McKenna 231871 1st Pte. H. (Belfast); Moore 215797 Cpl. C. M., (Dalston); Priestley 21136 3rd Air Mech. H. (Bradford); Reeve 29991 Serjt. Mech. W. L. (Southend-on-Sea); Swindells 209879 1st Pte. S. (Tooting); Toogood 204662 Serjt. Mech. G. E. (Nottingham); Wilkes 268961 3rd Air Mech. J. J. (Tuebrook, Oxon), Wright 44462 3rd Air Mech W. (Northampton).

REPATRIATED.

JAN. 26th.—Aldridge 7044 Serjt.-Mech. H. D. (Leigh-on-Sea); Anthony 7856 1st Air Mech. G. R. (London, S.W.); Bain 107299 1st Pte. L. J. W. (Brixton); Barnes 42054 1st Pte. E. W. (Hull); Bassenger 23052 Cpl. H. G. (Hornsey, N.); Bemister 78530 1st Pte. C. (Fredericton, Newfoundland); Boocock 105048 Serjt.-Mech. A. (Bradford), Bostock 67759 3rd Air Mech. A. K. (Hull); Borwein 43335 Serjt.-Mech. J. J. (Krementzug, Russia); Chalmers (alias J. Horton) 2213029 Serjt.-Mech. J. W. (Cheltenham); Cheverton 206205 Pro./P.O. T. P. (Cromer); Clear 7124 Serjt.-Mech. H. L. (Bowes Park, N.); Crust 7700 1st Air Mech. W. S. (Maida Vale); Daffey 229815 1st Pte. G. E. (Sheerness); Dunn 7562 Serjt.-Mech. W. H. (Walthamstow); Elliott 187955 Serjt.-Mech. W. C. (Middlesbrough); Evans 3819 Serjt.-Mech. F. H. (Old Denaby); Gladwin 222796 1st Pte. G. S. (Palmer's Green, N.), Hadlow 65249 1st Pte. P. A. (Woolwich, S.E.); Hall 221638 1st Pte. G. (Longsight); Hare 213594 2nd Pte. G. W. (Walthamstow); Highby 208940 1st Air Mech. W. W. (Hemel Hempstead); Hodge 107450 Serjt.-Mech. H. (Warrington); Holman 45286 3rd Air Mech W. (London, N.W.); Hollis 2479 Serjt.-Mech. J. K. (Ilfracombe); Jex 12598 Serjt. A. (Peterborough); Joysey 222304 Serjt.-Mech. R. S. (Leyton); Kennedy 201866 Cpl.-Mech. D. (Bowling, Dumbarton); Kent J/5389 P.-Off G. A. (Portsmouth); Lake 107798 Serjt. J. (Downham); Leach 87657 1st Pte. G. (Hyde); Lloyd 78758 1st Pte. C. (Swansea); Long 67775 Serjt. L. S. (South Hackney); Mortlock 210048 P.-Off. H. S. (South Harrow); O'Neill 236154 Serjt.-Mech. W. M. (Dublin); Ovens 25013 1st Pte. L. C. (Parton); Reed 108592 Serjt.-Mech. J. H. (East Dulwich); Sansome 217099 Serjt. Mech. W. (Stone); Summers P/555226 (Cl. B Cadet, attd. R.A.F. from 16th London Regt.) J. D. C. (Sydenham); Smith 207252 Cpl. E. E. (Chiswick); Smith 402816 1st Pte. F. (Moss Side); Smith 103559 Serjt.-Mech. W. T., D.C.M., M.M. (Maida Vale); Snell 4351 3rd Air Mech. F. P. (Lincoln); Stack 128313 Serjt.-Mech. T. A. (West Kensington); Wait 492626 Serjt.-Mech. T. E. (Cwmbran, Mon); Walker 6757 Serjt.-Mech. T. (Barwick-in-Elmet); Wright 63901 Serjt.-Mech J. R. (Hendon, N.W.); Weller 21943 1st Pte. A. (Stonecliffe).

PERSONAL NOTICES.

NAVAL.

DEATH.

FAWCETT.—Concerning the late Maj. Fawcett, R.M.L.I., whose death was announced recently, a friend writes:—

"There are many who will mourn the death of Henry Fawcett. During his many years of service he made innumerable friends in both the Army and the Navy. Born on Feb. 28th, 1884, he received his first commission in the Royal Marine Light Infantry on Jan. 1st, 1902. Promoted lieutenant on Jan. 1st, 1903, and captain on Jan. 1st, 1913, he became a field officer on Jan. 1st, 1918. He became interested in flying in 1912, and flew for his pilot's certificate on June 3rd, 1913, at the Central Flying School, Upavon. Immediately afterwards he was posted to the R.N.A.S. On Dec. 3rd, 1913, while flying with Capt. Wildman-Lushington, R.M.L.I., he was seriously injured, the pilot being killed.

"My first meeting with him was in 1915, when he commanded the advance party of No. 2 Wing, R.N.A.S., at Imbros. His health was unsatisfactory and his moods changed with great rapidity. From moody depression he would change in an instant to a happy period of great personal charm. His worldly knowledge was wide and his professional pride keen. The powers that be were never deified in his mind, and his flying career suffered accordingly. He was a true-hearted and gallant friend who gave the best in his life to the service he loved.

"After the Dardanelles expedition he served in France as Squadron Commander employed with the Army, and at home in command of the air station at Redcar. On Aug. 22nd, 1917, he returned to his regiment, with which he was serving at the time of his death."

MARRIAGE.

CORTIS-STANFORD—MORGAN.—On Jan. 11th, at St. James's Church, Piccadilly, W., Surg.-Comdr. Charles E. Cortis-Stanford, D.S.O., R.N. (attd. R.A.F.), was married to Hazel Shakespear, only daughter of the late Francis W. Morgan, by Capt. the Rev. C. V. Camplin Cogan, C.F.

MILITARY.

DEATHS.

BARKER.—Lt. Frank Edward Barker, R.A.F., who has died of injuries received in a flying accident at Holbrook, near Ipswich, aged 29, was an experienced pilot, and held a good record of service in the war. He served first with the City of London Yeomanry in Egypt, then as an officer in the Westmorland and Cumberland Yeomanry, and finally transferred to the Royal Flying Corps in September, 1917. He was wounded in an engagement on the Western front in August, 1917. At one time he held the English mile amateur skating record.

BROWN and CAFFERTY.—A verdict of accidental death was returned at Manchester, on Jan. 17th, at an inquest on the bodies of Capt. Charles Adrian Brown, R.A.F., and Pte. Joseph Cafferty, Royal Lancs. Regt. Cafferty was a passenger who had tossed up with a friend for the privilege of flying. When the machine was 100 ft. up and going at 140 miles an hour a squall of rain came along and Capt. Brown apparently decided to land. The machine side-slipped when 70 ft. from the ground and crashed. The petrol tank burst and the machine caught fire.

Major Williamson, R.A.F., Commandant of the aerodrome, said that the most likely theory was that Capt. Brown decided to return to the aerodrome, and in doing so he had to land with the wind. Landing under these conditions caused more accidents in flying than anything. The machine when it turned turtle would almost surely catch fire, as this one did.

CLARKE-MORRIS.—Lt. John Clarke-Morris, W. Riding Regt. and R.A.F., who was accidentally killed while flying in France on Jan. 13th, was the youngest son of the late Dr. Clarke-Morris and Mrs. Clarke-Morris, of 67c, Shooters Hill Road, Blackheath, S.E. He was 19 years of age.

ROBERTSON.—Lt. Petter Robertson, 1st Cameron Highlanders, attd. R.A.F., died on Jan. 16th as the result of an accident whilst flying in Lincolnshire. He was the youngest son of Mr. and Mrs. Robertson, of "Dormie," Bidston Road, Birkenhead, and was 21 years of age.

WILLIS.—Sec. Lt. George White Willis, R.A.F., whose death was announced last week, was the son of Mrs. E. Lucy Willis, of The Moorings, Rochester. He was born on April 27th, 1899, and was educated at Radley College. He joined the R.F.C. as a cadet in September, 1917, and received his commission in February, 1918, proceeding to France in August of the same year.

ENGAGEMENTS.

DUFFUS—GILES.—The engagement is announced between Maj. C. S. Duffus, O.B.E., M.C., R.A.F., only son of Mr. and Mrs. Duffus, Blackheath Park, London, and Evelyn Ursula, only daughter of Maj. G. D. Giles, R.F.A. (T.), and Mrs. Giles, Douglas Lodge, Newmarket, and Torbrugh, Brora, Sutherlandshire, N.B.

HOWELL—PRESTON.—The engagement is announced between Major John G. Howell, M.C., R.A.F., son of Mr. and Mrs. Howell, and grandson of Lt.-Col. W. P. Howell, of Penrhodl, Carmarthenshire, South Wales, to Jessie E., daughter of the late Deputy-Inspector-General T. J. Preston, R.N., and Mrs. Preston, of 16, St. John's Park, Blackheath, S.E.

HOYLE—MULLINER.—An engagement is announced between Capt. Charles Frederick Hoyle, M.C., South Notts Hussars and R.A.F., only son of the late Lt.-Col. C. F. Hoyle, and Phyllis Marion, second daughter of Lt.-Col. and Mrs. A. F. Mulliner.

McEWEN—SMEATON.—The engagement is announced of Capt. Ian McEwen, 2nd Seaforth Highrs. and R.A.F., only son of John Forrester McEwen, of Villa Razzolini, Florence, and Amethe, daughter of the late Donald Smeaton, C.S.I., M.P., and of Mrs. Smeaton, of Lawbrook, Gomshall, Surrey.

MEDHURST—GUY.—The marriage arranged between Major C. E. H. Medhurst, O.B.E., M.C., R.A.F., and Christabell Elizabeth, youngest daughter of the Rev. T. E. B. Guy and Mrs. Guy, of Fulford Vicarage, York, will shortly take place, leave permitting, at St. Oswald's Church, Fulford.

MARRIAGE.

BELL—SOARES.—On Jan. 15th, at Holy Trinity Church, Kensington Gore, Capt. Walter D. M. Bell, M.C., R.A.F., son of the late Mr. and Mrs. Robert Bell, Clifton Hall, Mid Lothian, was married to Kate Rosemary, only daughter of Sir Ernest and Lady Soares, of 36, Princes Gate, S.W., by the Rev. H. H. Coward.

JENKINS—WHITE.—On Jan. 15th, 1919, at St. Paul's, Knightsbridge, S.W., Lt. George Denham Jenkins, Hampshire Regt. and R.A.F., son of the late Capt. Edwin Walter Jenkins, Bournemouth, was married to Alison (Leonora), eldest daughter of the late Harry Dow White, of Twickenham, by Prebendary F. Leith Boyd, vicar.

BIRTHS.

ELLIOTT.—On Jan. 13th, at 34, Albert Road, Regent's Park, N.W., the wife of Maj. J. B. Elliott, Rifle Brigade and R.A.F., of a son.

MACLEAN.—On Jan. 11th, at Putney, the wife of Brig.-Gen. A. C. H. MacLean, The Royal Scots and R.A.F.—a daughter.

STEVENS.—On Jan. 13th, at Thetford, the wife of Sec. Lt. H. C. Stevens, Middlesex R. and R.A.F., of a daughter.

SWART.—On Jan. 12th, at Boscombe, to Maj. J. G. Swart, M.C., R.A.F., and Mrs. Swart—a daughter.

* * *

Information is wanted regarding Lt. J. R. Aikins ("Red Aikins"), of the 50th Squadron, R.A.F., who was reported missing in March, 1918, and is believed to be a prisoner. Please write to W. A. Cundle, 70, Chestnut Park, Toronto, Canada.

Will officers and N.C.Os. who were with the 28th Squadron, R.F.C., in Italy from November, 1917, to January, 1918, and knew Sec. Lt. E. G. Chance, kindly communicate with his mother, Mrs. Chance, Barnwood Court, Gloucester?

AIR FORCE.

DEATHS.

YORK and CROUDACE.—Lt. Fred York, R.A.F., and Lt. Harold Croudace, R.A.F., who had both seen service in France, were killed on Jan. 14th at Ashington, Northumberland. They had flown in separate machines from Sunderland, and had just begun the return journey when they collided, both aeroplanes crashing to earth.

ENGAGEMENTS.

BEATSON—ELLIS.—The engagement is announced of Major Claude G. Beatson, R.A.F., only surviving son of the late Walter W. G. Beatson and Mrs. Beatson, of Shortlands, and Lilias Mary, youngest daughter of Mr. and Mrs. Clement C. Ellis, of Kniveden Hall, Leek, N. Staffs, and 82, Lancaster Gate, Hyde Park, W.

POSTLETHWAITE—SHALLOW.—The engagement is announced between Lt. F. Hartley Postlethwaite, R.A.F., son of the late G. F. Postlethwaite, of Pelham Manor, New York, and Elizabeth Julia (Betty), elder daughter of Mr. and Mrs. A. W. Shallow, of Pahar, Loughton, and Calcutta.

WOODHOUSE—LANE.—The engagement is announced between Lt. T. F. Woodhouse, R.A.F., and Nancy Joyce Lane, only surviving child of the late Rev. John Reynolds Lane and Mrs. Lane, Hill Brow, Willingdon Road, Eastbourne.

MARRIAGES.

MORE—PARKER.—The marriage of Brig.-Gen. Henry More, R.A.F., second son of the late Mr. R. Jasper More, M.P., of Linley, Shropshire, and Mrs. More, of Rhadley, Shrewsbury, to Phyllis Blanche, younger daughter of the Hon. Frank and Mrs. Parker, of Wilton House, Eaton Square, and cousin of the Earl of Macclesfield, took place on Jan. 16th at St. Peter's, Eaton Square. The Bishop of Taunton (uncle of the bride) conducted the service, assisted by the Rev. H. B. L. Viener, Chaplain-in-Chief, R.A.F., and the Rev. Austin Thompson, vicar of the parish.

SCHOLEFIELD—SEYMOUR.—On Jan. 15th, at St. Thomas's Church, Winchester, Lt. Edward R. C. Scholefield, R.A.F., was married to Dorothy Helen, daughter of C. R. Seymour, Bereweeke House, Winchester, by the rector, the Rev. C. Nuttall, assisted by the Rev. C. C. Fetherstonhaugh, rector of Weeke.

VETTER—HOUGH.—On Jan. 16th, at St. Andrew's, Wells Street, London, Capt. O. L. Vetter, R.A.F., was married to Sister Edith Evelyn Hough, 14th Australian Hospital, Egypt, daughter of the late Christopher James Hough, of Perth, West Australia.

BIRTHS.

ARMSTRONG.—On Jan. 16th, at 4, Dorset Square, Baker Street, the wife of the late Lt. George Powell Armstrong, R.A.F. (killed while flying), of a daughter.

INGLEBY.—On Jan. 10th, at Sedgeford Hall, Norfolk, the wife of Maj. Clement Ingleby, R.A.F., of a daughter.

LALE.—On Jan. 13th, at 36, Cranley Road, Westcliff, the wife of Capt. H. P. Lale, D.F.C., R.A.F.—a son.

RANDOLPH.—On Jan. 14th, at Bath, Elisabeth Katharine, wife of Lt. G. A. Randolph, R.A.F., of a son.

* * *

Lt. Amyas T. Sampson, R.A.F., has been missing since Aug. 8th, 1918. Any information will be gratefully received by Mrs. Sampson, Deeside, Llangollen.

* * *

Lt. Ewart Underwood, of the 11th Squadron, R.A.F., has been missing since Sept. 6th, 1918. Any information will be gratefully received by Chas. Underwood, 16, Calverley Road, Eastbourne.

* * *

Sec. Lt. Clifford J. Tolman, of the 22nd Squadron, R.A.F., was reported missing on Sept. 27th, 1918. Information gratefully received by his mother, Mrs. Grace, Whippingham, E. Cowes, I. of W.

* * *

Will any repatriated prisoner who has seen Capt. W. F. Cleghorn, D.F.C., R.A.F., since Oct. 2nd, 1918, when he was last seen by his observer near Roulers, wounded in the leg, being taken to hospital by the Germans, very kindly communicate with Lt. F. H. Stringer, 24, Munster Road, Teddington, who is acting for Mr. Cleghorn, of Toronto, in trying to get news of him?

* * *

Lt. Vanrensselaer Irvine, 43rd Squadron, R.A.F., was reported wounded and prisoner. Any further information will be gratefully received. Please write to Box P.36, The "Times."

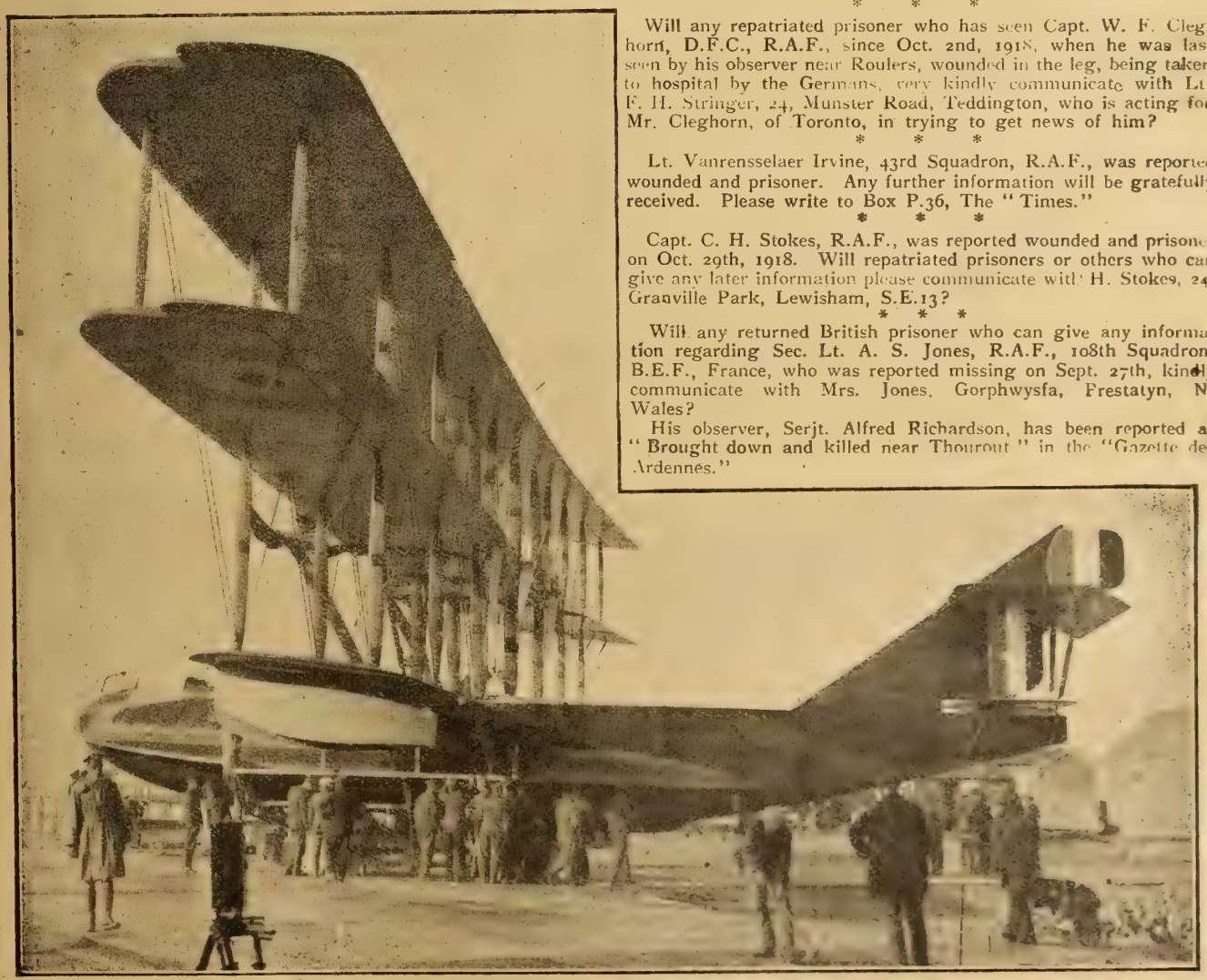
* * *

Capt. C. H. Stokes, R.A.F., was reported wounded and prisoner on Oct. 29th, 1918. Will repatriated prisoners or others who can give any later information please communicate with H. Stokes, 24, Granville Park, Lewisham, S.E.13?

* * *

Will any returned British prisoner who can give any information regarding Sec. Lt. A. S. Jones, R.A.F., 108th Squadron, B.E.F., France, who was reported missing on Sept. 27th, kindly communicate with Mrs. Jones, Gorphwysfa, Prestatyn, N. Wales?

His observer, Serjt. Alfred Richardson, has been reported as "Brought down and killed near Thourout" in the "Gazette des Ardennes."



THE LATEST AND BIGGEST PORTE BOAT.—This machine, which has five Eagle Rolls-Royce Engines of 400 h.p. each, driving two tractors and three pushers, is a triplane of 123 feet span to the two upper planes. The boat, including the tail, is 0 feet long. The total height from the keel is 27 ft. 6 ins. and the total weight 23,400 lbs. The machine is known popularly as the "Felixstowe Fury."



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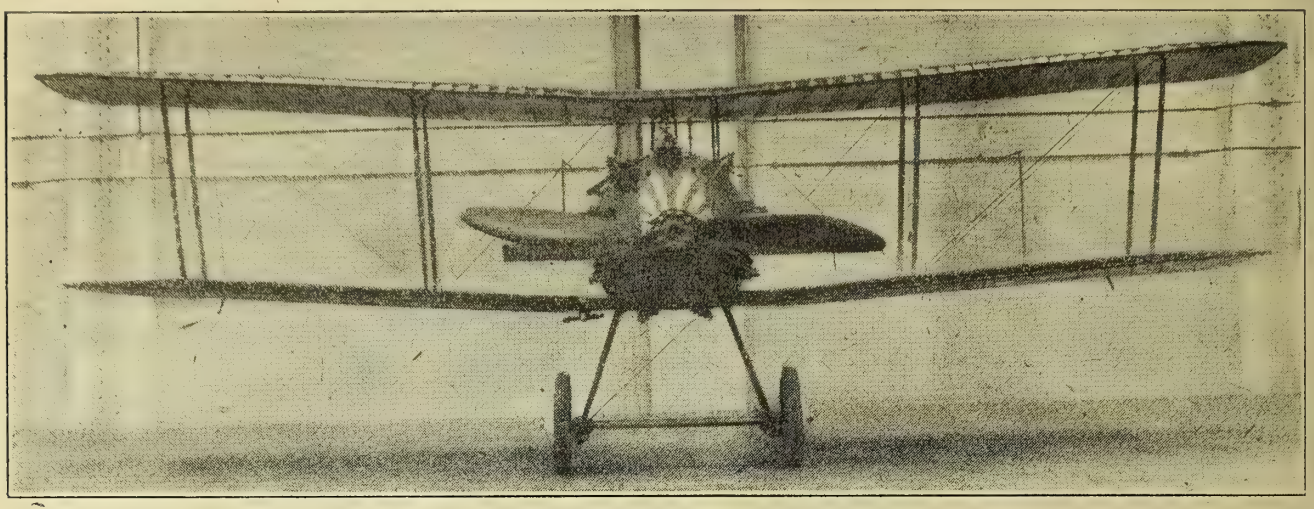
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HOLD ANY OF THE ABOVE QUALIFICATIONS, BUT HAVE NOT YET REGISTERED,

you are invited to communicate with the Editor (Section G.1.) AT ONCE for necessary forms and conditions of Registration.

217, PICCADILLY, W.1.

THE BRITISH-NIEUPORT "NIGHTHAWK."



Front View of the Nieuport "Nighthawk."

The accompanying photographs illustrate the British-Nieuport "Nighthawk" with the 320 h.p. A.B.C. "Dragonfly" engine.

This machine is particularly interesting as having been built to the first specification issued by the Royal Air Force. When the R.A.F. decided that the time had come to concentrate on a limited number of types to finish up the war, they decided to concentrate for a single-seater fighter solely on the Nieuport "Nighthawk" for the "Dragonfly" engine.

The reasons why this machine was selected were:—

(1) That it fulfilled the performance required.

(2) That it was fully up to the required strength as demonstrated by loading tests on every part of the machine.

(3) That the general arrangement of the machine gave the very best facilities to the pilot for fighting—namely, for position and accessibility of guns, instruments, etc., and the minimum blind area.

(4) Because the general design of the machine was for quick production and the fact that complete engineering drawings and schedules had been prepared in advance.

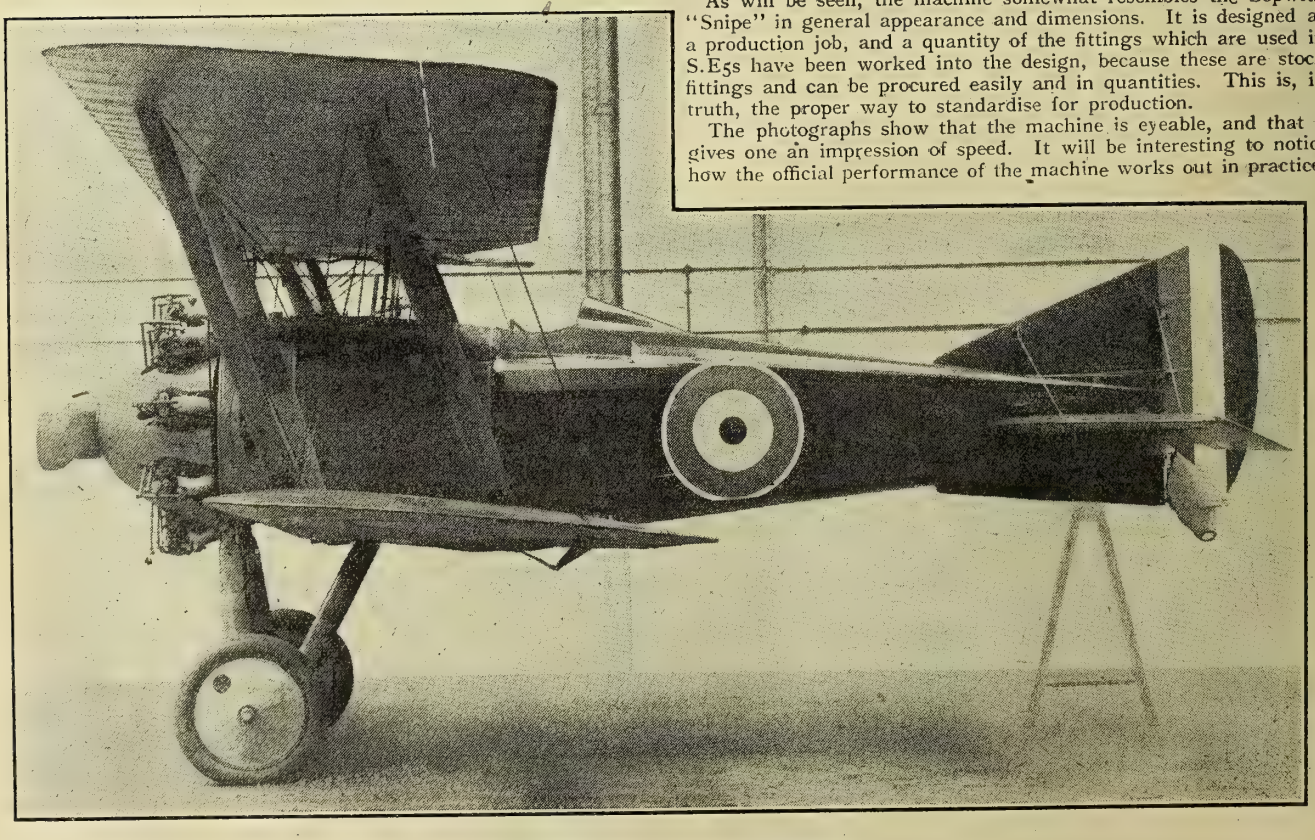
The design was carried out by Mr. H. P. Folland, who is the chief engineer and designer to the Nieuport Company. Mr. Folland was assistant chief designer at the Royal Aircraft Factory, where he carried out the designs of F.E2 and S.E5.

Prior to the war, when Maj.-Gen. J. B. Seely, who was then Secretary of State for War, wished to make a world's record on behalf of the Royal Aircraft Factory, he instructed the superintendent of the R.A.F. to produce a machine for this purpose. This machine was known as S.E4, and was fitted with 160 h.p. 18-cylinder Gnôme engine. The design of this machine was carried out by Mr. Folland, and the machine was flown by Maj. J. M. Salmond (now Major-General and K.C.B.), and, as mentioned in the House of Commons in 1914, the machine made did a speed of 135 m.p.h. and climbed the first 1,500 ft. in one minute.

Major S. Heckstall Smith, general manager of the Nieuport Company, was at that time Assistant Superintendent at the R.A.F., and was largely responsible for such successes as the factory produced. The "Nighthawk" is a marked advance in detail design and construction on any of the R.A.F. work, and both he and Mr. Folland deserve to be congratulated on its production.

As will be seen, the machine somewhat resembles the Sopwith "Snipe" in general appearance and dimensions. It is designed as a production job, and a quantity of the fittings which are used in S.E5s have been worked into the design, because these are stock fittings and can be procured easily and in quantities. This is, in truth, the proper way to standardise for production.

The photographs show that the machine is eyeable, and that it gives one an impression of speed. It will be interesting to notice how the official performance of the machine works out in practice.



Side View of the Nieuport "Nighthawk."

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LAST week we announced its share in the amazing altitude record of 30,500 feet on a D.H. 9, with a Napier "Lion" Engine.

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has completed its journey from England to India.

IT is also announced that a regular service for passengers and despatches between London and Paris has been established for the use of Peace Conference Delegates, Ministers, and their secretaries. The machines will be D.H. 4's, with Rolls Royce engines, and
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157	80 H.P. RENAULT.	58	100 H.P. ANZANI.
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17	200 H.P. R.A.F. 3a.	22	110 H.P. LE RHONE (French).
16	220 H.P. RENAULT.	4	150 H.P. SUNBEAM.
10	70 H.P. ,,	250	90 H.P. R A.F. 1A.
		250	140 H.P. R.A.F. 4A.

The above engines in various conditions are offered for sale. Tenders are invited and will be accepted up to and opened on February 10th, 1919.

Full particulars can be obtained from :

AIRCRAFT SALVAGE BRANCH, York House, KINGSWAY, W.C.2.

THE MEDICAL ASPECTS OF AVIATION.

On Wednesday, January 15th, a meeting of the Royal Aeronautical Society was held at the Royal Society of Arts, John Street, Adelphi, when Lieut. L. E. Stamm, B.A., B.Sc., M.D., R.A.F., delivered a lecture entitled the "Medical Aspects of Aviation." Surgeon Lieutenant-General Sir Alfred Keogh, K.C.B., took the chair.

Dr. Stamm's lecture was of the deepest interest, and threw light on an aspect of practical flying about which little is known among the majority of those who fly. Dr. Stamm's views are all the more worthy of respect because he can speak as an aviator as well as a physician. For this reason one was sorry that the lecture was not better attended by those who profess to be deeply interested in commercial aeronautics, because in peace time the physical effects of flying will certainly be as important a question as, if not more important than, it was in war time.

The Lecture.

In commencing his discourse Dr. Stamm explained that although the subject of his lecture was a somewhat wide one, and that, therefore, he would have to allude to the many problems that aviation offers to the medical service, he would deal principally with what had been his special work, namely the endeavour to determine the essential mental qualities of a good pilot and the methods by which the possession of these qualities could be tested in candidates for the Royal Air Force.

In making this estimate it was necessary to regard the man as the governing mechanism of an aeroplane, which itself was but the wings of the human bird. By far the most important part of this human mechanism was the all-controlling central nervous system, the importance of which could only be gauged when it was realised that not only was it connected with all the mental functions, but that through it were carried out all the fine adjustments and controls of the internal organs, such as, the circulatory and respiratory systems in their efforts to meet any special stresses and strains put upon them caused by rapid ascents, great heights and centrifugal force in vertical turns.

For a man to be able to meet these special stresses he not only requires healthy organs, such as heart and lungs, but a vigorous nervous mechanism controlling these organs.

For instance, when a person assumed suddenly an erect from a prone position, a highly complex piece of adjusting mechanism was put into motion by which the blood vessels in one part of the body were caused to dilate and in another to contract, so that the distribution of the blood over the body was adjusted to the new position in relation to gravity; and it was especially necessary that the supply of blood to the brain should be maintained, because any failure in rapid adjustment might lead to giddiness or even insensibility. The rapid changes in relation to gravity and centrifugal force demanded much from the controlling nerve mechanism for rapid adjustment of the organs.

The Special Physical Conditions of the Air.

The physical conditions in the air responsible for extra stress and strain on an aviator were height, centrifugal force and equilibrium.

Height was accompanied by rarefaction of the air and consequent diminished supply of oxygen, which involved an increase in the respiratory rate, in order to compensate for the diminished supply of oxygen in each breath, and increased heart rate in order to circulate the blood more rapidly which carried less oxygen. Therefore, not only were sound heart and lungs required, but a good controlling adjusting nerve mechanism.

Colonel Flack, Director of Medical Research, R.A.F., had successfully dealt with this medico-aviation problem, and had devised various appliances for testing pilots on the ground for their capacity to meet the strain of high flying. One test consisted in taking the time during which a person could exercise an expiratory force against a column of mercury while the variations in the pulse were watched during the effort.

So far as centrifugal force was concerned it had been estimated that this force on the aeroplane and its pilot could amount to four times as much as that of gravity. That meant that during such a turn it was necessary for the heart to overcome a force four times that of gravity in order to maintain the supply of blood to the brain, and failure meant anæmia of the brain and consequent insensibility. Therefore a full reserve of strength in the cardiac muscle and a good controlling nerve mechanism was necessary.

Equilibrium depended upon many factors, both physical and mental, and was especially connected with the sense organ of hearing, but any failure of adjustment of the nerve mechanism controlling the circulatory system was just as likely to upset this sense of equilibrium.

Air sickness was probably connected with some weakness in this sympathetic nerve mechanism. Air sickness was not the same thing as sea sickness, many bad sailors suffering no inconvenience in the air. It usually only manifested itself during "stunting," and in many cases the emotion of fear was an important factor.

In this connection it could easily be explained anatomically why one felt a sudden movement downwards much more than a sudden movement upwards. The viscera are slung to the back abdominal wall by bands of tissue, called the mesentery. In a sudden movement downwards the viscera did not take up the motion on the body at once, but lagged behind and floated upwards, causing the "jump" in the inside.

In a sudden movement upwards these membranes were simply put slightly on the stretch. For this reason a stalling turn, or a sudden dive, caused more sensation than a loop, where the mesentery would be on the stretch all the time.

Mental Qualities.

Before dealing specially with the mental qualities, it was necessary to consider the nerve mechanism which subserved the mental functions. One had, in the first place, the sense organs of sight, hearing and touch, also the muscular sense and sense of equilibrium, and it was necessary that each one of these senses should function in a normal manner.

Muscles should show good tone and power of adjustment. Deficiency in this respect was characterised by an instructor as "heavy on controls." Such inherent clumsiness could be tested on the ground, but there was another deficiency which had not received much attention, one of considerable importance, however, namely, "conscious control of the muscles." It was a curious phenomena that although the average person might place his limbs in any attitude requested, if he were told to relax the muscle of any limb so that another person could move it in any direction, he would probably be not able to do so. Such a failure showed a lack of complete *rapport* between the muscles and brain nerve centres that should control them. This unconscious rigidity might be responsible for a serious condition of things in the air in the course of training, as when a pupil lost his head and hung like grim death to the control stick, making it impossible for the instructor to take proper control.

For this reason the lecturer had prescribed a method of practice by which pupils could develop a proper control of muscles, and be able to relax at will.

In ordinary flying an experienced pilot controlled his machine automatically, his sensation of sight, hearing and touch being transmitted direct to the nerve centres, and consequently muscular movements were carried out without any interference or control from higher centres. But in the air circumstances continually occurred calling for the exercise of the higher centres connected with decision, discrimination and judgment, and at certain times rapid action, following quick and correct judgment, decided an aviator's fate, and it was necessary, therefore, that he should have the capacity for taking in the circumstances of a situation quickly so that he could make a rapid and correct decision. Therefore one not only required quick and accurate co-ordination between the senses and the muscles, but also between these and the higher mental functions.

The first requirements could be tested by taking "simple reaction time," namely, the interval of time which elapsed between a person receiving a signal, either visual, auditory or tactile, and his response to the signal. In the opinion of the lecturer this test was of little practical value, because in healthy young men with normal senses and muscles the reaction time was sufficiently quick and accurate for all practical purposes, and he did not think that such simple tests would eliminate one per cent. of undesirables.

It was necessary to test the ability of a candidate to respond quickly and accurately under conditions in which the higher conscious mental functions of discrimination, judgment and decision were involved. For this purpose one had to devise a number of different signals, requiring different responses, the candidate not knowing which signal to expect; an arrangement which necessitated the intervention of a conscious mind in proportion to the complexity of the problem presented to the candidate.

The lecturer then demonstrated an apparatus he had devised with the help of Major Burgess, R.A.F.

The Reaction Time Apparatus.

This appliance consisted of a chronoscope which registered to 1/100 second, worked electrically by the touching of a key. Four signals, namely, two differently coloured lights, an electric horn and electric bell were installed; the operator sat before a switchboard from which any of the signals was put in operation.

When the operator pressed his key, one of the signals was given, and at the same time the chronoscope started. The candidate had to respond as quickly as possible by touching an appropriate key on a board placed before him, which stopped the chronoscope. Whereafter the reaction time could be read off in 1/100th seconds. The test was made somewhat complex by the

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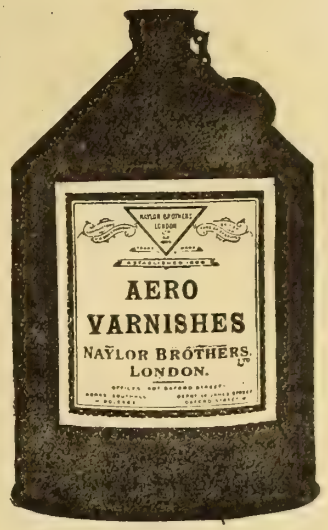
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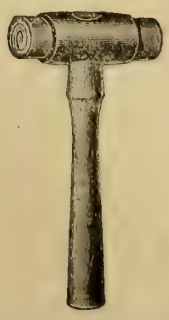
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use of a separate key for each of the two lights, but a common key for a response to the bell or the horn.

After a short preliminary rehearsal to acquaint the candidate with the method of working the apparatus, he was tested for simple automatic reaction time by being asked to respond to one of the signals which he knew beforehand. He was tested in this manner by a series of each of the four signals.

The lecturer placed no value on these tests, but explained that they enabled the candidate to get used to the apparatus. After these tests for simple reaction time with each separate signal, the candidate was told that he might get either one of the two lights, and that he was to respond by touching the appropriate keys. Having done a series of 10 tests with the two light signals, he was then given a series with three possible signals, namely, the two lights and the horn, and finally a series with all four signals, two lights, horn and bell, but for the bell, for which he had previously used the middle key, he was then told to keep his finger immobile, making no attempt to strike a key, an instruction which involved mental inhibition.

In the practical demonstration of the instrument which followed it was evident that the most difficult achievement of all, so far as the candidate was concerned, was to keep his finger still when the bell rang, as he instinctively tried to do something with it.

The progressive complexity of the tests naturally showed a corresponding increase in the reaction time, but a standard had been set up which gave a very accurate indication of the mental equipment of candidates.

A further difficulty could be employed by telling the candidates to depress the opposite keys controlling the two lights instead of the appropriate keys, the following were the averages of 150 cases, including pupils and instructors (good pilots), for the different tests in 1/100th seconds :—

(1)	Reaction time to single light signal	28
(2)	,, ,, ,, sound ,,	26
(3)	,, ,, two lights	35
(4)	,, ,, ,, ,, and horn	38
(5)	,, ,, ,, ,, ,, two sound signals	44
(6)	,, ,, four signals with keys to lights crossed	48

Examination of 20 instructors (experienced pilots) in the same way yields, as would be expected, appreciably lower figures as averages for the 20 cases :—

Simple visual reaction (one signal)	27
,, auditory ,, ,,	25
Two signal test (two lights)	32.4
Three ,, ,, (two lights and horn)	34.5
Four ,, ,, (two lights and two sound signals)	40.4
Four ,, ,, (with keys and lights crossed)	46

Taking the last two tests as the crucial tests of the mentality of a pupil, remarkable correspondence between the results of the tests and the actual capacities of the candidates as flying pupils had been discovered. The lecturer had tested a certain batch of pupils, and after sending their names to their instructors for their opinion as to their flying capacities and their possibilities of making good pilots, and had found that there was a wonderful degree of agreement between the actual attainments of the pupils and the results of their reaction tests.

The lecturer exhibited some lantern slides showing in tabular form the records of a large number of pupils at the aerodrome, compared with their reaction times previously taken.

Dr. Stamm pointed out that the fact that the candidate had to move his finger to the different keys involved muscular adjustment which he considered a valuable factor in a test of nerve mechanism.

The value of the tests lay in the fact that they involved considerable adjustment and co-ordination between the senses and the muscles, and at the same time called for a rapid and accurate working of the higher mental functions of conscious discrimination and decision, a complexity of conditions similar to that involved in piloting an aeroplane.

The results of the "will" factor in the tests were curious, and it acted in at least two different ways. It might be negative, when the results of the tests did not represent the best that the candidate could do, or it might be very positive and exercised to such an extent that the candidate exceeded for a time his normal power of reaction. As a rule, however, in this case mental fatigue set in before the finish of the tests, and he was unable to keep up the pace he had set for himself.

The use of the apparatus also afforded an opportunity for the examiner to make mental notes in regard to the intelligence and personality of the candidates, some showing remarkable quick adaptability, whereas others were slower in acquiring the idea, but gave a good account of themselves in the final tests.

Pilots known to the lecturer personally had shown evidence of their personalities in the use of the machine—flashy, crack scout pilots showing a rapid and inaccurate reaction, while the steady careful pilot was characterised by a slower but absolutely accurate reaction.

The Emotional Factor.

Subjects who were liable to extreme manifestations of emotion, resulting in rapid heart action and other disturbances of the circulatory system, were unsuitable for pilots because this emotion also resulted in the paralysis of thought and action.

The extreme of this type was the men of whom the emotional centres were so stable that no disturbances to the rest of his physique took place even under the most trying conditions.

There might be some activity of his emotional centres set up, which however merely resulted in a stimulation to the rest of the mechanism, so that his powers of thought and action were actually increased; and here one found a striking analogy between the effect of the emotional centres to the rest of the nervous system and that of drugs.

Although the individual who was liable to serious emotional disturbances was constitutionally unfitted for air work, he was not necessarily a coward in the ordinary acceptation of the term. He might have proved himself an excellent infantry officer and have gone into the Air Force with all the desire and determination to distinguish himself, only to find that the possible danger voluntarily incurred by him was handicapped by uncontrollable emotional disturbances.

There were naturally many intermediary conditions between the extreme types, but it was most important that individuals should be eliminated in whom the tendency to severe emotional disturbances was likely to manifest itself.

The mere condition of the pulse rate while undergoing medical examination was a very fair indication, as the type of person with high emotions generally manifested a rapid pulse which did not settle down in spite of every effort to put him at his ease.

Some guidance could be obtained by a study of facial expression, because there was a typical kind of subject possessing a furtive, apprehensive look, which was a marked contrast to the straight, direct and decided expression of the crack fighting pilot.

The essential mental qualities for aviation one had to consider were quick, accurate judgment and confidence, which required a nice balance for the best results.

Crashes were caused chiefly by two causes (1) the pilot losing his head, due to loss of control resulting from the emotional disturbances of fear in the manner already described, and (2), over-confidence in an intelligence or judgment below the average, which, therefore, did not justify the confidence.

The one condition was quite as responsible for disasters as the other. There were cases on record that had given poor results with the apparatus and of whom the lecturer had formed an adverse opinion who had displayed plenty of confidence on the aerodrome, and who had been marked good by the instructor because they had "lots of guts," but the verdict of the testing apparatus had been justified every time by the inevitable crash.

In the mind of the lecturer the power of judgment and quick decision did not appear to involve the highest intellectual functions of the mind; it was rather on a par with what was in ordinary life called "tact." It was the power to take in all the circumstances of a given position quickly and react to it in the best manner—to do the right thing instead of the wrong with quick decision.

There was a certain type of highly intellectual person, a professor of psychology, for instance, whose nervous reactions would not take the first prize, and also he would not make a good pilot. While one might pick out special mental characteristics essential for the successful aviator and exclude everyone specially deficient in any one of them from air work, one, at the same time, should recognise that there is an infinite variety in the temperaments and mental constitutions of men, and that, therefore, no hard-and-fast line could be drawn, and just as there were many types of aeroplanes, each useful for a particular purpose, so the pilot of cool judgment, though somewhat slow and deliberate in action, was suited to one service, while the quick, high-spirited though somewhat emotional, erratic type might be chosen for another, such as, fighting scout.

Dr. Stamm said that a good nerve physique was found in young men who had led an outdoor life, which offered the best training for aviation by developing their power of observation and quick response, as in the case of riding, shooting, hunting, and although, perhaps, in a less degree, almost any sport.

Some people asked why all this pother about flying when it was such a simple matter. One pilot put it, "I have spent a great deal more time trying to play tennis than I have learning to fly, and I can fly a great deal better than I can play tennis." The lecturer pointed out that there was a very large *but* which could be best illustrated in this way. If a long 6-inch plank were laid upon the floor, probably 99 out of 100 of quite ordinary people would be able to walk along it successfully without touching the floor on either side; if, however, the plank were raised 10 ft. above the ground, how many of that 100 would even venture to attempt the feat?

Notwithstanding all he had said the lecturer deprecated too much effort at devising apparatus with a view to imitating the

conditions of the air on the ground, and thought the much more practical system to adopt was to take the candidate into the air and give him one or two trial trips with specially experienced pilots under special medical supervision.

THE FIGHTING SPIRIT.

So far as the fighting scout was concerned it had been suggested that he must possess the fighting spirit, and be capable of developing the emotion of anger with his foe—in other words, must be able "to see red." With this the lecturer disagreed, and, in conformity with what he had already said, was convinced that a pilot required to be as free as possible from any emotional disturbances, whether of fear or anger, and that if he "sees red" his judgment was liable to be cloudy and faulty. It was the man who goes forth aggressive but cool in the spirit of the hunter with a judgment, cunning, and zest to down his prey who was most likely to carry through those nice little twists and turns in the right direction and at the right moment which would seal the fate of his adversary and render him victorious.

ALCOHOL AND TOBACCO.

Dr. Stamm said that any excess in alcohol or tobacco reacted deleteriously upon the nervous system more than any part of the body, and, therefore, was to be deprecated. It had been seriously suggested that an occasional good "binge" was beneficial, and tended to equalise the effect on the nervous system resulting from the strain of continual flying.

The lecturer did not think that such an idea could in any way be supported, either physiologically or from practical experience, and although under the primary influence of drink a man's brain and nerves might be stimulated and his confidence increased, his judgment was likely to be diminished.

Tobacco, and in particular cigarettes, was another snare both for the experienced pilot and the pupil under instruction, excesses leading to rapid pulse and general loss of tone to the nerve mechanism, the physical effects being closely analogous to those resulting from those of emotional fear.

While pointing out the effects of alcohol and tobacco, the lecturer expressed some sympathy with indulgences in these poisons, because no matter how much flying might appeal to one as a sport, it involved considerable strain upon the nervous system, and there was, therefore, always the tendency to these indulgences. At the same time it was the duty of the medical service concerned to keep a close eye on any excesses and to take such measures as it might seem necessary to restrict them.

The lecturer advocated the provision of facilities for out-of-door sports, particularly the provision of horse-riding, both for pilots and pupils under instruction, which was one of the best physical exercises, and probably came nearer to controlling an aeroplane than any other ground occupation. He suggested that every aerodrome should have its stables as well as its hangars, and that no better place than an aerodrome could be found for polo.

Dr. Stamm was of the opinion that staleness could be avoided by periods of rest, and that all aviators engaged in continual flying should not go for more than three months without a complete rest of at least a couple of weeks.

With the advent of civilian flying it was as important that the medical supervision of pilots should continue, because although the demands upon the nerve physique to such men might not be so stringent as they were for the active service pilot, the responsibilities were greater in having the care of other men's lives.

THE DISCUSSION.

Col. Flack, Director of Medical Research, R.A.F., expressed some scepticism as to the value of such elaborate reaction tests as the lecturer had described, and considered that they could not be regarded with absolute assurance, because they introduced the element of nerve fatigue. He was of opinion that too much importance could not be given to purely physical tests.

Under peace-time conditions he thought that nerve reaction tests would not be so important as they had been in war-time, and that for the purpose of commercial aeronautics the man with slow reflexes would be more popular because of his natural deliberation and care.

Sir Mackenzie Chalmers, K.C.M.G., C.S.I., asked why pilots were chosen so young in view of the fact that it had been found that polo players, cricketers, etc., excelled at their sports in the "thirties." He also asked whether the tests described by the lecturer were affected by the presence or absence of trained dexterity on the part of the candidate, and whether a person who was used to typewriting, or pianoforte playing, would show greater readiness in responding to the signals.

Capt. A. P. Thurston, D.Sc., R.A.F., approved the lecturer's suggestion that horse-riding should be encouraged at aerodromes, and thought that the man of mechanical ability who was a good horseman made the ideal pilot.

Capt. Thurston congratulated the lecturer upon his knowledge of "binges," and as an illustration of the mental effect of over-indulgence described how on an occasion an instructor at an aerodrome, after a farewell lunch, had flown round the aerodrome solemnly for three-quarters of an hour, making practice landings every time he got head to wind, fully under the impression that a pupil was in the rear seat, when, as a matter of fact, he was alone.

Capt. Thurston referred to the heavy stresses experienced in the air and said that all aeroplanes were more strongly constructed than were the aviators to meet these stresses. He described some experiments tried by him personally to determine the physical effects of centrifugal force. He was slung round in a cage until the centrifugal force exerted was 6.85 times that of gravity, whereupon he fainted, and although he had repeated the experiment he did not again allow the apparatus to attain so high a speed.

Capt. Thurston disagreed with the lecturer that a crash was evidence that the deductions of the reflex testing machine were right; crashes occurred for all manner of reasons—some of them obscure—and it was not fair to blame them onto the pilot. For instance, crashes were sometimes due to the re-erection of an aeroplane so that its trim was substantially different to that to which its pilot had become used.

Referring to the part played by the ear canals in the keeping of one's balance, Capt. Thurston mentioned that there were two methods of maintaining one's sense of balance during a steep turn; one was to fly by eye, using the rudder and calculating the attitude of the machine by the appearance of the horizon; and the other was to keep the rudder centralised and steer with the control stick, when the pilot generally retained his sense of balance by automatically putting the control stick in the desired attitude through letting it move with his body. This method of flight was particularly useful in foggy weather or in clouds.

The speaker pointed out that the figures exhibited by the lecturer would have been more valuable had information been given as to the time of day and circumstances of the tests, because any man's reactions when fatigued would be very much inferior to these when he was fresh.

He asked whether the reflex testing machine had been tried on middle-aged and old men, and women. If one could judge from their car-driving experience, he thought that women and middle-aged men should make satisfactory peace-time pilots, especially as flying was far more natural than cycling, motoring, or sailing.

In fact, he believed that man was made to fly, and that the British spirit of enterprise was likely to give this country the same lead in connection with flying which she had enjoyed in connection with the sea.

Capt. Rippon, R.A.F., said that he had found crashes to take place most frequently after long flights, apparently as the result of the inability of the pilots to judge the distance of the ground, owing to eye strain. He said that eye-specialists had investigated vision in connection with landing, and it was hoped that these investigations would be productive of results.

It was characteristic of men who suffered from nervous fatigue of this kind to be unaware of their condition and to show no marked signs of fatigue to other people. For instance, in the case of one man who was thoroughly tired, and who undertook to make one more flight to oblige somebody, found himself in hospital after a crash, many miles from the last town he had recognised, and quite unable to say what had happened to him. This was apparently a case of over-fatigue.

Capt. Rippon gave an interesting analysis of the different classes of men from which flying officers had been drawn. Those available in 1914 were generally enthusiasts from the Regular Army who had learned to fly at their own expense, none of whom had passed any special medical examination. In the 1915-16 classes were found the best men of all—people who had to qualify in a very few hours of training, or be turned down, owing to the scarcity of instructional facilities. Many of them, however, turned out to be amazingly fine pilots, being mostly the type who had spent much of their time in outdoor sports.

By the end of the war we had become perilously near the end of our resources as regards material for pilots, and most of the candidates for the 1917-19 class consisted of men who had been clerks, students, draughtsmen, etc., and not outdoor sportsmen.

Capt. Rippon was inclined to support the simpler form of reflex testing system which had been found extremely satisfactory by the French.

THE CHAIRMAN.

The Chairman, in thanking the lecturer, pointed out that the personal equation could not be determined by reaction tests, and this important consideration must be kept to the forefront, and he felt that, no matter how informative mechanical tests might be, the personal equation should be properly watched in the selection of service pilots.

Although it seemed evident that the commercial pilot of the future would not have to be the same type as the war-time fighting pilot, medical supervision would have to be exercised in the selection of commercial pilots in the interests of public safety.

THE LECTURER'S REPLY.

In returning thanks, the lecturer replied to the two questions raised by Sir Mackenzie Chalmers. He pointed out that people of over 30 who excelled in sports did not commence to learn those sports at so advanced an age, and that they had usually

many years' experience, beginning with their youth, and he thought that a man who commenced to learn any ordinary sport during the 'thirties would not do so well as a man who had begun in his youth, simply because, as one grew older, one's adaptability decreased. In a similar way a very young man generally found it easier to learn to fly than an older man, simply because of his greater adaptability, although it was beyond dispute that elder men were endowed with a greater sense of responsibility, and that, therefore, commercial pilots should, if trained young, be subjected to a considerable period of probation before being entrusted with the control of passenger-carrying aeroplanes.

OXYGEN AND AVIATORS.

At the Royal Institution on Jan. 17th, Sir James Dewar, in the course of a lecture on "Liquid Oxygen and the War," said that the second main application of liquid air or oxygen mentioned is for supplying the oxygen needed by aviators at high altitudes. Apparatus of this kind was found in German aeroplanes brought down when raiding London, and it has the advantage over the method of carrying the necessary oxygen compressed in steel cylinders that it is very much lighter. The liquid air is stored in vacuum vessels, and, volatilised under the influx of heat, is conveyed in tubes to mouthpieces from which it is breathed by the aviators. Sir James Dewar showed three methods by which the influx of heat, and with it the amount of oxygen given off, can be regulated. In the first electrical heating is employed, and in the second a rod of copper or aluminium, gradually screwed down into the vessel, conducts energy into the liquid and volatilises it. In the third the liquid air is simply siphoned out through a stop-cock into an evaporating chamber, which receives its heat from the outer air, and is then warmed up to air-temperature by being passed through a series of coils before it reaches the mouths of the aviators. By adjusting the stop-cock the amount of air delivered can be readily regulated.

ARMISTICE CELEBRATIONS IN CANADA.

The following is from a Canadian newspaper:—

There are some sore-headed officers of the Royal Air Force at Camp Borden just now. The reason for that "soreness" makes quite an interesting story, which ought to attract the attention of the Ontario Licence Board. That day the fake news of peace was spread, the gallant officers of the Royal Air Force at Camp Borden were astonished to see the mechanics celebrating in a manner that took one's mind back to the days before prohibition.

Where did they get the booze? Naturally that was the first question that the gallant officers of the R.A.F. asked themselves and, as it happened, they were able to answer their own question. It seems that some of these gallant officers had imported a consignment of whisky from Montreal in defiance of the prohibitory order. To fool the licence inspectors the whisky was transported in cylinders and duly "cached" according to instructions.

The celebration started when the mechanics located the cache and removed 170 of the 200 bottles that were planted there. It was not till three o'clock in the morning that the orderly officer suspected the source of the supply and was thus enabled to salvage the remaining thirty bottles. Naturally the officers will deny that the booze was imported by them for their own jollification. Naturally they cannot "crime" anyone for stealing the booze, but the men implicated, nevertheless, are being punished.

On the least provocation every airman is being "pegged." Offences that formerly were passed over lightly, if not unnoticed, are being developed into heinous crimes if one is to judge by the sentences handed out. In this way the gallant officers of the R.A.F. are getting a bit of their own back. But that is a petty revenge to take out of the men who, by drinking the whisky, perhaps saved the officers from a worse fate. Knowing that they had broken the law, knowing that they were doing something subversive of discipline, knowing that they were taking advantage of their position and the facilities that gave them, to do something that the men would have been "crimed" for, they ought to have taken their defeat like gallant officers and gentlemen and laughed with the boys at the joke, although the joke was on themselves.

If the officers want a drink now, they can gargle instead of wasting some of the thousands of gallons of castor oil that the British taxpayer pays for, and which is not utilised for any useful purpose.

R.A.F. PERSONNEL AND COMMERCIAL AERONAUTICS.

Since the signing of the Armistice the offices of The Aeroplane have been besieged with applications from officers and men of the Royal Air Force, the King's Services generally, and by civilians concerned with the production of aircraft, all of whom are anxious to make a fortune—the more modest of them are merely anxious to make a living—in connection with Civil Aerial Transport.

It has been necessary to point out to all these visitors and correspondents that, although the future of Civil Aerial Transport will afford opportunities for the lucrative employment of tens of thousands of people, the number who can hope to obtain employment during the next few months is an unknown quantity, which can only be determined by the action or inaction of the Government and the Aircraft Industry.

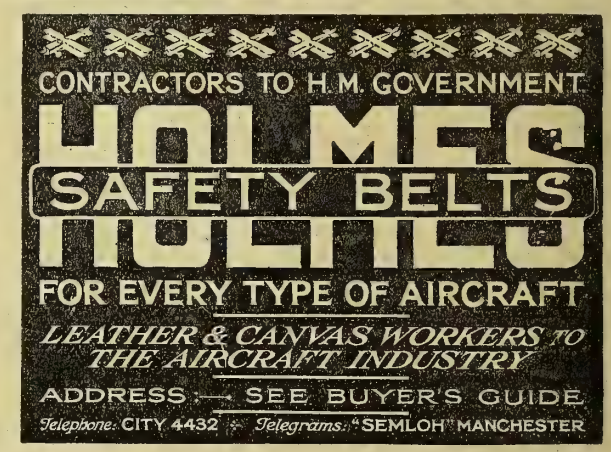
If the Aircraft Industry fails, all the help which the Government is capable of rendering will be waste effort; but, on the other hand, without active Government encouragement there is little hope for British Commercial Aeronautics in the near future.

As soon as any useful information is available, full publicity will be given to it in the columns of The Aeroplane, but at the moment there is little advice which can be given to inquirers as to how to obtain employment, except to point out that those possessing special qualifications should not allow those firms in the Aircraft Industry which have announced a post-war policy to remain in ignorance of their existence.

In the meantime attention is once more drawn to the work of Capt. A. J. Swinton, late R.E., who is compiling a registry of aviators and others who wish to take up aviation as a profession.

Those interested are invited, therefore, to communicate by letter to Capt. Swinton at 217, Piccadilly, giving in the first instance the barest outline of their previous experience.

In due course this register will be available to all persons who are anxious to obtain the services of those experienced in aviation, and in this way it is hoped to place the right men in communication with the right employers to the mutual satisfaction of employer and employed.





The AEROPLANE

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ON THE IRISH REPUBLIC AND AERONAUTICS.

Presumably there is no doubt about the existence of the Irish Republic. One is always open to correction on a matter of fact, but one recalls very distinctly that one of, if not the chiefest of, our War Aims, as set forth by our present beloved Prime Minister, was the right of small nations to determine their own destinies.

Belgium was to be freed from German influence. Elsass-Lothringen, those twin provinces with such essentially French names, which, having been free Teutonic duchies until 1750 or so, became ethnologically and sentimentally French between then and 1870, were to be given the choice of whether they would in future be French or German, or perhaps neither. Servia was to be relieved from the yoke of Austria. The Czecho-Slovaks of Bohemia were to set up a Slav State in the heart of the German population of Austria. The various mongrel tribes who call themselves Poles were to set up an independent nation and annex some of the most flourishing provinces of Germany and Austria—which were poverty-stricken under Slav misrule and blossomed into wealth under Teuton organisation. The Roumanians were to take over Transylvania.

In fact, every tribelet which happened to dislike being kept in order by a better organised or more civilised nation of greater size was to have the right to self-determine itself back into its original poverty, chaos, and dirt, or to go on and prosper in its own way, according to its own choice, and not according to what is best for world-progress. We have the word of our great national leader for it. And Mr. George was ever an honourable man.

What Is Self-Determination?

That being so, who can deny Ireland's right to be a Republic? At a properly regulated General Election, run on the most approved English lines, the Irish people have elected 73 Sinn Fein representatives, all of whom are for an Irish Republic. Against them there were elected 20 Unionists, who were equally solid in desiring that Ireland shall remain a part of England. And there were also elected 7 of the old Nationalist Party, who may be regarded as strictly neutral, in that they do not care which of the other two sides causes England the most trouble.

Now if a vote of 73 against 20 is not a sufficient majority to justify the self-determination of a nation, one would like to know what proportion of votes is necessary for self-determination. It is impossible to obtain unanimity. For example, if one took a *plébiscite* of Servia one would certainly find a large number of well-to-do pig-breeders and pig-dealers who would vote for annexation to Austria, the pig industry and the export of pigs to Austria being Servia's chief staple of foreign trade, and her only basis of exchange for imported goods. And perhaps someone will be good enough to explain precisely the ethical difference between the Servia pig-producer who would like to be an Austrian subject, and a North of Ireland shipbuilder who wants to be an English subject.

Of course, one will be met by the argument that the Irish and the English are all one race, and speak the same language. That is pure bunkum. An Englishman in Ireland feels that he is in foreign country from the moment that he sets foot on Irish soil. Even the language is different, chiefly because the Irish speak better English than do the Anglo-Saxons, the Irish having learned their English chiefly from Norman gentlemen who settled in Ireland by right of conquest, whereas Anglo-Saxon English is largely made up of the *patois* of the lower-class Teuton inhabitants of England.

An Unnoticed Jest.

One of the great jests of the war, a jest which passed unnoticed by most people, was a small paragraph which went round the papers a year or so ago under the heading of "Austrian Atrocities," and related how the Mahomedan troops in the Austrian service made a hobby of collecting the ears of fallen Italians and wearing them when dried as necklaces, in evidence of their prowess. The paragraph omitted to explain that these cheerful savages were Jugo-Slavs of sorts, for whose right to self-determination we were fighting.

In all past wars Croat troops have been notorious for their atrocities. Also it is not generally known in this country that a goodly proportion of the Jugo-Slav population of Servia, Bosnia, Herzegovina, Dalmatia, and Croatia are Mahomedans. Yet our beloved Prime Minister and his faithful henchmen are apparently bent on the right of these people to form an independent republic, however much Italy may object to an enormous Slav State occuping the opposite coast of the Adriatic within easy flying distance of some of the most cherished Italian cities.

When the great Slav leader arises and starts to sweep the Latins and Teutons off the map of Europe, Jugo-Slavia will be a convenient jumping-off place against the Latin race. The quick Italian mind knows it. Hence the present argument.

But, we have fought for the right of small nations to self-determine themselves. Our Mr. Lloyd George has said so. Therefore it must be true. And, if the Jugo-Slavs are to be "a nation once again," who can deny Ireland's right? A matter of a few policemen shot by unduly enthusiastic Irish Republicans seems to be neither here nor there, any more than a few thousand Russian aristocrats murdered by the self-determining Bolsheviks whom Mr. Lloyd George seems to desire to invite to the Paris Conference.

The Irish Parliament.

The Irish Parliament has met. Not on College Green, it is true, but merely in the bourgeois precincts of Dawson Street. Nevertheless, it was a properly elected Constituent Assembly, formed after the best English model, and it was fully entitled to determine Ireland's future.

Unfortunately only 30 of the 100 elected members were present. Most of them were in gaol, but the remainder were absent of their own accord. They were invited to attend, and their names were duly called when the Parliament assembled, even that of Sir Edward Carson, which shows that the Sinn Feiners bear the Ulstermen no malice, and are only anxious to meet them in fair debate.

A Unanimous Vote.

Anyhow, the Irish Parliament has voted unanimously for an Irish Republic. The members who were in prison would certainly have voted for it. And as regards those who did not attend in response to their invitations, the rest are surely justified in arguing that silence gives consent.

One recalls that the late lamented Mr. Dan Leno used the same argument in organising his famous Amateur Fire Brigade, of which he used to tell on the stage how he went to the Chief of the real Fire Brigade and proposed his new (or self-determined) organisation, saying "You see! If two fires break out in the town at once, you can't be at both of 'em at the same time. So if *we* form *our* Brigade, *you* can go and attend to *one* fire, and *we* can go to the *other*—and—er—er—sort of *keep it alight* till *you* come."

Mr. Leno used to relate that the Chief of the real Fire Brigade did not say anything; he merely took him by the neck and put him out on the landing. "And," said Mr. Leno, "silence gives consent, you know. So here we are."

One can easily conceive a situation in which if two international rows started and the British Army were sent to settle one of them, the Irish Army would go to the other and keep it alight till English troops were sent to put it out. But, be that as it may, there is your Irish Parliament. There is your Irish Nation, practically unanimous in wanting to be a Republic. So what about it?

Are we to go back on the pledged word of our beloved Prime Minister? Is our modern St. George to be defeated in his conflict with the Dragon of Oppression by Big Nations? How is the Peace Conference and its Utopian League of Nations to avoid recognising the Irish Republic, along with the Polish Republic, and the Finnish Republic, and the Czecho-Slovak Republic, and the Jugo-Slav Republic, and the Ukrainian Republic, and the Andorran Republic, and the San Morenan Republic, and all the rest, unless it discloses itself before the world as being as hypocritical and perfidious as the English Nation has always been held up to be in the past by some of its present gallant Allies?

The Aeronautical Aspect.

Now evidently it is going to be exceedingly awkward for aerial navigation in the future if there is to be an independent Irish Republic stuck out into the Atlantic exactly on the route between England and America. The doctrine that a nation owns the air above it *usque ad cœlum* is certain to be accepted by the International Aeronautical Conference which is to be held this year, if the war does not start again.

That being so, all airship traffic between England and America must either circumnavigate Ireland, which would be a nuisance and a delay, or else such traffic must pay toll for passing through Irish air. It is certain that such toll would be exacted, because one can see no other possible source of revenue for the Irish Exchequer, except from internal taxation.

The words *Sinn Fein* (pronounced in the English speech "Shin Fain") mean "Us Alone." The desire of the Sinn Feiners is to be left alone and to be self-supporting. They wish to have no intercourse with England, the oppressor of their country for seven hundred years. Therefore it is fairly obvious that no trans-Atlantic aeroplane line would be allowed to establish bases on the West Coast of Ireland, and that no continuation of such a line would be allowed to cross Ireland or to establish intermediate landing grounds on the rocks of Mayo or the plains of Meath.

Such lines might be a great addition to the taxable value of Ireland, but, from the point of view of the Sinn Feiner, which is the point of view of the Irish Republic, they could not be allowed to exist.

Air Force Bases.

There is also the question of bases for the Royal Air Force and for the Naval Air Service—not to mention the Navy itself—to be considered. In the next war we shall not have to contend with battleships on the surface and small submarines below it. We shall be fighting with submarine battleships. Already our big submarines are as big and as heavily armed as a small cruiser, and they are only a beginning.

It is plainly to be seen, therefore, that an unfriendly neutral Republic on our West flank would be distinctly inconvenient in the next war. And it is equally clear that we must have big bases for our anti-submarine air fleets on the North, West, and South Coasts of Ireland, or else we shall be at a very grave disadvantage.

We might, it is true, establish such bases, in case of war, in this neutral country, much as we—in alliance with France and Italy—established bases in neutral Greece. But, even so, experience in Greece has shown us the unsatisfactory nature of such an arrangement, especially when the bases are established hurriedly as a war emergency.

An Imperial Necessity.

We might try to insist on setting up these bases as a condition of recognising the Irish Republic, but that would be a matter for the Peace Conference to decide, and if we are in earnest about our war aims and Self-Determination we cannot attach conditions to a matter which ought to be a point of honour and of international conscience. It is true that we have a somewhat important base at a place called Gibraltar, which is not exactly in a British country, but perhaps that is not to be taken as a precedent, seeing that it was acquired by our bold bad forefathers who had no conscientious objection to taking or doing anything which was for the benefit of their King and Country. We were not so strongly governed by Non-conformists in those days.

But, Republic or no Republic, those bases in Ireland are an Imperial necessity. Either we must have them by force, or we must have them by persuasion. It would be quite easy to acquire them by force, for it is very unlikely that the whole sanctified League of Nations would turn and rend us for stealing a few square miles of Irish coast-land, considering how the League seems disposed to permit Bolshevism to run rampant in Russia.

Nevertheless, being essentially a man of peace who desires to live in quietness and contentment with his neighbours, one would prefer to see persuasion used in this matter, so that not only may the necessary bases be acquired on the Irish coasts, but that Ireland as a whole may return within the Imperial fold—if not, perhaps, within the United Kingdom, which is an unnatural connection.

Ireland's Services.

As part of the British Empire Ireland can be of as great assistance in future as any of the other Over-Seas Dominions. In this war Ireland has given us an unduly high proportion of fighting aviators, as well as of dis-

tinguished soldiers and sailors. If it were possible to obtain comparative figures for voluntary enlistment, as against conscription, it would almost certainly be found that a bigger percentage of the able-bodied Irish have volunteered than of any other nationality in the British Isles.

Therefore Ireland should be persuaded to come into the British Empire as a Self-governing Dominion, like Australia or Canada, instead of sitting out in the cold wet Atlantic in a huff. Then she can participate in all the joys of aerial sport and transport, both of which are peculiarly suited to the real Irish temperament, when it avoids taking itself too seriously.

The Argument for Ireland.

In cold actuality the persuasion of Ireland into a reasonable frame of mind would be a wonderfully simple matter. The Irishman has an astonishingly logical intellect when he is not in a temper, and one believes that the whole trouble could be settled in a few months if the proper remedies were applied. Therefore one ventures to suggest a working scheme.

Let us first of all acknowledge the Irish Republic without further argument. Let us say, "We recognise your right to self-determination. You desire to be a Republic. Very well. Be a Republic. Exist as Sinn Feiners, for yourselves alone. And God bless you!"

But let us add, "We also have to look after our own affairs. We have to re-establish our industries. We have to recover our foreign trade. We have to devote ourselves to our peaceful commercial pursuits, and we cannot afford time to look after you.

"We want all our ships for our over-seas trade, so we have none to spare for trade with the Irish Republic. We want to export our coal and metal products to Scandinavia, and Holland, and Spain, and France, and Belgium, so we shall have none to spare for you. And we shall have to take their cattle and pigs and butter and cheese in exchange, so we shall not want any of yours.

"We are sorry you have no ships of your own. And we are sorry that America does not want to buy your cattle and pigs and butter. And we are sorry you cannot find any other customers for them.

"We do not see where you are going to get coal to run your trains and workshops. We do not see where you are going to get iron to make your agricultural implements. We do not see how you are going to get tobacco and tea. We do not think you can grow wheat when you become tired of barley bread and oatmeal. We do not see how you can get petrol for your motor-cars, nor oil for your machinery. And when your machinery is broken down we do not see how you are going to get any more, because you have no exports to pay for anything.

"We wish you luck. Be a Republic. Exist by and for yourselves alone. And God help you. We are much too busy."

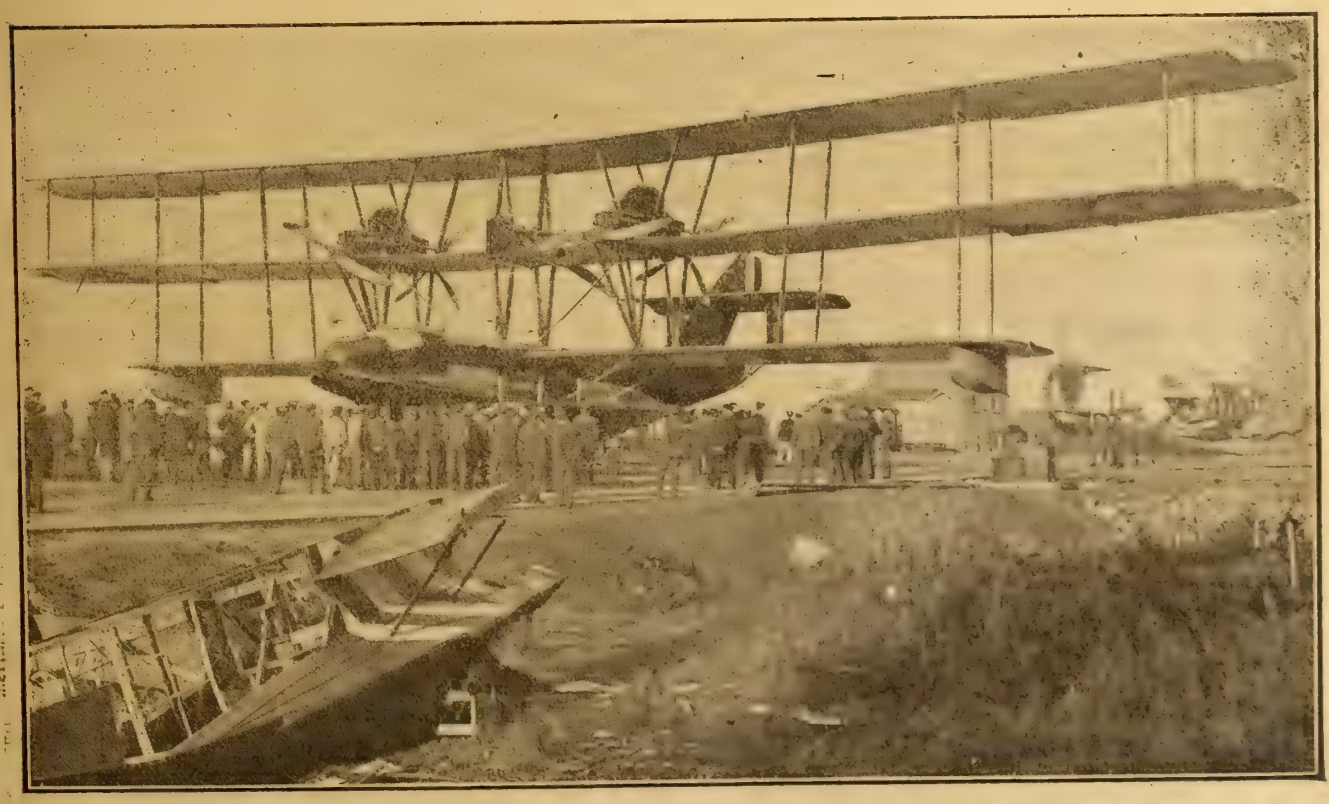
First Consequences.

As soon as Ireland became a Republic living on itself alone there might be a little rioting. A few notably pro-English people might be mobbed. But with a little simple organisation all those who feared violence could be got out of the country under armed guard. The whole lot of them would not amount to a fraction of the number of Belgian refugees at present subsisting on this country.

The damage done to the house property which they left behind would be slight, because it would promptly be occupied by the leading Irish Republicans, and would be handed back later on. In any case, if the whole lot were burnt, it would not cost as much as a day's war.

There might be some attempts at fighting between the North and South, but the International Police Force of the League of Nations would doubtless prevent serious battle by standing in between the opposing factions and being beaten by both, as has been the self-sacrificing custom of the Royal Irish Constabulary since its foundation. It would be a highly educative piece of self-discipline for the Forces of the League of Nations.

Even if the North and South were left to fight it out, very little harm would be done. A few hot-heads would



Three-quarter Front View of the "Felixstowe Fury," the Porte Boat Triplane (Five 350 H.P. Rolls-Royce Engines). In the foreground may be seen the wreckage of a smaller flying-boat.

be killed. The arms and ammunition would soon be expended. Blood-letting is a splendid sedative. Without rail or mechanical transport, and without tea and tobacco, the opposing forces would soon starve into a state of quietude. And the country would feel all the better for it in the end.

The Boycott Cure.

The Irishman is not a fool. Half this Irish Republic business is pure bluff; the other half is simply a display of nerves and bad temper. The cure for the whole thing is the very old and sufficing Irish cure for land troubles. Boycott.

If the Sinn Fein leaders are punished by being imprisoned, hanged, shot, or hand-cuffed, or if they are allowed to starve themselves to death in hunger-strikes, they merely become martyrs and feed the flame of fanatical patriotism for years ahead. If the whole country can be made to look silly in the eyes of the world, as it can be by the simple method of boycott suggested hereinbefore, it will come to its senses in a very short while.

A Wasted Man.

Mr. Ian MacPherson, the new Chief Secretary for Ireland, is far too good a man to be wasted on such a task as trying to rule Ireland under present conditions. He is one of the few gentlemen, and one of the still fewer statesmen, who have sat on either Front Bench in the House of Commons for the past ten years. He ought to have been Secretary of State for War, or failing that Secretary of State for the Air Force.

His seriousness in debate, relieved by flashes of genuine humour, his evident determination to get at the truth before answering a question in the House, his courtesy in reply to hecklers, his charm of manner, and his convincing honesty stamp him as a man fitted for the highest office under the King's Majesty. He is needed for the reconstruction of England. He is wasted on the attempt to govern Ireland.

Never yet has an honest man who knew and loved the Irish people tried to govern that country without being defeated with a broken heart. Between the hypocritical dishonesty of an English Government and the honestly patriotic dishonesty of the Irish people the honest statesman who tries to do his best for both is bound to be broken. One would like to see Mr. MacPherson well out of it, and engaged on some more profitable task.

If the English Government will withdraw all its officials and will remove all timorous persons from Ireland, if it will apply the boycott firmly after the manner indicated, if it will cease fooling with the attempt to govern Ireland and will let Ireland try the experiment of governing and feeding and financing its Sinn Fein self for six months, it will find that well inside that time it will have the whole boiling of them, Sinn Feiners and Nationalists alike, rushing around screaming to be taken back to the bosom of Britannia and fed. And after that the Irish may be trusted to be loyal subjects of King George, and—not for many long years to come, one hopes—of his successor, until a new generation of English political asses and of Irish rebels shall arise.—C. G. G.

RANK IN THE R.A.F.

The "Evening Standard" published on Jan. 27th the following article written by a correspondent:—

Royal Air Force authorities at the Hotel Cecil have at last issued a fairly definite order dealing with permanent commissions. Nothing is said, however, of the future establishment of the R.A.F. or the chances the present officers will have of remaining in the Service or the conditions under which they will serve.

Under existing pension conditions the flying officer must serve a minimum of 15 years with at least five consecutive years' flying before he is granted the lowest pension of £150 per annum, irrespective of rank. Technical and administrative officers must serve a minimum of 20 and 25 years respectively before being granted the lowest pension.

On glancing through the new order several points are at once apparent. Age will be one of the chief considerations in deciding the rank in which a commission will be granted. Pay will probably be on a lower scale than at present governs.

As regards age there is no low limit for the entry of subalterns, but

Subalterns must be under 27 years old;
Captains must be below the age of 35, and in case applicants in that rank are too numerous, service in the rank rather than age will count;
Majors must be between 25 and 38 years of age;
Lieut.-Colonels between 30 and 45;
Colonels between 35 and 48.

The ages for compulsory retirement range from 42 in the case of subalterns to 57 for colonels. In addition, officers over 24 years of age must have had at least 3½ years' war service during the present war and younger officers somewhat less.

So far the conditions seem eminently sensible, and good for the well-being of a new service. The other conditions alter the case.

A statement that "it is not at present possible to state what scales of pay, pensions, and allowances will attach to permanent commissions in the R.A.F., but these will not necessarily be as good as the scales now in force," will make some intending candidates open their eyes. The pay of the R.A.F., whilst admittedly higher than that of the Army, was only sufficient for the average officer to live decently on. If he was married things were not so easy. It was, however, the rate of pay which made it possible for the man of brains but no private income to think seriously of accepting a commission in the new Service.

Not only does the possibility of reduced pay exist, but the possibility of the pension scale being made worse thrusts itself before the present airman.

The order quoted goes on to say that officers already flying, and who have even flown over seas and proved their capabilities under the hardest conditions "will be re-examined by a special medical board as to their fitness to serve in this branch before they are finally selected." Other officers, with a certain amount of reasonableness, may be selected even if, in certain conditions, they possess artificial limbs.

The most important point of all, the chance the average officer will have of receiving a commission, is not touched upon.

It is understood that about 7,000 will be granted to the odd 50,000 officers at present in the Force, and that about 10,000 officers have already applied for these appointments, but no official statement has appeared to help the waiting airmen in their decision.

All that is known is that nothing about the future establishment, after all these months, has yet been decided upon, though 140 squadrons is generally thought to be a possible figure.

After having decided to apply for a permanent commission in the Royal Air Force, the candidate must await the arrival of a special selection board composed of four officers headed by Brigadier-General T. I. Webb-Bowen, C.M.G., who will interview him personally, whether he be in England, France, Egypt, or Mesopotamia, to ascertain his fitness for the new Service.

THE PROGRESS OF THE ROYAL AIR FORCE.

The figures given below show that from practically nothing the Royal Air Force grew to be the biggest Air Service in the world. The R.A.F. fought on more fronts, and its successes were proportionately greater than those of the Air Services of any other nation.

In August, 1914, the R.F.C. and the R.N.A.S. between them mustered a total strength of officers of only 285, on Nov. 11th last year the R.A.F. total of officers was 30,000, of whom 10,000 were pilots and 2,000 observers, on the active service list. Other ranks in 1914 numbered 1,853, and in 1918 there were 264,000, of whom 21,000 were flying cadets in training commissions.

The total of our aeroplanes at the outbreak of war was 166, at the close of hostilities there were 21,000 on charge. We possessed 45 seaplanes in 1914, and 1,300 at the finish, while airships grew in numbers from seven to 103 by the end of the war. There were 25,000 aeroplanes and seaplanes on order on Nov. 11th, 1918, together with 55,000 engines.

In August, 1914, there were only four squadrons of the R.F.C. in existence, and last November the total amounted to over 300—consisting of about 200 service squadrons, 50 training squadrons, and 60 training depot stations.

The membership of the W.R.A.F., which was non-existent in 1914, stood at the close of hostilities at 23,000.

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GENERAL SEELY AFTER DINNER.

A dinner to celebrate the "British Empire's Victory in the Air" was given on Jan. 21st at the Connaught Rooms by an organisation which calls itself the Imperial Air Fleet Committee. Lord Desborough, President of the Committee, was in the chair.

Among those present were :—Major-Gen. J. E. B. Seely (Under-Secretary for the Air), Major Baird (Parliamentary Secretary), Major-Gen. Sir W. S. Brancker, Sir G. H. Perley (High Commissioner for Canada), Sir Thomas Mackenzie (High Commissioner for New Zealand), Sir Peter McBride (Agent-General for Victoria), Sir T. Robinson (Agent-General for Queensland), Sir J. McCall (Agent-General for Tasmania), the Bishop of Ontario, Sir W. Hoy (South Africa), Lord Blyth, Lt.-Gen. Sir W. Birdwood, Lt.-Gen. Sir R. Turner, Major-Gen. F. C. Heath Caldwell, Major-Gen. Sir Godfrey Paine, Major-Gen. E. L. Ellington, Sir W. A. Robinson, Major-Gen. E. B. Ashmore, Brig.-Gen. Sir C. Holden, Brig.-Gen. B. Andrew, Sir Harry Wilson, Mr. W. A. Bland, Mr. A. H. Illingworth, Sir R. Hadfield, Mr. Joynson-Hicks, M.P., Sir S. Tritton, Sir C. Wakefield, and the Rev. H. D. L. Viner (Chaplain-in-Chief, Royal Air Force), and various people who are really concerned with aeronautics and know something about the subject. The dinner, at any rate, was excellent, even if the speeches were not on the same level.

Naturally, Gen. Seely, as the chief air official present, was the principal speaker. One's only reason for reproducing his speech so fully—the report is taken chiefly from the "Times" newspaper—is to give the Royal Air Force some idea of the vocabulary of its new Parliamentary head. One has ventured to interpolate a few explanatory remarks into his speech. These appear in brackets.

Lord Desborough, in proposing as a toast, "The British Empire's Victory in the Air," said that the committee were deeply impressed with the importance and necessity of flying both in peace and war. One of their objects had been to present the self-governing Dominions and India with a nucleus of flying machines which would be of use in the war which so many at that time saw to be impending. In no country had there been anything like the progress in aviation which had been made in this country. We had had splendid men fighting for us, and he thought that, other things being equal, the final touch in the contest was given when the British Empire asserted its mastery in the air. The enemy realised what there was to come if the war continued. (Cheers.)

The After-Dinner Speech.

Gen. Seely remarked that nearly five years had passed since he addressed a gathering at a public dinner. Indeed, he had almost forgotten how to do it; but if ever a man had a good toast to respond to this was a glorious one—the British Empire's victory in the air.

In the winning of the war no greater credit was due to anyone than to the British airman. (Cheers.) In this connection he thought names should be mentioned, such as Sir David Henderson, Gen. Sir H. Trenchard—(cheers)—and Major-Gen. Sir Frederick Sykes. Looking back, all one could say was that their work was well done. Although little had been done in the early days of the war in comparison with what might have been achieved, there was a flash of truth in Gen. French's first dispatch, in which he paid a glowing tribute to our airmen in the first months of the war. [One admires the nerve of a Major-General who says that there was a "flash" of truth in a Field-Marshal's dispatch. One believes that the said dispatch was wholly the truth, which is more than one can say of some of the speaker's utterances.] Things had developed since then, and a tribute was due to the flying men who had come from all parts of the Empire. As had been said to him: "There is only one fault with our airmen. They are too brave." (Cheers and laughter.) [This is an example of the species of guff which nauseates one when reading General Seely's speeches. The British flying man is brave enough, but there is the usual human percentage of rotters and cowards among him, and it is sheer imbecility, or hypocrisy, thus to belaud a number of young men who have had the luck to be physically fit to fly, and so were enabled to avoid the discomforts of having to live in the trenches. Incidentally, as Gen. Seely is now officially concerned with aviation, he will do well to learn that the word "Airman" in the R.A.F. corresponds to the word "ratings" in the Navy, so that if he does not wish his speeches to read more ridiculously than they would normally, he had better learn the correct use of R.A.F. terms.]

Those who had seen, as he had all through the war, the astonishing acts of courage performed by our airmen, must have had their hearts uplifted with pride that they belonged to the race which produced men of that supreme valour. (Cheers.) Those men came from every part of our Empire; Gen Sykes, when asked if he could pick out any part of the Empire as pre-eminent in the air, replied that he could not, for each part had done such wonderful things.

Gen. Seely proceeded: So we won—thank God, we won—(cheers)—and now we won't lose the advantage our victory has given us. [You now observe him warming to his deadly work. One wishes that one had more confidence in his ability to retain our advantage.] The same unity of purpose which has been ours all through the war will be ours in the years of peace to come. We shall have to have Air Forces for military purposes still. People say to me, "You must have an Air Force equivalent to the land and sea forces." I say, "Yes, but it would be wise to have an even greater proportion of Air Force."

The armies of the future, so it seems to me, should be maintained by a League of Nations to coerce all those who dare to break the world's peace—they will be armies, in proportion to their numbers, more mechanical and with more power in the air. Science must be wedded to the art of war in order to ensure the peace of the world. That, I am sure, will be done, and all the best brains at our command will be devoted to that end. [A singularly unfortunate phrase. When he was at the War Office before the war the speaker stated in the House of Commons that "all the best brains" then at our command were concentrated at the Royal Aircraft Factory. The result was the comic F.Es. and B.Es. of the pre-war period, the Raf engine, and almost the ruin of the Aircraft Industry. Gen. Seely would be wiser if he avoided phrases which recall his unfortunate official past.]

But, having done that, and having ensured, I hope, in this great air service that our Dominions, in forming their own air service, will form it in connection with ours so as to have one great air fleet, as we have one great fleet on the sea, we must make sure that the air supremacy we have gained shall be used for the good of mankind, instead of only for the destruction of life.

State-Aided Air Traffic.

I can promise you, on behalf of the Secretary of State for the Air, and for the Air Council, that every effort will be made to help forward the air traffic of the future. Plans have been made in the most liberal detail for helping forward air traffic in the future. Among the things we must do and can do is to secure great air routes to all the great Dominions of the Crown. I see no reason why, within the lifetime of nearly all of us, you should not have great air routes to every part of the British Empire, including Australia, Canada, Newfoundland, all parts of India, and even the most distant parts of the Pacific Ocean. (Cheers.) [One remembers the same person, at a meeting at the House of Commons, promising the Aircraft Industry all sorts of official support to help forward the development of aviation, and yet we began the war with only 50 aeroplanes, all foreign-built or officially designed, and all with foreign engines. So much for his promises.]

All that will not come at once, but if you have got a good plan, and if you work to that end, and if you have got a soft-hearted Treasury—(laughter), which I hope to find—(renewed laughter), and on which I shall ask for the support of Mr. Joynson-Hicks and others in the House of Commons—(Mr. Joynson-Hicks: "You shall have it," and cheers)—I am sure we can build up a service not only as good but far better than that possessed by any other nation.

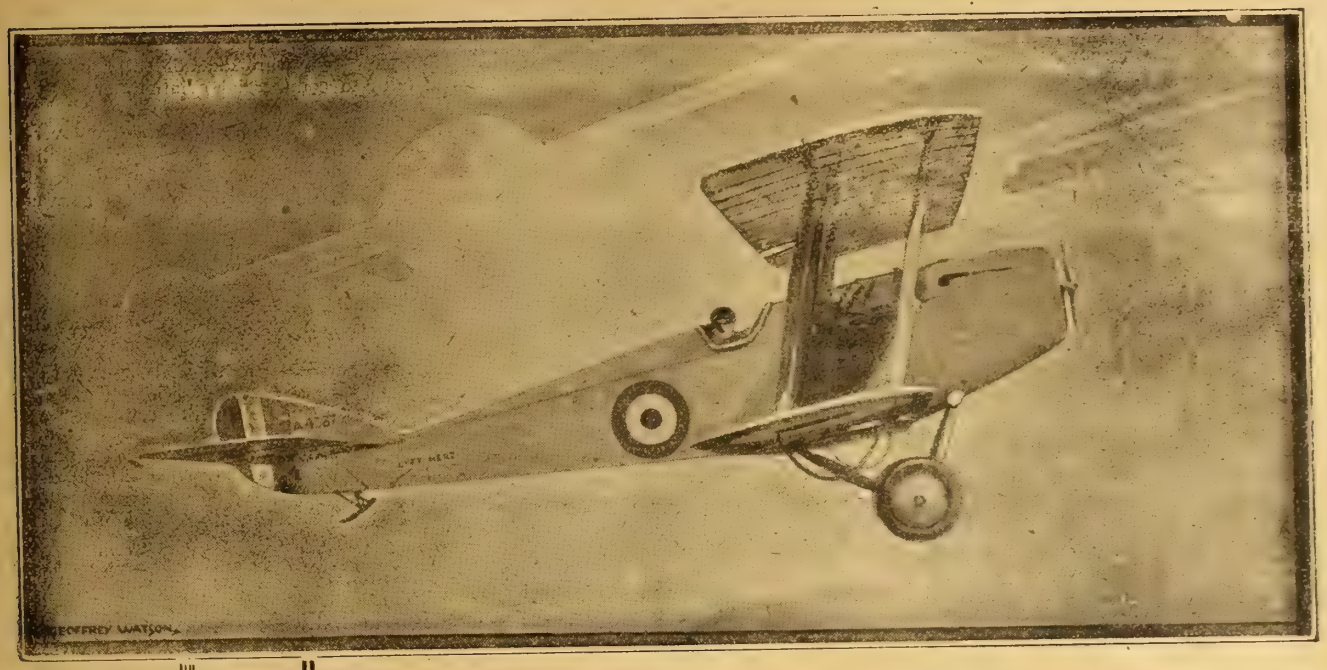
In this effort to increase air traffic throughout the world for the good of the world at large (continued General Seely) we meant to secure the first place in a generous rivalry. (Cheers.) We had great advantages. We had built up our Aircraft Industry which, with all due deference to our Allies, was the best and most scientific in the world. [In spite of all that was done, or left undone, by General Seely and his official friends before the war.]

At present we navigated the air like sailors sailing over an almost uncharted sea. The science of meteorology was almost in its infancy, and the possibilities of marking air routes had only begun to be faced. But the plans, the brains, and the energy were there, and the money he was sure would be forthcoming. [That was what he said about the equipment of the R.F.C. before the war, when he claimed to have 100 aeroplanes in flying order and Mr. Joynson-Hicks proved that he had only 13.] From the victory we had won in the war we must go forward to another victory—the mastery of the air in the interests of the Empire and the whole of mankind. (Cheers.) [As a beginning one would like to see General Seely acquire a mastery of plain facts, or, perhaps he has acquired that mastery, in the military sense, seeing that he has defeated the truth so frequently.]

Sir Thomas Mackenzie proposed "Our Future Imperial Air Fleet." He said the question of defence was one of the greatest problems of the future, and he looked forward to the Air Service and, perhaps, to the submarine service co-operating with it to assure coast defence.

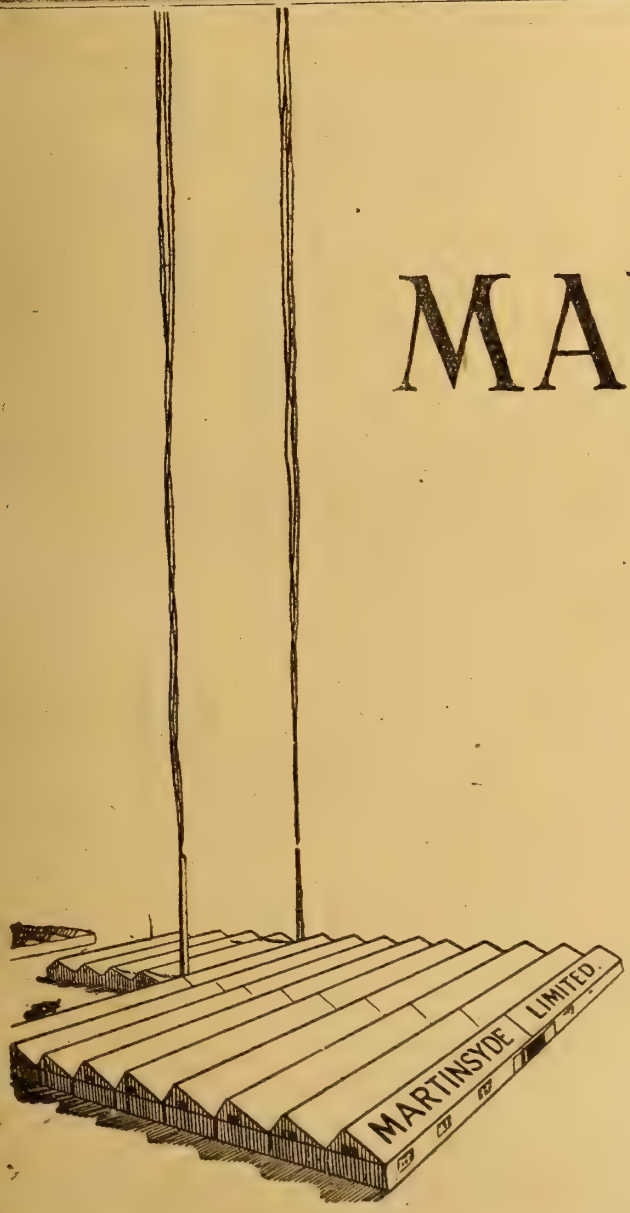
The Demobilised M.G.P.

Major-Gen. Sir W. S. Brancker, until lately Master-General of Personnel, R.A.F., in supporting the toast, said that we were a wonderful race, for at the beginning of this war we had started with practically nothing. We started the war very feebly, and had struggled out victorious. At the moment we had the finest pilots in the world. (Cheers.) We had the best designs of aircraft, and we had probably the most efficient aircraft manufacturing industry. [Statements which are absolutely true and deserve to be noted for reference, and for comparison with those of General Seely before the war, and in his present speech.]





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Throughout the war aviation had proved its increasing importance. In the next five years the proportion of importance, compared with the land and sea forces, would increase. He felt the future of the Empire lay in the air.

He had always said aviation was to win the war. He was wrong, but he honestly believed that if the Germans had not overstrained their resources in their offensive, aviation would have won the war.

In the last four years we had made most astonishing developments in aviation, and there was no reason why the next four years should not see equally great developments and startling advances if only they had the country behind them and saw the matter through. As to the future of aviation, we had greater advantages than any other nation in the world, and with an Empire that spread all over the world we had a wonderful incentive to throw ourselves into the work. Putting money into aviation would afford the greatest guarantee of peace, and of victory if we were again forced into war.

We were faced with the facts that we should be very short of money, and that an attempt was being made to form a League of Nations which should put the possibility of war in the immediate future out of the question. For that reason we had to create an Imperial Air Fleet by some other means than pure Government agency.

In such conditions aerial commerce was the line on which we had to go. There were a great many difficulties to be overcome, but there would undoubtedly be an enormous success in the end. To have really successful commercial aviation it must be made to pay, and for that purpose a great organisation would be required. He believed the Government policy was to help them as much as possible. So far as the material side was concerned, in his belief aviation would be the greatest factor in linking up our world-wide Empire.

There seemed to be an impression that aviation would be a severe rival to cable lines, steamship companies, and railways. It would not. Rapid intercommunication between every part of the world was becoming more and more vital, and aviation would be a supplement and not a rival to other forms of communication. During the next five years we had a great battle to fight, and we must come out on top. If great wars did not occur in that time we had to pin our faith to commercial aviation, and with courage and patience we must win in the end.

Lieut.-General Sir R. Turner, V.C., G.O.C. Canadian Overseas Military Forces in Great Britain, responded. He said the wonderful achievements of the Mother Country had surpassed everything expected of her. It was essential, if the Empire was to be maintained that the lessons we had learned during this war in regard to standardisation of equipment and organisation should be put into practice. The time had gone when each Dominion could strike out its own line.

General Sir W. R. Birdwood, G.O.C. Australian Imperial Forces in Great Britain, also responded. He said that had the war lasted a little longer German towns would have suffered more than they had ever thought possible. Our Air Force was just getting to its real strength, and if the fighting had continued—God help the Germans! He mentioned that the cost of training one Australian pilot was £1,100.

Mr. Holt Thomas, speaking on "Commercial Aeronautics," said that this country was too small for its full development.

He asked the Government to withhold permission for commercial aviation until there was time to create a proper organisation. If accidents occurred progress would be hindered. Commercial aeronautics would bring Melbourne within four days of London, and he saw no more difficulty in flying to Melbourne than in maintaining the present aerial service to Paris. (Cheers.)

At the present speed of machines in about half an hour we were in another country. Fortunately, we had an enormous Empire in which to experiment. The commercial future of aviation was limitless. They could now undertake to fly to Melbourne at a net speed of 100 miles per hour, and they could offer commercial men something far in advance of anything the cable or postal services could do.

AN IMPORTANT APPOINTMENT.

It is announced that Brigadier General Alfred Huggins, C.M.G., D.S.O., R.A.F., late Deputy Controller-General of Aircraft Equipment, R.A.F., has been appointed to an important post on the staff of the Sunbeam Motor Car Co., Ltd., of Wolverhampton and London.

THE LONDON-INDIA FLIGHT.

The Handley Page aeroplane, carrying Gen. McEwen, which reached India on Jan. 16th, left Bandar Abbas, at the entrance to the Persian Gulf, on the morning of Jan. 13th, en route for Karachi.

During the course of the flight, an incident occurred which may be a source of danger to long-distance passenger-carrying machines. A rat was heard several times gnawing in some part of the aeroplane, but, soon after leaving Karachi, its activities ceased.

One engine broke down after leaving Ormara, and the remaining engine-power was insufficient to keep the machine properly in the air. Maj. A. S. MacLaren and Capt. Halley, therefore, found it necessary to jettison everything on board, including most of their clothes.

The aeroplane just managed to reach Karachi, alighting safely. Both the pilots and the mechanic were very exhausted. Concerning this flight, Mr. Handley Page is alleged to have remarked:—

"The experience shows the safety for long-distance flying of the 4-engine machines as compared with the 2-engine machines. This is very encouraging for the coming flights across the Atlantic, and should dispel misgivings as to the safety of the journey. It also reflects great credit on the pilots concerned."

LONG-DISTANCE FLYING.

It is understood that Lt.-Aviator Roget and Capt. Coli flew from Miramar aerodrome, 45 kms. from Marseilles, to Hussein aerodrome, near Algiers. The distance was about 800 miles, and the course taken lay over the Balearic Islands in the Mediterranean. The aviators started at 2 a.m. and landed at Hussein at 7 a.m. The journey was uneventful, although bad weather was threatened off the Algerian coast.

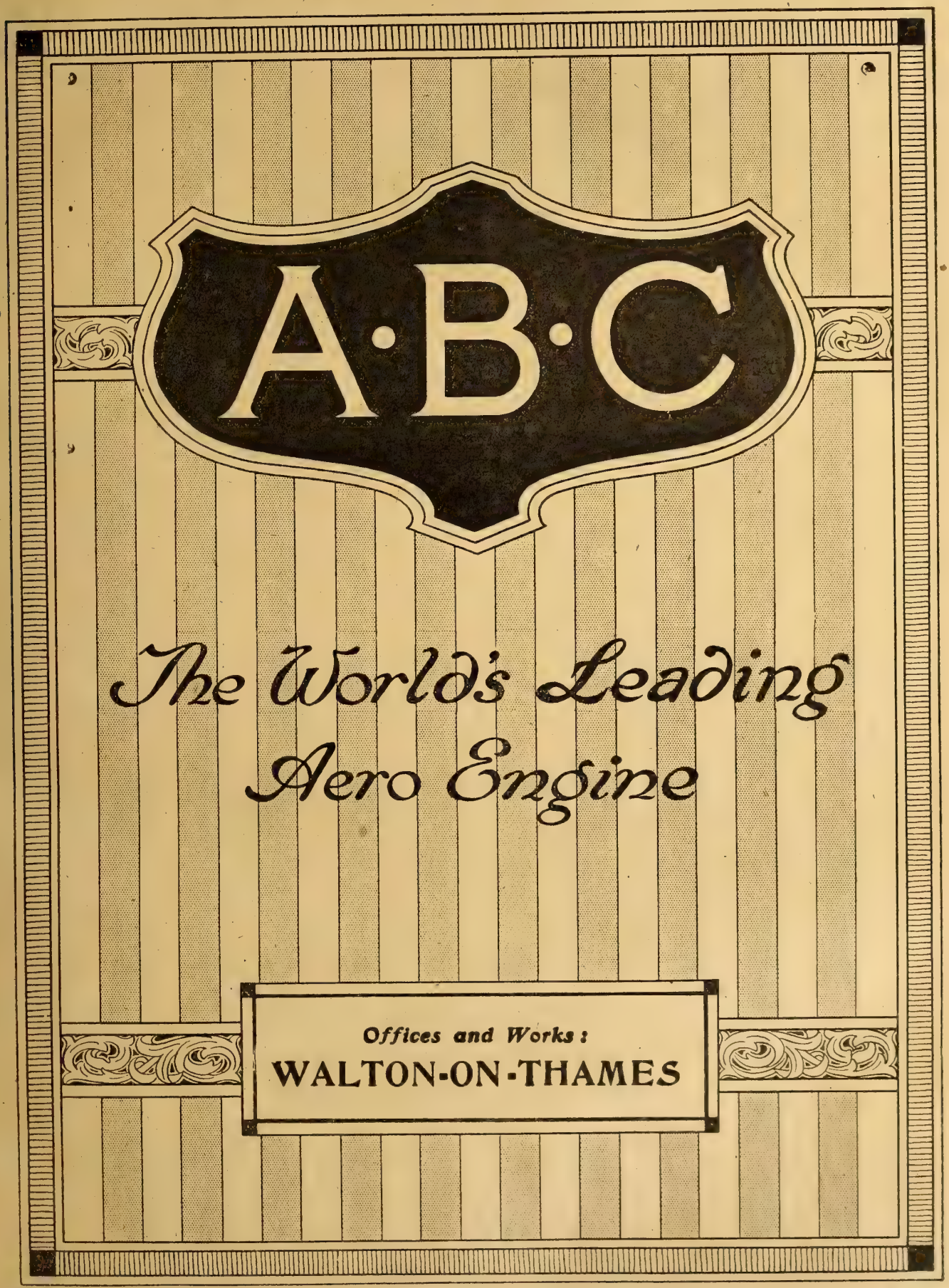
On Sunday, January 26th, Lt.-Aviator Roget and Capt. Cole started on the return journey. They were, however, forced to land in Catalonia through bad weather and loss of direction, after flying for 1,000 miles across the Mediterranean.

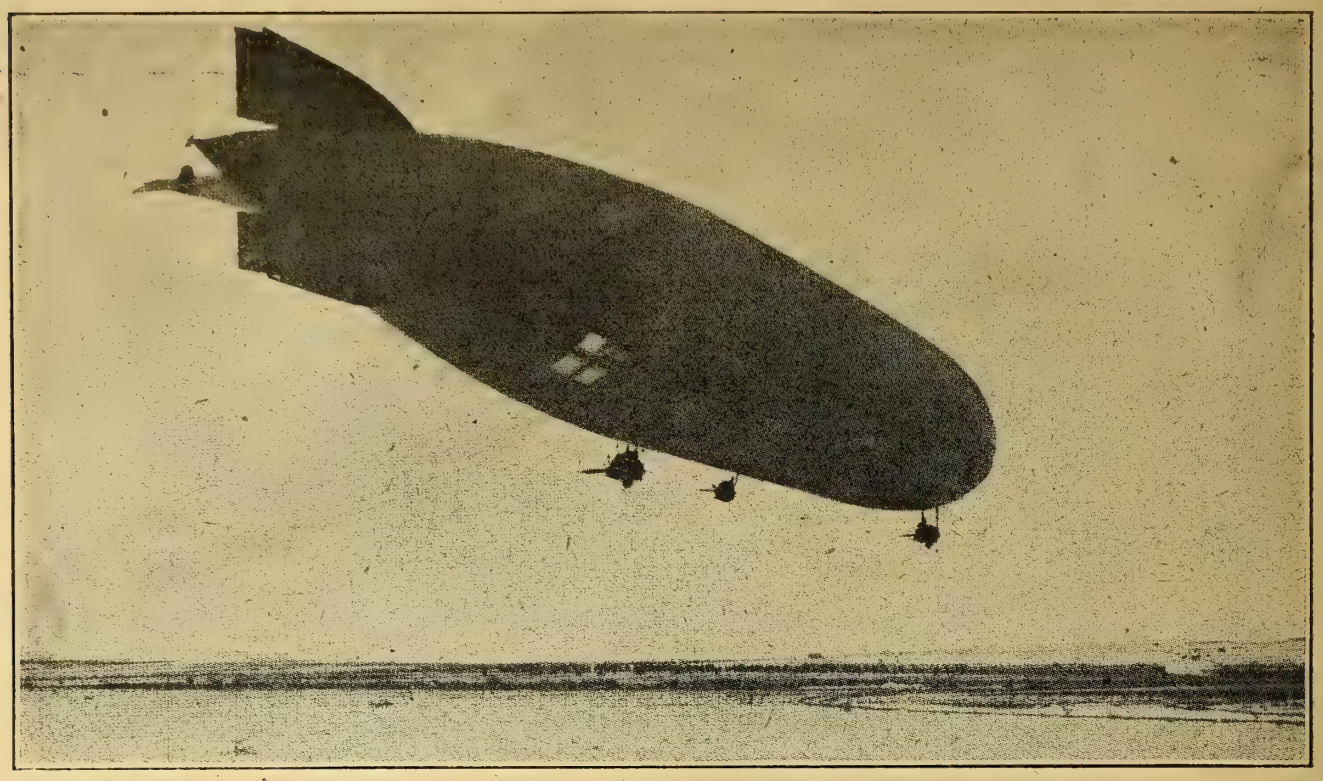
INFLUENZA IN THE R.A.F.

It is stated in the "British Medical Journal" that the medical research department of the Royal Air Force is engaged in formulating a method of utilising the sickness returns of the Force to elucidate the epidemiology of both the summer and the autumn outbreaks of influenza. These data should have value because of the wide distribution of Air Force stations.



The Handley Page biplane (two 400 h.p. Rolls-Royce engines), on which General Salmond flew from Egypt to India, after its arrival at Calcutta.


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The L 59," the Zeppelin which flew in November, 1917, from Bulgaria to Khartoum and back. The German photographer in retouching his photograph has, unfortunately, eliminated the starboard elevator and tail-plane.

FROM BULGARIA TO EAST AFRICA.

[A Report of the Great Non-Stop Flight of 7,300 kilometres by the German Airship "L59."] Translated from the German by Erik Hildesheim, Copenhagen.

One of the partakers (Hans Schedelmann) in the above air voyage, instituting so far the world's duration record for aircraft, and surpassing easily the crossing af the Atlantic, has in the German aero weekly " Luftpost," issue of January 12th, published the description of the trip given hereafter :—

" Bring out the airship," the order ran, and the slender body of the aerial monster " L59 " was slowly pulled out of the shed. Next " rise " was soon ordered and the giant rose heavily to bring its cargo of many tons weight to our gallant defenders in the interior of German East Africa. For the hero crowd had long been cut off any supplies and lacked all medicine and dressings.

We left Jamboli in Bulgaria at 8.35 a.m. on November 21st. One hour later we reached Adrianopol and already at 6 o'clock in the evening we had passed Smyrna and by 8 o'clock the channel of Lipsos. During the night we traversed the Mediterranean and left it behind us at Ras Bulau on November 22nd at a quarter past five in the morning, and *via* the Lybian desert shaped our course to our aim

We had thus succeeded within 17½ hours to pass three world parts :



The Navigating Gondola of " L59."

Europe, Asia and Africa, which performance can at best again only be achieved by a further favourable development of aviation. The inhabitants of the oasis Farafrah, which we flew over at half-past twelve, will undoubtedly long tell that an aerial ghost had then come to them, and, at any rate, they will keep the dropped empty tin boxes as a lasting remembrance of this seldom event. En route for the oasis Dachel, that we reached at 3.15 p.m., we could even note a caravan, which got only reassured slowly, when we were quite a distance off them.

The sunset of this day was an imposing sight to us. With course at Khartum we flew on at an altitude of 5,400 feet till 10 minutes to 3 in the morning of November 23rd, when we returned finally there.

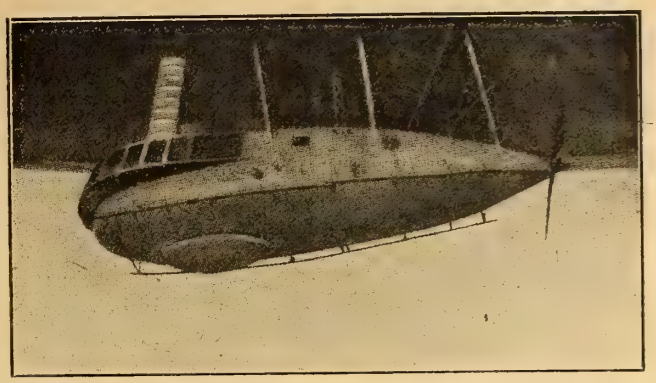
We were not forced thereto by wind or weather, but by the wireless order of the Admiralty, transmitted by Nauen. Every man read in bad spirit in the forenoon at the gangway the order of the Admiralty staff: "Return, as East Africa has surrendered."

[The reference here is evidently to the surrender of the Tanganyika area in 1917 and not to the final dispersal of Gen. von Lettow-Vorbeck's forces in 1918.—Ed.]

Considerably more than half of the way had been conquered and now was stopped so suddenly. The return voyage was commenced, which passed as easily as the first part. At 6 o'clock in the evening we had again reached the oasis Dachel and by half-past eight that of Farafrah. At daybreak we flew already over the Mediterranean and sighted there towards 10 o'clock some freighters, protected by British convoy vessels.

The change in temperature was felt rather hard and unpleasant. While we experienced on the afternoon of November 23rd at an altitude of 7500 feet about +26°R and served in tropics dresses we could ten hours later turn our leather suits to use very well at a temperature of —10°R.

At 1 o'clock noon we sighted Cape Cheledonia 20 miles to north, and reached at 2.20 Asia Minor by the city Adalia, which recalled the fairy-tales of 1001 nights with its mosques and minarets. But he who tempts the gods and will look the village closely over shall get bitterly disappointed, and so we stayed safe at our height of 9,000 feet. At 3 o'clock we passed Teke, at 5 Simar and towards 11 o'clock Constantinople, to alight again at 8.10 in the morning of November 25th in Jamboli, having spent an ice-cold night. After a huge voyage of 7,300 kilometers, tackling easily the distance Berlin—New York, our airship entered again its shed to suck its insatiable body full of gas and to replenish again its 9.6 tons of consumed petrol.



Another View from below of the Navigating Gondola of "L 59."

Having had a bath and a strong dinner, we went into our much-shared beds, to have in the evening a chat with our C.O. over some red wine about the hitherto longest voyage of any aircraft.

None of the masters of the sea had observed us, and thus we had been spared any opposition by the enemy. Whereas our dear Allies sent us erroneously so much munition as a rule, that, for instance, we had to break off our first expedition of Nov. 16th to 17th with about 60 damages from shots by Smyrna. Later, too, it was a favourite practice of the Bulgarians and Turks to fire extensively at our "Balkan horror," as they had christened our "paper steamer."

During a leave the exciting news reached me that by an expedition on April 7th, 1918, all my good comrades had paid an attack with the cost of their lives. The beautiful "L59" was shot down burning. Brother soldierly hands made them a memorial at the flying-ground. Themselves they sleep the eternal sleep in the channel by Otranto—the fate of seamen!

R.A.F. STRIKE.

Over 1,000 men belonging to the Royal Air Force, it is understood, are on strike at Blandford. They allege a case of victimisation, demanding demobilisation of men over the age of 41, and better working conditions.

They marched to Blandford and interviewed the mayor, who is sending the men's demands to the Air Ministry.

R.A.F. LORRY DRIVERS' PAY.

It is gratifying to hear that the story published in the daily news-sheets to the effect that certain R.A.F. chauffeurs at Westerham had been promoted from 3rd Class Air Mech. to 1st Class in order to keep them from demobilising themselves, or otherwise going on strike, is entirely untrue. One is informed that, at any rate up to the present, none of these men had been promoted and that there is no intention of promoting them.

The story of this irregular promotion, which of course would have been contrary to all military precedent and subversive of all discipline, would never have been credible before the Armistice, but so many curious things have been done by weak-kneed politicians and officials who are more anxious to keep their jobs than to maintain discipline in the King's armed forces, that it seemed not merely possible, but actually probable, that the Air Ministry itself, especially after the departure of Lord Weir, had taken upon itself to make such promotions in an effort to allay agitation in spite of any recommendations to the contrary which might have been received from the officer or officers in command of the men.

It is to be hoped that the fact that these agitators have not been promoted will be made as widely known as possible throughout the Air Force, and one only regrets that, so far as one's knowledge goes, one cannot record that the whole lot have been given the maximum amount of C.B.

AVIATION INSURANCE.

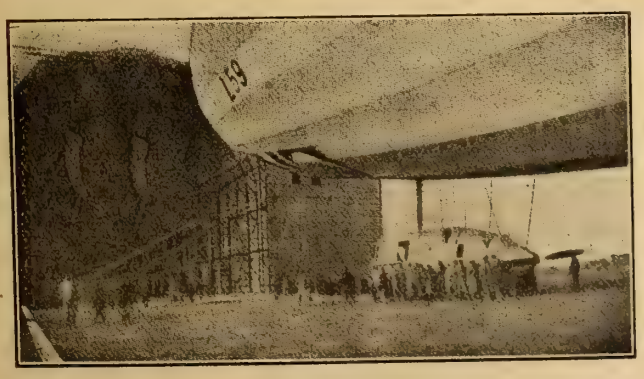
The Aviation and General Insurance Company, Ltd., has been registered with a nominal capital of £1,000,000, in a million ordinary shares of £1. The chief subscribers are Viscount Furness and Mr. E. Furness.

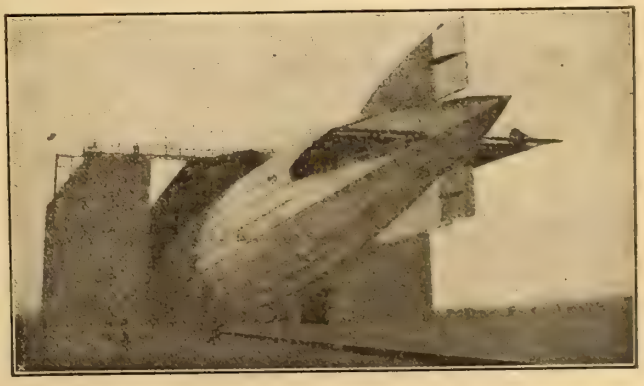
AIRCRAFT IN NORTH-WEST CANADA.

According to the "Daily Express" Canadian correspondent, it has been practically decided to form an aircraft squadron to work with the Canadian North-West Mounted Police. The squadron will undertake patrol work, and it is expected that this will eliminate many of the existing dangers.

AN R.A.F. CONCERT.

The Women's Auxiliary Force have organised a concert at the Royal Automobile Club, Pall Mall, to take place at 3 p.m. on Tuesday, Feb. 4th. Admission will be free. The R.A.F. School of Music Concert Party will perform.





Two Views of the "L.59" leaving its shed at Jamboli, Bulgaria, on Nov. 21st, 1917, at the beginning of its journey to German East Africa.


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FROM THE "LONDON GAZETTE."

AIR MINISTRY, Jan. 21st.

R.A.F.—The following temp. appts. are made at the Air Ministry :—Deputy Med. Administrator.—M. H. G. Fell, C.M.G. (Bt. Col., R.A.M.C.), and is granted a temp. commn. as Col., Nov. 26th, 1918.

Staff Officer, 2nd Cl.—(Q.)—Capt. (actg. Maj.) J. W. Burt, and to retain his actg. rank whilst so empld., Jan. 1st

The following temp. appts. are made :—Area Comdr.—Col. (actg. Brig.-Gen.) C. L. Lambe, C.M.G., D.S.O., and to be actg. Maj.-Gen. whilst so empld., Dec. 23rd, 1918, but not to carry pay and allces. prior to Jan. 4th.

Brig.-Gen. (Admin.).—Lt.-Col. (actg. Col.) F. C. H. MacLean, and to be actg. Brig.-Gen. whilst so empld., vice Lt.-Col. (actg. Brig.-Gen.) N. D. K. MacEwen, D.S.O., Dec. 7th, 1918.

Staff Officers, 3rd Cl.—And to be actg. Capts. whilst so empld., if not already holding that rank :—(P.) Lt. (actg. Capt.) E. Burney, M.C., Sec. Lt. (actg. Lt.) J. M. McEntegart, Lt. J. E. D. Samuel, Jan. 1st.

Staff Officer, 4th Cl. (1st Gr.).—(Air)—Capt. H. E. Parker, vice Sec. Lt. (actg. Capt.) A. K. Spens, who relinquishes the actg. rank of Capt., Dec. 6th, 1918

Staff Officer, 4th Cl. (2nd Gr.).—Lt. J. A. Gorges, Sept. 11th, 1918.

A.D.C.—(Graded for purposes of pay as Staff Lt.) :—Capt. F. D. Lord Doune, M.C., Dec. 29th, 1918.

FLYING BRANCH.—Capt. (actg. Maj.) P. H. Hepburn to be Capt. (K.B.), and relinquishes the actg. rank of Maj., Jan. 11th

Lt. B. Farmer to be Lt. (O.), from (Ad.), Dec 7th, 1918.

Lts. to be Lts. (A.), from (O.) :—C. J. L. Harrison, Nov. 28th, 1918; G. S. Oddie, Nov. 30th, 1918.

Sec. Lt. C. V. Lacey to be Sec. Lt. (A.), from (T.), April 1st, 1918.

Sec. Lt. W. R. Wolsey to be Sec. Lt. (A'shp.), from (Ad.), Oct. 14th, 1918.

Sec. Lt. H. Murray to be Sec. Lt. (O.), from (A.), Nov. 20th, 1918.

Sec. Lt. W. Dixon (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (K.B.), Aug. 8th, 1918.

Sec. Lt. W. T. Davies (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (O.), May 18th, 1918.

E. M. Matthews (Sec. Lt., R.G.A.) is granted a temp. commn. as Sec. Lt. (A.), July 16th, 1918 (substituted for notification in "Gazette," Jan. 10th).

Sec. Lt. (Hon. Lt.) W. C. Broadwood to be Lt., May 9th, 1918.

Sec. Lt. A. J. Stevens is dismissed the Service by sentence of a Gen. Court-martial, Dec. 22nd, 1918.

Capt. (actg. Maj.) Hon. O. M. Guest (Capt., Yeo., T.F.) relinquishes his commn. on being elected M.P., Dec. 28th, 1918

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. M. Brophy (Sec. Lt., N. Lanc. R.), Oct. 17th, 1918; Lt. (actg. Capt.) F. A. Nicholson (Lt., actg. Capt., New Bruns. R.), Nov. 27th, 1918; Lt. R. M. McDonald (Lt., Manitoba R.), Dec. 4th, 1918; Sec. Lt. (Hon. Lt.) M. D. Orr, M.M. (Lt., Nova Sco. R.), Dec. 6th, 1918, Lt. B. W. Fryer (Lt., Can. F.A.), Dec. 7th, 1918; Lt. J. C. Colling (Lt., Sask. R.), Lt. (actg. Capt.) J. E. Pugh, M.C. (Lt., Alberta R.), Lt. S. M. Duncan (Lt., Can. Res. Cav. R.), Sec. Lt. (Hon. Lt.) D. Gardner, M.C. (Lt., D. Gds.), Sec. Lt. R. Lean (Sec. Lt., Highd. L.I.), Dec. 9th, 1918; Lt. E. Cate (Lt., Can. F.A.), Lt. G. H. Foy (Lt., Fort Garry Horse), Lt. J. D. O'Neill (Lt., Manitoba R.), Dec. 10th, 1918; Lt. (Hon. Capt.) J. M. Taylor (Capt., Alberta R.), Dec. 11th, 1918; Lt. R. McInerney (Lt., N. Bruns. R.), Sec. Lt. T. Stewart (Lt., E. Ont. R.), Dec. 16th, 1918; Sec. Lt. (Hon. Lt.) T. J. Meredith (Lt., Brit. Col. R.), Dec. 17th, 1918; Sec. Lt. (Hon. Lt.) F. H. Ryder (Lt., N. Bruns. R.), Lt. J. L. Standish (Lt., Alberta R.), Dec. 18th, 1918; Lt. (actg. Capt.) J. S. McDonald (Lt., Cent. Ont. R.), Dec. 20th, 1918; Lt. G. N. Dennis (Lt., E. Yorks R.), Dec. 21st, 1918; Sec. Lt. (Hon. Lt.) H. C. Heintzman, (Lt., Can. F.A.), Dec. 31st, 1918; Lt. (actg. Capt.) H. J. Burden, D.S.O., D.F.C. (Lt., Can. For. Corps), Jan. 1st; Lt. L. C. Gilmour (Lt., Sask. R.), Jan. 2nd; Lt. J. S. Godard (Lt., Can. Engrs.), Lt. E. E. Heath (Lt., Cent. Ont. R.), Jan. 4th; Capt. L. R. Andrews (Lt., actg. Capt., Brit. Col. R.), Jan. 8th.

Lt. A. C. Woodman is cashiered by sentence of Gen. Court-martial, Jan. 1st.

The following are transferred to unempld. list :—Sec. Lt. (Hon. Capt.) G. S. Paterson, Jan. 4th; Lt. A. Alexander, Sec. Lt. R. Whitfield, Jan 5th; Sec. Lt. J. A. Lewis, Lt. (actg. Capt.) F. C. Muncey, Lt. E. S. Wood (Sl.er. For., T.F.), Jan. 7th; Sec. Lt. G. M. Anderson, Lt. J. B. Barclay, Sec. Lt. J. P. Findlay, Sec. Lt. W. M. Imlay, Lt. (actg. Capt.) P. G. King, Lt. J. E. Tratman, A.F.C., Jan. 8th; Sec. Lt. F. A. Best, Sec. Lt. F. E. W. Davies, Lt. E. G. Harris (R.E., T.F.), Capt. G. L. Hartgill, Capt. J. E. Hibbert, M.C., D.F.C. (late S. Lanc. R.), Capt. J. Kerr, Capt. H. Kirton, Sec. Lt. O. W. Mitchell, Lt. (actg. Capt.) W. G. Pegg, Sec. Lt. G. F. Underhay, Jan. 9th; Sec. Lt. E. F. Green, Capt. W. Hosking (Capt., Dev. R.), Capt. N. M. MacGregor, D.S.C., Lt. W. K. McMillan, Lt. (actg. Capt.) E. A. Mearns, Lt. S. E. M. Simpson, Lt. L. O. Stocken (Middx. R.), Sec. Lt. W. J. Stratford, Sec. Lt. E. A. Winter (R.F.A., T.F.), Jan. 10th; Lt. K. F. Alford, Lt. F. Forster, Lt. C. B. J. Gledhill, Sec. Lt. H. F. Jones, Lt. F. P. Magoun, M.C., Sec. Lt. B. N. Radford, Sec. Lt. H. C. Ratcliffe, Lt. H. M. Robertson, Lt. W. A. Smart, Capt. F. B. Stevens, Lt. C. B. Turner, Lt. J. W. P. Wain, Jan. 11th; Sec. Lt. C. N. Dilly, Sec. Lt. F. B. Sagar, Lt. (actg. Capt.) C. M. White, Jan. 12th; Lt. S. W. Smith, Jan. 13th; Capt. (actg. Maj.) F. P. Scott Jan. 15th; Lt. H. E. Chapman (Highd. R.), Jan. 17th; Lt. (actg. Capt.) J. G. Kidd, Jan. 20th.

The following Lts. (actg. Capts.) relinquish their commns. on account of ill-health, and are permitted to retain the rank of Capt. :—R. S. De Q. Quincey (contracted on active service), H. Le R. Wallace, D.F.C. (contracted on active service), S. D. Withers, Jan. 22nd.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—J. W. Norton, L. E. Owen, W. F. C. Powell, Jan. 22nd.

The following Lts. relinquish their commns. on account of ill-health contracted on active service :—W. M. Davidson (Can. Local Forces), L. F. G. Spencer (Sea. Hignrs.), Jan 22nd

Sec. Lt. (Hon. Lt.) H. Smart relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., Jan. 22nd.

Sec. Lt. R. C. De Waal relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 22nd.

The Christian names of Sec. Lt. Roland Edgar Walker are as now described, and not as in "Gazette," Sept. 10th, 1918.

The Christian names of 4409 Flt. Cadet John Purvis Gibb are as now described, and not as in "Gazette," Nov. 22nd, 1918.

The surname of 128660 Flt. Cadet F. E. W. Davies is as now described, and not as in "Gazette," Nov. 12th, 1918.

The names of Sec. Lt. William Crewdson Walker are as now described, and not as in "Gazette," Sept. 13th, 1918.

The appt. of Sec. Lt. C. E. Irving as Sec. Lt. (A. and S.) is antedated with effect from June 30th, 1918.

The appt. of Sec. Lt. G. P. McCraig as Sec. Lt. (A.) is antedated with effect from June 22nd, 1918.

The date of relinquishment of his commn. by Sec. Lt. McCoombes is Dec. 13th, 1918, and not as stated in the "Gazette," Sept. 24th, 1918.

The date of relinquishment of his commn by Lt. S. G. Robinson is Dec. 20th, 1918, and not as stated on page 11978 of the "Gazette," Oct. 11th, 1918.

The notification in "Gazette," Nov. 11th, 1918, concerning Lt. (actg. Capt.) W. H. Buckeridge is cancelled.

The notification in "Gazette," Dec. 13th, 1918, concerning Lt. (actg. Capt.) J. G. Coombe is cancelled.

ADMINISTRATIVE BRANCH.—Maj. J. B. Batten, D.S.O., to be act. Lt.-Col. while empld. as Lt.-Col., Aug. 8th, 1918.

Capts. to be actg. Majs. whilst empld. as Majs. :—H. W. Morgan, Aug. 5th, 1918; H. O. Fellowes, Sept. 19th, 1918.

Lts. (actg. Capts.) to be actg. Majs. whilst empld. as Majs. :—Hon. F. W. Bampfylde (and to be graded for purposes of pay as S.O.2 (2nd Gr.)), F. G. C. Fison, O. C. McCaw, Aug. 8th, 1918.

Capt. S. Davenport to be Capt. (from A'shp.), Dec 18th, 1918.

The following are granted temp. commns. as Capts., seny. April 1st, 1918 :—M. L. Fitzgerald (Capt., Cent. Ont. R., C.E.F.), Aug. 5th, 1918 (substituted for notification in "Gazette," Sept. 13th, 1918); P. J. Home-Rigg (Capt., Fife and Forfar Yeo., T.F.), Sept. 30th, 1918 (substituted for notification in "Gazette," Nov. 1st, 1918).

Lts. to be actg. Capts. whilst empld. as Capts. :—W. C. C. Tower, July 22nd, 1918; J. W. New (Hon. Capt.), C. W. Wright, Aug. 8th, 1918; A. Reardon, Aug. 9th, 1918; H. E. Burrell, Aug. 28th, 1918; (Hon. Capt.) R. A. Shepheard Walwyn, Dec. 11th, 1918; T. B. W. Spencer, Dec. 21st, 1918.

Sec. Lts. to be actg. Capts. whilst empld. as Capts. :—(Actg. Lt.) P. T. Bond, July 17th, 1918; (Hon. Lt.) (actg. Lt.) S. U. Dent, Sept. 19th, 1918; J. H. Boyd, Nov. 27th, 1918; (Hon. Lt.) H. O. Newland, Jan. 1st.

The following Lts. (actg. Capts.) (A.) to be Lts., and relinquish the actg. rank of Capt. :—W. G. Stevenson, D.F.C., Nov. 12th, 1918; W. B. Green, D.F.C., Nov. 26th, 1918.

J. P. P. L. Biggs (temp. Lt., A.P.D.) is granted a temp. commn. as Lt., July 1st, 1918, seny. April 1st, 1918 (substituted for notification in "Gazette," Oct. 8th, 1918).

Lts. to be Lts. :—J. J. Coleman, from (O.), July 1st, 1918; A. H. Warton, from (A.), Jan. 6th.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. :—(Hon. Lt.) C. S. Marriott, (Hon. Lt.) D. A. Recordon, Aug. 8th, 1918; C. Green, Aug. 26th, 1918; R. E. G. Macmaster, Sept. 19th, 1918; R. E. Cunningham, Oct. 10th, 1918.

Sec. Lt. E. Bentley to be actg. Lt. whilst specially empld., Sept. 16th, 1918

Sec. Lts. to be Sec. Lts., from (A.) :—S. B. L. Hall, Oct. 17th, 1918; S. Rendle, Dec. 30th, 1918.

Sec. Lts. to be Sec. Lts. (from (O.) :—H. R. Hardcastle, Nov. 12th, 1918; G. A. Faulkner, Nov. 26th, 1918; H. T. Cock, Dec. 24th, 1918.

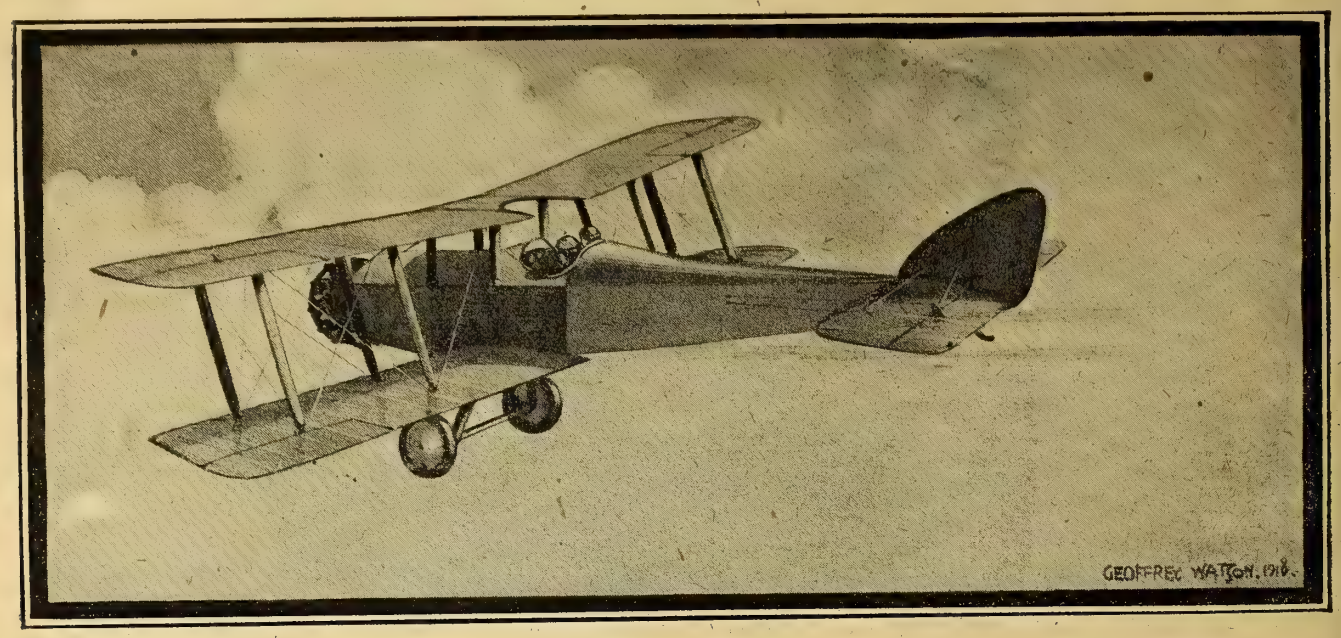
Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts. :—E. E. Page, June 7th, 1918; A. G. Middleton, Jan. 8th

Sec. Lt. R. H. Ramsay is dismissed the Service by sentence of Gen. Court-martial, Dec. 13th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. (actg. Maj.) Hon. F. O. H. Eaton (Lt., G. Gds.), Nov. 29th, 1918; Lt. (Hon. Capt.) W. B. Powell (Capt., Cent. Ont. R.), Dec. 6th, 1918; Lt. W. G. Bryan (Sec. Lt., E. Surr. R.), Dec. 12th, 1918; Lt. (Hon. Capt.) W. N. Sloan (Capt., Cameronians, T.F.), Dec. 16th, 1918; Maj. H. A. Nealon (Maj., Sask. R.), Dec. 17th, 1918; Lt. W. A. M. Cox (Lt., R. Highrs., T.F.), Dec. 19th, 1918; Capt. Hon. G. W. W. Bampfylde (Capt., N. Dev. Yeo., T.F.), Dec. 23rd, 1918.

The following are transferred to unempld. list :—Maj. Hon. E. Chaplin, Jan. 1st; Sec. Lt. H. Brighouse, Jan. 6th; Lt. (Hon. Capt.) T. W. M. Cameron, Jan. 8th; Sec. Lt. (actg. Capt.) R. J. H. F. Beresford, Sec. Lt. F. C. Brooke-Hunt, Sec. Lt. F. W. Smith, Jan. 9th; Sec. Lt. G. R. Hunt, Sec. Lt. G. E. C. Maconchy, Sec. Lt. W. W. Pigott, Sec. Lt. H. B. Smith, Sec. Lt. W. E. Taylor, Sec. Lt. W. R. Taylor, Lt. (Hon. Capt.) J. E. Tomkinson (Ches. Yeo., T.F.), Lt. (actg. Capt.) W. H. Trinder, Lt. A. A. M. Weir, Jan. 10th; Lt. W. A. L. Reaburn, Sec. Lt. R. F. Winder, Jan. 11th

(Continued on page 514A.)



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THE INFLUENCE OF OFFICIAL CONTROL UPON THE DESIGN OF AIRCRAFT, 1914–1918.—II.

BY "STRASBOURG."

The previous article of this series attempted to indicate what was the basis of the profound and widespread—though rather indefinite—dissatisfaction which undoubtedly exists throughout the Aircraft Industry, and some considerable proportion of the Air Services, with those official agencies which have controlled the progress of aircraft design during the period of hostilities.

It was there shown that the main ground for this dissatisfaction was the feeling that in spite of a very marked all-round improvement in the performance of the aeroplane, this improvement was practically entirely due to refinement in detail design, and that little or no encouragement had been accorded by the controlling bodies to any attempts to improve either the fundamental aerodynamic qualities of aircraft or their general structural features—coupled with a suspicion that actual experimental results showing possibilities of quite important improvements in these directions had been either suppressed or neglected by the same bodies; and that this feeling and this suspicion were founded on fact.

It is now proposed to attempt to analyse the reasons for this state of affairs.

Upon the Habits of Committees.

It has been often remarked—and probably as often controverted—that wherever more than two or three have gathered together with intent jointly to direct the policy of any undertaking—from the government of an Empire to the erection of a Parish Pump—that the policy so directed has generally shown a stubborn resistance to the influence of any idea bearing traces of novelty—a resistance far greater than would be expected upon any assumption that the characteristics of the whole body would approach the average of its constituent members.

On the other hand, many cases have occurred where such a body has shown a light-hearted gaiety in embarking upon wild changes in policy—again to an extent which would not have been expected from the characters of the individuals composing it.

It can be fairly easily shown that—provided any such body is so constituted as to represent a reasonably fair sample of that diversity of creatures which compose the human race—one or other of these tendencies is likely to show itself.

For the decisions of any council, committee, or the like assemblage must either be based upon the unanimous assent of all its members—or upon the assent of a mere majority.

If the unanimous assent is required, no decision is likely to be reached which will cause any serious apprehension to the most timid member; and the decisions reached tend to approximate to those of an imaginary person who combined all the timidities and conservatisms of each of the members—unredeemed by any of their more progressive characteristics.

If, on the other hand, a majority suffices to render a decision effective, there will always be a tendency, in any given case, to follow the wishes of the member, or group of members, who succeed in presenting in the most plausible form the arguments in favour of their case, combined with an equal tendency to abandon any course so decided upon as soon as any obstacle arises which provides the opponents of such a scheme with arguments slightly more plausible. This merely, since in such bodies there is usually a fairly large proportion of members possessed of convictions permanently unsettled between their hopes of profit and their fears of loss—where profit and loss may, of course, be expressed in terms either of cash or of kudos.

The Resulting Chaos.

In so complex an organisation—or rather succession of organisations—as those who have directed the technical departments of His Majesty's sundry Air Forces, it will not be possible to trace clearly and unbrokenly either of these tendencies in their own immediate actions.

For these bodies have consisted of committees upon committees and departments within departments, whose relations with each other and with the outside world have altered from day to day, and whose personnel has undergone transmutation and permutation to an incredible degree. Obviously no sort of continuity can be expected in the detailed actions of so kaleidoscopic an assemblage.

But this very state of continual change is itself merely the manifestation of the "majority decision" effect already referred to and reflects the indecisions of those higher powers who pretend to direct the destinies of the Empire in accordance with the wishes of its inhabitants; and the particular virulence of the effect in this case must be largely due to the unfortunate fact that the Air Forces of this country are as yet too young to have developed any such professional instinct as that which enables the older branches of H.M. Services successfully to oppose the efforts of those well-meaning reformers who—knowing nothing of the principles upon which the machine is constructed nor of the method of its operation—would cheerfully proceed to redesign the whole upon any principle—however untried—provided they could thereby adequately lubricate some quite unimportant bearing whose squealing has attracted their attention.

Such a professional instinct—in the Navy and Army—does often oppose and delay reforms of a desirable character; but it does tend to secure that continuity of direction and policy which is essential to progress, and whilst there is little doubt that it often develops an undesirably conservative character, it has nevertheless maintained them as effectively organised bodies—which they certainly would not have remained had they suffered such direction as that to which the Air Forces have been subjected.

It is easily to be understood that under such conditions technical progress must have been slow.

Experimental work initiated under the ægis of one official has been abandoned, or its results neglected, by his successor, whose ideas have led to the commencement of work in quite different directions—generally only to suffer a similar fate when he, in his turn, has made room for another.

The fruits of experience have thus been dissipated when they should have accumulated, responsibility has become difficult to fix and easily to be shirked—to the great advantage of the ignorant, the lazy, and the incompetent, and to the discouragement of the capable and the conscientious.

This is, in the main, the reason why the technical direction of the Air Forces has produced such unsatisfactory flying results.

(To be continued.)

AEROPLANE versus SEAPLANE.

BY W. O. MANNING.

It has somewhat surprised me that, while so much attention has been paid to the claims of the large aeroplane as a suitable aerial vehicle for the commercial air services of the immediate future, the much greater claims of the large seaplane for service on many routes appear to have been lost sight of.

This is due, apparently, to the fact that most people who have written on this subject are interested, either commercially or by habit, in the aeroplane, and that consequently the seaplane is getting less than its share of the limelight. So much has this been the case that it is even proposed that the Atlantic should be flown by an aeroplane, which machine is apparently believed in some quarters to be the most suitable type for the purpose.

It may not be generally known that that type of seaplane generally referred to as the flying boat can, in large sizes, be made not only lighter but of less head assistance than an aeroplane of equal proportions, owing, principally, to the fact that a heavy chassis, with its exposed wheels, struts, etc., is not necessary in the case of the flying boat. This means that the latter can carry a larger commercial load than the former, in equal sized machines, and that it can carry this larger load at a higher speed. It therefore follows that the flying boat is a more efficient machine than the aeroplane for commercial purposes.

Also, it is not necessary in the case of the flying boat to lay out large sums of money in providing landing grounds; there are numerous harbours already existing which can be made use of, and in the unlikely case of a breakdown during a journey over the sea, one can land at once, anywhere, and, if the breakdown is repairable, rise again and continue when the repairs have been made.

If, on the other hand, the breakdown is not repairable, there is no difficulty whatever, on the large multi-engined machine, in taxying to the nearest post where expert assistance can be obtained. As a contrast to this, consider the case of the complete breakdown of a large aeroplane on a cross-country flight. The pilot would probably consider himself fortunate if he made a safe landing in a small field, and it might be necessary to take the machine to pieces and re-erect it somewhere else before it could fly home.

In an aeroplane one has as one's chief competitor the express train, which is usually capable of an average speed of abut 50 miles per hour. The speed which has been most generally suggested as the best one for commercial purposes is 100 miles per hour, which only offers one the advantage of travelling at twice the speed of the train, and even this may be considerably reduced by a head wind.

A flying boat would have no difficulty, in case of necessity, in attaining a speed of four times that of its chief competitor, the liner, and it has in addition, what is to most people a most important advantage, that seasickness need not be feared.

In most cases the seaplane will be able to take the most direct route from port to port, whereas the aeroplane will frequently have to make large detours to avoid such obstacles as prohibited areas, mountainous country, and districts unprovided with landing grounds, leading to a further reduction of its speed in comparison with that of the train.

Also, in the interests of safety, an aeroplane must fly high, often at a height of many thousands of feet. This necessity, to say nothing about the repugnance many people have to being at great heights, leads to the physical discomfort produced by cold, or, in many cases, difficulty in breathing. On the other hand, in a flying boat an altitude of 1,000 ft. may be considered as the normal height, but frequently it will be possible to fly much lower.

Recent developments in wireless telegraphy have entirely removed all navigation difficulties, and, with a machine fitted with modern instruments, the pilot need have no doubt as to his whereabouts, even in a fog or at night. This is a common advantage to both types of machines; but consider what would happen to these two types under the above adverse conditions in the event of a complete breakdown. The pilot of the aeroplane would have to make a forced landing under circumstances of the gravest risk, whereas the pilot of the flying boat, knowing he was over the sea, could alight in perfect safety.

It is to be hoped that one of the regulations to be put forward for the controlling of commercial aviation will include a provision prohibiting aeroplanes from crossing any stretch of water except at a height from which they can glide safely to an aerodrome on one side or the other, under the worst possible circumstances. Such a provision is clearly necessary for the safety both of the passengers and crew.

Expedients such as the fitting of airbags on the tail of the fuselage should not be allowed to vitiate such a provision, as such arrangements would only save the machine and passengers if the ditching occurred under good weather conditions. No such aeroplane could hope to withstand the effect of a heavy sea for any length of time.

It is regrettable that owing to the unfortunate geographical distribution of land and water on the earth, or possibly owing to the lack of foresight shown by those originally responsible for the location of the centres of population, that on some important routes the flying boat must yield precedence to its less efficient sister, but there is no doubt that it will pay to use the flying boat wherever possible, even if it is necessary to fly a somewhat longer distance.

If it is desired to take a holiday the flying boat is an ideal vehicle. Such a trip as that between Portsmouth and Cape Town and back could be performed easily during an ordinary summer's leave, and ample time would be available for exploring the many interesting places en route. All countries in the world could be visited by such a machine, with the certainty of finding a good landing ground when one got to one's destination.

Now that the hampering effect of the war on the progress of aviation appears likely to be removed by the advent of an early peace, the development of aircraft design is likely to be rapid, especially in the direction of larger and larger machines and greater refinement of constructional detail.

Steel spars and struts must take the place of the conventional wooden members, as in really large designs wood cannot compete with steel on a basis of strength for weight.

Even the question of the type of motive power may have to be reconsidered, as the aeroplane is growing much faster than the petrol engine. Of the two main types of aircraft as they exist to-day the seaplane has most to gain by increase in size, and is the only one in which this increase appears to have no limit.

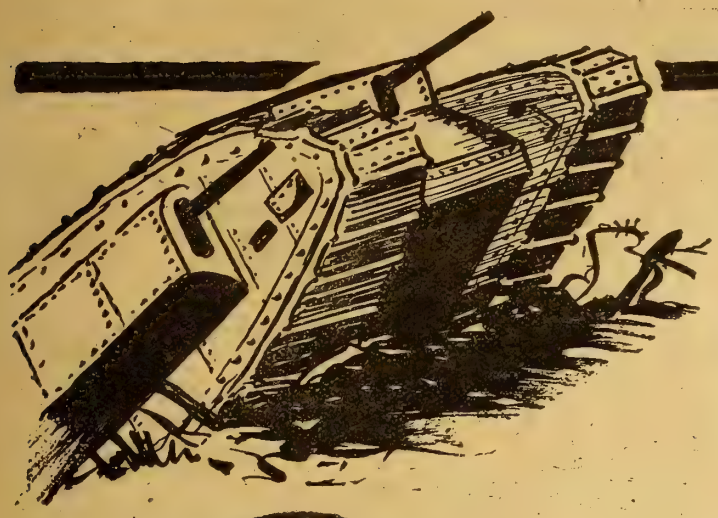
OVERLYING WOOD GOODS.

The Board of Trade announce that permission will be granted by the Controller of Timber Supplies, on application under the Timber Control Order, 1918, for shipment and disposal here of overlying wood goods belonging to traders in this country. Such goods can be sold subject to the maximum prices in force on the arrival of the goods in this country.

Applications for permits and import licences should be addressed to the Controller of Timber Supplies (A.C.T.S.5), 80, Newman Street, Oxford Street, London, W.1, by whom recommendations for import licences will be made to the Department of Import Restrictions.

TIMBER FROM THE NATIONAL STOCK.

The Board of Trade announce that in view of the abolition of Consumers' Permits for Timber, announced on Dec. 27th last, all applications for the purchase of timber from Government stocks should now be addressed to the Government timber buyer, Mr. Montague L. Meyer, Salisbury House, Finsbury Circus, London, E.C.2, and not to the office of the Controller of Timber Supplies as hitherto.



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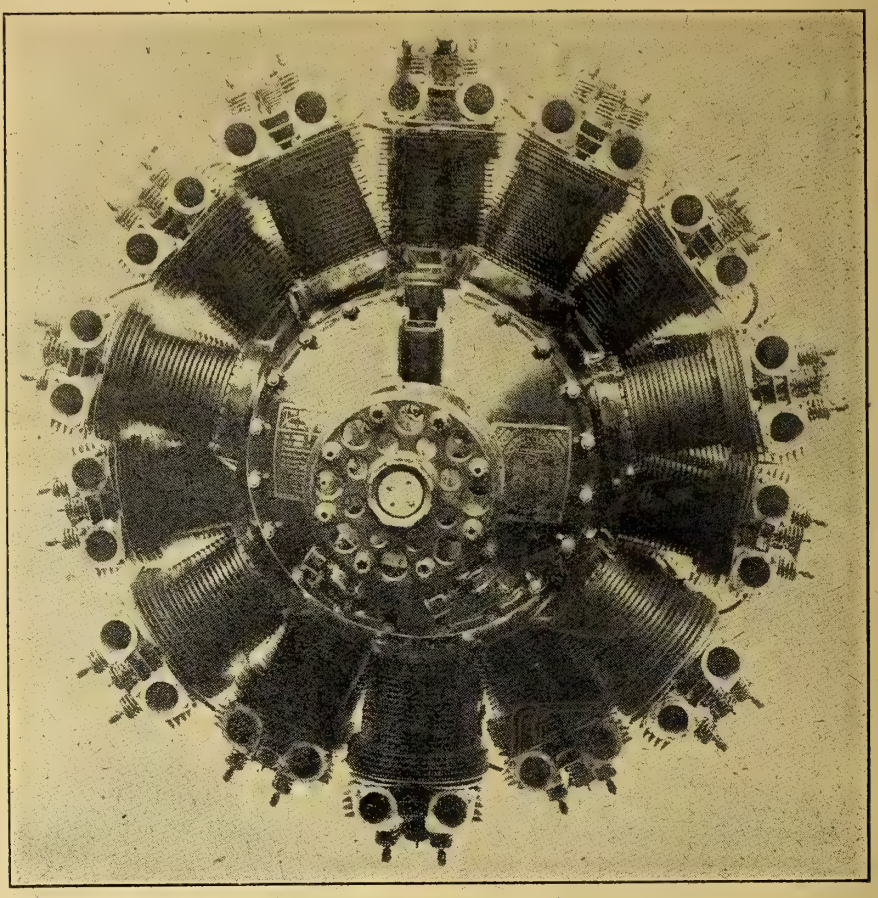
The last half of 1918 saw the end of several things besides the war. One of them was prejudice against and objections to radial engines. In fact, Nov. 11th saved the poor Hun from more than one unpleasant aerial novelty, and in particular from the forthcoming results of the development of some new engines of this type.

Rotaries have for some time been humming their swan song, but the stationary radial has taken on a new lease of life. Dilation on the good points of this type of engine is unnecessary, but it is only recently that engines have come into existence wherein the good points of the type have not been obscured by bad design or workmanship. And when a much boomed sample that was to develop 400 h.p. for not more than 500 lbs. gradually fell in power output and rose in weight, the future of the radial began to look black once more, and the wiseacres were busy "telling you so."

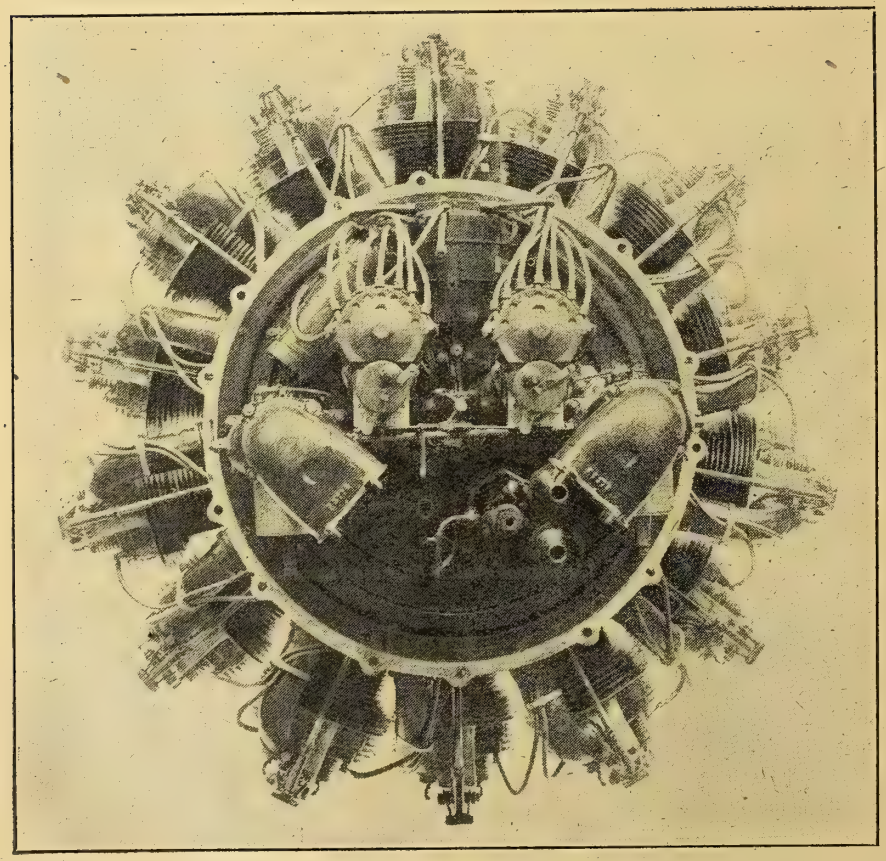
Obviously there was something wrong somewhere, for the radial could not help being good if only——!

One of the firms who have specialised in the radial engine and have pinned their faith to the type is the Cosmos Engineering Co., Ltd., of Bristol, formerly known as Brazil, Straker & Co., Ltd., and still more formerly as Straker-Squire. To those who know their car histories little more need be said. The Cosmos Co. is not entirely identical with the car people, but it is not far removed, as offspring go.

Research and experiment have led to the production of two radial engines by the firm—the "Mercury" of 315 h.p. and the "Jupiter" of 500 h.p., of fourteen and nine cylinders respectively.



Front View. "Mercury" Engine.



Rear View. "Mercury" Engine.

Other engines will be, and, indeed, are being, designed and produced, but upon the success of these two engines the makers have decided to commit themselves definitely to a programme of peace-time production. Aero-engines are to be the product with which the Cosmos Engineering Co. will make their bid for prosperity, and radial engines are the particular type with which the firm will be concerned. Money and time and the inclination to make use of both are all at hand, and further experiment and research are to be continued.

The "Mercury" Engine.

The "Mercury" engine—two rows of seven cylinders each—was introduced to satisfy Air Board Scheme A issued in April, 1917. Its main details are:—Maximum diameter, 41⅝ ins.; bore, 4⅝ ins.; stroke, 5 13-16 ins.; power output, 315 b.h.p. at 1,800 r.p.m. (normal) and 347 at 2,000 r.p.m. (maximum); total weight, without fuel and oil tanks, but with the engine absolutely complete, even to the gun synchronising gear, 582 lbs.

Front and rear view illustrations are reproduced herewith, which make quite clear the general lay-out of the unit, including the ignition apparatus of two 7-cylinder M.L. magnetos and Remy 14-cylinder distributor and the two carburetters bolted to circular induction chambers on the crankcase. The mixture is conducted from these chambers by separate induction pipes to each cylinder and admitted through one inlet valve. The three overhead valves per cylinder may be seen in the front view of the engine; the tappet gear is of the roller type arranged in a circular unit, which can be assembled complete before attachment to the crankcase.

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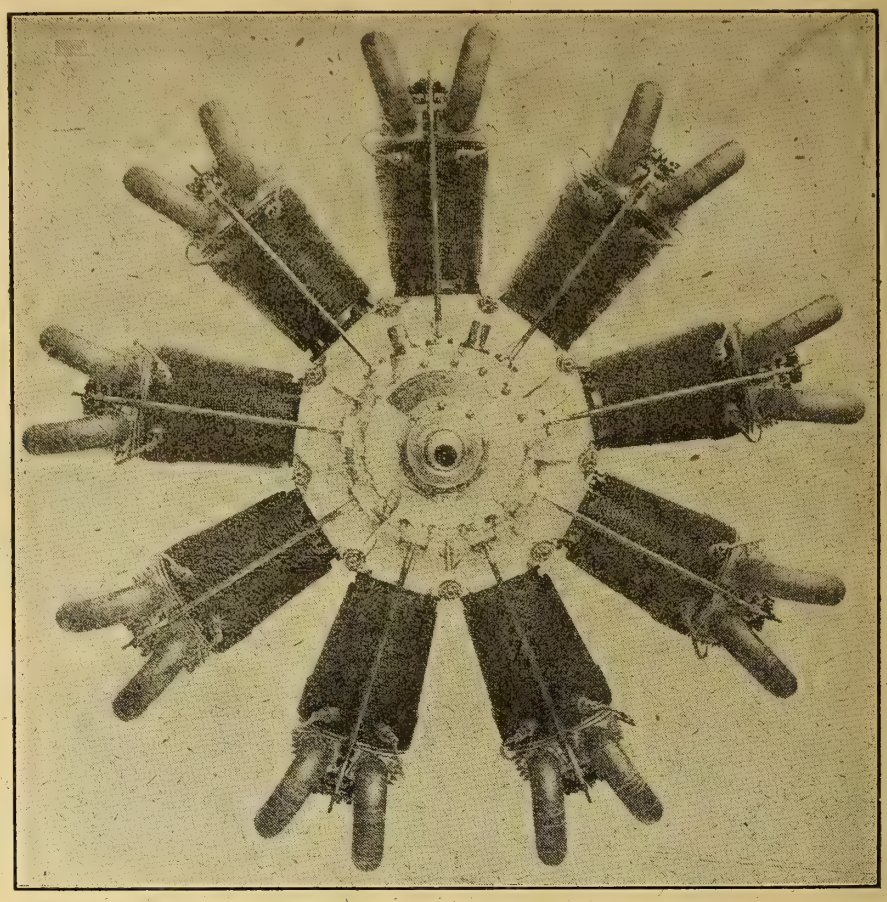
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As regards constructional details not apparent in the illustrations, the cylinders are turned from a solid billet, the fins integral with the barrel. Separate aluminium heads are bolted onto the cylinder barrels. These heads are so designed as to obtain effective cooling of the valve seatings and ports, and to avoid all distortion. The crankshaft is of the two-throw type on roller bearings throughout. The rollers of the big-end bearings run direct on the crank-pin, and each connecting-rod has its own crankshaft bearing, so that the seven rods of each row of cylinders lie side by side on their respective crank-pins. An interesting feature of this part of the engine is that the whole crankshaft assembly can be withdrawn complete, with the connecting-rods in position. The tappet gear is of the roller type, the tappets operated by two cam rings, each having three cams and working at one-sixth engine speed.

Lubrication is on the dry sump principle, and the oil is drawn by one pump from the tank mounted in the fuselage, delivered under pressure to the hollow crankshaft, and, after being led by separate leads to all necessary parts, is returned to the tank by another pump.

On this engine the airscrew is ungeared, the airscrew boss being driven direct through serrations on the crankshaft. The airscrew boss is to Air Board standard design.

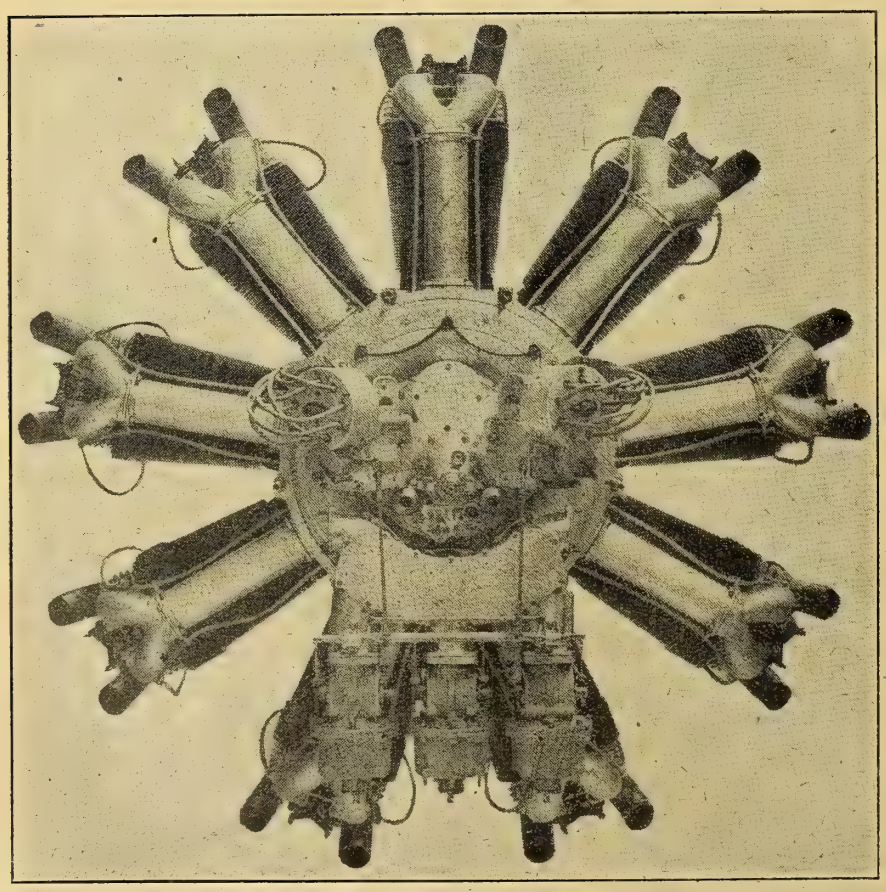
On the Bristol Scout Type "F" this engine has been given exhaustive flying tests, and has given extremely satisfying results.



Front View. "Jupiter" Engine.

THE "JUPITER" ENGINE.

From one point of view the "Jupiter" engine may be classed with the Rolls "Condor" and the Siddeley "Tiger." The Armistice came at a time when it had done no more than prove its potentialities by means of bench tests, and, in the sphere for which it was designed—Hun strafing—the engine will never have its chance. With this in mind, one might be forgiven for regretting that the Armistice was not postponed till Christmas Day.



Rear View "Jupiter" Engine.

The rear view of the "Jupiter" engine makes clear many of its constructional features. There are nine cylinders made on lines similar to those of the "Mercury," but the bore and stroke are 5¾ ins. and 7½ ins. respectively, while the power output is 450 h.p. at 1,800 r.p.m. as an ungeared engine or 500 at 2,000 r.p.m. with a geared down airscrew. The weight of the ungeared model is 662 lbs. complete, including electric starter, but without fuel and oil tanks.

AN IMPORTANT FEATURE.

From the illustration the engine might be taken to be of the rotary type, owing to the arrangement of the inlet pipes, which form part of a very interesting induction system. As will be seen, three carburetters are bolted to the crankcase cover, which also forms one side of the induction chamber.

This induction chamber is annular, and into it is fitted a spiral fluted aluminium casting which acts as a gas distributor to the cylinders. Each of the three carburetters supplies three cylinders *via* the spiral, which delivers the carburetted charge to the correct cylinder in turn, with the advantage that each cylinder is more efficiently supplied with mixture, and, if one cuts out, none of the others is affected. On bench tests the arrangement has proved itself a success.

Two inlet and two exhaust valves are fitted per cylinder, operated by two cam rings, each with four cams running at one-eighth engine speed, through tappets mounted in the front of the engine. Ignition is by two 9-cylinder Thomson Bennet magnetos driven by bevel gear-

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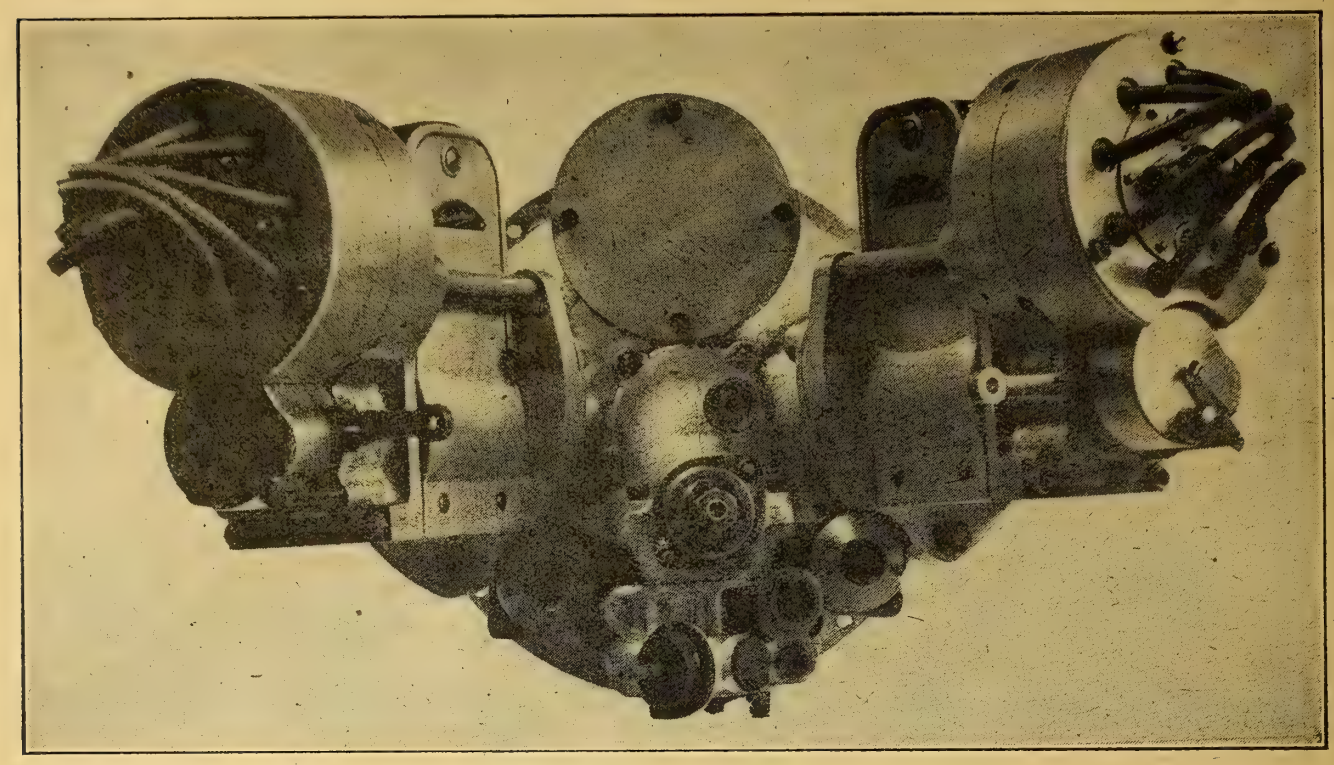
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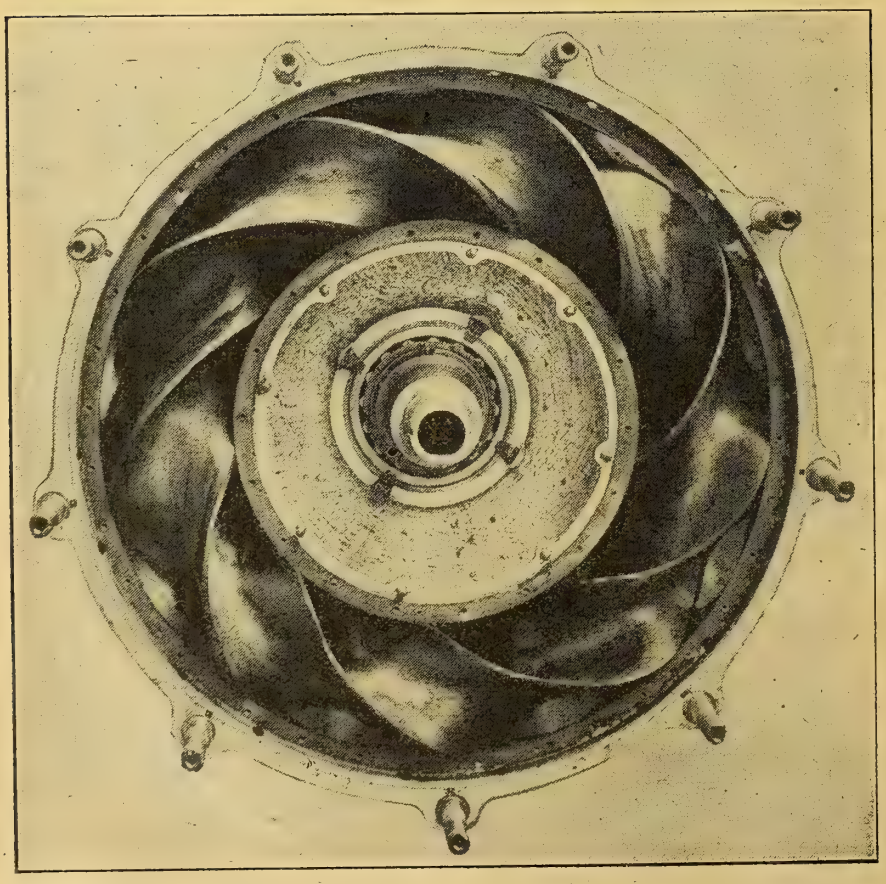


Back Cover Unit. "Jupiter" Engine.

ing from the crankshaft and mounted on the back cover of the crankcase—i.e., the cover of the induction chamber—in such a position that the contact breakers are readily accessible.

With the exception of the connecting-rod assembly, the engine is, in essentials, similar to the "Mercury." A master connecting-rod with articulated rods is used. The bearing of the master rod is white metal lined, all other bearings in the engine are of the roller type. It is hardly necessary to point out that the crankshaft in the "Jupiter" engine is of the single throw type.

It is difficult to say much by way of general review of engines that have not long been in the public eye and that have not had the opportunity of proving their mettle in continous service. The induction system of the "Jupiter" engine and the cylinder head construction of both engines are, however, proof that the engines have brains behind them, and that precedent and tradition are not being followed blindly. Which is what all of us want to see.—Duo.



Spiral Fluted Induction Ring. Induction chamber removed. "Jupiter" Engine.

SOME SUGGESTIONS.

From a Pseudonymous Reader Who Signs Himself "An Old Librarian."

Sleeve Valve Radial Engines.—A simple single sleeve worked by a cam with push and pull motion will give better port openings than the complicated systems used on motor-car engines.

It is 10 per cent. lighter than poppet valves and more reliable. The cam may be a single tramway cam with crossover running at crankshaft speed, or a cam driven at the usual ratio to suit the number of cylinders.

Any leakage can be prevented by an interior fixed sleeve, part of the detachable head, which may be slotted to give it spring.

Epicyclic Gears.—To overcome unequal loads on the teeth of compound or Ford type gears, the planet pinions may be screwed together in such a manner that a strong spring is compressed between them.

Thus, if all the load falls on one pair of pinions, they will screw together a little farther and allow the load to be taken by the other planet pinions.

A plastic material may be used to give the same result.

A NEW AMERICAN AEROPLANE.

An interesting announcement was made by the Aeronautical Branch of the United States War Department on Jan. 7th, to the effect that a new American aeroplane—presumably a two-seater "fighter"—will develop a speed of 145 m.p.h. with full military load.

Very few particulars of the machine were issued; however, with a 300 h.p. 8-cylinder Hispano-Suiza engine it is stated to have an absolute ceiling of 25,000 ft. The general arrangement of the aeroplane gives the pilot a greater field of view than previously. The fuel tank capacity is sufficient for three-and-a-half hours' flying.

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THE LIBERTY ENGINE.

BY G. DOUGLAS WARDROP, M.S.A.E., A.S.M.E.
(Managing Editor of "Aerial Age Weekly," New York.)

[Writing in "Aerial Age," of New York, Mr. G. Douglas Wardrop recently gave a number of interesting details of the Liberty Engine. By courtesy of the Technical Department, Department of Aircraft Production, Ministry of Munitions, The Aeroplane is able to supplement those with several excellent photographs of the engine.

Mr. Wardrop writes :—

The history of the development of the motor is an amazing demonstration of the skill of American engineers and the capacity for production of the automotive industries. On May 26th, 1917, the Liberty Motor was merely an idea; on June 5th drawings had been made; on July 24th a complete motor was tested; on Nov. 29th first production deliveries were made; on Oct. 12th, 1918, the ten-thousandth motor was delivered to the Government! This feat has never been equalled in automotive engineering and production.

The first official announcement concerning the Liberty was made by the War Department on May 15th, 1918. The statement read :—

"The design of the parts of the Liberty engine were based on the following :—

"Cylinder.—The designers of the cylinders for the Liberty engine followed the practice used in the German Mercédès, English Rolls-Royce, French Lorraine Dietrich, and Italian Isotta Fraschini before the war and during the war. The cylinders are made of steel inner shells, surrounded by pressed steel water jackets. The Packard Company by long experiment had developed a method of applying these steel water jackets. The valve cages are drop forgings welded into the cylinder heads. The principal departure from European practice is in the location of the hold-down flange, which is several inches above the mouth of the cylinder, and the unique method of manufacture evolved by the Ford Company. The output is now approximately 1,700 cylinder forgings per day.

"Cam Shaft and Valve Mechanism Above Cylinder Heads.—The design of the above is based on the Mercédès, but was improved for automatic lubrication, without wasting oil, by the Packard Motor Car Company.

"Cam Shaft Drive.—The cam shaft drive was copied almost entirely from the Hall-Scott motor; in fact, several of the gears used in the first sample engine were supplied by the Hall-Scott Motor Car Company. This type of drive is used by Mercédès, Hispano-Suiza, and others.

"Angle Between Cylinders.—In the Liberty engine the included angle between the cylinders is 45 degrees; in all other existing 12-cylinder engines it is 60 degrees. This feature is new with the Liberty engine, and was adopted for the purpose of bringing each row of cylinders nearer the vertical and closer together, so as to save width and head resistance. By the narrow angle greater strength is given to the crank case and vibration is reduced.

"Electric Generator and Ignition.—A Delco ignition system is used. It was especially designed for the Liberty engine, to save weight and to meet the special conditions due to firing 12 cylinders with an included angle of 45 degrees.

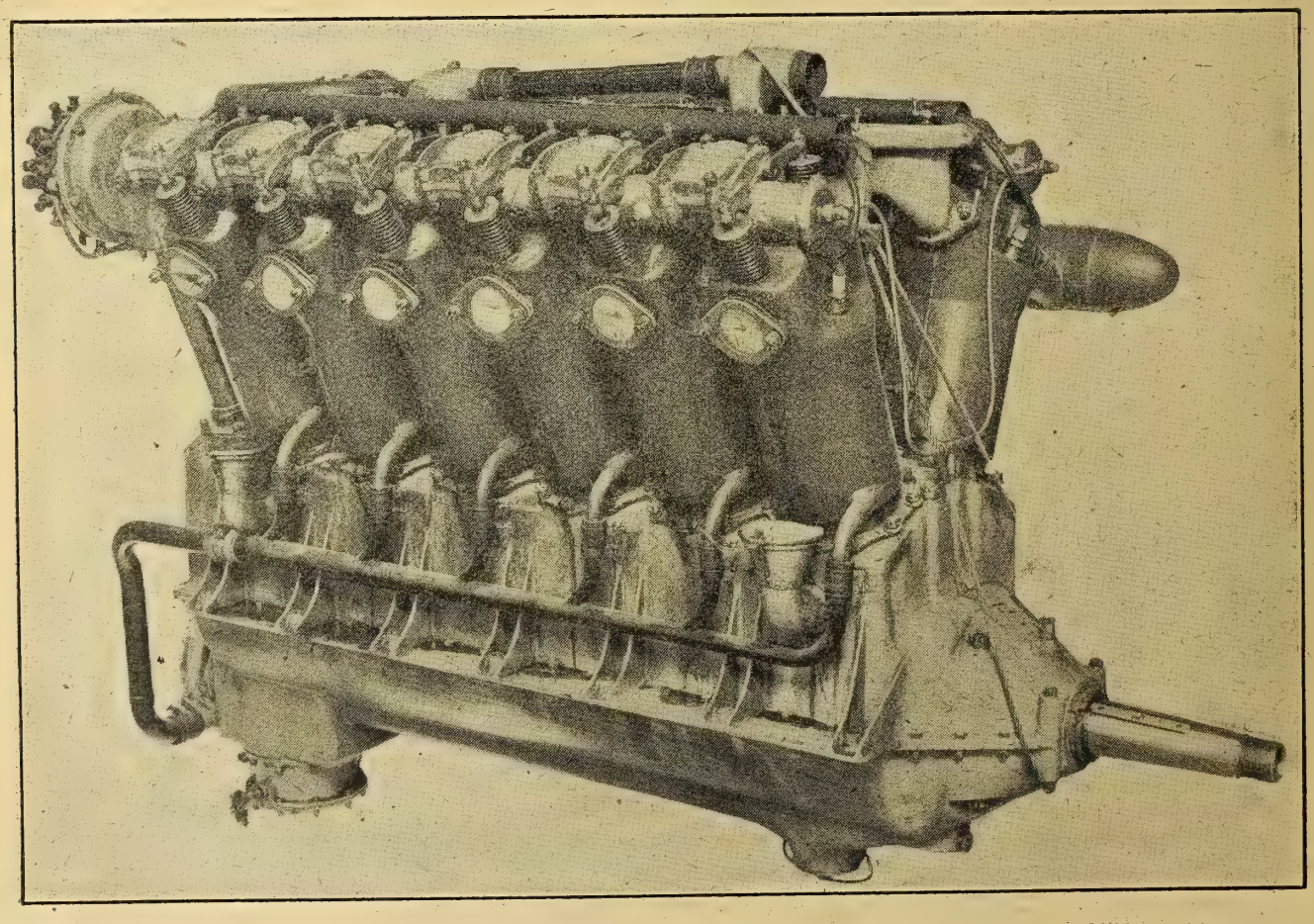
"Pistons.—The pistons of the Liberty engines are of Hall-Scott designs.

"Connecting Rods.—Forked or straddle type connecting rods, first used on the French De Dion car and on the Cadillac motor cars in this country, are used.

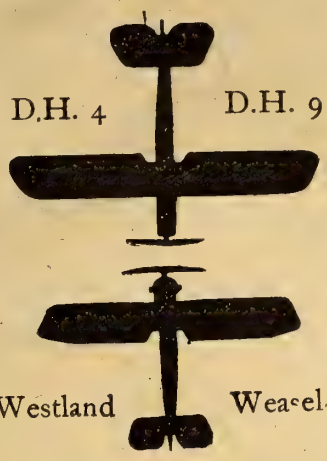
"Crank Shaft.—Crank shaft design followed the standard 12-cylinder practice, except as to oiling. Crank case follows standard practice. The 45 degree angle and the flange location on the cylinders made possible a very strong box section.

"Lubrication.—The first system of lubrication followed the German practice of using one pump to keep the crank case empty, delivering into an outside reservoir, and another pump forcing oil under pressure to the main crank shaft bearings. This lubrication system also followed the German practice in allowing the overflow in the main bearings to travel out the face of the crank cheeks to a scupper, which collected this excess of crank-pin lubrication. This is very economical in the use of oil and is still the standard German practice.

"The present system is similar to the first practice, except that the oil, while under pressure, is not only fed to main bearings, but through holes inside of crank cheeks to crank pins, instead of feeding these crank pins through scuppers. The difference between the two oiling systems consists of carry-



(Photograph by courtesy of the Technical Department (Aircraft), Ministry of Munitions.)
The Liberty Engine Three-quarter View,—Airscrew End.




Westland Seaplane


Westland Wagtail


Short Seaplane
200 HP. Canton


Short Seaplane
225 HP. Sunbeam

These Illustrations give an idea of the range of our War production, which included machines of Westland design.

Westland Aircraft Works

(Branch of Petters Limited)

Yeovil

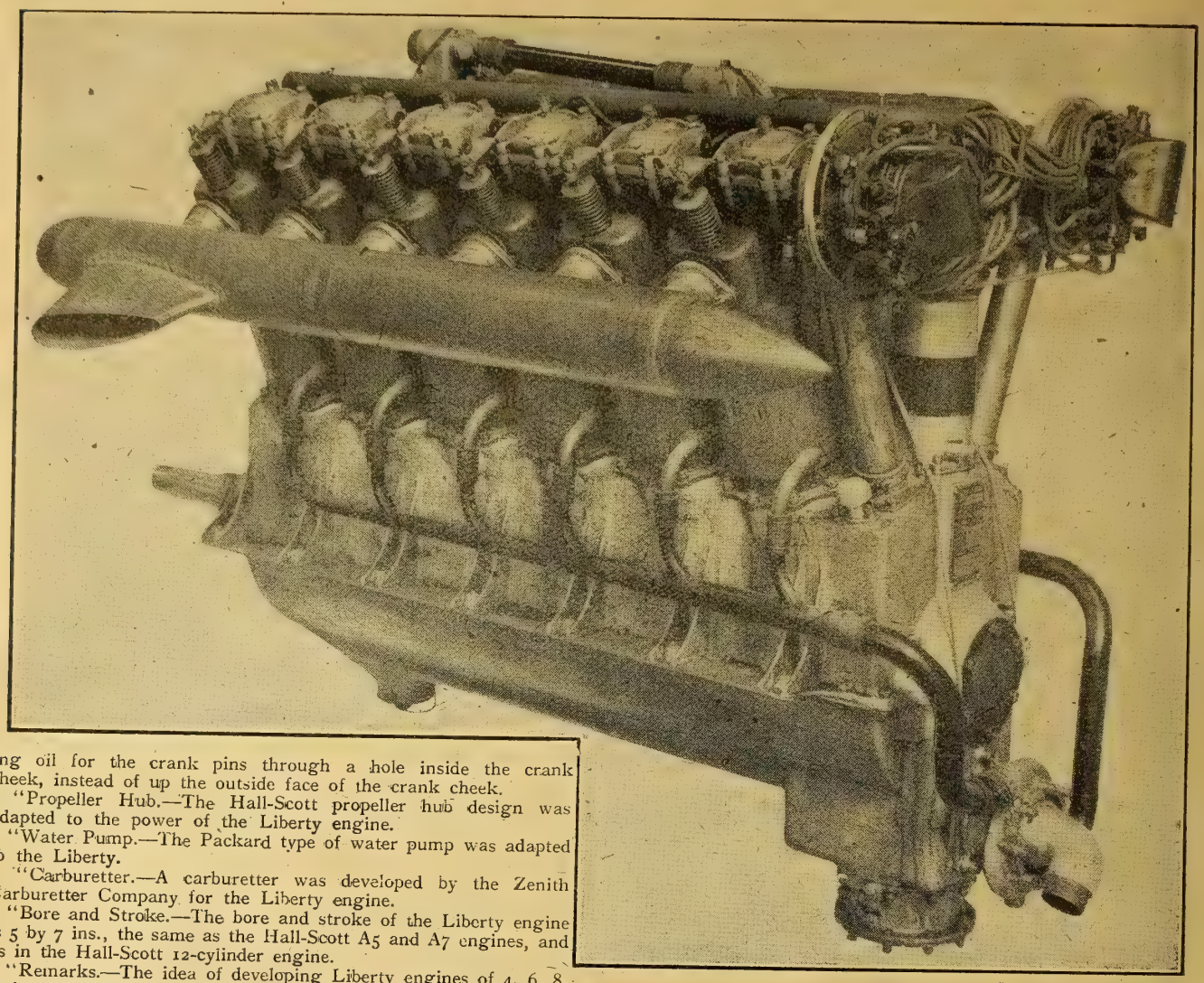
The same design staff and organization will deal with Peace enquiries, and our private aerodrome is available for testing.


Sopwith 1½' Strutter


D.H. 9A


Vickers Vimy

Telephone : Yeovil 141
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(Photograph by courtesy of the Technical Department (Aircraft), Ministry of Munitions.)

ing oil for the crank pins through a hole inside the crank cheek, instead of up the outside face of the crank cheek.

"Propeller Hub.—The Hall-Scott propeller hub design was adapted to the power of the Liberty engine.

"Water Pump.—The Packard type of water pump was adapted to the Liberty.

"Carburetter.—A carburetter was developed by the Zenith Carburetter Company for the Liberty engine.

"Bore and Stroke.—The bore and stroke of the Liberty engine is 5 by 7 ins., the same as the Hall-Scott A5 and A7 engines, and as in the Hall-Scott 12-cylinder engine.

"Remarks.—The idea of developing Liberty engines of 4, 6, 8, and 12 cylinders with the above characteristics was first thought of about May 25th, 1917. The idea was developed in conference with representatives of the British and French missions, May 28th to June 1st, and was submitted in the form of sketches at a joint meeting of the Aircraft (Production) Board and the joint Army and Navy Technical Board, June 4th. The first sample was an 8-cylinder model, delivered to the Bureau of Standards, July 3rd, 1917. The 8-cylinder model, however, was never put into production, as advices from France indicated that demands for increased power would make the 8-cylinder model obsolete before it could be produced.

"Work was then concentrated on the 12-cylinder engine, and one of the experimental engines passed the fifty-hour test August 25th, 1917.

"After the preliminary drawings were made, engineers from the leading engine builders were brought to the Bureau of Standards, where they inspected the new designs and made suggestions, most of which were incorporated in the final design. At the same time expert production men were making suggestions that would facilitate production.

"The Liberty 12-cylinder engine passed the fifty-hour test, showing, as the official report of August 25th, 1917, records, that the fundamental construction is such that very satisfactory service, with a long life and high order of efficiency, will be given by this power plant, and that the design has passed from the experimental stage into the field of proven engines.

"An engine committee was organised informally, consisting of engineers and production managers of the Packard, Ford, Cadillac, Lincoln, Marmon, and Trego companies. This committee met at frequent intervals, and it is to this group of men that the final development of the Liberty engine is largely due."

The prime consideration of the designing engineers was to have a motor that would be efficient from every modern standpoint, and at the same time suitable for production on a rapid basis. Both results have apparently been achieved.

Before proceeding to a discussion of the detail of the motor, the following dimensions and characteristics are of interest:—

General Data.

Number and arrangement of cylinders	Twelve-Vee
Included angle	45 deg.
Bore	5 in.
Stroke	7 in.

The Liberty Engine.—Ignition End.

Stroke-bore ratio	1.4 : 1
Area of one piston	19.635 sq. in.
Total piston area	234.62 sq. in.
Swept volume of one cylinder	137.445 cu. in.
Displacement of motor	1649.5 cu. in.
Compression ratio (Army)	5.4 : 1
Compression ratio (Navy)	5. : 1
Normal brake h.p.	400 at 1750 r.p.m.
Type of valve gear	Overhead cam shaft and valve rockers
Number of carburetters	Two Duplex Zenith

Valves.

Number per cylinder	One inlet and one exhaust
Outside diameter	2¾ in.
Port diameter	2½ in.
Width of seat	⅛ in.
Angle of seat	30 deg.
Valve lift (inlet)	7/16 in.
Valve lift (exhaust)	⅜ in.
Diameter of stem	7/16 in.
Length of valve	6 3/16 in.
Number of springs per valve	2 concentric
Length of spring in position	2 3/16 in.
Mean diameter of coils (large spring)	1 7/16 in.
Mean diameter of coils (small spring)	1 in.
Inlet rocker clearance	015 in.
Exhaust rocker clearance	020 in.
Included angles of valves	27 deg.

Cylinders.

Overall height of cylinders	16 13/16 in.
Length of projection in crankcase	57/64. in.
Diameter of cylinder over water-jacket	6⅜ in. max.
Diameter of cylinder over water-jacket	5 13/16 in. min.
Thickness of flange (base)	¼ in.
Number of studs	10
Diameter of stud	⅜ in.
Thickness of water-jacket	3/64 in.
Thickness of cylinder head	3/16 in.
Thickness of combustion chamber-wall	5/32 in.
Thickness of cylinder barrel	⅛ in.

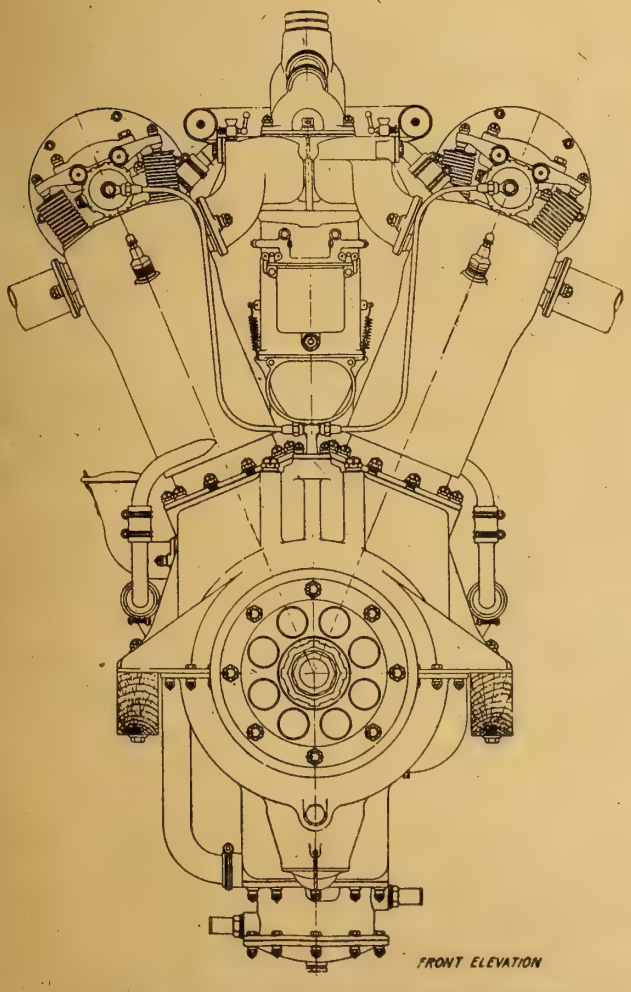
Number of reinforcing ribs	8
Thickness of valve ports	$\frac{1}{8}$ in.
Diameter of port at valve	$2\frac{1}{2}$ in.
Diameter of port at flange	$2\frac{5}{8}$ in.
Number of spark plugs	2 per cylinder

PISTONS.

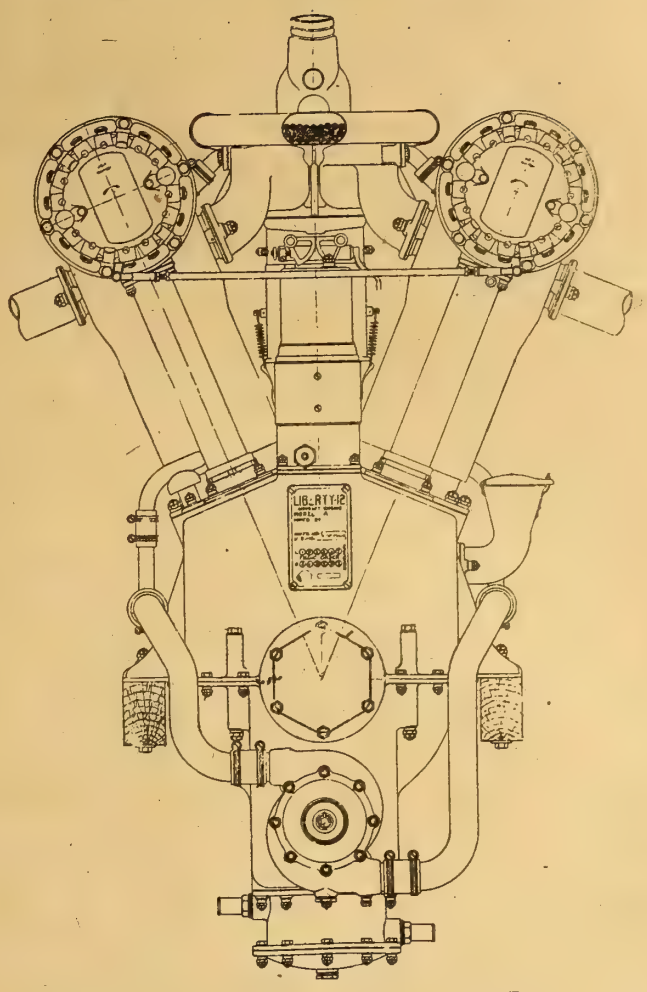
Type of piston (Army)	Crowned
Type of piston (Navy)	Flat
Material	Aluminium
Length of piston	5 in.
Length to diameter ratio	1 : 1
Number of rings per piston	3
Position of rings	Above gudgeon pin
Width of rings	$\frac{1}{4}$ in.
Width of lands	$\frac{1}{8}$ in.
Distance from bottom to centre of gudgeon pin	2 in.
Thickness of head	$\frac{3}{8}$ in.
Thickness of wall at bottom	3/16 in.
Diameter of gudgeon pin	$1\frac{1}{4}$ in.
Thickness of gudgeon pin wall	$\frac{1}{8}$ in.

CONNECTING RODS.

Type	Forked
Length between centres	$11\frac{7}{8}$ in.
Ratio length to crank throw	3.49 : 1
Small end bearing	Bronze bushing
Outside diameter of bushing	$1\frac{3}{8}$ in.
Length of bushing	
Length of small end of rod	
Outside diameter	1 11/16 in.
Type of section	"I"
Depth	1 5/16 in.
Width	15/16 in.
Thickness of web	
Thickness of flange	3/32 in.
Large end bearing	Bronze, babbit lined
Inside diameter	$2\frac{3}{8}$ in.
Outside diameter	2 13/16 in.
Length	$2\frac{1}{2}$ in.
Thickness of babbit	1/16 in.



Elevation of the Liberty "Twelve."—Airscrew End.



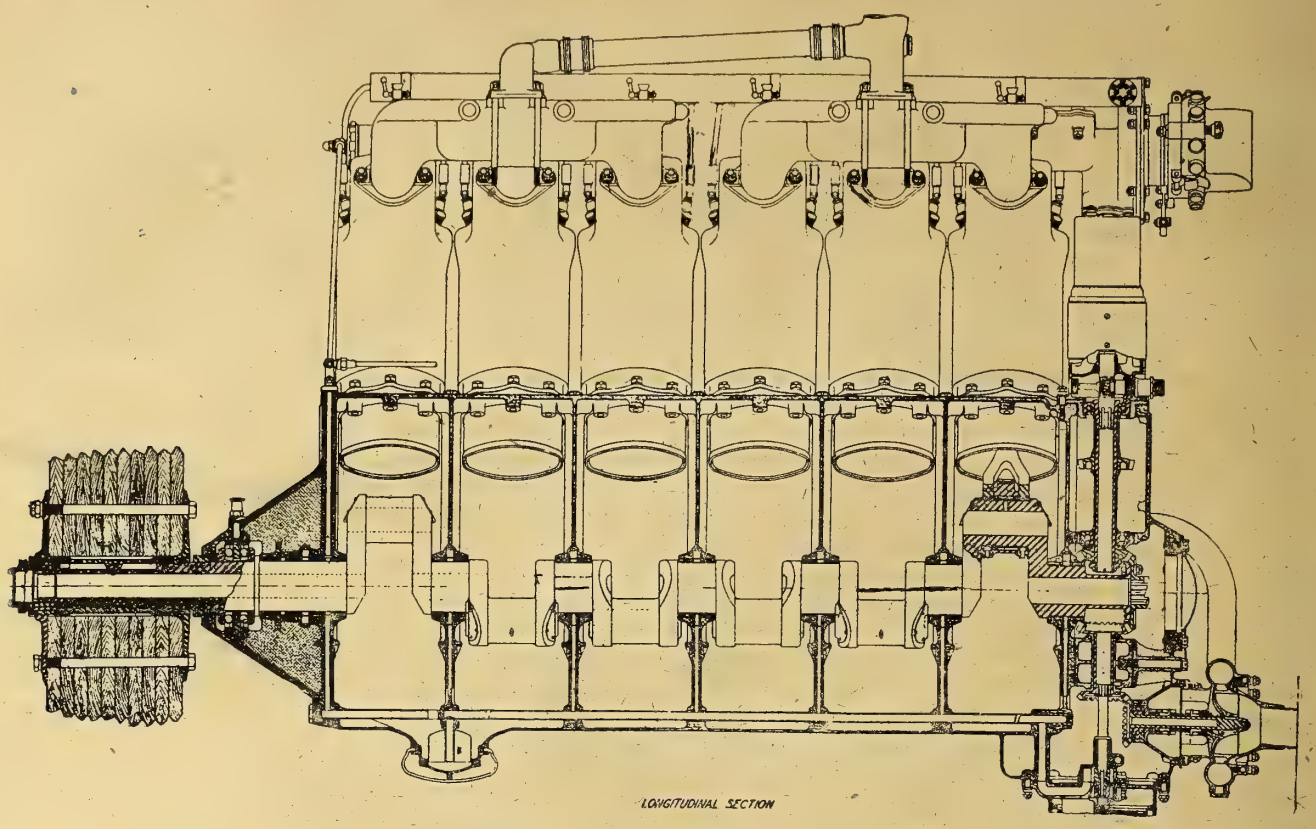
Elevation of the Liberty "Twelve."—Pump End.

CRANKSHAFT.

Number of bearings (Main)	7
Cylinder centres	$6\frac{1}{2}$ in.
Crank pins :	
Outside diameter	$2\frac{3}{8}$ in.
Inside diameter	$1\frac{1}{4}$ in.
Length diameter	$2\frac{1}{2}$ in.
Main bearings :	
Outside diameter	$2\frac{5}{8}$ in.
Inside diameter	$1\frac{3}{8}$ in.
Length	2 in.
Length (propeller end)	$4\frac{1}{2}$ in.
Crank webs :	
Width	$2\frac{3}{4}$ in.
Thickness	1 in.
Radius of fillets	$\frac{1}{8}$ in.
Weight of shaft	103 lbs.

CAMSHAFT.

Diameter of shaft	1 in.
Inside diameter	11/16 in.
Number of bearings	7
Length of bearing (5 intermediate)	$3\frac{1}{8}$ in.
Length of bearing (gear end)	$2\frac{3}{4}$ in.
Length of bearing (front end)	$3\frac{1}{4}$ in.
Width of cam face	$\frac{3}{8}$ in.
Number of cams per cylinder	1 inlet and 1 exhaust
Diameter of gear flange	$2\frac{5}{8}$ in.
Thickness of gear flange	3/16 in.
Diameter of bolt circle	2 in.
Number of bolts	7
Diameter of bolts	$\frac{1}{4}$ in.
P. D. of gear	6 in.
Number of teeth	48
Width of face	$\frac{1}{2}$ in.
Camshaft housing	Barrel type
Material	Aluminium
P.D. of pinion	2 in.
Number of teeth	16
Width of face	$\frac{1}{2}$ in.
Diameter of inclined drive shaft	$\frac{3}{4}$ in.



Longitudinal section of the Liberty Twelve

Crankcase (upper).	
Material	Aluminium
Thickness of wall	3/16.
Thickness of cylinder pads	½ in.
Thickness of supporting flange	3/16 in.
Centre distance of motor support bolts	16¾ in.

Crankcase (lower).	
Material	Aluminium
Thickness of wall	⅛ in.

Lubrication.	
Type	Forced feed
Type of pumps	Rotary gear
No. of pumps	1 double pressure and 1 scavenging
Ratio of pump speed to crankshaft speed	1.5 : 1

Ignition.	
Type	Battery and generator
Firing order	L 1-9-5-11-3-7, R 8-4-12-6-10-2
Number of plugs per cylinder	2
Type of plug	A. C.
Ratio of generator speed to crankshaft speed	1.5 : 1

Cooling System.	
Type	Water cooled
Pump	1 centrifugal
Diameter of inlet pipe	2 in.
Diameter of outlet pipe	1⅜ in.
Number of outlets	2
Diameter of rotor	3⅛ in.
Ratio of pump speed to crankshaft speed	1.5 : 1
Water temperature inlet	155° F.
Water temperature outlet	175° F.

(To be continued.)

A PROBLEM TO BE SOLVED.

The scene, the crowded air above Bourlon Wood: the date, the opening of the battle of Cambrai. A "Camel" pilot, his ammunition finished, is coming home through the clouds. He has that look of concentration that a war-pilot wears in battle. There is a rushing noise, a shock: the joy-stick is knocked out of his hands: for a moment a fiery tortured earth is spinning wildly round, and then——

A little cameo that suggests a problem. In the near future there will be a multitude of machines in the air. On a clear day there will be little danger of collisions: there will, no doubt, be excellent rules of the air. On a rainy day only machines on more or less important business will be up, while even below the clouds in heavy rain, the visibility is good enough to see other machines. In fact, very fair shoots have been carried out by observation machines in rain. The danger will come on a fine day with great rolling masses of soft cloud, grey below but very beautiful above.

The commercial machines and the great liners will pursue their lawful way above the clouds, but the private machines, especially the sporting little scouts, will be rushing in and out, round and through. The delight of cloud-flying on a bright day will outweigh the danger. As at Cambrai, there will be a great number of machines together in the clouds.

Something is wanted, then, that will enable machines to fly through clouds without danger of collision. Ships in fog rely on sirens and steam dead slow. At present aeroplanes cannot fly slowly, and they make so great a noise with the roar of the engine and the singing of the wires that a pilot could hardly hear any siren, however piercing the sound.

But even granted a siren that could be heard:—Imagine flying in a cloud at minimum speed—say 50 miles an hour—and imagine hearing round about you a number of sirens also moving at 50 miles an hour. The prospect is hardly pleasing.

What, then, is needed? An instrument showing the position of all machines within a certain distance in relation to your own.

Such an instrument would reduce the danger of a collision in the clouds to a minimum. It would, moreover, be invaluable in war. A squadron fitted with such instruments could fly through clouds in good formation and comparative safety.

Consider the development of the R.A.F. Air fighting at present is solely tactical. When rival formations engage, each leader strives for an initial advantage, but once engaged a "dog-fight" ensues, where each is for himself. But with the wireless telephone and improved means of inter-communication between machines in the air, aerial strategy will be introduced. The G.O.C. will be able to direct a battle in person. He will keep a reserve and throw it in when and where necessary.

Suppose one G.O.C. has five squadrons of fast scouts capable of keeping formation and executing certain simple manœuvres in clouds. Little imagination is needed to see what an enormous advantage he would have. He would be able to send a strong force under cover of clouds to the enemy's rear, while he engages their squadrons with the bulk of his own. He would have endless opportunities of effecting a complete surprise.

Whether such an instrument could be devised by using the sound waves thrown out by the various machines, or by using some other agency, it is not within the province of the writer to suggest. It is the pilot who can say what is needed: it is up to the scientist to attempt to provide it.

But that some such instrument will be necessary for complete safety in aviation, and that some such instrument would be invaluable in war, it is the purpose of this article to show.—C. E. Y.

The New

OLEO PLUGS

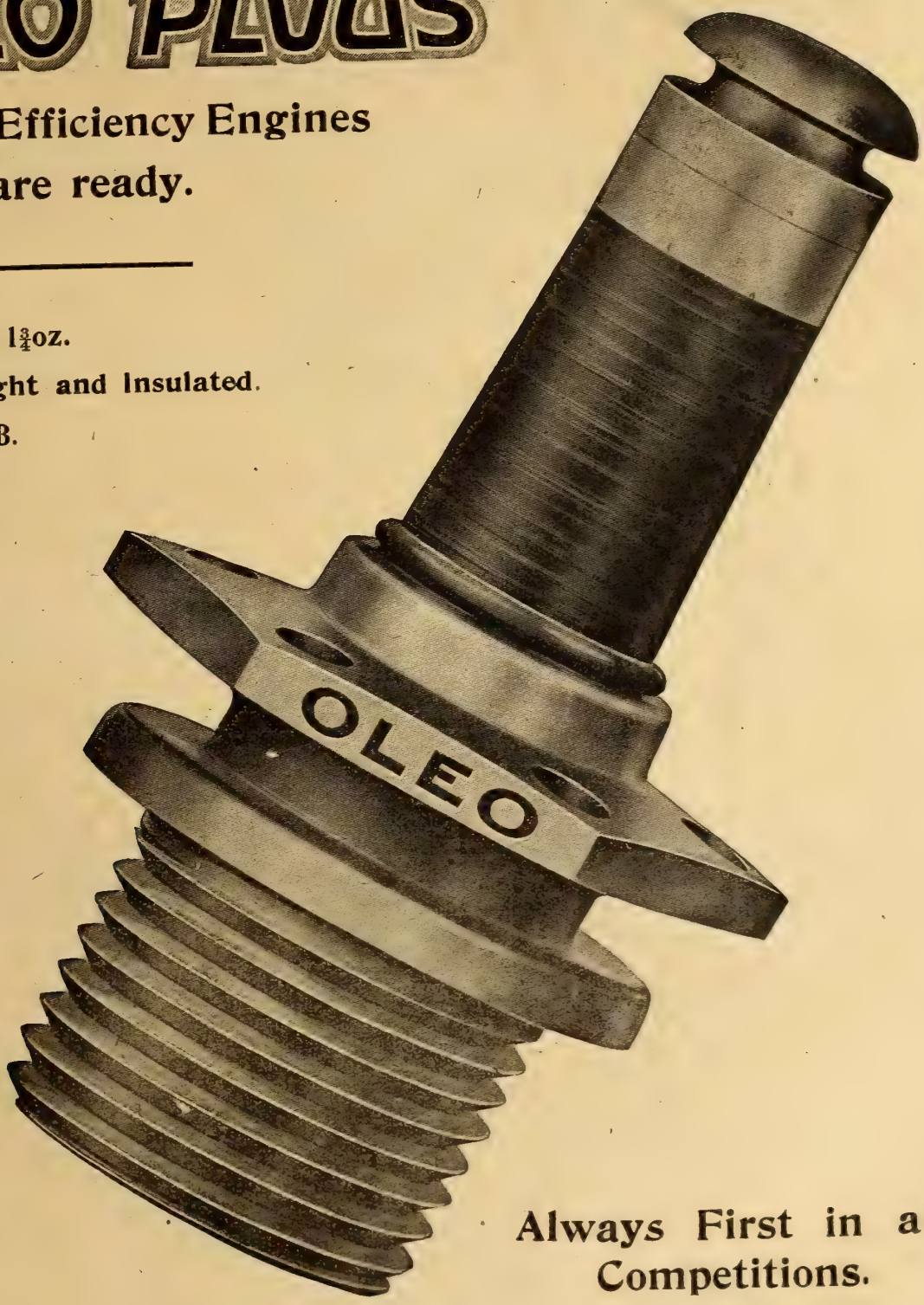
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Type No. 67B.

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Always First in all Competitions.

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Wires—"Ripault, Reg., London."

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:: CENTRAL ROAD, ::

WARRINGTON.

PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by THE AEROPLANE from the current Official Patents Records :—

PATENTS APPLICATIONS

Allon, Sir C. C. Aircraft. No. 1194. Jan. 16th.
Bennett, G. W. Device for ascertaining centre of gravity of rotatable objects. No. 1173. Jan. 16th.
Boulton & Paul. Means for connecting together frame, etc., members of aircraft. No. 1168. Jan. 16th.
Branceni, N. Iliesco. Aerial machines. No. 1204. Jan. 16th.
Crook, E. E. Aircraft, etc. No. 1277. Jan. 17th.
Elliott, T. C. Aeroplane landing platform. No. 964. Jan. 14th.
Emby, D. H. Metal spars, etc., for aviation. No. 1031. Jan. 15th.
Godwin, T. H. Devices for suspending persons from parachutes, etc. No. 1089. Jan. 15th.
Gough, R. Apparatus from which airmen in flight can catch receptacle without stopping machine. No. 1244. Jan. 17th.
Kelt, J. A. Aeroplane clinometer. No. 1137. Jan. 16th.
Marshall, R. Control of aircraft. No. 995. Jan. 15th.
Proud, N. High-power aeroplane internal combustion-engine. No. 1249. Jan. 17th.
Russell, W. C. Means for adjusting blades of airscrews during flight. No. 939. Jan. 14th.
Russell, W. C. Increasing output of power of engines of aircraft. No. 940. Jan. 14th.
Tarrant, W. G. Manufacture of aeroplane wings. No. 883. Jan. 13th.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER FEBRUARY 6TH, 1919.

121,980. Oct. 26th, 1917. Leech, S. Jet propellers for flying-machines and the like.
121,990. Dec. 7th, 1917. Jackson, J. G. Airplanes.
122,060. Feb. 1st, 1918. Lightman, L. Jigs particularly for use in the manufacture of ribs for aeroplane surfaces.
122,061. Feb. 4th, 1918. Anderson, G. Apparatus for indicating the amount of inclination of an aeroplane
122,080. March 15th, 1918. Wilson, H. F. Aeroplanes, seaplanes, and other aircraft for fighting purposes.

ABRIDGMENTS OF RECENTLY PUBLISHED SPECIFICATIONS.

120,791. Propellers. FOOT, R. G., 11, Queen Victoria Street, London.

FIG.2.



An air propeller for aeroplanes, ventilating fans, etc., has on the driving-face of each blade a number of concentric ribs *a*.

120,298. Aeronautics. SAUNDERS, S. E., White House, East Cowes, Isle of Wight.

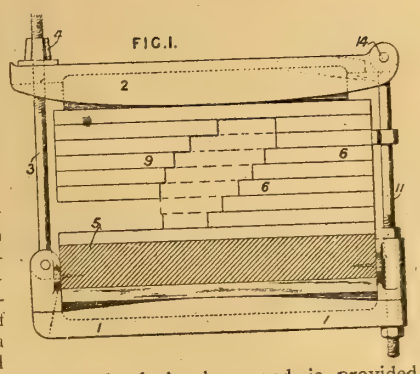
AERIAL MACHINES WITH AEROSTATS; AEROSTATS; STEERING AND BALANCING.—The envelope *a* of an airship is constructed of two or more wood laminæ stitched together as described in Specification 105,412 and secured upon longitudinal ribs *b* connected together at intervals, for example by bracing *c*, *d*, *e*, and cross-wires *f*, or by radial bracing of laminated wood. A layer of silk, etc., may be inserted between the laminæ. Adjustable propellers *i* and planes *k* are provided at the sides for forcing the ship down against the buoyancy of the gas or to assist the ascent. Water may be pumped between ballast tanks *o* for adjusting the balance. A keel *p* may have chambers which may be filled with water to retain the ship floating upon the water when forced down against the buoyancy of the gas.

CARS AND CABINS.—Cabins *h* are provided within the envelope and are connected by a passageway *m* to a front cabin *l*. The cabins and passage are provided with double walls *n* to contain nitrogen or other inert substance to reduce danger of fire

120,939. Aircraft propellers. BLACKBURN AEROPLANE & MOTOR Co., Olympia, Roundhay Road, and Wilson, S., 47, Markham Avenue, Harehills, both in Leeds.

In assembling the glued laminæ of aircraft propellers, they are registered in the required form and are clamped together while the glue is setting between upper and lower step-like structures 9, 6 supported respectively by a pressure arm or head 2 and by a bench 5. The arm 2 is pivoted at 14 to an adjustable post 11 supported by one end of the base 1, and a screw-threaded rod 3 is pivoted to the opposite end of the base and is provided with a nut 4 by which pressure is applied to the arm 2. A number of these clamps are applied at intervals along the laminæ.

FIG.1.



120,929. Aeronautics. RAPP, J. W., Flushing, New York, U.S.A.—(Assignee of Vanorio, J.; Brooklyn, New York, U.S.A.)

PLANES, CONSTRUCTION OF; FRAMEWORK.—A plane rib or other aircraft part is formed from two channel-section steel members

FIG 3

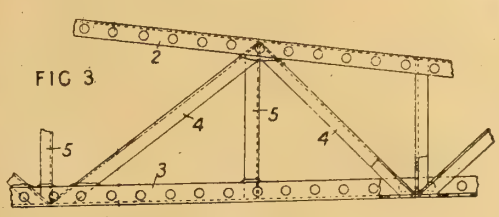


FIG.4.



2, 3 braced by struts 5 and diagonal members 4, also of channel section, all welded together at the joints. All the members have parts cut away as shown in Fig. 4. which shows a cross-section of the rib. The diagonal braces 4 are made in pairs, the flanges being cut away to form abutting surfaces at the bend. The ends of the struts 5 are cut to fit within the bends and are compressed laterally, as shown at the upper part of Fig. 4, to fit within the flanges of the members 4. The ends of the members 2, 3 are welded to tubes.

129,930. Internal-combustion engines. DURET, G. A., 18, Rue Milton, Paris.

CYLINDERS, COOLING.—Steam is generated in the cylinder jacket at or below atmospheric pressure, and flows to a condenser, with the aid of a pump if necessary, and the water is returned to the jacket. The pump has a throttle valve on its inlet pipe to control the cooling, and the tank for water of condensation contains a float valve which controls the outflow. When applied to an aeroplane, the wings or fuselage form the condenser, their external surfaces being unaltered, and their inner surfaces provided with baffles to direct the flow of steam.

A GOOD OPPORTUNITY.

Persons wishing to buy an aeroplane cheap for private purposes, or for school use, should note that Mr. G. H. Bettinson has bought up all the machines belonging to the late Mr. J. L. Hall. These machines, which are mostly of the Caudron type, can easily be put into serviceable condition and are offered at a very moderate price.

Of course, it must be realised that private flying is not yet permitted, but if, when the prohibition is removed, there is anything like a boom in private flying, there may be a temporary shortage of low-power machines. Those interested are invited to write to Mr. Bettinson at Berkeley Court, 31, Leinster Gardens, W.2.

FIG.1.

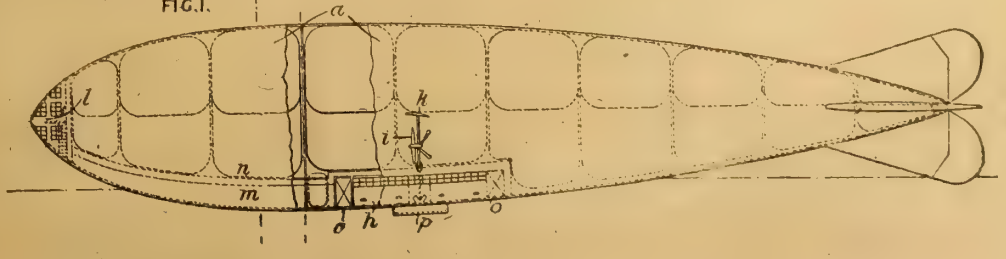
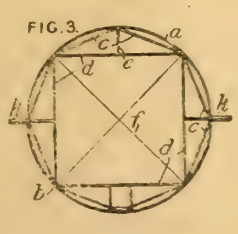


FIG.3.





GWYNNES
LIMITED.

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MANUFACTURERS AND SOLE LICENSEES IN THE BRITISH EMPIRE

"CLERGET" PATENT AERO ENGINES.

ENGINEERS, LONDON.

"GWYNNE, LONDON."

THE AIRCRAFT TRADER

THE OUTLOOK.

As stated last week, the metal market is practically free from control, but there is yet very little indication of manufacturers settling down to full scale production. One of the chief reasons for this was foreseen by the Ministry of Reconstruction, and it is difficult to see why steps were not taken prior to the cessation of hostilities to have the machinery ready for dealing with this most difficult and most intricate problem.

Two months have passed since the Armistice was signed, and manufacturers have no official information as to the steps the Government intend taking. There is not the slightest doubt that the Government must intervene, as the manufacturer will not run the risk of purchasing his materials at inflated prices and having to sell the finished product at a low price.

When the industries of the country were suddenly plunged into war conditions, the financial risks were supported by the credit of the State, and it has been suggested that the State should again give some form of assistance. This is certainly very commendable, and even if there were a certain amount of loss involved it would probably be worth while. The report just issued by the Ministry of Reconstruction and drawn up by the Committee on "Financial Risks attached to the holding of trading stocks" deals very thoroughly with the whole question.

Two methods of dealing with the matter are suggested, and presumably manufacturers will hold up production until the Government announces some definite policy. As was recently pointed out in these columns, prices must come down to a more normal and reasonable level, and the Committee expresses the view that the apprehension of a loss due to a drop in prices is well founded.

The remedies suggested are :—

(1) A reduction in the excess profits duty from 80 per cent. to 65 per cent. for the accounting period approximating to the year 1918 now in course of assessment, on the understanding that the duty so remitted is retained in the business and not distributed. This reduction might be accompanied by the withdrawal of the first concession in the White Paper, which was largely a result of the raising of the duty to 80 per cent.

(2) If this course is impracticable, the committee suggests that part of the duty now to be paid should be treated as a suspensory reserve for a period of five years, the amount so treated to be represented by a special kind of War Loan to be held on joint account by the Government and the taxpayer. The amount of this reserve should be 20 per cent. of the average excess of profits in the last two years of the duty.

After five years this reserve should either revert finally to the State or, in the following circumstances, become wholly or in part the property of the taxpayer. He must show that his annual profits over that period are less than the amount of the percentage standard to which he was entitled or would have been entitled under excess profits duty, and that these deficiencies have been associated with the holding, during this period, of stocks at falling prices as distinct, for example, from bad management or reduced turnover. He would then be entitled to relief to the extent of 80 per cent. of the deficiency, but for no greater sum than the amount of the reserve.

In the case of the second remedy the committee considers that the undertakings given in the White Paper should continue to stand, and that each business should state, when making its return for assessment for the last period of excess profits duty, whether it proposes to come under the first concession in the White Paper, or, waiving all rights thereunder, to come under the five year War Loan system of relief.

A reservation by four of the ten members of the committee expresses the view that the "base stock" method of valuation should be permitted by all traders, but that the valuation prices must not be lower than they have actually been within the trader's experience. Further, they are of opinion that if the suggested remedy by way of reduction in the duty cannot be granted, the amount of the reserve allowed in the second remedy should be at least double.

The most hopeful suggestion is No. 2, and, even if this is adopted, there does not appear to be any reason why the Excess Profit Duty should continue, as it has used up its sphere of usefulness, and only results in the prices of finished articles being increased in price, and there is no doubt it has encouraged extravagance.

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

JAN. 23rd, 1919.

COPPER.—The consumers are very reserved at present, and very little business is being done. The chief cause for this is the general belief that prices have not yet reached the lowest level. It has been stated that second-hand Copper has been offered from £4 to £5 less than the Government prices. Forward Copper has recently been sold at £80. Prices of manufactured Copper have been reduced £3; the basis for strong sheets is now £132.

COMPARATIVE PRICES.

Standard, To-day, Jan. 22nd	£91 0 0 per ton.
Last week	£93 10 0 per ton.
Last year	£110 0 0 per ton.

TIN.—Very little interest is being shown in this market, and buyers are very reserved. Although the tendency is for prices to decline, it is difficult to see how there can be a substantial decrease while prices in the East are maintained at an artificial level by the F.M.S.

The situation in U.S.A. is still causing much heart-burning and very bitter criticism, and the War Industries Board is having a very unpleasant experience. Various suggestions are being made to get out of the muddle, but the agitators are determined that the authorities and interests that went into the great gamble must face the music. There has been a gradual decline in prices here, but nothing very noticeable.

COMPARATIVE PRICES.

To-day, Jan. 22nd	£248 0 0 per ton.
Last week	£253 10 0 per ton.
Last year	£298 0 0 cash.
Average, 1918	£329 11 2 cash.

LEAD.—This market, in common with other markets, is very quiet indeed, notwithstanding the talk about the Government's huge building schemes. Some manufacturers are being handicapped by the shortage of labour, and there is a general feeling that the price must come down much lower before the consumers will make large purchases. The Government has reduced its price of Soft Pig Lead £5 per ton, and the following prices were also revised on Jan. 20th :—Sheet Lead, £46 delivered London; £47 delivered country; Old Lead to credit of account, £29; Cash, £27 net.

STEEL.—Certain sections of the Steel trade are fairly busy, particularly firms supplying shipbuilders and railway companies, but other sections of the trade are extremely quiet, and there is very little indication of a commencement of the much-talked-of boom which was to follow the cessation of hostilities.

The firms engaged on Aircraft Steels are having a very quiet time, as buyers are only buying sufficient to finish up the balance of reduced contracts. In fact, it is not necessary to buy, as the Ministry hold large stocks, and are, in the majority of cases, able to execute orders immediately. It is not expected that prices will decline; on the other hand, it is quite likely that there will be a slight advance when the subsidies are discontinued.

It is understood that the Ministry of Munitions is revising the official price list of Tungsten and Tungsten preparations, and it is expected that the reduction in price will probably be about 2s. per lb. on Tungsten. Manufacturers of High-speed Steel have already called a meeting to consider the revision of the prices of High-speed Steel, and there is bound to be a considerable reduction shortly.

TIMBER.—No official statement has been made as to the possibility of Aircraft woods being released from the shackles of Government control at an early date, and although very little business is being done at present, the sooner the regulations are withdrawn, and free trading begins, the better it will be for all concerned. In the meantime, everyone is awaiting developments, and, under present circumstances, it is inadvisable to purchase Timber, although the price of English Ash cannot be considered unreasonable, and further supplies of dry materials are likely to be scarce.

FABRIC.—The price recently fixed by the Flax Control Board would indicate the possibility of an advance in the price of Fabric, even if the control is withdrawn, although it is quite possible that a cheaper quality of Fabric will be used on commercial aeroplanes. Prices are at present unaltered.

THE MONTHLY MARKET PRICE LIST.

Jan. 28th.

The prices given below are the prices ruling on the above date.

Aluminium.*

Ingot	£150 per ton*

Brass.

Sheets	14⅝d. per lb.
Strip	13⅝d. per lb.
Wire	14d. per lb.
Tubes	15¾d. per lb.
Castings	16d. per lb.
Turning Rod	13½d. per lb.
Brazed Tubes	18d. per lb.

Copper.*

Ingot, Standard, Cash	£94 per ton*
Ingot, Standard, 3 mos.	£84 per ton*
Best Selected (Net)	£103 to £101 per ton
Sheets	£132 per ton
Wire	16d. per lb.
Tubes, S.D.	18¼d. per lb.
Tubes, Brazed	18¼d. per lb.
Rivets	1s. 10½d. per lb., basis.

Fabric.*

Linen, R.A.F., 17C, Spec., 36 in. wide, 3s. 1d. p. yd.
Linen, R.A.F., 17C, Spec., 38in. wide, 3s. 3d. p. yd.
Linen, R.A.F., 17C, Spec., 42 in. wide, 3s. 7d. p. yd.
Spaced, R.A.F., 17C, Spec., 37½ in. wide, 2s. 1d. p. yd

Gun Metal. A.B. Specification.

Castings ..... 2s. 3d. to 2s. 6d. per lb.

Lead.*

Virgin Pig	£35 per ton, c.i.f.
Virgin Pig	£36 per ton, ex stores.
Sheets	£47 per ton, D/d.
Pipes	£47 10s. per ton.
Dry White	£61 per ton, less 5 per cent.
White in Oil, Grnd.	£72 10s. per ton.
	(lots over 5 cwt. less 5 per cent.)
Red	£56 per ton, less 2½ per cent.

Nickel.

Nickel Cubes (Home)	£195 per ton.

Phosphor Bronze.

Ingots, 5 cwt., and under	£150 to £172
	(Subject to Copper and Tin Fluctuations.)
Castings	1s. 6½d. to 1s. 10d. per lb.

Phosphor Copper.

Ton lots	£180 to £186

Silver.

Silver	48 7-16d. per oz.

Solder.

Plumber's	118s.
Tinman's	153s.

Steel.

High Speed, 14 p. cent., Tungsten, 3s. 8d. per lb., basis.
High Speed, 18 p. cent., Tungsten, 4s. 5d. per lb., basis.

Alloy Steels to Air Ministry Specifications *‡

Round and Square :—

Specification No. S2	£86
Specification No. S2 (bright-drawn)	£115
Specification No. S8	£80
Specification No. S10	£70
Specification No. S12	£75
Specification No. S14	£43
Specification No. S15	£70
Specification No. S16	£70
Specification No. S17	£75
Specification No. S18 (oil-hardened)	£85
Specification No. K1	£75
Specification No. K2	£75
Specification No. K3	£86

The above prices are for ¼ in. to 5/16 in. only, other sizes are proportionate.

Hexagons.

	·455 and ·525	·601 to ·710.
Specification S2	£79	£77
Specification S8	£79	£77
Specification S2 (bright-drawn),	£112	£112
Specification S8 (bright-drawn),	£112	£112

Spelter.

English f.o.b., Birmingham ..... £57 to £57 10s.

Tin.

Tin £251

Tinplates.

Tinplate ..... 32s. 6d., basis, f.c.t.

Timber.

	†Official.	Merchants.
Silver Spruce		10s. 4d., c.f.
*English Ash—		
Selected Logs		7s. 6d., c.f., f.o.r.
Selected Lengths of Planks		10s. 6d., c.f., f.o.r
Mahogany		2s. to 2s. 6d.
Walnut		2s. to 2s. 6d.

* For further details see Home Grown Timber Prices Order.

Zinc.

Zinc Sheets (America), £105 to £110, f.o.b., New York.

Scrap Materials (London Prices).

Description.	Price per ton on sale to refiner, delivered at refinery.
Brass, Heavy Selected	51 0 0
Copper, Clean	78 0 0
Copper, Brazery	62 0 0
Gun-metal, Scrap	83 0 0
Lead, no Draft	26 10 0
Zinc, Old	35 0 0

* Official Prices. † Includes Parcel Inspection only. ‡ Prices include Delivery in the U.K.

THE MACHINE TOOL INDUSTRY.

At a "Peace Dinner" held recently by the Keighley Association of Engineers, Sir Herbert Austin, K.B.E., M.P., who was the guest of the evening, said that 40 or 50 years ago this country had held a position of world-wide supremacy in the manufacture of machine tools, but at the beginning of war affairs had reached a very different state, when America, Germany, Belgium, and Austria were supplying a steadily growing proportion of the requirements of British users, with the result that many firms in this country used a high percentage of foreign machine tools, and, as a result, efforts in this country had been more handicapped than otherwise would have been the case.

Much of this plant was of very indifferent construction, which might also be said of some British tools. It was necessary, he said, to scrap this kind of machinery in future, and he looked to the Association to combine with others to see that this was done. It was necessary for it to be realised that the starting point for British manufacturing activities was good machinery, and he hoped that manufacturers generally would support some kind of fiscal policy which would put a stop to the dumping of foreign goods in this country.

If this end was to be attained, it was necessary for British machine tool makers to improve their designs. They would have to scrap patterns of 50 years ago and pay bigger salaries to their designers.

As a means of encouraging enterprise in design, Sir Herbert offered to subscribe a sum of 10 guineas if nine other people would subscribe a similar amount towards a prize of 100 guineas for the best design of an 8½-in. centre lathe with all-geared headstock, the competition to be open to all members of the Keighley Association, on condition that the design would be the property of the Association for the use of any of its members. Nine other subscribers were found among those present, and the conditions of the competition will be announced in due course.

THE BRITISH MERCEDES MOTOR CO., LTD.

Mr. Walter Dewis, managing director of the British Mercédès Motor Co., Ltd., announces that the reconstruction of the company has been completed and a new company under the same name has been formed with a capital of £50,000. A factory has been acquired at Stonebridge Park, the ground area of which is 7½ acres, of which the factory covers 2½ acres. It is the ambition of Mr. Walter Dewis to produce a British Mercédès car and a British Mercédès lorry as soon as circumstances permit.

Pending the manufacture of British Mercédès cars, Mr. Dewis states that the works will be devoted to catering for its old Mercédès clients, and a special repair department has been considerably enlarged to enable the British Mercédès Co., Ltd., to deal with the increasing influx of cars they expect from their clients.

It will be remembered the British Mercédès Motor Co., Ltd., acquired the goodwill, stock-in-trade, and assets of the old Milnes Daimler Mercédès, Ltd.

PHŒNIX DYNAMO MFG. CO., LTD.

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DESIGNERS AND CONSTRUCTORS OF AIRCRAFT.

Speciality,

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PRIVATE BRANCH EXCHANGE.

Thornbury Works:
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BRADFORD.

TELEGRAMS:
Dynamo,
Bradford.

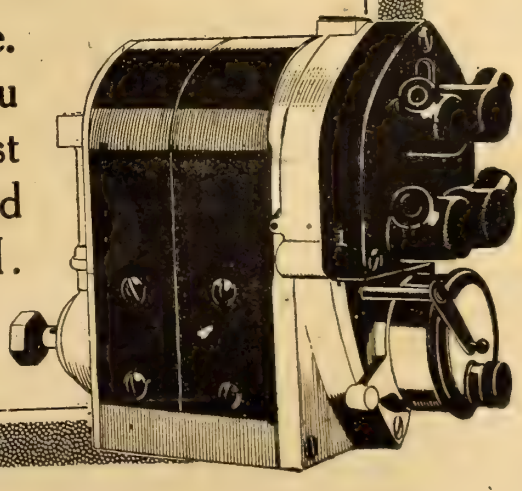
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Electrical Engineers & Manufacturers.
Lower Ford Street, Coventry, England.

Member of the British Ignition Apparatus Assn.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



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TELEPHONE:- 500 GOSFORTH.
TELEGRAMS:- ARMSTRONG AVIATION,
NEWCASTLE-ON-TYNE.

CANNONS' (LINCOLN) AEROPLANE GLUES

"1 L PROPELLER" (Cake Glue).
For Propellers.

"AERIAL" (Cake Glue).
For Class 1 Work (not Propellers).

"B 1" (Cake Glue).
For Class 2 Work.

Cannons' Lincoln Liquid Glue
will be sold in future under the name of

"GLUIT."

For Class 1 Work.

Packed in 7, 14 and 28 lb. tins.

SOLE MANUFACTURERS:

B. CANNON & CO., LTD., LINCOLN.

COMMERCIAL AERONAUTICS

TIME VALUES.

By "MEDWAY."

In a recent contribution I mentioned that one of the principal factors which will have to be taken into account by business men of the future in planning journeys for themselves or their employees will be the value of the time spent on the way. I take it that in the future the railway time-tables will be combined with the time-tables of aerial services.

Thus, on turning up Glasgow in the "A.B.C." we shall find the times of arrival and departure of the trains and the fare by railway, also the times of arrival and departure of aeroplanes and the fares charged. It will be a simple matter to calculate in any such case how many hours can be saved by travelling by air and what will be the extra cost of the journey if that method be adopted.

The next point will be to encourage the practical application of this knowledge. We all have a kind of general idea that time is worth money, and that it is not necessarily a waste of money to take a taxi-cab in order to keep a business appointment, instead of walking or going by 'bus. Not many of us have taken the trouble to work out when the taxi-cab would be worth while because the amounts involved are comparatively small.

The taxi-cab may cover a couple of miles in ten minutes. To make the same journey from door to door with the help of a 'bus might take twenty-five minutes; thus, a quarter of an hour is needlessly spent. The difference in cost may be a couple of shillings, so that, if one's time at that particular moment was worth not less than eight shillings an hour, a taxi-cab would be justifiable on purely commercial grounds.

TRAIN V. AEROPLANE.

When it comes to the comparison of railway and aerial services, the figures involved will be so much more considerable that it will be well worth while to make the calculation and to work upon a definite principle. Figure 1 is a roughly drawn chart which might be used for the purpose. The figures in the vertical column on the left-hand side indicate the value of one hour of the prospective traveller's time. On the right-hand side are corresponding figures based upon the man's salary value per annum. Along the bottom are figures representing the extra cost which would be justified in any particular instance. The diagonal lines correspond to the number of hours which can be saved by making the journey by air. Thus if three hours can be saved and the value of time is £2 an hour, it is quite clear that the extra cost justified is £6. If the difference between the aerial and the railway fare is less than this, then the aerial journey is a sound business proposition.

For the purpose of making up the chart, it was necessary to arrive at an hourly time value roughly equivalent to an annual salary value. I have assumed two thousand working hours to the year. These might be made up somewhat as follows: 235 full working days of eight hours each gives a total of 1,880 hours. Forty more short days of three hours each gives an additional 120 hours, making a total of two thousand hours.

The method of using the chart is fairly obvious, but it may be worth while to give an example. Say a man's salary value is £2,500 per annum, we draw or imagine the dotted line leading from that point on the right of the chart. Supposing that the time that can be saved on the journey is seven and a half hours, we take this line to a point about intermediate between the seven and the eight hour diagonals. From that point we run

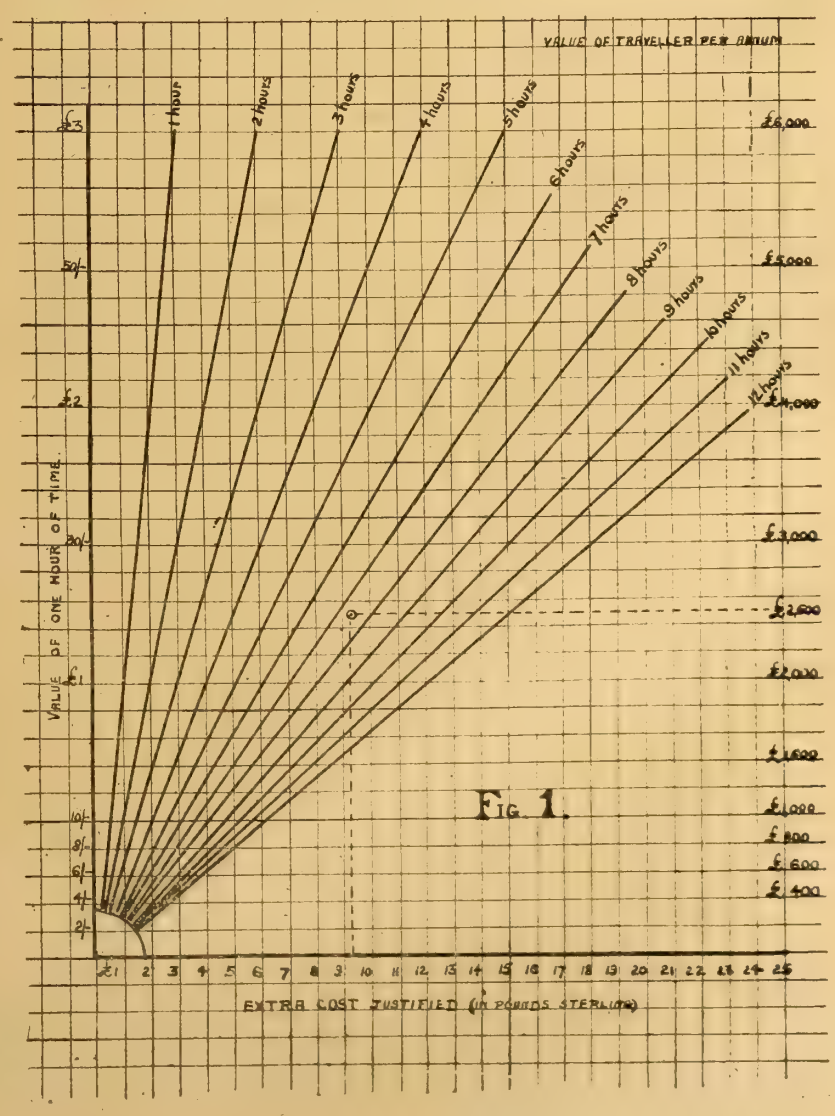


FIG. 1.

a vertical dotted line, and we find that the extra cost justified is somewhere in the neighbourhood of £9 7s. 6d.

The scale and extent of the chart would, of course, depend on the length of the journey likely to be contemplated. The chart shown is made up for more or less short journeys either in this country or, at the most, to neighbouring countries. A firm undertaking big contract work in all parts of the world might find it worth while to plan out a chart on a distinctly different scale, indicating days rather than hours saved, and taking into account the possibility of justifying extra costs running into hundreds of pounds.

Probably in most cases it would be more convenient for the firm's chart to be made up in the form shown in Figure 2. Here the hours saved are shown on the vertical. The extra cost justified is shown along the horizontal. The various diagonal lines are each drawn to represent the case of some particular official of the firm.

Thus Mr. Smith may be in receipt of a salary of £1,000, and is presumed to do two thousand hours' work in the year. A saving of ten hours of his time is therefore worth £5 to the firm.

As a matter of fact, it is probably worth a good deal more, because, if Mr. Smith gets a thousand a year and is only just worth it, the employment of Mr. Smith is a very poor proposition. The sagacious head of a firm would make out his own chart and put in Mr. Smith's line, not to represent his salary but to represent his real value to the firm. For all we know, Mr. Smith may be only getting five hundred a year, but his line is sloped to represent the thousand-a-year mark because that is what he is worth. The only disadvantage to a chart made up on these lines is that the head of the firm must keep it carefully under lock and key for fear that Mr. Smith shall see it and ask for a rise.

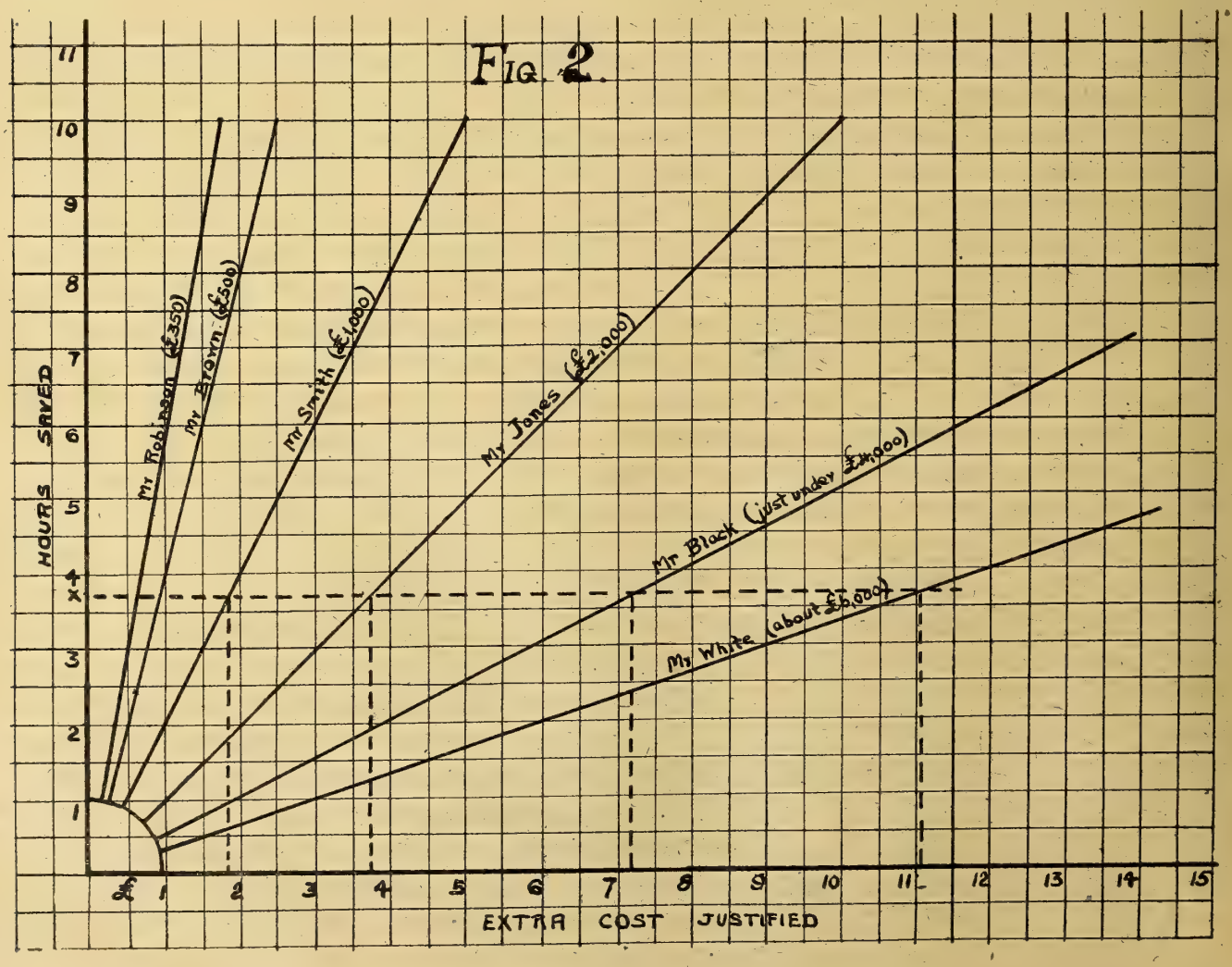
In a similar way, the value of Mr. Robinson is assessed at £350, which gives him a very poor chance of ever getting sent on an aerial journey at all. Mr. Black and Mr. White, who are perhaps very valuable salesmen, have their lines so sloped that they run the risk of getting more aerial travel than they want.

The Method of Calculation.

The actual method of plotting any particular man's line is, of course, quite simple. First his value to the firm is estimated. Then it is divided by the number of hours that he can be expected to work in the year. This gives his value per hour. Supposing that it turns out to be £2, then we should take the point where the horizontal line, representing one hour saved, meets the vertical line representing £2 justified, and we should draw a straight line from the corner of the diagram through that point.

Having got all the prominent officials of the firm plotted out, we may now see how the chart may be used. Suppose that reference to the time-table shows that 3¼ hours will be saved by the aerial journey. We arrive at the point X on the vertical line. If we draw or imagine the dotted line running horizontally through the point X, we find that it cuts Mr. Jones about halfway between £3 10s. and £4. It will then be worth while to pay an extra £3 15s. for the aerial journey if Mr. Jones is the man to go. If the extra aerial journey were £3, it would then be worth while to use the air if the job were allotted to Jones, but not if it were allotted to Smith.

Similarly, if there were a saving of £10 in money to



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be effected by using the railway against the aeroplane, the journey would be made by rail if Mr. Black were sent, but by air if Mr. White were chosen. In a firm which had occasion to send out numerous officials on long journeys throughout the year, the saving resulting from using a chart of this kind would probably be quite considerable.

Without a chart the thing would be done by guesswork, or more likely than not the head of the firm would forget altogether how much the value of time favours aerial transport, and would allow all the journeys to be made by train just as though aeroplanes did not exist. The mere fact of having such a chart made up and perhaps, in a modified form, exhibited in the office would act as a constant reminder of the practical character of a really well-organised and safe aerial service.

CIVIL AERIAL TRANSPORT.

United Kingdom.

It is understood that Scarborough Corporation has sanctioned the use of seaplanes for carrying visitors for sea flights.

This does not necessarily mean that the passenger flights will come into operation at once, as the Air Ministry ban on private flying is still in being.

The Southend Corporation has been asked by an aviation company for permission to carry passengers from the sands. If such permission is granteed, and when Government sanction is also secured, operations of this description will have to be conducted under very strict supervision.

France.

Should the necessary permission be forthcoming from the British Air Ministry, a Paris-London passenger service will be established, presumably by a French company.

It is intended that the route shall be by way of Buc, Le Bourget, Compiègne, Creil, Clermont, Breteuil, Amiens, Boulogne, Folkestone, Tonbridge, and Kenley (Croydon).

It is hoped to use an aeroplane, built by M. Henri Farman, with a span of 90 ft. and powered by two 270 h.p. Canton engines, on the service. Tickets will cost £16 for the single journey.

It is understood that the British authorities have refused to authorise the starting of an aerial passenger service between London and Paris, which has been proposed by the Caudron Company and Farman concerns.

It is, therefore, quite probable that these two companies will run services from France to various parts of Europe, excluding England.

Italy.

It is regarded as fairly certain that airships, of which Italy is well supplied in spite of recent mishaps, will be tried for certain cross-Channel mail services—to the islands, for example. The fallacy of their being "safer" has, however, not been fallen into by the man-in-the-street here. Hence one does not hear of passenger services being contemplated as yet.

Three open competitions are reported from down South as almost certain events in the later spring. One, the circuit of the Tirreno for small seaplanes, is to be a non-stop affair from Naples-Palermo-Cagliari and back, some 1,500 kilometres.

Then a circuit of the Mediterranean for big machines carrying 600 kilos. of post or passengers. Distance to be flown 2,200 kilometres, with five stops in maximum time of two days.

The third circuit—of South Italy—is for commercial craft only, and follows the coast from Naples to Rome and back, about 1,000 kilos. of post or passengers to be carried, and six hours are allowed for the 500 kilometres trip.—T. S. H.

Australia.

An effort has been made in Sydney, New South Wales, to promote a company the first object of which was to found and maintain an aerial service between London and Sydney. The Federal Government, when approached, refused to register the company, and an official statement was issued saying that Mr. Hughes had arranged a Government monopoly for this aerial service.

Brazil.

It is understood that a British company is seeking a concession for the establishment of an aerial service between Pernambuco, Brazil, and Rio de Janeiro (over 1,200 miles), to be extended later to Buenos Aires.

SERVICE AIRCRAFT FOR SALE.

The Department of Aircraft Production (Aircraft Salvage Branch) of the Ministry of Munitions announces that it has for sale a number of new aeroplanes, less engines, of the following makes:—Armstrong Whitworth (160 Beardmore and 90 R.A.F.), Avro, Bristol Fighter, de Havilland (4, 6, 9, and 9a), B.E.2E, and F.E2B. A number of aeroplane engines are also offered. Tenders are invited and full particulars are obtainable from Aircraft Salvage Branch, York House, Kingsway, W.C.2.

THE VALUE OF TRIPLEX.

Lt. ——, R.A.F., on going up for the first time at La Bassée, had a severe encounter with several German machines and was obliged to come to earth, his machine having sustained no less than 37 bullet-holes, but owing to the fact that his wind-screen was of "Triplex" safety glass, the pilot escaped without a scratch, two bullets both fired at very close range only just piercing the screen.

PREPARING FOR PEACE.

Of late a great deal has been written and said concerning the standardisation of aeroplane parts and the advantages which are going to accrue in the future to the Aircraft Industry as the result of the standardisation when aeroplanes are sold as articles of commerce.

The modern war-time aeroplane is, in some respects, a marvel of standardisation, at any rate, so far as its minor parts are concerned. Many of these parts are wonderfully adequate to the purpose for which they are intended, but, in many cases, they are also wonderfully costly and uneconomical in material. Although the existence of surplus stocks and facilities for reproduction may make it possible for the makers of these parts to continue to sell them for some time to come, it seems pretty clear that there will be a market for simply made and less expensive parts, for use in the cheaper class of private aeroplanes for which there is likely to be a bigger demand in the near future than for highly finished and luxuriously equipped aeroplanes.

There are more reasons than one for this demand. The prime necessity is for cheapness, but a secondary necessity is for simplicity. A man who wishes to own and care for an aeroplane himself, with or without the assistance of hired labour, does not wish to have a machine in which few component parts are alike, and for which, therefore, it is necessary to hold a stock of spares on a big scale.

There are many parts on an aeroplane which could, with the display of a little ingenuity be made similar and interchangeable. As a case in point—there is no earthly reason why fuselage sockets should be of different dimensions in different parts of the fuselage, and it should be possible to design a fuselage socket to fit almost anywhere along the whole length of the fuselage. It has, in fact, been done. It could have, if necessary, one or more idle wiring plates which would make it possible to use it in any position relative to the machine.

In a similar manner it should be possible to use one size of turnbuckle throughout the fuselage, and very possibly this turnbuckle also could be employed for minor internal bracing in the wing and control plane bracing.

Interplane strut sockets, both upper and lower, could be devised so that one type fitted every interplane strut in the machine top or bottom. There is no reason why the detail design of the machine should not be so laid out that 3 or 4 sizes in bolts would cover all the bolt work in the machine.

Where possible, upper and lower planes should be interchangeable, to reduce the necessary number of spares, and although it may appear to be a counsel of perfection to suggest that the right and left hand wings also should be interchangeable, this does not seem beyond hope in machines where the cutting down of weight, and, therefore, the thinning of spars towards their outer ends is not a first consideration.

In such a case it would, of course, be necessary to provide for certain modifications in the internal drift-bracing arrangements, but this should be quite a simple job. An aeroplane fitted with wings so designed as to be interchangeable, right and left, would not be a thing of beauty, owing to the necessity for similar ends, but with a little ingenuity even this drawback could be modified by rounding off the corners of the wings front and back from the leading edge to the front spar and from the rear spar to the trailing edge respectively.

Such an arrangement would necessitate a socket in either end of each spar and a false spar-butt in the sides of the fuselage and centre section of the top plane. Possibly, also an undercarriage could be designed, the units of which, back and front, right and left, would be interchangeable.

The foregoing suggestions are only a few of many which may be commended to people who are anxious to make the best possible aeroplane at the cheapest possible price.

K.L.G. SPARKING PLUGS.

Throughout the war the whole output of K.L.G. sparking plugs was reserved for the Royal Air Force. The manufacturers, the Robinhood Engineering Works, Ltd., of Newlands, Putney Vale, S.W.15, state that they are now able to supply these famous plugs to the public.

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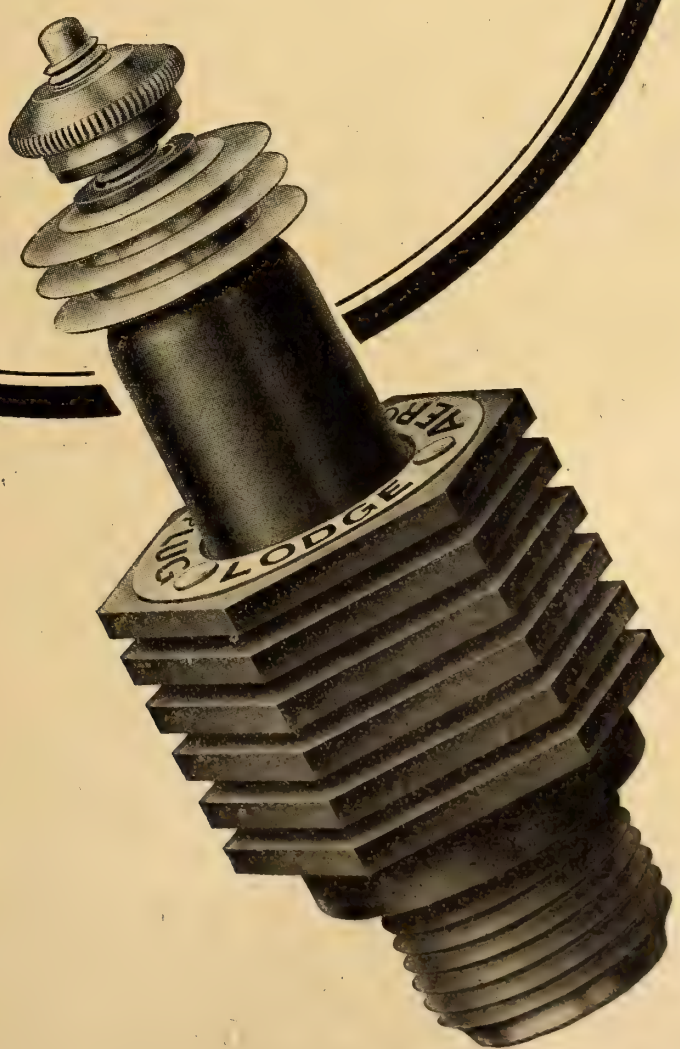
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77	220/240 H.P. RENAULT.
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(*Continued from page 467.*)

Lt. S. H. Withey relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 22nd.

Lt. A. G Bird (actg. Capt., Lond. R., T.F.) relinquishes his commn. on account of ill-health, Jan. 22nd.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—C. E. Goodrum, Nov. 1st, 1918 (substituted for notification in "Gazette," Nov. 1st, 1918); C. McI. French, V. O. Norman, M. A. V. Pumfrey, Jan. 22nd.

The initials of Lt. G. G. Yeandle are as now described, and not as stated in "Gazette," Nov. 8th, 1918.

The surname of Lt. A. W. Little is as now described, and not Whittle as stated in "Gazette," Dec. 17th, 1918.

The surname of Lt. H. Blackman is as now described, and not Blackburn as stated in "Gazette," Dec. 13th, 1918.

TECHNICAL BRANCH.—Lt. (actg. Capt.) S. N Veitch to be actg. Maj. (Gr. B) whilst empld. as Maj., from (Ad.), Nov. 1st, 1918.

Capt. (actg. Maj.) F. G. Wilson to be Capt. (Gr B), and relinquishes the actg. rank of Maj. on ceasing to be specially empld., Nov. 15th, 1918.

Capts. to be Capts. (Gr. A) :—J. K. Hoyle, from (A'shp.), April 1st, 1918; G. L. Hunting, from (A.), Nov. 10th, 1918.

Lts. to be actg. Capts. (Gr. A) whilst empld as Capts. :—F. P. Allbutt, from (O.), W. G. Duffield, L. G. Mace, M. A. Millar, F. Tingle, July 11th, 1918.

Sec. Lt. (Hon. Lt.) (actg. Lt.) A. L. Cockburn to be actg. Capt. (Gr. A) whilst empld. as Capt., Aug. 20th, 1918.

Lt. F. E. Godfrey to be Lt. (Gr. A), from (Ad.), Oct. 1st, 1918.

Lt. N. Haig to be Lt. (Gr. B), from (A.), July 11th, 1918.

Lts. (O.) to be Lts. (Gr. B) :—W. C. Cambray, M.C., R. M. D. Fairweather, (Hon. Capt.) J. R. Fasson, E. E. Gilbert, G. P. U. Hardy, F. W. Helsby, F. J. Kydd, R. M. Penman, P. R. Smith, R. A. Webster, T. Weir, A. S. White, July 11th, 1918.

Sec. Lts. to be actg. Lts. (Gr. A) whilst empld as Lts. :—R. W. Ellis, from (O.), J Milsted, H. F. Weet, from (O.), July 11th, 1918.

Sec. Lt. (Hon. Lt.) O. S. Waymouth to be actg. Lt. (Gr. B) whilst empld. as Lt., Sept. 1st, 1918.

Sec. Lts. (Admin.) to be Sec. Lts. (Gr. A) :—R. J. Kelso, Nov. 28th, 1918; H. E. Edwards, Dec. 1st, 1918; A. F. Rees, W. Vaughan, Dec. 11th, 1918; R. O. Street, Jan. 2nd.

Sec. Lt. E. Sidey to be Sec. Lt. (Gr. A), from (A. and S.), Nov. 16th, 1918.

Sec. Lts. (Admin.) to be Sec. Lts. (Gr. B) :—A. M. W. Leyfield, July 5th, 1918; W. J. Brittain, Dec. 3rd, 1918; F. Williams, Dec. 5th, 1918; A. G. Adams, Jan. 13th.

Lt. G. M Robert to be Sec. Lt. (Gr. B), and to be Hon. Lt., from (A. and S.), Nov. 21st, 1918.

Lt O Clayton to be Sec. Lt. (Gr. B), and to be Hon. Lt., from (Ad.), Dec. 30th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. (Hon. Capt.) J. H Whittaker-Swinton (Lt., R.E., T.F.), April 17th, 1918; Capt. L. J. Rogers (temp. Lt., R.N.V.R.), Oct. 28th, 1918; Sec. Lt. (Hon. Lt.) W. L. Heape (Lt., E. Lanc.. R.), Dec. 11th, 1918; Sec. Lt. J H. G. Wilson (Sec. Lt., R E.), Dec. 16th, 1918; Lt. G. Elliott (Lt., Yorks L.I.), Jan. 1st; Sec. Lt. (Hon. Lt.) G E Patterson (Lt., Alberta R.), Jan. 8th.

The following are transferred to unempld. list :—Sec. Lt. J. A. Osborne, Jan. 2nd, Sec Lt. D. M. Harvey, Jan. 3rd; Sec. Lt. C. G. L. Colebrook, Sec. Lt. T. S. Nash, Jan. 7th; Sec. Lt. F. G. Crowley, Capt. Sir E. de la Rue, Bt., Jan. 8th; Sec. Lt. E. E. Blake, Capt. P. G. Gundry, Sec. Lt. F V. Harrap, Maj. J. T. Spittle, Jan. 9th; Lt. (actg. Capt.) J. J. V. Armstrong, Lt. C. Atkey, Sec. Lt. A. W. Cordrey, Sec. Lt. Sir H. G. De Bathe, Bt., Capt. (actg. Maj.) F. W. M. Pedley, Lt. F. G. Tryhorn, Sec. Lt. B. Williams, Jan. 10th; Capt. C. G. Ashton, Sec. Lt. (Hon. Lt.) J G. Daniel, Sec. Lt. A. E. Dyson, Lt (actg Capt.) E. G. Herbert, Lt. (Hon. Capt.) R. M. Knowles, M.C. (Capt., Norf. R.), Sec. Lt. (actg. Lt.) W. R. Rhodes, Lt. (actg. Capt.) W. J. R. Sheppard, Jan. 11th; Sec. Lt. (actg. Lt.) S. G. Yapp, Jan. 12th; Lt. L. G. Courage, Capt. R. K. C. Maguire, M.B.E., Sec. Lt. F. M. Roberts, Lt. S. L. Smith, Jan. 13th; Sec. Lt A. H Turner, Jan. 20th.

Lt. (Hon. Capt.) E. M. Wright relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt., Jan. 22nd.

Capt. (actg. Maj.) P. H. Linthune (Lond. R.) relinquishes his commn. on account of ill-health contracted on active service, Jan. 22nd.

Sec. Lt. W. T. Langton relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 22nd.

The date of appt. of actg. Lt. McL. N. Staight is Oct. 1st, 1918, and not as in "Gazette," Nov. 5th, 1918.

The notification in "Gazette," Nov. 12th, 1918, concerning Sec. Lt. F P. D. Scott is cancelled.

MEDICAL BRANCH.—Maj. A. V. J. Richardson to be actg. Lt.-Col. while empld. as Lt.-Col., Jan. 10th.

L. S. Goss (Surg. Lt., R.N.) is granted a temp. commn as Capt., Oct 1st, 1918, scny. April 1st, 1918 (substituted for notification in "Gazette," Jan. 7th)

The following relinquish their commns. on ceasing to be empld. :—Capt. H. Greenwood, Dec. 19th, 1918; Capt. E. J. Boyd (Surg., R.N.), Dec 31st, 1918; Maj.-Gen. R. C. Munday, C.B., Jan 7th, and retains the rank of Maj.-Gen.; Capt. H. J. Shanley (Capt., R.A.M.C., T.F.), Jan. 15th.

The following relinquish their commns. at their own request :—Capt. A. E. McCulloch, Jan. 13th; Lt.-Col. H. J. Hadden (Fleet Surg., R.N.), Jan. 14th.

The notification in "Gazette," Jan. 7th, concerning Capt F. B. Gilhespy is cancelled.

CHAPLAINS BRANCH.—The following temp. appts are made :—Principal Chaplain for United Board.—Rev. S. J. Jones, M.C. (A.C.D.) is granted a temp. commn. as Chaplain with the relative rank of Lt. Col., and is granted the relative rank of Col. while empld. as Principal Chaplain, Nov. 22nd, 1918.

Principal Chaplain for Wes.—Rev. R. Hall (A.C.D.) is granted a temp commn. as Chaplain with the relative rank of Maj., and is granted the relative rank of Col. while empld. as Principal Chaplain, Jan. 1st.

Rev. J. H. Newell (temp. Chap. to the Forces, 4th Cl., A.C.D.) is granted a temp. commn. as Chaplain with the relative rank of Capt., Jan. 20th.

MEMORANDA.—Lt.-Col. (actg. Brig.-Gen.) E B. Gordon, D.S.O., relinquishes the actg. rank of Brig.-Gen. on ceasing to be empld. as Staff Officer, Nov 22nd, 1918.

The following Capts. are confirmed in the rank of Capt. :—G. A. Gooderham, H. Rampling, H. H. Gonyon, D.F.C., J. E. L. Hunter, E. Dickson, D.S.C., D.F.C., C. E. S. Lusk, G. Breadner, E. L. Pralle, H. B. Brenton, R. McDonald, R. V. Goddard, V. R. Scriven, A.F.C., C. W Bailey, D. G. Donald, R. H. Daly, D.S.C., G. R. Hodgson, A.F.C., A. R. T Pipon, D.S.C., A. C. Teesdale, R. E. Dean, W. T. S. Williams, D.S.C., S. Kemball, R. S. Sugden, J. W. Pinder, D.F.C., E. Pierce, A. M. Tidey, J. L Gordon, D.F.C., E. M. King, D.F.C.

(Actg. Maj.) W. H. S. Aplin, and to retain his actg. rank without pay and allces. ; F. S. Mills, D.S.C

To be Hon. Capts. :—Sec. Lt. (Hon. Lt.) H. J. Barnham, Lt. R. S B. Beckett.

Prob. Flt Officer F. R. Carlin to be Hon. Sec. Lt.

The following relinquish their commns. on ceasing to be empld. :—Lt. (actg. Maj.) A. T. A. Dobson (Lt., Hamp. R.), Dec. 2nd, 1918; Maj.-Gen. Hon. Sir F. Gordon, K.C.B., D.S.O., Jan. 4th

The following are transferred to unempld list :—Capt. (actg. Maj.) F. C. O Shaw, Jan. 9th; Sec. Lt. (actg. Capt.) E. W. Vine, Jan. 10th; Capt. H. M. Winstanley, Jan. 13th.

CORRECTIONS TO "LONDON GAZETTE," No. 31098, JAN. 1st, 1919.

The following Officers, whose names appear in the list of appts. to the Order of the British Empire, are now correctly described :—Lt.-Col. (actg. Brig.-Gen.) J. A. Houison-Craufurd, C.B.E.; Capt. (actg. Maj.) E. C. Perrin, O.B.E.; Maj. C. W. H. Pulford, O.B.E.; Maj. A. A. E. Robinson, O.B.E.; Maj. (actg. Lt.-Col.) E. W. Stedman, O.B.E.; Sec. Lt. J. W. Hoskings, M.B.E.; Sec. Lt. H. J. C. White, M.B.E.

The second entry on page 93 of this "Gazette" relating to Lt.-Col. F. R. Drake (R.G.A.) is cancelled.

The award of Commander of the Order of the British Empire, conferred on this Officer, is correctly shown on page 92.

WAR OFFICE, Jan. 22nd.

The following are mentioned in a dispatch which has been received by the Secretary of State for War from Gen. Sir E. H. H. Allenby, G.C.B., G.C.M.G., Commander-in-Chief, Egyptian Expeditionary Force :—

AUSTRALIAN IMPERIAL FORCE.

FLYING CORPS.

Addison, Capt. (temp. Maj.) S. W.
McBain, Lt. P. A.
Turner, Lt. V. P.
Bell, Aus/141 Serjt. A. R.; Benham, Aus/111 Cpl. F. A.
Chadwick, Aus/281 Serjt. A. E.
Kilburn, Aus/176 Serjt. W. E.
Moore, Aus/446 Serjt. F. P
Stocker, Aus/241 Serjt. E. J.
Taylor, Aus/326 Cpl. W. L.; Thompson, Aus/135 Cpl. A. C.

ROYAL AIR FORCE.

Alliban, Lt. D. (N. and Derby R., T.F.); Anderson, Capt. (actg. Maj.) A. J. G
Bayly, Capt. (actg. Maj.) L. J., M.C.; Beattie, Lt. J.; Beaufort, Maj. V. A., M.C. (Dev. R.); Birch, Capt. (actg. Maj.) W. L., M.B.E. (W. York. R.); Bourn, Sec. Lt. (Hon. and actg. Lt.) D. G ; Bovill, Lt.-Col. C.; Bowen, Lt. P. R., M.C.; Brock, Lt.-Col. H. le M., D.S.O. (R. War. R.); Burnett, Lt.-Col. C. S., D.S.O. (R. of O.).
Carpenter, Lt. J. E.; Carr, Maj. A. G. H.; Clapp, Lt. O. W.; Collett, Lt. H. R. P.; Courtenay, Lt. and Hon. Capt. H. A. (R.A.S.C.).
Deacon, Capt. G. R. A., M.C.; Dolphin, Capt. W. H.
Elliott, Lt. W. (R.A.S.C.); Emmett, Capt. E. C., M.C.
Felstead, Sec. Lt. G. F., D.C.M.
Glen, Capt. J. McG., M.C. (R. Scots).
Halcombe, Maj. N. M. (Lt., R.E., T.F.); Hallett, Lt. C M.; Harding, Sec. Lt. D. A.; Harris, Lt. B. R. (R.F.A., T.F.); Herbert, Lt.-Col. (actg. Brig.-Gen.) P. L. W (N. and Derby. R.); Hey, Sec. Lt. and Hon. Lt. H. Isaac, Lt T. P.
Keegan, Capt. (actg. Maj.) M.
Ley, Lt. R. H. (B. Columbia R.); Lee, Capt F. J. F. (R. Mun. Fus.); Low, Lt. J. B. (H.L.I.); Ludgate, Capt (actg. Maj.) C. W. M.
Maclaren, Lt. J. F. P. (Ayr Yeo., T.F.); Makins, Lt. (actg. Capt.) A. D.; Millar, Maj. E. L., M.B.E.; Mutton, Lt. (actg. Capt.) G. B. (R.F.A., T.F.).
Noble, Sec. Lt. C. S.
Pierpoint, Capt. R. A.; Preston, Capt. I. P. H.. M.C. (Gen. List).
Reeve, Lt. R. W. (Hereford R., T.F.); Roberts, Lt. (actg. Capt.) H. C.; Rowe, Lt and Hon. Maj. C. W. (Maj., Hunts. Cyc Bn., T.F.); Russell, Lt.-Col. R. E. M., D.S.O.
Salmond, Maj.-Gen. W. G. H., D.S.O. (R.A.); Scott, Lt. W. D.; Shaw, Lt. A. T.; Shelton, Lt. W. B.; Shortridge, Lt. G. C. (I.A.R.O.); Smith, Lt W. H.; Staples, Lt. M. E. (Can. F.A.); Storey, Lt. (temp. Capt.) J. H.; Sutherland, Lt. (actg. Capt.) R. B. (Capt., Can. Engrs.).
Tedder, Maj. A. W.; Thomas, Capt. H. H. (Sec. Lt., R.F.A., Spec. Res.); Treatt, Capt. C. C.; Tyrrell, Sec. Lt (actg Lt.) J E.
Webster, Lt. J., M.C.; Woffenden, Sec. Lt H.
Aldiss, 26047 Cpl.-Mech. S.; Allen, 78431 1st Air Mech. P. P.; Ambrose, 403415 1st Cl. Clk. S. E.
Barber, 107782 1st Cl. Clk. A.; Barlow, 8741 Cpl. Clk. J.; Barrett, 403980 Serjt.-Mech. F.; Batchelor, 4038 Ch. Mech W. O.; Beeks, 49701 Serjt.-Mech. C.; Bennison, 8075 1st Air Mech. W.; Bicknell, 19430 Flt. Clk. J.; Bradv, 8893 Cpl.-Mech. W. H.; Burgess, 6432 Serjt.-Mech. E. J. A.
Cantelo, 108669 1st Cl. Clk. J. W ; Carsons, 3222 Cpl.-Mech. (actg. Serjt.-Mech.) T. J.; Casson, 21221 Flt. Clk. A.; Catchpole, 6737 Ch. Mech. C. J.; Chambers, 47100 1st Air Mech. J. W.
Driver, 2a201 Serjt.-Mech. S P.; Dupen, 45053 Cpl.-Mech. P. J.
Eagers, 3630 Ch. Mech. A. C.; Evans, 403891 Ch. Mech. T.; Eveleigh, 403749 Ch. Mech. C. E.
Ford, 15325 Cpl.-Mech. J. H.; Freethy, 6235 Flt. Clk. W. H.
Gingell, 27661 Cpl.-Mech. H.; Godfrey, 27741 Cpl. Clk. S.; Godfrey, 7887 Serjt W. O.
Heffer, 403885 Cpl. Clk. A. S.; Hudson, 30967 Pte., 1st Cl. (actg. Cpl.), C F.
James, 16048 Serjt.-Mech. F. R.; Jones, 410043 Serjt.-Mech., 2nd Cl., J M.
Kershaw, 3342 Serjt.-Mech. S.; Knight, 403568 Cpl.-Mech. A.
Lambert, 403695 Ch. Mech. A.; Leak, 68121 Pte., 1st Cl., A. J.; Leak, 16755 Cpl. Clk. (actg. Serjt.-Clk.) E. F., Lee, 108757 Serjt.-Clk. D. F.
Madeley, 403490 Serjt.-Mech. H.; McQuarrie, 8033 1st Air Mech T E ; Meavers, 49022 Cpl.-Mech. W. E.; Milner, 9383 Flt. Clk. J.; Morgan, 403422 Cpl.-Clk. A. E. G.
Newcomb, 31401 Flt. Clk. J
Oliver, 403436 Serjt.-Clk. D. C
Phillips, 66566 Cpl.-Mech. J. W.; Porter, 6185 Serjt. Mech. J. L.; Prescott, 33067 Ch. Mech. T.
Reed, 29443 Ch. Mech. J. R.; Richardson, 41488 Cpl.-Mech. J.; Rundle, 28022 Serjt.-Mech. R. S.
Shaw, 107964 Cpl-Clk. P. R.; Shaw, 3032 Ch. Mech. W.; Sowden, 2708 Serjt.-Mech. F. C.; Sparkes, 68505 2nd Cl. Clk E. G.; Spencer, 23627 Serjt.-Mech. H. J.; Stewart, 403942 Serjt.-Mech. C ; Stride, 7798 Cpl.-Mech. R. J. A.; Sullivan, 23712 Flt. Clk. W E.; Swan, 35862 1st Air Mech. (actg. Cpl.-Mech. G. E.; Swindell, 2877 Serjt.-Mech. H
Talbot, 19353 Flt. Clk. W. O ; Taylor, 17950 Ch. Mech. G. T.; Turner, 6015 Ch. Mech. W.; Turner, 111181 Flt. Clk. R. E.
Van der Veen, 68015 Cpl. Clk. H.; Vickerman, 6285 Serjt.-Mech. T.
Williams, 35005 Cpl.-Clk. G.; Williams, 3761 Ch. Mech. T. H.; Wilson, 24194 Serjt. H.; Womersley, 30283 Ch. Mech. G. H.; Woods, 3346 Serjt.-Clk. V V.

AIR MINISTRY, Jan. 22nd.

The under-mentioned officers and other ranks of the Royal Air Force (including personnel, Women's Royal Air Force) have been brought to

the notice of the Secretary of State in respect of the valuable services they have rendered in connection with the war, and a record to this effect will accordingly be made in the Official Records :—

Sec. Lt. Albert Jabez Adams, Sec. Lt. (actg. Lt.) Frank Adams, Maj. Gerald Graham Adeley, Lt. (actg. Capt.) William Algie, D.S.O., Capt. Thomas Allen, Lt. William Richard Percy Allen, Administrator Mrs. Lulu Babbitt Anderson, Capt. (Hon. Maj.) William Bryan Armitage, Lt. George Reginald Ashton, Capt. (actg. Maj.) Ormrod Maxwell Ayrton.

Maj. John Basil Roland Bacchus (A.P.D.), Lt. Frederick Lefevre Baker, Sec. Lt. (actg. Lt.) George Baker, Capt. Leslie Ivan Barker, Capt. (actg. Maj.) Malcolm Bartlett (deceased), Capt. (actg. Maj.) Philip Maurice Beachcroft, Lt. (actg. Capt.) Christopher Oliver Bean, Lt. (actg. Capt.) Wilfred Beaver, M.C., Capt. Edwin Walter Tyrrell Beck, D.S.O., M.C., Col. (actg. Brig.-Gen.) John Harold Whitworth Becke, C.M.G., D.S.O., Capt. Bernard James Beeton, Capt. (actg. Maj.) Charles Hugh Bell (S.O., S.E. Area), Sec. Lt. (actg. Capt.) Godfrey Melville Bell, Capt. Angus Bell Irving, M.C., Capt. Charles Burnley Belt, M.C., D.C.M., Capt. (actg. Lt.-Col.) Harold Rothwell Bently, Capt. (actg. Maj.) John Spencer Davies Berrington, Lt. William Morier Bevan, Lt. (actg. Capt.) Lionel Franklin Beynon, Lt. George John Blackmore (Canada), Lt. (actg. Capt.) Harold Stanley Blakeley, Capt. (actg. Lt.-Col.) John Dunbar Blyth, Capt. Arthur Boor, Capt. (actg. Maj.) Richard George Booth, Capt. (actg. Maj.) John Johnson Potterill (Washington), Lt. Ernest Windsor Bowen, Lt. John Septimus Bowler (Canada), Maj. John Morison Boyd, Lt.-Col. (actg. Col.) Edward Featherstone Briggs, D.S.O., Lt. Frederick Briggs, Sec. Lt. Harold Godfrey Bright, Lt. Reginald Henry Bright, Sec. Lt. (actg. Capt.) Frank Reginald Brighten, Sec. Lt. (actg. Capt.) Frank George Brockman, Capt. (actg. Maj.) the Hon. George St. John Brodrick, M.C., Maj. Reginald Vernon Charles Brook, Maj. (actg. Lt.-Col.) Harry Anthony Browne, Capt. James Stark Browne, Capt. Walter Frank Bryant, Capt. Victor Felix Peter Bryce (Washington), Lt. (actg. Capt.) Harry Stenton Burdett, Lt. (actg. Capt.) Horace Clive Burdett, Lt. Thomas Roland Roth Burns, Lt. Robert Edwin Butler.

Lt. Gregor Cameron, Sec. Lt. George Albert Campbell, Lt.-Col. Charles Ferguson Campbell, C.I.E., Lt.-Col. Hugh Campbell, D.S.O., Maj. William Charles Campbell, D.S.O., M.C., Capt. (actg. Maj.) Rupert George Leverton Candy, Capt. Joseph William Carter, Administrator Mrs. Ina Bowie Carruthers, Lt. Hamilton Cassels (Canada), Capt. George Barrett Chainey, Capt. (actg. Maj.) Walter Auschar Chauncy, Capt. Charles Kingsley Chandler, Capt. (actg. Maj.) Ernest William Fraser Cherry, Capt. George Malcolm Clarke, Capt. David Brotherston Cleghorn (Washington), Sec. Lt. Steven Thomas Clemens, Capt. Sidney William Clift, Capt. William Harry Clover, Capt. (actg. Maj.) Laurence Calvert Coates, Maj. Henry Cockereil, Lt. (actg. Capt.) Richard Awdry White Collet, Maj. Arthur William Colley, Lt. (actg. Capt.) Kenneth Dowsett Gould Collier, Lt. Athol Daniel Collins, Capt. (actg. Lt.-Col.) Leonard Barnaby Cook, Capt. (actg. Maj.) Cyril Bertram Cooke, Capt. Sidney Walter Cooper (Washington), Lt. (actg. Capt.) Leslie Milner Copeland, Sec. Lt. Norman Edward Corbishley, Maj. John Walter Cordingley, Lt. John Charles Coulson, Maj. Henry Ashley Cox, Lt. (actg. Capt.) Reginald Charles Cox, Capt. (actg. Maj.) Arthur Crook, Capt. (actg. Maj.) William Milligan Cumming, Maj. John Kenneth Curwen.

Lt. John Hudson Davis, Sec. Lt. Walter Daughton, Lt. Edward Cecil Davies, M.C., Lt. (actg. Capt.) Idris Meredyth Davies, Sec. Lt. Phil Vivian Davies, Capt. Richard Wilkinson Dawes, Capt. John Forbes André Day, A.F.C., Lt. Charles Mary Denny, Lt.-Col. Guy Cyril St. Pourgin De Dombasle, Capt. John Christopher Derham, Capt. (actg. Maj.) Geoffrey William Dobson, Maj. Clifford Gayther Docwra, Lt. Charles Donald, Capt. Ian Archibald James Duff, M.C., Lt. Basil Napier Durant (Canada), Sec. Lt. Reginald Frederick Durrant, Maj. James Frederick Dyer.

Col. William Elliot, C.B. (R.A.), Lt. Charles Amyard Alexander Elliot, Capt. Wiliam Henry Elliott, Maj. Aubrey Thomas Evans, Capt. William Joseph Julius Everard Mount Everard.

Naval Instr. Herbert F. Farr (Washington), Sec. Lt. (actg. Lt.) Gerard Feeny, Lt. (actg. Capt.) Ronald Ferguson (Washington), Maj. George Kenelm Field, Maj. Herbert Frank Fisher (Canada), Sec. Lt. (Hon. Lt.) Stephen Fleming, Capt. Albert William Fletcher, A.F.C., Lt.-Col. Basil Samuel Foster, Sec. Lt. (Hon. Lt.) Percy Walter Fox.

Capt. (actg. Maj.) Christopher John Galpin, D.S.O., Lt. Percy Justice Gardiner, Lt. (actg. Capt.) Frank George Garratt (Canada), Lt. Walter Gawkroger, Capt. Walter George Gledhill, Capt. (actg. Maj.) David Gordon, Maj. James William Gordon, Capt. Oliver Horsley Gotch, M.B., Lt. (actg. Capt.) Arthur Graham, Capt. Bernard Grant, Capt. Hugh Bradford Griffiths (Canada), Capt. Alfred George Griggs, Lt.-Col. Edward Hugh Griffith, Lt. Arthur William Grigsby, Sec. Lt. (actg. Lt.) William Howard Montagne Groom, Assistant Administrator Miss Edith Mary Pelham Grubb, Capt Leonard James Gulliver-Cradwick.

Lt. (actg. Capt.) Edgar Dean Hall, Lt. (actg. Capt.) Vernon John Hammond (Washington), Capt. (actg. Maj.) William A. Hannay (Washington), Capt. (actg. Maj. William Thomas Hanson, Capt. Luke George Harber, Capt. Bernard Edward Harrison, Sec. Lt. Cecil Walter Harrison, Lt. (actg. Maj.) Randall Ayres Hassard, Lt. Herbert Richard Hastings, Lt. (Hon. Capt.) (actg. Maj.) Geoffrey Herbert Algernon Hawkins, Capt. Francis Henry Hawksford (Canada), Lt. (actg. Capt.) Cedric Charlie Hayward, Capt. William Hayward, Major George Lockhart Piercy Henderson, M.C., Lt. Joseph Leonard Henry, Lt.-Col. Vivian Henry, C.B., Capt. Leonard Henshall, Major Charles Thomas Hesketh, Lt. Austin George Hewer, L.D.S., R.C.S., Sec. Lt. Thomas Arthur Higgs, Capt. William Raymond Milner Hill, Lt. D'Arcy Fowlis Hilton, M.C. (Canada), Lt. Arthur Hyde Hinton, Capt. Oliver Hook, Capt. Archibald Robert Howard, Lt. Alfred Hughes, Capt. Geoffrey Forrest Hughes, M.C., Maj. Tom Grove Hull, Capt. (actg. Maj.) Albert Hunter, Capt. Paul Bernard Hunter, Lt. Charles Albert Hyde.

Sec. Lt. Alexander Duncan Jack, Maj. James Owen James, Maj. James Willoughby Jardine, Maj. (actg. Lt.-Col.) Charles Jarrott, O.B.E., Sec. Lt Gordon Vivian Jennings, Sec. Lt. (actg. Lt.) Charles Thomas Johnson, Capt. Raymond Johnson, M.B., F.R.C.S. (R.A.M.C.), Capt. (actg. Maj.) Herbert Wilson Godfrey Jones, M.C., Capt. John Hugh Oscar Jones, Lt.-Col. Leoline Jenkins, D.S.O., M.C. (deceased).

Capt. (actg. Hon. Maj.) George William Clarkson Kaye, Maj. David Henry Kennedy, Sec. Lt. (actg. Capt.) John Keyes, Lt. Charles King (deceased), Lt. (actg. Capt.) Frederick Knight, Maj. Henry St. John Knight, F.S.I. (Canada), Lt. (actg. Capt.) Ferdinand F. Hugo Ernest Kolligs.

Lt. (actg. Capt.) Wilfred Andrew Landry (Canada), Lt. Allan Lanman, Lt. George Frederick Law, Sec. Lt. Andrew Ledgerwood, Lt.-Col. Herbert Lee, Capt. Ernest Pendarves Leigh-Bennett, Capt. (actg. Maj.) Alfred Molineaux Lester, Capt. Alexander Frederick Livingstone, Sec. Lt. Harry Lee Lobb, Lt. Tremper Longman (Canada), Sec. Lt. (Hon. Lt.) Joseph John Lovesay, Lt. (Hon. Capt.) George Frederick Lucas, Lt. (actg. Capt.) Frederick Douglas Lugard.

Capt. (actg. Maj.) David McBirney, Capt. (actg. Maj.) Lachlan Loudoun MacLean, Capt. Edward Slater McDonald, Lt.-Col Albert William Crawford McFall, Sec. Lt. Fred Daniel McGuire, Lt. Arthur McIntosh, Maj. Francis Victor Hamilton Mackenzie, Capt. (actg. Maj.) William Claud Mackey, Capt. Andrew Jackson McElroy (United States Army), Lt (actg. Capt.) Gilbert McPherson, M.C., Maj. Osborne Clury Macpherson (Canada), Sec. Lt. (Hon. Lt.) (actg. Capt.) Finley McRae (Canada), Capt. Ernest Leonard Mann, Sec. Lt. Lionel John Marden, Maj. (actg. Lt.-Col.) Reginald Gascoigne Law Markham, Sec. Lt. (actg. Lt.) William Marshall, Lt. (actg. Capt.) John Arthur Pethbridge Martin, Capt. Cecil Mason, Lt. Edward Vincent Dewar Mathews, Capt. John Taylor Matthews, Capt. Reginald Montagu Spalding Maxwell, Sec. Lt. (actg. Capt.) Richard George Meech, Capt. Lionel Seymour Metford (Canada), Lt. Walter Davis Miller, Capt. Hugh Milman, Lt. (actg. Capt.) Crichton John Miln, Lt. (Hon. Capt.) Harold Henry de Baillou Monk, M.C., Capt. (actg. Maj.) Cecil Henry Morgan, Lt. (actg. Capt.) Patrick Henry Morrissey, Maj. Eustace Fletcher Moyes, Capt. (actg. Maj.) Richard Bernard Munday, D.S.C., Lt.-Col. (Hon. Col.) Lewis Munro.

Capt. (actg. Maj.) Albert Alexander Nathan, Maj. George Charles Neilson, Lt. Bruce Olinthus Newman, Capt. William Petrie Nicholls, Surg.-Gen. Sir William Henry Norman, K.C.B., Lt. (actg. Capt.) John Daniel D'Arcy Northwood, Maj. Charles William Nutting, D.S.C.

Lt. Geoffrey Stewart O'Brien (Canada), Capt Thomas Joseph Offer, Maj. Percival Owen.

Lt. (actg. Capt.) Leslie George Paling, M.C., Capt. (actg. Maj.) William Park, Maj. Sydney Charles Parr (Canada), Capt. Harold Stuart Parsons (Canada), Lt. (Hon. Capt.) Herbert Martin Parsons, Capt. Charles Richard Maitland Pattison, L.R.C.P., etc., Capt. (actg. Maj.) Lionel Guy Stanhope Payne, M.C., Lt. (actg. Capt.) Albert Grounds Peace, Maj. Richard Hallam Peck, Capt. Philip Pearce Clay Penberthy, Lt. Patrick Perfect, Maj. Sidney Piers Victor Phillips, Lt.-Col. Frederick Hope Grant Playfair, Capt. Charles Robert Egerton Pope, Capt. (actg. Maj.) Henry Stewart Powell, M.C., Major Oswald Henry Powell, Maj. Grafton Deen Pryor.

Capt. (actg. Maj. Gavin Ralston, Capt. (actg. Maj.) Thomas Cecil Rapp, M.C., Deputy Administrator Mrs. Aileen Rathbun, Deputy Administrator Miss Doris Louise Reed, Capt. Francis Henry Ernest Reeve, Sec. Lt. (Hon. Capt.) William Hugh Prichard Rees, Lt. (actg. Capt.) James Seaton Reid, Capt. (actg. Maj.) John Edgcumbe Rendle, Capt. (actg. Maj.) Leslie Reynolds, Sec. Lt. William Joseph Richards, Lt. Bert. Vershoyle Richardson (Canada), Lt. Wilfred Righton (deceased), Capt. Allen Incell Riley, Lt.-Col. Charles MacIver Robertson, Maj. (actg. Lt. Col.) Richard Stirling Robinson, Capt. Tenison Alan Bellingham Rolfe (Canada), Capt. (actg. Hon. Maj.) Andrew Alexander Ross, Lt. Robert Norman Rowell, Maj. (actg. Lt.-Col.) Robert Walker Roylance, Sec. Lt. Percival Thomas Rule, Sec. Lt. Ernest Hallahan Rundle, Lt. James Grant Ryrie (Canada).

Capt. Reginald James Sanceau, Capt. Harold Leslie Satchell, Sec. Lt. Horace Satterford, Maj. Edgar Stopford Saunders, Sec. Lt. John Leslie Saxton, Capt. James Herbert Scandrett, M.C. (Canada), Capt. Wilmer Leonard Scandrett (Canada), Sec. Lt. (actg. Capt.) William Joseph Scott, Capt. Richard Dyson Seddon, Capt. (actg. Maj.) Henry O'Neil de Hane Segrave (Washington), Capt. (actg. Maj.) Ernest Selby, Lt. (actg. Capt.) Charles Melville Seth-Ward, Capt. Murton Adams Seymour (Canada), Capt. (actg. Maj.) Frederick Charles Oscar Shaw, Lt. (actg. Capt.) William J. R. Sheppard (Washington), Capt. Harry Sherwood, Sec. Lt. William James Shilcott, D.S.M., Capt. Frank Arthur Short, Capt. Albert Edgar Siddons-Wilson, Lt. (actg. Maj.) Percy Coleman Simmons, Capt. Thomas George Skeats, Capt. Percy William Smith, Lt. (actg. Capt.) Russell Nelson Smith, Capt. Herbert Spink, Lt. (actg. Capt.) William Witcomb Stainer, Lt. Thomas Frederick Steele, Capt. William George Stephenson-Peach, Capt. Frederick Bentham Stevens, Sec. Lt. (actg. Capt.) Harry Niel Stradling, Lt.-Col. Lawrence Hugh Strain, D.S.C., Capt. Edwin Stanley Sturdee, Lt. Edward Albert Sullock, Lt. Frank Susans.

Lt. Alan Felton Tabraham, Sec. Lt. (actg. Capt.) Robert Tait, Lt. (actg. Capt.) Frank Geoffrey Taylor, A.F.C., Lt. Alan Miller Thomas (Canada), Lt. (actg. Capt.) Arnold Samuel Thompson, Maj. (actg. Lt.-Col.) Arthur Ashford Benjamin Thomson, M.C., Lt. (actg. Capt.) William Burns Thomson, Lt. (actg. Capt.) Edward Thornton, Sec. Lt. (actg. Lt.) Sidney Herbert Tigg, Lt. John Francis Titmas, Sec. Lt. Harry Tomlinson, Capt. (actg. Maj.) Charles Gibson Tosswill, Lt. Algernon Cyril Townend, A.F.C., Maj. Edward Geoffrey Toye, Maj. Benjamin Travers, Lt. (actg. Capt.) Leicester Tunks, Capt. (actg. Maj. Ernest Frederick Turner, Lt. (actg Capt.) Frederick Tymms, M.C. (Washington).

Capt. George Frederick Underwood, Maj (actg. Lt.-Col.) Frederick Henry Unwin,

Lt. (actg. Capt.) Louis Martin Van Eyssen, Capt. (actg. Maj.) John Hargreaves Vickers, Lt. (actg. Capt.) Sydney John Vine, Capt. Charles Visger, Sec. Lt. Cecil Volk.

Capt. Hugh Colin Waghorn, Lt. (actg. Capt.) Harold Frederick Walker, Capt. (actg. Maj.) Albert Gregory Waller, M.C., Lt. (actg. Capt.) James Arthur Donald Wallis, Lt. Geoffrey Packenham Walsh, Lt.-Col. Frederick Angus Wanklyn, M.C. (Canada), Lt. (actg Maj.) Robert Walter Ward, Maj. (actg Lt.-Col) Ronald Dockray Waterhouse, Lt.-Col. Alexander Thomas Watson, Sec. Lt. James Yeaman Watson, Lt. (actg. Maj.) John Ballingall Forbes Watson, Capt. Frederick James Watts, Capt. Donald Campbell Waylen, Capt. Tom Wells, M.C., Lt. Louis Ward Wheelock (U.S.A. Air Service in England), Capt. (actg. Maj.) Richard Whiddington, Sec. Lt. Frank Henry Whitmore, D.S.C., Capt. Harold Edward Whittingham, M.D., Lt. (actg. Capt.) Clifford Arthur Bernard Bowman Wilcock, Capt. Fred Wilkinson, Maj. (actg. Lt.-Col.) Ronald Frederick Williams, O.B.E., Sec. Lt. (actg. Lt.) Frederick Percy Williams, Capt. Frederick Thomas Williams, Lt. John George Coleman Williams, Capt. Owen Williams, Lt. (Hon. Capt.) Henry Arthur Wilsdon (Washington), Lt. (actg. Capt.) John Wingate, Lt.-Col. Alexander Charles Winter, O.B.E., Lt.-Col. (Hon. Col.) Thomas Birchall Wood, C.M.G., Maj. Reginald Herbert Woods, M.C., Sec. Lt. Frederick Allan Worlidge, Capt. Edwin Harold Wray, Lt. (actg. Capt.) Humphrey Hume Wrong (Canada), Capt. (actg. Maj.) Hugh Edmund Fowler Wyncoll, M.C.

Capt. James Yates.

WARRANT OFFICERS, NON-COMMISSIONED OFFICERS AND MEN (INCLUDING PERSONNEL, WOMEN'S ROYAL AIR FORCE) :—

41290 Cpl. E. A. O. Abbott, 77659 1st Air Mech. (actg. Cpl.) F. W. Adcock, 213047 Sergt. Mech. D. A. Alderton, D.S.M., 42721 Ch. Mech. J. Allan, 16760 Ch. Mech. J. A. Allan, 61338 F/Clk. F. J. Alps, 9959 Member Miss Dorothy May Altham, 403848 Mas. Clk. A. E. Amos, 19504 Member Miss Kate Andrews, 59452 Actg. Serjt. F. S. Anstey, 42817 Serjt. Clk. W. J. Aspinall, 214717 Ch. Mech. E. F. Astle, 2545 Ch. Mech. A. Avery, 56788 Serjt. Mech. B. R. Aylward, 200322 Ch. Mech. A. W. Ayres.

216513 Cr. Mech. W. J. Bagshaw, 11417 Ch. Mech. A. A. Bailey, 33977 Serjt. Mech. J. Bailey, M/3647 Ch. Mech. J. E. Bailey, 185032 W.O.2. N. Bailey, 26249 Actg. Serjt.-Maj. A. E. Baker, 54188 F./Clk. A. W. Baker, 187383 Serjt. Clk. W. H. Ballard (late Lond. Scots), 406405 Cpl. Mech. C. Barr, 12349 Ch. Mech. G. Barrett, 218399 Cpl. Mech. C. Barritt, 27833 1st Air Mech. (actg. Cpl.) A. G. Bassett, 2068 F./Clk. S. C. Bateman, 75270 Cpl. Clk. R. W. G. Bayliss, 4260 Ch. Mas. Mech. C. E. Bean, 50453 F./Clk. S. R. Beck, 202587 Ch. Mech. W. W. J. Beedle 213438 Cpl. H. G. Beer, 16825 Cpl. Clk. E. R. Belcher, 65857 Actg. W.O.2. R. Bell, B/14887 Flt.-Serjt. W. G. Bennet, 217984 Flt.-Serjt. F. B. Bennett, 408641 Serjt. Clk. A. J. Berry, 5105 Actg. Sect. Ldr. Miss Marie Cameron Beyts, 203881 Ch. Mech. T. J. Billingham, 18419 F./Clk. W. Black, 218930 1st Air Mech. (actg. Cpl.) M. B. Blackadder, 21959 Cpl. Clk. T. Bolton, 807 actg. Ch. Mas. Mech. W. G. Borrett, M.M., 19757 Cpl. Clk. (actg. Serjt. Clk.) A. C. Bowtell, 34089 Cpl. Mech. A. Boyd, 215172 Ch. Mech. C. G. Brackley,

27388 Serjt. (actg. Ch. Mas. Mech.) A. Bradfield, 218403 Flt.-Serjt. P. J. Brazier, 15997 Cpl. Mech. (actg. Serjt. Mech.) H. Briggs, 36208 Serjt. Mech. S. Broad, 56992 Serjt. A. G. Bromige, 6557 Ch. Mas. Mech. E. Brown, 32957 F./Clk. F. L. Brown, 213048 Mas. Mech. R. Brown, 13299 Serjt. Mech. F. C. Browton, 23308 Serjt Clk C. H. Buckle, 401647 Flt.-Serjt. C. W. M. Bufton, 4419 Ch. Mas Mech. H Bull, 950 Ch. Mas. Mech. C. F. Bunting, 217837 Mech. W. Burt, 220237 Ch. Mech. W. G. H. Butcher, 4933 Ch. Mech. S. Byron.

24465 Serjt. Mech. F. A. Cahill, 8307 Serjt.-Maj. P. M. Calder, 7183 Mas. Clk. (actg. Serjt.-Maj.) G. E. Camp, 12437 Cpl. Mech. W. J. Campion, 43386 F./Clk H. Carter, 1337 Ch. Sect. Ldr. Miss Alice Jane Cartwright, 4741 F./Clk. F. C. Catchpole, 87478 Serjt.-Maj. E. Chalk, 231977 Cpl. W. Chalmers, 24266 Ch. Mech. E. E. Childs, 148453 Flt.- Serjt. A. H. Chinnery, 56987 F./Clk. F. C. Clake, 219998 Serjt. Clk. H. Clark, 217127 Cpl. Mech. A. B. Clarke, J/35985 Actg. Cpl. W. H. Clarke, 5832 Ch. Mas. Mech. C. H. Clarkson, 15356 W.O.1 R. Clayton, 215948 Serjt. Mech. B. A. Clinging, 29178 F./Clk. H. D. Close, 10982 Ch. Mech. W. D. Coleman, 206693 Ch. Mech. G. B. Collingwood, 26169 Ch. Mech. H. W. T. Collins, 217356 Cpl. Mech. H. S. Collins, 211246 Serjt. Clk. A. F. Colyer, 1057 Ch. Mech. G. E. Cook, 3350 Ch. Mech. T. Cooke, 3213 F./Serjt. C. W. Corner, 12441 Ch. Mech. W. T. Coveney, 2319 Ch. Mech. A. E. Cowdery, 24066 Serjt. Mech. P. W. Cowell, 130426 3rd Clk. W. Cowie, 210452 Serjt. Mech. H. Cox, 35747 F./Clk. G. Craig, 209076 Ch. Mech W. C. Cranfield, 62384 Cpl. Clk. C. Cresswell, 11825 Serjt.-Maj. A. L. Crewe, 204005 Ch. Mech. A. J. Crook, 9301 F./Clk. H. J. Cross, 23032 Ch. Mech. G. V. Crosthwaite

13700 Actg. Serjt. J. T. Davies, 79449 Cpl C. P. Davis, 204187 Serjt. Mech. T. Davis, 56555 F./Clk. F. A. Dawson, 405859 2nd Air Mech. J. Dent, 82913 2nd Air Mech. H. U. Diplock, 208279 Ch. Mech. F. W. Dixon, 22066 Ch. Mech. J. Dodd, 24638 Ch. Mech. C. P. Donoghue, 106858 Ch. Mech. R. J Dowling, 45142 Serjt. (actg. Flt Serjt.) E. Drescher, 77258 2nd Air Mech. H. P. Drummond, 407846 Flt.-Serjt. F. G. Dudley, 19112 Serjt. M. E. Dudley (11th Sqdn., U.S.A. Air Service), 204792 Cpl. Mech. E. J. Dunbar, 24156 F./Clk. R. E. Dunn, 9904 Cpl. J. G. Dunsday (A.P.C., attd. R.A.F.), 8948 Mas. Clk. A. S. Dye, 2430 Member Miss Alice Dyer.

220795 1st Clk. A. Earle, 17046 Serjt. Clk. F. C. Ebben, 216758 1st Pte. W. E. Edwards, R.N.11616 Ch. Mech. J. Edmunds, 22032 Serjt. Mech. A. Ellams, 402238 Serjt. Mech. H. C. Elliott, 131951 1st Clk. W. J. Elliott, 217311 Cpl. Mech. A. J. Ellis, 214568 Serjt. Mech. J. C. Emeny, 32594 Cpl. Mech. C. Evans, 20742 Serjt. Mech. J. C. Evans, 108315 1st Clk. I. M. Evans.

43414 Cpl. (actg. Serjt.) S. Fidoe, 2184 Mas. Clk. S. H. Figg, 21054 Serjt. Clk. T. F. Flynn, 65854 1st W.O. I. J. Fox, 2313 Actg. Ch. Mech. F. W. Francis, 1112 Ch. Mas. Mech. J. Fulton, M.S.M., 186744 Mas. Clk. W. Furnace.

203731 Ch. Mech. R. P. Gardner, 201856 Mas. Mech. E. J. Garstin, 45252 1st Pte. P. Garnett, 401452 Serjt. Clk. A. Gibbons, 210607 Ch. Mech. D. H. J. Gibson, 10901 Ch. Mech. G. Gill, 48973 Cpl. (actg. Serjt.) R. E. Godfrey, 12340 Cpl. Mech. (actg. Serjt. Mech.) C. J. Goodchild, 212237 1st Air Mech. A. W. Goody, D.S.M., 16593 Actg. Ch. Mech. A. E. Gordon, 210487 Ch. Mech. G. F. Gordon, 5886 Ch. Mech. F. Gould, 23013 F./Clk. G. A. Gough, 33305 Serjt. Mech. J. H. Gough, 11281 Ch. Sect. Ldr. Miss Annie Louise Gravestock, 19250 F./Clk. C. Green, 90012 Actg. Cpl. C. Green, 57441 F./Clk. C. J. Green, 27996 F./Serjt. H. Green, 203144 Serjt. Mech. W. Green, 216716 Serjt. Clk. F. Greenall, 2087 Ch. Mech. F. Greenhalgh, J/15677 Serjt. Mech. T. E. Greenstreet, 51076 Serjt. Clk. F. D. Greet, 3589 1st Serjt.-Maj. B. Grey.

28805 Serjt. Mech. R. Hall, 12611 Cpl. J. B. Hancox, 209587 Cpl. Mech. A. H. J. Handley, 200424 Ch. Mech. W. G. Hardy, 64714 Serjt. Clk. C. T. Harper, 1544 Ch. Mech. E. Harris, 50058 Mas. Clk. H. G. Harris, 2287 Serjt.-Maj. C. O. Haslett, 3797 Ch. Sect. Ldr. Miss Margaret Ellen Hassett, 1400 1st W.O. F. R. Haynes, 75628 Cpl. Clk. A. Haythornthwaite, 7591 Ch. Mech. C. E. Hayward, 17737 Actg F./Clk. W. E. Head, 209749 Serjt. Mech. A. Healey, 210559 Serjt. Mech. A. W. Hedges, 202497 Serjt. R. Henderson, 47901 Serjt. Clk. F. Henthorn, 186751 Mas. Clk. A. Hepburn, 6497 Ch. Sect. Ldr. Miss Edith E. Hewlett, 76836 1st Clk. H. Le P. Higgins, 204527 Ch. Mech. W. M. Higgott, 5100 Mas. Clk. (now Sec. Lt.) T. A. Higgs, 885 Ch. Mas. Mech. E. N. Hill, 6662 Ch. Sect. Ldr. Miss Florence Nellie Hill, 186074 2nd W.O. J. Hil, D.C.M., 5150 Mas. Mech. S. Hilliard, 141721 2nd Clk. M. H. Hoad, 203561 1st Air Mech. T. Hobbs, 48434 F./Clk. A. E. Hodge, 1414 Actg. Serjt. J. Hogg, 7317 Ch. Sect. Ldr. Miss Mary Holland, 76232 Serjt. Clk. A. E. Hooker, 3946 Flt.-Serjt. M. W. Hope, 4617 Ch. Sect. Ldr. Miss Marion Ada Houghton, 206097 Ch. Mas. Mech G. Huckle, 4098 Ch. Mas. Mech G. A. Hummerstone, 2564 Ch. Mec. J. W. Humphrey, 205484 Ch. Mech. F. H. Humphreys, 1763 Ch. Mech. F. Hutch.

200474 Ch. Mech. A. T. Ibbott, 238474 Cpl. (actg Serjt.) J. Inglis, 24850 Ch. Mech. E. H. Isherwood.

16367 Sect. Ldr. Miss Isabel Jack, 32096 Cpl. Clk. P. F. James, 7515 Flt.-Serjt. H. Jarvis, 2434 Member Miss Ivy Jeeves, 203870 Ch. Mech. S. L. Jeffries, 31008 Ch. Mech. C. E. Jenks, 2528 Member Miss Katherine Helen Hylton Jessopp, 2592 Actg. Ch. Mas Mech. H. N. Johnson, 6898 Serjt.-Maj. T. G. Jones, 4465 F./Clk. J. J. A. Justice.

30533 Ch. Mas. Mech. W. Kay, 88243 Serjt.-Maj. J. Kearnes, 200718 Ch. Mech. G. Keevil, 202847 Serjt. T. Keiller, 1848 Serjt. Mech. T. Kenyon, 200700 Ch. Mech. F. Kerchey, 1717 Serjt.-Maj C. H. Kernot, M.C., M.M., 36313 Mas. Clk. A. M. Kettle, 15096 Ch. Mech. J. Kimberley, 6230 F./Clk. C. H. King, 5847 Ch. Mech. H. Kinge, 275 Actg. Mas Mech. R. Kirk, 201678 Serjt. Mech. P. R. Kirton, 48742 Cpl. Clk. S. W. Kitchen, 57488 Serjt. Clk. (actg. F./Clk.) C. E. W. Knight, 6208 Mas. Clk. F. Knight.

2343 Ch. Sect. Ldr. Miss Freda Elizabeth Ladds, K.12282 Serjt. Mech. G. H. Lade, 42885 Serjt. H. J. Ladkin, 11283 Serjt. Clk. C. C. La Haye, 69596 1st Clk. F. G. Langabeer, 49828 Serjt. Clk. B. O. Langley, 213975 Serjt Mech. R. Leasor, 210692 Ch. Mech. A. D. Le Croisette, 3392 Ch. Sect. Ldr. Miss Evelyn Lee, R.N.234806 Serjt. Mech. F. Leech, 122099 F./Clk. P. L. Leopold, M/12955 Mas. Clk. W. Leverson, 47604 F./Clk. R. T. Lever, 212212 Ch. Mech. W. E. O. Lewington, 19114 Serjt. H. E. Lewis (11th Sqdn., U.S.A. Air Service), 209337 Serjt. Mech. J. Lewis, 205450 Serjt. Mech. R. C. Lilley, 247134 3rd Clk. C. Liney, 2880 Serjt Mech. R. Little, 57565 Serjt. Clk. T. B. Lockwood, 204255 Serjt. Mech. T. C. London, 69123 Cpl. R. S. Lowe, 10872 Mas. Mech. W. J. Luke.

210584 Ch. Mech. E. H. McCarthy, 88025 Serjt.-Maj. G. A. McDonald, D.C.M., 299 C.P.O. H. McGuffie, 212534 Serjt. Mech. W. H. McKaig, 10875 F./Clk. A. W. Maber, 166340 Serjt. (actg. W.O.) G. A. Maddams, 13747 Cpl. Mech. A. A. Madgwick, 204718 Ch. Mech. G. F. R. Marden, D.S.M., 10002 Serjt. Mech. J. T. Marks, 3685 Serjt.-Maj. G. Marriner, 1382 Serjt.-Maj. G. G. N. Marshall, R.N.12060 Sergt. G. Martin, 402479 actg. Ch Mech. H. S. Martin, 1473 Ch. Mech. J. W. Martin, 56954 F./Clk. V. Martin, 3940 Ch. Mas. Mech. J. Matthew, 18871 Serjt. Mech. R. W. Mayo, ——Acting Cpl. Lewis Edward Meckel (163rd American Aero Sqdn.), 115589 Cpl. E. H. Mee, 21411 1st Air Mech. (actg. Cpl.) G. V. Mew, 103244 Ch. Mech. W. H. Millener, 207450 Serjt. Mech. R. G. Miles, 214838 Ch. Mech. D. Moore, 1305 Ch. Mech. E. E. Moore, 67834 Mas. Clk. C. H. Morgan, 204681 Actg. Mech. H. Morris, 4034 Serjt. Mech. S. R. Morrison, 205548 Ch. Mech. A. M. Mummery, 210615 Ch. Mech. J. McC. Mundell, 4793 Sergt. Mech. J. H. Murphy.

202272 Ch. Mech. H. W. Newill, 1321 Actg. W.O. R. Nicholls, R.N.134725 Ch. Arm W. Ninnis, 15469 Ch. Sect. Ldr. Miss Elsie Noble, 23233 Serjt. Clk. W. F. Norman.

114087 2nd Air Mech. B. S. Oliver, 57912 Serjt.-Maj. P. C. O'Neil, 218444 Ch. Mech. J. McC. Orr, Sig. R.N.V.R. L/21159 A. R. Osborne, 200791 Ch. Mech. L. C. Ottley.

243789 2nd Pte. C. H. Pannell, 186411 F./Clk. E. Parker, 1284 1st W.O. F. T. Parker, 5134 Q.M.S. H. C. Parker (R.E.), 401060 Ch. Mech. R. Parker, 9010 Ch. Mech. F. G. Parry, 144083 2nd Clk. F. C. Patterson (late Rif. Brig.), 79172 Cpl. E. H. Payne, 222207 1st Clk. G. F. Pearce, 16691 Serjt. J. E. Pearsall, 50557 F./Clk. E. L. Peck, 9960 Ch. Sect. Ldr. Mrs. Nettie Prentice Peckover, 209254 F./Clk. M. F. Penney, 231179 Cpl. A. Peters, 28212 Cpl. (acting Serjt.) W. H. Petrie, 61650 Ch. Mech. F. W. Pettitt, 20993 Ch. Mech. P. Pickering, 44367 F./Clk. H. V. Pinks, F4491 Ch. Mech. A. Pitt, 12518 Member Miss May Dorothy Pope, 210222 Ch. Mech. H. Postill, J30535 Cpl. Mech. W. A. Potter, 205035 Ch Mech. T. R. Powell, 206103 Cpl. B. E. Pretty, 214629 1st Air Mech. C Prevett, R. N. 222569 Ch. Mech. G Prickett, 187426 Serjt. B. Probeart, 76989 Actg. Cpl. A. W. Prutton, 148611 Serjt.-Maj. H. Pryde, 43817 1st W.O. G. J. Pullen, —— Member Miss Julia Pusey (Steventon, Berks.), 216838 Serjt. Mech. W. S. Pyle.

1095 Ch Mas. Mech. F. H. Ramsay-Williams, 6250 Cpl. Mech. S. Ranby, 166039 2nd W.O. L. A. Rancom, 228500 Actg. F./Clk. R. W. Rea, 30474 F./Serjt. E. Regan, 34351 Ch. Mech. J. Reid, 29604 Serjt. D. J. Richards, 206434 Ch. Mech. R. W. Ritchie, 211607 Serjt. O. F. Roberts, JH.4217 Ch. Mech. W. J. Robinson, 80244 Serjt. Clk. G. H. Rogers, 16075 Ch. Mech. H. K. Rolfe, 1878 Ch. Mech. A. J. Rule, 39147 Ch. Mech. A. Rushworth, 214777 Cpl Mech A. S. Ryall.

7660 Ch. Mech. C. Sadler, 401295 Ch. Mech. T. Satchell, 114496 2nd Air Mech. C. Sanders, 513 Ch. Mas. Mech. E. W. C. Saunders, 6743 F./Clk. R. Schofield, 212599 Ch. Mech. T. W. Scott, 48563 Cpl. Mech. A. A. Scrase, 9590 Ch. Sect. Ldr. Miss Sophie Ida M. Seale, 26165 Actg. Serjt.-Maj. C. Self, 7772 F./Clk. J. L. Semper, 211460 Serjt.-Maj. E. W. Sensecall, 36089 F./Clk. W. C. Shelton, 31183 F./Clk. W. M. Shepherd, 11610 F./Clk. B. A. Sheppard, 26345 F./Clk S. Shipman, 185776 F./Serjt. W. E. Short, 30449 Cpl. Mech. (actg. Serjt.) F. C. H. Simmonds, 201551 Serjt.-Maj. F. W. Sims, 233383 2nd Clk. R. F. Skinner, 125801 Actg.-Cpl. A. Smith, 200471 Sergt. Mech. A. N. Smith, 231684 1st Air Mech. B. Smith, R.N.239557 Ch. Mech. C. W. Smith, N.236653 Serjt. Mech G. Smith, 228040 Serjt. Mech. G. W. Smith, 25775 Ch. Mech. H. W. Smith, 5435 Ch. Mas. Mech. S. J. Smith, 6915 Serjt.-Maj. T. Smith, 144 Ch. Mas. Mech. W. Smith, 46402 Serjt. Mech. W. Smith, 6157 Ch. Mech. A. G. Sorfleet, 75540 1st Clk. H. Spears, 47759 F./Clk. H. S. Speed, 409050 Serjt. Clk. C. Spencer (late Berks Yeo.), 203137 Serjt Mech. G. Spragg, 409306 F./Clk. W. N. Stanley, 209756 Serjt Mech. P. L. Stephen, 9994 Serjt.-Maj. P. S. Stewart, 18551 Actg. Cpl. W. Still, 409443 Cpl. A. Stimson, 48408 1st Air Mech. W. Sturge, 8435 F./Serjt. G. Sturman, 199654 2nd Clk. E. Sudgen, 208242 Ch. Mech. G. F. Swallow, 19068 Serjt. W. G. Swatton.

216648 Serjt. Mech. A. W. Taylor, 185179 Serjt. Clk. C. W. Taylor, 5255 Serjt. Mech. H. J. M. Taylor, 7188 Ch. Mas. Mech. T. E. Terry, 200141 Mas. Mech. F. S. Thatcher, D.S.M., 14132 Ch. Mech. T. W. Thompson, 225719 Cpl. A. J. Tibbett, 1986 Ch. Mas. Mech H. N. Tomblin, 251603 2nd Clk. A. F. Tomkins, 34428 F./Clk. G. W. Tovey, 204593 Ch. Mech. W. A. E. Tredwell, 211809 2nd Air Mech. J. W. Trevelyan, 1062 Ch. Mech. C. L. Trevithick, 238911 2nd Air Mech. G. H. Tucker, 203513 Serjt. Mech. J. Turley, 2670 Serjt. G. E. Turner.

250146 Cpl. G. D. Umpleby, 18349 F./Clk. F. C. Utting.

76841 Serjt. Clk. H. Veness, 187225 1st Clk. W. D. Venning, 5969 Serjt. Clk. F. Vickers.

405797 2nd Clk. T. E. Wade, 201767 Ch. Mech. G. T. Wait, 9225 Member Miss Margaret A. Walker, 218473 Serjt. Mech. T. Wallace, 11130 Member Miss Dorothy Mary Wallis, 509 Actg. Ch. Mas. Mech J. Walls, 234917 Ch. Mech. R. T. Ward, 1068169 Pte. W. L. Ward (219th Sqdn., U.S.A. Air Service), 20441 Ch. Mech. A. G. Warwick, 216650 Serjt. Mech. W. Wates, 238959 Cpl. Clk. A. H. Watkins, 218299 F./Clk. W. A. Watson, 89034 F./Serjt. F. W. Watt, 4848 Member Miss Elsie Winifred Watts, 187484 F./Clk. V. B. Watts, M.M., 205005 Serjt. Mech. H. Wearne, 39869 Cpl. Mech. J. I. Webster, 409109 F./Clk. D. C. G. Webster, 11624 Ch. Mech. A. Welfare, 4841 Ch. Sect. Ldr. Miss Amelia Were, 8104 Ch. Mas. Mech. H. W. Westbrook, 214703 Serjt. H. N. D. Whall, 5779 Ch. Mech. F. White, 18715 F./Serjt. F. E. White, 214784 F./Clk. W. C. White, 1644 Ch. Mas. Mech. H. G. Whyte, 21963 F./Clk. H. Wilkinson, 47723 1st Air Mech. J. Wilkinson, 204581 Cpl. Mech. F. A. Williams, 203155 Serjt. Mech. W. H. Williamson, 207691 Serjt. Mech. A. G. Willis, 14106 Ch. Mech. A. P. Wilson, 211134 Serjt. Mech. S. Wise, 1135 Ch. Sect. Ldr. Miss Annie Witham, 223485 Serjt. Clk. A. M. Wood, 200540 Ch. Mech. C. W. Wood, 7296 Actg. Mas Clk. H. Wood, 202521 Ch. Mas Mech. J. W. Wood, 10342 Mas. Mech. C. J. Woodcock, 12532 F./Clk. E. L. Woodward, 98812 Serjt.-Maj. J. Wortley, M.M., 2425 Member Miss Jessie Edna Wyatt.

81505 Cpl. E. Young, 5793 Ch. Mech. F. B. Young, 461 Ch. Mas. Mech. J. Young, 203697 Cpl. Mech. W. V. Young.

The undermentioned Members of the Civilian Staff employed by, or serving in connection with, the Air Ministry, have been brought to the notice of the Secretary of State in respect of valuable services rendered in connection with the war :—

Archibald Allen (Hyde Park, W.), Ewart Sigmund Andrews (Beckenham, Kent).

Edwin Backhouse (Putney, S.W.), Harry Bardsley Chaplin Baldwin (Brighton), Charles James Vernon Bland (Bermondsey, S.E.), John Charles Boyle (Herne Hill, S.E.), Griffith Brewer, F.A.S. (Bury St., S.W.).

William Alfred Richard Channer (Surbiton, S.W.), George Bertram Cockburn, O.B.E., Henry Duncan Courtenay (Hampton-on-Thames), James Cruickshank (Kingsway, W.C.), Harold John Culpin (Chingford, E.).

Charles Deane (Foreman, Charing Cross Parcels Depot), Robert Dunn Dow (Lewisham, S.E.), George Walter Dyke (Ilford).

Walter S. Field (Hon. Sec., R.A.F. Hospitals).

William Francis Glass (Clapham, S.W.), Edgar Austin Griffiths (Teddington, S.W.).

Alfred Hooper, M.D. (Coventry), Henry Hughes (Chief Surveyor), Works and Buildings).

Mountstuart Hungerford Jackson (West Kensington).

Charles Marsh (Foreman, Charing Cross, Parcels Depot), Vyvyan James Mitchell (Apsley End, Herts), Arthur Ronald Moss (West Norwood, S.E.).

Frank William Phillips (Woking), George Arthur Pitt (Farnborough), William John Pryce (Croydon).

Gilbert Reeves (Hornsey, N.)

Percy Salmon (Farnborough), Harold Edward Shrimpton (St. John's Wood, N.W.), Herbert Lawrence Stevens (Cove, Hants.).

Philip Harvey Taylor (South Ealing).

Cyril Walter Charles Venus (Willesden, N.W.).

Thomas Hugh Walsh (Southfields, S.W.), Walter Robert Watson (Dowanhill, Glasgow), Reginald Page Wilson (Kensington, W.).

LADIES.

Mrs. Laura Allen (Willesden Green, N.W.), Mrs Gertrude Ellen Bailey (Forest Hill, S.E.), Mrs. Hannah Bayliss (South Hackney, S.E.), Miss Elsie Berry (Kilburn, N.W.), Miss Edith Margaret Bowrey (Wimbledon, S.W.), Mrs. Eily Brierley (Buckingham Gate, S.W.), Miss Dorothy Ellen Bursell (Little Portland St., W.).

Mrs. Mary Carnley, Deputy Principal, W.R.N.S. (attd. R.A.F.), Miss Beatrice Mabel Cave-Browne-Cave (Streatham Common, S.W.), Miss Eleuor Mary Agnes Blanche Clapp (Reading), Miss Marjorie Clements (Bedford), Mrs. Ella Ethelwyn Collins (Eaton Square, S.W.), Mrs. Mariobelle Cooke (Wimbledon, S.W.), Mrs. Felicity Cory-Wright (South Kensington, S.W.), Miss Millie Gertrude Clutterbuck, B.A., M.B.E. (Portland Road, N.W.),

Miss Mabel Davies (Palmers Green, N.), The Hon. Mrs. Dorothy Dawnay (Comdt., Hollington Hall Convt. Home), Miss Eleanor Day (Brixton, S.W.), Miss Christine Dibdin (West Norwood, S.W.), Miss Anna Georgina Dixon (Bushey), Miss Daisy Elinor Dunn (Bloomsbury, W.C.), Mrs. Ethel Edgar (Comdt., Chalfort Park, Convt. Home), Miss Kate Florence Edgar (Salisbury), Miss Grace Edwards (Portland Place, W.), Miss Lilian Excell (Honor Oak Park, S.E.).

Miss Margaret Grace Fort (Dunster, Somerset), Miss Maud Alexandra Fryer (Tooting, S.W.).

Miss Marie Charlotte Gordon (Charlton, S.E.), Miss Edith Louise Gibbons (Westminster, S.W.), Miss Alice Maud Gray (Stoke Newington, N.E.).

Mrs. Laura Hawksworth (Pinner, N.W.), Mrs. Ella Howell (Catford, S.E.), Miss Isabel Haynes (Durweston, Blandford).

Mrs. Winifred Gladys Isom (Nunhead, S.E.).

Mrs. Lily Jennings (New Cross, S.E.)

Miss Winifred Le Warne (Wandsworth Common, S.W.), Miss Edith Jane Littlejohn (Kensington, W.), Miss Agnes Winifred Lyon (Wimbledon, S.W.).

Miss Hilda McDiarmid (Wimbledon, S.W.), Miss Dorothy Macgregor (Walton-on-Thames), Mrs. Ella Mary Mallet (Buckhurst Hill), Mrs. Amy Marinden (Berkeley Square, W.), Miss Nellie G Mayor (Salisbury), Mrs. Ada Mullinan (Comdt., Clifton Court Convt. Home, Rugby).

Mrs. Francis Lydia Ord (Upper Woburn Place, W.C.).

Miss Helen Rosamund Hope Powell (Hampstead, N.W.).

Miss Celia Reynolds (Acton, W.), Miss Millie Gladys May Ryder (Willesden, N.).

Miss Joan Grace Sandwith (Ascot), Miss Annie Louise Sharp (Forest Gate, E.), Mrs. Amy Louise Shutt (Ilford), Miss May Eleanor Sincock (Hammersmith, W.), Mrs. Mabel Noel Smith (Maida Vale, W.), Miss Mabel South (Tooting, S.W.), Miss Beatrice Mary Stinton (Salisbury).

Miss Winifred Agnes Tayler (Palmers Green, N.), Miss Marjorie Thomas (West Hampstead, N.W.), Miss Winifred Gladys Trew (Wandsworth, S.W.).

Miss Marjorie J. Valentine (Hampstead, N.W.), Miss Lilian Alice Florence Vaucour (Upper Norwood), The Hon. Mrs. Douglas Vickers (Charles St., Berkeley Square, W.), Miss Annie Jessie Vine (Chesham, Bucks.).

Miss Beatrice Wakefield (Shoeburyness), Miss Adelaide Louise West (Streatham, S.W.), Miss Dorothy Westoll Westoll (High Connisciffe, Darlington), Mrs. Eleanor Wetherstone (Streatham, S.W.), Miss Nellie Georgina Wilson (Upper Tooting, S.W.).

Miss Mavis Yorke (Highgate, N.).

AIR MINISTRY, Jan. 24th.

R.A.F.—The following temp. appts. are made at the Air Ministry :—Staff Officers, 2nd Cl.—And to be actg. Majs. whilst so empld. if not already holding that rank :—(Air).—Maj. Hon. A. R. Boyle, M.C., vice Capt. (actg. Maj.) C. M. Carrington, Jan. 10th. (T.)—Capt. G. S. Ridgway, vice Maj. A. C. Robinson, Dec. 20th, 1918.

Staff Officers, 3rd Cl.—Capt. (now actg. Maj.) R A Laws, June 1st, 1918, to Sept. 25th, 1918.

The following temp. appt. is made :—Staff Officer, 3rd Cl.—(Q.)—Lt. (actg. Capt.) J. A. Heather, and to retain his actg. rank whilst so empld., Jan. 8th.

FLYING BRANCH.—Lt.-Col. P. H. L. Playfair, M.C., is apptd. Comdt., Central Flying School, Jan. 17th.

Lt.-Col. A. J. L. Scott, M.C., to be Lt.-Col (A.), and relinquishes the appt. of Comdt., Central Flying School, Oct. 29th, 1918.

Lt. Col. (actg. Brig.-Gen.) E. B. Gordon, D.S.O., to be Lt.-Col. (A.), and relinquishes the actg. rank of Brig.-Gen., Nov. 22nd, 1918.

Maj. (actg. Lt.-Col.) F. W. Lucas to be Maj. (A'shp.), and relinquishes the actg. rank of Lt.-Col. on ceasing to be specially empld., Dec. 22nd, 1918.

Capts. to be actg. Majs. whilst empld as Majs. (A.) :—G. L. Hartgill, Oct. 15th, 1918; R. Gray, Jan. 14th.

Capts. to be actg. Majs. whilst employed as Majs. (A. and S.) :—F. N. Halsted, D.S.C., E. C. Hopcraft, Oct. 15th, 1918.

Capt. (actg. Maj.) A J. Michell-Clarke, M.C., to be Capt. (A.), and relinquishes the actg. rank of Maj., Jan. 11th

Capt. L. H. Cockey to be graded for pay as Capt. whilst empld. as Capt. (A.), Dec. 3rd, 1918.

Lts. to be actg. Capts. whilst empld as Capts. (A.) :—M. C. Hayter, W. D. Patrick, Nov. 1st, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (K.B.) :—D. D. O'Flaherty, Nov. 30th, 1918; N. F. Bardell, G. M Emerson, W. H. Muirhead, S Smith, Dec 1st, 1918.

Lt. F. C. Hoult to be Lt. (A.) from (O.), June 26th, 1918.

Sec Lts. to be actg Lts. while empld. as Lts. (K.B.) :—L. R. Grice, A C. Whittle, W. J. P. Woodhouse, Dec. 1st, 1918.

Sec. Lt D. Simmons to be Sec. Lt. (A'ship.), from (T.), Oct. 14th, 1918.

J. C. Thompson (temp. Lt., R.E.) is granted a temp. commn. as Sec. Lt. (A.), and to be hon. Lt., May 31st, 1918 (substituted for notification in "Gazette," Aug 2nd, 1918).

The following relinquish their commns. on ceasing to be empld. :—Lt. (actg. Capt.) J. D. McCall (Capt., Quebec R.), Lt. D. S. Milligan (Lt., Alberta R.), Dec. 5th, 1918; Sec. Lt. (Hon. Lt.) R. O. Campney (Lt., Cen. Ont R.), Lt. H. D. Cunningham (Lt., Nova Sco. R.), Sec. Lt R. M. Macdonald (Lt., Manitoba R.), Sec. Lt. W. G. Perry (Lt., Quebec R.), Dec. 6th, 1918; Sec. Lt. C. B. Clark (Lt., E Ont. R.), Sec. Lt. (Hon. Lt.) T. E. Greer (Lt., Sask. R.), Sec. Lt. (Hon. Lt.) J. T. Smeeton (Lt., B. Col. R.), Lt. H. S. Taylor (Capt, Nova Sco. R.), Dec. 7th, 1918; Sec. Lt. (Hon. Lt.) E D. Cameron (Lt., W. Ont. R.), Sec. Lt. G. H. R. Phillips (Lt., Can. Engrs.), Lt. H. W. Rick (Lt., Quebec R.), Dec. 9th, 1918; Lt. J. F. B. Davies (Lt., M.G.C.), Lt. G G Granger (Lt., E. Ont. R.), Lt. J. H. Hudson (Lt., Manitoba R.), Sec. Lt (Hon. Lt.) F. L. Johnson, M.M. (Lt, Cen. Ont. R.), Dec. 11th, 1918; Sec. Lt. (Hon. Lt.) G. F. Davies (Lt., Can. F.A.), Lt. O. S. Dunn, M.C (Lt., Cen. Ont. R.), Lt. A. J. P Estlin (Lt., Fort Garry Horse), Sec. Lt. (Hon. Lt.) H. N. Foxwell (Lt., Fort Garry Horse), Sec. Lt. (Hon. Lt.) A. G. Imlay (Lt., Brit. Col. R.), Lt. H. W. Johnson (Lt., Brit. Col. R.), Lt. (actg. Capt.) J. F Larson (Lt. (temp. Capt.), Can. F.A.), Lt. S. A. Puffer (Lt., Alberta R.), Lt. (actg. Capt.) T. L. Tibbs (Lt., Alberta R.), Dec. 12th, 1918; Sec. Lt. (Hon. Lt.) H. T. Creighton (Lt., E. Ont. R.), Lt. G. F. Dickason (Lt., Sask. R.), Dec. 13th, 1918; Sec. Lt. (Hon. Lt.) G. D. Dardis (Lt., Can. For. Corps), Lt. (actg. Capt.) F. A. N. Haultain (Lt., Cen. Ont. R.), Lt. H. W. Johnson (Capt., Can. F.A.), Sec. Lt. W. L. Taylor (Capt., Can. Inf.), Dec. 14th, 1918, Capt. F. G. E. Sutton, M.C. (Capt., Sask. R.), Dec. 16th, 1918; Lt T. E. Garside (Lt., Alberta R.), Dec. 18th, 1918; Sec. Lt. (Hon. Lt.) L. W. Sharpe (Cen. Ont. R.), Dec. 20th, 1918; Lt. W. P. Bunt (Lt, Quebec R.), Sec. Lt. (Hon. Lt.) I. R. G. Jones (Capt., Welsh R., T.F.), Dec. 21st, 1918; Lt. (Hon. Capt.) D. B. Gray (Capt., Pioneers, Ind Army), Lt. H. S. Green, (Lt I.A.R.O.), Dec 30th, 1918; Lt. J. P. McRae (Lt., Can. A.S.C.), Jan. 2nd; Lt. W. B. MacKay (Lt., Cen. Ont. R.), Jan. 3rd; Sec. Lt. (Hon. Lt.) G. I. Carr (Lt., Alberta R.), Jan. 4th; Sec. Lt. (Hon. Lt.) C. H. Snow (Lt., Can. Inf.), Jan. 20th.

The following are transfd. to unempld. list :—Lt. C. L. Nightingale, Jan. 5th; Sec. Lt. N Abrams, Jan. 6th; Sec. Lt. H. Davies, Capt. A. Mann, Jan. 7th; Sec. Lt. B. J. E. Anson, Sec. Lt. W. Barnes, Capt. G. A. Hyde, M.C., Sec. Lt. J Milton, Sec. Lt. G J. C. Tigar, Jan. 8th; Sec. Lt. J. Gibson, Lt. G. W. Lockhead, Sec. Lt. G. V L. Taylor, Lt. J. A. Teasdale, Jan. 9th; Lt. J. C. Brooks, Lt. W. M. Chowne, Sec. Lt. J. Fraser, Sec. Lt M. P. Fraser, Lt. A. L. King, Lt. J. L. Langton, Lt. E. M. Newman, Sec. Lt. C. J. Pybus, Capt. E. L. L. Turnbull, Sec. Lt. R. J. Winbolt, Jan. 10th; Sec. Lt. A. T. Batchelor, Sec. Lt T. N. Barling, Lt. S Blair, Lt. H. A. Buckler, Sec. Lt. S. Dumbell (K. L'pool R.), Lt. W. X. Ganz (R. Welsh Fus.), Lt. R. T. Goodyear, Sec. Lt. H. Halborn, Lt. (Hon. Capt.) T. G. Hyde, Sec. Lt. A. S McNaught, Sec. Lt. A. E. Page, Sec. Lt. J. H. Peters, Lt. L. Wilson, Lt. B. A. Walkerdine, Jan. 11th; Lt. J. A. Aldridge, Sec. Lt. W. A. Barratt, Lt. H. A. Blundell, Sec. Lt. J. T. Duckworth, Lt. G. B. Williams, Jan. 12th; Lt. A. M. Bannatyne, Lt. F. C. Barraclough, Lt. A H. Bird, Sec. Lt. (Hon. Lt.) K. F. Caird, Lt. R. T. Edwards (R.F.A., Spec Res.),Sec. Lt. G. P. Giles, Sec. Lt. W. W. Hewitt, Sec. Lt. A. D. McDonald, Sec Lt J. A. Spark, Sec. Lt. K. J. Yeomans, Jan. 13th; Lt. (actg. Capt.) N. E. Barraclough, M.C., Lt. J. Bowley, Sec. Lt. H. H. Crofts (Yorks L.I., T.F.), Capt. R. E. Larnton, Sec. Lt. E. A. Eames, Lt. J. M. Harris (Lt. R.R.C.), Lt. J. G. Mair, Sec. Lt J E. Mann, Sec. Lt. C. N. Prentice, Jan. 14th; Lt. W. Bennett, Lt. W. N. S. Chance (Worc., T.F.), Lt. Hon. R. Cunliffe, Sec. Lt. J. N. Dean, Sec. Lt. H. A. Floyd, Lt. W. H. Foster, Lt. J. E. Hobson, Lt W. H. Keay (R.G.A., Spec. Res.), Sec. Lt. R. B. Murray, Jan. 15th; Lt.-Col. T. W. C. Carthew, D.S.O., Jan. 16th; Lt. L. H Watkinson, Jan. 20th; Sec. Lt. S M. Connelly, Jan. 21st; Lt. (Hon. Capt.) (actg. Capt.) H. G. Ffiske, Capt. (actg. Maj.) S. G. Kingsley, M.C., Jan. 23rd.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—A. L. Aldridge (contracted on active service), L. S. Brander, F. L. Gall, C. H. Russell (contracted on active service), R. G. Scott (contracted on active service), Jan. 25th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—W. Campbell, H S. Fenton, J. H Gardner, R T. Owen, Jan. 25th.

The appointment of Sec. Lt. H. J. Evans (late Gen. List, R.F., on prob.) as Sec Lt. (A.) is antedated to May 12th, 1918

The appointment of Prob Flight Officer E. E. Middleton (late R.N.A.S) as Sec. Lt. (A.) is antedated to May 12th, 1918.

The notification in the "Gazette" of Oct. 11th, 1918, page 11,976, concerning Lt. J. Jackson (Norf. R.) is cancelled

The notification in the "Gazette" of July 19th, 1918, page 8,505, concerning W. E. Hall, is cancelled.

The notification in the "Gazette" of July 19th, 1918, concerning E. C. Clark is cancelled.

The surname of H. M. D. Speagell is as now described, and not Steagell, as in the "Gazette" of Sept. 13th, 1918.

The notification in the "Gazette" of Jan. 7th, concerning C. A. Maconchie is cancelled

The surname of S. R. Hole is as now described, and not Holl, as in "Gazette" of Dec. 17th, 1918.

The notification in the "Gazette" of Aug. 2nd, 1918, page 9,118, concerning Sec. Lt. C. E. Watson (late Gen. List, R.F.C., on prob.) is cancelled

The notifications in the "Gazette" of Dec. 12th, 1918, concerning E. T. Roocroft and W. R. Kellough are cancelled.

The notification in the "Gazette" of July 30th, 1918, page 9,013, concerning F. P. Cobden, is cancelled.

ADMINISTRATIVE BRANCH.—Capt L. P. Ferris-Scott to be actg. Maj. whilst employed as Maj., Jan. 6th.

Capts. to be Capts. :—A. G. Shortt, from (T.), Aug. 11th, 1918; J. S. Leslie, from (A.), Sept. 10th, 1918; A. W. MacIlwaine, from (S.O.), Oct. 24th, 1918; E. M Smith, from (A.), Oct. 25th, 1918; (Hon. Maj.) J. W. Aldridge, from (S.O.), Dec. 23rd, 1918.

Lts (Hon Capts.) to be actg. Capts whilst empld. as Capts. :— R. G. Kitson, from (O.), Sept. 27th, 1918; R. S. J. Bond-Andrews, G. W. Rogers, Dec. 1st, 1918; W. Bindloss, Jan. 1st

Lts. to be actg. Capts. whilst empld. as Capts. :—A. E. Chilcott, July 14th, 1918; E. M. Gardiner, M.C., Aug. 8th, 1918.

Sec. Lts. to be actg. Capts. whilst empld. as Capts. :—J. H. Slingsby, from (T.), Oct. 24th, 1918; (Hon. Lt.) L. Miller, from (T.), Dec. 12th, 1918; I. Coombes, J. R. Coulthard, from (T.) (Actg. Lt.) F. R. T. Pearson, from (T.), Jan. 1st

S. H. M. Donaldson (temp. Capt., Spec. List) is granted a temp. commn. as Capt., July 24th, 1918, with seny. from April 1st, 1918 (substituted for notification in the "Gazette" of Nov. 19th, 1918.

Capt. H. Wild is graded for pay as Lt. whilst empld. as Lt., from (A. and S.), Oct. 27th, 1918.

R. S. J Bond-Andrews (temp Capt., Worc. R.) is granted a temp. commn. as Lt., and to be hon. Capt., June 24th, 1918, with seny. from April 1st, 1918.

Lts. (A.) to be Lts. :—R. M Anderson, July 29th, 1918; H. Morley, Sept. 24th, 1918; F. J. Williams, Sept. 30th, 1918; J. A. Radcliffe, Oct. 24th, 1918; C. D. Taylor, Oct. 25th, 1918; A. Sutton-Jones, Nov. 7th, 1918; W. Stannard, Nov. 14th, 1918; A. C. P. Stephenson, Nov. 20th, 1918; J. C. L. Mercer, Nov. 21st, 1918; J. Balfour, W. Hurst-Barnes, Nov. 25th, 1918; L. J. Mars, Dec. 11th, 1918.

Lt. A. J. Bird to be Lt. from (K.B.) Sept. 30th, 1918.

Lts (O.) to be Lts. :—J. R. Orrell, Nov. 20th, 1918; C. B. Millett, Nov. 21st, 1918; N. Smith, Nov. 27th, 1918; I. A. Laing, Jan. 6th.

B. Booth (Lt and Qrmr., Gen. List) is granted a temp. commn. as Lt., Nov. 12th, 1918 (substituted for notification in the "Gazette," Nov. 26th, 1918).

Sec. Lts. to be Sec. Lts. from (A.) :—R. B. Wightman, Aug. 22nd, 1918; R A. Boxhall, Oct. 11th, 1918; J. C. Fairfax, Oct 26th, 1918; (Hon. Lt.) C. R. Grace, Nov. 18th, 1918; S C. Lambert, F. C. Logan, Nov. 19th, 1918 A. J. P Evans, Nov. 20th, 1918, W. Druce, Nov. 22nd, 1918; R. C. Harley, Nov. 28th, 1918; C. Brown, Dec. 10th, 1918; S. E. Arridge, Dec. 11th, 1918.

Sec. Lts. to be Sec. Lts, from (O.) :—J. Potter, Oct. 31st, 1918; G. A. R. Gregory, Nov 19th, 1918; R. S. Sothcott, Dec. 3rd, 1918.

The following are transfd. to unempld. list :—Sec. Lt J. Sharpe, Jan. 8th; Sec. Lt. A. S. G. Baker, Lt. M. F. T. Cleaver, M.C. (R.F.A., Spec. Res.), Sec. Lt. H. Owen, Sec. Lt. G. W. Richardson, Jan. 9th; Lt. B. J. A. Claudet, Sec. Lt. P. Fearnley, Sec Lt. J. P Foxwell, Sec. Lt. F. E. Gauntlett, Lt. W. J. T. Mardon (Glouc. R.); Capt. R. C. Wansbrough, Capt. G. L. Watson (West York. R.), Jan. 10th; Sec. Lt. W. Cox, Sec. Lt. J. Joy, Jan. 11th. Capt. L. M. S. N. Conolly, Lt. (actg. Capt.) P. J. Curd, Lt. Lord G. H. Foley, Sec. Lt. G. J. Mordaunt, Sec Lt. H. V. Porter, Capt. A. E. Taylor, Jan. 12th; Sec. Lt. H. C. O. Jackson, Sec. Lt. H. T. Stansmore, Sec Lt. S. Stevens, Sec. Lt. T. E. Taylor, Jan 13th; Sec. Lt. D. J. Ford, Lt. (actg. Capt.) G. H. Paulin, Jan 14th; Sec. Lt. E. E. Armitage, Capt. G. M. Butler, Lt. J. A S. Marshall, Capt. (actg. Maj.) J. E L. Wrench, Jan. 15th; Capt. (actg. Maj.) E. S. Cripps, Sec. Lt. C. A. Wilmot, Jan. 16th; Capt. E Philbrick (temp Capt., New Armies), Jan. 21st.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Capt. J A. Hutchison relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 25th.

Lt. M. R. Jaques (Lt., Staff R.), relinquishes his commn. on account of ill health, Jan. 25th.

Sec. Lts. relinquish their commns on account of ill-health :—W. Ferrier, J. D. Smart (Midd'x R.), contracted on active service, Jan. 25th

The notification in the "Gazette" of Aug. 20th, 1918, concerning Lt. S. F. Culver is cancelled.

TECHNICAL BRANCH.—Maj. (actg. Lt.-Col.) G. P. Grenfell, D.S.O., retains the actg. rank of Lt.-Col. while empld. as Lt.-Col. (Grade A), from (S.O.), Dec 12th, 1918.

Capt. (actg. Maj.) W. W. Tullis retains the actg rank of Maj. while empld. as Maj. (Grade A), from (S.O.), Aug. 4th, 1918.

Capts. to be actg. Majs. while empld. as Majs. :—C. R. Fleming Williams (Grade A), July 11th, 1918; H G Ford, from (Ad.), Sept. 14th, 1918.

To be actg. Capts. while empld. as Capts. (Grade A) :—Lt. F. H. M. Macintyre, from (A'shp.), Oct. 7th, 1918; Sec. Lt. R. Gowing, Oct. 10th, 1918.

Sec. Lts. to be actg. Capts. while empld. as Capts. (Grade B) :—(Hon. Lt.) (actg. Lt.) H. M. Ayres, June 1st, 1918, to Aug. 25th, 1918; Actg. Lt.) S. N. Cooke, from (Ad.), J. E. J. Crawford, J. V. Martyn, Sept. 14th, 1918.

Sec. Lt. (Hon. Lt.) F. Avison to be actg. Capt. (Grade B) (with pay and allowances of Lt.) while empld. as Capt., from (Ad.), Sept. 19th, 1918

Lts. to be Lts. (Grade A) :—J. M Musson, from (O.), July 11th, 1918; R. A. Fearnley, from (A.), Oct. 25th, 1918; P. H. Hunter, from (O.), Dec. 13th, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. (Grade A) :—J. de la M. C. Rowley, Aug. 20th, 1918; P. A. B. Dyke, Oct. 10th, 1918.

Sec. Lts. (Hon. Lts.) to be actg. Lts. while empld. as Lts. (Grade B) :—H. M. Ayres, April 1st, 1918, to May 31, 1918; J. E. Spickernell, Sept. 14th, 1918.

Sec. Lt. H. A. Castaldini to be actg. Lt. while empld. as Lt., from (O.), Dec. 11th, 1918.

Sec. Lt. L. Barwell to be Lt. (without pay and allowances of that rank), Jan. 16th.

Sec. Lts. (Ad.) to be Sec. Lts. (Grade A.) :—F. G. Corbett, G. W. Hengh, Jan. 11th.

Sec. Lt. H. A. Fawkes (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Grade A), April 1st, 1918 (substd. for notification in "Gazette," of Nov. 22nd, 1918.

Sec. Lts. to be Sec. Lts. (Grade B), from (Ad.) :—A. E. Ainsworth, Nov. 29th, 1918; R. C. Handley-Ensor, Dec. 25th, 1918.

Sec Lt. F. G. Willis to be Sec. Lt. (Grade B), from (O.), Nov. 10th, 1918.

Sec. Lt. E. H. Hughes to be Sec. Lt. (Grade B), from (T.), Nov. 28th, 1918.

P. W. Bowman is granted a temp. commn. as Sec. Lt. (Grade B), July 8th, 1918.

Maj. W. H. Barff, D.S.O. (Cheshire R.), relinquishes his commn. on ceasing to be empld., Jan. 18th.

The following are transfd. to unempld. list :—Lt. C. R. Fry, Jan. 8th; Sec. Lt. J. B. Daniels, Sec. Lt. W L. Vining, Jan. 9th; Lt. H. E. Hall (Lt., Manch. R.), Sec. Lt. J N. Hill, Lt. R. B. Hutchings, Capt. W. A. Ross, Lt F., Surgey, Jan 10th; Lt. J. R. Cox, Capt. E. P. Currall, Sec. Lt. A. Morison, Sec. Lt. H. W. Richardson, Sec. Lt. A. B. Starke, Capt. E. L. Taylor, Jan. 11th; Lt. G. J. Briggs, Jan. 12th; Sec. Lt. (actg. Lt.) E F. Cameron, Sec. Lt. (Hon. Lt.) V. J. Copestake, M.C., Lt. E. A. Molyneaux, Lt G. H. Warneken, Jan. 13th; Sec. Lt. E. P. Bennett, Sec. Lt. T. W. Esland, Lt. R. A. Redfern, Sec. Lt. H. J. Weston, Sec. Lt. H. Wilkes, Jan. 14th; Sec. Lt. E. B. Addison, Capt. C. Birch, Sec. Lt. (actg. Lt.) S. F Boam, Sec. Lt. N. Feather, Jan. 15th; Sec. Lt. F. T. Holmes, Jan. 16th.

Lt.-Col. S. D. A. Grey relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 25th

Capt. R. H. Grant relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Jan. 25th.

Lt. (actg Capt.) E. A. B. Carter (Midd'x R., T.F.) relinquishes his commn. on account of ill-health contracted on active service, Jan. 25th.

Sec. Lts relinquish their commns. on account of ill-health, and are permitted to retain their rank :—F. V. Cheshire, P. P. Nicholl, Jan. 25th.

The name of William Ernest Sced is as now described, and not William Seed, as in "Gazette," June 7th, 1918, and Oct. 1st, 1918.

The notification in "Gazette," May 17th, 1918, concerning Sec. Lt. G. M. Bell is cancelled.

MEDICAL BRANCH (ADMINISTRATIVE).—H. W. Boot is granted a temp. commn as Sec. Lt., Nov. 1st, 1918.

MEMORANDA.—R. Loraine, D.S.O., M.C. (late Maj., R.A.F.), is granted the rank of Lt.-Col., Dec. 11th, 1918.

Capt. L. S. Benson (R. W. Surr. R.) is transfd. to unempld. list, from (S.O.), Jan. 15th.

ADMIRALTY APPOINTMENTS.

The following appointments have been made :—

JAN. 24th.—R.N.R.—Lt. (Temp.) S. N. Capon, to "Argus," Jan. 23rd.

JAN. 27th.—Surgeon Lt. (Temp.) J. F. Ainley, to "Engadine," Jan. 22nd.

THE CASUALTY LIST.

MILITARY.

Reported Jan. 22nd.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England :—

Hammersley, Sec Lt. F. J. B., Middx. R., attd. R.F.C.; Saward, Lt. N. C., R.F.A., attd. R.F.C.; Thompson, Sec. Lt. S. F., Suff. R., attd. R.F.C.; Winterbotham, Capt. F. W., Yeo., attd. R.F.C.

Reported Jan. 23rd.

AUSTRALIAN FORCE.—PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Brown, Sec. Lt. R. S., F.C.

Davis, Lt. W. R. B., F.C.

Tonks, Sec. Lt. H. A. C., F.C

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England :—

Bevington, Lt. R. J., R.F.A., attd. R.F.C., Littlewood, Lt. S. C. T., L. N. Lan R., attd. R.F.C.; Millar, Sec. Lt. T. S., R. Scots, attd. R.F.C.; Stevenson Lt. J. G., R.F.C.; Stuart, Lt. C. E., R F C.; Taylor, Lt. S. H., R.F.C.; Tibbetts, Sec. Lt. J. L., R.F.C.; Tinney, Sec. Lt H. G., R.F.C.; Turvey, Lt. A. E., R.F.C.; Waring, Lt. H. E. A., R.F.C.; Watts, Lt. W. E., R.F.C.; Whitney, Lt. R. T., R.F.C.; Wischer, Lt. J. V., R.F.C.; Woolley, Lt. D. B., R.F.C.

Reported Jan. 25th.

AUSTRALIAN FORCE.—PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Hewson, Sec. Lt. T., A.F.C

The following officers, who were prisoners in Germany, have been released, and have arrived in England.

Bowring, Lt. J. V., R.F.C.; Craig, Lt. F. C., R.F.C.; Hudson, Capt. F. N., M.C., Buffs (E. Kent R.), attd. R. F. C.; Humphreys, Capt. G. N., R.F.C.; Kirby, Lt. H., R.F.C.; McEwan, Capt J. H. F., Cam. Highrs., attd. R.F.C.; Peile, Sec. Lt. A. H., R.F.C.; Warburton, Lt. E. D., R.F.C.; Wedgwood, Lt. F. C. B., R.F.C.

CANADIAN FORCES.—Bean, Lt. C. A. S., B.C. R., attd. R.A.F.; Chambers, Lt. W D., Can. A.S.C., attd. R.A.F.; Lee, Lt. A. C., Cent. Ont. R., attd R.A.F.

The following officer, who was a prisoner in Austria, has been released, and has arrived in England :—

Robertson, Lt. J. A M., R.F.C.

Reported Jan. 27th.

The following officer, who was a prisoner of war in Germany, has been released, and has arrived in England :—

Walrond-Skinner, Capt. D. D., Mon. R., attd. R.F.C.

CASUALTIES AND REPATRIATIONS AMONG WT.Os., N.C.Os., AND MEN. THE DATES ARE THOSE OF THE OFFICIAL LIST.

The following soldiers, who were prisoners of war in Germany, have been released, and have arrived in England :—

JAN. 14th.—R F.C.—Leach 87657 1st Cl. Air Mech. G. (Hyde); Walker 6757 Serjt T. (Barwick-in-Elmet).

JAN. 15th.—R.F.C.—Bennister 78530 2nd Cl. Air Mech. E. (Fredericton); Evans 3819 Serjt. F. E. (Old Denaby).

JAN. 16th.—R F.C.—Butler 7216 Serjt. C. J (Mersham); Legge 25233 Serjt. F (Hale); Robb 22045 2nd Cl. Air Mech. D. (Holytown); Lloyd 78758 2nd Cl. Air Mech. C. (Swansea).

JAN. 17th.—R.F.C.—Bain 107299 1st Cl. Air Mech. L. J. W. (Brixton, S.W.); Bassenger 23052 Cpl. H. G. (Plaistow, E.); Clear 7124 Serjt A. L. (Bowes Park, N.); Dunn 7502 Serjt. W. H. (Walthamstow, E.); Harris 87534 2nd Cl. Air Mech. W. (Ironville); Hollis 2479 Cpl. J. K. (Ilfracombe); Lewis 78492 Serjt. G (Birmingham); Wait 78419 Serjt. T. E. (Cwmbran).

JAN. 18th.—R.F.C.—Mole 5077 1st Cl. Air Mech. J. L. (Liscard); Quinn 50506 2nd Cl. Air Mech. T. L. (Mountrath).

AUSTRALIAN IMPERIAL FORCE.

PREVIOUSLY REPORTED PRISONER OF WAR, NOW REPORTED DIED AS A PRISONER OF WAR IN TURKISH HANDS.

JAN. 15th.—F.C.—Curran 45 D.

DIED.

JAN. 15th.—F.C.—Stephens 2263 F. G.

AIR FORCE.

Reported Jan. 23rd.

CADETS KILLED.—Davies, H. J.
Lindsay, R
McWhinnie, D.
Scarratt, J. A.
Thompson, C.

REPATRIATED.—Bloomfield, Capt. W S R.; Boldison, Lt. A.; Bronskill, Lt. F. H.; Bushe, Lt. J. F.; Chambers, Lt. W. D.; Chapman, Lt. J.; Costello, Capt. W. H.; Daniell, Lt. J. B.; Desbarats, Lt. E. W.; Dronsfield, Lt. S. W.; Du Cray, Lt. M. J.; Farquharson, Lt. F. B.; Fereman, Lt. A. E.; Foster, Lt. E.; Hamilton, Sec. Lt. H. D.; Harper, Lt. S. A., M.C.; Hills, Sec. Lt. O M.; Hume, Sec. Lt. R. C.; Joubert de la Ferté, Lt. J. C.; Littlewood, Lt. S. C. T.; Logan, Capt. R. A.; Lord, Lt. T. V.; McLaurin, Lt. D.; MacLennan, Lt. J. E.; March, Lt. C. H.; Matthews, Lt. F.; Morris, Lt. V. C.; Pickett, Lt. A. C.; Raymond, Lt. A. B.; Roche, Lt. S.; Russell, Lt. W. O.; Savory, Lt. A. J.; Scrivener, Sec. Lt. H. A.

Reported Jan. 24th.

REPATRIATED.—Baerlein, Sec. Lt. A. A.; Baynton, Lt. G. R.; Davies, Sec. Lt. J. E.; Ferrand, Maj. J. B. P.; Griffith, Sec. Lt. J. C.; Haughton, Lt. E. P. O.; Kirby, Sec. Lt. H.; Lazarus-Barlow, Capt. A. J.; McPherson, Lt. B.; Seymour, Lt. L., Sharpe, Capt. T. S., Shipwright, Lt. A. T.; Steele, Lt. W.; Waring, Sec. Lt. H. E. A.; Watt, Lt. H.; Watts, Sec. Lt. W. E.; Whitney, Lt. R. T.; Winterbotham, Capt. F. W.; Wischer, Lt. J. V.; Woolley, Lt. D. B.; Wyman, Sec. Lt. J. B. H.; Young, Capt. J. G

Reported Jan. 25th.

KILLED.—Bruce, Lt. J. A.
Marks, Sec. Lt. C.

DIED OF INJURIES.—Hillock, Sec. Lt. C. A.
Vincent, Lt. F. C

DIED.—Barnato, Capt J. H. W.
Nixon, Lt. S.
Wakeford, Sec. Lt W. S.

REPATRIATED.—Allabarton, Lt. S. F.; Barlow, Lt. A. N.; Bean, Lt. C. A. S.; Chadwick, Capt. G.; Cornwell, Sec. Lt. F.; Croft, Lt. J. C.; Denison, Lt. E. B.; Dougall, Lt. C. R.; Gillespie, Lt. J. W.; Hall, Lt. N. D.; Hammersley, Lt. F. J. B.; Henderson, Sec. Lt. J. F.; Hill, Lt. R. F.; Hine, Lt. J. B.; Holmes, Lt. J. D. V.; Humble, Sec. Lt. T.; Johns, Lt. R. A. P.; Johnstone, Lt. J.; Leighton, Capt. R. T.; Lloyd, Lt. E. A.; McMichael, Lt. G. B.; Marchand, Sec. Lt. E. F.; Mare-Montembault, Lt. M. J. J. G., M.C.; Matthewson, Lt. R. W. B.; Maxted, Lt. O. D.; Millar, Sec. Lt. T. S.; Moore, Lt. M.

Reported Jan. 27th

KILLED.—Gilpin, Sec. Lt. R. R.
Graham, Lt. W. E.

DIED OF INJURIES.—Elliott, Sec. Lt. A. E.

DIED.—Gotch, Lt. G. W.
Mower, Sec. Lt. J. B.
Terry, Lt. H.

REPATRIATED.—Nash, Lt. F. M.; Newcomb, Lt. M.; Nobbs, Lt. C. H. F.; Orr-Ewing, Lt. A. I.; Parker, Lt. J. K.; Partington, Lt. O. J.; Peacock, Sec. Lt. M. A.; Perry, Sec. Lt. B. B.; Richards, Sec. Lt. C. R., M.C.; Richardson, Lt. R H.; Rose, Lt. G. A.; Samuel, Lt. J. R.; Saward, Lt. N. C.; Sharp, Capt. C. C.; Sharpe, Lt. S. A.; Sharpe, Capt. F.; Simon, Lt. G. P.; Slater, Capt. R. K.; Smith, Lt. G. M.; Stead, Lt. G. C.; Stevenson, Lt. J. G.; Stuart, Lt. C. E.; Taylor, Lt. S. H.; Thompson, Lt. S. F.; Tinney, Sec. Lt. H. G.; Turvey, Sec. Lt. A. E.; Vereker, Capt. H. C.

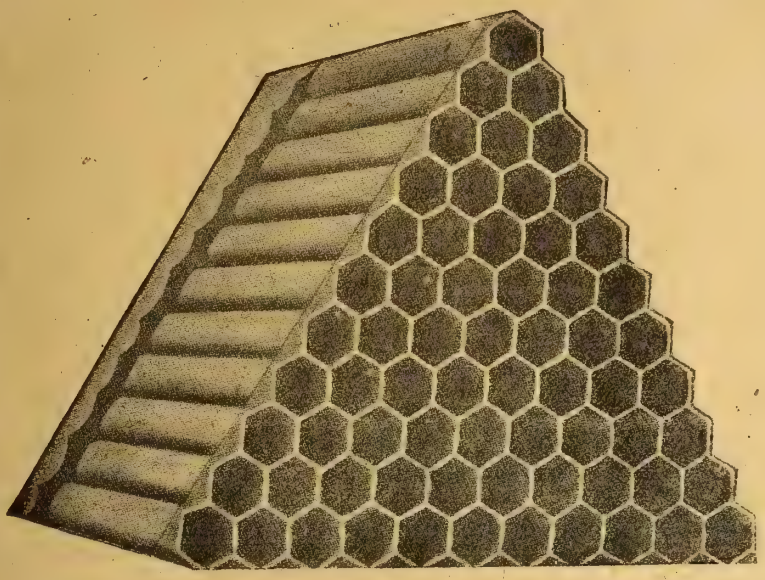
Reported Jan. 28th.

REPATRIATED.—Chisholm, Capt. J. F.; Cooke, Sec. Lt. E. A.; Dunlop, Sec. Lt. G. B.; Eaton, Lt. C.; Fielding-Clarke, Lt. A.; French, Lt. E. C.; French, Lt G. S.; Gerson, Lt. L. M.; Hall, Lt. R.; Harrison, Lt. A H.; Hawkins, Capt. R. H.; Heaver, Sec. Lt. A. R.; Hillyard, Lt. V. W H.; Hudson, Lt. F. H.; Kidd, Lt. A. L.; Leach, Lt. J. M.; McDonald, Lt. A.; MacLennan, Lt. J C.; Manzer, Capt. R., D.F.C.; Murton, Capt. H. S.; Raymond-Barker, Lt. A. B.; Rockey, Capt. J. S. N.; Salter, Lt. H. P.; Saunders, Lt. J. W.; Shaw, Lt. G. M.; Shead, Sec. Lt. M. W.; Southorn, Capt. T. M.; Stephenson, Sec. Lt. G. H.; Stephenson, Lt. W. S., M.C., D.F.C.; Suneeve, Lt. F. D.; Thompson, Lt. F G.; Thomson, Lt. J. W.

Reported Jan. 29th.

REPATRIATED.—Brown, Lt. V. R.; Butterworth, Capt. C. H. S.; Clark,

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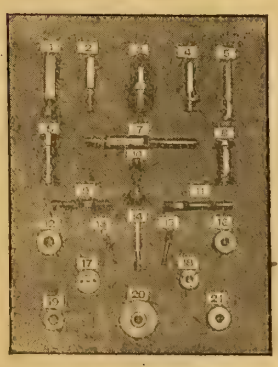
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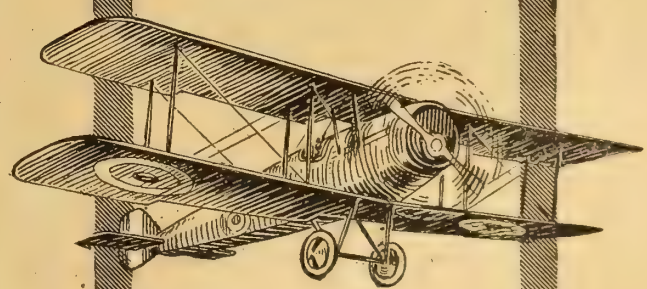
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CASUALTIES AMONG AIRMEN. THE DATES ARE THOSE OF THE OFFICIAL LIST.

KILLED.

JAN 23rd.—Bartlam 190013 Pte. W P. (Errington, Birmingham); Cosier 119039 2nd Pte W. (Birmingham); Richmond 5360 Ch.-Mech. A. (Wolverhampton); Shufflebotham 241893 Serjt F. W. (Stafford).

DIED OF INJURIES.

JAN. 23rd.—Morton 50176 3rd Air Mech. W. (Nottingham); Simmonite 37226 1st Air Mech. F. (Oldham).

DIED.

JAN. 23rd.—Adams 405998 1st Air Mech. F. (Basingstoke); Bruce 141242 3rd Air Mech. W. (Barton); Davis 215108 3rd Air Mech. J. A (Blackheath, S.E.); Ferguson 40313 Actg. Cpl. Mech. G. A. (Bradford); Macpherson 207611 Cpl. Mech. J. M. (Stirling); Penney 248956 2nd Pte. J. R. J. (Plymouth); Pinner 220757 3rd Air Mech H. A (South Wanstead); Prince 253367 3rd Air Mech. J. A. (Tooting); Stevens 132655 2nd Pte. W. T. (Longwood); Watkins 147323 3rd Air Mech W. J. (Gosport); Wiseman 25689 1st Pte F. R. (Norwich).

REPATRIATED.

JAN. 23rd.—Bancroft 19130 Serjt. Mech J. W (Carrington); Beetham 86056 Serjt Mech O. D. (Leeds); Brooks 200449 1st Air Mech. H. (Water-Orton); Bury 10018 1st Pte. T. H. (Streatham); Grant 46448 1st Pte. O. W. A. (Hythe); Harper R.N./341641 P.O R (Royton); Hartley 220217 1st Pte J. F. (Weaste); Humble 21972 Serjt Mech. G. (Newcastle-on-Tyne); Johncock 206632 Cpl. Mech. F. D. (Walton-on-the-Hill); McDonald 140801 Serjt Mech. E. R. (Ontario, Canada); McKay 9178 1st Air Mech. W. (Hazel Grove); Piper 470 Serjt. Mech. N V. (Fowey), Silvester P/21840 Class B. Cadet C. S (Bury St. Edmunds); Thompson 100105 Serjt. Mech. F. G (Liverpool); Townsend J/17056 P.O. A. C. (Holloway, N.); Twite 213270 Serjt. Mech. W. J. L. (London, W.).

PERSONAL NOTICES.

MILITARY.

DEATHS.

BIRCH.—Lt. Edward Cecil Birch, R.A.F., died on Jan. 26th at his home, after a long and painful illness contracted on active service. He was 22 years of age and was the younger son of Mrs. Birch, of "Chiltern," 4, Ellerton Road, Surbiton, and the late Lt.-Col. G. F. Birch, J.P., D.L., of Clare Park, Farnham. He was educated at Belvedere School, Brighton, and Cranleigh School. In December, 1915, he joined the Inns of Court O.T.C., and in November, 1916, was gazetted to the Queen's (Royal West Surrey Regt.), proceeding to the front in January, 1917. In May he transferred to the Royal Flying Corps and came home to England. He returned, as an observer, in July, and joined No. 48 Squadron, with which he served until finally invalided home in January, 1918.

CLARKE-MORRIS.—Lt. John Clarke-Morris, West Riding Regt. and R.A.F., who was accidentally killed while flying in France on Jan. 13th, was the youngest son of the late Dr. Clarke-Morris and Mrs. Clarke-Morris, of 67c, Shooters Hill Road, Blackheath, S.E. He was 19 years of age.

YORKE.—Lt. Frederick Yorke, R.A.F., who was accidentally killed on Jan. 13th while flying on the East Coast, aged 24, was the youngest son of the Rev. H. Lefroy and Mrs. Yorke, of Prenton, Birkenhead. Educated at Epworth College, Rhyl, Merchant Taylors' School, Crosby, and King's College, Cambridge, he enlisted as a trooper in the Cheshire Yeomanry at the outbreak of war, and in March, 1915, obtained a commission in 1/6th Cheshire Regt. In the following July he went to France, and in May, 1916, was wounded at Givenchy. Some months later he returned to France and joined the Royal Flying Corps. After six months he was wounded again while flying over the German lines. Since his second wound he has been engaged in coastal patrol work.

ENGAGEMENTS.

ATKINSON—HILLER.—The engagement is announced of Capt. Rupert Atkinson, M.C., D.F.C., R.A.F., elder son of the late Brenan Atkinson, of Shanghai, and of Mrs. Atkinson, Berkhamsted, Herts, and Margaret Winifred, only daughter of Mr. and Mrs. H. King Hiller, Kingstackley, Sutton, Surrey.

GORDON—GLENDENNING.—The engagement is announced of Capt. James A. Gordon, M.B., Ch.B., R.A.F., Witney, son of Mrs. M. Gordon and the late James Gordon, of Buckie, Scotland, and Phyllis Mary Glendenning, daughter of Mrs. Gerald Lahee, of St. Margarets, South Croydon, and the late W. G. Glendenning, Newcastle-on-Tyne.

MARRIAGES.

BARNES—MOFFAT.—On Jan. 21st. at St. James' Presbyterian Church, Wood Green, Lt. William J. Gordon Barnes. R.S.F. and R.A.F., eldest son of Major Barnes, R.A., V.C., was married to Margaret Marshall, eldest daughter of G. R. Moffat, Esq., "Gowanlea," Bowes Park, London, by the Rev. D. F. McKenzie, M.A., B.D., Harley College, Bow.

BURTON—MARCKX.—On Jan. 20th, at St. Swithin's Church, Bournemouth, Lt. Eric Burton, R.E. and R.A.F., only son of the late Mr. W. M. Burton, of Chester, and Mrs. Burton, 12, Lauderdale Mansions, London, was married to Vera Cressy, only daughter of Mr. and Mrs. L. E. Marckx, Woodthorpe, Bowdon, Cheshire, by the Rev. M. R. Bailey, M.A.

KNATCHBULL-HUGESSEN—BROWNE.—The marriage of Major the Hon. Michael Knatchbull-Hugessen, M.C., Royal Artillery and R.A.F., and Lady Doreen Browne, took place on Jan. 22nd at St. Peter's, Eaton Square. The bridegroom is the only son of Lord Brabourne, and the bride is the youngest daughter of the Marquess of Sligo.

The service was conducted by the Rev. G. H. Aitken, rector of Lambeth, and formerly rector of Haslemere, assisted by Canon Edgar Sheppard, sub-dean of the Chapels Royal. Lord Sligo gave away his daughter.

BIRTH.

ORTON.—On Jan. 22nd, at 6, Alexandra Mansions, Chelsea, S.W.3, to Eveline (nee Simcox), wife of Major John Overton Cone Orton, M.C., 2nd Norfolk and R.A.F.—a daughter.

* * *

Lt. W. P. Garnett, 3rd Royal Berks Regt., attd. R.F.C. (flying Nieuport Scout), officially reported missing on March 30th, 1917, and later unofficially reported shot down and killed near Douai on that date. Any information as to death and site of grave will be gratefully received by William Garnett, Backwell Hill House, West Town, near Bristol.

AIR FORCE.

ENGAGEMENTS.

BIRKS—JOHNSON.—The marriage of Lt. N. A. Birks, R.A.F., and Miss Elizabeth Johnson will take place very quietly at Holy Trinity, Brompton, at 11.30 on Saturday, Feb. 1st. All friends will be welcome at the church.

HODSOLL—TOMLIN.—The engagement is announced of Major E. J. Hodsoll, R.A.F., only child of the late Capt. John Hodsoll, R.N.R., and Mrs. Hodsoll, and Winifred Joyce, second daughter of Lt.-Col. and Mrs. Morton Tomlin, Shawford, near Winchester.

MARRIAGES.

FETHERSTON—RANDOLPH BROWN.—On Jan. 15th, at the Presbyterian Church, Liverpool, Lt. R. J. Fetherston, R.A.F., eldest son of Mr. and Mrs. James Mayfield Fetherston, of "Sandhurst," Hutton, Essex, was married to Phyllis, daughter of Mrs. Randolph Brown, of Liverpool.

JAMES—EVANS.—On Jan. 21st, at All Souls, Langham Place, W., Capt. Joshua Walter James, R.A.F., eldest son of Mr. and Mrs. Joshua Walter James, of "North Bank," Totteridge, Herts, was married to Violet Ellen Frances Evans, eldest daughter of Mr. and Mrs. Stanley Evans, of "Beaufront," Oakleigh Park, Whetstone.

WOODS—BOWEN.—On Jan. 20th, at Romsey Abbey, Lt. E. A. Woods, R.A.F., eldest son of the late Mr. E. O. Woods, of Brighton, and Mrs. Woods, of Romsey, was married to Kathleen Constance, youngest daughter of Richard Bowen, Esq., J.P. (Mayor of Romsey), and Mrs. Bowen, by the Rev. J. Gilhibrand, rector of Nursling.

WRIGHT—MIELL.—On Jan. 15th, at the Parish Church, Trotton, Sussex, Capt. Frederick Clive Avery Wright, R.A.F., eldest son of the late J. F. Wright and of Mrs. Wright, Frimley Hall, Camberley, Surrey, was married to Dorothy, second daughter of Mr. and Mrs. T. Miell, Redhorn, Hill Lane, Southampton, by the Rev. P. H. Bown, M.A., rector.

BIRTHS.

ABERCROMBY.—On Jan. 20th, at The Homestead, Shrewsbury, the wife of Major Keith Abercromby, R.A.F., of a daughter

GOODFELLOW.—On Jan. 19th, at Homemead, Northam, to Christine Mary (nee Boston), wife of Capt. Alan Goodfellow, R.A.F., a son.

HAWKSLEY.—On Jan. 21st, at the nursing home, 1, Regent Street, Coventry, to the wife of Lt. Gerald E. Hawksley, R.A.F.—a son.

LONG.—On Jan. 20th, at Wilton, Hindhead, Surrey, the wife of Capt. Philip J. Long, R.A.F., a son.

OSMOND.—On Jan. 20th, at 25, St. John's Park, Blackheath, S.E., to Doris, wife of Lt.-Col. E. Osmond, R.A.F.—a daughter.

RANDOLPH.—On Jan. 14th, at Church Street Nursing Home, Bath, Elizabeth Katharine, wife of Lt. G. A. Randolph, R.A.F., of a son.

* * *

Lt. S. C. Welinkar, R.A.F., was reported missing and was subsequently reported to have died on June 30th, 1918, in a German field hospital at Rouvroy. Will anyone with any information as to the above kindly communicate with Blosse R. Armstrong, Solicitor, Bank Chambers, Forest Hill, S.E.23?

* * *

Lt. John Edwin Pugh, of the 210th Squadron, R.A.F., was reported missing on Nov. 10th, he was last seen flying Sopwith Camel F.8509 at Bois de Waulin, south of Binche (south-east of Mons), flying east. Any information will be gratefully received by John V. Pugh, Allesley, Coventry.

* * *

Lt. C. J. Mason, of the 54th Squadron, R.A.F., has been missing since April 21st, 1918. Will anyone who last saw him, in fighting formation, it is believed, near Ypres and Merville, give the slightest clue as to his fate? Mrs. Mason, Wimbledon Common, Surrey.

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GENERAL MILNE'S DISPATCH.

In a dispatch dated Dec. 1st, 1918, addressed to the Secretary of State for War, and dealing with operations in Salonika between Oct. 1st, 1917, and Dec. 1st, 1918, General Sir George F. Milne, K.C.B., D.S.O., G.O.C. in C. British Salonika Force, the following references are made to the Royal Air Force.

During the winter of 1917-1918 quiet conditions prevailed on all sectors of the front, and there was no activity until March, 1918. "In the early days of this month there came a blizzard of extraordinary severity and deep snow, which hampered all movements both by land and in the air. But towards the end of the month fairer weather resulted in a marked increase in aerial activity. Almost every day the Royal Air Force raided the enemy's country, bombed his camps, dumps, and railway stations, and attacked his troops with machine-gun fire from low altitudes. In the fighting that these raids entailed our aviators more than held their own."

The general advance by the Allied troops began in Sept., 1918. On Sept. 21st: "By noon it was plain that a hurried retirement on the Doiran front had begun. . . . . The observers of the Royal Air Force reported that the Kosturino Pass on the Strumica road, the only good line of retreat open to the enemy, was blocked by masses of men and transport moving northwards. The pilots of the Royal Air Force, flying low, took full advantage of this opportunity. They bombed the Bulgar columns and shot down men and animals with their machine-guns, causing heavy casualties, and a confusion which bordered on panic."

By the end of September the Bulgarian troops were in full retreat, and "It was at this time that the Royal Air Force found the Kresna Pass choked by the retreating enemy, whose Struma army was now in danger. Again our pilots, as subsequent reports showed, did enormous execution."

Towards the end of the dispatch General Milne makes the following reference to the services rendered by the R.A.F. :—

"I must again direct attention to the excellent work of the Royal Air Force. Throughout the whole year their duties of reconnaissance, artillery co-operation, photography and bombing the hostile depots have been continuously carried out. Once adequately provided with up-to-date aeroplanes, our pilots rapidly gained command of the air, and have succeeded in accounting for eight hostile machines for every one of our own missing. The present state of efficiency is largely due to the administrative energy of the late commander, Lieut.-Col. G. W. Dawes, D.S.O., while his successor, Lieut.-Col. G. E. Todd, has not only maintained the high standard of efficiency, but has handled his squadrons with marked ability during the late operations."

THE FUNERAL OF SIR BRYAN LEIGHTON.

The funeral of Sir Bryan Leighton, Bart., took place at Loton on Jan. 24th. He was buried at the top of a hill in the centre of Loton Deer Park, overlooking Wattleboro' Castle. The grave was cut in the solid rock, and the body, in the service dress of a lieutenant-colonel, was taken there upon a dray drawn by four horses. The mourners followed on horseback.

THE PEACE CONFERENCE.

On Jan. 21st Major Astor, the Parliamentary Secretary of the Food Ministry, who was flying to Paris, narrowly escaped injuries through an accident at a Paris aerodrome. Lt. Hardy, R.A.F., the pilot, broke a leg.

Major-Gen. Sir F. H. Sykes, Chief of the Air Staff, proceeded to Paris by air on Jan. 23rd.

ADMIRALTY WIRELESS.

Developments in the use of wireless at sea have caused the Admiralty to form a Wireless Telegraphy Board with offices in Whitehall, under Capt. J. A. Slee, R.N. Col. L. F. Blandy, R.A.F., and Lt.-Col. C. P. Grenfell, R.A.F., represent the Royal Air Force on this Board.

THE BRITISH MEDITERRANEAN SQUADRON.

It is understood that it is the intention of the authorities concerned to revive the British Mediterranean Squadron, which is presumably to be based at Malta. A strong contingent of the Royal Air Force will be attached thereto, and, according to certain reports, preparations are being made at Malta to receive them.

THE ROYAL HUMANE SOCIETY'S MEDAL.

The following were among those who, on Jan. 22nd, received the medal of the Royal Humane Society for saving life at sea :—

Medal to Capt. H. A. Sanders, R.A.F., for his rescue of a boy from Lerwick Harbour on Oct. 2nd.

Medals to Capt. C. R. Morrish and Lts. M. O. Fairhurst and W. R. L. Jenkins, all of the R.A.F., for saving and attempting to save life on June 14th, when an American seaplane was forced to descend in a rough sea off the Scilly Isles.

THE NAVAL AND MILITARY TOURNAMENT.

It has been announced that the Royal Naval and Military Tournament will be held for the thirty-fifth time in London from Thursday, May 15th, to Saturday, May 31st. The Royal Air Force will take part therein, the name of the Tournament having been changed to the Royal Naval, Military, and Air Force Tournament.

GRATUITIES IN THE ROYAL AIR FORCE.

The following letter dealing with a genuine grievance affecting certain officers who have been transferred from the Army to the Royal Air Force is printed that attention may be drawn to an injustice which has probably arisen through inadvertence on the part of the department of the Air Ministry responsible for the scale of pay and gratuities issuable in the Royal Air Force :—

Sir,—I have noticed in your columns several letters dealing with officers' grievances, and I should like to point out one which, though possibly not at present widely realised, affects adversely a considerable number of temporary officers in the Royal Air Force.

When the R.F.C. was merged into the R.A.F. I was a temporary Captain in the Royal Engineers, attached R.F.C., for flying instruction. The Air Ministry issued pamphlets with regard to the transfer of officers to the R.A.F. stating that pay and gratuity due up to date of transfer would not be affected by such transfer, but that officers transferring would in most cases have to drop one rank. However, all temporary Captains on transfer to the R.A.F. in graduation as flying officers were gazetted as "Sec. Lt. (A.) and to be Hon. Captain." In my case my pay then changed from 13s. 6d. regimental pay plus 4s. corps pay as a captain in the Royal Engineers, to 10s. regimental pay plus 8s. flying pay in the Royal Air Force.

Now I am informed by Messrs. Cox and Co., my Army Agents, that upon demobilisation my gratuity for my total service will be reckoned at the rate of 10s. per day, whereas at the time of my transfer I was entitled to three years' gratuity at the rate of 13s. 6d. per day in the Royal Engineers. This difference of 3s. 6d. per day in gratuity is a very large item to a married officer on demobilisation, and it seems an instance, if Messrs. Cox and Co. are not misinformed, of great unfairness and indeed the breaking of a pledge made to temporary officers on transferring to the Royal Air Force. I should further point out that temporary officers of the Army were not allowed to be attached to the Royal Air Force, but only given the option of transferring to the R.A.F. and flying, or of going back to the Army and ceasing to fly.

I venture to hope, Sir, that you will ventilate this grievance in your journal, and if the Army Agents are in error, so much the better. If, however, they are correct, surely the matter should be put right.

AN OFFICER IN THE R.A.F.

THE ATLANTIC FLIGHT.

It is reported by Mr. Augustus Post, secretary of the Aero Club of America, that Capt. Benjamin B. Lipsner, Miss Katherine Stinson, and Lieut. Pat. O'Brian, late R.F.C., have, among others, signified their intention of competing for the "Daily Mail" prize for the first aviator to fly the Atlantic.

It is understood that the two French aviators, Navarre and Einrich, are negotiating with the Grahame-White Company with a view to navigating a Grahame-White aeroplane in an attempt to fly across the Atlantic.

PREPARATION FOR THE FUTURE.

It is announced that on Saturday, Jan. 18th, a Handley Page aeroplane, fitted with four 350 h.p. Rolls-Royce engines, flew from Belfast to Sheffield. The total weight on board was 12 tons, including a crew of seven, and half-a-ton of luggage. The time taken by the flight was 2 hours 35 minutes.

AN ITALIAN TEST.

It is reported that Serjt. Elia Lint has put a Marchetti-Vickers Terni biplane through its tests. The machine is alleged to have a speed of 260.8 kms. (162 miles) per hour at the height of 30 m. (96 ft.). The flights were made both with and against the wind. The motor was a 200 h.p. S.P.A. of the same type as that used by Signor D'Annunzio on his flight to Vienna.

R.A.F. MAP-MAKING.

According to the "Times" correspondent, since the Armistice has taken away the majority of the R.A.F.'s work, this Force has been employed in compiling a map of the territory occupied by the British in Germany. The squadrons in the rear are engaged in compiling maps of North-Western France and Belgium. It is stated that the aviators of the Allied Armies are co-operating in this work.

PRESENTATION AEROPLANES.

On Tuesday, Jan. 21st, the Air Ministry formally handed over to the Canadian Government three Imperial Air Fleet aeroplanes to replace three similar machines presented by the populations of Leicester, Glasgow, and Huddersfield, which were diverted to war purposes.

The ceremony took place at Hendon Aerodrome, and the High Commissioner for Canada (Sir George Perley) received the aeroplanes on behalf of the Canadian Government.

Each machine bears the name of one of the towns, and it was hoped by the Imperial Air Fleet Committee that they would serve as foundation units of an Air Fleet for Canada.

The ceremony was attended by many people interested in aviation.

Ad. Arbenz



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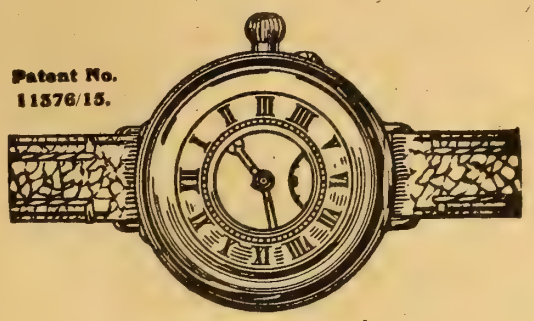
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FRENCH AERONAUTICAL NOTES.

As in England, there is little of note to record in the Aviation world here; all attention being reserved for the speedy developments that are expected to result from the appointment of Lieut.-Col. Leclerc to the newly created post of Organiser of Civil Aviation, and the manner in which he proposes to accomplish his work has already been explained at length in a special article.

On Saturday, the 18th inst., Messrs. Henri and Maurice Farman carried out their first official trials of an aerobus, specially constructed for the London-Paris service, at Toussus-le-Noble, near Versailles. It is further announced that the first trip will be made in the next few days, when a machine will leave Paris for London at 10 a.m., carrying 14 passengers.

This aeroplane was originally designed for bombing Berlin, and is fitted with two 270 h.p. engines. Fully loaded, an average speed of 80 m.p.h. on a non-stop run is expected. Hand-luggage of the suit-case class may be carried. Five of these aerobuses are in course of construction. The first, named the Goliath, will be piloted by M. Boussotrot.

The machine is quite enclosed with a cabin 1 m. 60 in height, and there will be a total absence of wind-pressure on the occupants.

Until more aeroplanes are put into commission the service will be made once a week, the return fare being £16. The journey will include two stops on the way, one at Lille and the other at Boulogne-sur-Mer, and the same landings will be made on the return journey.

These pioneer brothers also hope to start the Paris-Brussels route in the beginning of February. On this route at first a stop will be made at Lille.

The Caudron firm are also well to the fore in the construction of large commercial aeroplanes. Their first aeroplane of this class is known as C23, and is a magnificent affair, designed to carry 10 passengers and 400 lbs. of baggage, i.e., 40 lbs. per passenger. This machine is also twin-engined, the motors being of 250 h.p. each. It has a span of 28 metres and an over-all length of 16 metres. They had hoped to start their service on the 12th inst., but, at the last moment, the necessary authorisation had not been received.

These journeys must not be confounded with the Government postal service which has begun, or is about to begin, all over France.

The St. Nazaire-Paris has long been in operation, and there are several others. Also the Belgian War Ministry has officially notified that it is in communication with the French Government on the subject of an immediate postal service, Paris-Brussels.

There is further a novel project here, that of co-operation between the aeroplane and the trains—the idea being that aircraft are not yet in a sufficient state of perfection to permit mails to be carried by night—thus from dusk to dawn they would be sent by train, picked up at daylight and continue their journey *en l'air* until dusk again, being detained and entrained at prearranged places. This, no doubt, will be a new view on the subject as far as England is concerned.

Lieut. Louis Noel, who was just off for a further spell in the Balkans, seriously annoyed at the premature ending of the war, looked very fit, although considerably greyer. He tells me he hopes to fly an aeroplane from the United States to Europe in the near future. Whether he will fly one for his old firm I know not, but one knows that three are being built with this object.

People in England will be pleased to learn that one of the late Capt. Guynemer's machines is still preserved, suspended in the Cour d'Honneur of the Invalides, Paris, and is still laden with the floral tributes of his innumerable admirers. This is the Spad with which he destroyed 19 German machines. It is also interesting to note that many suburbs have named streets after this national hero.—F. T. N.

R.A.F. FOOTBALL.

In a football match for the first round of the Bulldog Club Cup the R.A.F. (Roehampton) team—the present holders of the cup—drew with a team composed of men from the Coldstream Guards, the concluding score being two goals each.

At Grove Park, on Jan. 22nd, a R.A.F. (Hounslow) team was beaten by a R.A.S.C. fifteen by 7 goals and 2 tries (41 points) to a try (3 points).

At Grove Park on Saturday, Jan. 25th, the R.A.S.C. team beat the R.A.F. (Salisbury) fifteen by one penalty goal and three tries (12 points) to nil.

A W.A.F. DANCE.

On Thursday, Feb. 6th, a dance will be held at Princes', Piccadilly, in aid of the Women's Auxiliary Force, an organisation which has done much useful work during the war. The Royal Air Force Band will be in attendance. Tickets, price £1 10s., double £2 10s., can be obtained from the headquarters of the Women's Auxiliary Force, 172, Buckingham Palace Road, S.W.1, or from Mrs. Parlier, 168a, New Bond Street, W.1. The function will start at 9 o'clock, and those interested in Service aviation are cordially invited.

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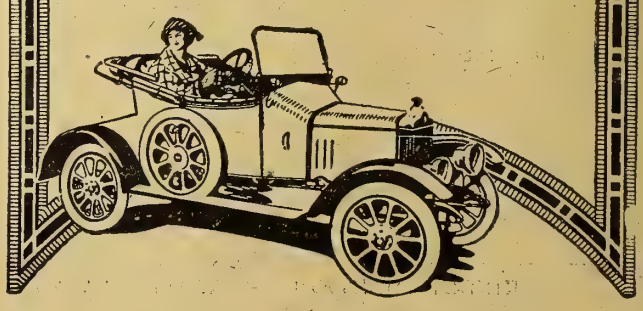
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ON LEGALISING FLYING.

"In view of the improbability of aerial transport being available upon any considerable scale for many years to come for the internal transport of passengers and goods, the Committee has made no inquiries in regard to it."

Those are the eminently sensible words of the recently published report of the Select Committee which was appointed to investigate the transport facilities of this country. That Select Committee knows its countrymen, and especially it knows its official countrymen. There is not, with any form of British Government, Coalition or Conservative, Labour or Bolshevik, any probability "of aerial transport being available upon any considerable scale for many years to come," that is, so far as officially assisted or subsidised passenger and goods lines are concerned.

There may be postal lines to the ends of the earth, which will exist on heavy subsidies, and one gives the pioneers of aviation who served their apprenticeships at Brooklands and Hendon to the gentle art of "hot-stuffing" credit for sufficient business acumen to enable them to persuade subsidies out of the Government Departments of the future.

On the strength of these subsidised postal lines there may be accommodation for passengers on the postal aircraft, and these trans-Continental lines may be quite reasonably popular among the idle rich who wish to travel the world at record speed, having become *blasé* with all other forms of excitement, or with the get-still-richer rich who will be pleased to risk their representatives' necks in the effort to become richer themselves by forestalling some competing business firm in a deal in Australia or China or South America.

But there will be nothing doing in these big postal lines for the many comparatively small firms who have done good work in building aeroplanes during the war.

Who Will Be in It?

Outside the three big financial combinations who were mentioned some two or three weeks ago—namely, Air Travel and Transport, Ltd. (Mr. Holt Thomas's affair), Handley Page, Ltd., and the British Aerial Transport Co., Ltd. (Mr. Sam Waring's happily-named firm, universally known as the Bat Co.)—there seems little prospect of competition for the really big business.

The Sopwith people have not declared their post-war policy, though an unofficial rumour from the inside of the firm is to the effect that they intend to devote attention to the manufacture of certain articles of domestic furniture which are in universal demand, and will impose considerable arduous work on the firm's chief tester. One assumes that the reference is to the common or scullery mangle. But one has always regarded the Sopwith firm as being singularly astute, and therefore one would not be surprised to see them come out among the great subsidised aerial transport lines.

Most aircraft firms seem content to wait and see what is going to happen, and hope in time to sell their machines to the big operating firms, who will run these air-lines, rather than to run air-lines themselves. Even such great firms as the Bristol Co., Vickers, Ltd., and Armstrong Whitworths have not yet declared their policy.

It is said that the Cunard Line are deeply interested in the bigger questions of aerial transport, and with their experience of Government subsidies they would naturally know the right way to set to work. Certain it is that both the Cunard firm and Harland and Wolff's of Belfast are intimately concerned with aircraft work, and it is a natural sequence that great sea-transport concerns should protect their future by taking an early interest in the obvious supplanter of sea-transport—for mails and passenger—air transport.

There probably are other firms which have great international schemes in hand, but one does not know of them—or, at any rate, one does not recognise any that can be taken seriously, despite the grandiloquent names of some limited companies recently registered. Therefore, the question is, What about flying at home, which is that form of flying to which the Select Committee refers as "internal transport of passengers and goods"?

The Waiting Passengers.

There are some hundreds of thousands of people in the United Kingdom and Ireland all of whom are anxious to fly at least once, merely to say that they have been in an aeroplane. Probably one would be well within the limit if one put the number at a couple of millions.

Some few, having flown once, will not want to fly again. Some few will be killed or permanently injured on their first trip and will not be able to fly again.

N.B.—This is not pessimism; it is merely the history of the railway train and the bicycle and the motor-car repeating itself.

The great majority, however, will want to fly again, some for pleasure, some for business purposes, and some out of sheer laziness because the quickest way of getting from place to place is the least boring. These are the passengers for the internal transport of the future.

And the unfortunate thing is that at the present moment it is as illegal for any one of those millions to go up into the air as it would be for him or her to buy a machine-gun and starting loosing it off down Piccadilly to see whether anybody would be silly enough to get in the way.

The Illegality of Flying.

Before it is much use talking about after-the-war flying we have got to educate a flying public, and before we can educate a flying public it must be made legal for us to fly.

Most people have forgotten by now, if they ever knew, that all flying by civilians at a greater distance than two miles from a recognised aerodrome was prohibited a few weeks after the outbreak of war.

Incidentally, one would like to know whether Mr. Handley Page obtained special permits a few weeks ago (a) to take up forty civilian passengers, and (b) to transport them over a prohibited area—to wit, the London district—for one is strongly under the impression that without such permits the flight was wholly illegal, despite any permanent permit issued personally to Mr. Clifford Prodger as an officially recognised test pilot.

Service pilots know, if they have not forgotten, that it is against regulations for them to take up civilian passengers, except under orders. And it is also against regulations for any pilot to take up any officer or man of the Navy, Army, or Air Force unless the said passenger is flying on duty under orders.

Therefore, before we can do anything at all in the way of developing flying at home the regulations mentioned must be withdrawn, and it must be made legal for manufacturing firms and other owners of aircraft to transport passengers across country.

In his lecture recently, General Sykes announced that the new regulations to govern civilian flying were already drawn up and that they would be submitted to Parliament as soon as it met, to come into operation as soon afterwards as possible. One gathers that these regulations are such as to interfere considerably with the development of civilian flying, except among specially privileged people. One has not heard that the opinions of the people who are most qualified to speak on the subject or of those who are most interested (financially or otherwise) have been asked by those who have been presumably engaged in drawing up the said regulations. Before these regulations are definitely set before Parliament, the representative civilians who are concerned with flying either as scientists, sportsmen, propagandists, or manufacturers should be consulted as to the likely effects of the proposed regulations. There are a good many such civilians who proved, before the war, that they had considerably more foresight than any of those who are to-day bedizened in Bolo Blue, and they would probably find the weak spots in regulations which look innocent, but which may be twisted by lawyers and politicians so as to endanger seriously the future of flying. Perhaps the governing bodies of the Royal Aeronautical Society, the Royal Aero Club, the Aerial League, and the Society of British Aircraft Constructors will conjointly make representations to this effect in the proper Government Departments.

Election Flying.

Apropos illegal flying, it has been said in the daily Press that certain Government henchmen have been using aeroplanes in connection with the General Election, and it is known that permission to use an aeroplane was refused to a private member of Parliament. If this be true, one would like to know on what authority they did so. Is it legal for any Government official, Cabinet Minister or otherwise, to use a Government vehicle for private purposes?

Anything concerned with the Election was purely a private affair. That is to say, it was concerned with keeping the official in question, or his friends, in jobs for which they are paid by the Nation.

If one were an A.S.C. driver, for example, would one be permitted to take out a W.D. lorry to transport voters to the poll in favour of a "Silver Badge" candidate? Or, if one were an R.A.F. pilot, would one be permitted, together with a few friends, to take out R.A.F. passenger machines to fetch out-voters, or single-seaters to drop leaflets, in support of any of the various R.A.F. candidates?

If not, then why is it legal for a Cabinet Minister or any other Government henchman to use one of the Nation's aeroplanes in order to facilitate his own personal transport, and thus to help the work of the election, and thus to secure the reappointment of himself and his friends?

If it be legal for the Government to use R.A.F. aeroplanes to assist its own re-election, then it is only right that every one of the 600 and odd sitting members and their 1,300 or so opponents should be accorded the same privilege. It would certainly be a joyous advertisement for aviation to have some 2,000 or 3,000 aeroplanes turned loose to help in the election, irrespective of political parties Quite apart from which, some dozens of the politicians might be conveniently killed in accidents to their machines. It might be worth while to put the R.A.F. to all the expense involved, if only in that hope.

However, election or no election, there the fact remains. It is illegal for any civilian to fly at all, except within two miles of a recognised aerodrome—at that rate one would soon get past recognising the aerodrome, one would get to know the damned thing by heart—and until the law is altered we cannot do anything that matters in the way of propagating inland aerial transport, or educating the flying public of the future. Therefore, as we cannot do anything, we may as well talk about it.

Supply Creating Demand.

In the first place there is an enormous supply of aeroplanes, for, apart from the output of the factories even when cut down to short time, the R.A.F. must have enough machines and spares in store all round the country, in disused skating rinks, and discontinued kinema palaces, and unfrocked chapels, to keep it going for two years at least. It is true that nearly all of them are a year or two out of date, but that will not matter to an Air Ministry which allowed the R.A.F. to finish the war without a machine which was less than a year old in design and with many which were close on four years old.

All that old stuff will do perfectly well for the R.A.F. for the next four or five years, and by that time we shall be so far gone in the League of Nations and Universal Peace insanity that it will be hopeless to expect the Government of the period to maintain any modern machines at all. So the Aircraft Industry must make up its mind that on it, and not on any Government Department, depends the future of British aviation.

Therefore it is up to the Aircraft Industry to create the demand for "inland aerial transport." It is certainly a reversal of our usual stupid English method, where we wait for a demand to arise and then start in to supply it, after America and Germany have collared the cream of the market. But the fact remains that if the Aircraft Industry is to live it has got to go out and get business—which is not the same thing as getting busy.

If Henry Ford could start in and sell thousands of his automobiles to people who really wanted motor-cars instead, then surely the Aircraft Industry, which after all does include rather more than its share of the brains of this country, can go out to all those millions of people who already want to fly just once, and convince them that their only hope of happiness in this life and of respect in the life to come is that they shall go on flying and flying and flying. It seems so utterly simple if they will only go the right way to work—having once got those silly old laws repealed.

The Freedom of the Air.

It will be remembered that in the lecture to which one has referred Sir Frederick Sykes expressed the hope that these laws, or prohibitions, would be repealed within a few weeks of the opening of the new Parliament. One fears that he is inclined to be a trifle optimistic. If the Government is left to itself in this matter, it will almost

certainly shelve the question of air regulations indefinitely, while it wastes time talking about the League of Nations, Bolshevism, and such things, which are in reality quite minor affairs when viewed in a purely historical spirit.

Immediate freedom to fly in our own country affects the whole question of our future Air Power, whereas the League of Nations merely affects the alleged freedom of small nationalities, which, if they are allowed their freedom, will be a continual menace to the peace of the world in the future. If anyone disagrees as to the folly of permitting a number of small free nations to exist, he need only study the history of the Saxon Heptarchy, or of Mediæval Europe, or of the Balkan States in the Nineteenth and Twentieth Centuries.

Therefore if we are to have freedom in our own air it is necessary to start agitating for it at once. It is useless to trust to those officials of the Air Ministry whose duty it should be to obtain that freedom for us. One can expect nothing from people of the mental Morris-tube calibre of, for instance, most of the present Cabinet.

"Joy-Ride" Figures.

Be that as it may, let us consider how to set to work when the present prohibitions are withdrawn. It is said that R.A.F. aerodromes are then to be opened to the use of civilian aviators. Presumably landing-fees will be charged, but there can be no objection on that score if the fees are not unreasonably heavy. This use of R.A.F. aerodromes should be the practical salvation of the smaller aircraft firms.

If one admits the assumption earlier in these notes that there are two million people in this country who wish for what is vulgarly called a "joy-ride" in an aeroplane, and that half of those will want another, and that many of them will want as many more as they can afford, then it is fair to estimate that there are something like five million joy-rides to be given during the coming Spring, Summer, and Autumn. Now it is going to take a very large number of aeroplanes to give 5,000,000 trips of even 15 minutes' duration apiece. It means 1¼ million flying-hours.

If one allows a pilot four flying-hours a day for 250 days in the year, that means 1,000 flying-hours a year, so that at least 1,250 pilots will be needed for joy-ride trips alone.

Admittedly there is a fallacy in this argument, in that the joy-riders will not be taken aloft one at a time, but in half-dozens and dozens, in big flying-boats at seaside resorts, and in multiple-engined land machines from aerodromes near big cities. But probably the estimate of 1,000 flying-hours per pilot per annum is an exaggeration in the other direction, so it is probable that the number of pilots required will be in the region of 1,000.

For each pilot one can reckon that at last 12 mechanics will be necessary to keep machines in order, to tune engines, and to move matériel from one aerodrome to another. So there ought to be work for some 12,000 to 15,000 mechanics, drifting round the country or working at pleasure air-stations, apart from those in factories.

An Outlet for Service Stores.

The thousand pilots will need at the very least 2,000 aeroplanes and 3,000 engines. So here is an immediate outlet for much of the surplus stock of the Air Force.

The Airco, which is the name by which the Aircraft Mfg. Co. now prefers to be known, has shown how a standard Service aeroplane can be altered to make it into a comfortable passenger vehicle. Therefore one particularly draws the attention of aircraft constructors to the opportunity offered to them by the Salvage Department R.A.F. From this establishment they can buy machines in first-class condition at very low prices. A special article on the Salvage Department will be found in the Aeronautical Engineering Supplement in this issue of The Aeroplane.

These machines can easily be altered into comfortable passenger-carrying vehicles. The big two-seaters and the still bigger flying-boats afford special opportunities in this direction. And so the Aircraft Industry can set to work now at once to prepare for the joy-ride trade.

Hampering Foreign Trade.

There is another direction, and a most important one, in which the existing repressive regulations are doing serious harm to the future of British Aviation—for it must be remembered that anything which injures the progress of the Aircraft Industry also injures our Air Power of the future. One refers to the hampering of foreign trade.

It is known, and it has been noted on several occa-



A D.H.4 Biplane (Rolls-Royce Engine) of the type now in use conveying passengers and dispatches from London to the Peace Conference in Paris, and back. The Passenger's Compartment is entirely enclosed, the roof opening and shutting in the manner of a motor-car bonnet

sions in this paper, that already the Germans are doing business with aircraft in Scandinavia. German machines have been sent to Sweden and Denmark, and have been demonstrated before official and commercial people to the fullest advantage, without any opposition. There has been none to prove by force of example that British aeroplanes and engines are immensely superior to the German product.

Also it is known that military missions from France and Italy have visited the United States, and have demonstrated the aircraft of those countries in the best possible way. It is now said that other missions of a purely commercial kind are being sent to the minor Allied States, and to the few remaining neutral countries, by France and Italy in order to demonstrate their aircraft.

Whether these missions have actually started, or whether they are merely on the point of starting, one cannot say. But one does know, at any rate, that the French and Italian Governments are doing everything in their power to facilitate the work of their respective aircraft industries in securing foreign trade.

Here in England, on the contrary, every Government Department concerned seems to be putting obstacles in the way of firms who are out to get foreign business. Permits to export aircraft and parts are refused or are withheld indefinitely. Passports for those who want to go abroad to prepare the way are delayed. It is illegal to take up a foreigner for a trial trip, though he may be able to influence orders which would ultimately bring millions of pounds into the country to help to pay for the war.

Sinn Fein England.

In fact, our recently elected Government seems to have adopted the principle of *Sinn Fein* from the Government of the Irish Republic. One is almost forced to believe that our Government wishes to keep our manufactures to ourselves, irrespective of whether we use them or not, and that it is resolved that we ourselves shall pay for the war, instead of letting our manufacturers trade with foreign countries so that the said foreign countries may help to pay for the war out of the profits made by our factories.

"Ourselves Alone" may be a very fine doctrine for the isolated Irish Republic, but it is no use for a nation of shopkeepers such as the English. And, if we are going in for shopkeeping, for Heaven's sake let us do it properly and sell things at a profit to all comers, instead of playing at shops like a lot of children in a nursery who sell useless things to one another for make-believe money with which they can buy nothing outside their own nursery.

The Task of Our Associations.

Therefore one repeats the suggestion made earlier in this article that our various aeronautical associations should combine to bring pressure on the Government *via* the Air Ministry, so that flying may be legalised at home, and so that the export of aircraft may also be legalised.

The Aerial League is concerned with propagandist work, so such work is well inside its sphere of influence. The Royal Aero Club is likewise concerned, for it pretends to govern the sport of flying. The Royal Aeronautical Society is as much interested, because without legalised flying and export the science of aeronautics cannot thrive. And finally the Society of British Aircraft Constructors, as representing all the commercial elements of aeronautics, is more acutely affected by the present dire state of affairs than is any other body.

One recognises the reluctance of any corporate body of Englishmen to do anything which demands any collective initiative, but one has a lingering gleam of hope that perhaps the various aeronautical associations have a trifle more vitality than have the older associations of a similar nature concerned with older sports and industries. Be that as it may, one presents to them all for consideration the fact that if they are to justify their existence in the spheres which they are supposed to influence, now—and not in six months' time—is their opportunity for so doing.—C. G. G.

A ROYAL PILOT.

It is announced that Capt. H.R.H. the Prince Albert, R.A.F., is to become a pilot in the Royal Air Force, and has commenced his training in a dual-control Avro biplane under the instruction of an officer of the Household Troops.

WAR SERVICE HONOURS.

On Feb. 1st it was announced in the "London Gazette" of the previous night that Brig.-Gen. H. R. M. Brooke-Popham, D.S.O., A.F.C., and Brig.-Gen. C. A. H. Longcroft, D.S.O., A.F.C., have been appointed Companions of the Most Distinguished Order of St. Michael and St. George.

MR. CHURCHILL'S SECRETARIES.

On Jan. 31st it was officially announced that the Rt. Hon. Winston Churchill, M.P., had appointed Major C. E. I. Bullock, R.A.F., to be his private secretary at the Air Ministry, and Capt. H. S. Neville, R.A.F., to be his assistant private secretary.

MAJOR-GENERAL SEELY IN A FOG.

According to a communication received from the Press Bureau, Major-Gen. J. E. B. Seely, C.B., D.S.O., Under Secretary of State for the Royal Air Force, made a flight over London in an "N.S." type airship.

PRESENTATION AEROPLANES.

On Tuesday, Feb. 4th, Maj.-Gen. J. E. B. Seely, C.B., D.S.O., handed over to the Canadian Military Authorities a squadron of 16 aeroplanes presented by the Overseas Club and Patriotic League. Sir Edward Kemp, Minister for the Overseas Military Forces of Canada, received these machines.

AEROPLANES AND BELGIAN RELIEF.

It is stated by the Press Bureau that a squadron of British military aeroplanes has been detailed for conveying stores to Belgium for the relief of the population of that country, and will commence operations at once.

Machines of the D.H.9 type will be used.

LORD WEIR'S FAREWELL MESSAGE.

Lord Weir, on leaving the Air Ministry, circulated the following farewell message to the staff:—

"I have to-day surrendered my office as Secretary of State for the Royal Air Force, and I take this opportunity of bidding good-bye to all who have served with me at the Air Ministry.

"For nine months we have worked together on one of the great tasks of the war—the building-up and administration of the R.A.F. During this time we have passed through periods of gloom, of anticipation, and of final victory, but throughout your loyalty and devotion to the Service have never failed. For the spirit of help and wholehearted co-operation which you have always shown towards me I wish to express to you my fullest appreciation and warmest thanks.

"Many of you with whom I have been brought more intimately into touch, I venture to look upon as my friends, and the break in our association I greatly regret. I shall always look back on the days which I have spent at the Air Ministry as the most memorable of my life, and I shall cherish the thought of our joint service as fellow-workers in the great cause. The Air Ministry will now be charged with twin responsibilities—the administration of the young Force with its great traditions, and the development of civil aviation with all its vast possibilities.

"To all of you, whether your future lies in the Ministry, with this great task before you, or in civil life, to which many of you will return, I wish prosperity and Godspeed."

(Signed) "Weir."

Lord Weir also presented each member of the Air Ministry staff with a copy of the King's message of thanks to the Royal Air Force, printed artistically on vellum. It was accompanied by "Lord Weir's Compliments."

THE NAVAL REVIEW.

The Admiralty has decided to hold a review of all classes of ships of the Royal Navy. Various types of aircraft are to take part in the review, which will be held at Spithead.—S. F. B.

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AN AIRCRAFT PRODUCTION DINNER.

On Jan. 28th some senior officers of the Aircraft Production Department gave a dinner at Claridge's Hotel in honour of past and present chiefs of the Air Ministry. A report of the proceedings has now been communicated to us.

The hosts were Lt.-Col. B. C. Bartley, Lt.-Col. R. H. Brand, Lt.-Col. Ivan Davson, Lt.-Col. Reiss, Mr. A. C. L. Chorlton, and Mr. R. P. Wilson. The guests included Lord Weir, Mr. Winston Churchill, Maj.-Gen. Seely, Lord Colwyn, Maj.-Gen. Sir F. H. Sykes, Sir James Stevenson, Sir Stephenson Kent, Sir Arthur Duckham, Maj.-Gen. Sir Godfrey Paine, Sir Phillip Henriques, Maj. Baird, M.P., Maj.-Gen. Ellington, Brig.-Gen. Alexander, and Brig.-Gen. R. M. Groves.

The toasts of the Army, the Air Force, and Civil Aviation were proposed.

Mr. Churchill, replying to the toast of "The Army," said that it was the first time he had been called on to respond to that toast. They had lived to see the "Contemptible Little Army" of Great Britain expanded into the best-equipped force in Europe of two millions of men. Let there be a Freemasonry for the future with a common bond, amid the play of interests and parties and classes and creeds. When he thought of the nervous mood which sometimes swept across people, which was so quickly reflected in the Press, and which suggested that the majesty of Britain, which had lasted all those hundreds of years, and which had never stood higher than it did that night, was going to collapse before vague eddies of unrest or before Bolshevist impatience, he was certain that those strong forces had only to stand together, to work together, to carry them through all those difficulties and to secure permanently for the generations of the future the triumphs which the British Army had achieved by its struggles in the war.

Lord Weir, responding to the toast of "The Air," said he had noticed that the proposer of the toast was uniformly and invariably most appreciative of the Royal Air Force, but as a rule very little indeed was said of the Air Ministry. In fact, he had never yet known praise withheld from the Air Force or given to the Air Ministry. Probably the truth was that the greater contained the less; that was to say, that the Ministry was comprised in the Air Force. In Parliament and in the Press, the Air Force was invariably portrayed as a favourite and the Air Ministry as a seething riot of inefficiency containing a lot of incompetent aeroplane designers, a division of useless and obstructive inspectors, and an army corps of amateur production officers. The real truth was that all those alleged incompetents were not domiciled in the Hotel Cecil at all, but eked out a miserable existence in Kingsway under the Ministry of Munitions.

Seriously, however, he thought they might measure the value of that criticism in inverse ratio to the ignorance of the critics. In war time the standard of judgment could only be that of results, and in that case the enemy had every reason strongly to differ from the critics. He had been, and hoped ever to be, very proud indeed of the entire Royal Air Force. In its organisation and operations it embodied everything characteristic of the youth of the British Empire in every sphere of human endeavour—the courage, skill, and endurance of its pilots and observers, the energy, capacity, and resourcefulness of its field commanders, the enterprise, technical skill, and adaptability of its technical and supply officers. It did not lack the fallibility of human nature, but for every failure it had a thousand successes. On behalf of the Royal Air Force, he desired to pay a lasting and a generous tribute to the Ministry of Munitions for the magnificent way in which at all times it had met the requirements of the Force. An idea of the task fulfilled by that Department might be best obtained by remembering that when the Armistice was signed over 200,000 workers were engaged exclusively on aircraft production, resulting in this country, in spite of the many other war claims on industry, being able to turn out a completely-equipped aeroplane every five minutes of the working day.

The position as to the future was complicated by the advent of civil aviation. So long as the new arrangements were conceived by all in the same spirit of kindly co-operation as in the past, and departmental jealousies were subordinated to the real needs of the development of aviation, the wonderful traditions of the flying services would be well and honourably maintained.

Gen. Brancker, replying to the toast of "Civil Aviation," said he was convinced that commercial aviation would be a wonderful success, and a very great asset to the British Empire in the future. Aviation had gone through periods of wild exaltation and extreme depression. At present the spirit of optimism was high. The British public thought that the moment peace was signed, and the conservative and tiresome Air Ministry removed the embargo on long flights, they would be able to fly to India, America, and Australia. They would not, and he was afraid there would come a time when there would be considerable criticism, loss of confidence, and possibly financial failure. Commercial aviation was very much in the position that warlike aviation was in four years ago, and they had to go slowly and steadily, and build it up through infinite labour and very careful organisation. If they went too fast they would make a mess of it. To make commercial aviation a success they must make it pay, and that meant time and infinite labour before it could flourish.

He had been bombarded lately as regards commercial aviation, and he had often spoken of its infinite possibilities as a connecting link with our great oversea Dominions. The great difficulty they had to face was in creating commercial aviation in this country. This was a cramped, uncomfortable little country, and it was cursed with the most accursed weather in the world. But they had a world-wide Empire, and most of the oversea Dominions had wonderful climates and undeveloped country, which are just the sort of conditions under which aviation would be really successful.

That was a very serious moment in the history of the British Empire, because, he believed, at the Peace Conference it had been decided that there was to be a League of Nations, which meant disarmament generally. England was a little island on the edge of Europe, with a huge Empire. The greater proportion of our commercial aircraft probably would be far away from us and unavailable, and therefore, if we took disarmament literally, we should be in a worse position probably than any other European Continental Power. Therefore we, above all other people in Europe, should try to maintain, in spite of the League of Nations, a really efficient air force on a war footing, or more or less available at a moment's notice if war threatened. In any case, the League of Nations would throw a greater measure of responsibility on commercial aviation than if it did not exist.

WIRELESS IN THE WAR.

In an interview published in the "Observer" on Jan. 26th, 1919, Mr. Godfrey Isaacs, Managing Director of Marconi's Wireless Telegraph Co., made the following references to the uses of wireless in connection with aircraft during the war:—

"On the field of battle wireless served a great number of purposes. By means of a small, transportable apparatus it was used for communication where it would have been impossible to provide a telephone. A special apparatus, too, was used for locating enemy positions, enemy headquarters, enemy guns.

"The artillery scarcely fired a gun before receiving wireless messages from the observing aeroplane giving the exact position of their target. Aeroplanes were fitted with instruments specially constructed for wireless service. Many a situation on the field of battle, and I do not think I am exaggerating if I say tens of thousands of men's lives were saved by wireless messages giving vital information.

"Aeroplanes in flight were generally in touch by wireless telegraph or wireless telephone, or both, with the authorities. Wireless telephony existed before the war, but was specially adapted during the war for aeroplane work. The apparatus that is used is very similar to that for wireless telegraphy. In fact, we are now constructing wireless sets which serve both for telegraphy and telephony. At this moment two hundred of these sets are being made for the use of the Chinese Government."

"How is the voice heard," Mr. Isaacs was asked, "by the wireless telephone, and how is it all done?"

"The voice is heard," he replied, "just the same as it is over the ordinary telephone. It is carried through the ether just as in the case of wireless telegraphy."

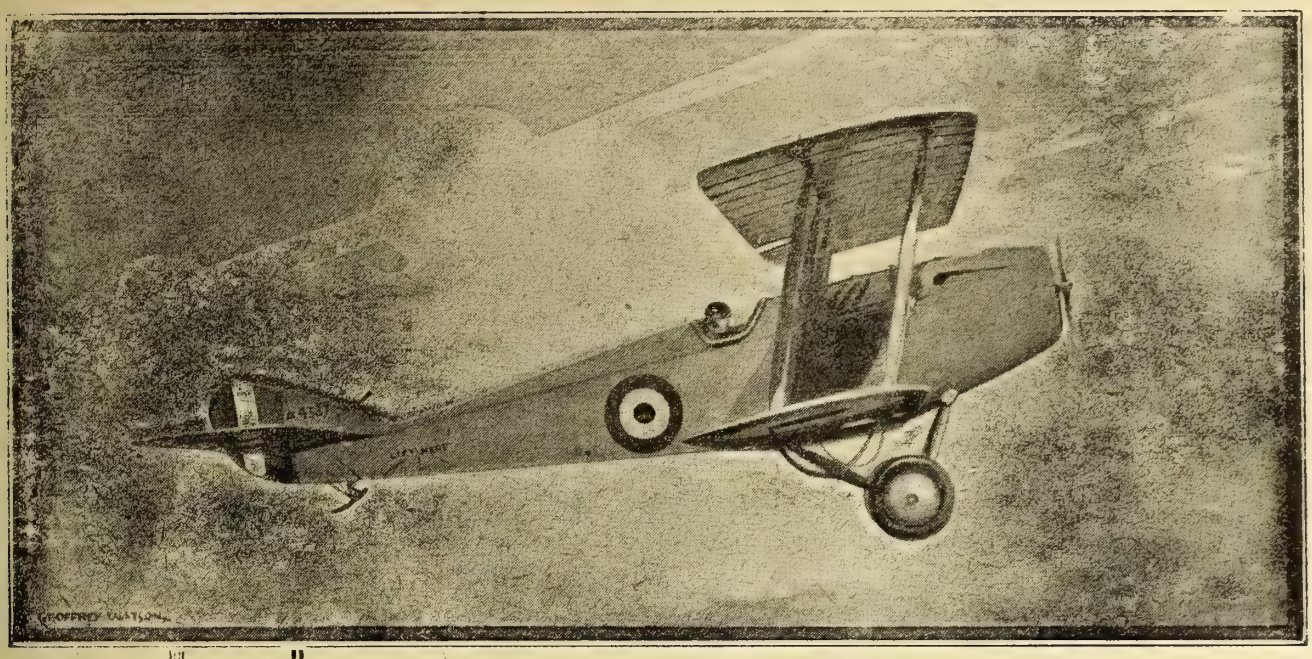
"From aeroplanes the observer can speak continuously from the air to men on the ground. Generally, the distance has been only a few miles, but greater distances are already practicable. In fact we, from this office in the Strand, are talking by wireless with Chelmsford daily, and Mr. Marconi has talked to Africa from Italy, a distance of 350 miles.

"There is no limitation of distance for wireless telephony. It is now only a question of adjusting mechanical contrivances before we can telephone across the Atlantic and even greater distances. There is no doubt that had we not all had our hands absolutely full with the work which was essential to win the war we should long ago have established a wireless telephone service between this country and America.

"As soon as we are free from the war restrictions such a service will be completed, and I, sitting at my office here in London, shall be able to talk with the managing director of the Marconi Company in America sitting in his office in New York. The immediate utility of wireless telephony is for long rather than short distances. I will not say anything about its future.

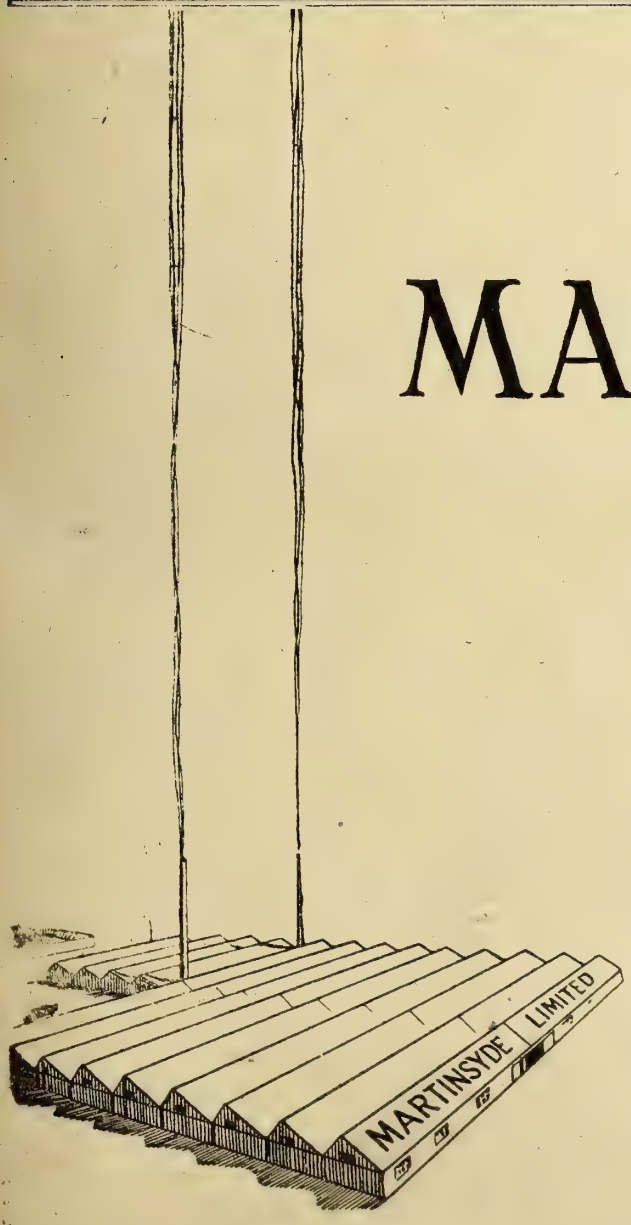
"Another use to which wireless has been put," Mr. Isaacs continued, "is that of locating ships at sea, and Zeppelins and other airships and aeroplanes in the air. By means of a special wireless instrument, in whose development the Marconi Company took a leading part, the authorities were always able to follow the movements of enemy airships, aeroplanes, and men-of-war provided they used their own wireless apparatus, which, speaking generally, they always did sooner or later."

"It was that perhaps," it was suggested, "which gave rise to the report, as persistent as that of the march of the Russians through England, that the Zeppelins which came to grief in this country, were in some way 'fixed' by wireless before being brought down." "I don't know what may have been the origin of the report," Mr. Isaacs added, "I only know it was not true."





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AVIATORS OF THE EXPEDITIONARY FORCE.

On February 1st, at the Savoy Hotel, Lord Weir entertained to dinner some seventy surviving officers of the squadrons of the R.N.A.S. and R.F.C. which went overseas in August, 1914. Lord Weir presided, and the chief guests were Lieut.-General Sir David Henderson, Major-General Sir J. M. Salmond, Major-General Sir Frederick Sykes, of the original Expeditionary Force, and Colonel Samson. The company also included :—

Mr. Winston Churchill, General Seely, Major-General Sir H. Trenchard, and other senior officers of the Royal Air Force, Major Baird and members of Lord Weir's Air Council, the senior officials of the Air Ministry, the Marquess of Londonderry, Sir Joseph Maclay, General Sir William Robertson, Dr. Addison, Lord Desborough, Lord Cowdray, General Biddle (U.S.A.), and the French and Italian Air Attachés.

The following account of the speeches is taken from the "Daily Telegraph" :—

The Chairman, in proposing the toast of "Our Guests," remarked that in the early days our airmen flew all sorts of machines—anything they could get—and that was seldom what they wanted. They broke records, some of them broke their necks, but their spirit never faltered, and they made British war aviation. The main difficulties were financial ones. There was never enough money to buy the machines and engines they wanted, and it was surely a matter of gratification that the man who helped them most in this direction, Mr. Winston Churchill, was now Air Minister, and he sincerely trusted he would again repeat his financial demands as successfully as in the past on behalf of the still further development of aeronautical progress.

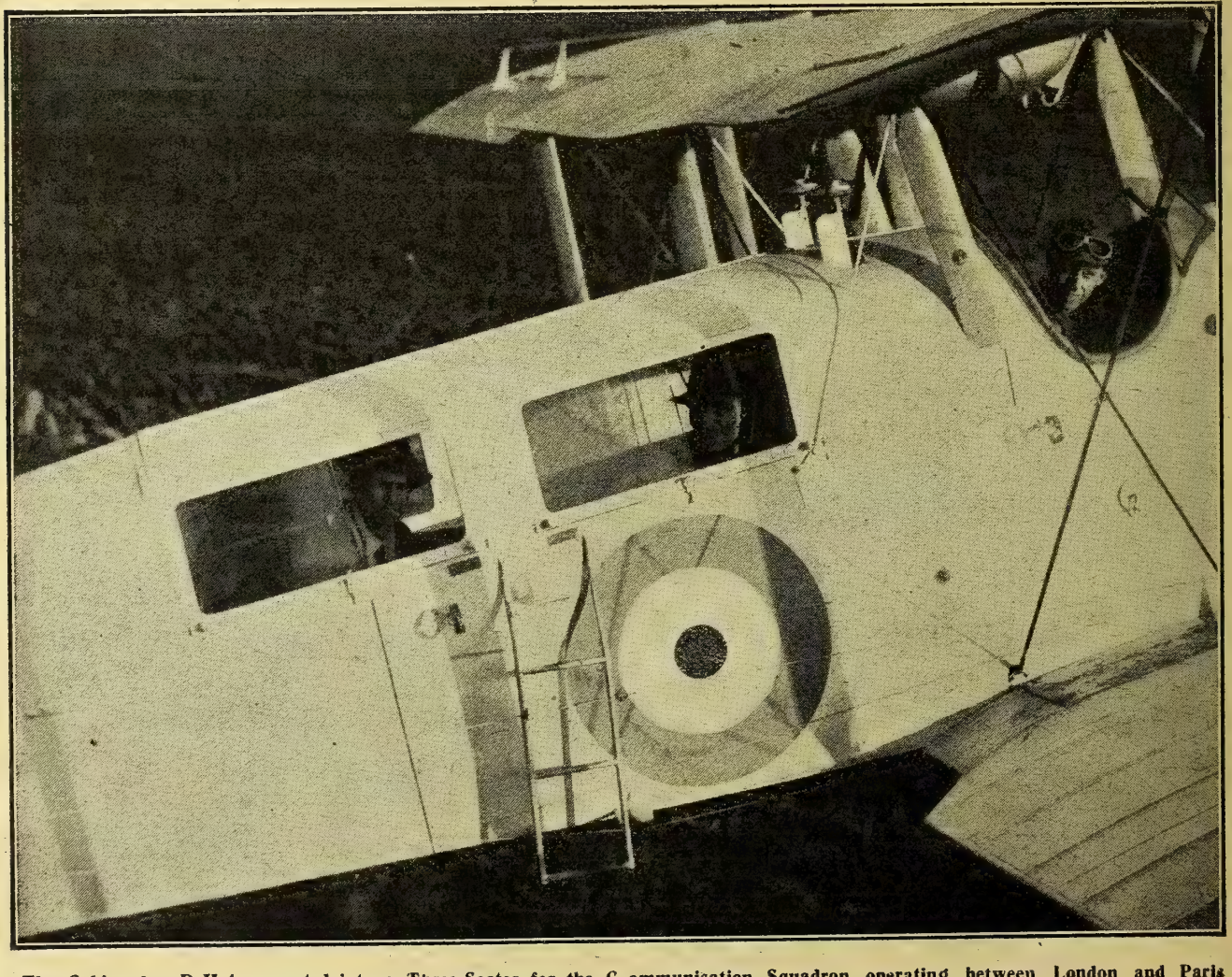
Mr. Winston Churchill, replying to the toast, paid a tribute to the Royal Flying Corps in the pioneer work it had done, and, with regard to the Royal Naval Air Service, remarked that when the Army went away and left this country unprotected they were the one weapon that prevented Zeppelins coming in broad daylight and dropping bombs on our arsenals, magazines, and naval centres. He eulogised the work of Lord Weir, who, he said, arrived from Scotland at his country's call with no other thought in his mind than to do his best to help to win the war. When he was at the end of the Air Production Department of the Ministry of Munitions he was its mainspring. He drove it with a vital force, which those who were responsible for affairs at that time were devoutly thankful to see. From there he went to the Air Service, where his energy and industry and absolute unselfishness in reaching the practical results, and not gaining for himself any credit, or praise, or advantage for the work he did compelled their admiration. He commiserated with Lord Weir on the early termination of the struggle. When he thought of all he was preparing and getting ready, he felt it in his heart to reproach the Germans for having given in in so unsportsmanlike a manner.

Referring to the future of aviation, Mr. Churchill said that unless it was borne on the wings of war, on the wings of military and naval needs, it would not succeed in overcoming the next few years of difficulty, because money was going to count. Money was going to become a very important factor, not next year perhaps, but in the year after next and the year following that, in the future of the human race. Everything that was going to be done must be done on a foundation which would yield real results, either in military value or commercial value. But he believed that if we worked together, if all of those who had the unity, the independence, the integrity, the power and prosperous development of the Royal Air Force in their hearts worked together, and fortified by every means this great arm of this new element, we should succeed in keeping Britain in the great and foremost position which it had gained in the war, and we should succeed in bridging the gulf which lay between us and the true and final conquest of the air.

A MUTINY AT BLANDFORD.

Over 1,000 men belonging to the Royal Air Force, it is understood, are on strike at Blandford. They allege a case of victimisation, demanding demobilisation of men over the age of 41, and better working conditions.

They marched to Blandford and interviewed the mayor, who is sending the men's demands to the Air Ministry.



The Cabin of a D.H.4 converted into a Three-Seater for the Communication Squadron operating between London and Paris during the Peace Conference.

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DRUGS IN THE ARMY.

An Army Council Instruction has just been issued in the following words: The attention of all concerned is directed to that portion of Para. 26, Regulations for the Army Medical Service, dealing with the custody and safe keeping of drugs of a poisonous character. These should not be stocked in excess of actual requirements. Careful supervision to prevent improper expenditure should be observed in regard to the usage, issue, and dispensing of all hypnotic and poisonous drugs, especially cocaine, cocaine hydrochloride, heroin (diamorphine Hydrochloride), morphine and its salts, opium and its preparations, veronal (barbitone). This A.C.I. is applicable to the Royal Air Force.

THE SALE OF CANADIAN AIRCRAFT.

It was announced in an American paper on Jan. 30th that an American, Mr. Roy Conger, an aeroplane constructor of Erie, Penn., has purchased for an unstated sum of money the entire aircraft equipment of the Canadian Government. This equipment, alleged to consist of 350 aeroplanes and 700 aero engines, accessories, and spare parts, was placed at the disposal of the Canadian Government by the British Government for the training of aviators during the period of the war.

According to a later report, from the Canadian correspondent of the "Times," Sir Joseph Flavelle stated that the Canadian Government had been given the first option on this material, but owing to lack of storing facilities it was impossible to avail themselves of the option. The Canadian Government, however, is retaining the aeroplane plant, aerodrome and equipment at Camp Borden and also the camp (aerodrome?) at Long Branch, near Toronto.

R.A.F. RE-ENLISTMENT.

All airmen who have been demobilised or placed in the reserve and who wish to re-enlist or extend their services under the bonus conditions as laid down for the Army of Occupation may do so if found suitable. They should report forthwith to the reception depot situated nearest their homes. A cash payment will be made to ex-airmen who bring back R.A.F. clothing and equipment on re-enlistment. Such payment to be proportionate to the value of the articles returned. Airmen will be posted in the substantive rank held by them on demobilisation.

A list of reception depots is as follows:—

No. 1—40, Upper Brook Street, Mayfair, W.1, London; No. 2—8, Tyndall's Park Road, Clifton, Bristol; No. 2 (b)—12, Newport Road, Cardiff; No. 3—Carlton Chambers, Paradise Street, Birmingham; No. 3 (a)—8, George Street, Nottingham; No. 3 (b)—12, Abercromby Square, Liverpool; No. 4 (a)—The Mount, Springfield Mount, Leeds; No. 4 (b)—10, Sydenham Terrace, North Road, Newcastle-on-Tyne; No. 5—9, Somerset Place, Sauchiehall Street, Glasgow.

THE SURRENDER OF GERMAN AEROPLANES.

The conditions of the Armistice as regards the surrender of German aeroplanes in good serviceable condition is being complied with very reluctantly by the enemy, the number as yet delivered being totally insufficient.

The Germans do not appear to have any method of delivering the material required by the Allies. Their machines were left behind on the aerodromes without guards, the advancing British cavalry taking charge on arrival until they in turn were relieved by detachments of R.A.F. Reserve Brigades.

Inventories were then made and the machines overhauled. As soon as they were fit, they were flown by R.A.F. pilots back to the collecting bases. It may be mentioned in passing that as soon as circumstances permit, the intention is that three machines of each type shall be flown to England for exhibition purposes.

In many cases the cavalry found the machines in a damaged condition, or instruments and parts missing. It is not known whether the Germans left the aeroplanes in this state, or whether they suffered owing to the souvenir-hunting propensities of the civilian population. This point, however, is being investigated with strict and careful impartiality.

On the British part of the front only about 20 large bombing machines were left by the Germans. Presumably they realise the commercial possibilities of converted bombing aeroplanes, and do not wish to deliver too many, as by so doing they would lose their prospective aerial commercial fleet.

The investigation and examination of all the surrendered aeroplanes—numbering just over 500—whilst demonstrating the excellence of the latest Fokker-type machines, has also added to the already accumulated evidence that in armament, fittings, and accessories of every kind the Germans are very much behind the times.

About 170 machines of the total number were abandoned dismantled in open railway trucks—a clear evasion of the Armistice conditions. Both these aeroplanes and those left on the aerodromes suffered from exposure.

Only at one place, Nivelles, were any German aeroplanes handed over in a regular manner to the British military authorities. Nearly 100 machines were delivered here, amongst which were included some of the latest Fokker types, Albatros scouts, Pfalz scouts, and two Fokker Junker all-metal biplanes.

THE WRIGHT PATENTS IN FRANCE.

The Compagnie Générale de Navigation Aerienne, which possesses the French rights of the Wright aeronautical patents, has re-opened its action, begun before the war, against aeroplane manufacturers in France, whose aeroplanes, in order to maintain lateral stability, are fitted with warping wings or ailerons.

Every aeroplane built and used in France since the beginning of the war infringes this patent if the validity of the latter is admitted by the Courts.

A bailiff, with attendant police, has visited all the prominent aeroplane works near Paris, and has seized officially all aeroplanes constructed or under construction.

The compensation for infringement, estimated at £40 an aeroplane, would be over £1,200,000.

The case is of high importance to all connected with aviation in France. In Great Britain the Government have compensated the Wright Company for the use of such of its patents as are common in modern aircraft. It is not clear whether this compensation exempts all British firms from the paying of patent dues on machines built for commercial purposes or only in regard to military aircraft

FRENCH MILITARY AVIATION STRENGTH.

In 1914, at the beginning of the war, the French Aviation Service consisted of 21 squadrons, with 321 pilots. The total personnel was 4,342. At the end of 1917 the personnel had increased to 75,105, including 6,417 pilots and 1,682 observers. By July, 1918, the Aviation Service possessed over 6,000 machines.

In 1914 just over two-and-a-half millions sterling was voted for this Service. This had increased to some nine millions sterling by 1916, and to 13½ millions sterling by 1917.

AN ESCAPE FROM TURKEY.

After two previous unsuccessful attempts, Capt. A. Bott, M.C., R.A.F.—who wrote "An Airman's Outing," under the nom-de-plume of "Contact"—managed to escape from the Turks whilst on the way, with some other British officers, from Constantinople to the interior of Anatolia.

He and a fellow prisoner, one Capt. White, A.F.C., had previously arranged with a ship's engineer to smuggle them on board a Russian steamer, bound for a Russian port. Capt. White had already escaped, and it was not until Pera was reached that Capt. Bott met him.

They had to hide for many days before going aboard, and when they did eventually accomplish this move the ship was delayed for some time whilst a search was conducted by the Turks. However, the two British officers were not discovered, and the ship left the Bosphorus, reaching Odessa after several times wandering off the true course.

Being unable to leave Odessa owing to the Bolshevik risings, Captains Bott and White determined to join the Volunteer Army which was fighting the Bolsheviks. However, they were saved from doing that by hearing that the British had occupied Varna (on the Bulgarian coast).

They boarded a hospital ship bound for Varna to repatriate Russian prisoners from Austria. From Varna they went to Salonika, *via* Sofia, and so to safety.

JULES VEDRINES IN THE FUTURE.

Jules Védrines intends to make a non-stop flight from Paris to Rome and back, if possible, on the occasion of the next full moon. A Caudron of the C.23 type, fitted with two 300 h.p. engines, will be the machine used, and will carry only one mechanic as passenger.

It is understood that Jules Védrines intends to have 20 Caudron machines at his disposal, placed at various points of the route, when he begins his world tour.

SPEED IN U.S.A.

It is stated in the American papers that on Jan. 7th a Martin bombing machine, driven by two Liberty engines, and piloted by Eric Springer, made a flight from Dayton to Cleveland (about 215 miles) in 75 minutes.

The machine carried one mechanic, petrol, tools and baggage, weighing 2,500 lbs. The flight was not intended as a speed test.

DUCK SHOOTING FROM AEROPLANES.

The U.S. Director of Military Aeronautics has forbidden the shooting of wild duck from Service aeroplanes. Also, it has been announced that flights over places where migratory wild duck may be found must be conducted in such a manner so as not to interfere with the habits and feeding of the birds.

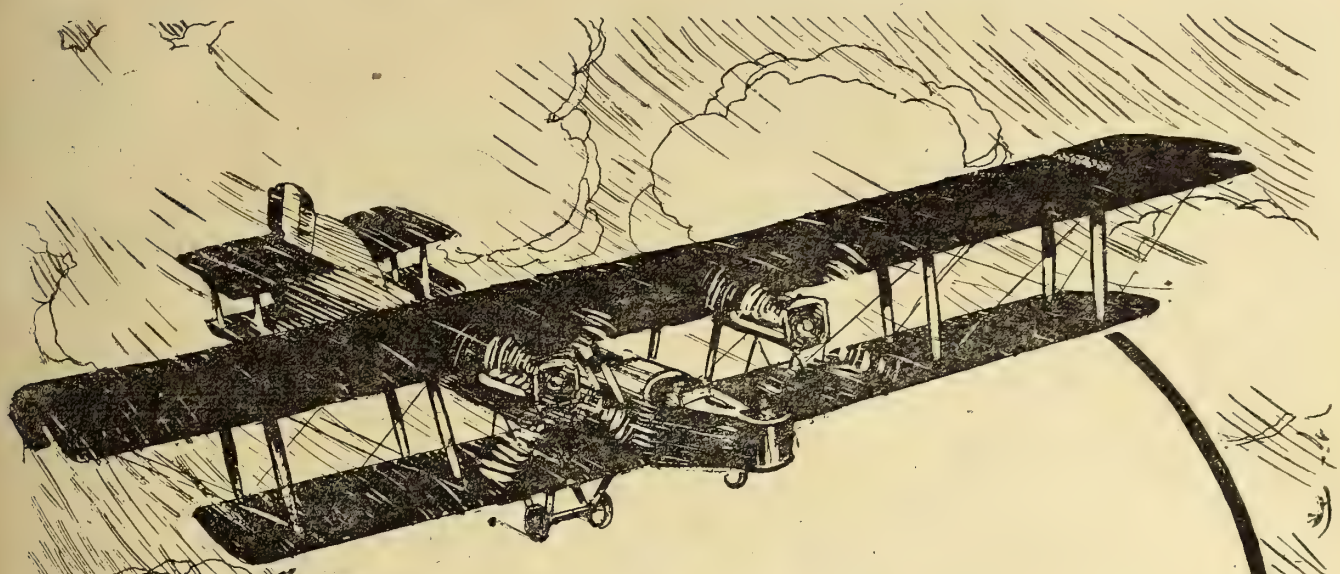
THE NEW WAY.

Three Subs., having done far too much work during last four years to wish for more. Require job; good salary, little to do. —Box N.940, "The Times."

Three Subalterns wish to become Soldiers of Fortune. Anybody got a war on?—Box P.254, "The Times."

WOLF-HUNTING BY AEROPLANE.

According to a telegram from Indianapolis a wolf-hunt along the White River bottom was assisted by aeroplanes from which the lair and course of the wolves was signalled to the hunters.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE FUTURE OF THE AIR SERVICE.

By Lieut.-Colonel CECIL L'ESTRANGE MALONE, R.A.F., M.P.

[The following notes by Lieut.-Col. L'Estrange Malone are given here not because one agrees with them, but because they represent the views of a well-known officer, with long experience of flying and much active service to his credit.—C. G. G.]

The reconstruction of the Air Ministry under the Minister of War may have caused surprise to those who were outside the inner circle of "Air Intrigues," but the key is to be found in the appointment of Mr. Winston Churchill to the Dual Ministry.

Any one who has had the experience of working in close touch with Mr. Churchill will realise that the Air Service will be given the best conditions, and that he will back the best men, so that the Service may attain even greater glories than it achieved during the war, and if either Department is likely to suffer through lack of attention, it will certainly be the War Office side of the War Minister's dual responsibility. The Air and Army Departments must be kept quite distinct, and there must be no unification of Q.M.Gs., Finance, Contracts, etc., Departments.

The unification of all three fighting Services under one political Minister would have been more logical, and would have given unification of direction analogous to that obtained by Marshal Foch over co-operating Forces.

Mr. Churchill was responsible primarily for the birth of the Royal Naval Air Service, for keeping the Aircraft Industry alive during 1913-14, and so saving the country at the outbreak of war—the raids on Cuxhavn, Friedrichshafen, etc., and for the design of the torpedo-carrying aeroplanes which narrowly escaped being the deciding factor of the war.

The Future and its Possibilities.

The future of the Air lies in its power as a means of transport, as an obliterator of International barriers and a means for improving civilisation.

It is probable that we have here one of the best links yet forged for binding together the League of Nations.

It is presumed that the general principle of the policy recently outlined by Lord Weir will be carried out, and that Major-General J. E. B. Seely will have two sub-departments, one for War Aircraft, and one for Commercial Development.

What would be the organisation of these departments?

Let us consider the transport or commercial side. The air will be to transportation what the electric telegraph was to communication. The war is now over, and the fact that we have a specialised Air Ministry gives to Great Britain a position of great advantage. If we take action soon, we have a moderately good opportunity of ranking as the predominant Air Transport Power.

The Empire possesses many competent pilots, many firms and organisations desirous of commencing air routes, but there is little experience in actual aerial navigation under commercial conditions. During the war risks in money and life were taken; in civil flying this will not be permissible.

Commercial potentates do not realise personally what it feels like to be lost in the air, or the exact degree of faith in himself and the weather that a successful cross-country pilot has to have. If commercial development in aviation is left entirely to private firms their experience will be bitter; they will lose lives, shake public confidence, and retard progress.

Meteorology.

They do not know exactly what sort of meteorological information it is necessary to obtain, nor how to obtain and distribute it. How much commercial sea-traffic, for example, would there be in the English Channel in winter if there were no buoys, no lightships, no harbours, no soundings, and no knowledge of the tides? In that small section only, as the result of experience gained by the loss of many thousands of lives and the expenditure of many millions of money, any competent firm can now run lines of steamers within scheduled times.

The knowledge of the winds is almost as essential to the efficient navigation of the air by either lighter or heavier-than-air craft as it was in the old days to the navigation of sailing ships. And it is indeed conceivable that the old charts showing the tracks for the low-powered sailing-ships will again be found useful for the air as a basis for air navigation.

For this purpose the most important work of Mr. Winston Churchill's Commercial Sub-Section will be that of an Air Pioneer Service.

The Pioneer Service.

The chief function of this section will be to develop those routes which our commercial or miltary strategy show to be desirable.

It will endeavour to investigate the best routes to follow between various places, where aerodromes or seaplane bases should be established, what navigational aids such as kite balloons (corresponding to buoys, light-vessels and light-ships), ground signs and lights, wireless stations, etc., are required. The fixing of the best position for refuelling depôts and the best organisation of the many subsidiary services which will be necessary will all be part of its work.

There will be an Aerographical Department to deal with the air, as the Hydrographical Department at the Admiralty deals with the sea.

All this work can best be done by an efficient State Service working in the interests of the State.

The Technical Department.

There will also be an Air Technical Department to deal with the innumerable technical problems raised by the Pioneer Service which will arise, such as landing in a fog, dispersing fog, searchlights for cloud-piercing, instruments for noting the exact height above land or water, sextants, gyroscopic compasses, etc. The nucleus of this service exists in the Technical Department of the Air Ministry.

This Department should train or supervise the training of all pilots. Experience in this art has advanced so far in the existing Air Force that civilian schools would produce a very inferior article if it were left in their hands.

It is inconceivable that any of the divisions of work enumerated above could possibly be associated with the War Office machine. Commercial Development, Personnel and the Legal side are poles apart from the analogous Departments in the Army.

War Requirements.

The second distinct department under General J. E. B. Seely will deal with war requirements and the requirements of other Government Departments.

Although we all hope that the Peace Conference may evolve some machinery to make future wars impossible, if there is another war in, say, ten years' time it will be very terrible.

Presuming, by the way, that the Russian upheaval leads to the same rapid mechanical advance as the French Revolution, the first action might conceivably be the dropping of 10,000 tons of high explosive on London by a flock of aircraft secretly assembled in some locality in, say, the centre of Russia. One cannot regard such an operation as being purely naval or military, nor can one decide whether the naval or military forces would have the best claim to conduct such operations or counter-operations.

It is quite impracticable to divide our Air Force into naval and military halves following the definition of responsibility based on the physical limitations of land and sea, or ships and armies. It will probably be most convenient for the Air Ministry to equip and supply such Air units as are required for the service of the Admiralty and the War Office, and at the same time maintain the nucleus of the main offensive and defensive organisation.

To a large extent the same remarks apply to other Government Departments; it would be very uneconomical for, say, the Post Office, to commence building up its own Air Service. All Government Departments which require air work should be obliged to regard the Air Ministry as their contractor for this work.

CASUALTIES IN THE AIR SERVICE.

The following presumably official notice appeared in the daily Press of Feb. 1st:—

The casualties in the Royal Air Force from April 1st, 1918 (the date of the fusion of the R.N.A.S. and the R.F.C.), to Nov. 11th, 1918 (the date of the signing of the Armistice), have already been announced. These figures are recapitulated as follows:—

—	Killed.	Wounded.	Missing, including Prisoners.	Interned.
Officers	1,551	2,357	1,612	45
Other ranks	1,129	631	225	39
Total	2,680	2,988	1,837	84

The grand total of the above casualties is 7,589, and it is this total which has to be added to the naval and military casualties, already published by the Admiralty and War Office, in order to get the aggregate war casualties. The R.N.A.S. casualties and R.F.C. casualties to March 31st, 1918, are included in the totals published by the Admiralty and War Office.

The casualties in the Flying Services for the whole period of the war, both before and since the amalgamation of the R.N.A.S. and the R.F.C. are as follows:—

—	Killed.	Wounded.	Missing, including Prisoners.	Interned.	Total
Officers	4,579	5,369	2,794	45	12,787
Other ranks ...	1,587	1,876	334	39	3,836
Total	6,166	7,245	3,128	84	16,623

The casualties shown in these totals include all officers and other ranks serving with the Flying Services during the war.

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THE FUTURE OF FLYING DEPENDS ON TRUSTWORTHINESS.

RECORD FLIGHTS.

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ENGINES: ROLLS-ROYCE. PLANE: HANDLEY PAGE

FIRST (AND ONLY) FLIGHT, ENGLAND TO INDIA OF A FOUR ENGINED AEROPLANE
ENGINES: ROLLS-ROYCE. PLANE: HANDLEY PAGE

FIRST (AND ONLY) FLIGHT, ENGLAND TO CONSTANTINOPLE
ENGINES: ROLLS-ROYCE. PLANE: HANDLEY PAGE

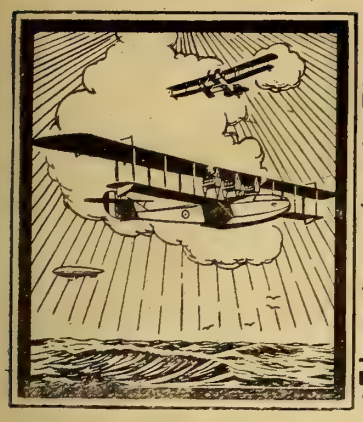
FIRST FLIGHT (BY NIGHT) LONDON TO EDINBURGH
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GEOFFREY WATSON

FROM THE "LONDON GAZETTE."

AIR MINISTRY, Jan. 28th.

R.A.F.—The following temp. appts. are made at the Air Ministry :—Staff Officer, 2nd Cl.—(Q.)—Capt. (actg. Maj.) W. G. P. Young, and to retain his actg. rank while so empld., Dec. 26th, 1918.

Staff Officer, 3rd Cl.—Sec. Lt. (actg. Lt.) H. Dawes, and to be actg. Capt. while so empld., Oct. 4th, 1918.

The following temp appts. are made :—Staff Officer, 2nd Cl. (Higher Gr.).—(P.) Lt. (actg. Maj.) J. S. Ruttle, and to retain his actg. rank while so empld., July 6th, 1918.

Notification in "Gazette," Oct. 1st, 1918, concerning Lt. (actg. Maj.) J. S. Ruttie is cancelled.

Staff Officer, 3rd Cl.—Capt. C. F. Marchant, vice Capt. C. A. Brewster-Joske, M.C., Oct. 6th 1918.

FLYING BRANCH.—Capt. P. G. Horswell to be actg. Maj. while empld. as Maj. (A.), June 6th, 1918.

Capt. D. A. Mache to be graded for purposes of pay as Capt., May 10th, 1918, to July 31st, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (A.) :—A. C. Upham, Oct. 9th, 1918; B. Rogers, Nov. 1st, 1918.

Lts. (Ad.) to be Lts. (A.) :—G. D. Wilson, Dec. 30th, 1918; A. D. Martin, Jan. 24th.

The following relinquish their commns. on ceasing to be empld. :—Lt. A. D. Keith (Lt., Sask. R.), Nov. 18th, 1918, Lt. (Hon. Capt.) L. E. D. Stevens (Capt., C. Ont. R.), Dec. 4th, 1918; Lt. A. S. H. Ryding (Lt., C. Ont. R.), Dec. 5th, 1918; Lt. G. S. Bushe (Lt., Quebec R.), Dec. 7th, 1918; Sec. Lt. (Hon. Lt.) D. H. Burrows (Lt., Quebec R.), Sec. Lt. (Hon. Lt.) J. Duncanson (Lt., Can. M.G.C.), Lt. J. W. Edwards (Lt., Can. A.S.C.), Lt. A. E. Hahn (Lt., E. Ont. R.), Sec. Lt. (Hon. Lt.) F. F. Hutchinson (Lt., Lord Strathcona's Horse), Lt. C. C. Langstroth (Lt., Can. Engs.), Lt. L. G. Martin (Lt., C. Ont. R.), Lt. (Hon. Capt.) C. W. MacAloney (Capt., Nova Sco. R.), Dec. 9th, 1918, Sec. Lt. (Hon. Lt.) H. A. Francis (Lt., Brit. Col. R.), Lt. S. L. McCleneghan (Lt., Can. F.A.), Sec. Lt. (Hon. Lt.) F. A. White, D.C.M. (Lt., Manitoba R.), Dec. 10th, 1918; Lt. J. S. W. Moll (Lt., Can. E.F.), Lt. D. K. Patue (Lt., Brit. Col. R.), Sec. Lt. (Hon. Lt.) C. St. C. Stayner (Lt., N. Bruns. R.), Sec. Lt. (Hon. Lt.) R. H. Whittaker (Lt., C. Ont. R.), Lt. A. Willans (Lt., Quebec R.), Dec. 12th, 1918; Sec. Lt. (Hon. Lt.) H. J. Crabtree (Lt., Sask. R.), Dec. 13th, 1918; Sec. Lt. (Hon. Lt.) A. H. McLachlan (Lt., Can. Ry. Serv.), Sec. Lt. (Hon. Lt.) E. Shamper (Lt., Quebec R.), Dec 14th, 1918; Sec. Lt. (Hon. Lt.) E. N. Cppping (Lt., Sask. R.), Sec. Lt. (Hon. Lt.) T. P. Elder, M.M. (Hon Lt., Brit. Col. R.), Sec. Lt. (Hon. Lt.) W. J. McMahon (Lt., Can. For. Corps), Dec. 16th, 1918; Lt. H. Perodeau (Lt., Quebec R.), Dec 20th, 1918; Lt. C. N. F. Jeffery (Lt., Manitoba R.), Sec. Lt. (Hon. Lt.) T. W. Laybourne, D.C.M. (Lt., Sask R.), Jan. 2nd; Sec. Lt. (Hon. Lt.) B. E. Scott (Lt., Can. F.A.), Jan. 3rd; Lt. W. D. Chambers (Lt., Can. Ry. Serv.), Jan. 5th; Sec. Lt. (Hon. Lt.) J. T. M. Hill (Lt., Alberta R.), Jan. 10th; Lt. W. M. Emery (Lt., Can. Engrs.), Jan. 16th.

The following are transferred to unempld. list.—Sec. Lt. C. D. Parker, Jan. 6th; Lt. (actg. Capt.) J. E. M. Middleton, M.C., Jan. 7th; Lt. J. Adam, Sec. Lt. F. A. B. Andrews, Capt. W. A. Dunn, Jan. 8th; Lt. S. Cleobury, Lt. D. M. Harper, Sec. Lt. W. A. Rollason, Jan. 9th; Lt. G. S. Bush, Lt. F. G. B. Callow, Lt. R. E. Dangerfield, Lt. R. W. H. Grasdorff (S. Wales Bord.), Sec. Lt. W. A. Linnell, Capt. W. E. C. Parry, Lt. C. P. Porter, Jan. 10th; Lt. E. J. Allman, Sec. Lt. C. W. Arning, Sec. Lt. D. E. Cameron, Sec. Lt. E., Colmer, Sec. Lt. R. W. A. Watchorn, Jan. 11th; Sec. Lt. C. Mackay, Sec. Lt. C. G. J. Silcock, Jan. 12th; Lt. H. E. Easton (Lond. R., T.F.), Lt. A. C. Gill, Lt. (actg. Capt.) S. Hay, Sec. Lt. F. E. B. Jones, Sec. Lt. W. H. Mitchell, Lt. S. G. Smith, Sec Lt. (Hon. Lt.) E. G. Symonds, Sec. Lt. (Hon. Lt.) H. W. Vernon, Sec. Lt. (Hon. Lt.) J. B. Windle, Jan. 13th; Lt. (Hon. Capt.) (actg. Capt.) C. M. Brisco-Owen, M.C., Capt. R. G. Clarke, Sec. Lt. P. C. Drummond, Sec. Lt. C. B. Gibson, Lt. (Hon. Capt.) A. H. C. Hope (Sea. Highrs.), Lt. E. D. Howard, Sec. Lt. S. G. Massey-Lynch, Capt. C. A. Narbeth, Sec Lt. D. C. North, Lt. (actg. Capt.) G. H. Plowman (Lt., R. Innis. Fus.) Lt. W. Pryor, Capt. T. O. Wood, Sec. Lt. A. Wragg, Jan. 14th; Lt. (actg. Capt.) C. C. Banks (R. Welsh Fus.), Lt. (Hon. Capt.) C. T. Cleaver, M.C., D.F.C., Lt. K. M. A. Cornford, Sec. Lt. H. F. B. Duval-Symington, Lt. G. J. Farmer (Lond. R.), Sec. Lt. L. P. James, Sec. Lt. E. E. Jones, Maj. D. M. King (temp. Maj., Hussars), Sec. Lt. J. K. Lancaster, Sec. Lt. J. Lomas, Sec. Lt. C. S. Noble, Sec. Lt. L. W. Sellar, Sec. Lt. E. Tyler, Jan. 15th; Maj. J. Bird, O.B.E., Sec. Lt. F. G. Goodes, Lt. J. W. Grose, Sec. Lt. K. M. Guthrie, Lt. A. H. J. How, Sec. Lt. H. G. Sands (Norf R., T.F.), Lt. J. L. Whitaker, Capt. G. F. W. Zimmer, Jan. 16th; Sec. Lt. A. C. Brown, Lt. R. C. Fielder, Capt. C. M. Gibson, Capt. E. G. N. Grimble (Herts R.), Lt. E. Haigh (Sec. Lt., R.G.A., Spec. Res.), Sec. Lt. P. McL. Harrison, Sec. Lt. (Hon. Lt.) R. A. Henry (R.G.A., Spec. Res.), Lt. H. G. D. Parkinson (Lt., A.S.C.), Capt. E. R. Pennell, D.F.C., Jan. 17th; Sec. Lt. J. D. Evans, Sec. Lt. B. A. Greenfield, Lt. H. E. Watson, Jan. 18th; Lt. (actg. Capt.) G. B. Bailey, Sec. Lt. G. Jennings, Lt. C. A. F. Rogers, Jan. 19th, Maj. H. de Havilland, D.S.O., Sec. Lt. E. R. Hargreaves, Jan. 21st; Sec. Lt. A. R. S. Proctor, Jan. 23rd; Sec. Lt. F. A. McCumber, Jan. 24th.

Capt. G. N. Martin (Durh. L.I.) relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Jan. 29th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—J. H. Bryer (contracted on active service), E. Evans, R. Messulam, Jan. 29th.

The following Lts. relinquish their commns on account of ill-health :—T. L. Green, (Hon. Capt.) W. A. Milton (Lt., R.F.A.) (contracted on active service), A. S. F. Reeves (E. Kent Yeo., T.F.) (contracted on active service), A. W. Sharp (Beds. R., T.F.), Jan. 29th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—V. Cleaver, W. Eastwood, J. S. Ford, W. C. Gray, J. D. Irvine, F. A. Maples, J. C. J. McDonald (contracted on active service), C. E. Nicely, J. W. Perks (contracted on active service), Jan. 29th.

Sec. Lt. W. Bartley relinquishes his commn. on account of ill-health, Jan. 29th.

The notification in "Gazette" of July 19th, 1918, concerning E. Vickers is cancelled.

The surname of H. Hutchison is as now described, and not Hutchinson, as in "Gazette," Sept. 3rd, 1918.

The notification in "Gazette," May 31st, 1918, concerning Sec. Lt. W. A. Stead is cancelled.

The notification concerning Sec. Lt. J. L. Hill in "Gazette," June 4th, 1918, is cancelled

The notification concerning Sec. Lt. W. H. Gibson in "Gazette," June 25th, 1918, is cancelled.

The appt. of D. R. Day as Sec. Lt. (A. and S.) is antedated, with effect from April 2nd, 1918.

ADMINISTRATIVE BRANCH :.—J. S. Ruttle (Lt. (actg. Capt.), attd. E. Kent R.) is granted a temp. commn. as Lt., and to be actg. Maj. while empld. as Maj., and to be graded for purposes of pay as S.O.2 (2nd Gr.), April 1st, 1918.

Capt. J. Williams to be Capt., from (S.O.), Nov. 22nd, 1918.

To be actg. Capts. while empld. as Capts. :—Lt. J. Edwards, from (T.), July 31st, 1918; Sec. Lt. C. S. Thompson, Aug. 30th, 1918.

Lts. (A.) to be Lts. :—J. L. Batstone, June 12th, 1918; (Hon. Capt.) W. H. Kelley, Aug. 5th, 1918, T. Rawsthorne, Aug. 12th, 1918; M. A. Hancock, Oct. 1st, 1918; D. B. Brayshaw, Oct. 16th, 1918; V. R. S. White, M.C., Nov. 12th, 1918; C. W. B. Colling, Nov. 25th, 1918; C. McPhail, Dec. 12th, 1918.

Lts. (K.B.) to be Lts. :—G. W. White, Aug. 19th, 1918; R. T. Penn, Oct. 14th, 1918; A. R. Mann, Oct. 25th, 1918; (actg. Capt.) W. J. Rawson, Nov. 13th, 1918, and relinquishes the actg. rank of Capt.

Lts. (O.) to be Lts. :—W. Sutherland, Oct. 12th, 1018; H. S. Murdock, Oct. 28th, 1918, A. E. Gill, Nov. 18th, 1218; R. C. Vaughan, M.C., Dec. 30th, 1018.

Sec. Lt. (Hon. Lt.) A. C. E. F. Kennish to be actg. Lt. whilst empld. as Lt., Oct. 30th, 1918; Sec. Lt. E. Slinger to be Sec. Lt., from (A.), Oct. 29th, 1918.

Sec. Lts. to be Sec. Lts., from (O.) :—C. B. Marshall (and to be Hon. Lt.), Nov. 8th, 1918; W. B. Walker, D.F.C., Nov 14th, 1918; H. B. Shaw, Nov. 22nd, 1918; F. H. Wrigley, Jan. 18th.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. (Hon. Lt.) A. R. Evers (Lt., Can. F.A.), Dec 9th, 1918; Capt. M. P. Rathbone (Hon. Capt., S. Lanc. R., Spec. Res.), Jan. 14th.

The following are transferred to unempld. list :—Sec. Lt. D. Mason, Jan. 8th; Sec. Lt. F. W. Beaumont, Jan 9th; Sec. Lt. S. Howard, Capt. (actg. Maj.) P. S. J. Owen, Jan. 10th; Sec. Lt. W. P. Johnson, Sec. Lt. W. R. Smith, Jan. 12th; Sec. Lt. W. P. Conly, Sec. Lt. A. J. H. Homan, Jan. 13th; Capt. P. J. Bird, Sec Lt. P. J. Griffiths, Sec. Lt. H. J. Youdan, Jan. 14th, Sec. Lt. E. Ackroyd, Lt. J. E. R. Hyson, Sec. Lt. H. J. Lee, Sec. Lt. R. Myer, Sec. Lt. T. A. Myers, Jan. 15th; Sec. Lt. (actg. Lt.) G. Hewlett, Jan 17th; Sec. Lt. H. G. Gasson, Jan. 18th; Capt. W. G. Amos, Jan. 19th.

Capt. I. Barrington-White (R. of O.) relinquishes his commn. on account of ill-health, Jan. 29th

Sec. Lt. (actg. Capt.) H. Rogers relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt., Jan. 29th.

Lt. W. De L. Lauder, M.C., relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Dec. 21st, 1918 (substituted for notification in "Gazette," Dec. 20th, 1918).

Sec. Lt. S. G. Lane is cashiered by sentence of a General Court-martial, Jan. 9th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—H. Hirst (contracted on active service), W. Lockwood, G. L. Shaw (contracted on active service), Jan. 20th.

TECHNICAL BRANCH.—Capt. R. Young to be Capt. (Gr. A), from (A.), April 1st, 1918.

Lt. (actg. Capt.) G. M. Garro-Jones to be granted for purposes of pay as Capt. (Gr. B) while empld. as Capt., Dec. 18th, 1918.

Lts. to be actg. Capts. while empld. as Capts :—C. Murchie, July 31st, 1918; W. S. Harms, Aug. 31st, 1918.

Lt. H. E. Went to be actg. Capt. while empld. as Capt. (Gr. B), April 18th, 1918.

Lt. F. H. Holmes, M.C., to be Lt. (Gr. A), from (A.), Nov. 12th, 1918.

Lts. (Ad.) to be Lts. (Gr. B) :—R. F. Sinclair, Dec. 21st, 1918; F. J. Kayser, Jan. 11th.

Sec. Lts. to be actg. Lts. while empld. as Lts. :—P. S. Beaufort, J. V. Cook, Oct. 30th, 1918.

To be Sec. Lts. (Gr. A), from (Ad.) :—R. W. Forsyth, Oct. 23rd, 1918; A. T. Guinevan, Jan. 2nd.

Sec. Lt. E. C. Deeth to be Sec. Lt. (Gr. A), from (Gr. B), Dec. 30th, 1918.

To be Sec. Lts. (Gr. B), from (Ad.) :—C. Lewis, May 30th, 1918; R. Wylie, Nov. 19th, 1918 (substituted for notification in "Gazette" of Dec 24th, 1918; H. S. Smith, Dec. 3rd, 1918.

Sec. Lt. C. F. Sweatman relinquishes his commn. on ceasing to be empld., Jan. 17th.

The following are transferred to unempld. list :—Sec. Lt. H. L. B. Buchanan, Jan. 3rd; Capt. W. Brass (Surr. Yeo., T.F.), Jan. 8th; Capt. W. E. McConnell, Sec. Lt. (Hon. Lt.) C. H. Macnutt, Lt. A. W. Payne, Jan. 10th; Capt. R. Ferguson, Sec. Lt. J. L. Malkin, Sec. Lt. S. Marks, Jan. 11th; Capt. G. Frecheville, Sec. Lt. A. R. Mitchell, Jan. 12th; Sec. Lt. H. A. Scott, Lt. W. E. G. Silliek, Jan. 13th; Capt. V. F. P. Bryce, Capt. E. H. Cockshott, Sec. Lt. F. Cohen, Sec. Lt. H. Cohen, Lt. E. B. Horlick, Sec. Lt. H. Lloyd, Sec. Lt. (actg. Lt.) G. G. Onions, Jan. 14th; Sec. Lt. T. B. Barnes, Sec. Lt. (Hon. Lt.) J. W. Bradford (Yorks. R., T.F.), Sec. Lt. H. L. Copestake, Sec. Lt. T. I. Grimes, Sec. Lt. A. Rowland, Sec. Lt. (actg. Lt.) J. E. Tod, Sec. Lt. E. Ware, Jan. 15th; Lt. P. H. Clifford, Lt. B. M. J. Davis, Capt. E. W. Stubbs, Jan. 16th; Sec. Lt. (Hon. Lt.) C. N. Dove, Sec. Lt. R. L. Finnis, Sec. Lt. (actg. Lt.) S. D. A. Jolly, Sec. Lt. A. H. V. Kingdon, Capt. (actg. Maj.) W. C. Mitchell, Sec. Lt. W. S. S. Wray, Jan. 17th; Capt. T. G. Mackenzie, Sec. Lt. W. H. Shorter, Jan. 18th; Lt. (actg. Capt.) M. L. Horn, Lt.-Col. A. E. J. Reiss, Sec. Lt. (Hon. Lt.) C. G. Sweet, Jan. 20th; Sec. Lt. J. Fraser, Jan. 21st; Lt. R. O. Clark, Jan. 23rd; Sec. Lt. A. McCulloch, Jan. 27th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—R. T. Belville, D. I. D. Murray, Jan. 29th.

The surname of Lt. W. S. Mathews is as now described, and not as in "Gazette," Jan. 14th.

The notification in "Gazette," Nov. 8th, 1918, concerning Lt. F. C. Elstob is cancelled.

The notification in "Gazette," Oct. 1st, 1918, concerning Maj. J. W. K. Allsop is cancelled.

Physical Training Branch.—The initials of Capt. (actg. Maj.) B. T. Metcalfe are as now described, and not as in "Gazette," Jan. 14th.

Medical Branch.—Lt.-Cols. to be Lt.-Cols. (Gr. A) :—E. O. B. Carbery, H. Cooper, E. C. Cridland, H. J. Hadden, N. H. Harris, R. H. Mornement, J. St. J. Murphy, T. Philip, W. H. Pope, N. J. Roche, H. E. South, H. V. Wells, Oct. 1st, 1918.

The following Majs. (actg. Lt.-Cols.) retain the actg. rank of Lt.-Col. whilst empld. as Lt.-Cols. (Gr. A) :—G. N. Biggs, H. C. T. Langden, F. F. Muecke, Oct. 1st, 1918.

L. B. Stringer (temp. Surg. Lt., R.N.) is granted a temp. commn. as Capt., Oct. 1st, 1918, seny. April 1st, 1918.

Chaplains Branch.—The following are granted temp. commns. as Chaplains, with the relative rank of Capts. :—Rev. G. D. Jones (temp. Chapln. to the Forces, 4th Cl., A.C.D.), Jan. 21st; Rev. O. W. E. Grant (temp. Chapln. to the Forces, 4th Cl., A.C.D.), Jan. 23rd.

Memoranda.—Maj. J. R. Bedwell, M.C., is granted the local actg. rank of Lt.-Col. (without pay and allowances of that rank) whilst specially empld., Jan. 10th.

Hon. Lt. H. C. Myers is granted the hon. rank of Capt. whilst holding a special appt. at the Ministry of Munitions, Jan. 28th.

The following are transferred to unempld. list :—Sec. Lt. A. Gauld, from S.O., Jan. 11th; Lt. R. R. Frecheville, from S.O., Jan. 12th; Capt. (actg. Lt.-Col.) G. Philippi (Dns., Spec. Res.), Jan. 13th; Maj. E. C. Fulton, from S.O., Jan. 15th.

War Office, Jan. 30th, 1919.

The following are mentioned in a dispatch which has been received by the Secretary of State for War from Lt.-Gen. Sir G. F. Milne, K.C.B., K.C.M.G., D.S.O., Commander-in-Chief, British Salonika Force :—

Royal Air Force.

Ackery, Lt. W. M., D.F.C., Addison, Sec. Lt. R., M.C.
Bates, Capt. (actg. Maj.) F. A., M.C. (Denbigh Yeo. (T.F.)), Beeney, Lt. J. A., D.F.C. (Lond. R.), Boyd, Lt. J., D.F.C. (H.L.I., T.F.), Brawley, Lt. and Hon. Capt. G. M. (Can. Local Forces), Brown, Lt. W. J. (Cam. Highrs. (T.F.)), Buchanan, Lt. W. J., D.F.C.
Candy, Lt. L. G., Cavers, Lt. J. P., Collier, Lt. J., D.F.C.
Davis, Lt. (actg. Capt.) H. G., D.F.C., Dawes, Lt.-Col. G. W. P., D.S.O. (R. Berks. R.), De Pass, Lt. R. D. (Middx. R., T.F.).
Edwards, Lt. and Hon. Capt. S. B.
Ford, Lt. H. T. R., Formby, Sec. Lt. T. H. (R.G.A., S.R.), Fyfe, Lt. (actg. Capt.) R. G.
Goulding, Lt. (actg. Capt.) A. G., M.C., D.F.C. (Can. Local Forces), Green, Lt. C. B., D.F.C. (Can. Local Forces).
Hart, Sec. Lt. G. H. A., D.F.C., Hillier, Lt. (actg. Capt.) H., D.F.C., Hodges, Maj. S. G., M.C., A.F.C. (Wilts. R.).
Knight, Capt. A., M.B.E. (N. Lan. R.).
McEwan, Lt. M., D.F.C. (R.G.A., T.F.).
Nimmo, Capt. A. F.
Primrose, Sec. Lt. C. P., D.F.C.
Ridley, Lt. W., D.F.C. (Can. Engrs.).
Simmons, Sec. Lt. and Hon. Lt. H. E., M.C., Smith, Lt. (actg. Capt.) C. H., M.B.E., R. of O.
Todd, Lt.-Col. G. E. (Welsh R.).
Whitfield, Lt. F. A.
Adkins, 4395 1st Air Mech. W. W.
Crowden, 26653 Serjt. Mech. W. H.
Dommett, 4628 Sec. Air Mech. E. J. H., Dowsett, 2834 Serjt. Mech. T. (Now Sec. Lt.)
Hare, 19256 Serjt. Mech. W., Hicks, 21092 Serjt. Clk. S. V.
Kent, 11579 Serjt. Mech. F. J.
Law, 880 Serjt. Mech. A. H., Lovelace, 2468 Serjt. Mech. F.
Ostler, 3786 Ch. Mech. C.
Parker, 20403 Serjt. Mech. I., Parkhurst, 3745 Ch. Mech. W. E.
Spry, 2435 Flt. Serjt. C. H., Stevenson, 36763 Mech. Cpl. W. H., Stoeri, 87417 Sec. Cl. Clk. F., Swinburn, 11778 Ch. Mech. W.
Thompson, 25459 Mech. Cpl. J. H., Tiltman, 3779 Mech. Serjt. E. G.
Wilson, 18011 1st Air Mech. (actg. Cpl. Mech.) A. S., Wootton, 11403 Ch. Mech. T. S.

War Office, Jan. 31st.

The King has been pleased to give directions for the following appts. to the Most Distinguished Order of Saint Michael and Saint George in recognition of distinguished service in the field, in France and Flanders :—

Companions.

Col. (actg. Brig.-Gen.) Henry Robert Moore Brooke-Popham, D.S.O., A.F.C.
Col. (actg. Brig.-Gen.) Charles Alexander Holcombe Longcroft, D.S.O., A.F.C.

Air Ministry, Jan. 31st.

R.A.F.—The following temp. appts are made at the Air Ministry :—Director of Medical Services.—Col. M. H. G. Fell, C.M.G., and to be actg. Maj.-Gen. whilst so empld., vice Maj.-Gen. R. C. Munday, Jan. 7th.

Deputy Director.—Maj. (actg. Lt.-Col.) C. A. J. Butter, and to be actg. Col. whilst so empld., Dec. 28th, 1918.

Staff Officers, 1st Cl.—And to retain the actg. rank of Lt.-Col. whilst so empld. :—Maj. (actg. Lt.-Col.) E. G. Mackenzie, Dec. 28th, 1918; Maj. (actg. Lt.-Col.) J. H. Lidderdale, vice Maj. (actg. Lt.-Col.) C. A. J. Butter, Jan. 6th.

Staff Officers, 2nd Cl.—And to be actg. Majs. whilst so empld. if not already holding that rank :—Maj. C. S. MacNab, Dec. 30th, 1918; Capt. (actg. Maj.) D. L. Blumenfeld, Jan. 1st; Capt. (actg. Maj.) F. G. Stammers, O.B.E., Jan. 6th; (Air) Capt. A. R. Boyle, M.C., vice Capt. (actg. Maj.) C. M. Carrington, Jan. 10th (substituted for notification in the "Gazette," Jan. 24th.)

Staff Officers, 3rd Cl.—And to be actg. Capts. whilst so empld., if not already holding that rank :—Lt. J. Duncan, Nov. 1st, 1918; Capt. S. T. Ravenscroft, Capt. S. M. Wood, Jan. 1st; (P.) Sec. Lt. (actg. Lt.) E. G. Clement, Jan. 3rd.

The following temp. appt. is made :—Depart. Director (Graded for purposes of pay as Col. (Ad.)) :—Lt.-Col. I. Curtis, and to be actg. Col. whilst so empld., Nov. 26th, 1918.

Flying Branch.—Capt. C. C. Darley to be actg. Maj. whilst empld. as Maj. (A.), Dec. 19th, 1918.

Lts. to be Lts. (A.) from Obsr. Officers :—H. B. Lilley, Sept. 9th, 1918; R. C. W. Jervois, Nov. 5th, 1918; J. H. Kirk, Dec. 13th, 1918.

Sec. Lt. L. C. Cody to be Sec. Lt. (K.B.) from (Ad.), May 25th, 1918;

Sec. Lt. W. R. Hatfield to be Sec. Lt. Obsr. Officer from (A.), Dec. 6th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. (Hon. Lt.) R. E. Shields (Lt., C. Ont. R.), Dec. 6th, 1918; Sec. Lt. (actg. Lt.) E. R. Wood (Lt., Nova Scotia R.), Dec. 7th, 1918; Lt. R. G. Graham (Capt., Can. A.S.C.), Dec. 11th, 1918; Lt. F. C. Dickins (Lt., Alberta R.), Dec. 13th, 1918; Lt. W. K. MacNaughton (Lt., W. Ont. R.), Dec. 16th, 1918; Lt. W. B. Hutcheson (Lt., Can. Engrs.), Dec. 24th, 1918; Lt. (Hon. Capt.) A. C. St. Clair-Morford, M.C. (Capt., R.M.L.I.), Jan. 7th; Lt. D. D. Dall (Lt., C. Ont. R.), Jan. 8th; Sec. Lt. (Hon. Lt.) H. Jardine (Lt., Can. F.A.), Lt. (actg. Capt.) E. E. Showler (Lt., C. Ont. R.), Lt. G. L. Ziegler (Lt., W. Ont. R.), Jan. 10th; Lt. G. F. Hollington (Lt., Sask. R.), Jan. 11th; Lt. (Hon. Capt.) J. A. Johnston, M.M. (Lt. Manitoba R.), Jan. 21st.

The following are transferred to unempld. List :—Lt. J. Stuart, Jan. 5th, Lt. (Hon. Capt.) K. W. M. Pickthorn (Lond. R., T.F.), Jan. 6th; Sec. Lt. D. S. Anderson, Jan. 7th; Sec. Lt. H. J. Martin, Jan. 8th; Lt. H. S. Weston, Jan. 10th; Capt. L. W. S. Cutler, Capt. (actg. Maj.) R. G. Heyn, O.B.E., Sec. Lt. T. R. Michelson, Jan. 11th; Lt. W. F. Cleeve, Lt. C. D. Gee (R.N.A.S.), Capt. N. M. Scott, Jan. 12th; Lt. G. S. Bourner, Lt. N. W. Hustings, Lt. F. W. E. Perry, Lt. L. Phillips, Lt. W. A. Slocock, Jan. 13th; Lt. (actg. Capt.) A. J. Salton, Lt. M. E. Stutchfield (R.F.A., Spec. Res.), Jan. 14th; Sec. Lt. H. W. Turton, Jan. 15th; Lt. A. J. Davis, Capt. R. E. Greensmith, Lt. (Hon. Capt.) C. F. Hoyle, M.C. (Capt., Notts Yeo.), Sec. Lt. M. M. M. McLean, Capt. R. St. C. Talboys, Jan. 16th; Sec. Lt. H. S. B. Aston, Sec. Lt. W. A. Cowie, Sec. Lt. C. L. N. A. Dunderdale, Sec. Lt. C. Dyson, Lt. W. B. Ellis, Sec. Lt. W. Galloway (Yorks. R.), Lt. J. B. Hinchcliffe, Lt. (actg. Capt.) S. T. Liversedge, Sec. Lt. (Hon. Lt.) N. H. MacNeil, Capt. (actg. Maj.) G. Merton, Sec. Lt. C. H. Reay, Jan. 17th, Lt. W. C. Balmford, Sec. Lt. A. W. Emery, Lt. R. B. Hooper, Sec. Lt. A. O. Innis, Lt. H. C. Kelly, Lt. N. W. Kirby (Yorks R.), Lt. (actg. Capt.) E. H. Marsden (R.F.A., Spec. Res.), Sec. Lt. G. H. Patey, Jan. 18th; Lt. A. O. Beckett (High L.I.), Lt. B. Dangerfield, M.C., Lt. T. H. Davies, Lt. P. T. Griffiths, Lt. J. S. Johnson, Jan. 19th; Lt. J. W. Brown, Sec. Lt. V. A. Eyles, Sec. Lt. H. P. Gardner, Capt. D. R. Gawler, M.C. (R. Sco.), Sec. Lt. W. J. Griffith (Northn. R.); Sec. Lt. K. E. Judd, Sec. Lt. T. W. Lazenby, Sec. Lt. N. H. Leech, Lt. E. R. B. Playford (R.F.A.), Jan. 20th; Lt. R. Bayley (R.A.S.C., T.F.), Sec. Lt. H. E. Fenton, Sec. Lt. H. E. Filmer, Sec. Lt. G. R. Hasselhuhn, Lt. L. C. Keen, Sec. Lt. H. V. Lawley, Sec. Lt. N. R. Lewis, Sec. Lt. (Hon. Lt.) J. O. Robson, Maj. T. M. Rogers, Sec. Lt. R. C. R. Wilde, Jan. 21st; Lt. D. M. Cameron (High. L.I.), Sec. Lt. J. B. Hately, Lt. G. J. Maynard, Capt. C. C. Morley, Jan. 22nd; Sec. Lt. H. R. Garnham, Jan. 23rd; Sec. Lt. A. Homewood, Jan. 27th.

Lt. A. B. Raper relinquishes his commn., having been elected M.P., Dec. 28th, 1918.

Maj. H. B. R. Grey-Edwards, M.C., relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Maj., Feb. 1st.

Capt. A. H. Allardyce relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., Feb. 1st.

Capt. E. A. de Pass (Capt., Lond. Yeo., T.F.) relinquishes his commn. on account of ill-health contracted on active service, Feb. 1st.

The following Lts. relinquish their commns on account of ill-health, and are permitted to retain their rank :—A. L. Code (caused by wounds), J. A. McOnie, C. Oxberry (contracted on active service), W. L. Watt (contracted on active service), Feb. 1st.

Lt. G. A. Good (Sask. R.) relinquishes his commn. on account of ill-health, Feb. 1st.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—A. E. Chapman, E. A. Copp (contracted on active service), H. S. Dyson, G. B. Harper, E. P. Hulme, Feb. 1st.

Sec. Lt. H. Hill (R. War. R.) relinquishes his commn. on account of ill-health, Feb. 1st.

Sec. Lt. R. Cockburn resigns his commn., being physically unsuited for the duties of Pilot or Obsr., Feb. 1st.

The date of relinquishment of his commn. of Sec. Lt. H. J. Sinclair is Jan. 14th, and not as stated in "Gazette," Oct. 22nd, 1918.

The date of appt. of Sec. Lt. C. H. Harwood as Sec. Lt. (O.) is Aug. 25th, 1918, and not as stated in "Gazette," Jan. 10th.

The surname of Lt. N. C. Ashton is as now described, and not Aston as stated in "Gazette," Dec. 31st 1918.

Administrative Branch.—Deputy Director (graded for pay as Col.) Lt.-Col. I. Curtis, and to be actg. Col. whilst so empld., Nov. 2nd, 1918.

I. Curtis, M.A., A.M.I.M.E. (actg. Chief Instr., R.N.) is granted a temp. commn as Lt.-Col., Nov. 26th, 1918, seny. from April 1st, 1918.

Maj. J. M. Boyd to be actg. Lt.-Col. while specially empld., July 26th, 1918.

Maj. (actg. Lt.-Col.) B. O. Jenkins, C.B.E., to be Maj. and relinquished the actg. rank of Lt.-Col., from (T.), Sept. 8th, 1918.

Capts. to be actg. Majs. whilst empld. as Majs. :—G. B. Chainey, Aug. 26th, 1918; S. S. Mackenzie, M. B. O'Brien, L. J. Robertson, Nov. 30th, 1918.

Lt. (actg. Capt.) H. J. L. Cappel to be actg. Maj. while empld. as Maj., from (T.), Aug. 8th, 1918.

Capt. F. L. J. Shirley, M.C., to be Capt., from (A.), Oct. 3rd, 1918.

Sec. Lt. (actg. Capt.) L. H. Seccombe retains the actg. rank of Capt. while empld. as Capt., from (T.), Aug 19th, 1918.

Lts. to be actg. Capts., while empld. as Capts. :—H. B. Shepheard, Aug. 2nd, 1918; F. J. Logan, Sept. 28th, 1918; W. J. Matthews, Oct. 1st, 1918; E. A. Comeau, from (T.), M. Tarbet, Jan. 11th.

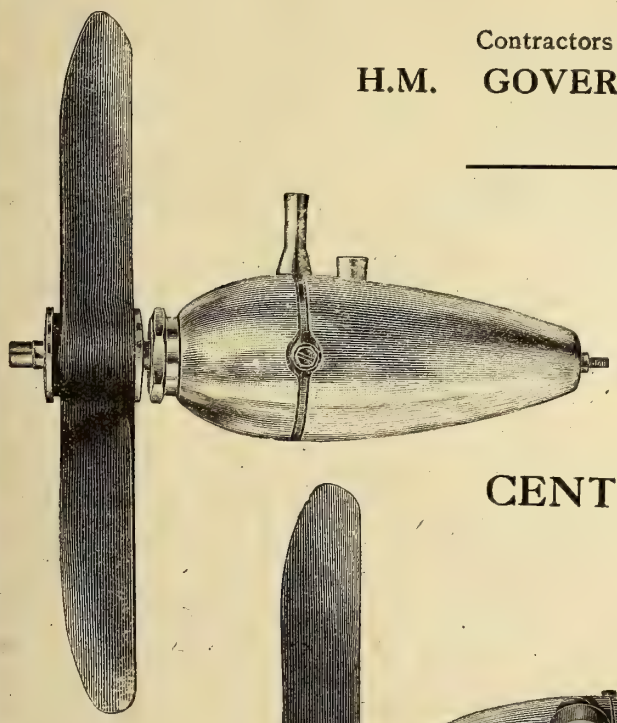
Sec. Lts. to be actg. Capts. while empld. as Capts. :—O. G. Pike, from (T.), Dec. 9th, 1918; (actg. Lt.) J. M. Moore, F. Rooney, from (K.B.), and to be graded for pay as S.O., 3rd Cl., Jan. 1st; (actg. Lt.) R. E. Roberts, Jan. 11th; Lts. (A.) to be Lts. :— H. D. Wright, A. T. Wynyard-Wright, April 1st, 1918; S. T. Stephens, July 9th, 1918; W. à B. Probart, Aug. 15th, 1918; L. C. Messiter, Sept. 13th, 1918; A. B. Bullock, Sept. 16th, 1918, A. J. F. Behm, Sept. 26th, 1918; B. C. Budd, Sept. 27th 1918; J. T. Andrews, Sept. 30th, 1918; C. B. Godfrey, Oct. 18th, 1918; W. L. Coleridge, Oct. 28th, 1918; (Hon. Capt.) J. I. C. O. Gairdner, Nov. 12th, 1918; G. W. E. Baker, Nov. 19th, 1918; F. G. W. Taylor, Nov. 25th, 1918; R. G. Robson, Nov. 27th, 1918; W. D. Baird,

(Continued on page 615.)

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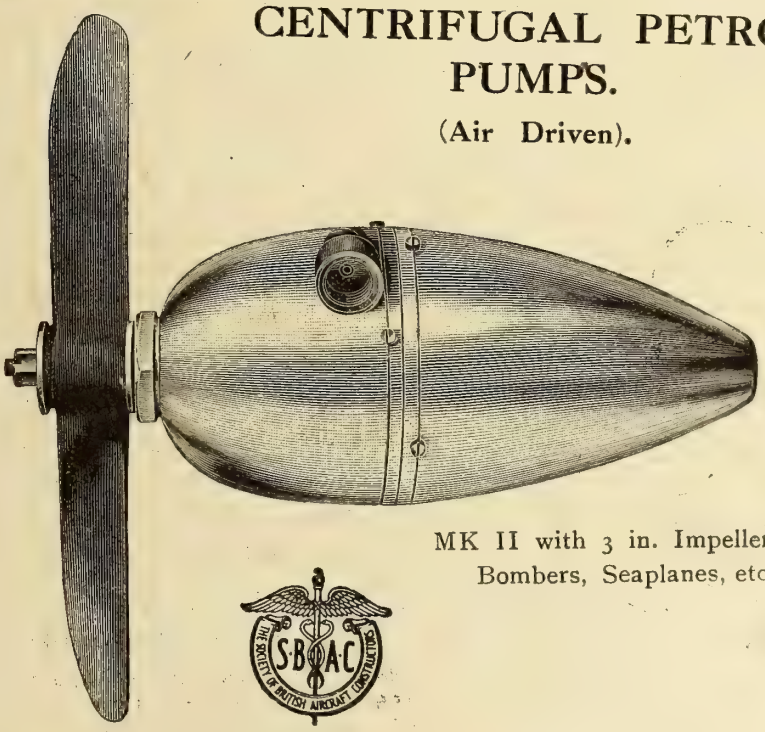
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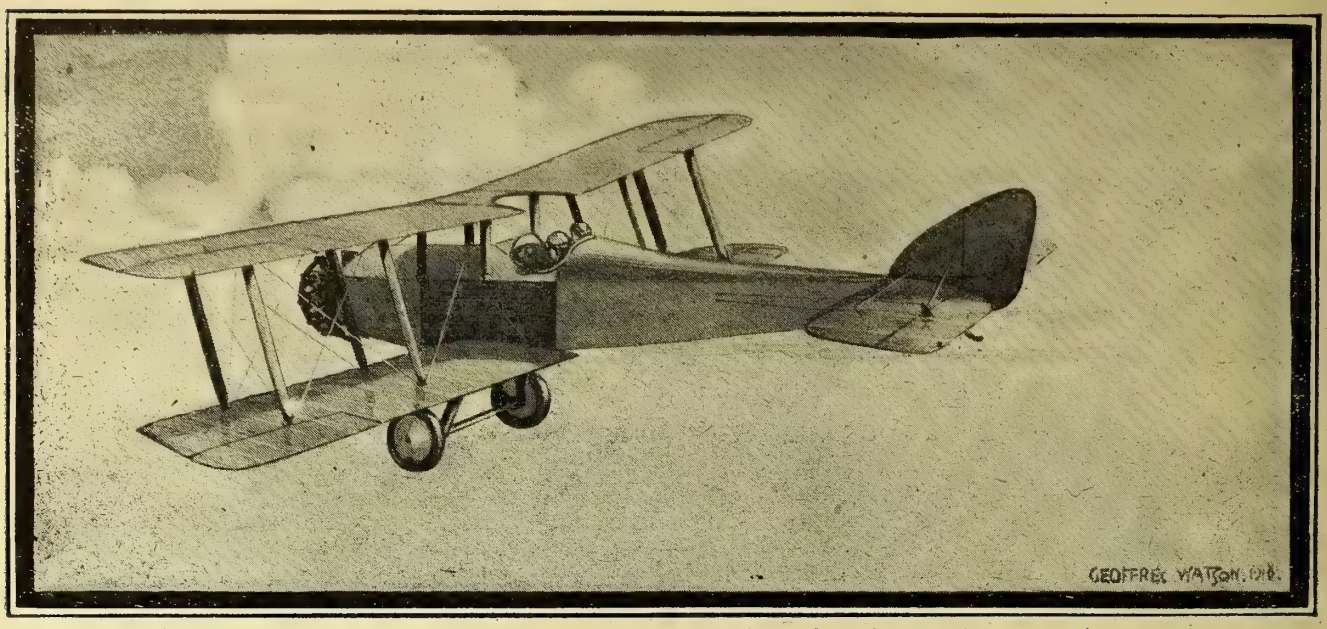
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THE WEEKLY COMMENTARY.

In a continuation of the article upon the "Influence of Official Control upon the Design of Aircraft," pseudonymous "Strasbourg" deals with the uses and the misuses of the mathematician and the engineer and makes certain pungent criticisms of the British attitude towards the technically trained man. It is fairly generally admitted that this country has failed to make an intelligent use of the technical knowledge which it has at its disposal, and "Strasbourg's" remarks upon this subject have a direct bearing upon a much wider industrial field than that with which it is immediately concerned.

A brief description of the methods and the organisation which has been set up by the Royal Air Force for the disposal of the very large stock of matériel surplus to its peace requirements will be found in the present number. A rough idea of the total quantity of stores which is to be dispersed is given, and attention is drawn to some of the opportunities which are thus opened to the enterprise of the British manufacturer.

One cannot sufficiently emphasise the importance to the British Aircraft Industry of not permitting machines of well-known British makes to reach foreign markets until the maker has satisfied himself, not merely that it is mechanically sound, but that it is suitable for its purchaser's requirements.

Attention is also drawn to a very wide field for enterprise in the utilisation of the spares thus to be disposed of, for purposes different from those for which they were originally destined.

The desciption of the Liberty engine, commenced in the issue of January 29th, is continued. The particulars which are given by Mr. Wardrop differ slightly from those available from British sources regarding the engines of this type supplied to the Royal Air Force.

A note by Mr. L. Howard Flanders upon landing brakes for aeroplanes will be found on page 580.

The activities of section T5 of the Technical Department of the Department of Aircraft Production are described in this issue. T5 has been responsible for the distribution to the R.A.F. of all official technical literature, and for the printing and a very large proportion of the composition and design thereof. It has shown throughout a very high standard of efficiency, and its work is worthy of attention.

THE INFLUENCE OF OFFICIAL CONTROL UPON THE DESIGN OF AIRCRAFT, 1914—1918.—III.

BY "STRASBOURG."

The personnel of the technical departments of the various manifestations of the Air Forces has endured much obloquy—most of it richly deserved had it been directed impersonally at the organisations; but much of it largely undeserved by the individuals who have composed them.

In point of fact, the personnel of the present Technical Department shows a very high level of intelligence and industry—far higher than the organisation is capable of employing efficiently—effectively degraded by an amazingly accurate misallotment of duties. Engineers of great experience and high professional standing are snowed under by piles of minutes dealing with the most trivial details, whilst important questions of design policy are settled by young gentlemen whose claims to be engineers are founded upon their ability successfully to operate a motor-cycle, and whose capacity for looping a "Camel" supplies them with abundant claims to authority upon aerodynamics.

Concerning Mathematicians.

Of those who have been publicly held up to derision and contumely, there are few who have suffered more heavily than those who are described variously and interchangeably as mathematicians, scientists, or theorists—terms which have generally been applied to those who have applied, or attempted to apply, any form of mathematics of a higher order than simple arithmetic to the elucidation of engineering problems.

That those possessing acknowledged claims to be regarded as mathematicians have largely deserved a considerable amount of the censure which has been passed upon them is undoubted; but those—their seniors in H.M. Services—who have allowed them to usurp functions and powers outside of those they are fitted to wield are yet more to blame. And further to blame than either is the utter failure of the reputedly educated classes of the British public to realise either the value of the mathematician when properly trained and employed, or the limitations to which they are subjected by the nature of the tools they employ.

Their Uses.

The mathematician can be and often is of the very greatest use in the development of the technique of any

branch of applied physics. It is properly within his scope to point out possible new lines of development, and to indicate the probable scope of new methods and processes in so far as they are affected by such laws as appear to hold in the domain of physics and are established in a form susceptible of numerical expression.

It is for him to investigate the nature and the magnitude of the effects of changes of method, process, or proportions where these changes and their effects can be expressed in mathematical form.

And Their Limitations.

But the whole of the work of the mathematician depends for its value upon the correctness of his initial assumptions, and all such initial assumptions can only be safely based upon the results of experience. Moreover, the mathematician cannot attack problems which deal with quantities not capable of accurate measurement or of expression in numerical terms. Hence the mathematician is, and is likely to remain, helpless when faced with a problem in, say, psychology, which effectively prevents him from dealing thoroughly with most problems in practical engineering, since psychological effects enter into most. Therefore, while the mathematician is capable of stating what will be the effect on the performance of a given alteration in design, and, if he is provided with the required data, of investigating the probable cost of the alteration, or the probable delay in production involved in the alteration—he is not entitled to decide whether the change in performance is sufficient to justify the extra cost or the delay in production.

Such decisions can only be made properly by one possessed of a sufficient knowledge of science and mathematics to digest the information supplied to him by the scientist or the mathematician, a sufficient acquaintance with the practical processes which are available to check the relative costs, both prime and operative, of the various alternative methods of reaching the desired end, and who can—taking into account all the requirements of the case—effect such a compromise between such diverging requirements, as efficiency, cost, and time of completion, as will best produce the effect required.

The Qualifications of the Engineer.

No one class or profession in this country can claim to fulfil completely the qualifications of "Him who should decide," but it is actually the whole aim of the engineer's training (the "engineer" of the Amalgamated Society is not here intended) to fit him for such work, and it is this function of the engineer which the mathematician has been forced to usurp to a very considerable extent—and very noticeably so in the development of aircraft.

And of the Alleged Engineer.

The word "forced" is used because, firstly, the real engineer—in the sense above laid down—is rare in Britain—much rarer than the scientist or the mathematician; very largely because, thanks to the British business man's ignorance and prejudice, any man possessing a reasonable acquaintance with mathematics and pure science, and failing to conceal the same, is very rarely allowed opportunities for obtaining the practical experience essential to his becoming an engineer, and partly because an immense multitude of second-hand motor-car mongers, plumbers, and the like have been permitted to misdescribe themselves as engineers. And, with those whom it hath pleased God to set in authority over us, He hath not been sufficiently pleased to supply either the knowledge or the desire to discriminate between those who are and those who are merely "described as" engineers.

AN OPENING FOR ENTERPRISE.

With the conclusion of hostilities, the Royal Air Force—in common with the other branches of His Majesty's Forces—finds itself in the possession of an enormous quantity of matériel in excess of its needs.

The problem of disposing of this surplus in such a way as to avoid heavy financial losses to the public funds has been placed in the hands of a special Salvage Department—under the Technical Department of the Department of Aircraft Production.

Under the direction of Lt.-Col. Darby, R.A.F., this Department has organised a very complete system of dealing with such stores as are no longer required by the Service.

Many of the existing stores depôts have been diverted to salvage operations, and to these depôts surplus machines, engines, and spares are returned and there inspected. All machines or engines fit for use are properly stored; such as need minor repair or renewal are repaired or have their parts replaced with material from stock. All machines definitely unfit for further use are forwarded to one of the National Aircraft Factories, whose operations have been reversed for the occasion.

There the machines are dissembled in the erecting shop into their main units, and the components are distributed to the departments which would previously have built them—where they are disintegrated into their details. All parts are inspected, and such as are serviceable are cleaned, painted if necessary, and placed in store.

Fabric is de-doped, the cellulose acetate recovered, and the cleaned fabric finds a ready market for the manufacture of fine paper.

Steel fittings of no further use are placed for sale as scrap, and useless fittings of non-ferrous metals are melted down into ingot form.

Every possible care is taken not to scrap material which can be used in any way.

Some idea of the magnitude of the task in hand may be formed from the fact that it is estimated that, roughly, 5,000 complete and serviceable aeroplanes, of such various types as D.H4, D.H6, D.H9, Avro, and the like, together with about 10,000 complete engines—amongst others, 120 and 160 h.p. Beardmores, "Adriatic," B.H.Ps., Clergets, Hispano Suizas, Rolls-Royce up to the "Eagle" series 7, Sunbeams, 90 and 140 h.p. R.A.F. (air-cooled), 200 h.p. R.A.F. 3A (water-cooled), Curtiss, etc.—are to be sold. All these machines and engines are complete and fit for use.

All conceivable spares for machines and engines are available—to a much greater extent than the purchasers of machines or engines are likely to need.

A Problem.

The problem of utilising such spares is one of the most difficult which the Salvage Department has to face. War conditions have involved the keeping of spares in stock to an extent which would be ridiculous under any normal commercial conditions. Hence, even if all the complete machines and engines are satisfactorily sold, together with a supply of spare parts sufficient for their maintenance in normal use, there will still remain a very large supply of parts for which a satisfactory market remains to be found.

The disposal of such complete units as aeroplanes and engines, in the quantities now in question, would appear to be no small matter, since in all probability the total number available is considerably greater than the immediate requirements of this country for civil aerial purposes, more particularly since none of the available machines have been designed for such uses.

Nevertheless, there will probably be little difficulty in disposing of the whole of this part of the stock, for over and above the needs of Great Britain there is a large field for the sale of aircraft suitable for military training and use amongst the not inconsiderable number of States which have remained effectively—if not nominally—neutral during the last four-and-a-half years.

Practically all the South American States, to mention no others, are open to purchase such machines; and one is given to understand that a fair number of inquiries from such States have already reached the Salvage Department.

And Some Solutions.

There seems to be here a very excellent opportunity for such

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British aircraft constructors as have the necessary initiative—for while it is gathered that the Salvage Department is prepared to deal with those foreign States which have not shown themselves actively inimical to the Allies, they are willing to give the preference to British aircraft manufacturers who wish to purchase either their own make of machine or engines for installation in new machines.

It would appear to be a very wise action upon the part of the British Industry to discover the extent of the probable market for military aircraft abroad and to purchase back from the Air Force such of their own machines as they feel they can place upon it, and to sell these machines themselves, after having thoroughly overhauled and possibly partly reconstructed them.

There are many types of aircraft of British origin which could be greatly increased in value by a little intelligent modification. Some excellent machines have been severely handicapped by their makers having been allotted indifferent engines.

Others have been designed originally for one duty and have been diverted to one for which they are not so essentially suited—in response either to a change of policy on the part of the authorities or to an unexpected demand for machines for some new purpose.

Such machines, in most cases, could be reconverted to a suitable engine or refitted for their intended work by the manufacturers, at a relatively small cost, and if then sold by the originating firm would be more likely to enhance the reputation of the maker with the purchaser than if they are sold, as they stand, direct by the Royal Air Force to the user.

And not only will those manufacturers who pursue such a course gain in reputation, but they will provide themselves with work wherewith to tide over the interval between the present and such time as the Aircraft Industry in this country has settled down to a definite commercial development.

A Matter of Reputation.

The British manufacturer, to some considerable extent, holds his future reputation abroad in his own hands. Whether he will buy up his own machines, renovate them, and himself deal with this very large market now open to him, or whether he will allow his name to be associated with a job lot of aircraft no longer needed by the Royal Air Force, and disposed of by it at more or less bargain rates, is largely for him to decide.

It is to be feared that in many cases the necessary capital for embarking on the suggested course is not immediately available, but one would unhesitatingly recommend such a scheme as a much sounder and more immediately profitable investment than any attempt at the quantity production of new machines for commercial purposes.

For those who wish to invest in the British Aircraft Industry, one can think of no better immediate opening than that of financing such a procedure.

Apart from the opportunities thus opened to the aircraft manufacturer of dealing in his own ready-built products, there are the obvious ones of obtaining standard fittings for future machines at low prices.

Room for Initiative.

But even beyond these more or less direct openings there is a wide field for initiative and resource in the utilisation of spare parts and fittings for purposes other than those for which they were originally destined. Over and above those materials which the Aircraft Industry will be able to absorb, there is likely to remain a vast quantity of stores of all kinds which can be diverted to other uses.

There are, for instance, thousands more of complete cylinders, valves, pistons, connecting rods, timing gear wheels, oil and water pumps, and the like, than will ever be needed in the life of the complete engines to which they correspond, and the enterprising designer who will design a crankcase and crankshaft to suit the ready-made parts available, will find himself in a position to put upon the market a car, boat, or country-house lighting engine, of almost any output required, at a very low initial cost, and in a much shorter time than would be required to organise the complete manufacture of such a product.

Requiring even less enterprise would be the problem of modifying the large number of obsolete types of aircraft engines, which are now unlikely ever to take the air again, to the more prosaic needs of every-day commerce. Hopelessly useless aero-engines, when fitted with new pistons and reduced valve lifts, might become quite useful and reliable commercial boat engines running at half their designed speed and giving one-third their intended h.p. Nor is this their only possible use. The demand for small power units for industrial undertakings has immensely exceeded the supply during the past four-and-a-half years, and an adaptation which will meet the shortage immediately will sell more readily than will a prime mover, designed *ad hoc*, which cannot be supplied in less than six months.

Manufacturers of picture frames and other types of light furniture are even now buying damaged airscrews as a raw material for their crafts; and one hopes that the lighter branches of the British Engineering Industry will not fall behind them in their enterprise in the adaptation of this mass of valuable stores to immediately useful purposes.

To all those who are minded to take advantage of the many opportunities which are thus opened, one would recommend an early application to the Aircraft Salvage Department, Ministry of Munitions (Air Group), York House, Kingsway, for particulars of the stocks available for sale.

THE FLIGHT TO INDIA.

The following account was cabled by the special correspondent of the "Times" newspaper at Karachi on Jan. 17th:—

General McEwen's party had a strenuous time between Baghdad and Karachi, battling against very strong headwinds between Baghdad and Ahwaz, Bushire and Bandar Abbas, which reduced the speed to 50 miles per hour. After passing Jask the wind changed, and a speed of over 80 miles per hour was attained.

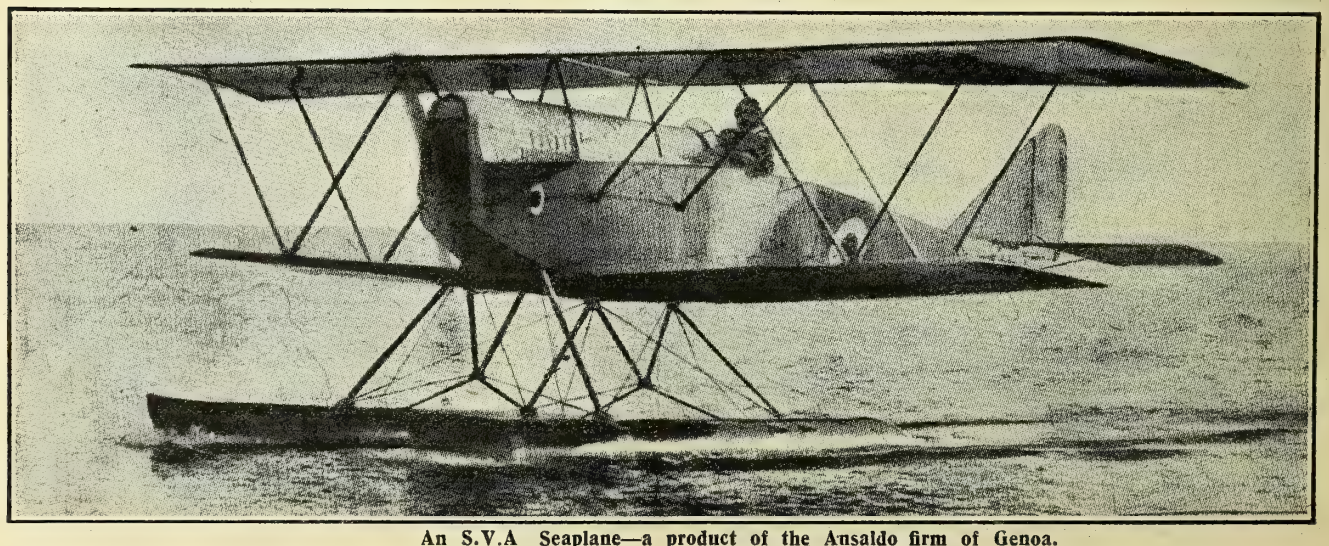
About 2 p.m. on Dec. 30th, when three miles out to sea, off Ormara, one cylinder of the port propelling engine blew off, and the aeroplane was forced to land near the beach. General McEwen was afraid the aeroplane would have to be dismantled, but after much deliberation it was decided to lighten the machine by taking off all spare parts, kit, and wireless, by reducing the petrol and the crew to a minimum, and by tuning the remaining three engines to the highest pitch to make an attempt to reach Karachi.

After a run of a mile on the hard beach the aeroplane rose at 5 p.m. A little later, while over a rocky portion of the coast two of the engines momentarily gave out owing to all the wind vanes coming off the petrol pumps. This was rectified by hand pumping.

Thirty-five miles from Karachi the rear starboard engine gave out owing to fracture of one of the oil leads. The final 30 miles was completed on two engines by dint of just not stalling the aeroplane. A perfect landing was made at Karachi.

General McEwen left for Delhi to-day by train.

[The various engine troubles described above appear to be of a type invariably met with in machines of a new type. Installation troubles are practically inevitable upon such a test as this, and it is a noteworthy fact that in spite of them the machine safely reached its destination.—Ed.]



An S.V.A Seaplane—a product of the Ansaldo firm of Genoa.

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A USEFUL ORGANISATION.

On Wednesday, Jan. 22nd, a representative of THE AEROPLANE was afforded the opportunity of viewing the plant and equipment of Section T.5 of the Technical Department, Department of Aircraft Production, and of discovering the extent of the activities of this extremely useful organisation.

Owing to the secret and confidential nature of many of its publications, no reference to the work of the Section has hitherto been made in the public Press. Its existence will, therefore, come as a surprise to many, and a brief statement of its activities cannot fail to be of interest.

FORMATION AND EARLY DEVELOPMENT.

The existing Section T.5 is a development of the Royal Flying Corps Data and Drawing Office, established in August, 1916, at No. 1 School of Military Aeronautics, Reading. At that time very little technical information was available in a form suitable for the requirements of the Service, and the object of the office at Reading was to collect technical information and translate it into such a form as to render it capable of being easily understood by the average officer, N.C.O., and man in the Royal Flying Corps. Such information was issued in the following forms:—

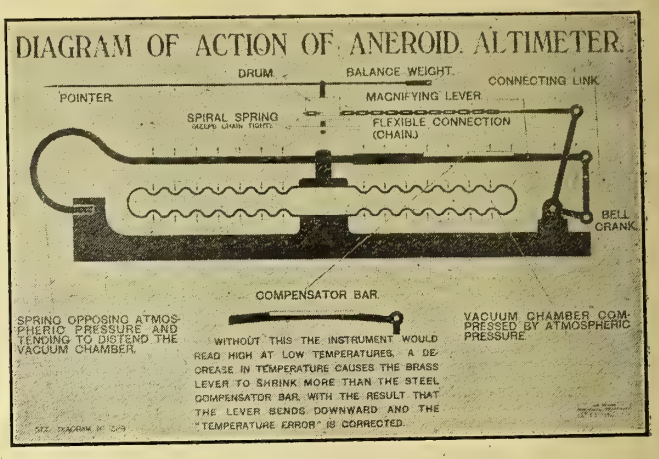
1. Technical Notes, written in a simple manner.
2. Coloured Diagrams of Aero-Engines, Aero-Instruments, Armament, Mechanical Transport, etc.
3. Rigging Diagrams.
4. Lantern Slides.
5. Models.

Owing to the progressive nature of the science of aviation, it became evident that any delay in printing was liable to result in the publication being out of date before it became available for issue. To eliminate loss of time, a small printing plant was installed for reproducing technical data for the Flying Services, and it became possible to effect publication of current information without delay.

In March, 1917, the Data and Drawing Office became a section of the Air Board Technical Department, and the staff and plant was transferred from Reading to the Royal College of Science, South Kensington, and became the central agency for the distribution of all technical information circulated by the Air Board Technical Department.

ORGANISATION.

At present, Section T.5 has a total staff of approximately 400, of which about 50 per cent. are women. It is divided into sub-sections as follows:—



"Schematic" Diagram of an Altimeter.

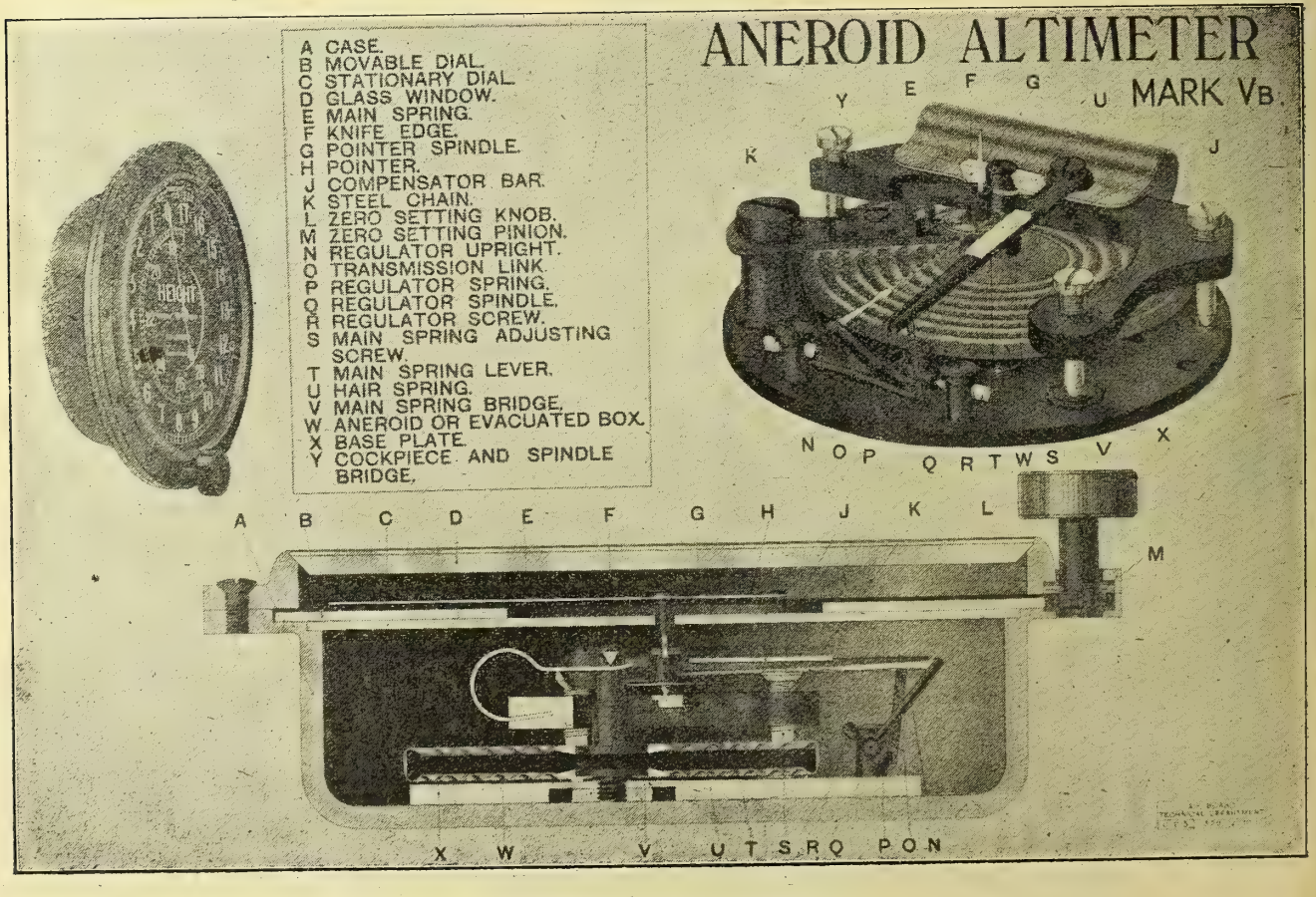
T.5.A.—Administration and Discipline.
T.5.D.—Preparation of Technical Diagrams.
T.5.N.—Preparation of Technical Notes.
T.5.I.—Preparation of Illustrations required by T.5.N.
T.5.P.—Printing of Technical Letterpress, line and half-tone illustrations, and litho work.
T.5.R.—Handling of correspondence and the distribution of Publications.

The plant and staff is such that all classes of work can be done in the building. Letterpress, line and half-tone illustrations, lithographic work, collating, binding, slotting, stitching, etc., are carried out in the Printing Section.

A USEFUL INNOVATION.

The most interesting products of Section T.5 are the remarkable technical and pictorial diagrams produced for the education of the personnel of the R.A.F.

The R.A.F. and its predecessors were faced with the task of instilling into non-technical minds a clear, accurate, and detailed acquaintance with the principles and the actual construction and operation of apparatus of a very varied and unfamiliar nature. Engineering drawings of the usual type were found to be insufficiently legible to those unacquainted with the underlying con-



"Normal" Diagram of Altimeter.

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ventions upon which such drawings are based, and it was found simpler and more efficacious to prepare special diagrams to meet this condition than to attempt to train all ranks and ratings to read mechanical drawings.

Diagrams of two separate types were prepared to meet these conditions—the "Normal" type and the "Schematic" type. Of these the first is an accurate representation—prepared usually from the working drawings—of the object illustrated, showing it as it appears in real life. The second or Schematic type shows merely the principle upon which the apparatus works. The attached illustrations give an excellent idea of the two types as applied to the aneroid altimeter.

AND A NOVELTY.

Equally interesting—and even more novel—is he system of "Pictorial Diagrams" employed in the training of pilots and observers. These consist of actual pictures showing points which it is desired to impress upon the inner consciousness of the pupil—such as the results of landing side to wind, or of allowing a decoy enemy to monopolise all your attention while another dives upon you from sunwards.

It was very obvious that T.5 Section—unlike most of the sections of the Technical Department—has succeeded in acquiring and keeping a staff of experts and of applying them to their proper work, and has been largely left to pursue its business free from external interference.

To Major MacCallum, R.A.F.—O.C. Section T.5—one must extend one's congratulations on the useful work accomplished, and one's thanks for the very hospitable treatment extended to the representative of THE AEROPLANE.

AN INVESTIGATION OF FRICTION BRAKES ON AEROPLANE WHEELS.

BY L. HOWARD-FLANDERS.

To simplify this problem I have taken a concrete example instead of confining myself to abstract conditions.

The example chosen is an obsolete fighting biplane which did good service at the commencement of the war.

Weight loaded, 2,000 lbs.

Area, 340 sq. ft. (main planes).

Two-wheel Vee undercarriage.

Centre of gravity, 80.5 ins. above ground.

Centre of gravity, 24 ins. behind wheels.

Centre of gravity, 7½ ins. below centre of air resistance.

These dimensions are with the tail skid on the ground.

The drag of the tail skid is neglected.

The example landing is presumed to take place at the minimum flying speed, with wheels and tail skid touching simultaneously.

The aerodrome is supposed to be a fairly smooth short grass surface damp with dew, free from ruts, level, and in calm air.

The rolling resistance under these conditions would be about 250 lbs. per ton, so I have called it 10 per cent. of the weight.

The coefficient of friction between a rubber tyre and the grass surface would be about 0.15.

There are two main series of forces acting on the aeroplane.

First, the weight of the aeroplane acting behind the wheels and the air resistance acting above the C.G., both these forces exert a righting moment tending to keep the tail down.

Second, the rolling resistance, and the brake reaction if fitted, tending to overturn the aeroplane.

The first moment is shown in curve No. 1.

The second moment without brakes is shown in curve No. 2.

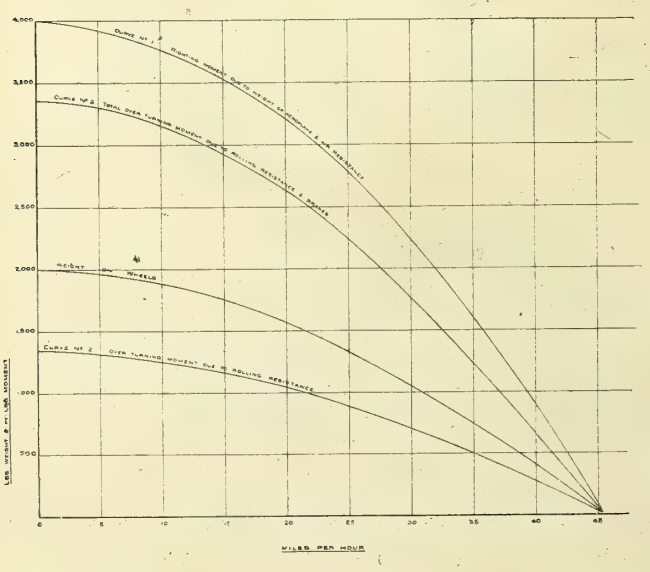
The second moment with brakes is shown in curve No. 3.

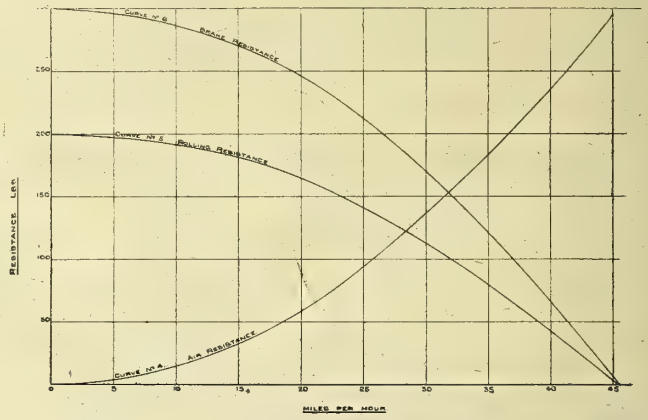
It can be seen that curve No. 2 is very small compared with curve No. 1, and it might be increased by 150 per cent. without endangering the stability of the aeroplane.

Supposing brakes are fitted to give this increased resistance, the distance rolled will be decreased from 560 ft. to 270 ft.

Curve No. 3, which shows the total overturning moment due to both brakes and rolling resistance, clearly demonstrates a reserve of righting moment sufficient for stability.

If the wheels become locked, provided that the locked wheels do not strike a mound or obstruction on the surface of the aerodrome, it will reduce the value of the curve 3 and leave a larger margin of stability. If, however, the locked wheels strike a small obstruction, their inability to rotate will overturn the aeroplane, or carry away the undercarriage.





Therefore it is necessary that the brakes should be released automatically if the wheels lock.

The next consideration is the force to be exerted by the brakes at different speeds.

It may be seen from curve 6 that the brake effort must be zero at landing speed and maximum at low speeds, and should vary inversely as the square of the speed.

Now either of these conditions can be solved readily by a mechanical device embodying a conical pendulum, but as these two conditions (of brake effort inversely as the square of the speed and inability to lock the wheels) are diametrically opposite, apparently no combination of mechanical contrivances can give even an approximate solution.

A combined electrical and mechanical device might be made to meet these conditions, but the weight and complication would be excessive.

A hand-applied brake is also open to the objection that for a man to be able to graduate the application of the brake to suit the conditions would be a miracle.

It is obvious that a friction brake is an unsafe contraption.

As commercial aviation grows, it will be found necessary to produce some means of landing on small aerodromes.

The plough brake used on some German aeroplanes will skid over the ground at high speeds, and only come into action when the speed falls. It can be designed in such a way that the maximum drag is always within the safe limits.

Skids give the best solution. The resistance due to well-designed skids is inversely as the square of the speed.

They are easily designed to prevent overturning.

Their drawback is head resistance and the necessity of providing wheels for starting.

Great care in design would probably keep the head resistance within bounds, but, if wheels are fitted to hold the skid clear of the ground for starting, they hold the skid off the ground when landing.

Most of the mechanical devices for raising the wheels in flight are very heavy and rather unsafe.

Air springs can be and are made lighter than any system using rubber.

An air-spring wheel-base can be designed which will meet all conditions for starting and taking up the first shock of landing.

The pilot can then release the air pressure to allow the wheels to rise clear of the skids which will stop the aeroplane.

A small engine-driven pump will soon raise the aeroplane on its wheels again if required for taxying to the sheds or for starting another flight.

This system of air springs (not oleo-pneumatic, though an oil seal to prevent leakage is advisable) and fixed or sprung skids will reduce the landing run of any aeroplane to the minimum possible; it will also enable safe landings to be made in long hay, standing corn, or any other dangerous surfaces.



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE LIBERTY ENGINE.—II.

BY G. DOUGLAS WARDROP, M.S.A.E., A.S.M.E.
(Managing Editor of "Aerial Age Weekly," New York.)

Ignition System.

The ignition system used on the Liberty Twelve is known as the generator-battery type. The system comprises two independent breaker and distributor mechanisms, identical in every respect and each one firing all twelve cylinders. For starting and for idling speeds up to 650 r.p.m. current is drawn from a specially constructed four cell storage battery. The battery is very light and carries very little liquid or electrolyte. Nevertheless, it has sufficient capacity to ignite the engine at full speed for three hours. It is so constructed that, even though it be turned upside down, it will still continue to function properly.

In addition to the battery, a positively driven generator is provided, so geared that it runs at one and one-half times crankshaft speed. Electrical energy for starting and idling speeds is supplied by the battery. As the engine speed is increased the generator "builds up" and its output grows greater, until at about 650 r.p.m. the generator voltage equals that of the battery. The maximum generator output exceeds the requirements for ignition so that at speeds above 650 r.p.m. the direction of flow of current is reversed and the excess output of the generator goes to recharge the battery. With an almost discharged battery the rate will be about 10 amperes, but will diminish as the battery voltage rises until the battery is completely charged, when the charging rate will be just sufficient to maintain it in a properly charged condition.

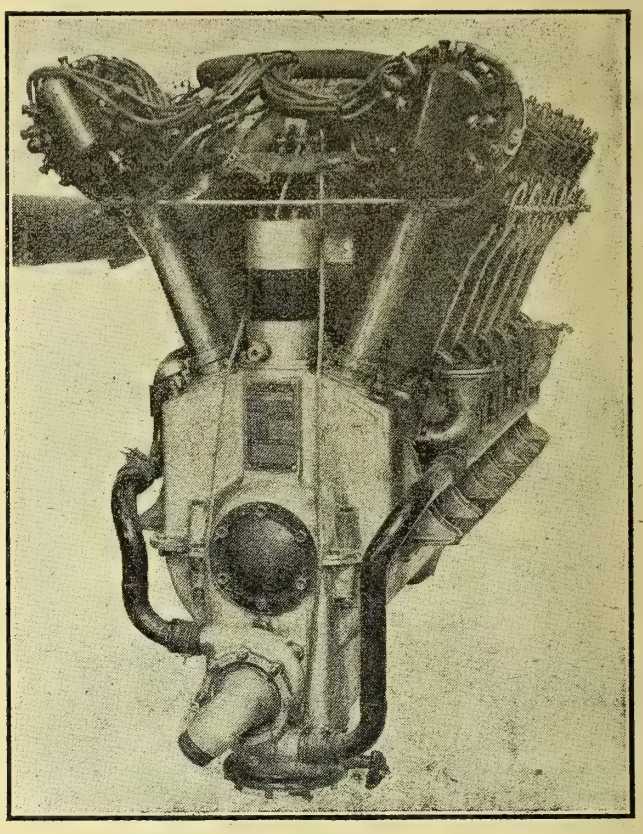
The generator is controlled by a "voltage regulator" which prevents the output exceeding a pre-determined figure. In view of this fact, the generator will supply current for ignition indefinitely, without the battery, so long as the engine speed is not allowed to drop below 500 r.p.m.

A duplex ignition switch is provided which will permit either one or both distributors being turned on. This switch is so constructed that either set of ignition alone can be used without connecting in the generator. In starting, only one side should be used, as, with both switches "on," the generator is connected to the battery. Under these conditions the discharge from the battery through the generator before the engine is started would be an excessive drain on the battery. It is essential that both switches be "on" at all flying speeds. The ignition switch has an ammeter incorporated in it and this ammeter should be watched occasionally, as it indicates the amount of current flowing to or from the storage battery. If the ammeter shows a discharge at any speed above 650 to 700 r.p.m. with both switches "on," it is an indication that something is wrong with the generator circuit, and that all electrical energy is being supplied by the storage battery. If the ammeter stands at zero under the same conditions it indicates that the storage battery is not receiving a charge, but that the ignition is being carried by the generator.

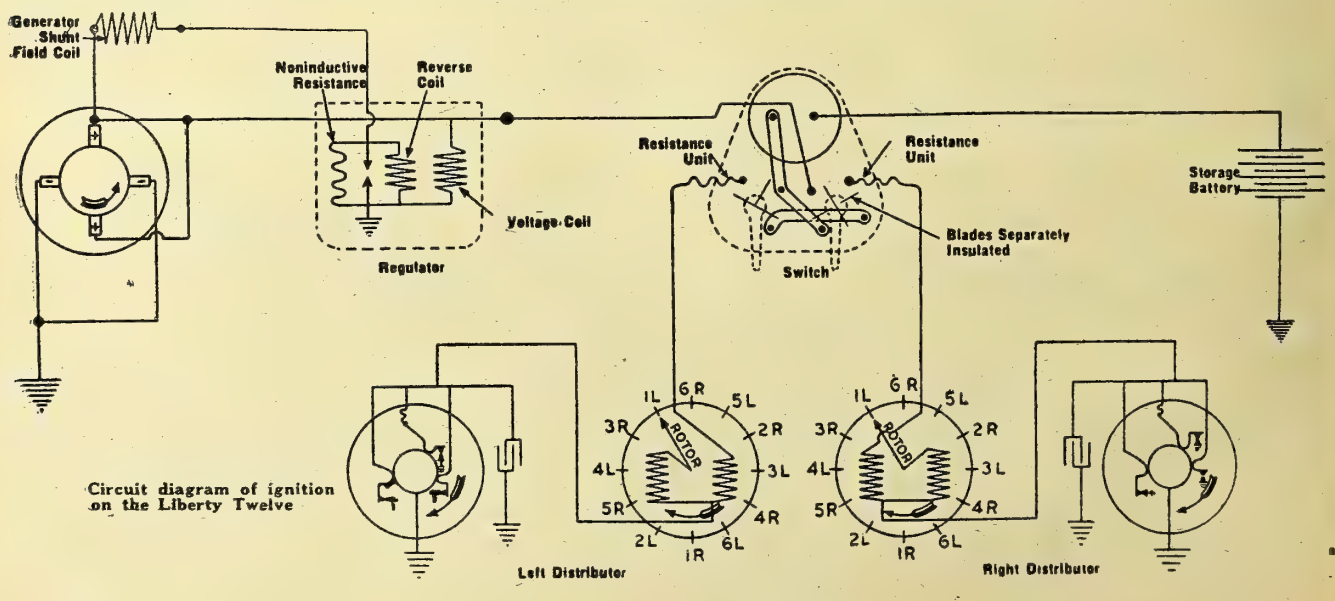
To return to the distributors—the circuit-breaker mechanism for each head is identical with that used in any high-grade magneto, with two exceptions, as follows:—

Two main circuit-breakers, connected in parallel, are provided instead of one. The two breakers are timed to operate simultaneously and are provided in duplicate as a precautionary measure.

An auxiliary circuit-breaker, the function of which is to prevent the production of a spark when the engine is turned backward or "rocked" is also provided. The auxiliary breaker is connected in parallel with the other two through a resistance unit which reduces the amount of current flowing through it. The breaker is so timed that it opens slightly before the other two when the engine is turned in a forward direction. The opening of the main breakers then results in the production of a spark. When the engine is turned in a backward direction the two main breakers open first and no spark is produced, due to the fact that the current continues to flow through the coil through the auxiliary breaker, but in diminished quantity, due to the resistance unit. By the time the circuit is opened at the auxiliary breaker the intensity of the magnetic field of the coil has weakened to such an extent that no spark is produced. A transformer coil is incorporated in the Bakelite cover of each distributor head.



The Liberty "Twelve" Distributor End.



Circuit diagram of ignition on the Liberty Twelve

CARBURETION.

Two Zenith duplex carburetters are used on the Liberty Twelve. This is equivalent to four single carburetters, each one supplying three cylinders of the engine. Each duplex carburetter consists of a single float chamber and a single air inlet joined to two separate and distinct spray nozzles, venturi and idling devices. As the V-type engine is, in a sense, two separate engines joined together for greater utility, so the Zenith is built in double form for the purpose of supplying each one of these two engines with its exact requirements. Each of the two barrels of each carburetter is fitted with a throttle valve of the butterfly type. The shafts of the throttles are parallel with the centre line of the engine, and are interconnected by means of gear sectors pinned to the throttle shafts and meshing together. The two pairs of throttles are operated simultaneously by a shaft, provided with an adjustment at each end by means of which the pairs may be synchronised. Each duplex carburetter is fitted with an "altitude adjustment" which affects both barrels equally.

OILING SYSTEM.

Oil supply is carried in a reservoir provided with a suitable means for cooling it. Oil is led from this reservoir to the connection on the right side of the oil pump body marked "Oil In." It is filtered at this point through a large area fine mesh screen. A delivery pump of the geared type takes the oil up after it has passed through the screen and delivers it under considerable pressure to a distributor pipe running the entire length of the crankcase. Opening out of the passage between the pump and the distributor pipe is a pressure regulating valve designed to maintain a pressure not to exceed 50 pounds per square inch on the oiling system.

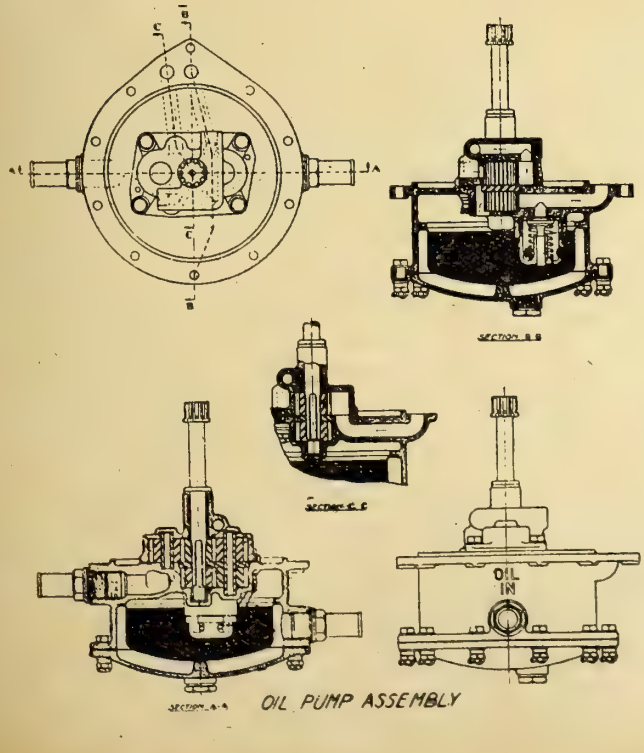
Pipes are fitted in the case leading from the distributor pipe to the main crankshaft bushings.

The crankshaft is hollow and in the centre of each main bearing a radial hole is drilled through the shaft into the hollow centre. This hole in the shaft registers with the corresponding hole in the bearing bushing once every revolution of the shaft, at which time a small quantity of oil is forced through into the hollow crankshaft. A passage leads from each hollow main bearing to the adjacent crank pin, which is also hollow. A radial hole is also drilled through each crank pin and carries the oil out on the surface of the pin. Oil grooves and passages in the connecting rod bushings ensure proper lubrication for both the forked and plain connecting rods.

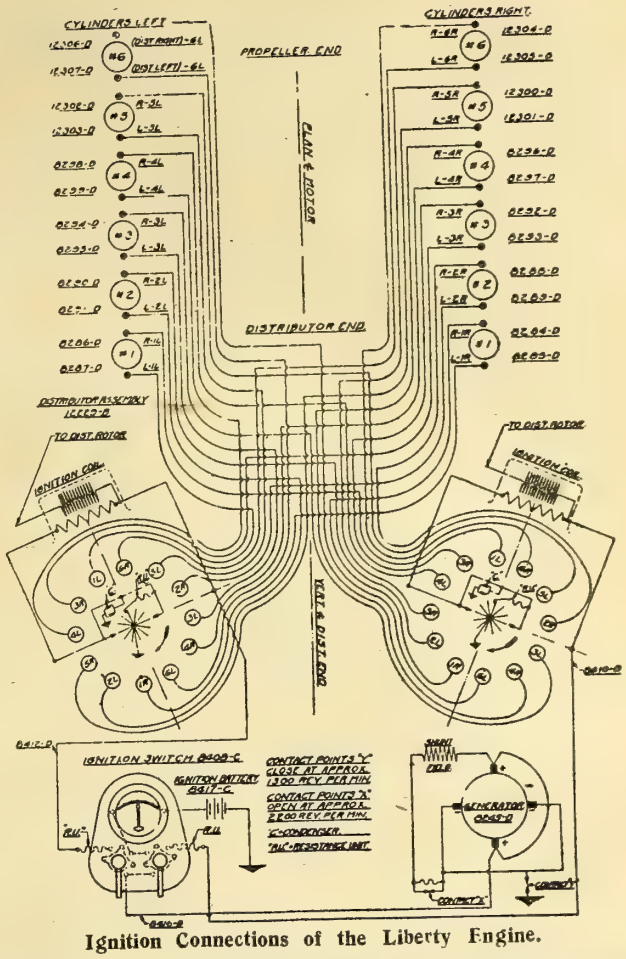
The excess oil thrown off the rapidly moving connecting rod ends forms a mist which lubricates the piston pins and the cylinder walls.

Part of the oil conducted to the main crankshaft bearing at the propeller end of the engine goes through a passage around this bearing and up through the pipes to the propeller end of the camshaft housings. From the end of the camshaft housings it is led around the end camshaft bearing to a passage drilled diametrically through the bearing midway of its length. Once every revolution of the camshaft a hole drilled through the camshaft into its hollow centre registers with the oil passage through the bearing.

Thus once every revolution a small quantity of oil is forced into the hollow camshaft.



OIL PUMP ASSEMBLY



Ignition Connections of the Liberty Engine.

The oil is led through the camshaft and out through holes drilled in it to each camshaft bearing. The excess works out of the ends of these bearings and collects in small reservoirs to a depth of about ¼ in. The cams, in revolving, dip into this oil and splash it over the cam rollers and into pockets in the rocker lever shafts. From these pockets it is led through the hollow rocker shafts to the rocker shaft bearings.

The excess oil eventually finds its way to the gear end of the camshaft housings, over the gears and down the drive shaft housing into a chamber just above the oil pump.

The excess oil thrown off in the crankcase by the connecting rods collects in this same chamber when the engine is inclined so that the propeller end is high. If the propeller end of the engine is low, this oil collects in a small sump or chamber at the propeller end of the crankcase.

Immediately above the *oil delivery* pump is located an *oil return pump* consisting of three gears, and driven by the same shaft as the delivery pump. The function of this oil return pump is to halves of the pump deliver oil to the connection on the left side from the sump at the distributor end of the crankcase. Both draw the excess oil out of the crankcase and return it to the oil reservoir. One-half of this pump draws oil from the sump at the propeller end of the crankcase and the other half draws oil of the oil pump body marked "Oil Out," from which point it returns to the oil reservoir.

COOLING SYSTEM.

Cooling water is circulated through the Liberty engine by means of a centrifugal pump running at one and one-half times engine speed. The capacity of this pump is 100 gallons per minute at 1,700 r.p.m. The cooling system from the pump inlet to and including the water outlet header will hold 5½ gallons of water.

The water pump is provided with a single inlet, the outside diameter of which is 2 ins., and two outlets, each one delivering water to a header supplying the right and left hand cylinders respectively. Water is forced into each cylinder jacket tangent to its outside surface. This construction gives the water a whirling motion inside the jacket and ensures uniform cooling.

The water outlet pipe for each cylinder extends inside the jacket to a point very close to the exhaust valve chamber, which guarantees the proper cooling of the exhaust valve. The cooling water then goes through a passage cored in the intake headers. This serves to warm and further vaporise the incoming gas as well as assist in cooling the water. These passages in the intake headers are connected by two water outlet headers, the final outlet of which has an outside diameter of two inches.

(To be continued.)

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PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by THE AEROPLANE from the current Official Patents Records.

PATENTS APPLICATIONS.

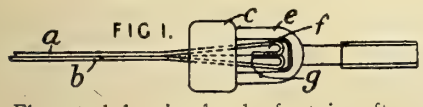
Tarrant, W. G. Frames of aeroplane fuselages, etc. No. 883. Jan. 13th.
Binks, L. S. Container of a liquid-oxygen vaporising apparatus carried by aircraft. No. 1770. Jan. 24th.
Cawdery, J. W. Dress or harness for use with parachutes. No. 1459. Jan. 20th.
Curtiss Aeroplane and Motor Corporation. Internal-combustion engines. No. 1567. Jan. 21st.
Hardyman, R.A. Clinometers for aircraft. No. 1365. Jan. 20th.
Jones, F. C. Actuating collapsible or folding undercarriages of aeroplanes. No. 1405. Jan. 20th.
Kerr, K. H. Gyroscopic clinometer for aircraft. No. 1693. Jan. 23rd.
Main, A. Aeroplane undercarriages. No. 1761. Jan. 24th.
Pierpoint, H. Balance indicator instruments for aircraft. No. 1614. Jan. 22nd.
Rapp, J. W. Running gear for aeroplanes. No. 1445. Jan. 20th.
Rapp, J. W. Aeroplane fuselage construction. No. 1446. Jan. 20th.
Rapp, J. W. Ribs for aerofoil frames. No. 1447. Jan. 20th
Rapp, J. W. Aeroplane ribs. No. 1474. Jan. 20th.
Rapp, J. W. Knock-down construction for aeroplane wings, etc No. 1475. Jan. 20th.
Spottiswood, J. Air-producer. No. 1395. Jan. 20th.
Tewkesbury, A. W. P. Instruments for angle flight of aeroplanes. No. 1590. Jan. 22nd
Thornycroft, Sir J. I. Propulsion and steering of aircraft. No. 1452. Jan. 20th.
Turner, D. E. Means for braking aeroplanes No. 1856. Jan. 24th.
Turner, D. E. Aircraft. No. 1857. Jan. 24th.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER FEBRUARY 13TH, 1919.

122,302. Feb. 21st, 1918. Thompson, J. E. Aeroplane propellers.
122,325. March 20th, 1918. France, A. G. Turnbuckle or wire-straining device for aeroplane wires and the like.

ABRIDGMENTS OF RECENTLY PUBLISHED SPECIFICATIONS.

120,916. Aeronautics; wire couplings. NAAMLOOZE VENNOOTSCHAP NEDERLANDSCHE AUTOMOBIEL EN VLIEGTUIGFABRIEK TROMPENBURG, Amsterdam, Holland.



Flat steel bracing-bands for aircraft and other structures are secured by bending them over wedge-shaped blocks which are slid sideways into tapered recesses and held in place by sleeves. Fig. 1 shows two bands *a*, *b* bent over a wedge *f* and into a slot *g* in the base of the wedge. The bands and wedge are inserted between the tapered jaws of a fork *e* and a tubular sleeve *c* is slid over a turned part of the fork. The wedge *f* may be in two parts to distribute the load on the two bands.

120,765. Aircraft propellers, etc. ENGLAND, R. D., 100, Richmond Road, Montpelier, Bristol.

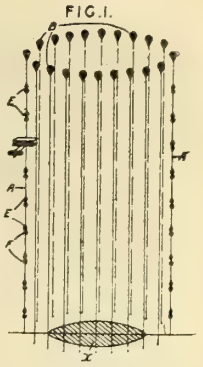
Relates to the manufacture of the propellers and other parts of aircraft. A full-sized model of the propellers, etc., is made in clay, plasticine, etc., from which a split or two part reinforced concrete or cement mould described hereafter is prepared. This mould is greased and receives a shell of papier mâché and cotton fabric or canvas which is filled with a composition of cotton-wool, vegetable fibre, or other material such as sawdust or hair mixed with a spirituous solution of shellac, the whole being reinforced by metal. After the propeller, etc., is moulded and dried, it is plunged into a hardening ammoniacal solution, or is subjected to the influence of a vapour of ammonia and steam, and



the surface may be glazed while moist by the action of fluosilicis acid gas and is afterwards polished, stoved, or coated with metal. Apparatus for carrying out the invention is described. Fig. 3 shows an iron wire skeleton for holding the plastic material for the blades.

120,788. Aerial Warfare. CHAMIER, F. W., 59, Jermyn Street, London.

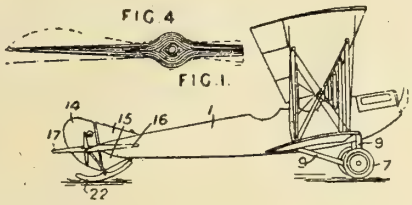
Consists in protecting an area *x* against aircraft attack by means of high-tensile steel wires or cables A spaced apart and supported by balloons or kites B. The wires are paid out from winches and may be provided with parachutes E and hooks F to help the wires in upsetting or destroying enemy aircraft coming in contact with the wires. The balloons and parachutes may be painted white or light grey underneath and black or dark grey above to make them less visible in daylight; for the same purpose at night, the coloration is reversed.

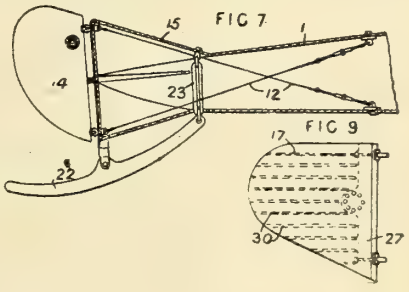


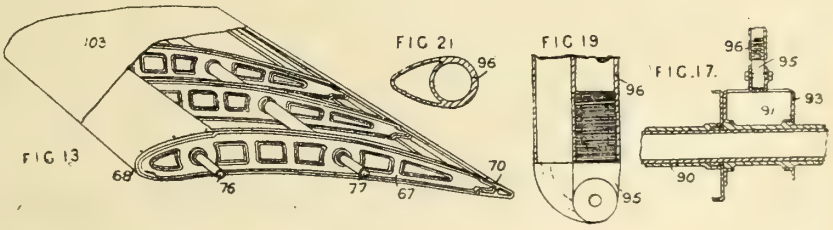
120,701. Aeronautics. BRITISH WESTINGHOUSE ELECTRIC & MANUFACTURING Co., 2, Norfolk Street, Strand, Westminster.

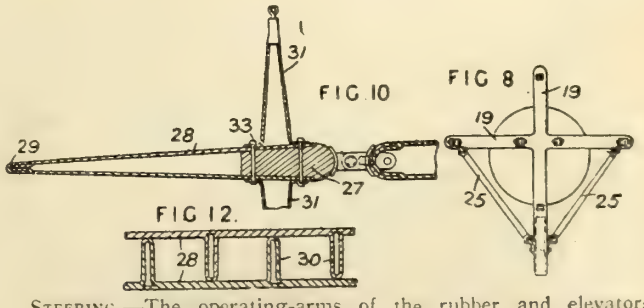
CARS; FRAMEWORK; PLANES, CONSTRUCTION AND ARRANGEMENT OF.—The various parts of aeroplanes are made of fibrous material, such as wood, asbestos paper, cardboard, or cloth, impregnated with condensation products of phenols and formaldehydes as described in Specifications 1921/08 and 21566/08, or of other similar condensation products, wrapped, pressed, or moulded into the required shape, and hardened by heat-treatment. Fig. 1 shows an aeroplane having the body 1 formed in one piece in the manner described above, the rear end being strengthened by cross-bracing 12, Fig. 7, and having fins 15, 16 formed integrally therewith. The fins are provided with braces 25, Fig. 8, and are covered at the rear ends by a cruciform cap 19 to which the rudder 14 and elevators 17 are hinged. The rudder and elevators are composed of a front support 27, Figs. 9 and 10, of suitable material, to which and to a trailing edge 29 are secured the surfaces 28 formed of the above-mentioned materials and with inwardly-projecting ribs 30, Figs. 9 and 12. The main planes are formed as described above of tubular or I-section spars 76, 77, Fig. 13, threaded through ribs 67 separated by tubular spacers, 90, 91, Fig. 17, and connected to a leading edge 68 and trailing edge 70. The whole is covered with fabric 103. The interplane struts 96, Figs. 17, 19, and 21, are formed by winding layers upon a mandrel and are connected to the planes by screwing on to members 95 attached to metal brackets 93, Fig. 17, seated on the spars. Other forms of stream-line struts are described. The cables may be enclosed in stream-line casings of similar form.

LAND WHEELS AND SKIDS.—Wheels 7 carried by braces 9, and a skid 22 are formed of the above-mentioned materials. The skids are fitted with shock-absorbers 23, Fig. 7.









STEERING.—The operating-arms of the rubber and elevators are formed of hollow sections 31, Fig. 10, attached by bolts 33.

SCREW PROPELLERS.—The propellers, Fig. 4, are formed of layers of fabric-paper or like material impregnated as described above placed one upon another in a mould of the required form, and baked; or the material may be filled into the mould in pulp or shredded form.



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MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

JAN. 30th, 1919.

COPPER.—Buyers are very careful and are still buying hand-to-mouth. Consequently, the market is in a state of lifelessness. Although there has been a large reduction in prices, there is generally very little confidence in the present position.

Another feature which counts against sellers is the huge quantity of scrap copper which it is estimated will be salved from the battlefields of France and Belgium. The estimated figure is approximately 1,000,000 tons, out of an estimated quantity of 3,000,000 tons, asserted to be lying there at present. It must also be pointed out that these quantities do not include scrap which will be recovered from other fronts.

The position in U.S.A. indicates the same state of lifelessness as in the Home market, and buyers persist in adopting a "wait and see policy." Those who are compelled to go into the market are only buying sufficient to keep them going for two or three weeks.

COMPARATIVE PRICES.

	£	s.	d.
(Standard) January 30th	88	0	0
A week ago	91	0	0
Last year's average	115	11	6
August, 1917	49	0	0

TIN.—Although this market has been fairly steady during the past week, and some sales have been recorded, they are attributed to dealers and not to consumers. Another factor which tends to keep the market steady is the position in the East, the Federated Malay States Government not having yet declared what it intends doing with the Tin which it is taking from the producers.

The position in U.S.A. remains unchanged, although it is stated that the Tinplate Makers have recently been buying. The price there is still about £340 per ton (minimum).

COMPARATIVE PRICES.

	£	s.	d.	
(Standard) January 30th	244	10	0	per ton.
A week ago	248	0	0	,,
Average price, 1918 ...	329	10	0	,,
August, 1914	120	0	0	,,

LEAD.—This market does not yet exhibit any signs of activity, the reduction in price not having encouraged buyers to come into the market, and it is not likely that any appreciable quantities will be purchased until prices come down to a more reasonable level. Large quantities of re-melted Lead are being offered at £30, and although the quality of some of it is not very acceptable, the majority of it is quite up to the usual standard for re-melted Lead.

COMPARATIVE PRICES.

	£	s.	d.	
January 30th (Av.)	32	10	0	per ton.
Last month (Av.)	40	0	0	,,
August, 1914	19	10	0	,,

ALUMINIUM.—An announcement has been received from the Ministry of Munitions stating that the Government is prepared to sell its stocks of Aluminium ingot at £150 per ton for 98-99 per cent. Although this is a reduction of £50 per ton, it is not expected that buyers will be tempted to purchase under present conditions.

STEEL.—This market has been a little more interesting than the non-ferrous metal markets, but the buying has been confined to a few trades only; generally speaking, buyers are holding their hands.

The boom which was expected after the cessation of hostilities seems to be a long way off, and if the present state of hesitancy and uncertainty continues much longer, the expected decline in prices will be a very substantial one. In fact, the trade boom is dependant upon prices generally coming down to a more reasonable level. The present inflated prices are hindering the peace demand. If a boom is experienced with prices at their present level it will be a phenomenon.

Another factor which is influencing buyers at present is the reduction in prices of American and French Steel

The Ministry of Munitions has reduced the price of wolfram from 70s. to 40s. per unit, consequently tungsten has been offered at a reduction of from 1s. 6d. to 2s. per lb. No announcement of the revised price of High Speed Steel has yet been received.

TIMBER.—The various rumours which are in the air call for care on the part of consumers, although they do not affect Aircraft woods. They are probably the forerunners of other changes which should very quickly be made.

It is rumoured that a big reduction will shortly be made in maximum prices; (the prices at which the Government are prepared to dispose of its hardwood stocks have just been reduced about 30 per cent.). It is also rumoured that the Timber control will shortly be abolished.

Aircraft constructors are having much trouble with the Spruce and Oregon Pine supplied to them through the Ministry of Munitions, and are wisely refraining from increasing their stocks with inferior wood. The long-delayed peace programme for the Royal Air Force has not yet been announced, and Aircraft constructors do not know what demands are likely to be made on them. In any case, the day when they will be able to purchase their supplies direct will be hailed with delight.

It is very difficult to point to a period during the time that Aircraft Timber has been controlled when it could be said that consumers were out of the wood. One only knows of two factories whose production was not impeded owing to the shortage of Timber, and in those cases it was due to the foresight of the firms themselves prior to the control being established.

This state of things may not be due to those directly responsible for handling the Aircraft constructors' requirements. As a matter of fact, no attempt is being made to fix responsibility, but it is very remarkable that prior to the period under consideration consumers were always able to obtain good supplies of first-class quality timber.

It is stated that large supplies of good Spruce have recently been received, but there is, of course, very little demand, and one might add that it will have to be good to pass the present A.I.D. standard of inspection. It was bad enough prior to the Armistice, but it is now a hundred times worse, and firms who contemplate building commercial machines passed A.I.D. should tread very carefully.

Prices are still controlled, although there is a downward move in Mahogany and Walnut.

FABRIC.—The recent advertisements indicate that the Ministry of Munitions is disposing of huge stocks of Linen Fabric. This was the only course for it to take, as there was not the slightest likelihood of consumers taking the huge stocks which had been accumulated.

Prices continue to be controlled and are unchanged.

TIMBER CONTROL.

Permission will be granted by the Controller of Timber Supplies to purchase pitwood from Spain, Portugal, and Newfoundland, and licences will be recommended for the import to Bristol Channel ports.

For pitwood from Scandinavia and Finland licences will be recommended for import in sailing ships to North-East Coast ports.

Applications should be made to the Controller of Timber Supplies (A.C.T.S.5), 80, Newman Street, Oxford Street, London,

TANKS FOR SALE.

A number of obsolete "tanks" are to be sold by the Government. The intention is that they should be broken up and the material, including engines and gears, used for industrial purposes. Inquiries in connection with the matter should be addressed in the first instance to:—The Secretary, Committee on the Utilisation of Surplus War Material, Room 211, Armament Buildings, Whitehall, S.W.1.

MONOMETHYLPARAMIDOPHENOL-SULPHATE.

The manufacture of photographic developers was, previous to the outbreak of hostilities, monopolised by German industries. So, when supplies ceased arriving in England, Johnson & Sons, Manufacturing Chemists, Ltd., proceeded to manufacture the pure chemical. An extensive plant was installed, and Metol-Johnsons, the pure monomethylparamidophenol-sulphate, was produced for the first time in this country in 1915, being greatly used by the British Government.

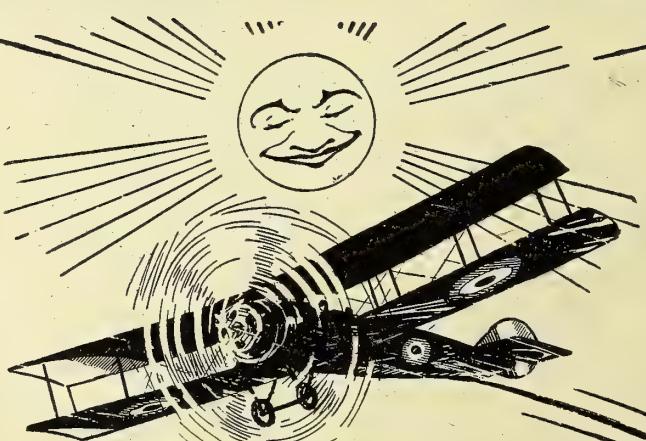
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C. O. C.

COMMERCIAL AERONAUTICS

AIR LINERS AND HEAVY AERIAL TRAFFIC.

By "MEDWAY."

I remember that when I first discussed with the Editor of The Aeroplane the desirability of dealing regularly with Commercial Aeronautics, even while the war was still in progress, we agreed that in so doing two main objects would have to be borne in mind.

On the one side we had a large section of the public still quite sceptical as to the possibility of aerial services of any kind being run on a sound commercial basis. On the other side we had a group of enthusiasts very much inclined to lead public opinion too far, and to cause the inevitable boom, followed by the equally inevitable slump, that always occurs when a new development gets a sudden grip on public sentiment.

In the last few months the position has changed a great deal. It is no longer necessary to argue that some real use will be found for regular aerial services. Practically any sane man recognises this, the only question being as to the directions in which development can best be encouraged in the first instance. On the other hand, there is an increasing tendency to expect too much and to expect it too quickly.

Those who have really given the subject thought have the duty of acting as a kind of damper or stop which will control the swing of the pendulum and prevent it from going too far in either direction. People who take the trouble to read between the lines will have observed lately that this point of view has impressed itself in official quarters. The result is that we see a number of more or less inspired announcements tending in one or other of two directions.

On the one hand, they aim at indicating the serious difficulties that have to be overcome before civilian flight can be made general. On the other hand, they endeavour to direct attention to the airship and to point out by means of comparisons that the lighter-than-air craft must not be neglected, and incidentally that the heavier-than-air craft has not yet reached a state of perfection.

Thus, we find the Air Ministry issuing statements designed to draw attention to the danger and difficulties of Atlantic flight being carried out, not as a demonstration, but as a regular commercial performance. We also find the same authority discoursing on the advantages of large rigid airships in this connection and in certain other spheres.

Misguided Enthusiasm.

Unfortunately, the first result of an attempt to draw attention to the possibilities of airships is that a section of people immediately loses its head and bolts in a new direction. We are told that, in a very few months' time, huge ships of ten million cubic feet capacity will be sailing gracefully over every sea, ocean, and jungle at a speed of eighty or ninety miles an hour, quite regardless of the direction and velocity of the wind.

One would imagine, if one could believe everything in print, that the first air liners will be equipped with Turkish baths, roof gardens, ballrooms, and jazz bands, while the cabin accommodation will be rather more luxurious and commodious than that which has been reserved for the staff of the British Peace Delegation in Paris.

One thing we can safely forecast in this connection is that, when we get a jazz band on an aerial liner, it will certainly be a good one. The cost of carrying the musicians will be out of all proportion to the salary they receive. Were the salary to be doubled, the total cost of the band would only be increased by one or two per cent. Therefore, there will be no object in haggling over a few shillings and sacrificing quality.

Even in the matter of cooking, we may expect efficiency. The cook on the aerial liner would cost the service fifty or even a hundred pounds a day on the score of the space he occupied. Therefore, even at the present rate of wages demanded for domestic service, the personal remuneration will not be such a very serious matter. The richest companies will even be able to engage charwomen.

We are told that a two-million-cubic-feet airship has an available lift for fuel and freight of about twenty-eight tons. If all the lift were employed for fuel, she might be able to cover about eight thousand miles at cruising speed without a stop. This last fact enables us to realise that by no means the whole of the available lift can go to the carriage of passengers and goods, and that the fuel bill will be substantial. Estimates put the cost of a ship of this size at about £150,000. The cost of sheds at the ports will increase the capital charge to a very much larger figure. We cannot therefore expect freights to be low.

We can, however, expect passengers to be offered a degree of comfort quite impossible on an aeroplane. For the present I do not imagine that many people will go on really long aeroplane journeys simply for fun. If they can get the standard of comfort offered by a compartment in a first-class railway carriage they will not be doing badly, and nobody enjoys the idea of feeding from a nosebag for a few days on end. Also there are other discomforts that the reader can think of for himself.

Difficulties in Organisation.

There is, in fact, no doubt about the superiority of the airship for certain classes of work until aeroplane development has gone much further and the ground or stationary organisation of the regular trade routes has been perfected. It is easy to talk airily about the establishment of floating stations of call all over the Atlantic and other seas. It is quite another thing to create a really efficient organisation of this sort. In the first instance, there is a great deal of experiment to be done before we can standardise a floating station that is going to be really satisfactory.

Another point is that it is not much use to have a station unless we know how to find it. Aerial navigation is not yet a really exact science, and a very slight error might easily cause the pilot to miss these intermediate points entirely. I have heard, for example, of

a ship, the skipper of which made his compass corrections in the wrong sense, adding where he should have subtracted, or *vice versa*. The result was that, starting from New York, with Plymouth as his objective, he arrived somewhere about the Orkney Isles. This, of course, was simply an unintelligent mistake, but the scale of the error appeared to him to be a small one, and therefore unimportant, so it helps to show how difficult it might be for an aeroplane pilot to locate his floating stations unless assisted by a wonderfully perfect system of wireless communication.

Another point that may turn out to be in favour of airships is that which would be much easier to legislate for them from the international standpoint. The airship is a very bulky thing, the movements of which can hardly remain secret. Moreover, it must start from and land at suitably equipped ports. It cannot drop down wherever it likes, unload smuggled cargo and dangerous characters, and then slip on unobserved. It would be much easier to keep accurate records of airship departures and arrivals, and we may find Governments quite willing to enter into International Conventions with regard to airships long before they are satisfied that their interests can be equally well secured in respect of aeroplane traffic.

There are, of course, many other aspects of this question of the relative spheres of aeroplanes and airships, to which I shall hope to refer on subsequent occasions.

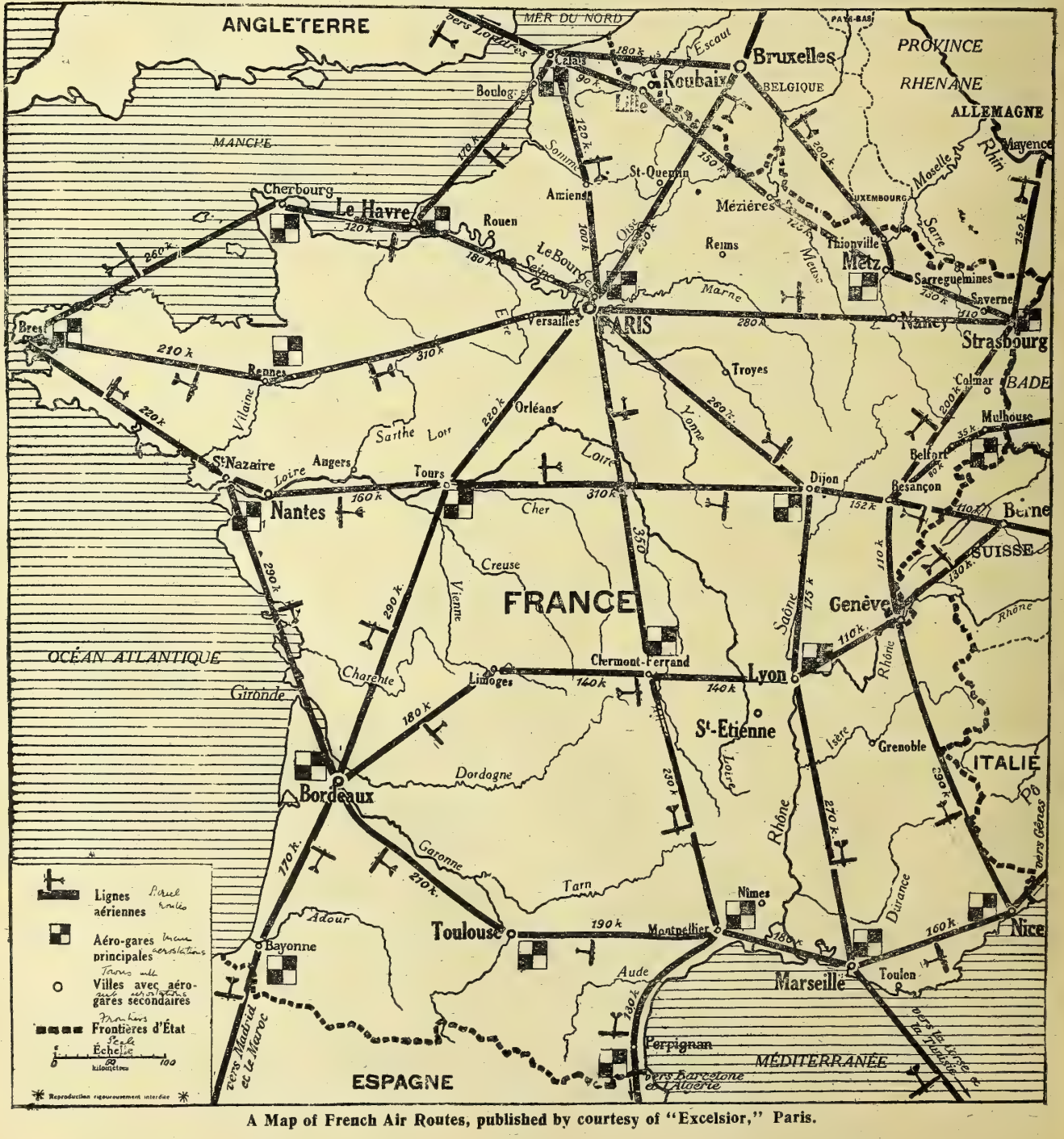
FRENCH AERIAL TRANSPORT ORGANISATION

[The appended abbreviated version of an interview with Colonel Leclerc has been extracted from "Excelsior," Paris, of Jan. 16th.]

It has been announced that Lieut.-Colonel Leclerc has been charged with the task of organising the entire system of commercial aerial routes over France.

As Commandant of the Aerial Defences of Paris, Col. Leclerc has shown remarkable abilities, and in his new appointment it is expected that he will show to still greater advantage. He is known to appreciate fully the great future of this new means of locomotion. He will have the assistance of Colonel Dhé, who originated the rough scheme of civil aviation, also the recommendations of the Special Commission on Civil Aviation, presided over by Mr. Daubigny.

"I fully realise the great difficulties," said Lieut.-Col. Leclerc, "that I shall meet with, for everything is new and without pre-



A Map of French Air Routes, published by courtesy of "Excelsior," Paris.

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cedent. But the scheme of linking up the towns of France by a system of aerial routes so intimately concerns everyone, that I feel sure I can count on full co-operation from all, and thus evolve a readily workable system.

"Aviation has made immense progress during the war, and we have now left right behind us the time when only a few, more daring than the average, carried their lives in their hands in a heavier-than-air machine. Modern machines are perfectly safe, people will fly who, before the war, would never have thought of doing so.

"But we must have machines well-designed and built, capable of covering long distances without a stop, flying in all weathers, day as well as by night.

"I am quite justified in asserting that present machines fulfil these conditions.

"Service machines have made such flights, and, in one case, a continuous service over the enemy's lines was kept up, machines leaving and returning according to schedule."

"Then you consider, Colonel, that there will be no difficulty in finding aeroplanes capable of maintaining a regular service between the chief French towns?"

"Yes; but one must choose amongst the many types in existence and give preference to four-engined biplanes with a horse-power of at least 800. So doing, we shall avoid possible delays through engine-trouble. With such engine-power it will be possible to average 180 kilometres per hour (112 m.p.h.), and to carry a useful cargo of 700 to 800 kilos. (1,540 to 1,760 lbs.) And, with such machines well flown, accidents will be few, certainly considerably less than those caused by motor-cars, for the air is limitless, and it would be a strange coincidence indeed for two aeroplanes to collide during flight."

"In short, Colonel, your chief task will be the creation and organisation of the aerial routes?"

"That is so," said Col. Leclerc. 'I propose to send officers to every large French town to select suitable aerodromes. When the grounds are decided on, and in our possession, we shall construct hangars, repair shops, stores, and provide the necessary staff for each aero-station. And we shall organise a motor-bus service between the aero-station and the town for passengers.

"To indicate the position and name of each station by means visible from a great height we shall lay down large panels of colour. For night-work we shall use coloured lights."

"What routes do you propose to use?"

"First, we shall connect up the very large cities, and the routes will approximate to those of the present railways. For instance, the London-Marseilles route will be *via* Calais, Paris, Dijon, and Lyons, and, maybe, extended to Corsica and Tunis.

"The route from Brussels to Paris, Clermont-Ferrand, Montpellier, and Barcelona could easily be prolonged to Carthagena and Algeria. Then we have Paris, Tours, Bordeaux, Bayonne, and on to Madrid and Morocco.

"Special attention must be given to such very important routes as from Brest to Strasbourg, via Paris; from Nantes to Dijon; from Bordeaux to Lyons, *via* Limoges and Clermont-Ferrand; from Bordeaux to Nice, *via* Toulouse, Montpellier, and Marseilles, and with extensions to Bohemia and Italy.

"Then we must have coastal routes linking up our various ports and also frontier routes, say, from Nice to Geneva, from there to Strasbourg, then on to Calais, *via* Metz, Mézières and Lille."

"And will all these lines be marked out?"

"Certainly, either with special panels or direction signs, or even by painting the roofs of houses. Although it must be remembered that by day, if there is no fog, the pilot can pick his course easily from his map. For night-flying we shall mark out the routes by lighting devices; revolving searchlights, and so on.

"The machines will be kept informed as to the weather conditions ahead by a special Meteorological Office at each station."

"Do you propose to construct many aero-stations?"

"Yes," replied Col. Leclerc, "we shall have a main station every 200 or 300 kilometres (every 125 or 187 miles), and 'sub-dromes' in between these main ones."

"What do you intend to carry?"

"Passengers, whose time is precious, tourists or pleasure-riders, of which we expect a large number, and, finally, letters and goods."

"One more question, Colonel; do you think that fares will be at all reasonable?"

"What we wish to do is to get these routes properly organised and leave the actual running of the service to Aerial Navigation Companies. They will, naturally, fix their own rates; but I think that you may take it from me that very, very shortly, aeroplane tickets will cost no more than railway tickets."

(Signed) J. René Farges.

CIVIL AERIAL TRANSPORT.

ITALY.

Trial postal flights and combined city-to-city demonstration flights have been the feature of the later period of this interregnum between hostilities and peace.

A post ran from Naples to Rome—two machines—and well up to time. Another single trial trip between Genoa and Rome was carried out by a squadron of five, and was a conclusive advertisement to the open-minded man with no vested interests in other forms of transport.

A pair of CA. triplanes exhibited their properties and precision in a homeward flight of three hours in very bad weather and a mountainous part of the land, bringing rather more than a score of passengers safely to the harbour where they were wanted.

Most of the right people are in favour of aerial mails, but there are many problems, and much sorting of firms and schemes is needed before official action can commit itself wholeheartedly. The promised post-war types are not so ready either as one hoped. Then, too, the loss of the High Commissary—retired—is singularly unfortunate in the opinion of many at this time.

A new type of very large seaplane for transporting heavy matter is announced from S. Italy, and is the work of the engineers, Ricci Bros.

The Civil Aerial Transport Committee is stated to have under consideration a scheme for connecting Rome and Palermo *via* Naples and Messina, by a line carrying mails and express matter. As many as 40 landing spots are included in the rumoured project. A service to Sardinia, as mentioned before in this connection, is stated to be also contemplated; presumably, therefore, it will be no longer a Military affair as formerly.

A big meeting of folk interested materially in aviation recently took place at Milan at the Chamber of Commerce to urge the Government to get on with peace preparations as regards its aero projects.

Many faces and well-known fighting-men of both sides of the Service were there, and took rather a lively part in the talking. Their part was to sound words of caution and doubt as to the utility of the present types for much else than fighting, present landing speeds being, in the opinion of Lt. Finzi, of the Vienna raid, the great failure of the aeroplane of to-day.

Signor Gianni Caproni voiced the Trade when he begged for the unshackling and immediate liberation of fliers and flying initiatives. He also urged the importance of the efficiency from the very first of any practical steps taken as to passenger or postal service.

The complete severance of civilian from Service flying organisations, higher training in the airmanship of the former, and that the Government run this and all route planning and marking, and get it going quickly, formed the backbone of the motion proposed and adopted by the meeting, which was packed with everyone practising aviation in the country and all the Powers that be and were, not excepting the late High Commissary.

T. S. H.

A POLAR EXPEDITION.

It is understood that the Bartlett Expedition to the Polar regions, financed by the Aero Club of America, is to be known as the Roosevelt Memorial Expedition.

A NEW FLYING SCHOOL.

It is of interest to note that the Central Aviation Company has announced its intention of opening in the near future a fully-equipped and thoroughly up-to-date school of aviation, which will be under the personal supervision and management of Mr. Herbert Sykes, M.B.E.

Mr. Sykes is a well-known test and exhibition pilot, and, assisted by a large staff of qualified and experienced instructors, will give pupils tuition on 75 h.p. dual control tractor biplanes, built by the Central Aircraft Company.

Application for particulars as to enrolment, etc., should be made to the Central Aircraft Company, 179, High Road, Kilburn, N.W.6.

A CHANGE OF ADDRESS.

The attention of those whom it may concern is drawn to the change of address of Mr. C. J. H. M. Kennedy, aeronautical engineer, of 92, Victoria Street, S.W. On and after January 27th, 1919, his style and address will be as follows:—Messrs. Kennedy Aeroplanes, 102, Cromwell Road, South Kensington, London, S.W.7; telephone No. 374 Kensington.

AN INTERESTING SOPWITH DEVELOPMENT.

It is announced that the Sopwith Aviation Company, Ltd., has taken possession of new premises at 65, South Molton Street, which, after structural alterations that may take some weeks to execute, will be opened as London offices, showrooms, and depot, both in connection with the Sopwith aeroplane business and for the sale of the A.B.C. motor-bicycles which are now being manufactured by the Sopwith Aviation Company, Ltd.

A NEW APPOINTMENT.

Naylor Brothers (London), Ltd., of Southall, announce that Mr. S. E. George, works manager, has been appointed a director of the company.

AIRCRAFT FINANCE

THE STATE AND AIRCRAFT PATENTS.

It is surely time that the Government settled the question of compensation payable in respect of the use of patents and designs connected with aircraft contracts. A settlement is long overdue. The apparent indifference of the Ministry of Munitions may not really mean an utter disregard of its moral obligations, as would be implied if a similar dilatoriness was experienced in any ordinary commercial transaction; but the delay is fraught with considerable hardship to the Industry. Furthermore, it is of paramount importance not only in relation to its present position, but also in respect of its immediate future, that a definite and commercially sound understanding should be arrived at with the Industry.

An Unfulfilled Promise.

Briefly, at the expense of its individuality, the Aircraft Industry gave the Ministry *carte blanche* in respect of patents, designs, or rights of all or any kinds. This patriotic attitude benefited the nation because it was based on a universal desire to strangle the Huns. It enabled the Ministry to work at full speed, placing contracts comprising the use of patents, designs, or rights irrespective of the legal claim of the owners of such. Even sub-contractors were enabled to work to their full capacity, regardless of consequences, at their own sweet will. It was for the cause, individual rights being sacrificed justly for patriotic reasons, and secondly because of the assurance of the Ministry that fair and just payment would eventually be made.

Unjustifiable Delay.

That is the position. One would not care to assert that the Government is quibbling over its liability in respect of the use of these patents, designs, or rights. But it is certainly so dilatory in making payment, at all events, in making up its mind what, when, and how it intends to effect a settlement that it is unquestionably jeopardising the position of the Aircraft Industry, and this may have serious consequences, seeing that as yet the Industry, in spite of its wonderful achievements, has not yet passed beyond adolescence. Possibly, as Government departments have been cynically described as soulless, it is unconscious of the effect of the delay.

Importance of the Arrears.

Perhaps one ought to illustrate the point at greater length. Take the case of the concern which gave the Ministry the right to make full and unrestrained use of a patent governing an essential section of an aeroplane. Had the company insisted on its legal claim to royalties or the equivalent, with or without supervision of some sort, it might be entitled to an accumulated sum running from, say, £1,000 to £100,000. Possibly the ordinary everyday business of the concern was concentrated in the manufacture of furniture or some engineering utensils not entirely dependent upon aircraft. With the aforesaid £1,000 or £100,000 in hand, or even in view, it is reasonably safe to assume that this sum of money would be laid out for the benefit of the business. With the knowledge that such money was available, plans for the future could be elaborated, the financial position could be rearranged accordingly, and thereby a position of permanency would be given to the Aircraft Industry specially.

Muddle of the Accounts.

Admittedly the question of Excess Profits must not be altogether ignored; the State takes the bulk, after reasonable allowances for upkeep, depreciation, and other essential matters. But it must not be overlooked that, as things are, the State is sitting on its liabilities to the Industry, and the Industry consequently has been unable to meet its liability for the War Duty simply because of the callous attitude of the State. Therefore if the Ministry arrived at a *modus vivendi* with the owners of patents, designs, royalties, etc., the position of national finances would be considerably straightened. And who will deny that the Man with the Rake is needed in connection with National Finance? He would be a full-blooded optimist indeed. One is loth to criticise, but this is a deserving case.

Capital in Suspense.

Reverting to the awkward position of the public company which is waiting a settlement of its compensation for royalties, patents, or designs, one really wonders how they contrive in many cases to endure the Government delay. Doubtless the claim has been relegated to a suspense account, but, as no one knows yet whether the Government will adopt a generous or parsimonious policy of settlement—and it can certainly follow its own sweet will in the matter—such a suspense account is of little or no actuarial value. The position, therefore, is one of hopeless muddle, and the longer the delay in arriving at an equitable settlement the more involved and menacing will the position become.

An Excuse not an Explanation.

Doubtless the Government will attempt to entrench itself behind the argument that the question of the terms of settlement is so delicate and inextricable that it needs careful and considered thought and handling in order to safeguard the liabilities of the State, and that as a result of its great prosperity the industry can well afford to wait. That is not an argument; it is not even an explanation, but merely an excuse, and excuses are almost invariably disastrous in everyday business propositions. The very fact that the Industry has been prosperous is a concrete reason for a prompt settlement, because the additional money would stimulate initiative as a compensating balance for the contraction in business. The economic value of intensified initiation at the present juncture is clear.

The Sub-Committee on Aircraft Machinery of the Engineering Trades (New Industries) Committee appointed by the Ministry of Reconstruction appropriately points out that, owing to the enormous expansion of the Industry during the war, its output capacity will be greater than the demand for years to come, and therefore advises that immediate steps should be taken by the Government to avoid the extinction of so essential an industry. Proposals to this end have been forwarded to the Government. In itself this recommendation should inspire the authorities with the necessity for dealing with this important question of compensation equitably and without delay.

CURRENT TOPICS.

Aviation and General Insurance.

One notices with interest that the Aviation and General Insurance Company, Ltd., has been registered with a nominal capital of £1,000,000 in £1 shares. The subscribers (each with one share) are:—Lord Furness, 60, St. James Street, S.W.1., and E. Furness, Furness House, Billiter Street, E.C.3. The first directors are to be appointed by the subscribers. The registered office is situate at 56, St. James Street, S.W.

What's in a Name?

The name of the new venture suggests that the business projected is exclusively, or at all events largely, that connected with aviation risks. Such an inference is wrong. The business will be that of life assurance, annuity, deferred annuity, accident, sickness, employer's liability, fire insurance, etc. The sum of £20,000 has been deposited with the Chancery Court in respect of projected life assurance, and £20,000 in respect of employers' liability insurance, as required by statute.

Insurance World Is Preparing.

In spite of the title, it is likely that the new venture will not be any more intimately associated with aviation risks than the average insurance society. As a matter of fact, the insurance world is watching aviation as a field of business with great keenness and interest. There will be an additional source of profit there. Incidentally, rates have already been quoted and risks undertaken in connection with the much-advertised London to Paris trips.

Napiers' New Capital.

D. Napier and Son have not lost much time in issuing some of the new capital recently created. This is being reserved exclusively to the shareholders, who are offered about 105,000 new £1 Ordinary at the price of 26s. This works out in the ratio of about one new to every three existing shares. As the latter are priced about 36s., there is quite a nice "turn." An objection is made at the waste of money on underwriting the new capital, the argument being that it was unnecessary.

French Items.

Rather mixed results are being disclosed by some of the French companies associated with the aircraft industry. The Doriot Co. shows a net profit of 2,099,435 francs in comparison with 972,209 francs on a capital raised from three to ten million francs. The Chenard and Walcker Co. report a profit of 1,892,513 francs compared with 2,104,923 francs. The dividend is not yet announced; that of the Doriot Co. is 20 francs per share gross.

Austin's Million.

The Austin Motor Co. is now preparing to issue the million £1 Preference shares recently referred to. These will be entitled "B" Preference shares entitled to a cumulative 6 per cent. dividend, payable free of income tax up to 6s. in the £1. The proceeds will be provided for the acquisition of the North and West Works erected and constructed for Government account.

Enlarging on the large and important war business in shells, etc., and the remarkable success attained in connection therewith, the chairman at the extraordinary general meeting also emphasised the good work done in the manufacture of aeroplanes, aeroplane engines, armoured cars, lorries, etc. Post-war orders in hand approached nearly £4,000,000 of cars, lorries, tractors, etc.

Birmingham Small Arms Company.

The B.S.A. Co. have presented 500 of their employees of 20 years' service and upwards with gold watches, gold and silver badges, and illuminated addresses, in recognition of their loyal and honourable connection with the firm. Sir Hallewell Rogers, M.P., chairman, addressing the workpeople, said there were very few firms in the city or companies in the country who had employees with such a record as they had. Most of them were men who had watched the progress of the company for periods extending from 20 to 40 years. They had seen it develop until during the war they were employing 13,000 hands.

Regret was expressed that, simultaneously with the calling of them together for the present purpose, which was decided upon by the board some months ago, the directors were placed in the position, in consequence of the cancellation by the Government of war contracts, of having very reluctantly to issue a number of discharges owing to there being no work at the moment on which to employ the workpeople. This position, which was much to be deplored, was entirely beyond the control of the directors. Government control had stepped in, and it had been decided that all work under present contracts was to be finished within a short time. This, of course, referred only to the rifle and Lewis gun departments.

A New Auxiliary.

It is the intention to form a separate company, named B.S.A. Cycles, Ltd., with Mr. C. A. Hyde as managing director, in order to develop efficiently the business in cycles, motor-cycles, fittings, and specialities.

Herman and Phillips.

As an outcome of the meeting of the creditors of Herman and Phillips, Ltd., London, E., aeroplane propeller manufacturers, etc., an informal committee was appointed to look into the position generally and put forward a recommendation to the creditors. It was decided that only creditors should be appointed to the committee. Registered in August, 1914, the company was formed to carry on the business of cabinet-makers. The authorised capital was £2,000, of which just over £600 was issued.

Conger Aeroplanes.

Even after allowing for the usual American embroidery, it is not easy to judge the quality of the deal whereby a Mr. Roy Conger has acquired "the entire aircraft equipment used by Canada for the war. This cost Britain over £2,000,000." What one really knows is that, according to the report of the Imperial Munitions Board of Canada, "The building of aeroplanes in Canada is the direct result of advances made by the Dominion Government to the Board for this purpose. The aviation department operated the aeroplane plants at Toronto, and erected all buildings required by the R.A.F. in Canada, in addition to purchasing supplies and equipment for the same. Nearly 6,000,000 dollars was spent on buildings for the Corps. . . The cost on the aviation service exceeded 30,000,000 dollars, exclusive of food and medical services. Nearly 3,000 machines were constructed up to October, 1918. In 1917 the production of aeroplane engines was begun." This is official. Details of the deal will naturally prove interesting.

NEW COMPANIES.

Aircraft Corporation of Africa, Ltd.—Registered Jan. 27th. Capital £600,000 in £1 shares. Manufacturers and repairers of and dealers in aircraft and component parts thereof, hangar, shed and aerodrome proprietors, aerial carriers, etc., in Africa. The subscribers (each with one share) are: C. Brown, 51, Tulsemere Road, S.E.27, law clerk; E. W. Church, 35, Durlston Road, E.5, law clerk; G. R. S Oxley, 189, Brixton Hill, S.W.2, solicitor; H. J. Templeton, 12 Chesham Place, Brighton, gentleman; G. W. Inman, 9, Amesbury Avenue, S.W.2, law clerk; H. G. Clark, 53, Oaklands Road, W.7, law clerk; W. G. A. Payne, 70, Kingsley Road, Hounslow, clerk. First directors are to be appointed by the subscribers. Solicitor: H. P. Becher, 26, Bedford Row, W.C.1.

Aviation and General Insurance Co., Ltd.—Private company. Registered Jan. 23rd. Capital, £1,000,000 in £1 shares, to carry on life assurance, annuity, deferred annuity, accident, sickness, employers' liability, and fire insurance and other business, etc. £20,000 has been deposited with the Chancery Court in respect of Life Assurance and £20,000 in respect of Employers' Liability Insurance, as required by Statute. The subscribers (each with one share) are:—Lord Furness, 60, St. James Street, S.W.1; E. Furness, Furness House, Billiter Street, E.C.3. First directors to be appointed by the subscribers. Registered office:—56, St. James Street, S.W.

Castle's Motor Co. (Leicester), Ltd.—Private Co. Registered Jan. 29th. Capital £5,000, in £1 shares. Objects as title. Power is also taken to manufacture, repair and deal in balloons, aerostats, aeroplanes, etc. The subscribers (each with one share) are:—W. Bastard, Woodlands, Barkby, Leicester, yarn agent and merchant; R. P. Castle, Hope House, Syston, Leicester, motor engineer. Permanent directors: W Bastard, W. G. Brown, and R. P. Castle. Manager: R. P. Castle.

MORTGAGES, CHARGES AND SATISFACTIONS.

S. E. Saunders, Ltd.—Mortgage on freehold premises at East Cowes, dated Dec. 31st, 1918, securing £19,500. Holder:—S. E. Saunders, aircraft manufacturer, East Cowes.

Whitehead Aircraft (1917), Ltd.—Satisfaction in full on Jan. 15th, 1919, of mortgage dated April 11th, 1918, securing £1,000.

GERMAN SUBSTITUTES.

It is understood that during the last stages of the war, the Germans were using thistle fibre, which is approximately half the strength of flax, in place of linen for aeroplane fabric.

When a German machine was examined upon capture by the British, the source of supply of the various materials used was ascertained in order that steps might be taken, by means of the Naval blockade, to prevent the Germans getting supplies of any specified material.

During the last months of the war, this was so successfully done that the Germans were unable to obtain rubber for their aeroplanes, and aeroplane tyres were made of reclaimed rubber consisting largely of sulphur.

R.A.F.
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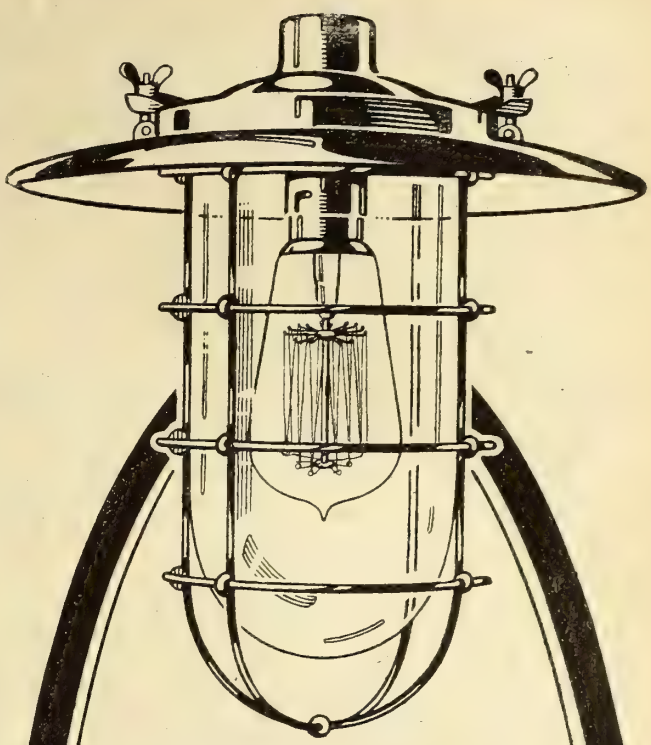
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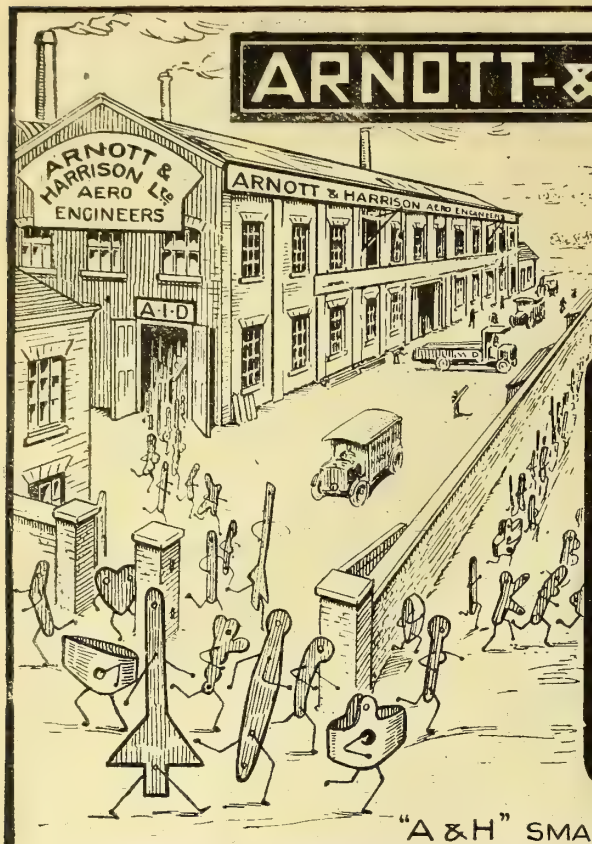
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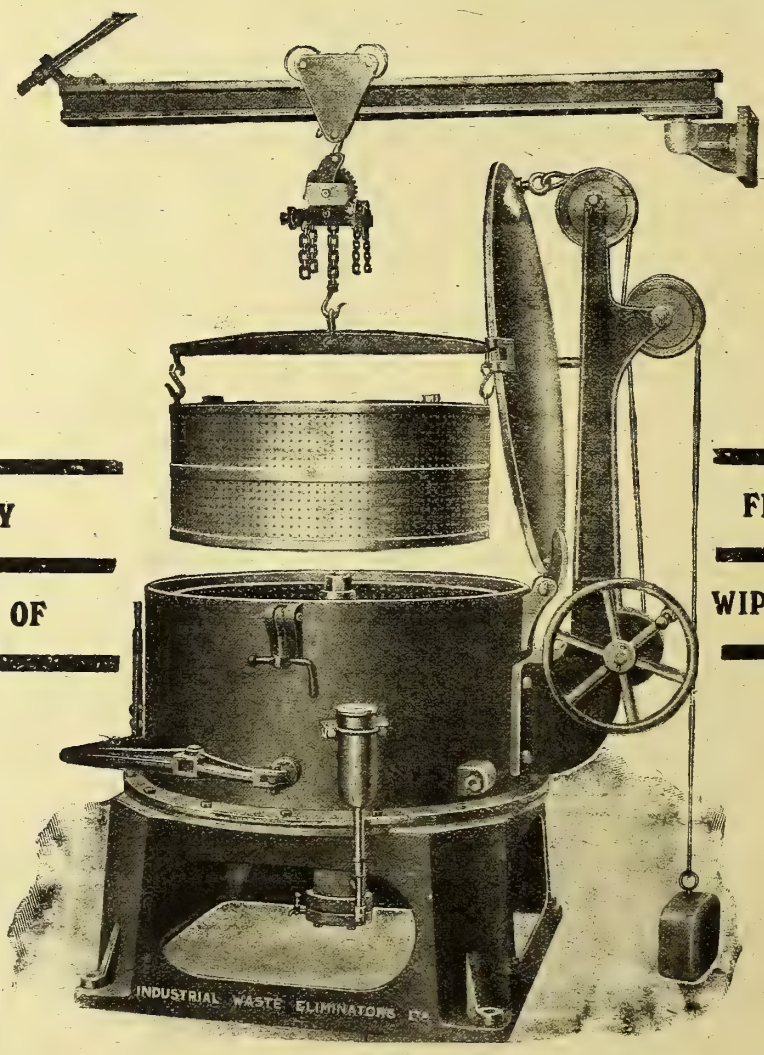
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(*Continued from page* 568.)

Nov. 30th, 1918; E. S. C. Brooks, Dec. 2nd, 1918; A. H. Bottrell, H. B. Hudson, M.C.

S. Tomlin, Dec. 4th, 1918; L. J. N. Mackay, Dec. 7th, 1918; F. P. Lush, Dec. 19th, 1918; N. D. Budgen, Dec. 30th, 1918; Lt. F. R. Hatch to be Lt., from (K.B.), Aug. 26th, 1918.

Lts. (O.) to be Lts.:—L. V. Dell, Oct. 5th, 1918; J. C. O'Reilly-King, Oct. 22nd, 1918; J. E. S. P. Bradford, M.C., Oct. 23rd, 1918; L. F. Goodwin, M.C., Oct. 28th, 1918; A. H. Clegg, Nov. 28th, 1918; L. V. W. Clark, Dec. 3rd, 1918.

A. A. Watson (Lt., R.F.A., T.F.) is granted a temp. commn. as Lt. Nov. 4th, 1918, seny. April 1st, 1918 (substituted for notification in "Gazette," Dec. 3rd, 1918).

Sec. Lt. F. Dallow to be actg. Lt. while empld. as Lt., Nov. 10th, 1918.

The following are transferred to unempld. list:—Sec. Lt. (Hon. Capt.) O. T. Burne, Jan. 1st; Lt. F. R. Dymond (K.S.L.I.), Jan. 9th; Sec. Lt. L. W. Oxley, Jan. 10th; Sec. Lt. L. E. S. Barrett, Jan. 15th; Sec. Lt. C. Longland, Sec. Lt. (actg. Capt.) A. J. Thompson, Jan. 17th; Sec. Lt. C. W. Daniel, Capt. S. M. Minific-Hawkins (Oxf. and Bucks L.I.), Jan. 18th; Sec. Lt. (Hon. Capt.) G. T. Braggiotti, Lt. (actg. Capt.) W. C. Hacon, Sec. Lt. J. Harding, Sec. Lt. A. T. Iles, Lt. (actg. Capt.) H. M. Lewis, Jan. 19th; Sec. Lt. G. W. Biddle, Sec. Lt. H. Coggins (Lond. R.), Lt. (actg. Capt.) G. H. Hoyle, Sec. Lt. (actg. Lt.) J. W. Kennedy, Sec. Lt. H. Murnaghan, Jan. 21st; Sec. Lt. J. A. Hynes, Sec. Lt. W. H. North, Jan. 22nd; Sec. Lt. H. J. Beale, Jan. 25th; Capt. E. H. Bellew, Jan. 31st.

Maj. V. Percy-Smith relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Maj., Feb. 1st.

Lt. M. Dodd relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Lt., Feb. 1st.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—R. H. Barker, W. Bolt, F. Nicolls, Feb. 1st.

Sec. Lt. G. Hutcheson resigns his commn., Feb. 1st.

The date of appt. of Sec. Lt. (Hon. Capt.) J. D. Fitzgerald as actg. Capt. is Aug. 24th, 1918, and not as stated in "Gazette," Nov. 26th, 1918.

The notification in "Gazette," Sept. 24th, 1918, concerning Sec. Lt. (actg. Capt.) H. A. Maynard is cancelled.

TECHNICAL BRANCH.—Lt. (actg. Maj.) W. W. Gibson, M.B.E., retains the actg. rank of Maj. whilst empld. as Maj. (Gr. B), from (Ad.), Nov. 2nd, 1918.

Lt. S. L. Collins to be actg. Capt. whilst empld. as Capt. (Gr. A), Dec. 3rd, 1918.

Lt. A. T. Wynyard-Wright to be actg. Capt. whilst empld. as Capt. (Gr. B), from (Ad.), Sept. 1st, 1918 (substituted for notification in "Gazette," Sept. 24th, 1918).

Sec. Lts. (actg. Lts.) to be actg. Capts. while empld. as Capts. (Gr. A):—G. Baillie, C. H. Bell, W. Dentith, Nov. 1st, 1918.

Sec. Lts. to be actg. Capts. whilst empld. as Capts. (Gr. B):—H. E. Haddon, Oct. 30th, 1918; (actg. Lt.) P. H. Paul, Nov. 1st, 1918.

Lts. (A.) to be Lts. (Gr. A):—J. W. Thomson, Oct. 25th, 1918, E. Vredenburg, Jan. 25th, 1918.

Lt. W. H. Scanlan to be Lt. (Gr. A), from (K.B.), Nov. 25th, 1918.

Lts. (O.) to be Lts. (Gr. A):—C. A. Lunghi, July 11th, 1918; E. V. White, Dec. 6th, 1918.

Lt. E. C. F. O'C. Fenton to be Lt. (Gr. B), from (A.), Oct. 31st, 1918.

Sec. Lt. (actg. Lt.) L. E. Carter retains the actg. rank of Lt. whilst empld. as Lt., from (Ad.), May 15th, 1918, (substituted for notification in "Gazette," Sept. 17th, 1918).

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Gr. A):—W. Wheatley, Sept. 3rd, 1918; S. R. Gellett, Sept. 18th, 1918; W. Gill, Sept. 21st, 1918; T. R. Parlow, Sept. 28th, 1918; H. O. Keenan, Nov. 1st, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Gr. B):—O. N. H. Watson, (Hon. Lt.) N. W. Watson, Aug. 15th, 1918; W. L. Vining, Nov. 1st, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts.:—H. H. Fell, W. T. Henry, W. G. Shipwright, W. J. Walford, Oct. 30th, 1918.

The following are transferred to unemployed list:—Sec. Lt. (actg. Lt.) A. M. Cawthra, Jan. 11th; Sec. Lt. J. Davies, Jan. 15th; Sec. Lt. (Hon. Lt.) J. W. Carroll, M.C. (Durh. L.I.), Jan. 16th; Capt. R. A. Coote, Sec. Lt. N. H. Jenkinson, Jan. 17th; Sec. Lt. J. E. Adcock, Sec. Lt. P. H. Benson, Lt. C. A. Gladstone (unattd. list, T.F.), Lt. J. A. G. Harrison, Lt. H. Maccby (Lond. R.), Sec. Lt. (Hon. Lt.) C. A. H. Mason (E. Surr. R.), Lt. (actg. Capt.) P. Middlemas, Sec. Lt. (Hon. Lt.) W. R. K. Ramsey, Jan. 18th; Capt. W. B. Carnley, Sec. Lt. E. L. Hopkins, Lt. F. C. Wood, Jan. 19th; Lt. F. E. M. Bussy, Sec. Lt. S. S. Dillingham, Sec. Lt. H. H. Hawkins, Sec. Lt. F. M. Hewett, Sec. Lt. (actg. Lt.) G. C. Moore, Capt. H. B. Neame, Jan. 21st; Lt. S. W. Gilbey, Sec. Lt. D. P. Jessup, Sec. Lt. E. W. Mann, Jan. 22nd; Lt. J. F. Earle, Sec. Lt. (Hon. Lt.) R. W. Hughman (Middx. R.), Capt. G. L. T. Owen, Jan. 23rd.

Maj. J. U. Kelly, D.S.O., relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Maj., Feb. 1st.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—J. E. J. Crawford (contracted on active service), F. J. P. Disney, A. Gaze, Feb. 1st.

The surname of Lt. (actg. Capt.) F. B. Nicol is as now described and not as stated in the "Gazette," Aug. 27th, 1918.

The notification in "Gazette," Oct. 25th, 1918, concerning Sec. Lt. (actg. Lt.) L. Butterfield is cancelled.

CHAPLAINS BRANCH.—Rev. F. C. Cleaver (temp. Chap. to the Forces, 4th Cl., A.C.D.) is granted a temp. commn. as Chapln., with the relative rank of Capt., Jan. 28th.

ESTABLISHMENTS.—CENTL. FLYG. SCH.—The following temp. appts. are made:—Instrs. (graded for purposes of pay as Majs.) (Flyg.).—Capt. H. Meintjes, M.C., vice Capt. (actg. Maj.) J. C. Slessor, M.C., July 14th, 1918; Capt. J. C. B. Firth, M.C., vice Capt. W. E. Molesworth, M.C., Sept. 4th, 1918.

MEMORANDA.—The following Capts. are confirmed in the rank of Capt.:—O. S. Stiles, B. A. Smart, D.S.O., C. Hanson-Abbott, A. F. E. Warner, J. A. Glen, D.S.C., D. S. Harp, G. M. Part, D. FitzG. Fitz-Gibbon, D.S.C., H. F. Stackhard, H. V. Drew, O. M. Ayrton, G. K. Cooper, W. H. Strettell-Miller, P. A. F. Belton, C. R. Vaughan, M. Faux, L. H. Wilkins, D.S.C., A. L. Taylor, J. L. A. Sinclair, G. L. E. Stevens, R. M. Bayley, R. S. Montagu, D.S.C., J. A. Macnab, G. G. Simpson, D.S.C., A. G. Woodward.

Sec. Lt. W. C. Van Eeden is granted the hon. rank of Lt., Sept. 16th, 1918.

Maj. (actg. Lt.-Col.) J. T. C. Moore-Brabazon, M.C., relinquishes his commn. on ceasing to be empld., Dec. 28th, 1918.

The following are transferred to unempld. list:—Capt. (actg. Maj.) J. H. S. Annesley (from S.O.), Jan. 12th; Capt. (actg. Maj.) M. J. C. S. Johnstone (Dragns.) (from S.O.), Jan. 17th; Maj. W. A. Sedgwick (Bed. R.), Jan. 18th; Capt. W. H. Dallow, Jan. 20th; Lt. (actg. Capt.) E. N. Layton (from S.O.), Feb. 1st.

ADMIRALTY APPOINTMENTS.

The following appts. have been made:—

JAN. 28th.—Lt. J. F. W. Tamplin, to "Furious," Jan. 27th.

JAN. 29th.—Ch. Gunner (T.)—C. B. Stiven, to "Furious" Jan. 28th.

JAN. 30th.—W.R.N.S., Q.S.—Miss L. Hellaby, to "Cranwell," Dec. 14th, 1918.

THE CASUALTY LIST.

MILITARY.

Reported Jan. 31st.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Poole, Sec. Lt. B. G., R.F.C.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Cock, Capt. G. H., M.C., R.F.C., Edelston, Lt. R. H., R.F.C., Kent-Jones, Lt. D. W., R.E., attd. R.F.C., Newbury, Lt. G. G., R.F.C., Norton, Lt. P. C., R.F.C., Spearpoint, Lt. H. G., R.F.C.

CANADIAN FORCES.—Blight, Lt. T. F., Man. R., attd. R.A.F.

Whiteside, Capt. H. S., Can. M.G.C., attd. R.A.F.

Reported Feb. 4th.

The following officers, who were prisoners of war in Germany, have been released and have arrived in England:—

Davies, Lt. T. E. H., K.R.R.C., attd. R.F.C.; Edwards, Sec. Lt. G. R., R.F.C.; Graham, Lt. L. N., W. Yorks. R., attd. R.F.C.; King, Capt. D. B., R.F.C.; McDonald, Lt. H. O., R.F.C.; Owen, Lt. H. W., R.F.C.; Rawson Shaw, Capt. K., R.F.A., attd. R.F.C.

AIR FORCE.

Reported Jan. 30th.

REPATRIATED.—Bridger, Sec. Lt. H.; Broadbent, Lt. G.; Cawley, Sec. Lt. C. F.; Cook, Sec. Lt. L. C. L.; Hall, Sec. Lt. B.; Holland, Lt. E. V.; Foster, Capt. W. E.; Hartley, Sec. Lt. H.; Holland, Lt. E. V.; Hudson, Capt. A. R.; Jeffkins, Sec. Lt. E. C.; Macnamara, Sec. Lt. J. F.; Macpherson, Sec. Lt. J. M.; Mansell-Moullin, Lt. O.; Murray, Lt. D. C. G.; Pugh, Sec. Lt. J.; Radley, Lt. J. E.; Richardson, Capt. G. A.; Shackleton, Sec. Lt. W.; Sitch, Lt. J. E.; Thomas, Sec. Lt. H.; Vickers, Sec. Lt. J. B.; Wilson, Capt. C. B., M.C.; Wren, Sec. Lt. H. L.

Reported Jan. 31st.

REPATRIATED.—Bennett, Lt., R. C., D.F.C., Bradford, Sec. Lt. W. W., Bradley, Lt. D. E., Brandrick, Sec. Lt. A., Briggs, Capt. H. R., Brisbin, Lt. H. V., Brumell, Lt. H. P., Calvert, Sec. Lt. T. W., Clark, Lt. H. J., Dawson, Sec. Lt. E., Dougan, Sec. Lt. W. I., Doyle, Capt. J. E., Earle, Sec. Lt. R. J., Hibbert, Sec. Lt. J. R., Hudson, Capt. F. N., M.C., King, Sec. Lt. P., Kiteley, Lt. A., McDonald, Sec. Lt. J. C. J., Pratt, Sec. Lt. A. R., Russell, Lt. H. W., Shipton, Sec. Lt. G. A., Swann, Sec. Lt. T. H.

Reported Feb. 1st.

REPATRIATED.—Amory, Lt. W., Anslow, Sec. Lt. F. F., Awde, Lt. I. W., Ayrton, Capt. F. A., Castle, Lt. G. L., Chase, Sec. Lt. D. E., Coward, Lt. S. R., Crawford, Sec. Lt. W. I., Crichton, Sec. Lt. A. C., Croxall, Capt. E. R. T., Culley, Capt. G. C. H., Culver, Sec. Lt. D. E., Draisey, Lt. A. S., Falkenberg, Lt. G. D., Foggo, Lt. N. O. M., Forest, Lt. L. H., Goffe, Sec. Lt. W., Haight, Lt. J. L., Henty, Maj. E., Hewat, Sec. Lt. H. B., Highwood, Capt. S. W., D.F.C., Houlgrave, Sec. Lt. C., Hubbard, Capt. W. R., Judkin, Sec. Lt. O. V., Knight, Lt. C., McGreeth, Capt. J., Meckereth, Capt. J., Main, Lt. R., Matheson, Lt. A. M.

Reported Feb. 3rd.

REPATRIATED.—Coomer, Sec. Lt. F. H. V., Dalzell, Capt. W. A. K., Gaze, Lt. I. O., Hancock, Sec. Lt. C., Madge, Lt. J. B. C., Miles, Lt. A. A., Millard, Capt. B. A., Morris, Lt. E. J., Norcross, Lt. B., Norris, Sec. Lt. E. J., Parkes, Lt. G. A. H., M.C., Reveley, Lt. P. T. A., Scharff, Sec. Lt. R. L., Searle, Sec. Lt. R. J., Slipper, Lt. R. A., Sparkes, Lt. C. P., Stanley, Lt. J. C., Steele, Sec. Lt. T. M., Stevenson, Lt. L. G., Taylor, Lt. J. C., Tennant, Sec. Lt. P. S., Thresher, Sec. Lt. C. E. W., Touchstone, Lt. G. R., Walker, Lt. J. C., Walrond-Skinner, Capt. D. D., Wilcox, Sec. Lt. C. H.

Reported Feb. 4th.

REPATRIATED.—Bailey, Capt. F. J.; Chaloner, Capt. T. W. P. L.; Graham, Lt. L. N.; Gray, Sec. Lt. W. J.; Hankin, Capt. H. M.; Heine, Lt. R. W.; Lansdale, Sec. Lt. H.; McDonald, Lt. Lt. H. O.; McDonald, L., J. J.; Mills, Sec. Lt. F. G.; Mulhall, Sec. Lt. H. F.; Ohrt, Lt. F. M.; Pym, Lt. F. G.; Riley, Sec. Lt. E. I.; Simons, Lt. A. T.; Speagell, Sec. Lt. H. M. D.; Sproule, Lt. E. R. L.; Stead, Lt. M. W. B.; Sydie, Lt. J. E.; Thompson, Lt. C. W. M.; Turner, Lt. K. K.; Watts, Lt. R.

Reported Feb. 5th.

KILLED.—Bissell, Lt. L. N.
Croudace, Lt. H.
Morris, Lt. J. C.
Wood, Sec. Lt. J.

DIED.—Barnett, Sec. Lt. T. W.
Gray, Sec. Lt. A. C.

DIED OF INJURIES.—Masters, Lt. E. H.

REPATRIATED.—Bevington, Lt. R. J.; Button, Lt. H.; Cockin, Sec. Lt. J. B.; Couston, Lt. A.; Dickinson, Capt. T. M.; Grey, Capt. R.; Ivens, Sec. Lt. I. C.; McEwen, Capt. J. H. F.; Pollard, Lt. W. H.; Schooling, Sec. Lt. G. R.; Rawson-Shaw, Capt. K.; Weld, Lt. D. S.; Whitehead, Sec. Lt. H. R.; Winkler, Lt. M. H.

REPATRIATIONS AND CASUALTIES AMONG AIRMEN. THE DATES ARE THOSE OF THE OFFICIAL LIST.

KILLED.

JAN. 30th.—Hawker 198529 2nd Actg. Clk. A. G. (Birmingham); Johnson 118430 3rd Air Mech. W. R. C. (South Hackney); Trees 49984 1st Actg. Clk. H. (Wembley Hill).

DIED.

JAN. 30th.—Barrett 211067 1st Air Mech. J. (Peckham, S.E.); Crocker 144949 1st Actg. Clk. E. (Fulham, S. W.); Dangerfield 19365 1st Actg. Clk. P. F. (Wandsworth Common, S.W.); Dickenson 66490 1st Pte. R. (Alsager); Harness 120381 2nd Actg. Clk. A. C. (Bartley); Hutton 87886 1st Air Mech. R. F. (Melbourne, Australia); Lamb 31622 Cpl. C. H. (Bury); Ormond 286828 2nd Pte. W. (Waterford); Pring 111353 2nd Pte. F. (Sheffield); Riggs 21309 Serit.-Mech. J. C. (Falkirk); Sutcliffe 106460 3rd Air Mech. F. (Walsden); Warples 12769 Cpl. J. W. (Drayton Park, London, N.); Whitehead 65992 3rd Air Mech. T. F. (Levenshulme).

REPATRIATED.

JAN. 30th.—Butler 7216 Serjt. Mech. C. J. (Merstham); Costen 111854 2nd Pte. C. F. (Gillingham, Kent); Davies 114691 1st Pte. A. W. (South Tottenham); Finney 77937 Serjt. F. (Hinckley); Grant 211136 Cpl.

Mech. F. (West Croydon); Harrop 99238 Serjt. Mech. W., M.M. (Marple, Cheshire); Harvey 218848 Serjt. Mech. G. (Pimlico, S.W.); Legge 25233 Serj. Mech. F. V. (Hale, Cheshire); Millichamp 213500 3rd Air Mech. B. H. (Presteigne); Mole 5077 1st Air Mech. J. L. (Liscard); Money 207040 1st Actg. Clk. J. W. (Wimbledon); Pritchard 214791 Serjt. F. H. (Runcorn); Quinn 50506 3rd Air Mech. T. L. (Mountrath); Raymond 402077 3rd Air Mech. W. (Chorlton-on-Medlock); Robb 22045 1st Pte. D. (Sailsburgh); Sivyer 209456 Cpl.-Mech. C. W. (Mayfield); Spencer 211713 1st Pte. F. (Nottingham); Totman P/M/2/032065 Class B. Cadet D. (South Ealing); Vredenburg 87896 Serjt. Mech. L. G. (London, W.); Warman 214604 3rd Air Mech. F. W. (Reading).

PERSONAL NOTICES.

NAVAL.

MARRIAGE.

HULBERT—WILSON.—On Feb. 1st, at St. Peter's, Parkstone, Lt. Stanley Frank Ravenhill Hulbert, R.A.F. (late R.N.D.), second son of Maj. and Mrs. Harry Ravenhill Hulbert, of 11, Palace Gardens Mansions, London, W.8, was married to Eveleen Maude, widow of Lt. D. H. V. Wilson, R.N., and only daughter of Mr. and Mrs. T. C. Hooman, of Lilliput, Dorset, by the Rev. the Honble. Canon Adderley.

BIRTHS.

COTTON.—On Jan. 29th, at Sydney, Australia, Joan (née Maclean), the wife of Sidney Cotton, late Lt., R.N.A.S., of a son (David).

TAYLOR.—On Jan. 26th, Annette (née Mockler), wife of Charles Joseph Gordon Taylor, Surgeon, Lt., R.N.V.R., attached R.A.F., 54, Glenloch Road, Hampstead, of a daughter.

MILITARY.

DEATHS.

BARSTOW.—Capt Eric Barstow, R.A.F., was flying across country recently, and when near Oxted encountered a snowstorm. The weather was also foggy. He was flying rather low, and apparently being unable to see his way, crashed to earth in Marden Park, near Caterham. The machine was badly smashed, and Capt. Barstow was instantly killed.

Capt. Eric Jackson Barstow, R.A.F., who was 23 years of age, was the only son of Mr. J. J. Jackson-Barstow, D.L., and Mrs. Jackson-Barstow, of The Lodge, Weston-super-Mare. At the age of 19 Capt. Barstow enlisted in the N. Somerset Yeo. in Bath, and took part in the battle of Nov. 17th, 1914, outside Ypres, in which he was wounded. He was given a commission, after a few weeks' sick leave, and was appointed A.D.C. to General Lee, serving on the East Coast, and later transferred to the Royal Flying Corps. He gained his wings in 1917.

BERKELEY.—Lt. Christopher Berkeley, Coldstream Guards, attd. R.A.F., who was killed on Jan. 30th as the result of a flying accident at Northolt Aerodrome, was the second son of the late Rev. Stuart Berkeley, Vicar of Abbots Bromley, and of Mrs. Berkeley, 4, Rowsley Avenue, Hendon.

An inquest held at Hampstead on Feb. 3rd was adjourned for further evidence.

The deceased was stationed at Northolt Aerodrome, and took up a pupil in order to show him various turns. When about 1,200 ft. above the ground, in order to avoid collision with another machine, he cut off the engine. Coming down, the machine got out of control, and crashed. Mr. Berkeley died from his injuries in the Royal Air Force Hospital, but the pupil escaped uninjured.

HALSTEAD.—Lt. G. W. Halstead, M.C., R.A.F., was killed on Feb. 1st in an aeroplane accident at Castle Bromwich Aerodrome. He had already made several ascents, when the machine caught fire and fell to the ground.

HILL.—Lt. Richard Alexander Gathorne-Hill, Somerset Light Infantry, attd. to R.A.F., who was previously officially reported missing on Aug. 12th, is now unofficially reported killed in action on that date while in command of "A" Flight. He was the youngest son of Mr. and Mrs. C. Gathorne Hill, of Hazel Manor, Compton Martin. He was 21 years of age.

KING.—Capt. Cecil Frederick King, M.C., D.F.C., Croix de Guerre (with palm), son of Mr. and Mrs. F. H. King, Springfield Dukes, Chelmsford, was killed, the result of a collision in the air, at Sedgeford, Norfolk, on Jan. 24th in his 20th year. He was educated at Verites, Charterhouse. On leaving school early in 1917 he joined the Royal Flying Corps, and went to France in September of that year, where he served continuously for 13 months as Flying Officer and Flight Commander. He shot down 22 enemy machines, 19 of which were officially confirmed; he also did fine work in attacking enemy troops at low altitudes with his machine-guns and bombs. The French decoration was awarded to him for services rendered to the French Army during the second Battle of the Marne, July, 1918. Capt C. F. King was recently transferred to Sedgeford as a fighting instructor.

ENGAGEMENTS.

CHATHAM—CHEVERTON-BROWN.—An engagement is announced between Lt. Geoffrey Keith Chatham, Northamptonshire Regt. and R.A.F., second son of the Hon. W. Chatham, C.M.G., D.P.W., Hong-Kong, and Edna, only daughter of M. Cheverton-Brown, C.C., of Withernsea, E.R., Yorks.

HEATON-ARMSTRONG—WHITEHEAD.—The engagement is announced between John Dunamace Heaton-Armstrong, 20th Deccan Horse, second son of the late Mr. Heaton-Armstrong and Mrs. Heaton-Armstrong, of 5, Cornwall Gardens, S.W., and Mrs. Whitehead (née Béchet de Balan), widow of John R. G. Whitehead, R.F.C.

ST. CLAIR-MORFORD—KIRKPATRICK.—The marriage of Capt. A. C. St. Clair-Morford, M.C., R.M.L.I. (late R.A.F.), and Miss Victoria Kirkpatrick, only daughter of Col. and the Hon. Mrs. Kirkpatrick, of Kilshannig, Mallow, Co. Cork, will take place quietly at St. James's Church, Spanish Place, at 2.30 on Monday, Feb. 10th. All friends will be welcome at the church.

MARRIAGES.

LAWS—WITHERS.—On Jan. 15th, at St. Michael's, Chester Square, W., Major Frederick Charles Victor Laws, O.B.E., Lincs. Regt. and R.A.F., was married to Madeleine Grace Mathews Withers, by the Rev. B. W. Keymer, O.B.E., senior chaplain, R.A.F., France.

MEDHURST—GUY.—On Feb. 1st, at St. Oswald's, Fulford, York, Maj. Charles Edward Hastings Medhurst, O.B.E., M.C., R.A.F., second son of the late Rev. C. E. Medhurst, Vicar of Collingham, Yorkshire, and Mrs. Medhurst, was married to Christabell Elizabeth, youngest daughter of the Rev. T. E. B. Guy and Mrs. Guy, Fulford Vicarage, York, by the Bishop of Beverley, assisted by the Rev. E. Hedger, Vicar of Coxwold.

BIRTHS.

DUNLAP.—At 23, Rue de Clichy, Paris, the wife of A. C. Dunlap, late Lieut. R.E. and R.F.C., of a daughter.

PHILLIPS.—On Feb. 2nd, at Bushy Lodge, Teddington, the wife of Capt. A. W. Phillips, M.C., R.A.F.—a son (Michael).

RICHARDSON.—On Jan. 27th, 1919, at 330, Banbury Road, Oxford, the wife of Capt. C. Ridley Richardson, 1st E. Yorks Regt., attd. R.A.F., of a daughter.

AIR FORCE.

DEATHS.

HEATHERS.—Sec. Lt. Percy Charles Heathers, R.A.F., a Canadian, on whose body an inquest was held at King's Lynn on Feb. 3rd, after flying at 5,000 ft., suddenly descended to 500 ft., when his machine stalled and crashed, and he was killed. An experienced flying officer expressed the opinion that, as the day was bitterly cold, Mr. Heathers was numbed at the high altitude, and that the rapid descent caused him to faint. A verdict of "Accidental death" was returned.

LLOYD.—Three aeroplanes were manœuvring above Chalkwell Park, Westcliff-on-Sea, on Feb. 1st, when one of the machines, flying very low, struck an electric-light standard, took off the top of a tall elm tree, and fell to the ground. The pilot—Lt. Lloyd, R.A.F., of the Rochford Aerodrome—was killed.

ENGAGEMENT.

ST. CLAIR SARGANT—SIMMONS.—The engagement is announced between Capt. F. H. St. Clair Sargant, D.F.C., R.A.F., only son of Mr. and Mrs. Sidney Sargant, of Bank House, Sevenoaks, and Dorothy Constance Arden, only daughter of the late Percy Arden Simmons and Mrs. Simmons, of Park House, Otford, Kent.

MARRIAGES.

COLLIN—MITCHELMORE.—On Jan. 6th, at Stubbings Parish Church, Maidenhead, Capt. L. F. Collin, R.A.F., was married to Leita, youngest daughter of G. H. Mitchelmore, Esq., of the Gabled Lodge, Maidenhead Thicket, Berks.

EDGE—CLARK.—On Feb. 1st, at All Saints' Church, Ecclesall, Sheffield, Lt. John Albert Edge, R.A.F., only son of Mr. and Mrs. J. W. Edge, of Manchester, was married to Grace Olive, youngest daughter of Mr. and Mrs. George Clark, "Hill Turrets," Park Head, Sheffield, by the Rev. Canon Houghton, M.A.

HODDER—DONKIN.—On Jan. 23rd, at Amherst, Nova Scotia, Lieut. Philip Maitland, R.A.F., youngest son of the late Edwin Hodder, F.R.G.S., author and biographer, of London, was married to Grace, youngest daughter of Rev. J. Donkin, of Amherst.

BIRTHS.

BLAKE.—On Sunday, Jan. 26th, at Woldingham, Surrey, to Olga, wife of Major Wilfred T. Blake, R.A.F.—a daughter (Barbara Anne).

HUMPHRIES.—On Jan. 19th, at Devon-Nook, Barrogate Road, Duke's Avenue, Chiswick, to Dorothy (née Manger), wife of Lt. E. O. Humphries, R.A.F.—a son.

MORISON.—On Jan. 30th, at 12, Primrose Hill Road, N.W., the wife of Maj. O. C. Morison, R.A.F., of a son.

ROBERTSON.—On Jan. 31st, at Nursing Home, Ealing, to Violet Robertson (née Lomas), wife of Harry F. Robertson, Lt., R.A.F.—a daughter.



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SILLEM.—On Feb. 1st, at Miss Stacy's Nursing Home, Bedford, to Jean (née Singer), wife of Lt. F. H. Sillem, R.A.F.—a son.

STEINBERG.—On Jan. 27th, at 190a, Adelaide Road, N.W.3, to Capt. H. E. Steinberg, R.A.F., and Mrs. Steinberg—a daughter.

THOMPSON.—On Jan. 24th, at 45, St. George's Court, Gloucester Road, S.W.7, to Mary (née Abbott), wife of Lt. Aubrey W. Thompson, R.A.F.—a daughter.

WILFORD.—On Jan. 23rd, at Streatham Manor, to Ada Louise (née Moore), wife of Lt. E. H. Wilford, R.A.F.—a daughter.

* * *

Capt. W. F. Cleghorn, R.A.F., was last seen at Roulers, wounded and in German hands, on Oct. 2nd. Any news of him will be gratefully received by Mrs. Barber, Duisk Cottage, Seal, Sevenoaks.

* * *

Sec. Lt. Philip Charles Westhofen, of the 4th Squadron, R.A.F., with the B.E.F., France, was first reported missing and then reported killed, on April 12th, 1918, near Estaires. Can anyone give any information of him or of his burial place to his aunts, Misses Glendinning, 5, North Charlotte Street, Edinburgh?

AVIATION IN THE PRIZE COURT.

The following account is taken from the "Times":—

The President made a decree for £2,750 as prize bounty on a motion on behalf of H.M.S. "Raglan," "M.28," "Lizard," "Tigress," 'Supernal," and "Anchor of Hope II," and a squadron of aeroplanes, for the destruction of the German cruiser "Breslau."

Captain Maxwell Anderson, R.N., who appeared in support of the motion, said that this was the first claim which had been made by officers of H.M. Air Force, and it was made by virtue of Section 3, sub-Section 2 of the Naval Prize Act, 1918. The crew of the "Breslau" numbered 550 persons, and, therefore, the bounty claimed at £5 a head amounted to £2,750. An affidavit had been sworn by Lord Broome, the senior officer present. It was as follows:—

On Jan. 20th, 1918, I was in command of His Majesty's ship "Raglan" and senior officer of a detached squadron consisting of His Majesty's ships "M.28" (Lt.-Comdr. Donald Macgregor, R.N.), "Lizard" (Lt. Norman Albert Gustave Ohlenschlager, R.N.), "Tigress" (Lt.-Comdr. Joseph Bernard Nevill, R.N.), "Supernal" and "Anchor of Hope II." The said detached squadron was a part of the naval force blockading the Dardanelles At about 5 a.m. on the said Jan. 20th when near Kusu the German cruisers "Goeben" and "Breslau" were observed by my squadron and an engagement followed. In the course of the said engagement the "Breslau" was forced on to the British minefields in the vicinity and there blew up and sank. The "Goeben," seriously damaged, made good her escape, while of my force H.M.S. "Raglan" and "M.28" were destroyed. From survivors rescued and taken prisoners I ascertained that the crew of the "Breslau" consisted of 550 persons and no more.

In addition to His Majesty's ships there took part in and were present at the destruction of the "Breslau" certain aircraft, a part of the Air Force, embarked in H.M.S. "Ark Royal." The names of the crews, being the pilots and observers of the said aircraft, are as follows:—Capt. Ralph Squire Sorley; Capt. T. W. B. Grigson, Capt. T. R. Hackman, Capt. T. H. Piper, Capt. P. K. Fowler, Capt. C. B. Wincott, Lt. D. F. Murray, Lt. F. C. Smith, and Lt. O. R. Gayford.

In reply to the President counsel said that the "M.28" was a monitor.

Mr. Case, for the Procurator-General, did not oppose the motion.

The President made a decree in the terms of the motion.

Solicitors:—Mr. Arthur Tyler, on behalf of Messrs. Stilwell and Sons, Navy and Prize Agents, for H.M.S. "Raglan," "M.28," and "Anchor of Hope II."; Mr. Arthur Tyler, on behalf of Messrs. Cox and Co., Navy and Prize Agents, for Aircraft embarked on H.M.S. "Ark Royal"; Messrs. Botterell and Roche, on behalf of Messrs. Holt and Co., Navy and Prize Agents, for H.M.S. "Tigress" and "Lizard"; and the Treasury Solicitor for the Procurator-General.

ATHLETICS IN THE R.A.F.

At the sixth meeting of the Royal Air Force Recreational Training Committee, held at the Air Ministry, the formation of an R.A.F. Football Association was decided upon. Maj.-Gen. Sir F. H. Sykes, K.C.B., C.M.G., Chief of the Air Staff, was elected president.

A committee, consisting of representatives from all R.A.F. areas and the R.A.F. in the field, was appointed forthwith.

At Richmond, on Jan. 16th, a team composed of Royal Air Force men from the Army Co-operation School, Winchester, defeated a Public School XV by five goals, one penalty goal, one dropped goal and five tries (47 points) to one try (3 points).

On Jan. 16th a Royal Air Force team from Reading was defeated at Grove Park by a R.A.S.C. XV, the concluding score being one dropped goal and one goal (9 points), and two goals and three tries (19 points) respectively.

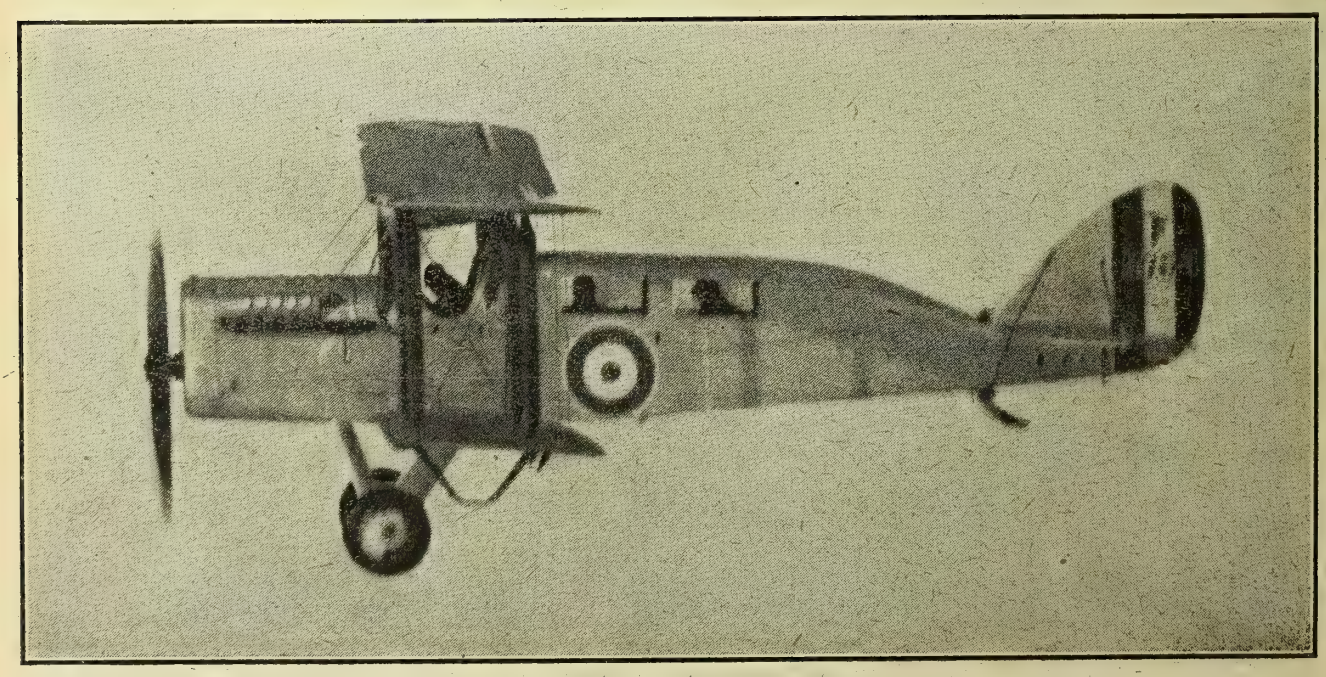
On Wednesday, Jan. 29th, a team composed of R.A.F. men from Ireland was beaten at Blackheath by the North-West Area 15 by one dropped goal and six tries (22 points) to nil. This match was one of the first of the R.A.F. series of trial games.

In another trial game at Blackheath on Thursday, Jan. 30th, a team of R.A.F. men from the Midland Area beat the South-West Area 15 by 1 goal, 2 dropped goals, and 2 tries (19 points) to 1 try (3 points).

Owing to the hard state of the ground, caused by the recent frosts, several of the R.A.F. Rugby trial matches have had to be postponed for a few days.

CROSS-COUNTRY RUNNING IN THE R.A.F.

The first race for "the King's Cup," presented by his Majesty to the Southern Counties Cross-Country Association as a challenge trophy, was decided at Kenley Aerodrome on Saturday, Jan. 18th, when the team of men from No. 7 A.A. Park, R.A.F. (Kenley), finished first.



Another View of the D.H 4 Biplane used as an aerial omnibus for the Peace Conference.

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The highest or any tender will not be necessarily accepted.

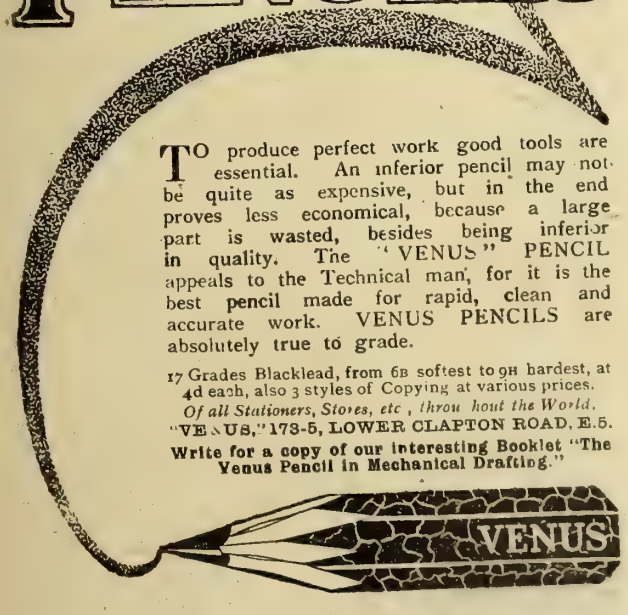
Further particulars may be obtained at my office.

Tenders endorsed "Beach Hydroplanes" must be received by me before noon on Saturday, the 22nd day of February, 1919.

W. EDGAR STEPHENS.
Town Clerk.

Town Hall,
Great Yarmouth.
29/1/19.

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Ae.E., 1919.

ROYAL AIR FORCE CO-OPERATING WITH FORCES OF OCCUPATION.

The following communiqué has been issued by the Press Bureau :—

EXPLANATORY NOTE BY THE SECRETARY OF STATE.

The reasoning and method which apply to the formation of the Armies of Occupation will also govern, with minor exceptions, the formation and maintenance of the Royal Air Force necessary to co-operate with the land and sea forces required during the transition period.

On November 11th, when the fighting stopped, there were in the Royal Air Force about 30,000 officers and 265,000 airmen. Of these, 1,742 officers and 51,727 airmen had been demobilized by January 24th, 1919. It is intended to retain during the present year about 6,500 officers and 75,000 other ranks. The rules governing their retention are fully set out in the Air Ministry Order which follows. The principles are the same as those which have been settled for the Army. Officers and airmen will be retained who were not enlisted and posted before January 1st 1916, have not attained their thirty-seventh birthday, or are not entitled to three or more wound stripes. The remainder will be demobilized as rapidly as possible in the priority of the industrial groups now open.

Pending an announcement of the permanent establishment and terms of service for the "after-War" Royal Air Force, which will be made with as little delay as possible, approval has been given to the grant of a bonus at the following rates :—

(a) Other ranks :—

Rank.	Weekly Addition. £ s. d.
Aircraftmen (2nd Class)	0 10 6
Aircraftmen (1st Class)	0 11 1
Leading Aircraftman	0 11 8
Corporal	0 12 3
Serjeant	0 14 0
Flight-Serjeant	0 15 9
Warrant Officer (2nd Class)	0 17 6
Warrant Officer (1st Class)	1 1 0
Cadet—on appropriate rate of his rank ... Flight Cadets	1 1 0

(b) Officers :—

Rank.	Weekly Addition. £ s. d.
Second Lieutenant	1 4 6
Lieutenant	1 8 0
Captain	1 11 6
Major	1 15 0
Lieutenant-Colonel	1 18 6
Officers of higher ranks and appointments	2 2 0

These rates have been fixed in relation to those approved for the Army and the Navy, and their estimated cost is £3,000,000 per annum.

SPECIAL AIR MINISTRY ORDER.

ROYAL AIR FORCE CO-OPERATING WITH FORCES OF OCCUPATION.

1. The strength of the Royal Air Force, which it is necessary to maintain to co-operate with the Sea and Land Forces of Occupation, has been decided upon.

The Forces of Occupation comprise :—
The Fleet.
The Home Army.
The Army of the Rhine
The Army of the Middle East.
The Detachment of the Far North.
The Garrisons of the Crown Colonies and India.

The Royal Air Force serving with the above will include :—
(a) Men serving on ordinary engagements.
(b) Men who have extended their service under Air Ministry Weekly Order 1560/1918.
(c) Volunteers.
(d) Men held to serve on "Duration of War" engagements.

2. On and after 1st February, 1919, airmen belonging to the categories shown in the Schedule below will be demobilized at the earliest opportunity

Men serving on pre-war conditions of service are necessarily retained for the duration of their engagements, except in so far as individuals may be released under paras. (2), (9) and (10) of the Schedule.

All other airmen are specially retained for general service so long as their services are required during the occupation period.

SCHEDULE.

(1)—(a) All airmen now serving who entered the Naval Service prior to 1st January, 1916, or who, having been entered in the "Class Y" Reserve of the Royal Navy, were called up for duty prior to that date.
(b) All airmen now serving who were attested and joined the Regular Army for immediate service with the Colours prior to 1st January, 1916.
(c) All airmen now serving who, after being attested or deemed to be enlisted and posted to the Reserve of the Regular Army, were called up or joined the Colours for continuous service prior to 1st January, 1916.
(d) All airmen now serving who enlisted in the Territorial Forces and who were attested prior to 1st January, 1916.

(2) All airmen entered under pre-war engagements who have completed the active service or Colour portion of their current engagement.

(3) All airmen serving on "Hostilities Only" or "Duration of War" engagements who attained the age of 37 years by 1st February, 1919. Those who subsequently attain the age of 37 years will become eligible from the date of attaining that age.

(4) All airmen who have been duly certified by the Ministry of Labour before 1st February, 1919, as civil demobilizers or pivotal men, and whose demobilization is ordered by the Air Ministry on A.F. Z. 32.

(5) All airmen whose special release has been recommended by the Ministry of Labour before 1st February, 1919, and whose demobilization is ordered by the Air Ministry on Z. 556.

(6) All airmen who belong to Industrial Groups which have been opened for demobilization prior to 1st February, 1919.

(7) All airmen who, prior to 1st February, 1919, are registered in their units as "slip men" on A.F. Z 16A, or who have produced "contracts" for employment from their pre-war employers.

(8) All airmen whose claims to return to their pre-war homes or businesses outside the United Kingdom have been approved, or may be approved, by the Officer i/c Repatriation Records, Winchester, on A.F. Z. 6.

(9) All airmen who are entitled to three or more wound stripes.

(10) All airmen whose releases on extreme compassionate grounds have been ordered by the Air Ministry, or whose releases on such grounds may be subsequently approved by the Air Ministry.

3. Additional emoluments in the form of weekly bonuses will be payable, under the Appendix to this Order, to men specially retained.

4. Any airman who is eligible for demobilization under paragraph 2 of this Order, or who, having already served during the present war, has been demobilized or discharged, may, provided he is suitable, be permitted to volunteer for general service with the Royal Air Force for one year under the following conditions :—
(a) Rates of pay, bonus and allowances to be the same as for those men held to serve under this Order.
(b) Substantive rank will be retained or re-assumed.

6. After 1st February, 1919, all leave, except on urgent compassionate grounds, will be limited to those who are retained in, or who are accepted for, the Royal Air Force of Occupation

7. All officers are liable to be retained under this Order, but, if sufficient numbers of volunteers are forthcoming, those who wish to be demobilized will be released as soon as the exigencies of the service permit.

APPENDIX.

1. A bonus will be payable, as from 1st February, 1919, at the rates and under the conditions shown below, to all officers and other ranks who are definitely selected for retention for Royal Air Force service, and to all who volunteer and are accepted for such service.

2. The bonus will, until further notice, be payable also to officers of the Royal Air Force holding permanent commissions in the Navy, Army or Royal Air Force, and to airmen serving on ordinary engagements.

3. If any officers and other ranks due for demobilisation forthwith and not specially selected for retention as above, have not been released by 1st May, 1919, they will be credited, as from that date, with a bonus at half the rates shown below, under the conditions stated. (This half-bonus will be issued to them on their release.)

4. The following are the weekly rates of the full bonus :—

OFFICERS.	Weekly addition. s. d.
2nd Lieutenant	24 6
Lieutenant / Staff Officer, 4th Class / Staff Lieutenant	28 0
Captain / Staff Officer, 3rd Class / Chaplain, 4th Class	31 6
Major / Staff Officer, 2nd Class / Chaplain, 3rd Class	35 0
Lieutenant-Colonel / Staff Officer, 1st Class / Chaplain, 2nd Class	38 6
Officers of higher ranks and appointments	42 0

OTHER RANKS, INCLUDING CADETS.	s. d.
Aircraftman (2nd Class)	10 6
" (1st Class)	11 1
Leading Aircraftman	11 8
Corporal	12 3
Serjeant	14 0
Flight Serjeant	15 9
Warrant Officer (2nd Class)	17 6
Warrant Officer (1st Class) / Flight Cadet	21 0
Boy	5 3
Cadet—to be assessed on the rank held ...	

NOTE.—For broken periods a corresponding daily rate will be issuable.

5. The bonus is not issuable to personnel locally enlisted in Malta, Egypt, etc., for special and not general service.

6. The bonus, when dependent on rank, will be based on the rank for which pay is drawn.

7. The bonus will be issuable to British service troops serving in India, under the same conditions as those applicable to troops elsewhere.

8. The period during which issue will continue for officers and men definitely retained will be that for which it is found necessary to maintain Forces of Occupation in various occupied territories.

9. As regards officers' gratuities, the bonus will not be taken into account in their assessment. Gratuities under Article 437 of the Army Warrant for Pay will not be earned beyond 3rd August, 1919, or the date of the termination of the war as defined by statutory authority, whichever comes first. Instruction will shortly be issued as to the war gratuity issuable to officers holding permanent commissions; the same limit of time will apply.

10. As regards other ranks, the bonus is in addition to the special bounties for extension of service, and to any war gratuity earned. The war gratuity authorised for airmen serving on ordinary engagements will cease to be admissible for any period after 3rd August, 1919, or the date of the termination of the war as fixed by statutory authority, whichever comes first. The conditions governing the war gratuity for all other airmen stand as already published. The bonus will be issuable during the twenty-eight days' furlough granted on demobilization.

11. The bonus will be subject to the same rules for stoppages, public claims, etc, as regimental pay.

12. Except in the case of the half-bonus, issuable to certain officers and men on release, the bonus will be issuable with ordinary pay, monthly in the case of officers, and weekly in the case of other ranks.

13. Instructions will follow at once as to the action to be taken by Commanding Officers to enable the amounts of the full bonus to be drawn by those entitled to it.

14. The bonus will not be issuable to Airmen employed on civil rates of pay.

15. The bonus authorised in this Order has no bearing on the scales of pay, separation allowance, etc., of the Air Force in the future, or on future terms of service. These will shortly be reconsidered in their entirety.

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NOTES ON AIRSHIPS FOR COMMERCIAL PURPOSES.

The following document was issued for general circulation by the Air Ministry (T5), on January 9th, 1919:—

THE RELATIVE ADVANTAGES OF AIRSHIPS AND AEROPLANES.

In view of the different characteristics of airships and aeroplanes, it appears that the future uses of the two types for commercial purposes will not conflict.

The airship is essentially a long-distance weight-carrying craft as compared with the short-distance high-speed aeroplane. It should be noted, however, that even in the matter of speed the airship of to-day with a speed of 77.6 m.p.h. can be considered slow only relatively to the aeroplane, as she is unquestionably fast in comparison with land and sea methods of transport.

In addition to this the airship has the advantage of not being dependent upon her speed through the air for her ability to remain aloft, and is not, therefore, liable to forced descent in case of engine failure, as is the aeroplane. Quite large repairs to engines, such as the changing of a cylinder, are possible in an airship.

The airship, then, is worthy of consideration for commercial flights over sea or land of a wooded or broken nature, such as to be unsuitable for the landing of aeroplanes, and on journeys involving non-stop flights of 1,000 miles and upwards.

In addition to this, airships are the most suitable aircraft for the carrying of passengers, where safety, comfort and reliability are essential.* An airship can remain aloft while engine repairs are effected; she always remains on an even keel, and there is, therefore, no danger in flying at night or in fog or clouds, and the great lift permits of much more comfortable accommodation being provided than is possible in an aeroplane, there being room to move about. In the case of a rigid airship, for example, a walk of 400 or 500 feet may be taken along the keel. The fact that the envelope is filled with an inflammable gas need not cause any misgivings as to safety, when one remembers the large number of motor vehicles which have been used during the war carrying bags filled with equally inflammable coal-gas at no greater distance from the engine than in the case of an airship.

Official statistics show that only one airship has been lost in this country owing to catching fire in the air, although 83,360 hours have been flown and over 2½ million miles covered during the War. In the case referred to the flight was an experimental one with a new type of ship, and the cause has since been ascertained and eliminated.

Conditions Favourable to Airship Transport: Trans-oceanic Services.

It appears that for commercial purposes large rigid airship stations should be established at distances of 2,000—3,000 miles apart, mainly for trans-oceanic traffic, while the aeroplane would be used for bringing passengers and merchandise to these from the neighbouring countries. For example, a continental airship service could run from Lisbon to New York, passengers being taken to Lisbon from Paris, Rome, etc., by aeroplane. In this way the aeroplane would compete with the train and the airship with the steamship, over which she would have the advantage of reducing the average time of transit by at least 50 per cent.

In addition to this, airships would be used for linking up the railways in such places as Central Africa, where the country is difficult both for aeroplanes and land transport.

It is worthy of note that though airships are generally considered to be fair weather craft, up to the end of November there were only nine days in 1918 when no airship flight took place in the British Isles—which are notorious for possessing almost the worst weather conditions of any country in the world. The airship is able to fly on days when fog or low-lying clouds are prevalent, which might be considered unsuitable for aeroplanes.

In long voyages, advantage could be taken of favourable winds and the routes chosen accordingly. Owing to her long endurance, an airship could afford, should a depression be met with, to fly either over or round it.

The latest German rigid airship has a disposable lift available for crew, fuel, merchandise, etc., of over 38 tons, which gives her a theoretical endurance (if all the available lift be employed in carrying petrol) of 177.5 hours (7 days) at a cruising speed of 45 m.p.h.—the maximum speed being 77.6 m.p.h.—during which 8,000 miles would be covered.

A detailed statement of the "disposable lift" available for freight of each existing type of British airship, showing the petrol consumption, is attached. From these figures the freight which can be carried and the time taken over any given route can readily be worked out.

The Advantages of Mooring Out Airships: Cheap Housing and Independence of Weather.

It should be noted that for purposes of short distance pleasure trips from, for example, South Coast towns, it would not be necessary to establish large stations at each town, but the following principle, which has been found most economical and successful during the War, might be adopted. This consists of building a station provided with permanent sheds, quarters, etc., at some convenient centre, and forming temporary bases consisting merely of a small cheap portable shed and a few tents or huts at other places, from each of which one or two airships are run; main supplies being drawn from the "parent" station, where all large repairs are effected.

In addition to the use of portable sheds at sub-stations, experiments have been carried out in mooring out airships in the open, which have had such a large measure of success as to promise well for the future.

An airship has been successfully moored out for six weeks in a perfectly open expanse to a specially designed mast. Only two or three men are required to look after the ship, and winds of up to 52 m.p.h. have been ridden out without any damage whatever resulting. There seems little doubt that with this system an airship could live out in the open for many months at a time.

Up to the present this method has only been tried with small non-rigid airships, but it is on the point of being tried with rigids, and there seems no reason to expect other than equal success. The possibilities of using floating sheds on water are also being inquired into, and appear to be promising.

Improvements to Airships in the Immediate Future.

It should be noted generally that greater reliability as well as decreased cost will undoubtedly be attainable by improvements resulting from careful research and experiment.

For example, the use of a mooring mast will very greatly increase the regularity of any airship service, as the chief difficulty at present consists in taking airships in and out of sheds. If an airship is left permanently ready at a mooring mast in the open it will be possible to fly in any wind up to the speed of the ship.

In the same way improvements in the fabric for non-rigid envelopes and outer covers of rigid airships will result in decrease in running costs by reducing the hydrogen consumption, and generally lengthening the life of the ship.

Similarly, a system of recovering water-ballast during flight would obviate waste of hydrogen by preventing the ship becoming "light," owing to the consumption of fuel during a long voyage. It will be understood that as an airship becomes light she tends to rise, which causes the hydrogen to expand, so that it must be allowed to escape through the automatic valves, or the gas-bags would be burst by the internal pressure. This tendency to rise must be counteracted by taking in weight to counterbalance that lost in the fuel consumed.

The Commercial and Technical Merits of Airships in Comparison with Aeroplanes.

Two appendices are attached, giving respectively a technical comparison of the airship and the aeroplane for long-distance flying, and full details as to performances, cost, etc., of the various types of British Airships, showing an estimate of the man-power required to run a commercial airship service.

It may be of interest to note that nine airship stations of various sizes will in all probability shortly cease to be in use by the Admiralty. These will, therefore, become available for commercial purposes, though the greater part of the ground is occupied under the Defence of the Realm Act.

In addition a certain number of S.S. Zero airships and coastal star airships will become available for disposal.

APPENDIX A.

The Development and Potentialities of Rigid Airships and Aeroplanes.

I.—Foreword.

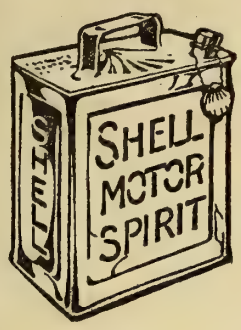
During the last four years sufficient experience has been obtained in the construction and use of rigid airships to enable future developments to be forecasted with some assurance of accuracy; and it is, therefore, possible to consider the lines along which progress should be sought, and the performance which, within the next few years, can be obtained from rigid airships.

In view of the widely-held opinion that the development of the large aeroplane will ultimately kill the large airship, it is necessary to institute a comparison between the future possibilities of both types. The result shows that in each case certain inherent qualities govern progress, and that these qualities, being widely different, will cause the two types to cover different fields of utility. It appears also that, whereas increase in size of aeroplanes brings many difficulties in its train with no compensating improvement in efficiency, increase in size of airships results in a reduction of the difficulties experienced at present, and gives improved efficiency, thereby opening up future possibilities of extraordinary value.

II.—Progress in Heavier-than-Air and Lighter-than-Air Machines, 1914-1918.

The development of rigid airships has been even more rapid than that of aeroplanes. In 1914, the average endurance of a German rigid at cruising speed was under one day, and the maximum speed about 50 m.p.h. In 1918 (German L.70 class, 2,195,000 cu. ft. capacity), the endurance at 45 m.p.h. has risen to 177.5 hours (7.4 days) and the maximum full speed to 77 m.p.h. The ceiling has correspondingly increased from 6,000 ft. to 23,000 ft. The British R.38 class (2,720,000 cu. ft. capacity) has an estimated cruising endurance at 45 m.p.h. of 211 hours (8.8 days), 34 hours greater than the German L.70 class.

* *Vide* Report of Civil Aerial Transport Committee.



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It is a matter of some difficulty to make a fair and at the same time simple comparison between two types of transport possessing widely different qualities. The figures for rigids are comparatively simple, as they are few in number and all of approximately the same class, compared to the many different classes of H/A machine which have been developed for various purposes. The Avro has been taken as the best all-round machine actually in use in August, 1914; large machines such as the Sikorski, the Caproni, and the Grahame-White five seater, were then only in the experimental stage, and, besides, did not possess the all-round efficiency of the Avro.

The D.H10a has likewise been taken as the best all-round machine in August, 1918. Although the two-engined Handley Page and Caproni have greater endurance and weight-carrying capacity, their all-round efficiency appears inferior to the D.H10a. The Handley Page V gives promise of having a slightly better performance than the D.H10a, but this machine is still in the experimental stage, and reliable performance figures are not available.

Tables (1) and (2) give the progress in L/A and H/A since 1914. Table (3) shows the difference in performance between corresponding L/A and H/A craft of 1918.

Table 1. Lighter than Air.

	August, 1914. Average figure for German Naval Zepp.	August, 1918. German L.70	Progress.
Maximum speed at 10,000 ft.	50 m.p.h.	77.6 m.p.h.	55%
Endurance at 45 m.p.h.	20 hours	177.5 hours (7.4 days)	787.5%
Total lift	30 tons	66.64 tons	122%
Disposable lift	8.5 tons	38.84 tons	357%
Efficiency ratio	27.3%	58.3%	113.5%
Static ceiling	6,000 ft.	21,000 ft.	250%
Indicated h.p.	800	2100	162.5%

Table 2. Heavier than Air.

	August, 1914 Avro.	August, 1918. D.H10a.	Progress.
Speed at 10,000 ft.	70 m.p.h.	125 m.p.h.	78.3%
Endurance	4 hrs.	10 hrs.	150%
Total weight loaded	0.737 tons	4.02 tons	445%
Useful load	0.268 tons	1.45 tons	445%
Efficiency ratio	36.3%	36.1%	0.55% (Decrease)
Ceiling	14,000 ft.	22,500 ft.	35.7%
Indicated h.p.	80	810	913%

	August, 1914 Avro.	August, 1918. Handley-Page.	Progress.
Speed at 10,000 ft.	70 m.p.h.	85 m.p.h.	21.4%
Endurance	4 hrs.	12.5 hrs.	212.5%
Total weight loaded	0.737 tons	5.97 tons	524%
Useful load	0.268 tons	2.17 tons	709%
Efficiency ratio	36.3%	36.4%	0.28%
Ceiling	14,000 ft.	15,000 ft.	7.1%
Indicated h.p.	80	720	800%

Table 3. Comparison of Existing H/A & L/A Machines.

August, 1918.	H/A D.H10a.	L/A German L.70.	Percentage. Superiority.
Speed at 10,000 ft.	125 m.p.h.	77.6 m.p.h.	H/A 61.1%
Cruising endurance	14 hrs.	177.5 hrs.	L/A 1,167%
Total lift (=weight loaded)	4.02 tons	66.64 tons	L/A 1,557%
Disposable lift (=useful load)	1.45 tons	38.84 tons	L/A 2,580%
Efficiency ratio	36.1%	58.3%	L/A 61.5%
Ceiling	19,000 ft.	21,000 ft.	L/A 10.5%
Indicated h.p.	810	2,100	L/A 159%

It will be seen that at the present time the largest rigids in commission have over 10 times the total lift of the corresponding H/A, and that the disposable lift is about 25 times greater.

The proportion of useful lift compared to gross lift is much higher in airships than in aeroplanes. An approximate figure for an aeroplane of average engine power is 1-3, while in a rigid the useful lift available for fuel, crew, passengers, freight, etc., is well over ½. In the case of L.70 the figure is 58.3%, although this ship is the most heavily engined and fastest airship yet built.

It cannot be too strongly emphasised that many of the advantages apparently possessed by H/A at the present time result from their relatively small lift. Thus, an aeroplane of 60 tons total lift, if found to be possible at all, would certainly be very much less convenient to land and handle on the ground than aeroplanes of existing sizes, and would require over-all dimensions about twice those of the largest existing machines.

III.—Technical Advantages in the Design of Airships.

Improvements in design, materials, machinery, etc., may be expected to produce great advances both in H/A and in L/A. It may be assumed also that most of the difficulties now experienced, such as the landing of large H/A and the handling of large L/A upon the ground, will be overcome by various means to a similar extent, and that the general utility of both types will enormously increase.

Increase in Size Unfavourable to Aeroplanes.—It is important to note that in H/A there is no automatic improvement in efficiency resulting from greater dimensions. In L/A, on the other hand, such an automatic improvement takes place to a very marked degree. The reason for this difference is as follows:—In similar H/A machines of different dimensions, the total lift, air resistance, and b.h.p.—other things being equal—all vary nearly as the plane areas—i.e., as the square of the linear dimensions.

It follows that the ratio $\frac{\text{Weight of Machinery}}{\text{Total lift}}$ does not vary much with size of machine. The ratio $\frac{\text{Weight of Structure}}{\text{Total lift}}$ tends to increase with size of machine. Unit area of wing surface can only exert a definite lifting effect, and as the machine increases in size it is necessary to increase proportionally the weight of each preceding unit area of wing surface to make the machine proportionally strong. A point is finally reached where every additional unit of wing surface results in as much increased weight as its lifting effect, so that any further increase in size will involve a definite falling-off in the total lifting capacity of the machine. A further small increase in size can be effected by increasing the number of planes; but, owing to the inefficiency of middle plane surfaces, due to the blanketing effect of the top and bottom planes, the resulting gain in endurance will not be large, and it will only be effected at the price of a loss in efficiency.

As the relation of size to performance is one of the governing factors in future development, it is considered from another point of view:—

In all similar structures the strength of the given structure is inversely proportional to its linear dimensions. This general property of structure applies both to airships and aeroplanes, but gives a very different numerical value in the two cases. In aeroplanes, if a given wing area in a small aeroplane weighs x lbs. for a span of y feet, then to double the span anr still maintain the structure proportionately strong the weight of the second structure will be $2(x+x)=4x$; and if the width (chord of the wing structure be correspondingly doubled, the weight of the structure will equal $8x$. Now the lift of the structure is directly proportional to the area, and if the span and chord are doubled, the area, and likewise the lift, will be four times as great, whereas the weight of the structure will be eight times as great to be correspondingly strong.

This unfortunate property of structure applies equally to airships; but the airship depends for its lift on *volume* (y^3), while the aeroplane depends for its lift on *area* (y^2). To give a concrete airship example, a 10,000,000 cu. ft. capacity rigid has five times the lift of the present 2,000,000 cu. ft. capacity rigid, but the length of the former is only 1.7 times greater, and therefore the weight of the structure only five times greater $(1.7)^3$—i.e., the weight of the structure is directly proportional to the total lift.

This theoretical property of structure may, to a certain extent, be modified by the material used. Thus, in aeroplanes, there is a certain size of machine which can be built most economically of wood. Any machine of smaller or larger size entails a certain proportion of uneconomical weight, due to the inherent qualities of the material. This question of material applies equally to rigids; thus, for ships of 2,000,000 to 4,000,000 cu. ft. capacity, duralumin is the most suitable material for the hull structure, while for ships of 8,000,000 to 10,000,000 cu. ft. capacity a saving in weight can be effected by the use of steel.

In H/A machines, therefore, all-round efficiency, as measured by the ratio of $\frac{\text{disposable lift}}{\text{total lift}}$ tends to decrease with greater dimensions. Greater efficiency will, therefore, not result from increase in size, but, on the contrary, great increase in size will not be attainable until greater efficiency has been first obtained by progress in design and materials. In other words, increase in size in H/A craft will be the result and not the cause of increased efficiency.

The Benefits resulting from the Increase in Size of Airships.—In L/A the total lift varies as the cube of the linear dimensions, while the air resistance and b.h.p.—other things being equal—vary as the square of the linear dimensions. Hence the ratio $\frac{\text{weight of machinery}}{\text{total lift}}$ decreases automatically. Values for this "coefficient of tractive resistance" for airships are given in Table (4).

Table 4.

Gross Lift of Rigid.	Coefficient of Tractive Resistance at 45 m.p.h.	60 m.p.h.	80 m.p.h.
60 tons	1.9%	3.8%	7.7%
80 tons	1.7%	3.4%	6.7%
100 tons	1.5%	3.0%	6.0%
150 tons	1.3%	2.5%	5.0%
200 tons	1.1%	2.2%	4.4%
250 tons	1.0%	2.0%	4.0%
300 tons	0.9%	1.8%	3.6%

It will be seen that they vary from 0.9 per cent. for a large rigid at 45 m.p.h. to 7.7 per cent. for a small rigid at 80 m.p.h., compared with 15 per cent., which may be taken as an average figure for H/A craft.

It will further be seen that as the size of the rigid increases, the coefficient of tractive resistance decreases to a marked extent. With a proportionate increase in h.p, it is easier and proportionately more economical for a 10,000,000 cu. ft. capacity rigid to fly at 80 m.p.h. than for a 2,000,000 cu. ft. capacity rigid to fly at 60 m.p.h. In the case of H/A craft, however, increase in

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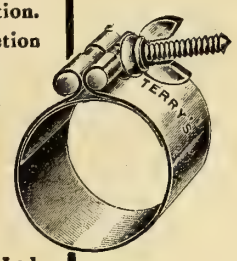
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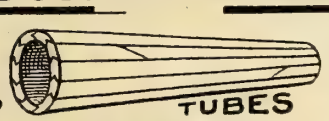
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size effects no decrease in the coefficient of tractive resistance. The figures for tractive resistance are based on the German L.33 streamline form, and from the experimental results already obtained by the National Physical Laboratory at Teddington, it is reasonably certain that a more efficient streamline form can be obtained which will appreciably reduce these figures.

As the ratio $\frac{\text{weight of structure}}{\text{total lift}}$ is, in airships, fairly constant, it follows that the ratio $\frac{\text{disposable lift}}{\text{total lift}}$ increases with dimensions.

The natural tendency will therefore be towards larger airships, in order to secure the benefit of the resulting gain in efficiency.

A further point of great importance emerges from the above. As the total lift varies as (dimensions)^2 in H/A, and as (dimensions)^3 in L/A, increase in total lift is secured in the latter with less increase in dimensions than in the former. Thus, to secure five times the total lift, we must increase the dimensions 124 per cent. in H/A and only 70 per cent. in L/A.

If total lift is increased indefinitely in both types, the dimensions of the H/A will, therefore, ultimately pass those of L/A, when almost the last remaining advantage of the former over the latter will disappear.

The proportion of useful lift compared to gross lift is much higher in airships than in aeroplanes. An approximate figure for an aeroplane of average engine power is 33 per cent., while in a rigid the useful lift available for fuel, crew, passengers, freight, etc., is well over 50 per cent. In the case of the German L.70 the figure is 58.3 per cent., as has already been mentioned.

Conclusions as to the Future Development and Use of H/A and L/A Machines.—From the above considerations, it is concluded that in H/A increase in size without loss in efficiency must result from, and be limited by, the extent of improvements in design, etc. The tendency will, therefore, be to confine aeroplanes to moderate dimensions, except where large size is rendered necessary by the need of reducing the number of units employed upon a particular service, or by other causes such as where long-distance non-stop flights are necessary. The outstanding characteristics of H/A will, therefore, remain as at present: high speed, handiness, moderate lift, independence of all weather conditions except the worst.

As regards L/A, the functions now performed by the smaller airships will be usurped more and more by H/A. Airships may be expected to develop in the direction of increased size to a limit which is not yet in view. The outstanding characteristics of L/A will be reasonably high speed, very long endurance, great weight-carrying capacity for freights, stores, passengers, etc.

The practical range of all types of aircraft carrying mails, passengers, or merchandise, will be small compared with their maximum range given in these notes, which is calculated for calm air, and assumes, besides, that all the disposable lift (useful load) aside from crew, food, emergency water ballast, etc., is available for fuel. For transport purposes, allowance must be made for the commercial load and additional fuel over and above that actually required for the given flight, which must always be carried in case unfavourable weather is encountered. Actually, the practical range will not be much more than one-fourth of the maximum range.

Summarising, therefore, it would appear that the line of policy to be adopted is to develop the aeroplane for transport over distances under, say, 500—800 miles, and the rigid airship for trans-oceanic and possibly trans-continental flights of over this length.

IV.—Large Airships.

It is now proposed to consider more fully the possibilities of the large airship. Table (5) shows the approximate dimensions of a series of airships similar in form to R.33.

Table 5.

Capacity in cu. ft.	Gross lift in tons.	Length	Diameter.
2,000,000	60.7	643 ft.	79 ft.
3,000,000	91.1	736 ft.	90.4 ft.
4,000,000	121.4	810 ft.	99.5 ft.
5,000,000	151.8	872 ft.	107.2 ft.
6,000,000	182.2	927 ft.	113.9 ft.
7,000,000	212.5	976 ft.	119.9 ft.
8,000,000	242.8	1021 ft.	125.4 ft.
9,000,000	273.3	1061 ft.	130.4 ft.
10,000,000	303.6	1100 ft.	135.1 ft.

It will be seen that although a 10,000,000 cu. ft. capacity rigid has five times the gross lift, and over five times the disposable lift of the present 2,000,000 cu. ft. capacity rigid, the dimensions of the large ship are only 1.7 times greater, and it could be docked in a shed of no more than one-third larger dimensions than those at Killeagh, i.e.,

1,150 ft. long × 160 ft. high × 180 ft. wide, compared with
850 ,, × 130 ,, × 150 ,, for Killeagh.

As regards constructional sheds, the most economical method of accommodating such large airships would perhaps be to lengthen existing constructional sheds, which are sufficiently wide, to at least 1,150 ft. long (present length 700 ft.), and lower the floors as necessary to secure the required height. A somewhat similar course could probably be taken with existing housing sheds.

To obtain a reasonable performance with a small ship, every effort has to be made to save weight, and complicated built up girders must be used owing to their property of forming a light and strong joint. In a large ship, owing to the increase in efficiency with size, it would be possible to sacrifice a certain amount of lightness in construction for the sake of simplicity in design. With increase in size, steel could be used with advantage in place of duralumin, and a great saving in cost effected thereby. With increase in size, too, it should be possible to produce a rigid of so much more rugged construction that it might even be erected in some form of roofless dock, remain either moored out or in flight while in commission, and only return to dock for a complete refit, thus saving much of the expense of housing stations.

Just as with H/A craft, where aeroplanes have gradually increased in size, checked and modified in each successive stage by the results obtained under Service conditions; so the construction of the really large rigid must be approached systematically, in successive stages, checked and modified at each stage by practical results.

Bad weather will not appreciably endanger a rigid in flight, and its chief operational handicap has so far been the probability that it will sooner or later be caught out in a high wind lasting for a longer period than the endurance of the ship, so that the ship would then have to attempt to land before the wind dropped and would probably be wrecked. If the meteorological reports for previous years are examined, it will be seen that even under unfavourable conditions it will be possible for a ship with a three weeks' endurance to leave the shed during any temporary lull in the wind, carry out a fortnight's flight, and calculate on being able to return and land during another lull in the ensuing week. Should the large ship meet a storm, she will be able to go round or over it, and could afford to wait in the air for fine weather in which to land.

Thus if the endurance of a rigid is increased to a sufficient extent, it will be possible to carry out flights with a regularity comparable to that maintained by surface craft. The range, practically speaking, is almost unlimited, and the weight-carrying capacity large. A 10,000,000 cu. ft. capacity rigid will have a disposable lift of over 200 tons, which is available for petrol, ballast, crew, passengers, freight, in varying proportions as desirable.

The uses to which such an airship could be put are clearly of great importance. Further, there is no other type of vessel which could as efficiently undertake them.

With a rigid of about 10,000,000 cu. ft. capacity, and endurance of approximately three weeks at 40 to 45 m.p.h., with a maximum speed of 70 to 80 m.p.h., a ceiling of some 30,000 ft. can be obtained, and a maximum range of over 20,000 miles, or nearly once round the world.

This colossal endurance and range of action can be achieved in large rigids because, contrary to H/A, the characteristics of L/A are governed by two factors:—

1. The lift of a rigid is proportional to its cubic capacity [(dimensions)^3.]
2. All fuel carried is used for forward propulsion and not, as in the case of H/A craft, chiefly for maintaining the structure in the air, the head resistance of the airship being small compared to that of an aeroplane of the same lift.

APPENDIX B.

The Commercial Considerations Relating to Airships.

General Notes.

Sheds, Station Buildings, Etc.—The figures shown for the capital outlay on a station are based on war prices, and it is therefore difficult to give a reliable estimate, but a reduction of 40 per cent. is considered probable when normal conditions return. One large shed to house two rigid airships or a number of small airships is more economical from every point of view than providing a smaller shed to house single airships, unless the principle of having one large shed as the permanent station with a number of portable sheds or mooring masts at convenient distances apart is adopted.

Dimensions and Performance of Airships.—The lift available for fuel and freight is shown in order that the weight of passengers, merchandise, etc., that can be carried for any distance required, may be calculated. It should be observed that the speed of each type of airship is shown alternatively in miles and knots.

One knot or nautical mile = 2,025 yards.

60 nautical miles = 69.1 British statute miles.

Complement of Stations.—The number of men required to form the complement of a station without allowing for the crews and attached party of any particular type of airship, is shown in Table A; to these figures should be added the crews and attached parties shown in Table B.

The total complement for a station housing four S.S twin airships or a two rigid airship station is shown.

Wages and Salaries.—The figures shown can only be regarded as a fair average, and in addition, it is thought that housing accommodation on model village lines will have to be provided, as it is essential to have workmen close at hand.

Fuel Costs.—Petrol and oil prices are not quoted, as these will vary considerably according to the supply and demand at any given time.

Hydrogen.—Contractors charge 10s. per 1,000 cu. ft., but with the latest gas-producing plants installed at airship stations it is anticipated that 5s. per 1,000 cu. ft. will be the average cost, and therefore the estimates have been based on this figure. It appears probable, however, that this figure will be reduced as the uses of hydrogen for commercial purposes develop.

EXPLANATORY NOTES ON RIGID AIRSHIP DATA.

General.—The figures for the 2,000,000 cu. ft. airship are based on the German L.70 class of rigid airship, though the actual capacity of this type is 2,195,000 cu. ft.

The dimensions, horse-power and fuel consumption of the 10,000,000 cu ft. ship may be taken as approximately correct, as it is possible to calculate these with considerable accuracy on the assumption that the streamline shape will be similar to that of L.70.

The remaining figures for this class of ship are rather estimates than calculations, though they may all be accepted as on the moderate side. They are based on the assumption that increase in size is accompanied by certain advantages from the design standpoint, in addition to the prospect of proportionate improvements in methods of design resulting from experience such as has been obtained in the past.

Speed.—In all mechanical devices the general everyday performance is found to be below the standard of trial results, and the airship is no exception to this. While, therefore, there is little difference in effect on an airship between proceeding at "cruising speed" and at "full speed," considerably increased depreciation on the airship and power units and increased strain on the personnel result from driving the ship above "full speed" to the "absolute maximum speed" with the engines developing full power.

The "full speed" therefore represents the constant speed which can be maintained on a flight lasting for the total petrol capacity of the ship, and is 10 per cent. less than the absolute full power which the engines can develop.

However, for short distances, up to 800 miles or so, the absolute maximum speed could be maintained if required.

Of the two cruising speeds given, "fast" represents the highest economic cruising speed in view of petrol consumption, etc., while the slower speed is the lowest speed which appears possible for commercial purposes having regard to existing means of transport, the effect of wind, etc.

In areas where high speed is not of great importance the slower cruising speed could be adopted and a large economy in fuel obtained, resulting in the carrying of more cargo.

In regions where the weather conditions vary considerably according to the season of the year, it should be possible, by taking advantage of prevailing winds, to maintain a standard ground speed at all seasons. In this way the airships could be run to scheduled time and the ratio of fuel to cargo weights adjusted according to the time of year.

Cost of Hydrogen.—In the case of the 2,000,000 cu. ft. ship the figure of £3 per hour can be taken as accurate (at the present price of hydrogen—5s. per 1,000 cu. ft.), as it is calculated from the performance of a British rigid airship of about 1¼ million cu. ft. capacity over a period of three months, during which a large amount of flying was carried out.

The figure for the 10,000,000 cu. ft. ship is more of a rough estimate, but may be taken as a fair figure, subject to reduction if a satisfactory system of water-ballast recovery is evolved.

It may be remarked that with increase in size the *proportionate* consumption of hydrogen is reduced, for a variety of reasons.

Cost of Upkeep.—This covers all replacements rendered necessary by ordinary wear and tear, and also allows for small accidents such as do not involve total loss, or writing off of the ship.

During a period of considerable flying activity the same airship as is quoted above in connection with hydrogen costs, only required one small engine replacement and a slight hull repair, totalling under £100.

As size increases, the number of small repairs necessary will diminish, as large airships will be of more rugged construction.

CHARACTERISTICS OF NON-RIGID SHIPS.

DIMENSIONS.

	Length. Ft. Ins.	Width. Ft. Ins.	Height. Ft. Ins.	Capacity.
S.S.Z.	143 0	32 0	46 0	70,000
S.S.T.	165 0	35 6	49 0	100,000
C. Star	218 0	49 3	57 6	200,000
N.S.	262 0	56 9	69 3	360,000

PERFORMANCE.

	S.S.Z.	S.S.T.	C. Star.	N.S.
	(100,000 c.f.).			
Gross lift in lbs.	4900	7000	14500	24300
Disposable lift = Gross lift, less weight of airship empty, i.e., without crew, petrol, oil, and ballast on board ... lbs.	1850	2200	4850	8500
Crew ..... No.	3	4	5	10
	480	640	800	1600
Available lift for fuel and freight lbs.	1370	1560	4050	6900
Petrol consumption (full speed)—				
Lbs./hour	49	100	224	312
Galls./hour	6.7	13	30	42
Oil consumption (full speed)—				
Lbs./hour	3.6	7.2	18.4	29.8
Galls./hour	0.36	0.72	2.05	3
Full speed ...	42 knots (48.37) m.p.h.	50 knots (57.5 m.p.h.)	50 knots (57.5 m.p.h.)	50 knots (57.5 m.p.h.)
Cruising speed	30 knots (34.5 m.p.h.)	37 knots (42.6 m.p.h.)	35 knots (40.3 m.p.h.)	37 knots (42.6 m.p.h.)
Running costs of hydrogen (per hour)	5/-	7/6	£1	£1 10s. 6d.
Engines	1-75 h.p.	2-75 h.p.	For'd. 1-110 h.p. Aft. 1-260 h.p.	2-260 h.p.

UPKEEP.

	Cost. £
S.S.Z.	5,000
S.S.T.	8,200
C. Star	12,750
N.S.	24,000

Less 40 per cent. reduction for peace-time figures.

20 per cent. of the capital outlay on non-rigid airships is considered sufficient allowance for all spare parts, envelopes, etc., required in the course of a year. This figure would keep an airship in an efficient condition, and provide for the rebuilding in case of an accident.

CHARACTERISTICS OF RIGID AIRSHIPS.

DIMENSIONS AND COST.

Type.	Length. Ft.	Overall width (diameter). Ft.	Overall height. Ft.	Cost. £
2,000,000 ship (approx.)* ...	693	79	92	150,000
10,000,000 ship (approx.).....	1,100	135	150	200,000 to 300,000

PERFORMANCE.

	2,000,000 Ship.*	10,000,000 Ship.†
Gross lift	66.6 tons	303.6 tons
Disposable lift	38.8 tons	200 tons (approx.)
Allowance for crew, water ballast, etc.	11 tons	30 tons
Available lift for fuel and freight	27.8 tons	170 tons
Full speed (10% less than full power)	64.3 kts. (74 m.p.h.) 1,800 h.p.	75 kts. (86.3 m.p.h.) 6,000 h.p.
Petrol consumption/hr.	972 lbs. (135 galls.)	3,240 lbs. (450 galls.)
Oil consumption/hr.	97 lbs. (11 galls.)	324 lbs. (36 galls.)
Cruising speed, fast	40 kts. (46 m.p.h.) 790 h.p.	60 kts. (69 m.p.h.) 3,700 h.p.
Petrol consumption/hr.	427 lbs. (59 galls.)	2000 lbs. (278 galls.)
Oil consumption/hr.	43 lbs. (5 galls.)	200 lbs. (22 galls.)
Cruising speed, slow	43 kts. 46 m.p.h.) 610 h.p.	45 kts (51.8 m.p.h.) 1,800 h.p.
Petrol consumption/hr.	327 lbs. (45 galls.)	927 lbs. (135 galls.)
Oil consumption/hr.	33 lbs. (4 galls.)	97 lbs. (11 galls.)
Running Cost of Hydrogen/hr. ...	£3	£6

7 per cent of the capital value of a rigid airship is considered sufficient allowance for all spare parts required in the course of a year. This figure would keep an airship in an efficient condition and provide for repair in case of damage.

CAPITAL OUTLAY FOR AIRSHIP STATIONS.

Rigid.	£
Shed, 750 ft. long, to house two rigids	300,000
Gas plant and buildings	75,000
Quarters and subsidiary buildings	10,000
Roads, drainage, railway and water supply.....	81,400
	466,400
Less 40 per cent. increase expenditure on account of war prices	186,560
	279,840

Non-Rigid.	£
Shed, 350 ft. long, to house four S.S.T. or two C. Star or one N.S.	103,000
Gas plant and buildings	40,000
Quarters and subsidiary buildings	2,500
Roads, drainage, railway and water supply	58,600
	204,100

* The figures for the 2,000,000 ship are based on L.70.

† Estimated.

Less 40 per cent. increase expenditure on account of war prices	81,640
	122,460

Non-Rigid Temporary Base.

	£
Cost of portable shed to house one S.S. Twin Airship	7,500
Quarters and subsidiary buildings to house 100 men	1,500
	9,000
Less 40 per cent. increase expenditure on account of war prices	3,600
	5,400

(In this case gas would be supplied from the "parent" station.)

PARTICULARS OF THE PERSONNEL REQUIRED.

TABLE A.

COMPLEMENTS FOR AIRSHIP STATIONS.

Trade Classification.	Four S.S. Twin, or two C. Star, or one N.S.	Two Rigids.
Fitters	3	6
Turners	2	4
Sheet metal workers	1	6
Blacksmiths	1	2
Welders	1	2
Mechanics	8	20
Power engineers	2	4
Electricians	3	5
Carpenters	8	20
Propeller repairers	2	4
Woodwork machinists	1	2
Painters	1	2
Riggers and fabric workers	9	26
W/T	3	6
Hydrogen workers	6	52
Meteorological	3	3
Stores	3	11
Drivers	5	15
Plumbers	1	2
Vulcanisers	1	2
Coxswains	1	1
Engineer draughtsmen	1	2
	72	195
Unskilled labour	40	200
	112	395

In addition, the crews and attached party for each type of ship should be added to these figures. (See Table B.)

The following officials are also required:—

Manager and Secretary, Landing Official, Engineer, Electrical and W/T, Hydrogen, Meteorological and Stores and Accountant.

TABLE B.

CREWS AND EXTRA STATION PERSONNEL FOR AIRSHIPS.

ALLOWANCE FOR ONE S.S.Z.—1½ OFFICERS, 10 MEN.

Crew.		Attached Party.	
Coxswain	1	Riggers	2
Engineer	1	Engineer	1
W/T	1	Carpenter	1
		Working party	3
	3		7

Officers.—Three for every two ships.

ALLOWANCE FOR ONE COASTAL—1½ OFFICERS, 16 MEN.

Crew.		Attached Party.	
Coxswains	2	Riggers	3
Engineer	1	Engineers	2
W/T	1	Carpenter	1
		Working party	6
	4		12

Officers.—Three for every two ships.

ALLOWANCE FOR ONE N.S.—3 OFFICERS, 28 MEN.

Crew.		Attached Party.	
Coxswains	2	Riggers	6
Riggers	2	Engineers	3
Engineers	3	Carpenter	1
W/T	2	Working party	9
	9		19

Officers.—One Captain; one 1st Officer; one Spare Pilot.

ALLOWANCE FOR ONE RIGID—6 OFFICERS, 60 MEN.

Crew.		Attached Party.	
Coxswains	2	Riggers	12
Riggers	8	Engineers	13
Engineers	13	Carpenter	1
W/T	3	Writer	1
		Storekeeper	1
		Working party	6
	26		34

Officers.—One Captain; one 1st Officer; one 2nd Officer; one Engineer Officer; two Spare Pilots.

(NOTE.—Attached parties do not go up in the air with the airship.)

ESTIMATED WAGES AND SALARIES.

SMALL STATION (FOUR S.S.T. OR TWO C. STAR, OR ONE N.S.)

	£		
Manager and secretary	600		
Landing official	500		
Engineer ,,	350		
Electrical and W/T	250		
Hydrogen	250		
Meteorological	250		
Stores and accountant	200		
	2,400		
Pilots (4 S.S.T.), six at £400 per annum	2,400		Pilots and crews according to type of ship.
Crews (4 S.S.T.) 40		Table B.	
Skilled labour at £3 per week 72		,, B.	
— 112	17,472	,, A.	
Unskilled labour at 30s. per week 40	3,120	,, A.	
	£25,392		

LARGE STATION (2 RIGIDS).

	£		
Manager and secretary	800		
Landing official	600		
Engineer ,,	500		
Electrical and W/T	300		
Hydrogen	400		
Meteorological	300		
Stores and accountant	250		
	£3,150		
Pilots, 12	4,800		3 at £650 3 at £400
Crews, 2 ships 120		Table B.	3 at £250 3 at £200
Skilled labour at £3 per week 195—315	49,140	,, B ,, A.	
Unskilled labour at 30s. per week 200—200	15,600	,, A.	
	£72,690		

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ON PROSPECTS FOR YOUNG PILOTS.

Of all the questions which are asked day by day, by letter and verbally, in this office none is so persistent as the demand to know what are the prospects for young pilots after the war. For some reason or other an editor is supposed to be omniscient, so far as his own particular line of business is concerned, and so people seem to prefer to ask his advice rather than that of others who are actually better qualified to give advice on the personal affairs of the inquirer.

Naturally one takes this touching faith as a compliment, and one advises to the best of one's ability, but one disclaims any real knowledge concerning the future. The best one can do is to look at the logical line of development and prophesy accordingly.

The prospects for young pilots, or for pilots of any kind, depend on too many "variables," as a technical expert might call them, to give one a chance of hitting the right line of prophecy with any certainty, therefore one can only offer a purely personal opinion as to what is likely to happen provided that (A) this country is not swamped in a wave of Bolshevism, (B) we are not dragged into another World War by international quarrels over the League of Nations, (C) the British Empire does not go bankrupt owing to everybody's refusal to do any more work than he or she feels inclined to do, (D) the League of Nations does not agree to make flying illegal, (E) the British Government of the future (after the approaching fall of Mr. George) does not decide to abolish the Flying Services.

UNDER NORMAL CIRCUMSTANCES.

Be that as it may, let us consider what appear to be the prospects under normal circumstances, that is to say, provided that the Government of the future maintains an Air Force of reasonable size, and that Commerce develops on reasonable lines.

The form in which the question of prospects generally reaches this office is somewhat thus:—"I am an R.A.F. pilot with experience of flying four or five different types of machines" (sometimes it is 25 types or more), "and I want to get into commercial aviation. Can you tell me how to set about it, and what do you think are my chances?"

If one wanted to be bluntly and brutally frank one would reply simply:—"Not a dog's chance. Don't try to set about it. Stop where you are as long as you can." Less frequently, very much less frequently unfortunately, the question takes the form of asking what are the prospects for a pilot who wants to stop in the Air Force. In that case one's task is easy, for one has only to reply that if the inquirer has the good luck to be selected for a permanent commission he is at any rate sure of a decent living during the very difficult years which lie immediately ahead of us. One can think of no profession other than that of an R.A.F. pilot in which a young man under 25 years of age, without a business training, frequently without education, and occasionally without brains, can earn £1 a day for a few hours' work in each day.

COMMERCIAL PROSPECTS.

In discussing these prospects in greater detail, therefore, one had better take commercial prospects first.

For a start, it is well to remember that there are at present only about half a dozen firms which are, so far as one can gather, laying down a definite commercial programme for the immediate future. And only one of these firms is definitely operating at the moment.

The others are still laying their plans, and most of those plans depend entirely for their success on the fulfilment of the supposition, already discussed in this paper, that the Great British Public is enthusiastically desirous of "joy-riding" in aeroplanes during the coming Spring, Summer, and Autumn. If the Public does not take to joy-riding: or if the financial state of the country is so bad that there is no money for joy-riding: or if a few shoddy firms set to work with cheap and inexperienced pilots and cheap and obsolete machines and kill a few loads of passengers, so that the Public is scared off joy-riding: or if repressive legislation makes joy-riding impossible except to the wealthy or influential few: then all these free and independent commercial schemes will fall to the ground.

If that should happen it would be the worst possible thing for the future of aeronautics, for the result would be either (A) a Government monopoly of Civil Aerial Transport (analogous to a State Railway): or (B) a monopoly for one firm, which would be as bad, if not worse—for in the case of a State monopoly one can always have questions asked in Parliament, and one can say rude things in print, whereas in the case of a commercial monopoly one is barred by the Law of Libel from even beginning to tell the truth about it: or (C) a Trust, composed of several big and wealthy firms, which would crush all opposition and remove all competition, and so destroy all initiative and block all progress.

If there be any who doubt this last statement they have only to investigate the lamentable state of the equipment of the R.A.F. at the end of the war, which demonstrated conclusively the evils of the R.A.F. Trust-monopoly, which by establishing a single line of supply removed competition, blocked progress, and destroyed initiative, and resulted in the squadrons in the field having not a single machine of a design which was less than a year old, and only one type which was less than two years old.

WHAT IS HAPPENING

So far as the firms which are actually organising for commercial work are concerned, they have already engaged all the pilots they are likely to want until they see precisely how things develop in six months' time. In every case of which one has heard for the past month or two, pilots who have applied for jobs have been told

that the firm with which they have communicated has no vacancies at present, but that their names have been filed for reference.

It is well to remember that all these firms have been in close personal touch for years with numbers of the most skilful and experienced pilots in the Flying Services. These pilots have been flying the firms' machines in official tests, or on active service; they know the heads of the firms and the designers, and naturally they will have first call on any jobs that are open.

Many of these pilots have been flying for five or six years or more, and, equally naturally, any business firm will prefer them to newer pilots who, though perhaps no less skilful, are unknown personally to the heads of the firm, and have obviously less experience. Therefore it must be plain to the meanest understanding that the young pilot is not going to get a job in commercial aviation until such time as there arrives a boom in Civil Aerial Transport, or unless he happens to have some particularly strong pull with some firm.

A COMMON DELUSION.

One finds in course of correspondence and in conversation that there is a very common delusion among young pilots that a man's natural ability will carry him further in commercial aeronautics, or in any commercial career, than it will in the King's Service. This idea is wholly wrong.

Personal or social pull, or a genius for intrigue, will take a man ahead up to a certain point in the Services, but past that point solid ability is required in addition. On the other hand, solid ability alone, without pull or intrigue, will take a man further in the Services than will pull or intrigue without ability.

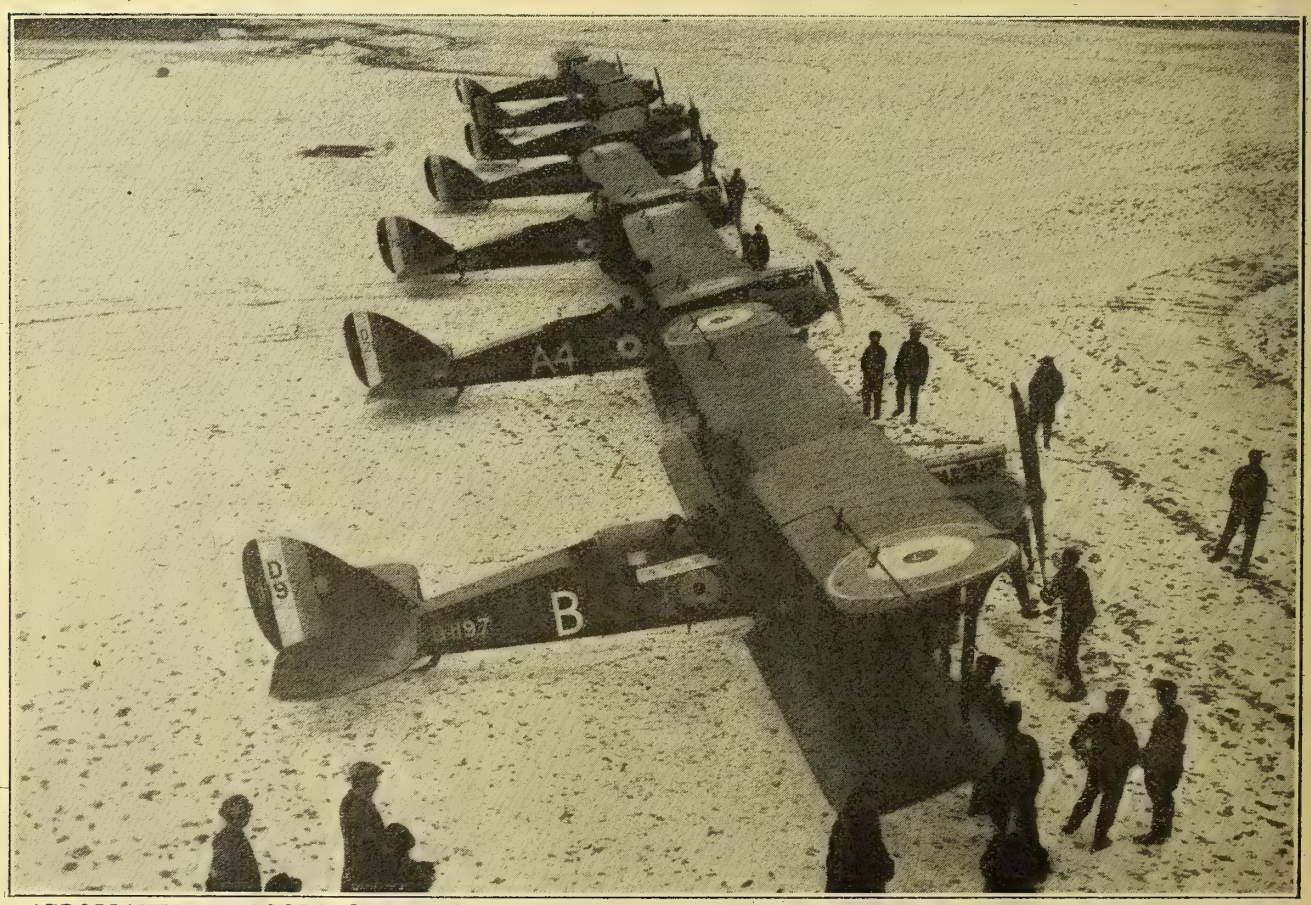
The men who get right up to the top must have ability first and foremost, they must also have tact (which is only intrigue raised to a higher moral plane), and they must have pull (which they acquire in their upward progress, either by personal charm, or by strength of character), for pull is nothing but having friends in high places to give one a hand up the ladder, and those friends can be obtained by honest dealing quite as much as by birth or by other forms of influence.

As the result of some twenty-five years' experience of various commercial undertakings one is certain that pull and intrigue are far greater influences in business than they are in the Services, and, moreover, the pull and intrigue are of a lower kind. Despite all that one has heard of bribery and corruption and graft in the Flying Services during the war, one knows that in every business or trade there was just as much crookedness before the war. And, wherever one has been told of dirty business being done in the Services, the dirtiness was always attributed to a civilian in uniform and not to anyone who was in the King's Service before the war.

THE PRESENCE OF THE GR FTER.

This, after all, is the best possible reply to those who foolishly believe that if they can once get out of the R.A.F., and the clutches of the "Bolo crowd," and if they can get into commercial aeronautics, their outstanding ability will make them a success, although their lack of pull and their lack of ability to intrigue prevented them from shining in the R.A.F. What they quite forget is that the very people who by their intrigues caused the Air Ministry to be nicknamed the Bolo House have been getting out of the Air Force as fast as they can, and that the same pull and graft and intrigue will in future be devoted to commerce.

Happily many of the worst grafters will return to their original nefarious pursuits, such as being lawyers, or motor-car sharks, or grocers, so that commercial aeronautics will not be cursed with their presence. Probably most of them will avoid commercial aeronautics because they are cute enough to see that for the present it holds no prospects of plunder for them. But



AEROPLANES AS GOODS CARRIERS: A batch of Airco D.H.9a's, laden with woollen goods and food for those regions in Belgium which are said to be suffering from scarcity of these commodities. One suggests a similar service to carry butter from Denmark to Great Britain.

we shall certainly see them back when anything in the nature of an aeronautical boom comes along.

THE SEMI-FRAUDS.

Meantime, commercial aeronautics is likely to be a fairly clean game, except that a certain number of minor crooks are likely to try to start semi-fraudulent aerial transport companies. These semi-fraud affairs are likely to be run by men of the get-rich-quick type, who may quite possibly run straight if their ventures prove a success, but who will certainly "bilk" everybody all round, including pilots and mechanics, if things go badly.

A sound firm will pay its pilots well, and the surest indication that a firm is not being run on the straight will be an offer of a small salary and a big percentage on the number of passengers carried. A pilot will be much wiser to take £400 or £500 a year certain, and no commission, than £3 or £4 a week with a big commission which the promoter of the venture estimates at £1,000 a year. Probably at the end of the year—when the joy-ride season is over, and the firm has to face a winter without income and with heavy expenses for salaries, and housing of machines—it will be found that the promoter has eloped with the cash-box.

THE BENEFITS OF THE SERVICE.

Therefore, one's advice to all young pilots is, quite simply, stay in the R.A.F. if you can, unless you are certain of a really first-class job with a first-class commercial firm. In the King's Service you are sure of being well paid and well housed. You will live among people of your own sort. You will fly more or less as and when you feel inclined, and not when a joy-ride profiteer insists on your doing so. And by honest hard work and ability and efficiency you will probably go further in an honourable career than you would in commerce. At the present moment, assuming that the Nation's affairs progress fairly normally, it looks as if the R.A.F. will, in the future, provide a career worthy of an officer and a gentleman. Most of the thoroughly nasty people seem to be leaving the King's Service—and, unfortunately, some of the very good people also. But those who are responsible for the personnel of the future Air Force are happily of the very best.

It is generally known, though it has not been publicly announced, that a Selection Committee has been appointed to choose those who shall be given permanent commissions in the R.A.F. One has heard criticisms of the composition of that committee—it would be a bad sign if it pleased everybody—but those who know the Service record of those officers recognise their fitness to select men of the right class who are worthy to take their places alongside the regular officers of the Senior Services.

If the R.A.F. is to occupy a proper position in the scheme of things its officers must be something better than mere split-air pilots and gallant Hun-killers. And, under the present arrangement for the appointment of personnel, the Air Force is likely to secure officers of the desirable quality.

ONE-YEAR OFFICERS.

Besides those who will be given permanent commissions it appears that many others will be retained on an engagement "during the present year," to serve with our various Armies of Occupation. This arrangement seems to offer an excellent opportunity for those who are not selected forthwith for permanent commissions, and one therefore strongly advises young pilots to apply for engagement for any period, if they cannot obtain permanent commissions.

The point is this. The pilots who leave the Air Force now, and who cannot find jobs with commercial aeronautical firms, must of necessity drift into other occupations and become dispersed throughout the world. If, in the course of two or three years, commercial flying develops on a big scale, they will be utterly out of date in their aeronautical knowledge, or, at any rate, in their practice with the latest types of machines.

Those who remain in the Service, even for so short a time as one year, will be that much ahead of them in their experience. And it seems probable that there will be many remarkable developments in aeroplanes and engines in the next year or so. Consequently, when the demand suddenly arises for pilots in large numbers, the people who were the last to leave the R.A.F. will be the first to get the good jobs.

THE BUGBEAR OF PRODUCTION.

If, as one hopes, the matériel of the R.A.F. is to be handled as efficiently as the personnel during the next two or three years, it will be a privilege to remain in the Service. The bugbear of production will cease to exist. There will be no need to turn out aeroplanes and engines like sausages, and the wise policy will be to produce the *best* machines for the equipment of the R.A.F. instead of merely the *most*.

During the war it was necessary to have as few different types of machines as possible. In time of peace, or even while peace terms are being settled and finally fulfilled, there can be no objection to introducing new and improved types as soon as they are produced by the makers. Instead of having a dozen squadrons mounted on identical machines it should be possible, and indeed advisable, to have a dozen squadrons each mounted on a different type of machine.

This would promote rivalry between the squadrons and would promote efficiency and *esprit de corps* as each squadron tried to beat its neighbour, and it would thus encourage makers to produce newer and better types. Thus we should not have presented to us the lamentable spectacle of our active-service squadrons struggling along gallantly on two-year-old and four-year-old types of machines, while immensely superior aeroplanes were flitting aimlessly about the country as the private hacks of test-pilots because officialdom refused to order them for fear of upsetting badly judged "production." Which is what happened throughout the war, and more particularly during the last year.

In any event, people who stop in the R.A.F. for the next few years are likely to do very much better for themselves than those who rush out and try to find jobs in a very restricted labour market. As one has



A GOOD ADVERTISEMENT: An Airco machine, with its R.A.F. pilot and commercial load, on the Folkestone-Ghent Service.

said, the older and better-known pilots will get all the decent jobs which are going at the moment—in fact they have already got them. The names of a very large number of good, sound, experienced pilots are already booked for engagement when air-lines and joy-rides come into operation.

It is practically useless for young and unknown pilots to try and get jobs at all, even as aerial chauffeurs. And it is perfectly hopeless for them to expect soft jobs on the ground, looking after aerodromes or workshops, as some of them wish. The only promising policy is to stop in the Air Force as long as possible. If a man is not contented to be a servant of the King, and to work for promotion to high rank in one or other of the Flying Services of the future, he will, at any rate, be wise in his own interests to remain in the King's Service so long as the King is graciously pleased to find a use for him.—C. G. G.

THE DUCHESS OF AOSTA'S FLIGHT.

H.R.H. the Duchess of Aosta flew from Rome to Naples during the morning of Feb. 5th, and in the afternoon flew to Terracina, whence she returned to Rome by motor-car.

AN AIR SERVICE PARLIAMENTARY COMMITTEE.

An Air Service Parliamentary Committee has been formed consisting of Members of Parliament who have served in the Royal Air Force. The Chairman is Captain Wedgwood Benn, D.S.O., D.F.C., and the Secretary, Colonel L'Estrange Malone.

GENERAL BIDDLE'S GRATITUDE.

Major-General John Biddle, commanding American Forces in Great Britain, has addressed to Colonel Sir Edward Ward, G.B.E., K.C.B., K.C.V.O. (Director-General of Voluntary Organisations), the following letter of appreciation and thanks for the services rendered by the voluntary organisations, which undertook the scheme of home hospitality to American aviation personnel during their training in British aviation camps :—

I consider it a privilege to express to you on my own behalf and for the many American soldiers to whom you have been so kind, our sincere thanks and appreciation for your generous hospitality. I wish it were possible for me to thank individually all those who have been associated with you in the splendid voluntary organisations which you called upon to help you in this work. This being impossible, could you in some way convey to them our deep appreciation of their untiring work?

I should particularly like to express through you to the Mayors of the towns where our men were stationed our sincere thanks for the many kindnesses which they everywhere experienced, and to have them know how deeply grateful our men have felt for the generous hospitality which they have received.

THE ROYAL AERONAUTICAL SOCIETY.

Attention is drawn to the following lectures which will be delivered at meetings of the Royal Aeronautical Society at 8 p.m. on the dates indicated. Except where otherwise indicated the lectures will take place at the Royal Society of Arts, 4, John Street, Adelphi, W.C.

Wednesday, Feb. 19th.—"Civil Aerial Transport—Is it Practicable, is it Safe, and is it Profitable?" by Claude Grahame-White. The Lecture will be given in the Central Hall, Westminster. The chair will be taken at 8 by Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P.

Wednesday, Feb. 26th.—"Some Points on Aeroplane Design," by Capt. F. S. Barnwell, C.B.E., R.A.F. Chair to be taken at 8 by General J. Weir, R.A.F.

Thursday, March 6th.—"The All-Steel Aeroplane," by Capt. A. P. Thurston, D.Sc., R.A.F. Chair to be taken by Brig.-General R. K. Bagnall Wild, C.M.G., R.E.

Wednesday, March 12th.—"From Model to Full Scale in Aeronautics," by H. Levy, of the National Physical Laboratory. Chair to be taken at 8 by Dr. T. E. Stanton, F.R.S.

Wednesday, March 26th.—"Lighter-than-Air Craft," by Lieut.-Colonel T. R. Cave Brown Cave, C.M.G., R.A.F. Chair to be taken at 8 by Brig.-General E. M. Maitland, D.S.O., R.A.F.

Wednesday, April 9th.—"The Supply of Meteorological Information for Aeronautical Purposes," by Lieut.-Colonel H. G. Lyons, F.R.S.

Wednesday, April 16th.—"Aluminium Alloys for Aeroplane Engines," by Dr. F. C. Lea, D.Sc., M.Inst.C.E. Chair to be taken at 8 by Lieut.-Colonel Jenkin, R.A.F.

Wednesday, April 30th.—"Aerial Navigation," by Major H. E. Wimperis, R.A.F.

Discussions will take place after each lecture and visitors may attend the ordinary meetings on the introduction of a member of this Society. Applications for tickets should be made to Mr. W. B. Farraday, Secretary, at the offices of the Society, 7, Albemarle Street, W.1.

Members of the Society should note that the annual general meeting will be held in the offices of this Society at 5 p.m. on March 19th.

The Wilbur Wright memorial lecture will be delivered in May, and details will be announced later.

THE ATLANTIC FLIGHT.

It is understood that the Air Ministry will now place no difficulties in the way of Royal Air Force pilots and navigators who wish to make an attempt to win the "Daily Mail" £10,000 prize.

Aeroplane manufacturers who can spare time from Government contracts may now undertake the construction of machines for this purpose.

The Air Ministry will probably enter three machines for the competition—a rigid airship, a Handley Page biplane, and a Porte flying-boat—for a combined attempt.

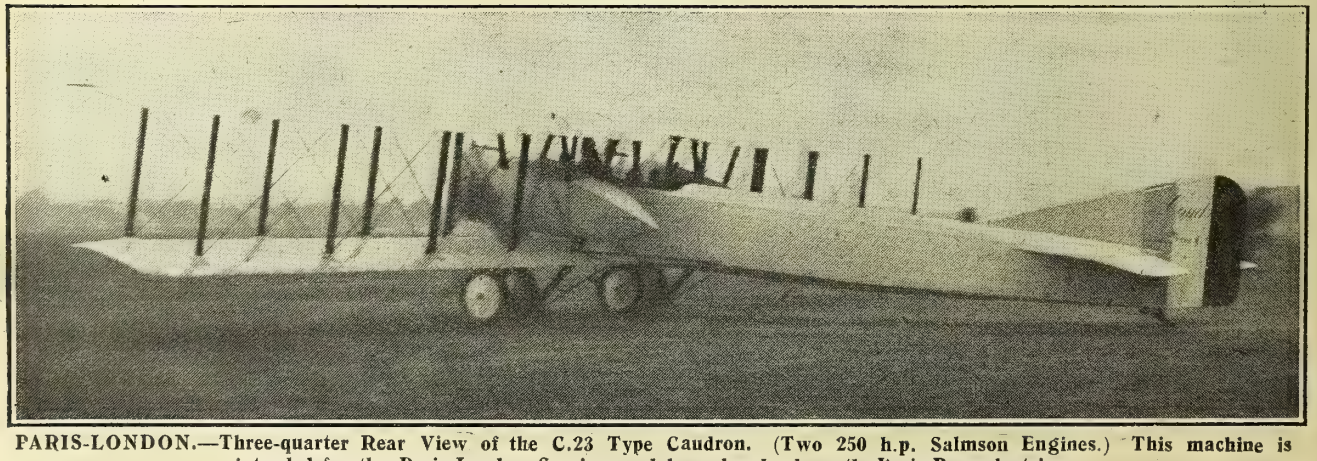
It is understood that the Swedish pilot, Captain Hugo Sundstedt, will make an attempt to win the "Daily Mail" prize of £10,000, which is offered to the first aviator to fly across the Atlantic. An American paper states that his machine is being built in America, and is almost ready to start.

It was stated at a special meeting of the Royal Aero Club, held recently, with Brig.-General the Duke of Atholl in the chair, that it had been decided that the regulations governing the "Daily Mail" £10,000 Cross-Atlantic Flight should be amended so as to exclude persons of enemy origin from taking part; and that no aeroplane of enemy manufacture or origin was to be used.

AIR RAID DAMAGE.

According to the data compiled by the London Fire Brigade, 827 bombs—484 explosive and 343 incendiary—were dropped during the course of 25 raids on London, damage being caused to 14,290 houses.

Nineteen bombs failed to explode, and seven fell into the Thames without causing any damage.



PARIS-LONDON.—Three-quarter Rear View of the C.23 Type Caudron. (Two 250 h.p. Salmson Engines.) This machine is intended for the Paris-London Service, and has already done the Paris-Brussels trip.

THE

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THE ZEPPELIN BASE AT NORDHOLZ.

One is indebted to a correspondent of the "Times" newspaper for a most interesting description of the Zeppelin base at Nordholz as it appeared when visited by the Allied Naval Commission in German waters.

The first thing which impressed the correspondent of the "Times" was the great contrast between the filth and lack of discipline in the German warships and the cleanliness and general good order of the German seaplane and Zeppelin stations, a somewhat curious circumstance in view of the fact that the personnel of the airship service is also drawn from naval sources.

The most likely explanation of the phenomenon is that whereas the sea forces were for the most part in a state of demoralising inactivity, the airship forces were fully occupied with work, which, if highly dangerous, was productive of definite results, both as regards naval reconnaissance and bomb-dropping.

In this way there was less favourable material for the dry rot of discontent; and, so far as the "Times" correspondent could learn, the crews of the airships were never guilty of refusing to undertake any work, however hazardous, that they were ordered to carry out.

When it is remembered what the crews of the Zeppelins faced during every one of the later raids, it seems evident that the *moral* of the crews must have been extraordinarily high, otherwise there would have been mutinies at the airship stations similar to those common in the submarine service.

The "Times" correspondent was amazed at the enormous scale on which the Nordholz station was planned, and the inspection of some of the latest ships made him realise the secret of the hold which the Zeppelin had for so long on the imagination of the German people.

Nordholz was the station from which nearly all the Zeppelin raids upon England was started, and the popular idea that airship stations had been established in Belgium was erroneous, and would have been prohibitive owing to the huge amount of labour, time, and expense involved in equipping even a temporary aerodrome fit for Zeppelin work.

The site of the Nordholz airship station lies six or eight miles south of the Elbe estuary and about the same distance from Cuxhaven. Occupying the first rising ground north from Wilhelmshaven, it is free from the constant inundation which threaten the alluvial plain along the sea. All the timber in the neighbourhood of the sheds had been burnt down to remove obstruction, although in one place trees had been replanted for some purpose. These, however, had been burnt away, it is said, after the blowing up of the Tondern sheds last summer, in order to minimise the risk of an expected raid with incendiary bombs.

The airship sheds are constructed in pairs, standing side by side around the circumference of a two-kilometre circle at intervals of a kilometre. The centre of the circle is occupied by a huge double revolving shed. Only four pairs of fixed sheds were completed and in use, and each shed was constructed for and housed two airships. Accommodation, therefore, was available for 16 airships in the four pairs of fixed sheds, and for two others in the central revolving shed, which represented a greater number than is believed to have raided England at any one time.

All the buildings at the station, including airship sheds and quarters for officers and men, are of the most robust construction and were evidently intended as a permanency. The different sheds are interconnected with broad asphalted roads. The floors of the airship sheds are also constructed of this material laid on a foundation of concrete. The sheds are steel-framed, and the walls include in their structure pressed asbestos sheets, the only source of daylight being windows in the roof with great panes of yellow glass, intended to cut off the ultra-violet rays of the sun from the fabric of the ships.

The quarters for officers and men are strongly built of brick and concrete, designed with no less regard for appearance than utility; the officers' quarters and the casino and large and comfortable houses for the married officers being attractively constructed in the style of architecture known to the Germans as the "New Art." It seems quite clear that Nordholz was intended to be a centre for commercial airship transport after the war.

The central revolving shed represents a great triumph in structural engineering. It is mounted on an enormous turntable, designed on the lines of a double-track engine turntable, with every dimension multiplied 25 or 35 fold. The turning track is laid in a bowl-shaped depression about 10 ft. deep and 700 ft. in diameter, the track being housed over. The floors of both sheds, which stand side by side on the turntable, with only a few feet between, are flush with the level of the ground to facilitate the running in and out of the airships. The turning mechanism, which is in the rear of the sheds and revolves with them, is driven by electricity, and the mouth of the shed can be pointed away from the wind with the greatest accuracy.

The Germans state that the only drawback to these revolving sheds is their enormous cost and absorption of structural steel, and any hope of building other sheds on these lines had to be abandoned until after the war.

Great difficulty had been experienced in housing airships of increased size, as it was found desirable to increase the dimensions of the airships far more rapidly than had been contemplated when most of the existing sheds were designed, and thus, many of the sheds, even at Nordholz, where practice was most advanced, had become quite useless for housing the latest Zeppelins. It was therefore necessary to detach the nose and tail pieces from the larger ships in order to get them inside the sheds. It required from 24 to 36 hours to get such vessels ready for flight, and during this time 60 or 80 ft. of the airship had to protrude from the entrance of the shed exposed to the weather.

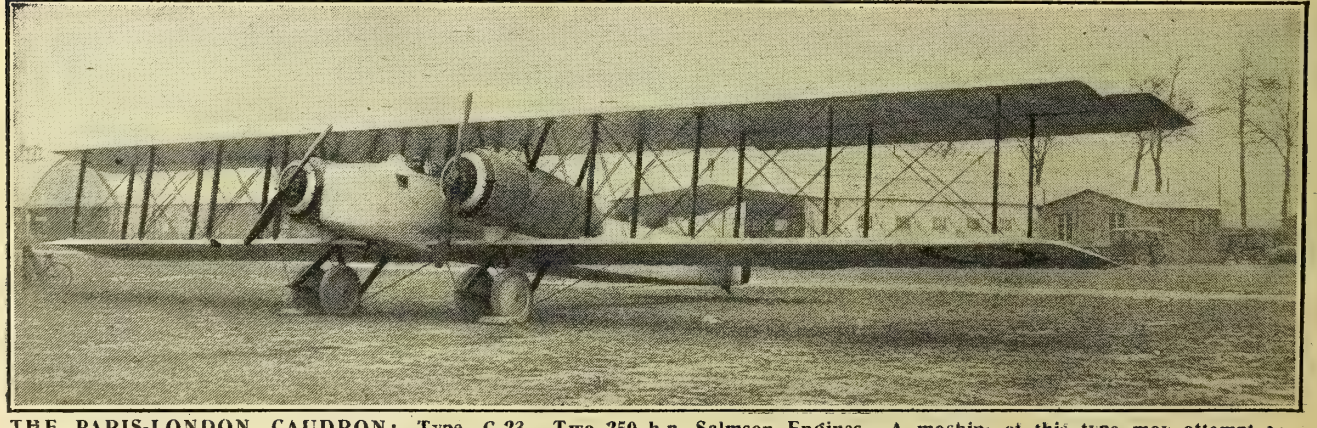
One of the most interesting vessels at Nordholz was the L.14, an early and small airship which had performed 24 bombing flights over England, besides many scores of reconnaissance trips. So fortunate had this vessel been in her work that a tradition had arisen among the surviving pilots at Nordholz that Fate had rendered her invulnerable, and they readily believed that she could not be destroyed.

One of the pilots said that the L.14 was always given the place of honour in starting away for England, and although, as a rule, she was the last to return, presumably as the result of inferior speed, or greater enterprise on the behalf of her crew, her lateness never caused any worry. All the greatest Zeppelin pilots had flown in her one time or another and came back safe, although when they were given newer and faster ships they did not always come back.

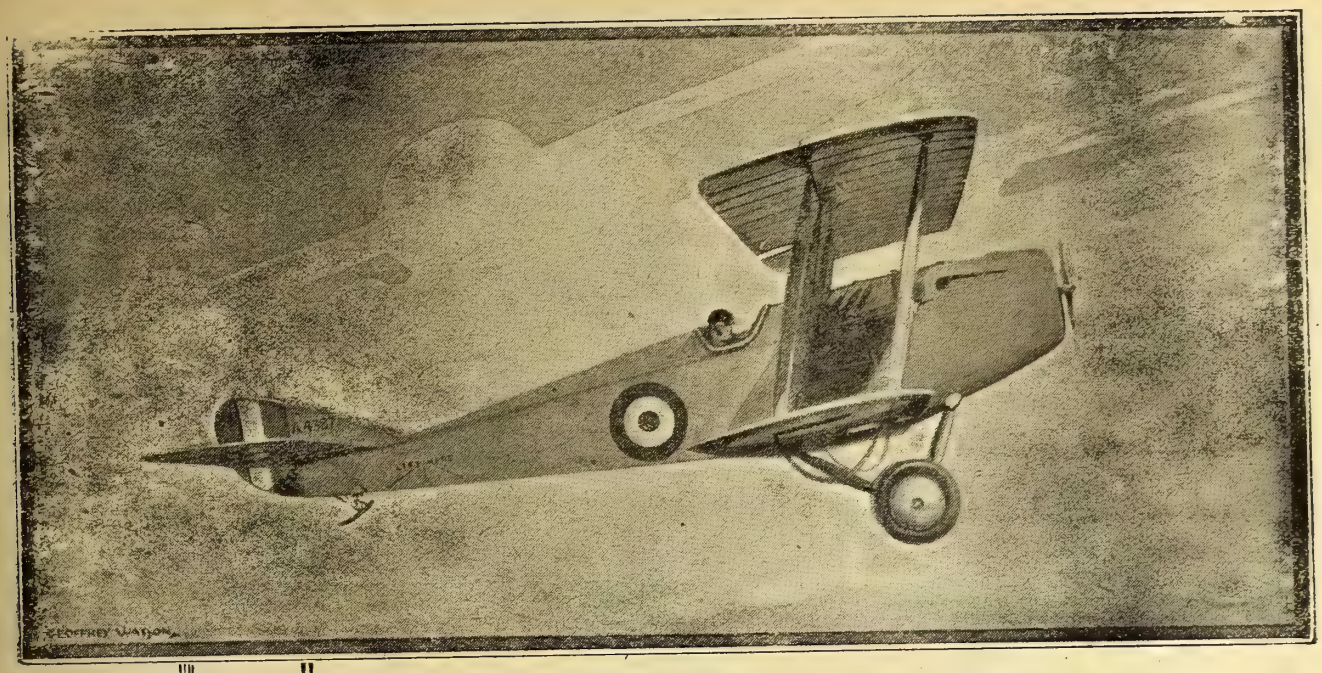
Her crew had seen many other Zeppelins fall in flames, but this increased their belief in her invulnerability and encouraged them to take longer chances. Because of the superstitious feeling which possessed all her crew, the greatest pains were taken when repairing and overhauling her to leave as much of the original material as possible, so that whatever gave her charmed life should not be removed—as someone aptly put it, nobody knew where the Joss lived—and even an old type of duralumin was retained in her structure in preference to lighter and stronger material.

Of late the L.14 has been used as a school ship in which to train young pilots, and it was hoped that her great traditions might prove a powerful inspiration to them.

Those interested in psychology may be interested to learn that, in the opinion of one Zeppelin pilot, thought transference from the people on the ground assisted him in finding thickly populated areas; he thought that the nearness of great masses of people, obsessed with anxiety and fear, established a kind of mental contact with the people in the airship.

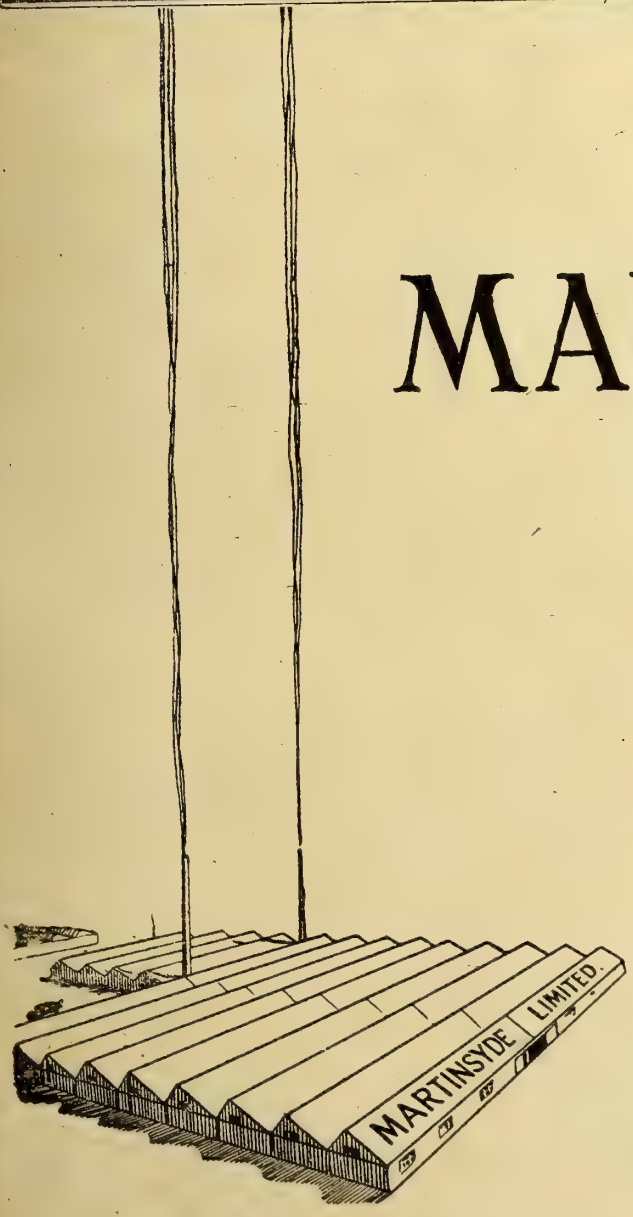


THE PARIS-LONDON CAUDRON; Type C.23. Two 250 h.p. Salmson Engines.—A machine of this type may attempt to cross the Atlantic *via* Cape Verde and Brazil, with the help of the Trade Winds.





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MISS DOUGLAS PENNANT'S CASE.

The Bangor City Council on Feb. 6th passed, without a dissentient, the following resolution :—

The City Council of Bangor view with regret that the Hon. Violet Douglas Pennant has recently been superseded as commandant of the Women's Royal Air Force, and they understand that Miss Pennant feels that she has been unjustly dealt with, and has called for an inquiry. From their knowledge of Miss Pennant as a near neighbour and their appreciation of the important public work she has been doing, the members of this Council, representing all shades of opinion in the city, have grave misgivings that she has not been fairly dealt with, and beg the authorities, in the interest of justice and fair play, at once to institute an inquiry into the whole matter.

The Mayor stated that he had received numerous letters from the public regarding the treatment to which Miss Pennant had been subjected.

THE FIRST AERIAL GOODS SERVICE.

An interesting development concerning Aerial Transport is the service which has been established between England and Belgium, which has been organised at the request of the Belgian Government by Aircraft Transport and Travel, Ltd., which is one of Mr. G. Holt Thomas' enterprises. This service consists of a number of converted D.H.9 aeroplanes which ply between Hawkinge, near Folkestone, and an aerodrome outside Ghent. These machines carry loads of woollen and cotton goods, foodstuffs and other necessities of life urgently needed by the Belgian people. Apparently, the machines are flown by Air Force pilots.

Apart from the direct value of the service in providing necessities for the Belgian people, it should prove of considerable value from an experimental point of view in providing data for future attempts at organising regular aerial transport services. Aircraft Transport and Travel, Ltd., deserve to be congratulated on thus securing such Government collaboration in experiments which would at a later date have to be carried out on a commercial basis.

THE FLIGHT OF BIRDS.

The insertion of the following announcement has been requested :—

R.F.C.—Any notes on the flight of migratory birds made in the air would be highly appreciated. Where possible, the species, height and velocity of flight, time of day and year would add greatly to value. Single or even negative notes would be most acceptable.

Colonel R. Meinertzhagen,
Hotel Majestic, Paris.

AN EXPLOIT.

In the American Press it is stated that Lt. Happy Joyce, of the U.S. Testing Department, completed 300 consecutive loops in 65 minutes at an average height of 2,000 ft.

THE ARREST OF AN INVENTOR.

Mr. John Pomeroy, of Stamford Brook, claimed to be the inventor of the anti-Zeppelin bullet when arrested by a police-officer in connection with the alleged stealing of American Government motor-cars.

The police-officer stated that a newly-painted car, which bore no identification marks, was found in a garage adjoining Mr. Pomeroy's house.

Mr. Pomeroy, with three others, was charged with being concerned with the theft, and a remand on bail was ordered in each case.

A POLICE COURT CASE.

Four air mechanics pleaded guilty before Mr. Francis, at Westminster on Feb. 10th, to stealing magnetos value £120 from a Government aircraft factory at Chelsea. An R.A.F. officer mentioned that the ringleader had been twice dealt with by a military court for similar offences. The magistrate asked what punishment was imposed, but the officer stated that he was not at liberty to say.

Mr. Francis expressed his surprise that he was not allowed to know such an essential matter, and asked whether that was according to King's Regulations.

The officer said that he thought so, but that the magistrate might perhaps be informed if he made an application to the C.O.

Seargeant Frost said the prisoner concerned had admitted to him that he had had sentences of twenty-one days and twenty-eight days' imprisonment.

Mr. Francis said he was telling him something that he was not supposed officially to know. He thought it put the magistrate in a very unfair position. It was most material to know a man's previous history and how he was dealt with by the military authorities for previous offences of a like character to the one now before the civil court.

The prisoner concerned was sentenced to three months' hard labour.

AN AIRCRAFT STRIKE.

On Friday, Feb. 7th, the employees of the Gnôme and Le Rhône Engine Co., Ltd., ceased work, this being an attempt to enforce their demands for a 40-hour week.

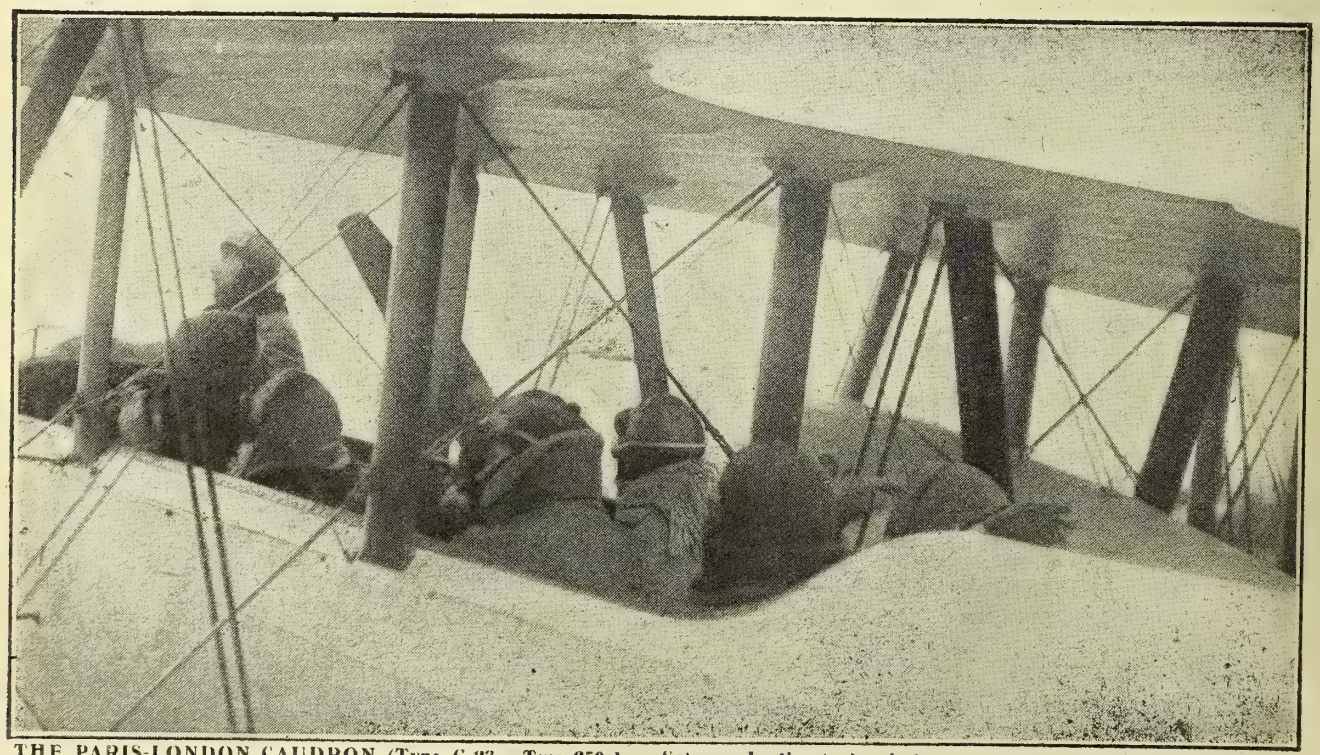
The strike was ordered after a meeting of the employees had been held, at which there was not unanimous agreement.

AN AERODROME FIRE.

On Feb. 6th a fire occurred at the aerodrome at Joyce Green, Dartford, belonging to Vickers Ltd. Two hangars containing six aeroplanes were destroyed; and also a motor-car and two Rolls-Royce aero-engines. One man was severely injured.

AN R.A.F. FLIGHT.

An aeroplane, piloted by an R.A.F. officer, left Hendon at 1 p.m. on Saturday, Feb. 8th, carrying official letters, and arrived at Cologne before dusk, having made one stop near the French coast.



THE PARIS-LONDON CAUDRON (Type C.23.—Two 250 h.p. Salmson Engines), showing arrangement of the eight passengers.


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PARIS NOTES.

It is reported that considerable interest has been aroused in the attempts of the Caudron firm to render possible their projected passenger service to London using a "C23" type machine. It is not immediately apparent whether international or mechanical difficulties are the dominating obstacle.

After leaving Toussus-le-Noble (Department of Seine-et-Oise) at 11.15 on Saturday morning, Feb. 8th, the large Farman biplane, carrying two French pilots and 12 passengers—French military officials concerned with aviation—arrived at Kenley Aerodrome near London at 2.30 p.m.

The whole party left Kenley on Sunday and reached Buc Aerodrome safely at 3.50 p.m.

It is said that the young son of M. Maurice Farman, who is six years of age, is enjoying many flights as passenger, and flies with his father on his private machine and also on the "Goliath" Giant.

A C.23 type Caudron biplane left Villacoublay, Paris, on Feb. 10th for Brussels, carrying six soldiers and two civilians, besides the pilot. The pilot intended to return to Paris immediately.

It is now understood that the machine on which Capt. Coli and Lieut. Henri Roget flew across the Mediterranean was a Bréguet two-seater with a 300 h.p. Renault engine, a land machine with no floats. The machine originally was flown from Villacoublay to Istres, where the sea journey was commenced after stopping at Vienne (Isère). The flight, however, cannot be said to eclipse that of the late Roland Garros, who in 1913 flew across the Mediterranean from Fréjus to Bizerte.

Capt. Coli had a somewhat distinguished career; he was in America on the outbreak of war and exempt from military service—he returned, however, and joined the infantry as a private, and rose to the rank of lieutenant. He was badly wounded in 1915, and being invalided from the infantry was transferred to aviation, and while serving with a fighting squadron was promoted to captain and received the Cross of the Legion of Honour. He was cited eight times in the Order of the Day. In June, 1918, he made a bad landing while night flying and lost his right eye, and subsequently received the Rosette of Officer of the Legion of Honour. This accident to his vision does not seem, however, to have affected his prowess as a cross country pilot.

Lieut. Henri Roget also commenced his career in the infantry. Thereafter he transferred to the Aviation Service and did a considerable amount of flying on Maurice Farman machines, being cited several times.

It is said that M. Le Mouet, a leading Parisian entomologist requests all aviators flying over Central and tropical Africa to search for, and send him, rare specimes of butterflies. He is willing to supply the names of districts where he thinks such insects may be found. It is reported that he has already obtained two notable specimens from such a source valued at 8,000 francs. One sees a possible minor development in this direction in connection with commercial aeronautics.

It is reported that Jules Védrines made an attempt to fly off the roof of the Galleries Lafayette upon which he recently landed. As, however, there seemed no prospect that the machine would attain its flying speed, he crashed into the lift cage at the end of the roof and thereby saved himself.

MATTERS OF HISTORY.

One hears, on more or less reliable authority, that the Aeronautical Inspection Department, in common with sundry other departments, is compiling an official history of itself. Whether this history is to be published for the education and edification of the British public or merely for the satisfaction of the members of the A.I.D. is not yet made known. In any case, such a history—which is bound to be entirely truthful, so far as it goes—will, undoubtedly, be of considerable value and interest to all who are able to obtain a copy of it.

It would, however, be considerably more entertaining if it were possible to give details of the inner history of the A.I.D. on such points as are not usually allowed to see the light of day. It would be interesting to know, for example, how every official in the A.I.D. got his job and why. In a good many instances the genealogical tree of the officials might be of interest as demonstrating how, in some places, the A.I.D. has been quite a family affair.

Another interesting appendix to the history would be a list of all A.I.D. male officials between the ages of 18 and 38, giving their age, medical category, and previous experience of engineering, together with the reason why they were not drafted into the Army.

None realises better than the writer how valuable has been the work of a great number of the A.I.D. officials, but any true and veracious history of the A.I.D. would be incomplete without some indication of the damage which it has done at certain periods and in certain places, and without an indication of the extent to which it has been used as a refuge from the Army.

As one has already remarked, the history is bound to be true so far as it goes, but one fears that a good deal of other truth will have to be suppressed.

AN ACCIDENT AT FELTHAM.

On Feb. 6th an aeroplane fell through the roof of a hangar at Feltham, Middlesex, killing a man named Albert Trowel and injuring four others. The occupants of the machine were uninjured.

THE LONDON-HARROGATE SERVICE.

It is understood that Aircraft Transport and Travel, Ltd., are making arrangements to begin the London to Harrogate aerial service during the early part of the season.

GERMAN AIR SERVICES.

It is reported that the proprietors of the newspaper, "Berliner Zeitung am Mittag," have employed an air service in order to facilitate the distribution of the newspaper.



THE PARIS-LONDON CAUDRON: The Pilot (M. Boulard), of the proposed Paris-London service, being photographed before a trial trip.

THE COSMOS ENGINEERING COMPANY

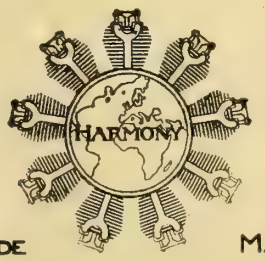
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THE JOYS OF BALLOONING IN MESOPOTAMIA.

To the uninitiated the name Mesopotamia suggests appalling heat, flies, and a much-discussed railway; these suggestions are certainly apt, but there are other joys in that delightful country.

Last year my balloon section was stationed on the Tigris front at Samanah; our camp consisted of 14 F.P. tents—i.e., double-roofed marquees—which provided ample protection from the sun during the hot weather, but were decidedly uncomfortable during the cold. We lived on the edge of the apparently unlimited desert which divided us from the shores of the Red Sea; the desert of Northern Iraq differs from that of Egypt in that it consists of sun-baked earth instead of sand; in spring it was covered with dry vegetation which faded away with the advent of summer.

The kite-balloon—which was the *raison d'être* of my unit—was snugly embedded in a nulla (dried water-course) which led down to the fertile plain of the Tigris; my Flight-Serjeant—an ex-policeman and the ablest man who ever cursed a balloon crew—had promised that no climatic disturbance could ever move it. It will be as well to explain that a sausage-balloon is tethered to the ground by a series of rope lines fixed to a wire strop running the entire length of the bed; there are also picketing lines attached to iron screw pickets—but these do not bear the main strain.

During the winter we had little trouble with the balloon, in spite of heavy rain and winds, and we were looking forward to the utter laziness of a Mesopotamian summer; by May it would be impossible to make any ascents, owing to the fatal effects of the sun's rays on the fabric.

The Night of Travail.

The morning of April 1st was cold and windy; no air-work was possible, so all hands were turned onto improving the camp, a task which was described in the daily summary of work as Physical Training and Drill Parades; before darkness set in—night begins at 4.30 p.m. during a Mesopotamian winter—things began to look bad, with storm-clouds in the west; the balloon guard was doubled, and the orderly officer warned to prepare for trouble; a windy night is the *bête noir* of a Section commander, as rest is impossible; the loss of a balloon on the ground, however unavoidable, is naturally looked upon with disfavour by the authorities, who cannot realise the difficulty of holding an unmanageable lighter-than-air monster in a gale.

I turned in early, after a consultation with my Flight-Serjeant, who was still optimistic as to the soundness of his ground-rigging; the telephone by my bedside was connected with his tent, with the orderly officer and with the balloon-guard, so I was able to issue orders with the least possible delay; from 9 to 11 p.m. the sentries rang me up at intervals of 15 minutes to report the strength and direction of the wind; by 11.30 there was a lull in the storm, and I decided to go to sleep; with a final injunction to the orderly officer, I switched off my electric lamp.

However, my rest was destined to be disturbed; within an hour I was roused by the furious flapping of one side of my tent and by a cold douche of ice-cold water which sprayed my face; I crawled out of bed—the temperature was well below freezing point—and attempted to fasten the frenzied canvas; just as I thought everything was O.K. the telephone started buzzing.

"Is that the Captain?" "Yes." "Balloon-guard speaking, Sir. The wind seems rather worse now, Sir." "Right-ho—Call the orderly officer—I'll be down in a minute."

I slipped on my flying-coat and gum-boots, called the Flight-Serjeant, whose tent was next to mine, and attempted to walk down the nulla to the balloon-bed.

The wind was blowing at 70 to 80 m.p.h.—it was raining with a ferocity that reminded me of Sierra Leone during the rains—and it was almost impossible to stand upright; I practically flew down the slope and landed in the bomb-shelter trench at the bottom, from which I was rescued by the Flight-Serjeant.

All Hands Called.

We finally managed to reach the balloon, and telephoned to the camp for the whole crew—Arabs and white men—to be turned out. With really wonderful speed, considering the conditions, the miserable men arrived at the bed, doubled down by the orderly officer. They attached themselves to the rope bridles of the rigging and sat down as far under the balloon as possible to shield themselves from the rain.

After three-quarters of an hour there was a slight lull, and I returned to my tent for the purpose of putting on something warmer than my pyjamas. I was just getting into my slacks when there was a tremendous blast of wind, the whole tent rose into the air, and before I had time to collect my thoughts I found myself on the sodden ground with the tent flying down the hill; all my belongings—office papers, clothes, telephones, stores, bedding, sponges—in fact, everything I possessed—were literally ballooning into the desert.

I realised that it would be impossible to collect anything till daylight, so I floated down to the balloon bed with the stream. Just as I entered the nulla I saw the gigantic mass of the balloon loom up against the sky-line; it rose—seemed to swell to grotesque proportions—turned over with dozens of tiny figures clinging to the rigging, sank again, and, accompanied by maniacal shrieks from the wind, burst free from its bombs. It did not ascend much at first, as the ferocity of the wind kept it down, but disappeared into the darkness in a second.

Nothing could be done; none of my cars could possibly force themselves through the mud in pursuit, so we retired to the few tents that remained standing.

I attempted to inform H.Q. at Baghdad of the disaster, but found all telegraph lines had been destroyed.

Making the Best of It.

Luckily the mess-tent had staunchly resisted all efforts to dislodge it, so we drowned our sorrows in bad Irish whisky—all that could be obtained at that time.

For three days the same state of affairs continued—except that the whisky gave out, and it was impossible to leave our camp, as no transport could move yet. The damage to the balloon-bed was heart-breaking; all the enormous poles which supported the canvas screens had been snapped like match-sticks; the 6-foot screw pickets had been wrenched bodily out of the ground; the steel cable ground rigging was broken like so many threads, and the net which was supposed to hold the balloon was a tangled mass of rope. Happily, none of the men was injured, though a corporal had been carried twenty feet into the air entangled in the rigging. He managed to free himself as he passed over the high bank of the nulla and landed safely.

I heard a week later that our sausage had come down in the desert far behind the Turkish lines. Arab tribesmen had looked upon it as a gift from heaven, and within half an hour of its appearance it had been cut into portions suitable for tents or overcoats. The S.S.O. at Corps H.Q.—a very gallant officer, whose trips behind the enemy lines disguised as a native earned him the D.S.O.—obtained four square inches of the fabric for me; that was all that was ever regained—P. G. B.

FURTHER AIRSHIP INFORMATION.

It is now possible to give a few particulars of two British airships, which were not available for publication when an article on "The Work of British Airships in the War" appeared in a recent issue of The Aeroplane.

The S.S. "Zero" type airship has a boat-shaped car so designed as to permit a descent on the surface of the sea. The forward cockpit is occupied by the wireless operator with his instruments, signal lamps and Lewis gun. The pilot's cockpit is located just aft of the wireless operator's. The rudder-pedals and elevator-wheel are arranged in a manner not unlike the controls in an aeroplane. Just above the car, within easy reach of the pilot, are situated the control lines for the "crabpots," airscoops, gas and air valves, which regulate the pressure in the envelope. In the front of the cockpit is the instrument board, containing navigating instruments and pressure gauges.

The engineer occupies the stern of the car, it being his duty to tend the engine, which is mounted aft. Footrails are fitted on either side to enable him to reach distant parts of the engine whilst in flight.

The S.S. Twin follows the same general lines as the "Zero." The car, however, is sufficiently large to accommodate a crew of five, and has outriggers built on either side to carry the engines.

THE AVIATION CONFERENCE.

It is understood that a Conference will meet in Paris early in February in order to frame proposals to be submitted to the Peace Conference regarding aerial navigation regulations and aerial frontiers. The Conference will be composed of five delegates, one from England, France, Italy, Belgium, and the United States respectively.

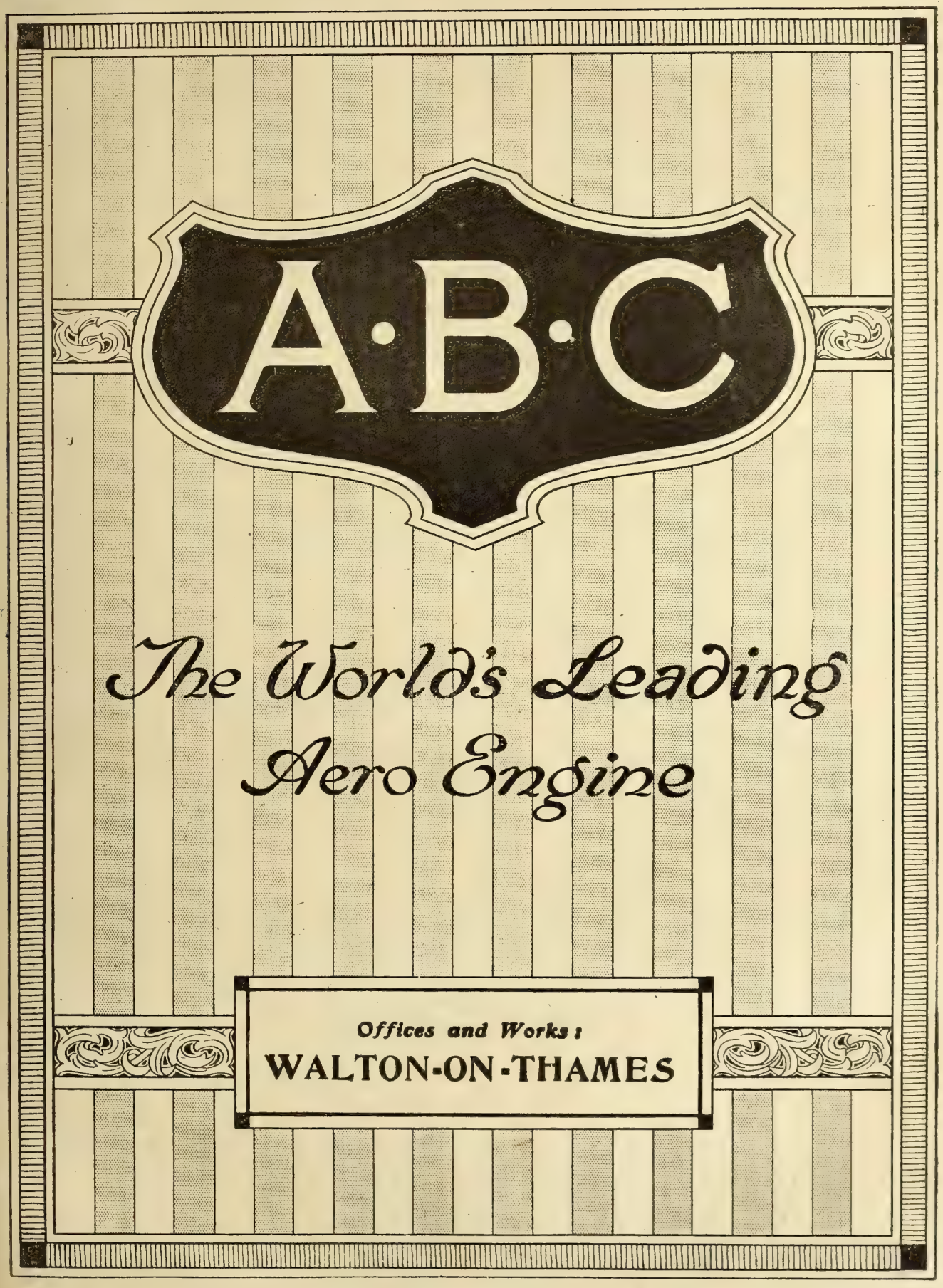
U.S. PARACHUTE COMPETITION.

Mrs. Louis Bennett, who is firmly convinced that the life of her son, who was shot down in France, could have been saved if a parachute had been fitted to the machine, has offered to present, through the Aero Club of America, $500 as an award for parachute competitions to be subsequently arranged.

It is hoped that this course will be followed by others, and will help to develop the parachute.

WEATHER REPORTS.

It is understood that a conference of meteorologists from all parts of the world will be held shortly. Representatives of the Marconi Wireless Co., Ltd., will attend the conference to discuss an improved system for the collection and distribution of wireless weather reports.


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ATHLETICS IN THE R.A.F.

Despite the hard and slippery state of the ground, quite a good game was witnessed at Blackheath on Tuesday, Feb. 4th, when the South-West Area, R.A.F., beat the South-East Area by one goal and three tries (14 points) to two goals and one penalty goal (13 points).

On Wednesday, Feb. 5th, an R.A.F. Association trial match was played at Craven Cottage, the South beating the North by four goals to three. Unfortunately, the weather was very bad, making really good football impossible, but, at times, some good play was witnessed.

Another R.A.F. Rugby trial game was played on the Richmond Athletic Ground on Thursday, Feb. 6th, when the North met the South. The ground had a slight covering of snow but was soft underneath, and, after a good game, the North remained victors with one goal, one dropped goal, and one try (12 points), to one goal (5 points).

In a 5½ mile race held by the Southern Counties Cross-Country Association for members of H.M. Forces at High Wycombe on Saturday, Feb. 8th, the Southern Aircraft Depot (Farnborough) were first with 104 points, and the Aircraft Acceptance Park, R.A.F. (Kenley), were second with 106 points.

Details have now been arranged in connection with the series of Rugby matches, in which the Mother Country, South Africa, New Zealand, Australia, Canada, and the R.A.F. will compete. The R.A.F. matches will be as follows:—

March 1st at Swansea: New Zealand v. R.A.F.
March 8th at Twickenham: R.A.F. v. South Africa.
March 15th at Twickenham: Mother Country v. R.A.F.
March 29th at Plymouth: R.A.F. v. Australia.
April 12th at Leicester: Canada v. R.A.F.

The Sporting Correspondent of the "Morning Post" wrote on Monday, Feb. 10th:—

"Very keen, of course, to decide their final trial, the Air Force men journeyed to Richmond in the hope that the thick grass on the Athletic Ground might present a surface upon which a match could be attempted. Even here, however, the conditions were such as to render play out of the question, and the Selection Committee had to pick the party going overseas next Wednesday without seeing the Fifteen chosen to represent the R.A.F. pitted against the Rest. In all twenty-five players were chosen, these including twelve of the R.A.F fifteen, eleven of the Rest, and two others not included in either of those sides.

"Naturally, the South-West and Midland Areas furnish the majority of the team for overseas, and equally the South-West backs and the Midland forwards figure largely in the selection. Wisely, too, the Committee have picked two pairs of half-backs, Lieuts. Randles and Taylor, of the South-West, and Lieut. Moss (South-East), and Lieut. Penny (Midlands), the latter pair being those chosen to appear for the Rest. The party will be away for about twelve days, and, as at present arranged, play at Maubeuge, Lille, Namur, Liége, and Cologne.

"With the practice enjoyed in this tour the R.A.F. should return with a really first-class side."

AMERICAN RECORDS.

It is alleged that the American airship C.38, with a crew of eight men and provisions for a 124-hour test, ascended on Jan. 31st to begin the test. A message from an American source, dated Feb. 3rd, stated that she was still aloft.

CURTISS DURATION TROPHY.

The competition for the Curtiss Marine Flying Trophy and the $1,000 cash prize ended on Dec. 31st, 1918, with Lt. T. C. Rodman, U.S. Marine Corps, winner of the prize, and the Aero Club of America winner of the Trophy.

Lt. Rodman, flying a large H16 type Curtiss flying-boat at Pensacola, Florida, covered a distance of 581 nautical miles with 11 passengers, making one stop in order to obtain more fuel.

Under the rules of the competition there is a penalty of 5 per cent. of the total mileage for each landing, and an increase of 5 per cent. for each passenger carried. So while the exact total will not be known until the detailed report of the judges is received, the estimates show that Lt. Rodman has covered a distance of over 900 miles.

Under the rules, the $1,000 cash prize, which is presented with the Curtiss Trophy for 1918, goes to the winning pilot, who must be a member of the Aero Club of America or an Aero Club affiliated with it. He also becomes the temporary holder of the Trophy, which is to be held in custody by the Aero Club of America. As a member has won this Trophy three times in succession, it becomes permanently the property of the Aero Club of America.

A.A. BATTERIES IN FRANCE.

It is of interest to note that during the period from Jan. 1st, 1918, to Nov. 11th, 1918, the A.A. Batteries, R.G.A., in France destroyed, or forced to land in our lines, 171 enemy machines and brought down out of control another 73 machines.

During the same period, 27 enemy machines were destroyed by special A.A. machine-guns, and machine-guns fitted with special sights for use by the infantry.

Anti-aircraft guns were placed near to the observation-balloon stations in order to afford some defence in case of attack from hostile aircraft. Besides which, the balloon observers were warned by telephone by the A.A. batteries of impending attack.

The anti-aircraft searchlights not only did good work by finding hostile aircraft at night, but the beam of light had an enormous moral effect on the aviators who were being sought.

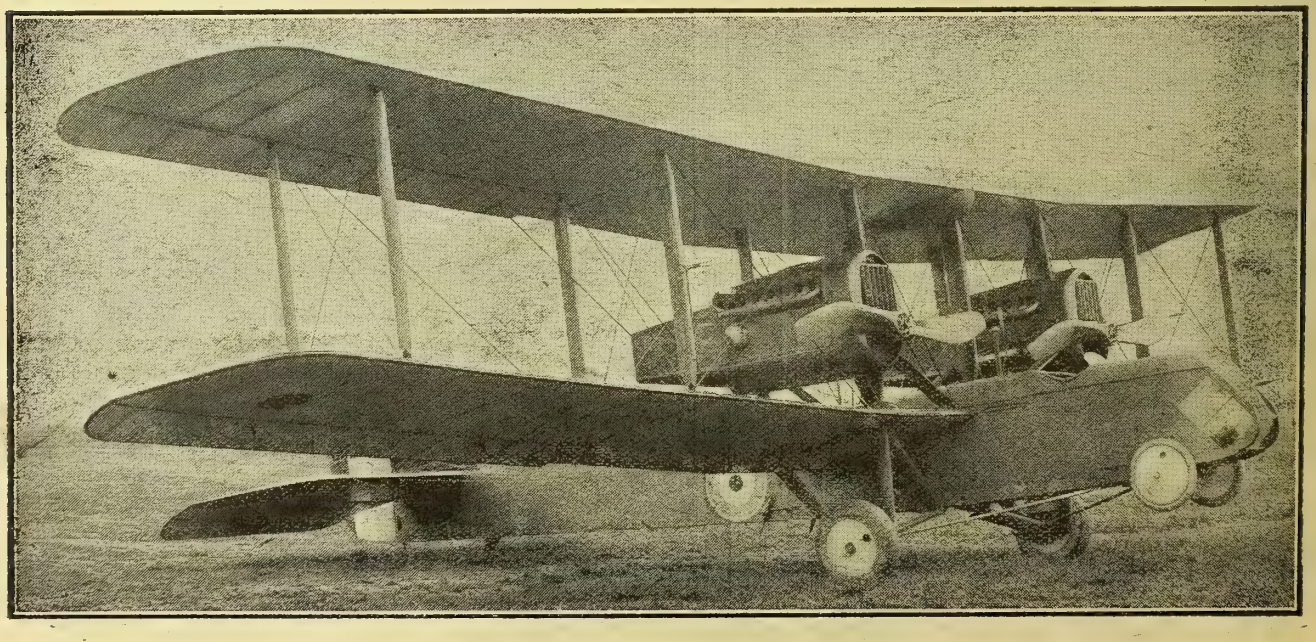
ADVERTISEMENT BY AERIAL ACROBATICS.

The latest acrobatic achievement of Jules Védrines, which consisted of landing a Caudron biplane on the roof of the Galeries Lafayette, is an example of several things which should be strictly prohibited in this country. The Parliamentary authorities in charge of the Bill for the regulation of Civil Aerial Transport will do well if they take measures to prevent aeroplanes being used as acrobatic instruments by pilots who cater for firms whose advertising policy includes sensational displays of various kinds.

The time is not yet when aeroplanes can safely, or conveniently, alight upon the roof of a large shop in the middle of London or any other big city. The risks of such a practice are far too great to be worth while, and the results to be derived from running such risks are not worthy of serious consideration.

For some years it will be no hardship to the owners of aeroplanes to be forbidden to do their shopping by air, and one feels that persons who are in search of exciting and expensive novelties must look in other directions for the gratification of their desires.

No doubt, the whole question of flying over thickly inhabited areas is receiving legislative attention, but stringent regulations should be framed to govern flying within the metropolitan area, if the reputation of the aeroplane as a rational means of travelling is to be preserved.

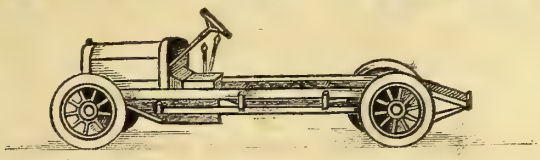


Three-quarter Front View of the Airco D.H.10 Biplane. (Liberty Engines, two 400 h.p.)

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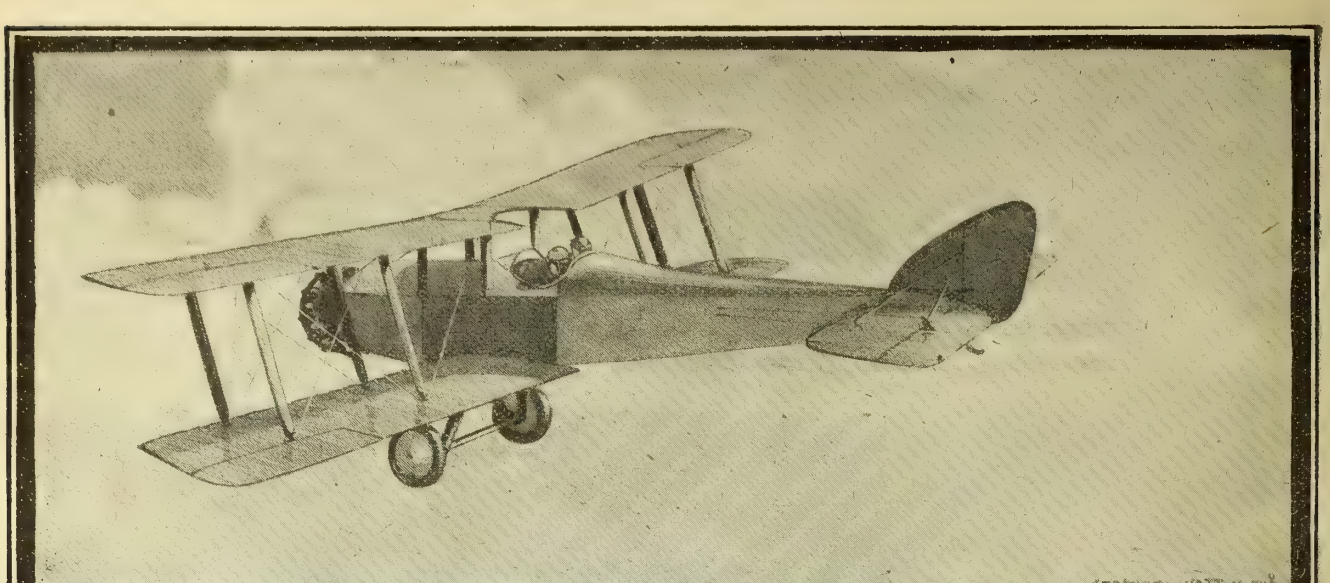
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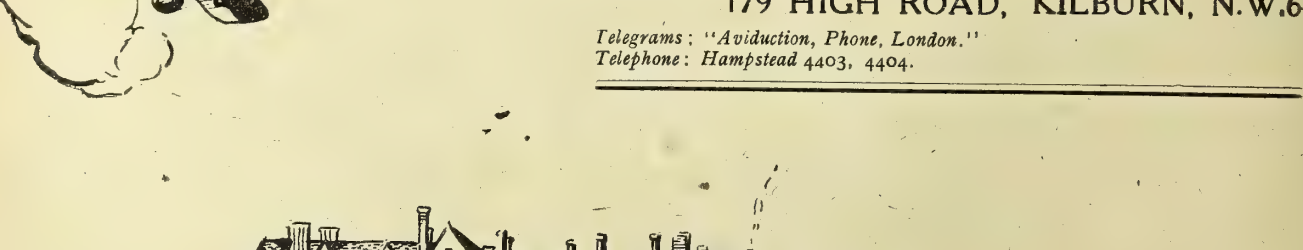


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THE WEEKLY COMMENTARY.

In every commercial undertaking the conditions under which the maximum economy of operation may be obtained are governed by certain universal principles. Stated in the most general terms, the basic principles of commercial economy are :—

I. That total cost is composed of two entirely different classes of outlay—(a) the cost of providing the appliances and facilities necessary for carrying on the undertaking, and (b) the cost of employing and maintaining these appliances and facilities in effective operation.

II. That generally it is possible either to decrease the capital expenses (a) at the cost of increasing the operating costs, (b) or *vice versa;* and that either undue parsimony in regard to capital expenditure or too great an effort to achieve economy in operating costs will usually lead to an increase in the total costs.

III. That an increase in total cost is economical if it is the means of so improving the value of the services rendered by the undertaking that an increase in revenue may be secured in excess of the increase in costs.

The nature of the incidence of these considerations upon the economical operation of transport facilities generally has been studied at great length as to its effects upon both general management and upon the design of plant and equipment—more particularly with regard to electric railway operation.

In a series of articles upon "The Design of Aircraft for Commercial Purposes," Capt. W. H. Sayers, R.A.F., shows in what manner these basic principles apply to Commercial Aerial Transport, and the nature of their probable effects on the design of the aeroplane.

The concluding instalment of the description of the Liberty engine appears in this issue. In reference thereto one would make the following comments :—

It appears that the type described as the "Navy" type has never been in use in the British service.

Moreover, the engines used in this country have a compression ratio of 5.3/1—instead of the 5.4/1 given for the "Army" type—and are credited with a normal output of 405 b.h.p. at 1,650 r.p.m., and a maximum permissible speed of 1,750 r.p.m., corresponding to 425 b.h.p.

Claudel Hobson carburetters have been fitted as the standard equipment—in place of the twin Zenith type described—in recent engines for the use of this country.

The illustrations show that this motor is of very clean outline, and eminently suitable for enclosure in cowling of a simple type and of low air resistance.

In general design the motor itself shows no startling departure from known and proved aero-engine practice—but rather a happy combination of the results of previous experience into a much more harmonious whole than British experience of Communal design would have led one to hope for.

The system of ignition employed is novel—in aircraft practice—of considerable interest and its adoption appears to have been justified by results.

The Liberty motor has achieved for itself a very excellent reputation for reliability, and its dry weight (820 lbs.), at the rate of 2.03 lbs. per b.h.p. compares favourably with the best types of water-cooled engines yet developed.

It is commonly credited with an extravagant fuel consumption to an extent which places it at a serious disadvantage with certain other motors of higher initial weight per h.p. when long-distance flights are required.

This defect will require remedy before the Liberty engine can take the place to which its other qualities entitle it.

Nevertheless, it unquestionably stands as a distinct achievement on the part of the American Engine Industry, and the method of its origin must be taken as evidence that America has discovered—in one case at least—how to constitute a committee which knows its business, and how to confine the members thereof to those parts with which each was fitted to deal.

On page 674 will be found a report of a paper upon "Meteorology During and After the War." read before the Meteorological Society on Jan. 22nd by Col. Lyons, wherein reference is made to the special requirements of the Flying Services as to meteorological information, and to the future needs of Aerial Transport. In this connection it is a matter for some surprise that, although the importance of accurate forecasting of minor and temporary weather disturbances has been abundantly recognised, little has appeared, as yet, in the public Press upon the profound influence upon the choice of aerial routes of the fairly well known and settled normal weather conditions which exist over large tracts of the earth's surface.

HELIUM FOR AIRSHIPS.

With reference to the statement made on the authority of the U.S. Government Wireless Service that helium was now being produced in quantity and at a reasonable price—an American correspondent supplies the following further information :—

The problem of the industrial use of helium was attacked by the U.S. Authorities at the request of the British Government. The actual source of helium is the natural gas wells at Peholis, Texas. Three experimental factories have been erected, and a large production plant is now being built at Fort Worth—gas from the wells being led thither by a 94-mile pipe line 10 ins. in diameter.

THE DESIGN OF AIRCRAFT FOR COMMERCIAL PURPOSES.—I.

By Capt. W. H. Sayers, R.A.F.

During the past four and a half years the art of aircraft design has advanced from the purely experimental stage to one wherein an experienced designer—given data as to the engine available and the total useful load and fuel capacity required—can evolve, within a few hours, a general arrangement defining all the essential characteristics, and can forecast—to within quite narrow limits—both the probable performance and the cost of building a suitable machine.

The War Problem.

This has been the form—under war conditions—in which the problem of aircraft design has presented itself. There has been, almost invariably, an expressed need for aircraft to meet certain definite requirements, and these requirements—in each case—have involved a specific minimum of total load, coupled with a definite limitation to the choice of an engine, and therefore to a maximum of available power. Subject to these limitations, the designer has been set the task of attaining the maximum possible performance as the primary consideration—all questions of efficiency and of economical operation being treated as of secondary, if not as of negligible, import.

The Commercial Aspect of Design.

The conclusion of hostilities must profoundly modify the attitude of the aircraft designer. Even those who determine to specialise in military aircraft design are likely to find considerations of economy becoming much more important than they have been during the war.

To those who propose to design for non-military purposes, the whole problem will be stated in entirely different terms.

During the earlier years of the commercial development of aircraft, a clearly defined demand—for machines, of specific types and engine-powers, for the performance of definite duties—will not exist, and the designer will find that the problem of discovering a useful purpose to which to put his aircraft will precede that of designing a machine to economically fulfil that purpose.

Even assuming that the designer is relieved of this preliminary part of the problem, the actual design of machines will have to be attacked from a standpoint widely different from that which has held hitherto.

The Nature of Cost.

Obviously, in almost every case, cost will become the primary consideration. Not merely the prime cost of the machine, but the whole cost of performing the service for which the machine is intended.

It is therefore necessary before proceeding further to consider roughly how such a total cost is made up, and to what extent such a total cost is likely to be affected by the work of the aeroplane designer.

Assuming that a commercial transport service of any ordinary type is in question, the total costs will be composed more or less as follows:—

(A) *Capital Costs,* composed of (1) prime cost of machines, engines, and of the initial stock of spares, and (2) prime cost of sheds, aerodromes, repair plant, and other plant. In costing all these will be charged at some appropriate percentage per annum, and this sum added to the other annual costs.

(B) *Overhead Charges,* consisting of (3) such a proportion of the salaries, wages, and other costs of management, and advertising, and of the cost of maintaining the staff and plant of aerodromes and repair depôts as will remain independent of the actual traffic intensity, and (4) depreciation.

(C) *Operating Costs,* made up of (5) fuel and oil costs, (6) that remaining proportion of such costs as are included in (3) above, which vary with the actual traffic, and (7) cost of materials for repairs and renewals.

The Influence of Design upon Costs.

Taking these items in their order, (1) prime cost of machines is obviously very directly influenced by the designer's work.

Item (2), cost of sheds, aerodromes, repair plant, etc., is less directly affected, but the overall dimensions of the machine will affect the cost of sheds, and its landing speed, and the satisfactory—or otherwise—arrangement of landing brakes will have a direct effect upon the size, and therefore the cost, of aerodromes. In addition, the robustness, reliability, and simplicity of the general construction will be reflected in the size and cost of the repair plant required.

Of the overhead costs only (4) depreciation can be said to depend in any way upon the designer, and this since depreciation is a function of the total capital outlay, and because the rate of depreciation allowed upon the capital represented by machines must be based upon the length of life reasonably to be expected of them.

Coming, then, to operating costs, it will be obvious that all of them, except certain parts of (6), are very directly influenced by the design of the aircraft.

One must therefore conclude that only a very small proportion of the total costs of any such service is entirely independent of the design of the machines used therein.

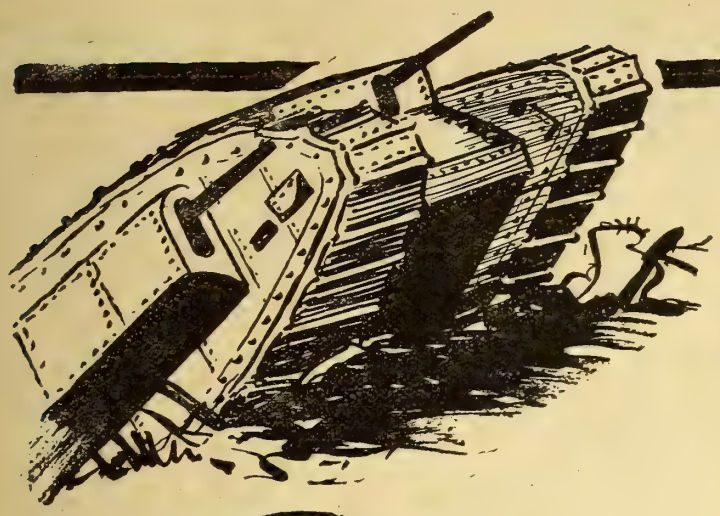
The Value of Commercial Services.

Equally the commercial value of any such service must depend largely upon the qualities of the machines which effect it. Primarily, aerial transport must rely upon its superior speed to enable it to compete with existing facilities, and it can only compete successfully where the traffic is such that the cash value of the time saved is greater than the extra cost of saving it by aerial transport.

Extra speed may be attained at the cost of greater power, increased prime cost, and larger consumption of fuel, all effectively adding to the costs, and possibly at a further expense due to lessened reliability, which will not only show as an increase in cost, but will lessen the commercial value of the service.

Generally speaking, the value of time saved on any given journey will increase from a relatively low figure per hour for a small reduction on the total journey time taken by normal modes of transport to a considerably higher one, when the proportion of time saved is great, and will then tend to fall off, with further increase in speed. That is to say that very little could be charged for a saving of half an hour on a journey normally taking ten hours, but a great deal might be charged when the time taken is halved and five hours is saved. But assume that it is possible again to accelerate the service to five times this second speed and reduce the journey to one hour. The extra cost of accelerating the service will then be at a much greater rate than the value of the extra time so saved, since in the second case five-fold increase in speed results only in a saving of four hours, whereas in the first case doubling the speed has saved five hours. Hence for any given service there will be a limit to the economic speed, any increase above which will cause an increase of operating costs greater than the resulting increase in traffic receipts.

Therefore the designer of the future will have before him, not the relatively simple task of designing a machine which, with a given engine and a stated load, will fly at the highest possible speed at some pre-



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determined height, and will reach that height in the minimum time, but with the much more complex one of producing a machine which, running regularly upon a given service, will provide for its owners the greatest possible excess of revenue over expenditure.

Not that it is here supposed that the designer will need to investigate every individual transport scheme and design specially to the peculiar circumstances, but that, unless he bears in mind all the direct and indirect effects which the characteristics of a machine may have upon operation costs, he is unlikely to produce types of any but very limited commercial use.

THE RIGGING OF AIRCRAFT.

A paper under this title was read by Capt. R. J. Goodman Crouch, R.A.F., before the Royal Aeronautical Society on Wednesday evening, January 22nd.

Actually the title is somewhat misleading—since the paper resolved itself into a description of the general construction of three different types of Service aircraft, the general methods employed for "trueing up" these particular machines, together with a number of remarks, many of a valuable nature, upon these machines in particular, and occasionally upon rigging in general. The paper is too long to be reported as a whole, but the following extracts of general interest are worthy of attention :—

"The rigging of aeroplanes is of paramount importance in view of its effect on the safety, reliability and performance of the machines. It is obvious that the slightest error in erection or lack of care in inspection may lead to the most serious consequences."

"It is, therefore, essential, where rigging and erection are undertaken, that systematic methods should be employed, operations standardised, and means allowed for the necessary checking of the work."

"At present, in small machines it is simple to check over-bracing wires, to see that all fittings are locked, and to test the controls; but in the case of larger machines a daily routine inspection of the controls and bracings and a weekly inspection of the planes, interior of fuselage, etc., is advisable."

"It is important, therefore, that methods which will ensure correct rigging should become general."

"In future great attention will be paid to the facilities with which repairs, readjustments, and re-erection can be carried out on the field."

"Throughout the process of assembly and rigging one point above everything else should be borne in mind—it is, that should anything at all in the machine subsequently shake loose or come adrift great inconvenience, if not actual danger, is the result."

"Inspection is as important during the life of a machine as during its construction."

In the ensuing discussion Lt.-Col. Stedman drew attention to the importance, in rotary-engined machines, of ensuring that the main engine plates are correctly lined up. Many cases of excessive vibration have been traced to untrue engine mountings and not to any defect in the engine.

Capt. A. P. Thurstan, R.A.F., expresses the opinion that all designers should live with their machines in service. They would thus discover the importance of accessibility and ease of assembly and repair. He also expressed the belief that metal must take the place of wood in the future—especially for tropical climates. Upon the subject of rigging, Capt. Thurstan emphasised the importance of intelligence and experience on the part of the rigger, instancing the wide variation in the performance of the same machine when properly and when improperly rigged.

Mr. F. H. Bramwell disagreed with Capt. Thurstan as to the need of intelligence on the part of the rigger. An aeroplane should be rigged in accordance with the stated intentions of the designer, and there should be no scope for individual variation if the designer carries out his duties properly. [Mr. Bramwell here rather emphasises Capt. Thurstan's remarks as to the necessity for the designer living with his machines. Individual machines of the same type invariably display differences in their flying qualities—and an intelligent rigger can often greatly improve the performance of a bad sample.—Ed.]

METEOROLOGY AND AVIATION.

The following is a précis of a paper read on Jan. 22nd by Col. H. C. Lyons, K.E., D.Sc., F.R.S., acting director, Meteorological Office. The title of the paper was "Meteorology During and After the War" :—

It was highly desirable, said Col. Lyons, that full advantage should be taken of the experience which had been gained by Naval and Military officers during the war to meet, as adequately as possible, those demands which would be made upon meteorology in the general reconstruction which was now beginning. On the outbreak of war meteorologists were at first considerably handicapped by the reduction of their supply of information; but this was soon rectified, and, although Continental information was partly lacking, daily weather reports were again prepared. As time went on a far more extensive daily weather map was provided than in times of peace, from which it was possible to deduce, often with much accuracy, the weather conditions over Central Europe, and to supply reports of the general conditions, and the direction in which they were likely to develop, to the meteorological offices on the different fronts and to other offices and departments requiring the information. Observations were specially made for the use of aviators in preparing plans for the day's operations.

Precautions were taken to prevent information reaching the Central Empires, and it was thought that little or no information was obtained from our area. Many cases could be cited where operations were undertaken by the enemy which it seemed very unlikely that he would have undertaken had he possessed the information which we had here. One, however, might be mentioned. On Feb. 17th, 1915, the conditions over the British Isles were apparently considered favourable by the enemy meteorologists, for Zeppelins crossed the North Sea for the East Coast of Great Britain. Before midday, however, a deep and rapidly moving depression had appeared off the coast of Ireland and moved rapidly eastwards resulting in the loss of two Zeppelins off the coast of Denmark.

More detailed information than was furnished by general forecasts was, however, required by the Royal Flying Corps and the Special Brigade, R.E. (Chemical Warfare), and steps were taken to supply it. Thus, under the new conditions of modern warfare, the single State service of pre-war days was supplemented by a Naval meteorological service, which provided meteorological officers and personnel for the Naval airship stations, and by an Army service which furnished the meteorological staff in each area of military operations. A much wider application of meteorological information to the practical correction of gunnery than had hitherto been employed was thus brought about, and reports of upper air temperature and the velocity and direction of the wind at various altitudes were regularly prepared and transmitted from meteorological stations along the various fronts. This increased application of meteorology to ballistics raised many problems of interest and importance, which demanded for their solution the co-operation of scientific gunnery and meteorological science of the highest order. Frequent mention had been made during the war of the meteorological efficiency of the enemy's organisation, but he did not believe that it was better than our own.

There were now four State meteorological services in operation—the Meteorological Office, the Admiralty Meteorological Service, the Meteorological Section, R.E., for the Army, the Meteorological Service, R.A.F., for the Air Ministry. The relations and the means for co-operation between these four services would have to be worked out, and a number of considerations would have to be taken into account. Aviation, with its prospect of long-distance communication, had rendered necessary a readjustment of meteorological relations within the Empire. There were about a thousand observation stations at present, and the great majority could without difficulty be developed so as to co-operate effectively in the meteorological organisation of the Empire. From the organisation necessary for Imperial co-operation to that of international co-operation was but a step, and we might look with confidence to even greater progress in the future. The relation of meteorology to gunnery must be continued, and the study of the many problems involved carried on by competent men. The air routes of aerial transport would have to be studied, and all the information now available investigated and put in the form most suitable for airmen. While overland observations were numerous, our knowledge of the atmosphere over the sea was much less complete. By ships equipped for the purpose such observations could be and had been made in certain parts, but this line of investigation must be extended if our knowledge was to be adequate.

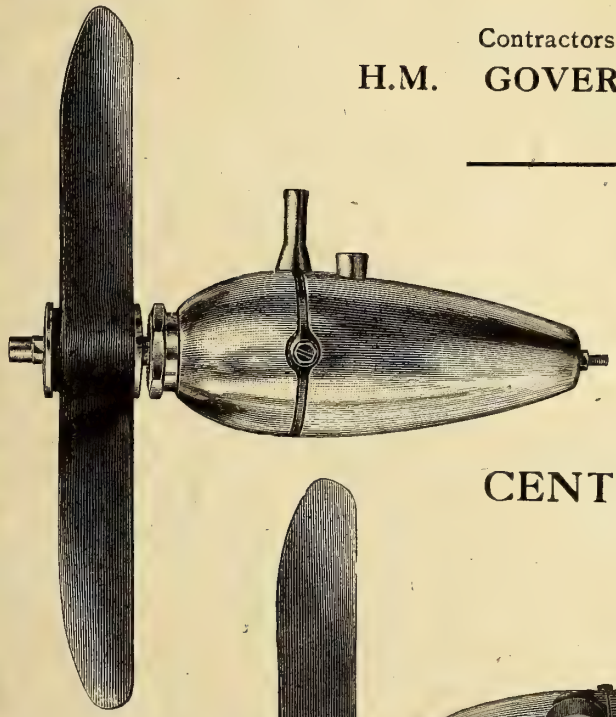
Sir F. W. Dyson (Astronomer Royal) said that it was extremely important that the four State meteorological offices should be correlated on a scientific basis.

Sir Napier Shaw, Meteorological Adviser to the Government (who presided), said that the development of public interest in meteorology was, he supposed, indicated by what had taken place in the "Times" during the last two days, following on what appeared in the "Morning Post" of Jan. 1st. Formerly he had been always rather distressed at the "Times" weather map. It seemed to him such an inadequate reproduction that it was very difficult for a professional meteorologist to make very much out of it. That state of things had certainly been remedied, so far as the "Times" and the "Morning Post" were concerned. They had succeeded in obtaining reproductions of maps which now tossed the ball back to the Meteorological Office, and showed that their next business was to extend their boundaries. It was not an easy matter, but, with Col. Lyons's assistance, it would be brought to pass; and then he hoped there would be some more dissatisfaction from other quarters which would lead on to further improvement in the representation of the weather.

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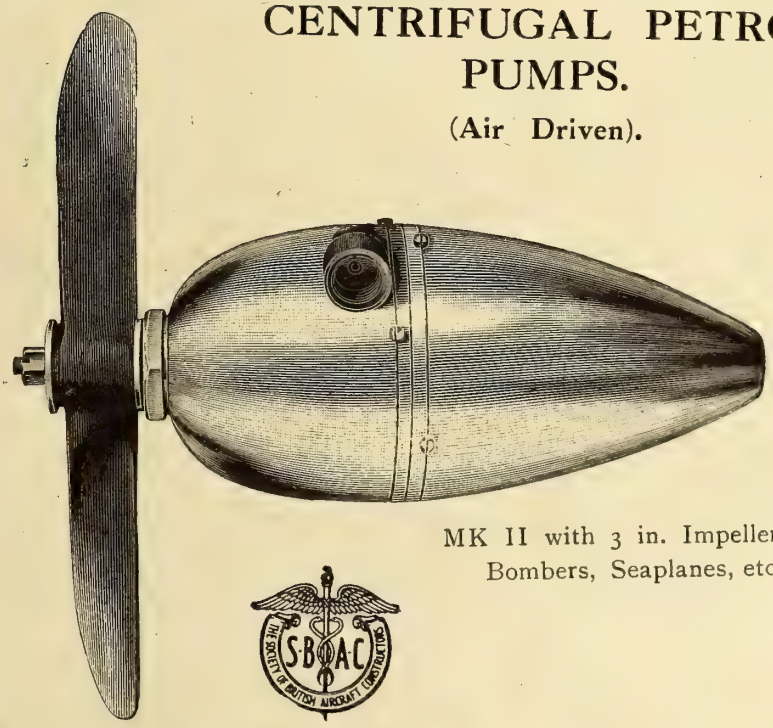
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THE LIBERTY ENGINE.—III.

BY G. DOUGLAS WARDROP, M.S.A.E., A.S.M.E.
(Managing Editor of "Aerial Age Weekly," New York.)

Water Pump Impeller Puller.

An improved method of removing the water pump impeller without damage from its firm seat on the tapered shaft is clearly illustrated.

The new impeller puller now going into production performs this operation with ease, and is of the usual cup and screw type. The cup is threaded to engage the end of the impeller hub while the action of the screw draws the impeller off the shaft. The screw is always retained in the cup by punching the edge of the first screw thread to prevent disassembly.

Vertical Shaft Packing Nut Lock.

The packing nut used on the camshaft driving shaft housing where the upper and lower housings join is now further secured by a simple stamped steel lock employed as illustrated.

This lock can be used over either of the two outside studs on each of the two housings and is held in place by the usual castellated nut. The one-sixteenth inch thickness of the lock will make it difficult to insert the cotter pin as formerly, but a smaller wire will answer the purpose, and prevent the nut from loosening.

"Olive" Oil-Hose Liner.

The "olive" in the oil-hose line is designed to reinforce the strength of the rubber tubing, and to act as a spacer with its tapered ends slipping into the countersunk openings of the oil pipe and the three-way valve connection when those two are pushed snugly into the rubber hose. In this way, the rubber hose is protected from full contact with the oil pressure and pieces of rubber which may be loosened through deterioration are not liable to enter the oiling system.

An improved olive is now in production which is shorter and smaller than the one formerly used. The new olive is $\frac{5}{8}$ in. in length instead of 1 in., and is 0.304 plus or minus 0.044 in outside diameter.

All engines now going through have the smaller "olive" in place.

The "Titan" Aeroplane Spark Plug.

It has been found desirable to issue general instructions covering the care and adjustment of the AC Titan, used on Liberty 12-cylinder engines, as many plugs have been unnecessarily destroyed through rough treatment. Spark plug production is not up to Government needs, and all departments should practice conservation to meet the scarcity of this article. The following description and directions are important:—

The AC Titan is known as a one-piece, or integral plug wherein the porcelain is sealed with a gas-tight joint (at No. 6) into the shell and the central electrode is cemented into the porcelain. Unless the plug is preserved in its original gas-tight condition, its value is destroyed. Rough handling can easily crack the porcelain, while too much tool pressure in screwing down may cause a fracture of the joints. No mechanical repairs are ever required, and must not be attempted.

In Fig. A is shown a cross-section of this plug. The ball terminal connection No. 1 is screwed on the upper end of the centre wire No. 5, and a special riveting operation is performed to prevent it from coming loose. As the pressure applied in this operation is necessarily limited, it sometimes happens that on a small number of plugs part No. 1 is not rigid. A slight play here has no bearing on the action of the plug, and any attempt to tighten it may ruin the porcelain.

In Fig. B is shown a special terminal connection used in Hispano-Suiza motors. In Fig. C is shown a combination terminal connection which will be standard on all AC Titan aeroplane plugs by January 1st, 1919.

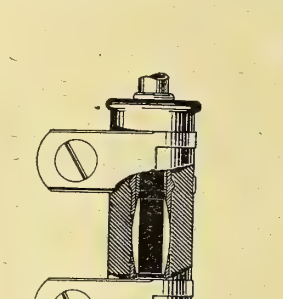
The Part of Zenith in the Liberty Aircraft Engine Programme.

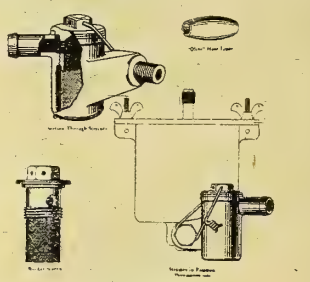
The first important decision of those engineers who were called upon to design an aeroplane engine which would uphold America's Air Programme was to incorporate only those things in their engine that were of proven and established quality. It was therefore only natural that in considering the important matter of carburation that the Zenith engineering force was called upon to design the Liberty Engine Carburetter.

The Zenith organisation, always progressive, were pioneers in aeronautical carburation. Their early experience was with Anzani, whose aero engines created a sensation in the early days and made possible some of the most important advances in the science of flying heavier-than-air machines. In America the Zenith was long ago adopted by Curtiss, and the unvarying reliability of the Zenith instruments assisted greatly the Curtiss advance to undying fame in aeronautics.

When the great war broke out in Europe the Zenith was used, among others, on the aeroplane engines built by Salmson, Isotta Fraschini, Renault, Peugeot, Clerget, and Lorraine-Dietrich, and was quickly adopted as standard equipment on the Hispano-Suiza engine, which leaped to a first place in the yet unbeaten Spad machine.

It is easy to understand how the combined efforts of Zenith factories located in France, England, Italy and America, interworking in their experiences, should lead to their development of the last word in carburation. With all this experience, and results of combined efforts before this, the Zenith designers, V. R. Heftler and H. de Boischevalier, developed a carburetter which met with the instant approval of the engine designers, and which, when tested on the first Liberty Engine in July, 1917, justified the faith put in them and their product.




The "Olive" Oil Hose Line

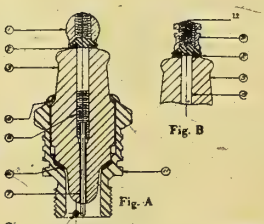
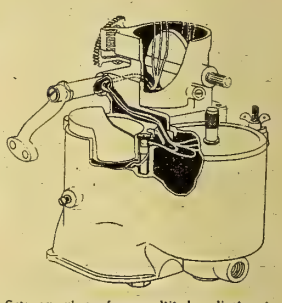
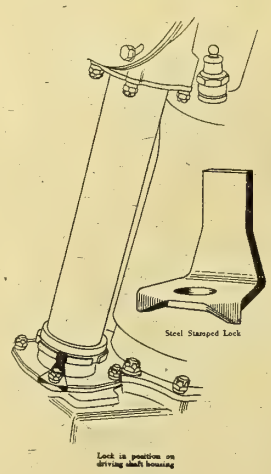
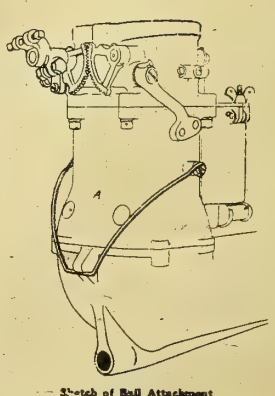


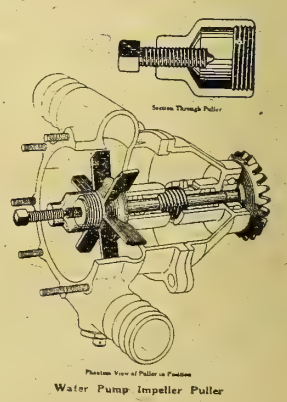
Diagram of Spark Plugs


Cutaway view of new altitude adjustment showing suction on float chamber

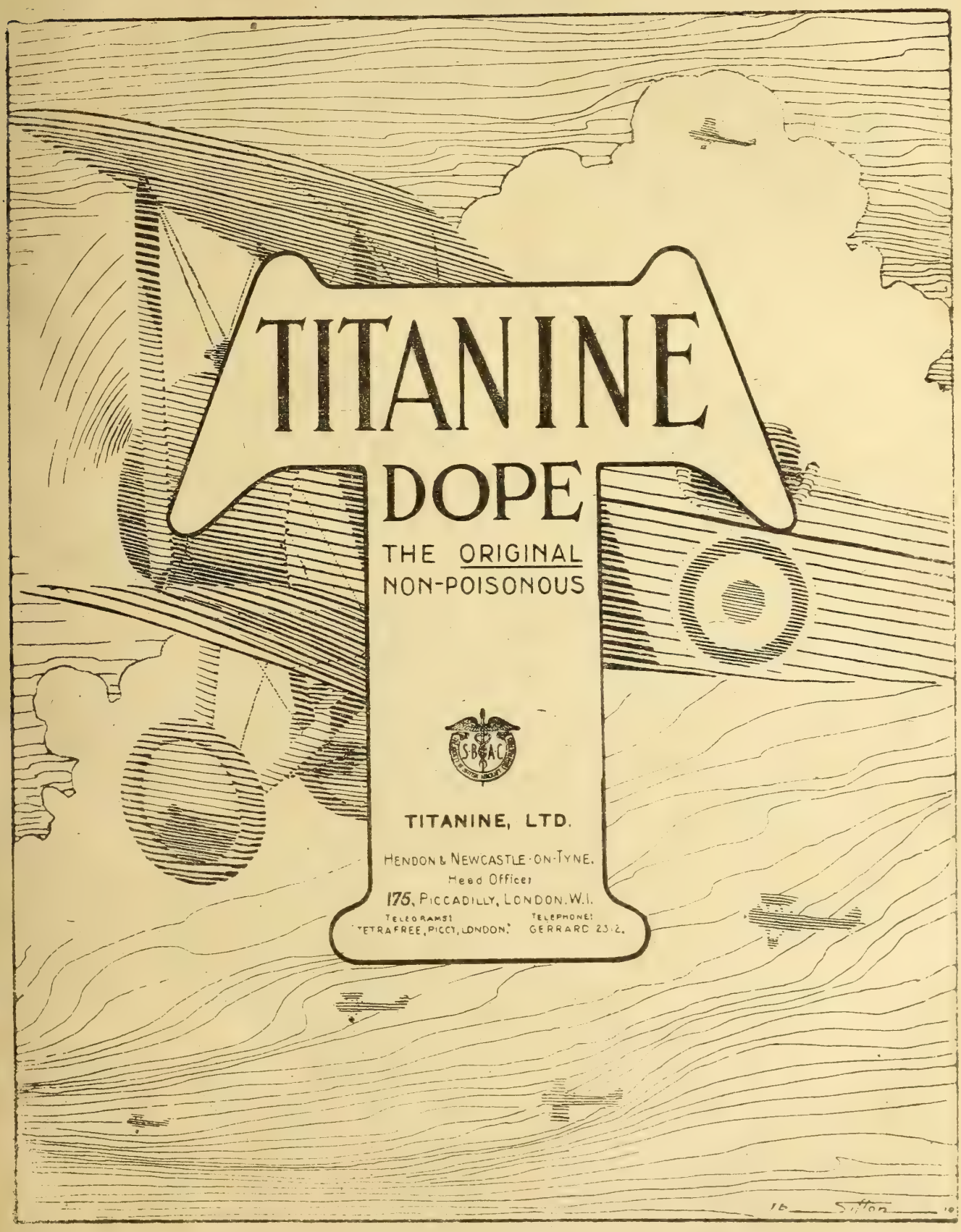


Vertical Shift lock nut


Sketch of Ball Attachment


Water Pump Impeller Puller

Details of the Liberty Engine.


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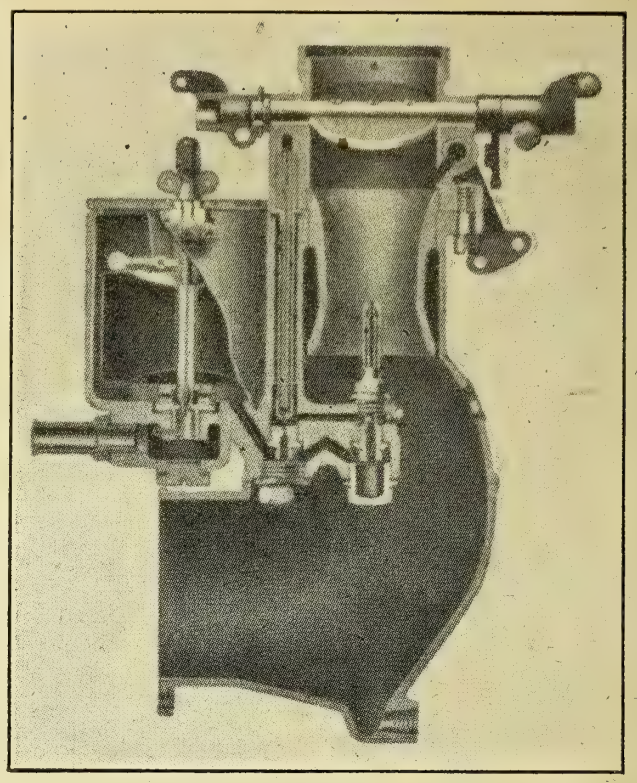
Immediately after the successful 50-hour test of Liberty Twelve Engine No. 1 at Detroit, an experimental expedition composed of E. J. Hall, one of the Liberty Engine designers; Lynn Reynolds, of the National Advisory Committee for Aeronautics; E. L. Graham, I. A. & A. E.; V. I. Shobe, of the Zenith Carburetter Company; S. Smith, of the Hall-Scott Motor Company, and Ferdinand Jehle, of the Aluminium Castings Company was sent to Pike's Peak, Colorado, to make tests of the Liberty Engine at various altitudes. These were very carefully conducted and were run at altitudes above sea level of from 6,000 feet at Colorado Springs, to 14,109 feet at the summit of the peak. They demonstrated effectively the suitability of the engine for its destined purpose, and, incidentally, justified the selection of the Zenith carburetter. A very noteworthy fact is that the carburetter adjustment, which was determined as giving maximum power and efficiency on the electric dynamometer test at the Packard factory in Detroit, approximately 200 feet above sea level, gave the best results on the summit of Pike's Peak, 14,109 feet above sea level This is only possible with a carburetter of plain tube construction and having the natural automatic compensating feature made possible by the Zenith system.

After exhaustive tests had resulted in the final details of adjustment and installation, production was started at the Zenith factory. The Zenith manufacturing department, already experienced in high-class accurate workmanship and productive ability, carried on the good work started by the engineering department, and with such success that by November 1st, 1918, when Liberty Engine production had reached its peak, there had been delivered to the engine manufacturers a quantity of these instruments which was in excess of requirements to the extent of a month and a half of engine production according to the schedules then in effect.

Two of these carburetters are used on each Liberty Twelve Aircraft Engine, they being of Duplex type, i.e., each having two carburetting chambers, or barrels, supplied from common air and fuel sources. Each barrel has a venturi tube for measuring its proper amount of air; one main or variable flow jet, and one compensating or constant flow jet. These are of non-adjustable type, being fixed once and for all, so that each and every Liberty engine has carburetters fitted with the same sized jets. With the exception of the altitude adjustment, which is incorporated in the design of Zenith aeronautical instruments to take advantage of the lesser air density met with at high altitudes and thus perform the important function of saving fuel and increasing the radius of action of the aeroplane, these carburetters have identically the same principle of operation, and same disposition of jets and venturi, as is used in Zenith commercial instruments.

The altitude adjustment mentioned above consists merely of a valve, connected so as to be manually operated by the pilot, which when opened puts the interior of the carburetter barrels below the throttle, where a partial vacuum exists, in communication with the fuel chamber. The suction from the barrels reduces the pressure in the fuel chamber and thus causes a decrease in the amount of fuel passing through the jets. At approximately 18,000 feet altitude this adjustment makes possible a saving of about 30 per cent. in fuel consumption, or, in other words, increases the radius of action of the aeroplane by 30 per cent.

Immediately preceding the signing of the Armistice the Zenith Company had developed a carburetter which was adopted as standard equipment for the 8-Cylinder Liberty Aircraft Engine, and which was slightly later to replace the original model on the 12-cylinder engine, that was as much ahead of the original Liberty Engine carburetter as it was ahead of other aeronautical carburetters at the time of its adoption. Aeroplane development resulting in greater climbing angles and higher ceilings made necessary equal developments in carburetion to met these newly imposed requirements. The two points of carburation mostly affected were, first, the ability to function properly when tilted



Section diagram of the Zenith Carburetter for the Liberty Engine.

to extreme angles; and second, to have an extended range of altitude adjustment. Still utilising the same proven principles of operation, but by changing manufacturing details and relative positions of jets, and by a new float mechanism design, these requirements were not only met, but were exceeded. With a carburetter of this type a Liberty Engine was successfully operated at maximum power higher than that obtained with the original instrument at fore and aft angles of tilting of 50 degs. A tilting of 45 degs. sidewise is also possible with the engine on a stationary stand. (In flight this sidewise tilting, as met with in banking, does not affect the normal functioning of the instrument due to the "bicycle-balance" or the neutralising of the force of gravity by the centrifugal force.) It is well worthy of mention that, with this new type of instrument, the power of the Liberty Engine was increased, and the fuel consumption was considerably decreased. In addition, and of importance, the heat loss through the jackets was appreciably reduced.

Carburetter Air Intake.

Tests have recently been conducted at Detroit and at McCook Field, Dayton, Ohio, to determine upon the best way of modifying the present carburetter air intakes to decrease the fire hazard.

The design which proved the most satisfactory is shown in an accompanying drawing and consists of a T-shaped casting with the air intake extended upwards, in the form of a pipe stack, through the top of the engine bonnet. Drain tubes are

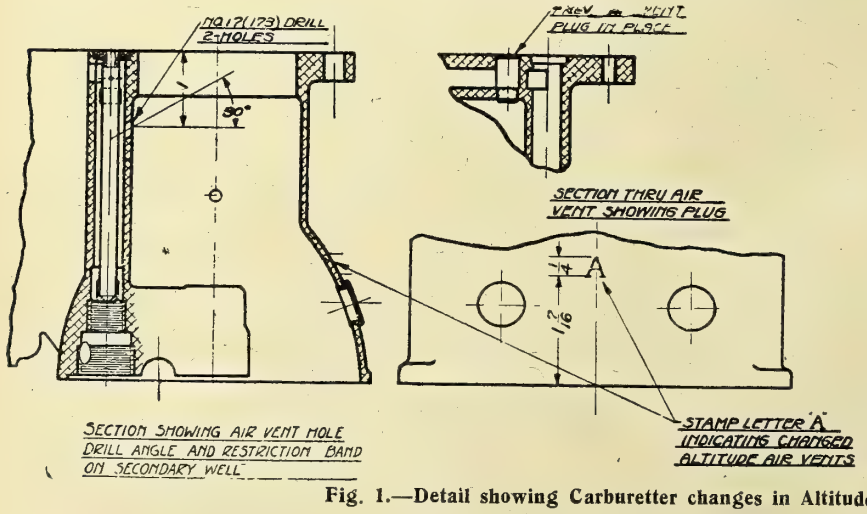


Fig. 1.—Detail showing Carburetter changes in Altitude Adjustment.

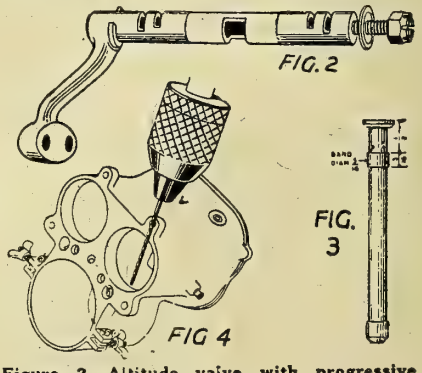


Figure 2—Altitude valve with progressive slots. Figure 3—Secondary well with restriction band. Figure 4—Drilling holes in well for new air vents

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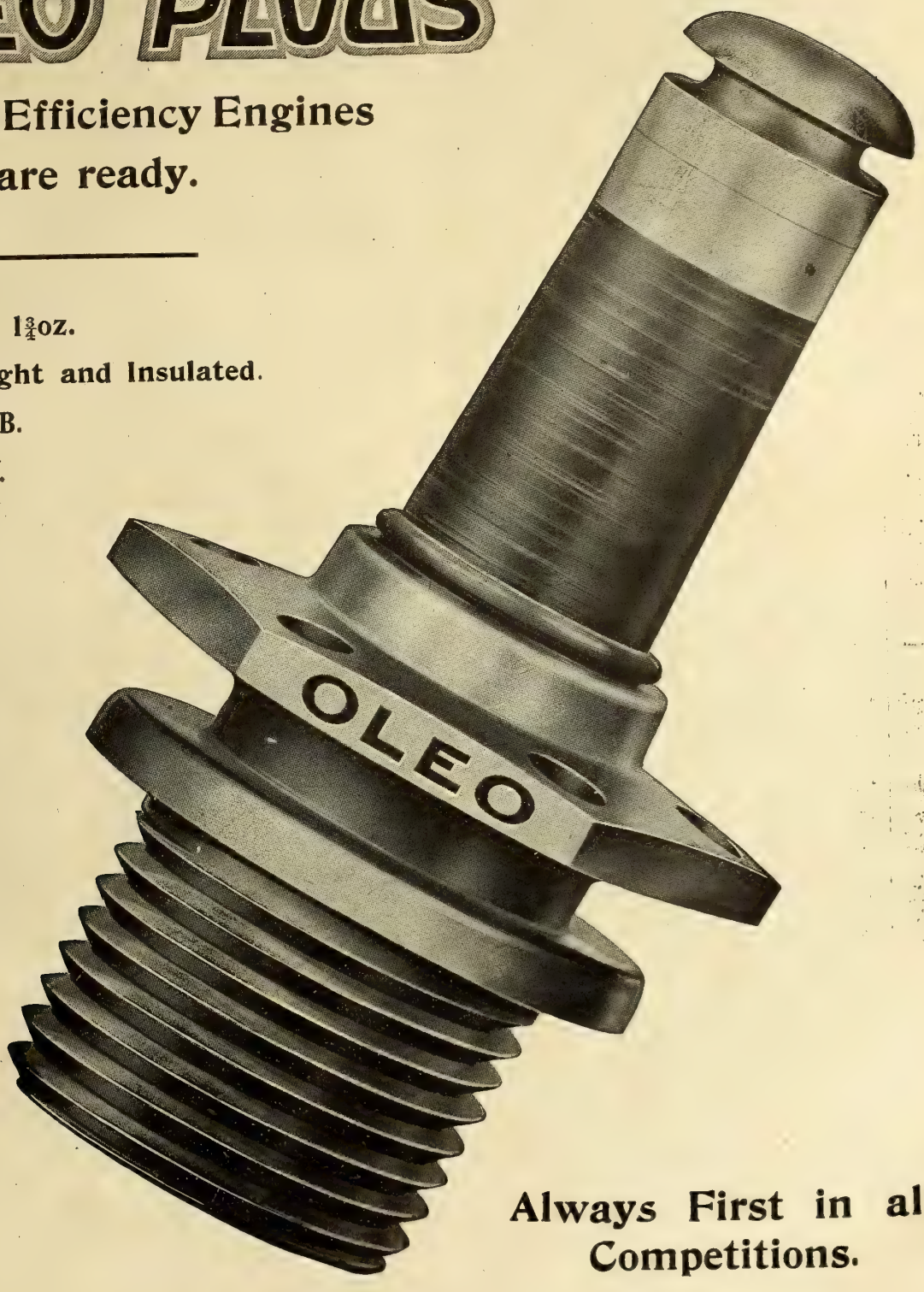
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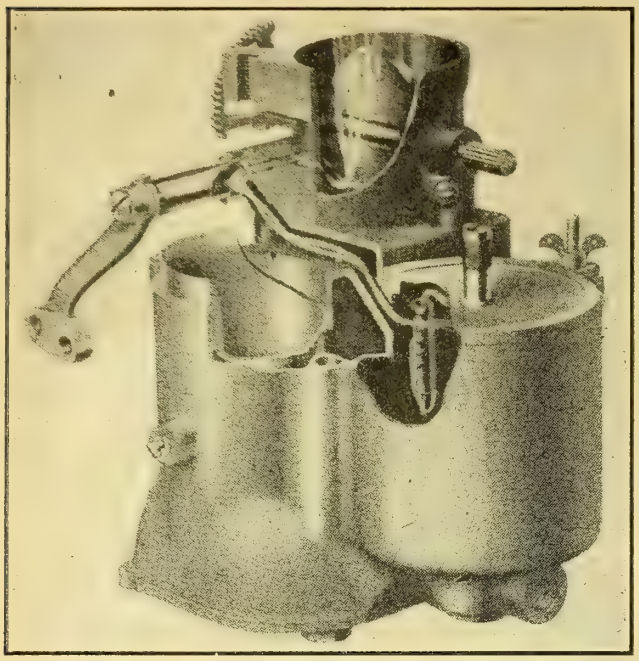
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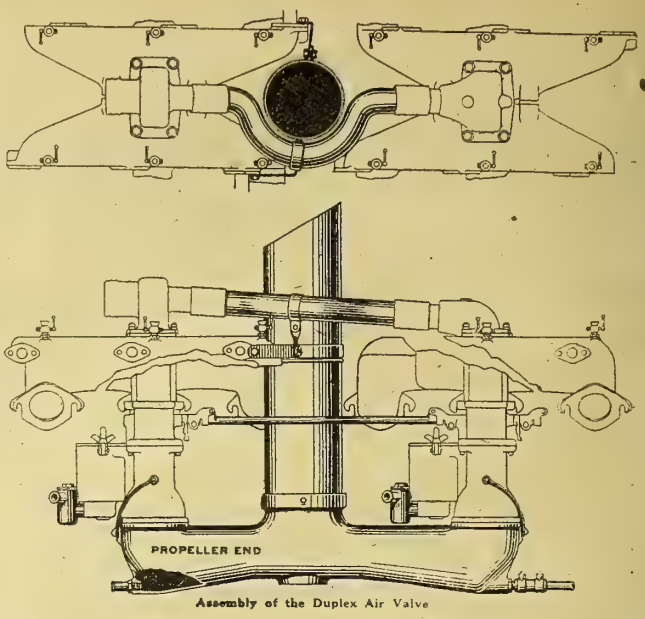
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Section Diagram of the Duplex Zenith Carburetter.

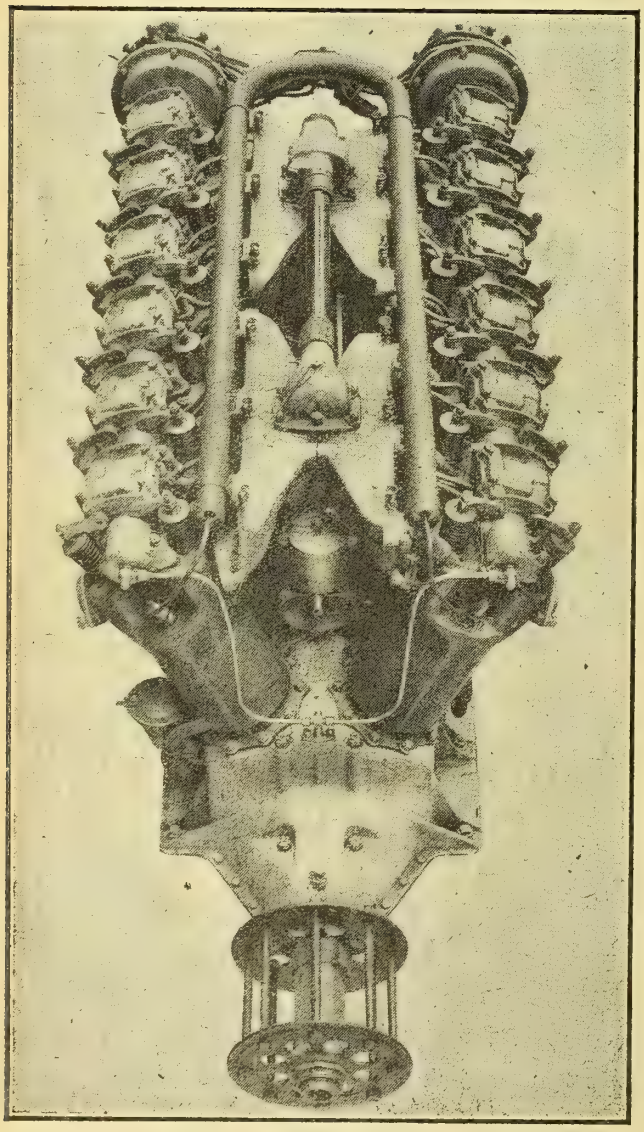
provided at either end to carry the gasoline waste outside of the fuselage.



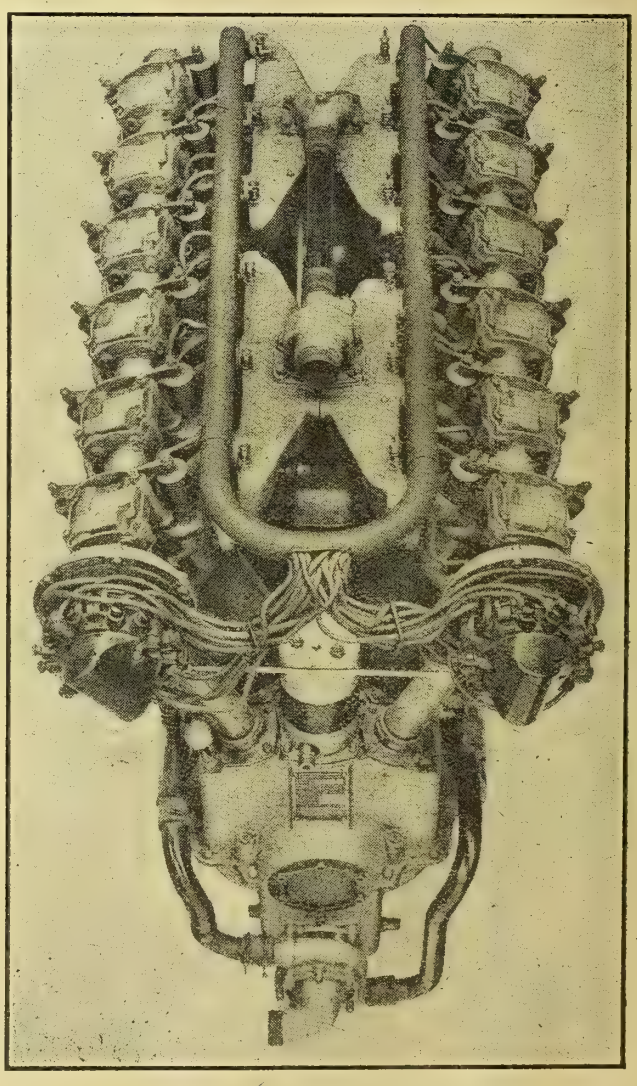
Assembly of the Duplex Air Valve

Dynamometer and flight tests made at McCook Field have demonstrated the performance of the new arrangement to be fully as efficient as that of the old, while the fire hazard has been greatly reduced by draining away gasoline drippings from the hot engine "V," and carrying the carburetter back-fire flame out of the hood. This thorough gasoline drain and consequent absence of combustible vapour also protects the pilot from the fire hazard of incendiary bullets passing through the bonnet.

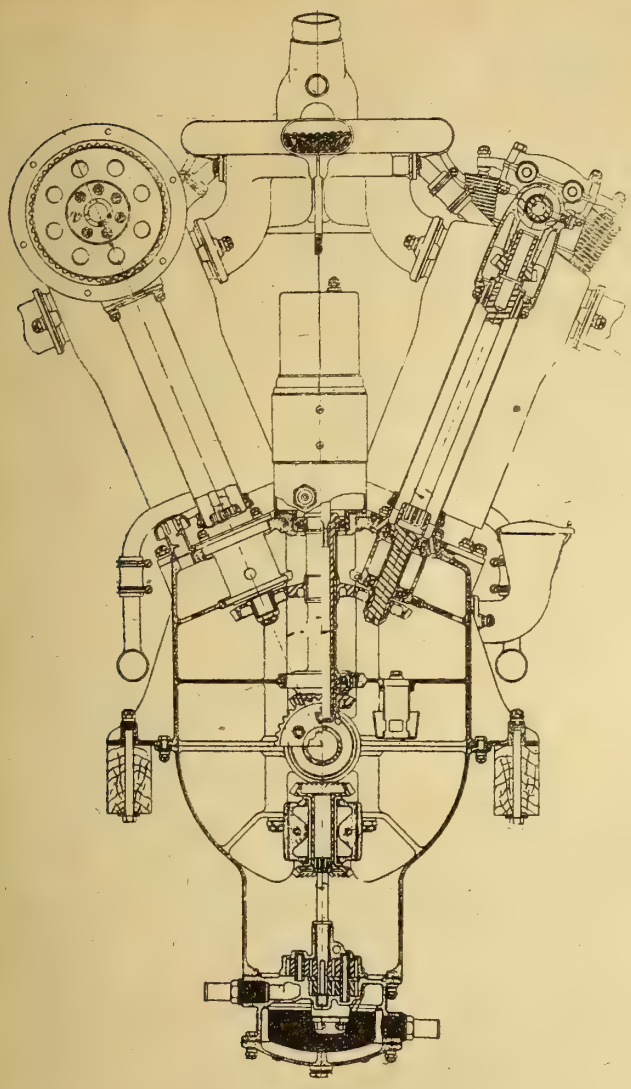
With this construction it is not difficult to make jet inspection



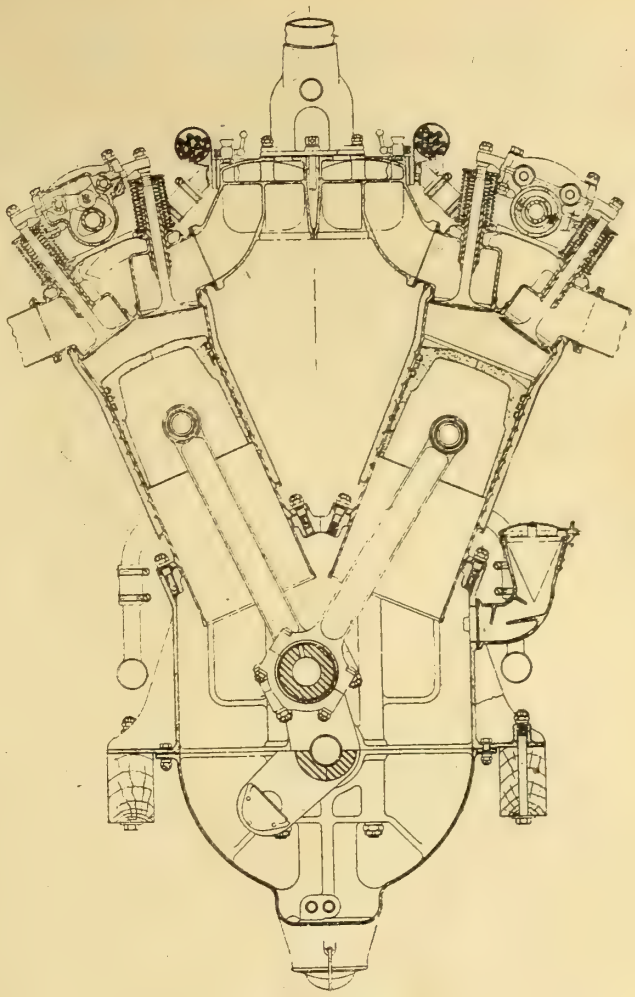
Three-quarter Top View from Airscrew End, Liberty Engine.



Three-quarter Top View from pump end, Liberty Engine.



Section through Valve Gears.



Transverse Section through Cylinders.

or changes. By sliding up the pipe stack, springing off the attaching bails and disconnecting drain tubes, the manifold can be moved forward or backward as desired, to reach the jets of either carburetter.

The changes necessary to make this installation consist of replacements to provide clearance of the new intake stack and its parts. These changes consist of new offset or curved intake water header and curved carburetter throttle control connection. New and larger drain tubes are also included.

A hole must be cut in the motor bonnet to provide for the exit of the air intake pipe stack which is cut at an angle above the top of the bonnet so that pressure may be produced in the air intake by the propeller slip stream.

CARBURETTER ALTITUDE ADJUSTMENT.

The altitude adjustment on Zenith type U.S. "52" carburetter furnished on Liberty "12" cylinder engines is of limited range because the float chamber vent, which supplies air to both the float chamber and compensator, is too large for the best results. It is the purpose of this adjustment to cut down the flow of gasoline through the jets at high altitude where the air is thinner and lighter. Weighing less per unit volume here than at sea level, the air contains less oxygen to support combustion and must therefore need less gasoline for the most economical mixture. The altitude valve links up the float chamber with the engine suction at the carburetter throat for the purpose of holding back the flow or applying a gasoline brake. However, instead of maintaining a partial vacuum on the gasoline in the float chamber to retard its flow through the jets at high altitude the screened air vents nullify this effect through their excess capacity.

To correct this condition without interfering with air supply to the compensator, modifications have been made in the original design by removing the screened air vents, plugging the holes in the casting, and drilling a new compensator air intake vent as shown in sketch Figure 4 and drawing Figure 1. Venting of the float chamber is thus accomplished through the air passage around the secondary well of the idling system, but is partially restricted by a collar added to the secondary well as shown in sketch Fig. 3. The diameter of this collar determines the amount of air restriction and, hence, the degree of vacuum permitted in the float chamber. This, in turn, directly affects the flow at the jets and, hence, the gasoline economy.

Flight tests made at McCook Field show that the use of this altitude adjustment will enable the operator to effect a gasoline economy of approximately 30 per cent. under that obtained formerly at the same engine r.p.m. and at an altitude of 18,000 ft.

In addition it has been found advantageous to employ progressive slot openings in the altitude valve, instead of the parallel drill holes formerly employed. (See Fig. 2.) The slots coming into action progressively permit a more gradual leaning of the mixture, and the use of a greater range, somewhere in excess of that actually required. The pilot can ascertain that the valve is operating by pulling the control back farther than necessary and noting the falling off in engine r.p.m.

Changes can be made by dismounting the carburetter from the engine, and removing the throttle housing, the choke, the secondary well system, the float mechanism and the altitude valve. Drill two No. 17 holes (see sketch, Fig. 4, and drawing, Fig. 1) into main well and securely plug air vent hole with special plug shown on drawing, Fig. 1, and which must be positively locked in place by the attachment of the throttle housing. Build up shoulder of solder (for temporary use) on secondary well shown in sketch, Fig. 3, and machine to dimensions of which diameter is most important. Insert new altitude valve. Reassemble the carburetter in the usual way, and stamp letter "A" on carburetter body as shown in drawing, Fig. 1. All carburetters now coming through have letter "A" cast in place, which refers to venting of well only. To check up on altitude valve, pull out and note whether drilled or slotted.

AEROPLANE ENGINES FOR MOTOR-CARS.

Apparently the Detroit automobile manufacturers have absorbed the aviation microbe to such an extent that they intend in next winter's models to include aeronautical engineering in the design of their products, and half-a-dozen firms are even going to the length of equipping their vehicles with aeroplane engines, presumably of relatively low power. It yet remains to be seen whether such experiment will pay in the long run.

FLYING-BOAT COSTS.

The following letter has been received from the Gosport Aircraft Company.

Dear Sir,

We were much interested in the article which appeared in a recent number of The Aeroplane entitled "River Flying," by "Chevron Or," with which article, with one exception, we entirely agree, and as designers and builders of flying-boats feel greatly encouraged that there are, at any rate, a few writers who fully appreciate the wonderful possibilities of the flying-boat, which undoubtedly has an enormous sphere of its own. The exception which we do take is that of the "costs" given in the article :—

1. Capital Charges.—Whilst we agree that, say, a three-seater flying-boat complete with engine can be produced and sold from between £1,500 to £2,000, according to power and finish, a boat, large enough to carry a useful load of two tons or its equivalent of, say, 28 passengers, cannot be produced complete with two British engines, at any rate for the present, for less than £8,000.

2. Flying Costs.—From figures that we have recently carefully compiled from data obtained through reliable sources, we are of an opinion that the cost of running the smaller boat would be between 2s. 6d. and 3s. per mile, and the larger boat at certainly not less than 6s. 6d. to 7s. per mile, which, of course, includes all flying, handling and terminal charges, insurance and depreciation, etc., for which the two latter items are, and probably will be, for the time being, the chief culprits.

Whilst naturally it is apparently in the interest of Commercial Aviation generally to keep the published capital and working costs as low as possible, there is a tendency in our enthusiasm to being too optimistic, with the result that great disappointment may be caused to investors in any of the Aerial Transport companies now in course of formation, with a possible consequent setback to a new Industry. We are, however, of the opinion, in spite of the high figures quoted by us, that with a properly organised and managed scheme there is still sufficient allowance for a good margin of profit, especially on routes where there are no convenient travelling facilities.

Yours faithfully,

(Signed) M. H. Volk, General Manager, pp. Gosport Aircraft Company.

Jan. 17th, 1919.

AMERICAN WING TESTS.

Under the title of "The Triplane and the Stable Biplane," Messrs. James Selwyn & Co., Ltd., have reprinted the reports of Dr. J. C. Hunsaker upon certain tests carried out in the Wind Tunnel of the Massachusetts Institute of Technology. These reports appeared in "Engineering" three years ago, but they do not appear to have attracted the attention which they deserve in this country.

The first portion dealing with the triplane calls for no very special comment. Tests were made upon triplane models of R.A.F.6 section and of a section employed by the Curtiss Company. All the models had an aspect ratio of 1 to 6.3 and a gap/chord ratio of 1.2/1.

The results show a very small diminution in maximum lift for the triplane as compared with the biplane at about 16 degs. angle of incidence, but an appreciable loss in lift at smaller angles down to zero. At angles approaching the critical—or stalling point—the triplane shows a distinct superiority in lift-drag ratio to either biplane or triplane.

Hence the triplane construction does not necessarily involve either a higher landing speed or a slower climbing rate than an equally loaded biplane or monoplane, but will probably entail an appreciable decrease in top speed.

It is understood that later researches have shown that, at very small angles of attack corresponding to very high speeds and very heavily powered machines, the triplane may under certain conditions show a better lift/drag ratio than the biplane.

The second and the larger part of the book, dealing with stable biplane arrangements, is distinctly more important and instructive.

The main interest lies in the results obtained with staggered biplanes, in which the lower aerofoil is set at a smaller angle of incidence than is the upper.

It can easily be seen that with the lower plane behind the upper and at a finer angle, the arrangement bears a considerable resemblance to the normal main plane of a monoplane followed by a tail plane at a finer angle; and it might be expected that an aerofoil system possessing a stable movement of its centre of pressure could thus be obtained.

Dr. Hunsaker's tests not only show that this can be achieved, but that it is not inconsistent with a fairly high efficiency.

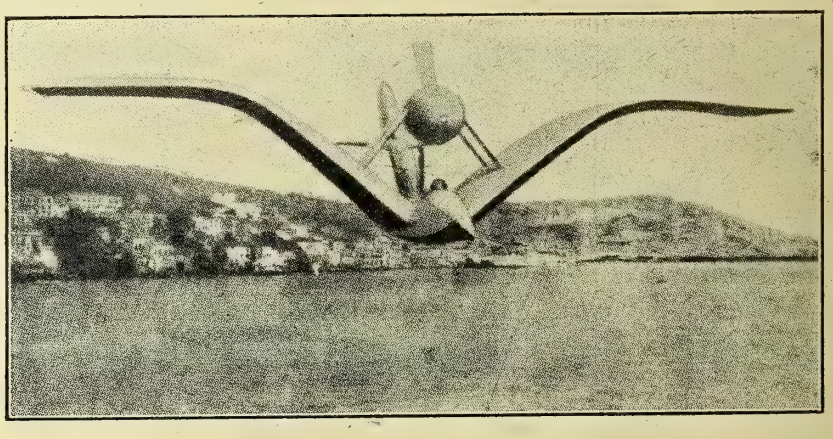
Apart altogether from the attempt to obtain a stable biplane arrangement, the tests give some useful information as to the effect of using a lower plane of smaller chord than the upper. A definite improvement in efficiency results—as is to be expected.

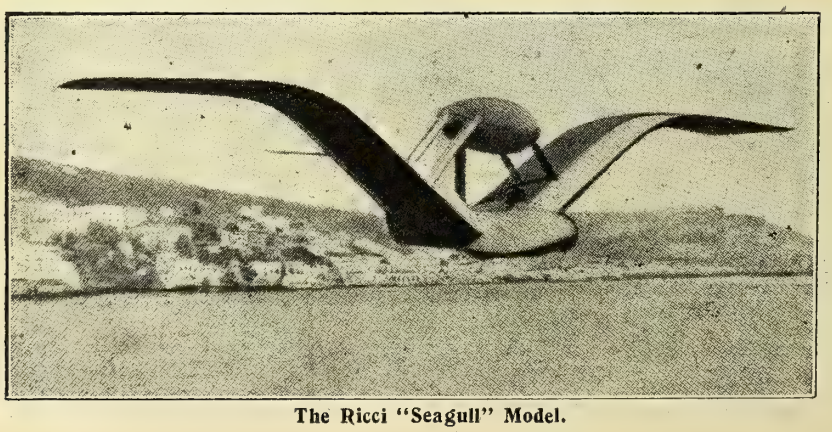
The pamphlet is well printed, and the only criticism to be made is that most of the curves embodying the results of tests are reproduced upon too small a scale, and that the results are nowhere given in a tabulated form. It is consequently difficult to obtain accurate numerical values for any of the aerodynamic qualities of the various arrangements tested.

AN ITALIAN NOVELTY.

The accompanying illustrations represent a new type seaplane of Italian origin, to the design of the Bros. Ricci. Very little authenticated information is to hand, but an Italian journal is the source of the following particulars :—Span, 12 metres = (39 ft. 3 ins.); surface, 30m² (300 sq. ft.); weight, empty, 700 kg. (1,540 lbs.); loaded, 1,350 kg. (2,970 lbs.); h.p., 300; loading, 45 kg. per m² (10 lbs. per sq. ft. approx.); load, per h.p., 4 kg. (8.8 lbs.). The machine is designed to reach a speed of 300 km. per hour (190 m.p.h. nearly).

Unfortunately, no information is available as to the structural features other than that given by the photographs. Apparently, this machine is devoid of any wing bracing other than that indirectly afforded by the engine-housing. This accords with the evident great depth of the wings at the roots.



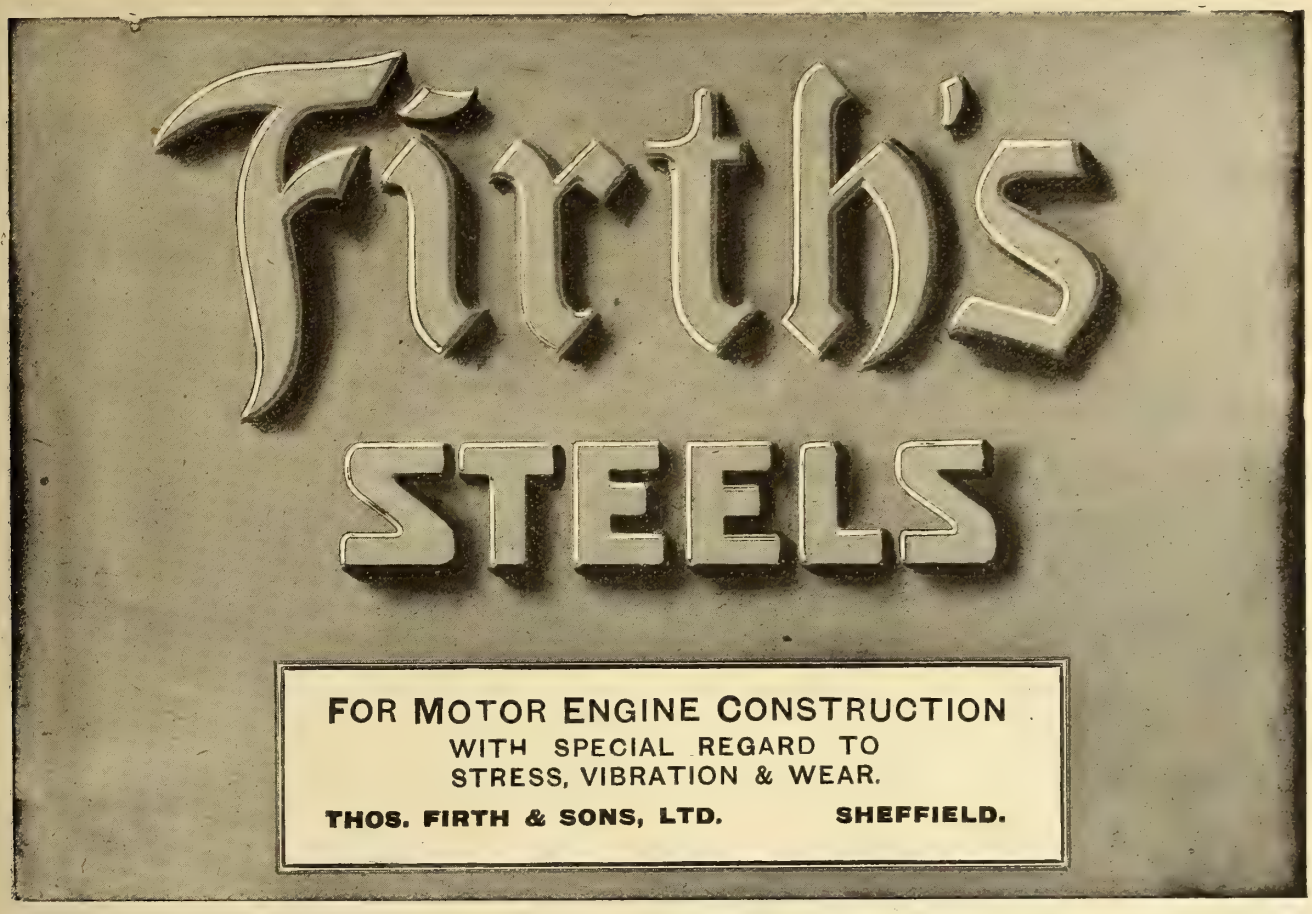


The Ricci "Seagull" Model.

A close examination of the original photographs leads to the opinion that they are pictures of a model with an inserted background, and not of an actual machine in flight.

Nevertheless the design is of considerable interest, and the method of construction, which secures the structural advantages of the multiple-engined machine, by distributing the engine weights over the wing span, and using the engine mountings as part of the structure, may have a future for small machines of extremely high speed.

The Bros. Ricci are also responsible for a number of designs for large seaplanes, which admittedly have not progressed beyond the model stage. These designs show some interesting features, and it is hoped to illustrate them at a later date.



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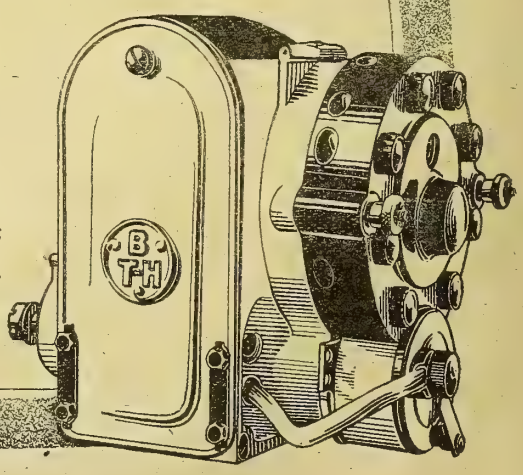
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LABOUR AND INDUSTRIAL RECONSTRUCTION.

The chief features of general interest this week are the labour troubles and the reduction in freights. The former has dislocated industry in the districts concerned, and at the time of writing there are indications of other industrial areas being affected.

The whole thing is very unfortunate, as employers are doing their utmost, notwithstanding other difficulties, to change over to their peace programme, and the strikers are too shortsighted to see that the disorganisation which has resulted from their unauthorised and revolutionary actions is to a very serious extent hindering firms from getting ready for full scale production on peace work, and therefore delaying the one thing which will certainly absorb all the available labour procurable.

Another important feature, which, owing to their stultified minds, they are unable to see, is that it is only a combination of effort between employers and labour that can enable us to seize the wonderful opportunities of capturing the world's markets, for which we have waited for over four years, and for which thousands of the finest of our fellow-countrymen have sacrificed their lives. Selfish blindness hinders the labour agitators from realising that the fruits of the glorious victory which has been achieved by "men" are not being gathered in Paris, but are waiting to be gathered by the combined efforts of the employers and workmen.

The reduction in freights will not, of course, affect the markets immediately, but will certainly result in a reduction of prices in several metals when more shipping space is available. If Sir Albert Stanley's promise that there would be as much tonnage afloat by the summer as before the war is fulfilled, the difficulty in obtaining space should be quickly removed. The reduction in freights will, of course, chiefly hit holders of stocks of material, should they purchase their holdings at a much higher freight than the present rates.

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

FEB. 6th.

COPPER.—The market continues dull, and very little business is being done; the general opinion being that prices must decline still further, although this attitude is being criticised in America.

The contention is that the stocks held there were produced at War cost, and stocks should be held until the industrial demand becomes much larger.

Notwithstanding the U.S.A. producers' criticism, the fact remains that the prices being quoted at present will not encourage firms to enter on full-scale production, and it is hardly likely that they will be maintained.

It is reported that some Japanese Best Selected Copper has recently been sent here at £100 c.i.f. forward delivery; it will be seen that this price works out a little higher than the price ruling here.

COMPARATIVE PRICES.

	£	s.	d.	
To-day, Feb. 5th (Standard) ...	87	0	0	per ton.
Last week	88	0	0	,,
Last month	112	0	0	,,
Average, 1918	115	10	0	,,

TIN.—This market is at present in a fairly sound condition, although a period of weakness has been experienced since last week.

There does not appear to be much possibility of violent reductions while the F.M.S. Government continues to buy on the basis of £236 f.o.r. Singapore. The authorities there cannot use all the Tin they are buying, and must sooner or later place a large quantity on the market.

There are indications that the market here will become firmer; stocks are not large, and only small quantities are being received, consequently, export licences are very difficult to procure.

The position in U.S.A. is still causing controversy. No definite settlement appears to have yet been made, although it is rumoured that it has been suggested to the solder and bearing metal manufacturers that they should take over part of the Government holdings and receive other advantages in return.

COMPARATIVE PRICES.

	£	s.	d.	
To-day, Feb. 5th	245	5	0	per ton.
Last week	245	10	0	,,
Last month	236	5	0	,,
Average, 1918	329	10	0	,,

STEEL.—The Steel market is very uncertain, although a fair number of orders were booked during January in anticipation of the advance when the subsidies were discontinued. It is reported that the Ministry of Munitions holds huge stocks of Aircraft Steels and the demand is down to zero

It is not yet known what prices will be quoted for American Steels, but in view of the reduction in freights and the possibility of space being available it is expected that the prices will be very competitive.

It is also stated that the British Government is offering huge quantities of billets for sale, and this is contributing to the present uncertainty of the market. Speaking generally, buyers have no confidence in the market, and are therefore adopting a waiting attitude.

As was foreseen, the prices of High Speed Steels have been reduced; Steel containing 18 per cent. Tungsten has been reduced from 4s. 5d. to 3s. 11d. per lb. and steel containing 14 per cent. Tungsten from 3s. 8d. to 3s. 4d. per lb.

LEAD.—This market has shown very little interest, the Government having until February 3rd kept its price at £35 nett. Fair quantities of Lead have recently been received and the stocks held were very large. The general impression that a reduction was inevitable was considerably strengthened. On Feb. 3rd the Government reduced its price of £30 to £28 10s. nett, and although the price is now reaching a more reasonable figure it is more than likely that the recent reduction in freights will ultimately cause a further decline if the American shippers succeed in getting shipping space.

COMPARATIVE PRICES.

To-day, Feb. 5th, average	£29	5	0	per ton.
Last week ,, ...	£31	0	0	,,
Last month	£37	10	0	,,
Average, 1918	£30	0	0	,,

TIMBER.—There are large stocks of Silver Spruce available at present, but very little material is being purchased, the general impression being that prices must decline considerably within the next few months.

It is understood that the Government stocks of Oregon Pine are far from being satisfactory. In fact, from all accounts, the material is little better than the Cypress.

The Hardwood market is at present very uncertain, prices have declined considerably, and, although the Government states that no further reductions will be made while the Timber Control authorities remain in power, there is no feeling of confidence, and it is felt prices will decline further during the next few weeks.

There is likely to be a great scarcity of Dry English Ash, and this appears to be the only wood which is at all attractive, as prices cannot be considered excessive. It is rumoured that Timber generally will be freed from control within the next week or two.

FABRIC.—The position remains unchanged. The Government has taken steps to try and dispose of the huge stocks which it is holding, and it will be interesting to know what prices the material brings.

AN ADDRESS TO NOTE.

Those interested in the production of the Cosmos Engineering Company, Ltd., of Lodge Causeway, Fishponds, Bristol, should note that the London office of the firm is situated at Orient House, New Broad Street, E.C.2. The telephone number is London Wall 8054, and the telegraphic address, Pneuma, Phone, London.

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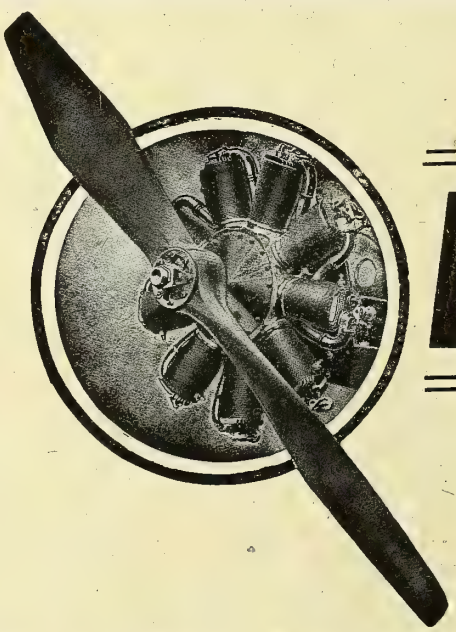
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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

COMMUNICATIONS IN UNDEVELOPED TERRITORIES.

BY "MEDWAY."

Arising out of the general question of the proper spheres of the aeroplane and the airship is the more specialised question of the selection between the two systems for services designed to open out undeveloped territories.

The airship has, of course, the advantage of being independent of the establishment of landing grounds at points intermediate between the terminals. This points to its use when it is desired to open up a valuable territory from which communication with the coast is rendered difficult by the presence of vast forests, jungles, or marshes.

It is probable, and one might almost say certain, that there are many places rich in mineral and chemical wealth the products of which have up to the present remained quite untouched, solely because of the cost or the impossibility of communication.

Probably, in many instances, the early stages of development would not entail the carriage of any big tonnage of goods. All possible processes in the way of refinement of the product would be conducted on the spot so as to eliminate the transport of heavy worthless material.

Before it would be possible to conduct such processes it would, however, be necessary to convey a certain quantity of materials for building and equipment to the point where the development is to occur. This might involve the transport of comparatively heavy machinery, and for that purpose the temporary employment of an airship might be a necessity.

Once the new settlement is properly equipped, we have to deal only with the carriage of its produce, whatever it may be, to the coast or to the market, and the carriage of the necessary stores of food, supplies, etc., to the new centre. Unless the bulk loads were very considerable from the first, it would then probably be better to employ aeroplanes, unless the distance to be travelled were very great.

COMPARATIVE COSTS.

It has been pointed out more than once that one of the great advantages of aerial transport lies in the fact that, because no permanent way has to be constructed, the capital cost of installing the system is comparatively small. If a high capital cost is involved, then interest must be paid on this capital, and the expenditure under this heading that has to be allocated to each ton of goods carried may be very heavy indeed. Thus, if it is only a matter of carrying a few tons a week, the aeroplane may well be far cheaper than the railway or the road vehicle.

Now in comparing the airship with the aeroplane we have to remember that the capital expenditure of the two systems is not in any constant proportion. Take as one extreme a service over a distance of, say, 50 miles. The provision of an airship to carry perhaps 30 tons and two terminal stations with suitable sheds will be necessary. We shall also require a second ship to carry on the service in the event of any breakdown. The whole establishment will certainly not cost less than a million pounds; probably it will cost a good deal more, but if we take this figure it will suffice for the argument.

We are then expending a million pounds on the establishment of a service to operate over a distance of 50 miles—that is to say, we are spending £20,000 a mile. We shall, moreover, require a very considerable staff to handle the airship, not only when navigating, but particularly when ascending and descending. Thus we shall have a very high standing charge upon the service, and also a high operating cost under the heading of labour.

If, on the other hand, we used aeroplanes, we might require, say, 20 machines at £5,000 apiece. We should need two comparatively cheap terminal stations, and at most three or four intermediate landing grounds. The capital cost would be vastly lower than in the case of the airship service. We should have to face a standing charge of perhaps £3,000 a mile, and we could afford to spend a good deal more upon costs of operation, and yet show a better balance-sheet than the airship service.

Moreover, by dividing the work up among a large number of machines, we make ourselves far less dependent upon the reliability of any one machine. What may be called the emergency fleet might consist of an additional five aeroplanes. It certainly would not be necessary to double the original fleet as in the case of the airship service.

A LONG RANGE SERVICE.

Now, if we take the opposite extreme and consider the establishment of a service over, say, 2,000 miles, the first cost, if we used airships, is very little, if any, more than in the case of the short distance service. The cost per mile is therefore only about one-fortieth of what it would be on a short service, or about £500 per mile. Now, if we were to use aeroplanes, we should require a large number of intermediate landing points, some at least of which would have to be equipped and staffed. The ground organisation would go up in cost roughly in the same proportion as the increase in mileage. If the journey is forty times as long, the ground organisation will cost about forty times as much.

Thus the selection between airship and aeroplane depends far more upon distance than upon any other factor. The two main items of expenditure are:—

(1) Ground organisation.
(2) Aerial fleet.

In the case of the airship service, neither of these items is materially affected by the increase in distance. In the case of the aeroplane service, if the distance is great, the cost of ground organisation becomes infinitely greater than the cost of providing the fleet, and, roughly speaking, cost of the establishment of the service per mile is constant.

Of course, if increased frequency of services becomes justifiable, cost of carriage per ton is reduced because, once the ground organisation is in existence, it will cost little or no more to use it frequently than to use it seldom.

Thus, where distances are very long, it would almost certainly pay better to establish an airship service from the first, even if the load to be carried did not immediately appear to justify this course. If the distances are short, the aeroplane service will obviously be the right thing in the first instance, though, when tonnage mounts up to a considerable figure, it may be worth while to change immediately or gradually to an airship service, perhaps keeping just a few aeroplanes for the express carriage of passengers.

CIVIL AERIAL TRANSPORT.

The United Kingdom.

It is understood that the Blackburn Aeroplane and Motor Co., Ltd., Leeds, intend in the future to give civilian flights between seaside resorts on the West and North-East coasts of England.

Germany.

It has been stated that an aerial mail service was to be established between Berlin, Cologne, and Weimar during the sittings of the Constituent Assembly, which were to commence on Feb. 3rd.

Italy.

On Jan. 29th a Caproni biplane flew from Milan to Rome (about 300 miles) in 4½ hours, carrying 10 passengers.

A statement dealing with the Navy's activity runs as below:—The hydro-aeroplane station at Valona-with-Durazzo has, for the first 10 days of January, 1,800 flying miles to its credit, having carried 19 passengers on various lines, and having kept up the daily postal connection between Antivari—Scutari-S. Gio. di Medua—Durazzo—Santi-Quaranta and Corfu.

The Upper Adriatic stations—Venice, Trieste, Pola, Fiume—during this period flew over 1,000 miles, ensuring almost daily post between Venice-Trieste-Pola-Fiume, in spite of bad flying weather.

The Trapani station did 184 miles on post duty between that city and the Favignana Islands, while Milazzo, with its exclusively public postal service, covered some 92 miles.

By permission of Ing. Caproni the trials of a tiny triplane have been held at Vizzola recently, the testing being done by Lt. Montegani, and the machine's wing span being the miniscular one of four metres! The little vehicle is one of the late Emilio Pensuti's things, and is of course not a freak. The maximum and minimum flying speeds are both abnormal.—T. S. H.

Belgium.

According to advice received from Brussels, an aerial mail service has been established in Belgium for the purpose of carrying official correspondence.

Greece.

The Roman papers announce the arrival at that city of a deputation from Athens to open negotiations with the Italian Postmaster for a regular post between Rome and Athens.

The United States of America.

Mr. Alan R. Hawley, President of the Aero Club of America, announced on Jan. 6th that a committee of important members of the Club had been appointed to develop plans for the employment of aircraft for commercial purposes. It will also be the duty of the Committee to draft regulations governing aerial navigation.

It is expected that the Post Office Department will establish another aerial mail route early next summer, between Boston and Chicago, with stops at Albany and Buffalo, a distance of about 900 miles. The rate will be the same as for the established daily service between New York and Washington.

Four aeroplanes have left New York in order to map all possible landing fields on the New York-Cleveland-Chicago route, the regular establishment of which was delayed owing to the poor success of the first mail flight.

After having been suspended for a week, owing to bad weather, the official mail service between the Anacostia station and Hampton Roads was recently resumed. The hydro-aeroplane, with mail for the Atlantic fleet, completed the journey in a headwind of 40 miles an hour.

Brazil.

It is understood that the Brazilian Government has granted concessions to a company allowing it to establish an aerial mail service between the various capitals of the States of Brazil. It is expected that small parcels of mail will be carried at first, which must be properly stamped and post-marked, but, with the further development of aviation, passengers may also be carried. The Government has the power to take control of the service in the event of war.

The Republic of Chile.

It is stated in Santiago de Chile that an aerial mail service was inaugurated between that town and Valparaiso at the beginning of the New Year.

A POLAR EXPEDITION.

It is understood that the Bartlett Expedition to the Polar regions, financed by the Aero Club of America, is to be known as the Roosevelt Memorial Expedition.

It is understood that Capt. Bartlett, the American explorer, will have a friendly rival in his Polar exploration, as it is learned that a British party under the command of Capt. Wild is to start for the North Pole in April by way of Spitzbergen.

LONG-DISTANCE RECORDS.

Sir,—In view of the fact that so much publicity has been given by the Press concerning long-distance records, etc., I should like to draw your attention to the following:—

During the summer of 1916 a certain young pilot, then stationed at Farnborough, made a habit of delivering F.E2Bs, 120 and 160 h.p., about twice a week by air, absolutely non-stop from Renfrew in Scotland to Farnborough, a distance of, roughly, over 400 miles, through about the wildest country in England—namely, the Lake District.

The quickest time made, I think, was 3 hrs. 25 mins. from ground to ground, with a passenger, the times being confirmed later at both ends. Of course, this was done with the aid of a north-westerly gale, the average time taken in doing the trip was somewhere about 4½ to 5½ hours, occasionally a stop being made in the neighbourhood of Manchester or Coventry for petrol.

I well remember that at the time it caused some consternation amongst certain A.I.D. pilots, who up to that time had taken from three to fourteen days in making the same trip *via* the East Coast, these non-stop runs thus spoiling their "market."

I thought I would just point it out as a matter of interest, especially as one considers that the old F.E. is so obsolete compared with the later machines.—I am, yours sincerely,

An Old Reader.

THE TRIUMPH OF A MAGNETO.

Proofs of the high efficiency of British magnetos are accumulating daily. The magnetos used on the "Napier Lion" engine when the latest important altitude flight of 30,500 feet—six miles—was established were British—made by the British Thomson-Houston Co., Ltd, of Coventry.

THE RETURN OF MR. LATIMER-VOIGHT.

Some months ago Mr. H. E. Latimer-Voight, formerly joint managing director of the Integral Propellor Company, of Hendon, and joint proprietor of the Pegasus Aircraft Co., Ltd., Tooting, S.W., wishing to gain experience of army life and to see active service, enlisted as a private in the Machine Gun Corps, leaving the management of the Pegasus Company in the capable hands of Mrs. Voight, who was formerly co-managing director with him of the Integral Propellor Company.

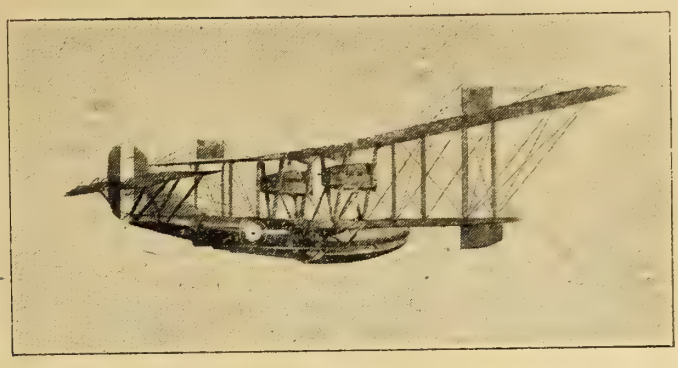
Unfortunately for Mr. Voight's martial ambitions, the war came to an end before he achieved his aim of seeing active service. He has since been demobilised, having attained the rank of lance-corporal, and is now at the head of a company engaged in various commercial undertakings. He has opened offices at 43, Dover Street, London, W.1, where he will be pleased to see or hear from his various business friends, both in the Aircraft Industry and out of it.

One is glad to know that the Pegasus Company is continuing operations, and has been able to find work in addition to aircraft, which one hopes will prove highly remunerative to the proprietors.

Mr. and Mrs. Voight are so well known as pioneers in the Aircraft Industry, and are so universally esteemed by all with whom they have done business, that one feels that one is only expressing the sentiments of the whole of the trade in wishing them every success in their various new ventures.



MR. LATIMER-VOIGHT.



Phoenix

BRADFORD

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QUALITY PHŒNIX FIRST — Dynamo Mfg Co Ltd — Bradford Yorks

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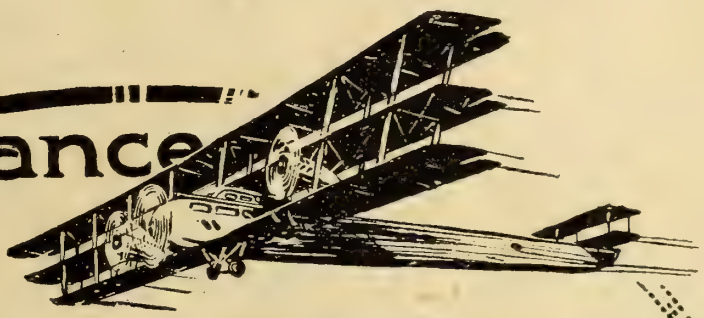
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Long Distance Flights



The First British and International Aerial Navigation Company will shortly place at the service of the public a unique series of long distance passenger flights, both for business and holiday purposes, which obviate the delays and annoyances of transfer from train to tender, tender to liner, etc., which are the great drawbacks of the present system.

Features of the service will be speed, safety and perfect comfort—all passenger nacelles being protected from the wind and internally heated. The first routes open will be those between London and Ireland, and London and France. Full particulars will appear in the papers shortly.

THE FIRST BRITISH AND INTERNATIONAL AERIAL NAVIGATION COMPANY LIMITED

12-14 HARRINGTON ROAD, SOUTH KENSINGTON LONDON S.W. 7.



AN AMERICAN OPINION OF CIVIL AERIAL TRANSPORT.

Mr. Edward Marshall, the correspondent of the "Observer" at Washington, gives some interesting information concerning the views of Mr. Otto Prager, 2nd Assistant Postmaster-General, U.S.A., on the prospects and possibilities of Civil Aerial Transport. Mr. Prager seems to have very sound and well considered views concerning not only the possibilities but also the limitations of the new branch of locomotion in which his department is now interested.

In discussing the much-talked-of Atlantic flight, Mr. Prager held the view that though such a flight is not an impossibility, no one could be reasonably sure that such a journey could be made at present, because the element of luck would enter very largely into any attempt, and success or failure would be dependent upon the most uncertain quantity in the world—namely, the wind. If a pilot had the wind with him for a period of from 24 to 30 hours, the journey could be accomplished easily, safely and quickly, but across such a long stretch of sea it was doubtful whether the wind had ever blown in exactly the way a pilot would wish it for the whole course.

He thought that the only way in which the crossing might be made with present-day aeroplanes with reasonable safety and certainty would be for the Navy to string a fleet of vessels right across the Atlantic—an arrangement which would entail unreasonable expense, and would cause the experiment to develop into a "stunt," which could not be regarded as a practical demonstration of the usefulness of aircraft for trans-Atlantic traffic.

Mr. Prager was suspicious of the theories that steadily favourable winds could be found at altitudes between 15,000-18,000 ft., and considered that only practical investigation by actual flight could prove or disprove it. At any rate, he did not think that the theory was borne out by inland conditions. Even so they could not be quite certain, because an American mail aeroplane had never gone higher than 16,500 ft., and motor efficiency decreases so rapidly as altitude increases that successful flight at high levels where winds are reputed to be steady might be impossible.

Mr. Prager felt that no trans-oceanic experiment would be attempted by the United States Post Office Department at once, or even in the near future, despite rumours to that effect, as with the types of aeroplanes known to the Department measures of safety would entail too great an expense, and he considered that the attempt was a sporting, but not a business, proposition at the present stage of development.

The Personal Element.

In America one found two classes of persons interested in aviation, both essential to development; the first class consisting of the practical men at work and progressing by plodding, this class necessarily including Government officials. And the other class are the dreamers, who, seeking far into the future, are often ten years in advance of the practical men. The 2nd Assistant Postmaster-General thought that the latter class will eventually succeed in making the Transatlantic crossing. They could try it—the Government could not; if they failed it would be their own affair; if the Government failed it would be legitimate reason for drastic public criticism.

Mr. Prager thought that the rigid airship would make the first trans-oceanic flight. He was of opinion that aeroplanes attempting the experiment should be provided with multiple engines. He did not think that any of the existing aeroplanes with triple and quadruple engines were suitable for the purpose, and was evidently of the opinion that the flight should be made non-stop.

Inland Mail Prospects.

Turning to the subject of the U.S. Aerial Mail, he said that daily flights, excluding Sundays, with single-engined tractor biplanes, had proved sufficiently a practical success to ensure their continuance. Daily flights between Washington and New York had been made successfully every day for seven months during the most adverse weather conditions, including rain, hail, snow, mist, tempestuous winds and severe electrical storms.

The greatest difficulties had been experienced in landing, and on several recent occasions fog was so thick that the aviators could not see the Capitol at Washington, a sufficiently conspicuous landmark, and they had to land as best they could and where they could. Nevertheless, a record showed only seven forced landings during 111 days of operations, each round trip approximating 436 miles, and during the same period only two days of flying were lost through bad weather. Three trips were complicated by engine trouble, which made it necessary to send the mail a part of the way by train.

Mr. Prager could not see in the near future the abandonment of railway service in favour of the mail air service, but on long-distance flying he considered it a valuable adjunct. He looked forward to the day when aircraft would be able to hover and alight in restricted areas, or on roofs, an improvement which would complete the usefulness of aircraft for mail-carrying purposes.

By charging six cents (3d.) per ounce the Department was losing money on short trips because insufficient mails were available for carriage at this rate, although the charge would pay if the machines were always able to travel heavily laden.

He thought, however, that it should be possible to make a profit on the Chicago to New York flight. This journey by train was 1,000 miles—by air it was only 710 miles, and it was hoped to establish a standard time of about 10 hours.

Necessary Improvements.

In the opinion of Mr. Prager it was necessary that a satisfactory form of air-brake should be designed, and a means also of allowing aeroplanes to get away with a shorter run than is now necessary, in order to make starts and stops possible in a restricted area; under existing circumstances it is necessary for aeroplanes to leave Philadelphia 14 miles from the heart of the city, and from Washington at a place eight miles away, a circumstance which involves a delay in mail delivery which eats up much of the time margin over rail transport.

Appliances for picking up mails without stopping were also desirable. One Naval officer had succeeded in picking up 157 lbs. of mail while flying at 70 miles an hour. He dropped a rope to a motor-boat containing the sacks, which was travelling at 15 miles an hour, and 60 ft. of elastic material which was included in the length of rope saved the machine from what would otherwise have been a nasty shock. It is not clear how the mail bags were attached to the travelling rope.

The question of signals which could be read in bad weather and at great heights, enabling aviators to make certain of the location of landing fields, had also received careful attention. The Bureau of Standards had developed an apparatus which radiates electro-magnetic waves upwards in an inverted cone. An aviator travelling by compass out of sight of the land sees nothing, but as he nears the aerodrome he begins to get the signal. If he travels in a wrong direction he passes out of the cone and looses the signal. He then scouts round until he gets back into the signal and then makes his way down. Light signals had proved effective at night, both as regards an electrical beam and the flood-light.

The prevalence of ice in U.S. rivers during winter acted against any attempt at making water the regular alighting spot, and severe weather complicated flying seriously in other ways, and would, in fact, necessitate the choice of southern routes for trans-Continental flights during about one-third of the twelve months.

The first trans-Continental route contemplated was northern, as a development of the New York and Chicago service, and it was hoped to make regular flights on this route in a few weeks.

Up to the present time no attempt had been made to carry mail by air west of Chicago, as in that vast territory the special conditions needed study and special arrangements. The service, however, was working on the mountain problems on the east over the Alleghanies, but these were not so difficult as those to be found over the Rockies and other Western American mountain ranges.

A FURTHER GOSPORT AIRCRAFT EXTENSION.

It should be noted that the Gosport Aircraft Co., of Gosport, Hampshire, has now opened an office at 19, East 52nd Street, New York, U.S.A., where inquiries from American clients will receive the personal attention of Sir Charles Allom, one of the principals of the firm, who is at present in New York.

THE RELEASE OF HARDWOOD CONTROL.

Beginning from the end of February the Timber Supply Department will hold auction sales of various lots of hardwoods. The first sale will be held in London, followed by others in the Liverpool district and elsewhere.

The stocks for disposal are approximately :—

Cypress, gum, cotton wood, chestnut, ash, walnut, oak, birch, poplar, etc., roughly amounting to 1,349 car loads in all.

In addition to this, there are about 300 car loads to arrive from abroad.

AN AUSTIN ANNOUNCEMENT.

On Jan. 29th the Austin Motor Company entertained a number of its agents to luncheon, and, on this occasion, Sir Herbert Austin made some very interesting announcements. The meeting was confidential, and Sir Herbert discussed very frankly and freely with the agents of the company the various problems connected with the production and sale of the car The announcement of the prices as given below was received with unanimous approval. They are as follows :—

Austin 20 h.p.	Chassis	£395
,,	Touring Car	£495
,,	Coupé	£595
,,	Landaulet	£625

A RECENT HONOUR.

Among those who have recently been appointed to the Order of the British Empire is Captain William Maxwell, a Director of Titanine, Ltd., who has been made a K.B.E.

AIRCRAFT FINANCE

THE MENACE OF THE EXCESS PROFIT DUTY.

In relation to the immediate future of British industry the Excess Profit Duty is a very serious menace; it is imperative that the Government should, without delay, elaborate a scheme designed to relieve industry of this insuperable burden.

As a war measure the imposition was justified; it has proved an excellent source of revenue just when revenue was needed to check the erection of an inverted pyramid of debt. He would be a bold man who asserted that it achieved its main object—the suppression of profiteering—though it really proved of some utility in that respect.

As it is invariably the buyer who foots the bill, and not the seller—unless he happen to be in business for the good of his health—the Excess Profit Duty really contributed a great deal to the currency inflation which has been the cause, directly or indirectly, of so much trouble in relation to the cost of labour, and which has produced also those visions of the millennium of high wages and "just a little work."

More Extravagance; Less Enterprise.

All sorts of Government Committees have hinted at the necessity for relieving industry of the burden. It is such an obvious thing. The latest hint comes from the Committee on "Financial Risks Attached to the Holding of Trading Stocks." Need it be emphasised that the question covered by this particular Committee is that affecting the Aircraft Industry more intimately perhaps than any other branch of trade?

This Committee candidly state their opinion that "the present 80 per cent. duty *encourages extravagance and discourages enterprise*, the reward being paltry, *while little margin is left for renewals, development, and the capture of new markets*, to say nothing against the establishment of reserves against bad times."

Recommendations.

Two alternative remedies are suggested:—

(1) A reduction in the Excess Profit Duty from 80 to 65 per cent. for the accounting period approximating to the year 1918, now in course of assessment, on the understanding that the duty so remitted is retained in the business and not distributed.

This reduction might be accompanied by the withdrawal of the just concession in the White Paper which was largely a result of raising the duty to 80 per cent.

(2) If this course is impracticable, the Committee suggests that part of the duty now to be paid should be treated as a suspensory reserve for a period of five years, the amount so treated to be represented by a special kind of war loan to be held on joint account by the Government and the taxpayer.

The amount of this reserve should be 20 per cent. of the average excess of profits in the last two years of the duty. After five years this reserve should either revert finally to the State, or in the following circumstances become wholly or in part the property of the taxpayer.

In the latter case the taxpayer must show that his annual profits over that period are less than the amount of the percentage standard to which he is entitled, or would have been entitled, under Excess Profit Duty, and that these deficiencies have been associated with the holding during this period of stock at falling prices, as distinct, for example, from bad management or reduced turnover. He would then be entitled to relief to the extent of 80 per cent. of the deficiency, but to no greater sum than the amount of the reserve.

Clumsy.

This is encouraging so far as it goes, but one is forced to the conclusion that it does not go far enough. If there was a reduction in this duty for the period specified from 80 per cent. to 65 per cent. under the conditions laid down, there would still be extravagance and not much greater incentive to enterprise.

The other suggestion may prove so clumsy in actual practice as to be of very little economic value, and in any case is it not very difficult to define "bad" management actuarially? There is an element of luck in every business.

General Readjustment Imperative.

What would be an infinitely superior plan would be a substantial general reduction in the percentage of Excess Profit Duty and a revision of taxation generally. A reduction in production cost would follow, and as bedrock was approached there would be a natural incentive to develop to the utmost capacity with efficiency and vigour. Enterprise thus stimulated would be of a more permanent character, and permanency is the object aimed at.

Industry would not be at the mercy of officialdom, which is also a desirable objective because the more intimate the association between officialdom and industry the greater becomes the reduction in efficiency, without which industry is impotent in the world's markets.

Preferential Treatment Considered.

It has been suggested that different industries should be taxed according to their ability and physical capacity to pay. Such preferential treatment would probably prove impracticable. In the case of an adolescent industry like Aircraft, which needs a little judiciously applied help to attain permanency, a certain amount of State protection would prove beneficial.

No pampering by the State, however, is called for or needed, because that would retard efficiency, without which no industry can hope to progress economically. There must not necessarily be official supervision, but State help in the matter of research, etc., coupled with a lower datum line in respect of liability for Excess Profit Duty, would probably prove sufficient incentive.

Excess Dividend Tax an Alternative.

In conclusion, one might suggest that the authorities should consider the feasibility of a tax on Excess Dividends in substitution for a part at least of the duty on Excess Profits. The two might dovetail advantageously.

Safeguards would be needed to prevent illicit tinkering with the capital of public companies, designed to

circumvent the object of the Excess Dividend Tax. That would be simple enough. Two rather forcible objections present themselves. One is that over-capitalised concerns would benefit at the expense of successful enterprises moderately capitalised. The other objection is the general rearrangement of investment values that would be necessary in the circumstances.

Banking Leaders Call for Action.

One is very pleased to note that some of the leading lights of the banking and commercial world have treated the question of the readjustment of the Excess Profits burden at length. Possibly such utterances will impress the authorities with the necessity for some action. Likewise other important interests have been promised a hearing on other objections to a continuance of the imposition.

CURRENT TOPICS.

An Earl in Aircraft.

The mere entry of an Earl to the board of an aircraft construction company may not really mean anything of significance. Still, one is interested at the appointment of the Earl of Wemyss to the chairmanship of Whitehead Aircraft (1917), Ltd.

Mr. C. F. Oldham has also joined the board as representative of the ordinary shareholders.

The accounts are to be submitted, so it is stated, to the adjourned general meeting, fixed for March 17th, and the chairman, continues the hint sent out, will have a very satisfactory statement to make, both in regard to the past year's achievements and the prospects.

The recent suggestion of activity in the shares would be justified in such circumstances, but the fact, nevertheless, remains that those who subscribed for the shares have just cause for complaint at the absence of any real market in them.

New Napier Shares.

Consequent upon the new issue there has been more business in the shares of D. Napier and Son at about 32s. ex rights, while the letters of renunciation in respect of the new shares are dealt in between 3s. and 4s. Whitehead Aircraft hover about 12s. 6d.-14s., being a nominal market.

MORTGAGES, CHARGES, AND SATISFACTIONS.

Flightcraft, Ltd.—Particulars of £2,000 Debentures, created Jan. 16th, 1919, of which £600 were issued Jan. 22nd, charged on the companies undertaking and property, present and future, including uncalled capital. No trustees.

NEW COMPANIES.

Hunslet Motor Co., Ltd.—Private company. Registered Jan. 29th. Capital £5,000 in £1 shares. To acquire the business of, and carried on by, H. Mitchell, at Iron Street, Hunslet, Leeds, as the "Hunslet Motor Co." Power is also taken to manufacture aeroplanes and airships. The subscribers (each with one share) are:—H. Mitchell, 4, Flint Grove, Hunslet, Leeds; P. A. Mitchell, 2, Chesney Place, Hunslet, Leeds, builder. First directors:—H. Mitchell and P. A. Mitchell. Registered office—18, Iron Street, Hunslet, Leeds.

Hendon Flying Club, Ltd.—Private company. Registered Feb. 6th. Capital, £2,000 in £1 shares. As title. The subscribers (each with one share) are:—G. Reader, 35, Coleman Street, E.C., solicitor; W. A. Chadwick, 35, Coleman Street, E.C., solicitor. Table "A" mainly applies. Solicitors: Geo. Reader and Co., 35, Coleman Street, E.C.

London Flying Club, Ltd.—Private company. Registered Feb. 6th. Capital, £2,000 in £1 shares. To carry on a flying club at Hendon and elsewhere. Subscribers and solicitors as Hendon Flying Club (Q.V.).

THE ASCOL VICTORY DINNER.

On Friday, Feb. 7th, Mr. George H. Mansfield, managing director of the Aircraft Supplies Co., Ltd., entertained a large number of personages interested in the aircraft and motor-car industries at a Victory dinner to commemorate the successful prosecution of the war, and to inaugurate the entry of "Ascol House" into the motor accessories trade.

The function was held at the Connaught Rooms, and the fare was of the best. Mr Mansfield, in proposing the "Roval Air Force," spoke of the important part which had been played by the Flying Services in attaining victory, and said that too much praise could not be given to those who had been fighting in the air. It seemed certain that the work of the Independent Air Force in bombing German territory had been the direct cause of the change in the German spirit which had led to defeat. He paid a tribute to the good work of the Technical and Production Departments.

Major J. H. Ledeboer, R.A.F., replying for the R.A.F., referred to the false impression which existed among many people that those engaged in the Aircraft Industry had been profiteering. It might be truthfully said that they had been prosperous during the past few years, but if these had been fat years, the preceding years had been lean ones through Government neglect.

There was a tendency on the part of those engaged in the motor-car industry to look upon the Aircraft Industry as part of itself—a view with which he could not agree. The Technical Department, of which he was a member, was much criticised and little honoured. A proverb existed concerning Government officials to the effect that if one wished to get on one should never do anything, for then one could never be strafed; and one should never give a decision, for then it could not be reversed. Nevertheless, the Technical Department had done great work, in which it had to reconcile production and efficiency, a most thankless task. The ceaseless modifications which aroused so much criticism usually were made to meet Service demands. In the construction of commercial machines, it would, however, be possible to produce batches without modification during manufacture.

It had been proved in the Aircraft Industry as well as in the Motor Car Industry that the enterprise which paid was the production of small parts in large quantities, and firms like "Ascol," which had made a speciality of this work, had frequently come to the rescue of the whole Air Force.

In conclusion, Major Ledeboer paid a tribute to the important part which had been played by the Aircraft Industry.

Mr. R. D. F. Paul, advertisement manager of the "Motor," in proposing the "Motor Industry," expressed his view that, but for the development of the petrol engine stimulated by the use of the motor car, it would have been impossible for the aeroplane to have been evolved. He referred to the part played by the Motor Car Industry in the production of aeroplanes during the war, and also to the work of motor traction generally in the conduct of the war.

Mr. Claude Johnson, of Rolls-Royce, Ltd., in replying, said that few people realised the way in which men and women had slaved in the works engaged in the production of motor vehicles and aircraft. He said that it was almost unthinkable as to what would have happened to the war without petrol, seeing what it had done for mechanical transport, staff cars, motor cycles, tanks, aeroplanes, and airships. He felt that workmen should be helped to understand the necessity for playing their part in the reconstruction of British Industry.

Mr. Henry Knox, in proposing the "Aircraft Industry," disputed the claim that the Motor Car Industry could be said to father the Aircraft Industry, and pointed out how in the early days of aviation the new science was utterly neglected by the Motor Car Industry. In those days he had been told by friends in the Motor Car Industry that there was no future for aviation, and that he had better leave it alone.

Mr. Knox had a word of praise for the Technical Department, especially as regards the part it had played in persuading the Aircraft Industry to pool its knowledge, and he hoped that such co-operative effort would continue in trade competition against the world. Competition between firms was all very well, but it needed to be the kind of competition which we found in the playing fields of England. So far from the Aircraft Industry being the child of the Motor Trade, he held that the Aircraft Industry had, during the war, taught the motor firms all they knew about how to make aeroplanes and engines, and so had enabled the motor firms to make war profits greater than those made by the original aeroplane designers.

Mr. F. Handley Page, C.B.E., in responding, supported the view that the Aircraft Industry was a self-contained industry, and mentioned that, when aviation seriously commenced, the motor-car engine did little to help, and that it was the rotary engine—a type which had never been used on a car—which had made flying really practicable, and with its use the first long flights of Farman and others were made. To remove any doubt that the Aircraft Industry was a branch of the Motor Car Industry, he mentioned that, at a meeting of the Aircraft Contracts Liquidation Committee, he had been assured that the total value of the contracts handled by that Committee exceeded the sum total of contracts placed out for tanks, cars, guns, and shells.

He said that it was an interesting fact that, unlike other epoch-making innovations, the aeroplane displaced nothing—it did not displace travel by land or sea, and it in no way interfered with such services as wireless. It formed an additional connecting link. He thought that the tradition which had made this country the leading Power on the sea would ultimately prove to give this country the premier place in the air, because the factor which had built up our shipping supremacy, namely, our Colonies, should also act favourably in the development of British Commercial Aeronautics.

Mr. C. G. Grey proposed the Chairman and the Ascol Co.

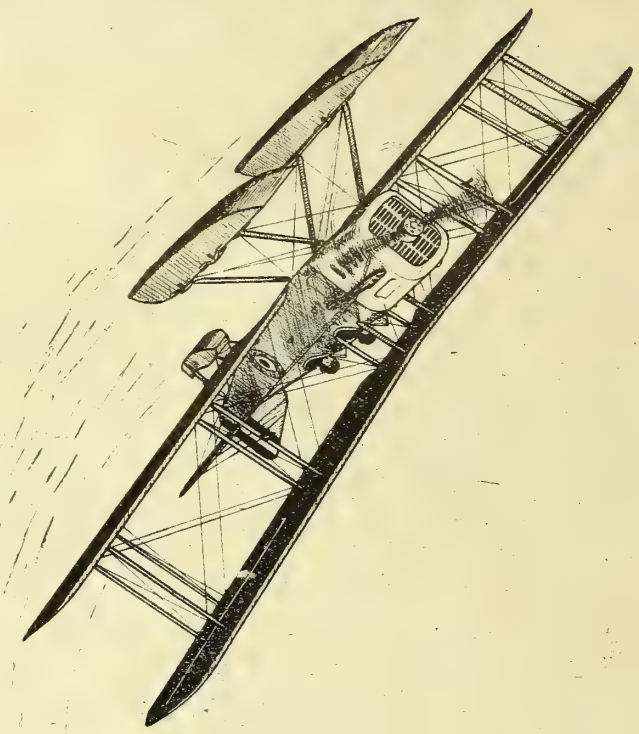
PEACE
PETROL & PRATT'S

A Message of Thanks.

THE Proprietors of Pratt's Perfection Motor Spirit wish to extend their cordial thanks to all who have loyally co-operated with them in meeting the severities and difficulties of the past 4½ years. With the end of the Great War, on the threshold of Peace, and of the great Motor Era, they wish to assure the Trade that every possible step that can lead to a perfect distribution and a continuance of those very gratifying relations which they have always enjoyed with the Trade, is being taken. The part played by Petrol in general in the War has been of very high importance; and now that we are all looking forward to the removal of War's restrictions, energetic measures are being taken steadily to accumulate stocks to meet that almost certain record demand that will presently be felt. In the meantime, the necessity for using War Brands is still with us, and will continue to be until present stocks are exhausted, after which the regular high-class grades of Pratt's Motor Spirit will become available.

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PERFECTION SPIRIT

Anglo-American Oil Co., Ltd.
36, Queen Anne's Gate, London, S.W.1



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58-62 GRAYS INN RD. LONDON, W.C.1.

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C.W.T.



NAVAL & MILITARY ·AERONAUTICS·



GEOFFREY WATSON

FROM THE "LONDON GAZETTE."

WAR OFFICE, Feb. 7th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—MIL. WING.—The undermentioned appts. are made:—Flt. Comdr.—Temp. Sec. Lt. W. D. Patrick, Gen. List, from a Flying Officer, and to be temp. Capt. whilst so empld., Jan. 4th, 1918.

Asst. Instr. in Gunnery.—(Graded as an Equip. Officer, 2nd Cl.)—Temp. Lt. C. M. Pletts, Gen. List, from graded as an Equip. Officer, 3rd Cl., Dec. 18th, 1917

AIR MINISTRY, Feb. 7th.

The following temp. appts. are made at the Air Ministry:—Staff Officers, 2nd Cl.—And to be actg. Majs. while so empld. if not already holding that rank:—(P.) Lt. (actg. Capt.) C. A. Mercer, Jan. 3rd; Capt. (actg. Maj.) M. Skitt, Jan. 9th.

Staff Officer, 3rd Cl.—(P.) Sec. Lt. (Hon. Lt.) J. F. Lewis, and to be actg. Capt. while so employed, Dec. 28th, 1918

The following temp. appts. are made:—Group Comdr.—Lt.-Col. E. A. D'Masterman, C.B.E., and to be actg. Brig.-Gen. while so empld., April 1st, 1918 (substituted for notification in "Gazette," July 26th, 1918.)

Staff Officers, 3rd Cl.—And to be actg. Capts. while so empld. if not already holding that rank:—Lt. H. G. Cox, Oct. 29th, 1918; (Air) Lt. (actg. Capt.) R. P. Lamb, Nov. 10th, 1918; (Q.) Capt. A. Ridley, Nov. 29th, 1918; Lt. (Hon. Capt.) F. C. Clements, Dec. 21st, 1918; (P.) Lt. (Hon. Capt.) G. W. Rogers, Jan. 1st.

FLYING BRANCH.—Capt. B. J. Silly, M.C., D.F.C., to be actg. Maj. while empld. as Maj. (A.), Sept. 20th, 1918

Capt. W. H. Mackenzie to be actg. Maj. while empld. as Maj. (A. and S.), Oct. 21st, 1918.

Lt. F. H. Taylor, M.C. (C. Ont. R.), to be actg. Capt. while empld. as Capt (A.), Nov. 15th, 1918.

Capt. R. C. Talbot reverts to Lt. (K.B.) at his own request, Sept. 30th, 1918 (substituted for notification in the "Gazette," Oct. 15th, 1918.

Lts. to be Lts. (A.) from (O.):—H. J. Loughlin, Jan. 17th; V. Westerley, M.M., A. E. Gates, Jan. 20th.

Lt. J. G. Sharp, M.C., to be Lt. (A.), from (K.B.), Jan. 17th.

Lt. V. G. Southern, M.C., to be Lt. (A.), from (Ad.), Jan. 27th.

Lt. J. M. A. Ewer to be Lt. (O.), from (Ad.), Sept. 1st, 1918.

Sec. Lt. F. W. F. Turner (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Observer Officer), May 14th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. W. S. Eason, July 13th, 1918; Sec. Lt. (Hon. Lt.) L. E. Willmott (Lt., C. Ont. R.), Dec. 10th, 1918; Lt. (actg. Capt.) R. D. Baker (Capt., Manitoba R.), Dec. 12th, 1918, Lt. W. L. Harrison (Lt., N.Z. Exp. F.), Dec. 30th, 1918; Sec. Lt. (Hon. Capt.) J. H. Don (Capt. N.Z. Den. C.), Jan. 7th. Sec. Lt. R. B. Ronald, Jan. 8th; Sec. Lt. (Hon. Lt.) L. B. Brown (Lt., Can. For. C.); Sec. Lt. J. W. Coles (Lt., N. Brun. R.); Sec. Lt. (Hon. Lt.) W. G. Humphries, M.C. (Lt., Can. F.A.); Sec. Lt. (Hon. Lt.) F. Vaillant (Lt., Can. For. C.), Jan. 13th, Sec. Lt. (Hon. Lt.) E. D. Burke (Lt., Manitoba R.), Jan. 14th; Lt. (Hon. Capt.) G. H. S. Campbell (Capt., Cen. Ont. R.); Sec. Lt. (Hon. Capt.) W. A. Carrothers (Capt., Manitoba R.), Jan. 17th; Lt. G. E. Langford (Lt., Cen. Ont. R.); Lt. (Hon. Capt.) J. E. Mackay, Jan. 20th; Sec. Lt. (Hon. Lt.) C. le G. Amy (Lt., Sasb. R.); Lt. (Hon. Capt.) R. G. McMullen (Capt. W. Ont. R.), Jan. 21st; Sec. Lt. (Hon. Capt.) O. T. Moran (Capt., Can. A.S.C.), Jan. 25th.

The following are transferred to unempld. list:—Sec. Lt. J. Pryce-Jones, Lt. T. L. Quinn, Jan. 10th; Lt. G. W. Dowding, Jan. 11th; Sec. Lt. A. S. Bradburn, Lt. M. D. Carver, Jan. 14th; Lt. J. J. Hargan, Lt. G. K. McArthur, Lt. D. C. Telford, Jan. 15th; Sec. Lt. C. Chambers, Capt. D. Knowles, D.S.C., Lt. S. R. Painter, Sec. Lt. T. H. Storer, Sec. Lt. A. A. Verity, Jan. 16th; Lt. W. A. Carveth, Sec. Lt. R. Gillin, Sec. Lt. W. J. Mitchell, Lt. C. D. Thompson (H.A.C., T.F.), Lt. H. V. L. Tubbs, Jan. 17th; Capt. D. E. Harkness, D.S.C., Sec. Lt. P. G. Rodier, Lt. R. P. Sewell, Jan. 18th; Sec. Lt. F. W. Mulley, Capt. F. F. Stanley-Smith, Sec. Lt. (Hon. Lt.) J. E. Wight, Lt. H. C. Welbourn, Capt. (actg. Maj.) C. F. Yeomans, Jan. 19th. Sec. Lt. (Hon. Lt.) B. G. Nicholls (R.F.A.), Jan. 20th; Sec. Lt. (Hon. Lt.) G. A. Burns (Man. R., T.F.), Sec. Lt. A. G. Longson, Capt. W. B. Walton, Lt. H. Weightman, Jan. 21st; Lt. A. W. Hogg (Lt., Scott. H. Yeo., T.F.), Sec. Lt. J. S. Pickles, Sec. Lt. G. H. Power (temp. Lt., R. War. R.), Sec. Lt. R. V. Watson, Lt. (Hon. Capt.) W. A. Wolfendale (R. Lanc. R., T.F.), Jan. 22nd; Sec. Lt. D. Benzies, Lt. G. Y. Cottam, Lt. W. H. J. Dodge, Lt. (actg. Capt.) D. Grinnell-Milne, Capt. H. Lawson, M.B.E., Lt. F. D. Lloyd, Sec. Lt. G. Tiplady, Jan. 23rd; Lt. T. S. Blair (R.F.A., Spec. R.), Lt. N. K. Brooks (R.F.A., Spec. R.), Sec. Lt. E. C. Crossley, Sec. Lt. E. W. Highton, Lt. J. P. Hitchings, Capt. F. H. Holdsworth, Lt. H. H. E. Holt, Sec. Lt. H. S. Hopkins, Sec. Lt. J. J. Kann, Sec. Lt. T. T. Laker, Lt. C. F. J. Lisle, Sec. Lt. H. Ogden, Sec. Lt. H. G. Packford, Jan. 24th; Lt. (actg. Capt.) R. G. Hammersley, Sec. Lt. E. B. Hyde, Sec. Lt. H. E. Linsley, Jan. 25th; Lt. (actg. Capt.) P. T. Carden, Sec. Lt. J. A. L. Harris, Capt. G. S. Harrower, Sec. Lt. C. E. Jones, Lt. R. S. Lardner, Sec. Lt. C. W. Pape, Jan. 26th; Sec. Lt. F. T. Hewitt, Sec. Lt. S. H. F. Jones, Capt. G. W. Parker, Sec. Lt. E. J. Parker, Jan. 27th; Sec. Lt. L. N. Higgins, Sec. Lt. C. B. Kempson, Lt. H. T. W. Oswell, Jan. 28th; Sec. Lt. (Hon. Lt.) W. A. M. Austin, Sec. Lt. C. E. Metcalf, Sec. Lt. C. Nickle, Jan. 29th; Lt. J. Brooker, Jan. 31st; Lt. R. W. Peel, Feb. 6th.

Lt. R. G. Hamilton relinquishes his commn. on account of ill-health and is permitted to retain his rank, Jan. 11th (substituted for notification in "Gazette," Jan. 10th).

The following Lts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank:—A. G. Bowes, R. M. Chiswell, Feb. 8th

The following relinquish their commns. on account of ill-health:—Maj. A. L. Leycester-Penrhyn (Maj., E. Surr. R.), Lt. (actg. Capt.) L. J. Mann, M.C. (Lt., A.S.C.), Lt. C. Parkinson, Feb. 8th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—S. C. Ridges, W. S. Winter (contracted on active service), Feb. 8th; Sec. Lt. (Hon. Lt.) C. E. F. Searle (W. Kent Yeo., T.F.), relinquishes his comn. on account of ill-health contracted on active service, Feb. 8th.

The following officers are antedated in their appts. as Sec. Lts. (A.), with effect from dates stated:—T. E. McMann, April 26th, 1918; W. P. Taltavall, Sept. 7th, 1918; A. B. Smith, Oct. 10th, 1918.

The date of appt. of Sec. Lt. R. W. Kerr as Sec. Lt. (A. and S.) is July 8th, 1918, and not as stated in "Gazette," Oct. 8th, 1918.

The initials of Lt. H. G. W. Parkinson are now as described and not as stated in "Gazette," Jan. 28th.

The notification in "Gazette," Sept. 27th, 1918, concerning Flight Cadet B. Riley is cancelled.

ADMINISTRATIVE BRANCH.—Majs. to be Majs.:—(Hon. Lt.-Col.) Hon. V. A. F. V. Russell, from (S.O.), Dec. 1st, 1918, and to be Hon. Lt.-Col.: E. E. Clarke, from (A.), Jan. 27th.

Capt. A. E. Hartley to be Capt., from (S.O.), June 10th, 1918

Lts. to be actg. Capts. while empld. as Capts.:—E. S. B. Tavener, Sept. 1st, 1918; J. B. Love, Jan. 1st.

Lts. (A.) to be Lts.:—E. T. Mitchell, June 17th, 1918; N. Nuttall, Aug. 26th, 1918; K. V. Stratton, Sept. 5th, 1918; C. F. Eckel, Sept. 26th, 1918; L. C. Messiter, Sept. 30th, 1918 (substituted for notification in "Gazette," Jan 31st. E. W. Lindeberg, Nov. 20th, 1918; B. W. Knuckley, Nov. 22nd, 1918; L. N. W. Woods, Nov. 27th, 1918; H. J. Goulding, Nov. 28th, 1918; G. Wallas, Dec. 9th, 1918; H. Horrocks, S. A. Young, Dec. 13th, 1918; F. A. Watson, Jan. 28th.

Lts. (K.B.) to be Lts.:—T. H. Holmes, Aug. 26th, 1918; R. H. Loosemore, Nov. 20th, 1918.

Lts. (O.) to be Lts.:—F. A. Whitfield, April 1st, 1918; W. H. Dixon, Sept. 16th, 1918; R. A. Carter, Sept. 19th, 1918; A. W. James, Dec. 17th, 1918; J. L. Rowe, Dec. 19th, 1918; W. C. McMurray, Jan. 7th

Sec. Lt. S. S. Vanderhook to be actg. Lt. while empld. as Lt., Sept. 13th, 1918.

Sec. Lts. to be Sec. Lts., from (A.):—E. H. W. Darley, July 27th, 1918; R. H. Mullins, Sept. 8th, 1918; G. W. Habell, Sept. 11th, 1918; G. Hall, Nov. 15th, 1918; J. Howard, Nov. 21st, 1918; G. Rogers, Jan. 15th.

Sec. Lt. G. H. Weir to be Sec. Lt., from (A. and S.), Oct. 4th, 1918.

Sec. Lt. E. A. Lape is cashiered by sentence General Court-martial, Jan. 18th.

Lt. Sir H. W. A. Ripley, Bt. (Lt., Dgns. R. of O.), relinquishes his commn. on ceasing to be empld., Jan. 27t

The following are transferred to unempld. list:—Capt. J. A. Carr, D.S.C., Jan. 8th; Lt. A. G. Baker, Jan. 12th; Capt. N. Barker, Jan. 18th; Capt. P. J. Home-Rigg, Capt. G. Johnson, Jan. 21st; Lt. R. G. Bishop (Lond. R.), Sec. Lt. (Hon. Capt.) R. Jagger (Capt., W. Rid. R.), Lt. H. Lupton, Jan. 23rd; Sec. Lt. H. Hollingsworth, Lt. A. G. Lewis, Sec. Lt. M. A. Naish, Jan. 24th; Sec. Lt. L. O. Duncan, Sec. Lt. C. Measures, Jan. 25th; Sec. Lt. W. Clark, Sec. Lt. A. H. Hicks, Sec. Lt. F. Ingalton-Drake, Sec. Lt. A. W. H. Keen, Sec. Lt. N. H. Penny, Sec. Lt. E. S. Ripley, Jan. 26th; Sec. Lt. J. R. Hulme, Sec. Lt. A. A. Loveridge, Jan. 27th.

The following Sec. Lts. relinquish their commns. on account of ill health, and are permitted to retain their rank:—R. J. Broad (contracted on active service), J. K. Douglas, Feb. 8th, 1918.

The notification in "Gazette," Dec. 31st, 1918, concerning Lt. F. A. Barratt is cancelled

TECHNICAL BRANCH.—Capts. to be Capts., Grade (A.):—G. C. E. Rualt from Ad.), April 1st, 1918; V. E. Schweitzer (from A.), Sept. 9th, 1918; G. A. Richardson (from O.), Jan. 17th; S. C. W. Smith (from A.), Jan. 28th.

Capt. M. B. Walker to be Capt., Grade (B.), from (A.), April 1st, 1918.

Lt. (actg. Capt.) L. C. Bygrave retains actg. rank of Capt. while empld. as Capt., Grade (A.), from (S.O.), Jan. 23rd.

Lt. A. H. Peake-Jones to be actg. Capt. while empld. as Capt., Grade A.), Jan. 1st.

Sec. Lt. (actg. Lt.) L. B. Clarkson retains actg. rank of Lt. while empld. as Lt., Grade (A.), from (Ad.), Oct. 2nd, 1918.

Lt. C. V. Halford-Thompson to be Lt., Grade (A.), from (A.), July 25th, 1918.

Lts. (O.) to be Lts., Grade (A.) (substituted for notification in "Gazette," Jan. 21st:—W. C. Cambray, M.C., R. M. D. Fairweather (Hon. Capt.) J. R. Fasson, B. E. Gilbert, G. P. U. Hardy, F. W. Helsby, F. J. Kydd, R. M. Penman, P. R. Smith, R. A. Webster, T. Weir, A. S. White, July 11th, 1918.

Lt. N. Haig to be Lt. (Grade A.), from (A.), July 11th, 1918 (substituted for notification in "Gazette," Jan. 21st).

Sec. Lt. (actg. Lt.) H. Weakley retains the actg. rank of Lt. while empld. as Lt. (Grade A.), from (Grade B), Dec. 30th, 1918

The following are transferred to the unemployed list:—Sec. Lt. (actg. Lt.) G. J. Allday, Sec. Lt. (Hon. Lt.) (actg. Lt.) E. Ambler, Jan. 15th; Sec. Lt. B. J. Beach, Jan. 16th; Lt. (actg. Capt.) W. R. Carrick, Sec. Lt. A. J. Cook, Capt. H. Hartridge, Sec. Lt. (Hon. Lt.) C. A. Hurst, Jan. 18th; Sec. Lt. S. Mercer, Jan. 20th; Capt. J. K. Hoyle, Jan. 21st; Sec. Lt. (Hon. Lt.) H. F. Blake, Lt. W. G. Hunnisett, Lt. H. H. Leage, Jan. 22nd; Sec. Lt. (actg. Lt.) C. Hammersley, Jan. 23rd; Sec. Lt. H. Cutler, Sec. Lt. H. C. Hook, Lt. R. G. Hutchinson, Sec. Lt. E. E. Johnson, Sec. Lt. (Hon. Lt.) J. J. Lovesay, Lt. J. H. Narboth, Lt. C. E. Oxendale, Jan. 24th; Capt. F. H. Illingworth,

Sec. Lt. V. G. Jeffreys, Sec. Lt. (actg. Lt.) H. W. Mason, Jan. 26th; Sec. Lt. E. R. Howell, Capt. F. Mayne, Jan. 28th.

Capt. J. T. Chitty relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., Feb. 8th.

Sec. Lt. (Hon. Lt.) L. H. White relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., Feb. 8th.

Medical Branch.—Lt.-Col. J. L. Birley to be graded for pay as Lt.-Col. (Grade A.), Oct. 1st, 1918.

Maj. A. V. J. Richardson to be actg. Lt.-Col. while empld. as Lt.-Col., Jan. 10th.

Majs. to be graded for pay as Majs. (Grade A.):—R. R. Fasson, E. M. W. Hearn, A. H. Hogarth, A. W. Iredell, A. V. J. Richardson, Oct. 1st, 1918.

Capts. (actg. Majs.) to be graded for pay as Majs. (Grade A.):—A. P. Bowdler, H. A. Treadgold, Oct. 1st, 1918.

Capts. to be graded for pay as Capts. (Grade A.):—H. C. Bazett, M.C., K. Biggs, D. Cameron, W. Darling, M.C., C. C. Fitzgerald, M.C., O Gleeson, E. N. H. Gray, J. P. I. Harty, J. C. Hall, H. R. B. Hull, J Lawson, J H. Owen, D'Arcy Power, M.C., A. E. Panter, E. P. Punch, F. J. P Saunders, A. R. Sharrod, J. L. Waddell, Oct. 1st, 1918.

The following are granted temp. commns as Lts.:—T. E. Roberts, Jan. 27th; R. D. Jones, Feb. 6th.

Medical (Administrative).—L. W. Jones is granted a temp. commn. as Sec. Lt., and to be actg. Capt. while specially empld., Oct, 18th, 1918.

Chaplains Branch.—Rev. H. D. L. Veiner, M.A. (Chaplain, R.N.), is granted a permanent commn. as Chaplain, and to be Chaplain-in-Chief with the relative rank of Brig.-Gen., Oct 11th, 1918 (substituted for notification in "Gazette," Jan. 7th).

Memoranda.—Sec. Lt. (actg. Maj.) C. A. E. Lloyd to be Hon. Capt.

Capt. (actg. Maj.) C. F. Gordon, O.B.E., M.C., relinquishes his staff appt. and actg. rank of Maj., Oct. 11th, 1918.

Sec Lt. S. G. Bates to take rank and precedence as if his appt. as Sec. Lt. bore date Dec. 2nd, 1918.

Sec. Lt. R. W. Tucker to take rank and precedence as if his appt. as Sec. Lt. bore date Dec. 9th, 1918.

The following are transferred to unempld. list:—Maj. (Hon. Col.) Sir W R. Lawrence, G.C.I.E., G.C.V.O., C.B., Jan. 1st; Lt. (actg. Capt.) H. Chalkley (from S.O.), Jan. 18th.

Air Ministry, February 8th.

His Majesty the King has been graciously pleased to confer the undermentioned rewards on officers and other ranks of the Royal Air Force in recognition of gallantry in flying operations against thte enemy:—

Awarded a Bar to the Distinguished Service Order.

Lt.-Col. Peregrine Forbes Morant Fellowes, D.S.O. (Sea Patrol, Flanders.) On May 28th, 1918, Lt.-Col Fellowes, Commanding 61st Wing, undertook the task of attacking the lock gate at Zeebrugge, the damaging of which was at that time of great importance. He flew a D.H4, and by very skilful airmanship he succeeded in dropping a 230-lb. bomb from a height of only 200 ft. right on the lock gate in question. It has since been ascertained that the effect was considerable, and involved much dislocation of the enemy's plans for many days. (D.S.O. gazetted Jan. 1st, 1918.)

Awarded the Distinguished Service Order.

Capt. (actg. Maj.) Charles John Wharton Darwin. (France.) This officer has proved himself an exceptionally skilful and gallant patrol leader, conspicuous for utter fearlessness and disregard of danger. On a recent occasion, in company with one other machine, he attacked a formation of 14 Fokker biplanes, one of which was shot down and crashed. He has accounted for three hostile aircraft.

Sec. Lt. (actg. Capt.) Harry King Goode, D.F.C. (Italy.) During the recent operations this officer has displayed magnificent courage and determination in attacking enemy aerodromes, kite balloons and retreating columns, inflicting very heavy loss. On Oct 29th he led two other machines in a bombing raid against an enemy aerodrome; he completely destroyed with a bomb one hostile machine on the ground, and, attacking the hangars and workshops with machine-gun fire, he caused many casualties amongst the mechanics. Later on in the same day he returned alone to attack the same aerodrome, and found the enemy about to evacuate it. Flying at a very low altitude—at times his wheels almost touched the ground—he destroyed one machine with a bomb and set fire to another with machine-gun fire. The enemy personnel were driven back into the village by the vigour of his attack. Capt Goode's utter disregard of personal danger inspired all who served with him. (D.F.C. gazetted Dec. 3rd, 1918.)

Capt. (actg. Maj.) Tom Falcon Hazell, M.C., D.F.C. (France.) A brilliant fighter, distinguished for his bold determination and rare courage, he has accounted for 29 enemy machines, 20 being destroyed and 9 driven down out of control; he has also destroyed 10 balloons. On Sept. 4th he rendered exceptionally valuable service in leading his flight to attack hostile balloons that were making a certain road impassable Within an hour three of these balloons were destroyed, Maj. Hazell accounting for two. (M.C. gazetted July 26th, 1917; D.F.C. gazetted Nov. 2nd, 1918; Bar to D.F.C. same date.)

Lt. Robert Baillie Lovemore. (France.) On Oct 28th, this officer, attacked by two Fokkers, was driven down and compelled to land on marshy ground the enemy side of a river. Having extricated himself from his machine, he saw another of our machines land a short distance away, the pilot being thrown out; proceeding to the spot, Lt. Lovemore found the pilot insensible, his head and shoulders under water, and the fuselage over his legs. Releasing him from the fuselage, he dragged him out of the water, and in a few minutes the pilot recovered his senses. Lt. Lovemore then proceeded towards the river, and seeing a corporal of ours on the other side he directed him to go and get help, he himself returning to the pilot, whom he carried to the river bank. On arriving there he saw an infantry officer on the opposite bank, who swam across to join him, and between them they carried the pilot down to the river and swam across, holding him up. The enemy by this time had brought up machine guns, so that they were under fire when swimming across; they, however, got across in safety, and, a stretcher party arriving, the pilot was carried back to our lines. The cool courage and disregard of danger displayed by Lt. Lovevmore is deserving of very high praise.

Maj. Wilfred Ashton McCloughry, M.C., D.F.C. (Australian F.C.). (France.) The record of this officer's squadron, when equipped with Sopwith Camels, was unique, not only in the number of aircraft destroyed with almost insignificant loss to ourselves, but also in the persistence with which they carried out innumerable raids at the lowest altitude. The high morale and individual enterprise of the members of this squadron must be largely attributed to the personality and influence of their leader, Maj. McCloughry. When the squadron was rearmed with Sopwith Snipes the change in type necessitated a complete reversal of their aerial experience. By his careful and untiring leadership he succeeded in so training his squadron that in a series of raids on three successive days they accounted for upwards of 30 hostile aeroplanes. (M.C. gazetted July 18th, 1917; D.F.C. gazetted Nov. 2nd, 1918.)

Lt. (actg. Capt.) Donald Roderick MacLaren, M.C., D.F.C. (France.) Bold in attack and skilful in manœuvre, Capt MacLaren is conspicuous for his success in aerial combats. On Sept. 24th he and his patrol of three machines attacked a formation of six enemy scouts, although the latter were protected by 16 other enemy aircraft at a higher altitude. Firing a burst at point-blank range, this officer shot down one in flames. In all he has accounted for 48 enemy machines and six kite balloons. (M.C. gazetted June 22nd, 1918; Bar to M.C. Sept. 16th, 1918; D.F.C. gazetted Sept. 21st, 1918.)

Maj. Michael Henry Braddon Nethersole. (France.) A squadron commander of exceptional merit, who, by his enthusiasm and fine example, has revolutionised the tactics of his squadron. Formerly accustomed to bombing from a high altitude, the members have descended to low altitudes, thus ensuring greater accuracy of aim. On Oct. 30th he led his squadron on a low bombing raid against an aerodrome. The raid was most successful, he himself destroying two hangars. On the return journey he kept his machines so well together that, though they were attacked by large numbers of hostile scouts, they succeeded in destroying five of them with no loss on our side. The engagement continued during the whole of the return journey, but the squadron succeeded in causing considerable damage to hostile troops on the ground in addition to the casualties in the air as noted above.

Lt.-Col. Louis Arbon Strange, M.C., D.F.C. (France.) For his exceptional services in organising his wing and his brilliant leadership on low-bombing raids this officer was awarded the Distinguished Flying Cross not long ago. Since then, by his fine example and inspiring personal influence, he has raised his wing to still higher efficiency and morale, the enthusiasm displayed by the various squadrons for low-flying raid being most marked. On Oct. 30th he accompanied one of these raids against an aerodrome; watching the work of his machines, he waited until they had finished and then dropped his bombs from 100 ft. altitude on hangars that were undamaged; he then attacked troops and transport in the vicinity of the aerodrome. While thus engaged he saw eight Fokkers flying above him; at once he climbed and attacked them single-handed; having driven one down out of control he was fiercely engaged by the other seven, but he maintained the combat until rescued by a patrol of our scouts. (M.C. gazetted March 27th, 1915; D.F.C. gazetted Nov. 2nd, 1918.)

Awarded a Second Bar to the Distinguished Flying Cross.

Capt. Ross Macpherson Smith, D.F.C. (Aust. L.H. and Aust. F.C.). (Egypt.) On Oct. 19th this officer, with Lt A. V. McCann as observer, engaged and drove down an enemy two-seater. As it appeared to land intact, he descended to a low altitude and, with machine-gun fire, forced the occupants to abandon the machine; he then landed alongside it, and while his observer covered the enemy officers he set light to their machine and completely destroyed it. To have effected a landing in an unknown country, many miles in rear of the enemy's advanced troops, demanded courage and skill of a very high order. (M.C. gazetted May 11th, 1917; Bar to M.C., March 26th, 1918. The awards of the D.F.C and first Bar thereto are announced farther on in this "Gazette.")

Awarded a Bar to the Distinguished Flying Cross.

Lt. (actg. Capt.) Frederick Warrington Gillett, D.F.C. (France.) A pilot of great dash and skill who, since Aug. 3rd, has destroyed 12 hostile aircraft. On Sept. 29th, when on low-line patrol, he attacked three Fokkers, driving down one, which fell in flames. (D.F.C. gazetted Nov. 2nd, 1918.)

Lt. (actg. Capt.) Sidney William Highwood, D.F.C. (France.) A courageous officer who has proved himself a skilful and bold fighter. Since Oct. 2nd he has destroyed three enemy machines and four kite balloons, and has in addition rendered valuable service in attacking enemy troops on the ground. (D.F.C gazetted Dec. 3rd, 1918.)

Sec. Lt. William Stanley Jenkins, D.F.C. (France.) An exceptionally skilful pilot, conspicuous for his courage and disregard of danger. Since Oct. 5th he has accounted for four enemy aeroplanes crashed and one driven down out of control. On Nov. 10th he crashed an enemy two-seater, and later on destroyed a Fokker, in addition to attacking enemy troops and transport with marked success. (D.F.C. gazetted Nov. 2nd, 1918.)

Maj. Allan Murray Jones, M.C., D.F.C. (Aust. F.C.). (France.) By his keenness and enthusiasm Maj. Jones has inspired his squadron with a fine spirit of emulation and raised it to a high standard of efficiency On Nov. 10th he led his whole squadron on a low-bombing raid against an enemy railway station. Descending to 100 ft., he remained at this low altitude till all his machines had completed the attack, though subjected to very heavy fire from machine-guns. Owing to the steady deliberation of the attack, very serious damage was inflicted on the trains and rolling stock. (M.C. gazetted April 26th, 1917; D.F.C. gazetted June 3rd, 1918.)

Lt. (actg. Capt.) Camille Henri Raoul Lagesse, D.F.C. (France.) A scout leader of marked ability and daring who, since Aug. 28th, has destroyed 13 enemy aeroplanes, displaying at all times brilliant leadership and courage. On Oct. 2nd, when leading a patrol of four machines, he dived on eight Fokkers; four of these were destroyed, Capt. Lagesse accounting for one. (D.F.C. gazetted Nov. 2nd, 1918.)

Lt. (actg. Capt.) Walter Hunt Longton, D.F.C., A.F.C. (France.) Between Sept. 29th and Oct. 9th this officer carried out 12 tactical reconnaissances, bringing back most valuable information; he also displayed great gallantry in attacking enemy troops on the ground. On Oct. 9th, when on a low patrol, he observed a machine-gun nest which appeared to be the sole obstacle to our cavalry advance. Having informed the cavalry and field artillery of the situation, he co-operated with the former in their attack, and, after the enemy had been driven out, pursued them with machine-gun fire as they retreated. (D.F.C. gazetted Nov. 2nd, 1918; A.F.C. gazetted June 3rd, 1918.)

Lt. (actg. Capt.) Oren John Rose, D.F.C. (France.) A brilliant and fearless leader who, since Oct. 9th, has destroyed seven enemy aeroplanes. His personal example of skill and determination in aerial combats and in attacking troops and transport on the ground is of the greatest value in maintaining the high standard of efficiency in his squadron. (D.F.C. gazetted Dec. 3rd, 1918.)

Lt. (actg. Capt.) Penjamin Roxburgh-Smith, D.F.C. (France.) A leader of outstanding merit whose influence has had a great effect on maintaining the morale of his squadron. He has engaged in many combats with hostile aeroplanes, displaying marked skill and courage. Since May last he has accounted for 12 hostile machines. (D.F.C. gazetted Nov. 2nd, 1918.)

Lt. (actg. Capt.) William Ernest Shields, D.F.C. (France.) Bold in attack and skilful in manœuvre, this officer is conspicuous for his success and daring in aerial combats. On Sept 22nd, when on offensive patrol, he was attacked by 14 Fokkers; he succeeded in shooting down one. On another occasion he was attacked by six scouts and destroyed one of these. In all, since June 28th, this officer has accounted for 14 enemy aircraft. (D.F.C. gazetted Nov. 2nd, 1918.)

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Capt. Ross Macpherson Smith, M.C., D.F.C. (Aust. L.H. and Aust. F.C.) (Egypt.) During the operations prior to October, 1918, he took part in numerous engagements involving flights of 150 to 200 miles, and succeeded in doing extensive damage to the enemy's hangars, railways, etc. Capt. Smith displayed most consistent gallantry with marked ability in all his work, whether bombing by night or day or in personal encounters in the air. Whilst operating with the Sheriffian forces he destroyed one enemy machine and brought down two others out of control in the desert. (M.C. gazetted May 11th, 1917; Bar to M.C., May 26th, 1918. The awards of the D.F.C., and second Bar thereto, are also contained in this "Gazette.")

Lt. (actg. Capt.) Walter Alfred Southey, D.F.C. (France.) An officer of ready resource whose skilful leadership is of the greatest value to his squadron. Since Aug. 23rd Capt. Southey has destroyed five enemy kite balloons and three machines, while he has also driven down two aircraft completely out of control. (D.F.C. gazetted Nov. 2nd, 1918.)

Capt. Alfred Harold Whistler, D.S.O., D.F.C. (France.) This officer has 22 enemy machines and one balloon to his credit. He distinguished himself greatly on Sept. 29th, when he destroyed two machines in one combat, and on Sept. 15th, when, following two balloons to within 20 ft. of the ground, he destroyed one and caused the observer of the second to jump out and crash. He has, in addition, done arduous and valuable service in bombing enemy objectives and obtaining information. Capt. Whistler is a gallant officer of fine judgment and power of leadership. (D.S.O. gazetted Nov. 2nd, 1918; D.F.C. gazetted Aug. 3rd, 1918.)

Awarded the Distinguished Flying Cross.

Lt. David Brunton Aitken. (Egypt.) This officer has done very gallant and useful work as patrol leader, and has set a fine example to his squadron. On one occasion, when on patrol over an enemy aerodrome, he descended to within 50 ft of the ground, in face of incessant hostile fire, to attack a two-seater, which he rendered completely useless.

Sec. Lt. (actg. Lt.) Gerald Frank Anderson. (France.) On Oct. 30th this officer was one of an offensive patrol that attacked 50 enemy machines. Six of the latter concentrated their attack on Lt. Anderson, and would have inevitably destroyed his machine had it not been for the exceptionally able manner in which he manœuvred and fought. Although both he and his observer were wounded and the machine badly damaged, he succeeded with rare courage and skill in shooting down one and keeping the remainder at a distance. Eventually he brought his machine safely to ground about half a mile within our lines.

Lt. (actg. Capt.) George Buchanan Bailey. (France.) On Sept. 28th this officer and his observer were detailed to watch the progress of one of our divisions towards a canal. Flying very low, he discovered that the enemy were retiring to the east of the canal. He at once dropped a message informing the infantry of this, and they pushed rapidly forward, securing the crossings. This would certainly have been prevented by the enemy had it not been for Capt. Bailey's promptitude in accelerating our advance.

Lt. Thomas Charles Richmond Baker, M.M. (Aust. F.C.). (France.) This officer has carried out some 40 low-flying raids on hostile troops, aerodromes, etc., and has taken part in numerous offensive patrols; he has, in addition, destroyed eight hostile machines. In all these operations he has shown exceptional initiative and dash, never hesitating to lead his formation against overwhelming odds, nor shrinking from incurring personal danger. (M.M. gazetted Feb. 19th, 1917.)

Sec. Lt. Gordon Arthur Ballantyne. (France.)

Sec. Lt. William Cubitt Treen, D.C.M. (France.) These officers displayed conspicuous courage and cool presence of mind on Oct. 9th, when they were attacked by seven Fokker biplanes. At the outset the pilot (Sec. Lt. Ballantyne) received a bullet in his arm, and Sec. Lt. Treen, his observer, was wounded in the head and had one knuckle of his right hand shot off; at the same time the woodwork between these two officers caught fire. Lt. Treen, having beaten out the fire with his hands, engaged the enemy machines, and, aided by the consummate skill with which Lt. Ballantyne—wounded though he was—manœuvred the machine, succeeded in shooting down one in flames. (Sec. Lt. Treen's D.C.M. gazetted March 11th, 1916.)

Lt. (actg. Capt.) Charles Chaplin Banks, M.C. (France.) A brilliant and skilful airman who has been conspicuous for his success in aerial combats. On Oct. 30th he, single-handed, engaged five enemy aeroplanes and drove one down out of control. In the fight his aileron controls were shot away, but by skilful handling and with cool presence of mind he brought his machine back and made a successful landing. In addition to the above, Capt. Banks has accounted for nine other enemy machines. (M.C. gazetted Feb. 11th, 1918.)

Lt. Robert Lyle McKendrick Barbour. (France.) This officer has carried out 29 bombing raids and 47 photographic reconnaissances, displaying at all times marked courage and clear judgment. On Oct. 9th, when on reconnaissance, he was attacked by 10 Fokkers and forced to retire; on the disappearance of the Fokkers he again crossed the line; he was then attacked by three Fokkers but these he drove off, shooting down one, which was seen to crash.

Sec. Lt. William Thomas Barnes. (France.) A skilful and gallant observer. On Oct. 1st, during an important reconnaissance, this officer's machine was attacked by six or seven Fokkers; after scattering them he saw an enemy aeroplane attacking one of our machines; he at once engaged it, shooting it down in flames. Shortly afterwards he shot down another enemy machine out of control.

Sec. Lt. Oscar Berridge. (France.)

Sec. Lt. William Spriggs. (France.) On Oct. 17th these officers carried out a contact patrol reconnaissance of the enemy lines in the face of most trying weather conditions. Flying for three-quarters of an hour in pouring rain they located enemy troops, and dispersed them with bombs and machine-gun fire. They also engaged and shot down in flames an enemy two-seater. The courage and endurance displayed by these officers on this occasion deserve very high praise.

Lt. Roger Derrick Campbell Blake. (France.) This officer has displayed conspicuous bravery on many occasions, notably on Nov. 11th, when our cavalry, having temporarily lost touch with the enemy owing to their retirement, Lt. Blake flew at under 50 ft. height some 20 or 30 miles east of our advanced posts. Arriving over an enemy aerodrome he saw a number of mechanics engaged in salving a machine; he attacked them, flying only a few feet from the ground, and in face of intense machine-gun fire, succeeded in dispersing them, inflicting heavy casualties.

Sec. Lt. John Stephen Blanford. (France.) On Oct. 5th, when returning from a raid, the machine in which this officer was observer had all the controls shot away, except those of the rudder, and started to fall out of control. With great presence of mind he jambed his heels against the Scarffe mounting and leant over the side, so bringing the machine back into a straight glide. He remained in this position from 12,000 ft. until the machine crashed into some shell-holes. It was entirely due to the prompt action of Sec. Lt. Blanford that the pilot was enabled to land the machine without injury.

Lt. Clarence Stewart Bolsby. (France.) This officer has rendered most valuable service on numerous contact patrols. Handicapped on many occasions by difficult visibility and smoke, and subjected to severe hostile fire, he has invariably displayed marked determination and devotion to duty, locating our own and enemy troops and furnishing most reliable reports which were of the greatest assistance in our operations.

Sec. Lt. Clement Graham Boothroyd. (France.) An officer of high courage. On Oct. 23rd, after attacking with bombs a railway station, the formation with which this officer was flying was engaged with about 15 enemy scouts; of these, he destroyed one and his pilot accounted for a second. In all he has to his credit eight enemy aircraft and one kite balloon.

Lt. George Spencer Bourner. (France.) An officer of courage and resource who has rendered most valuable service on contact patrols. On Sept. 28th he dived on a party of hostile infantry in a trench. As they waved white handkerchiefs he did not attack them, but, flying at 50 ft., he directed a party of our infantry towards them.

Lt. Parcell Rees Bowen, M.C. (Egypt.)

Sec. Lt. Robert Fawcett. (Egypt.) These officers have displayed marked courage and determination on many occasions. On Sept. 22nd they carried out an excellent reconnaissance under difficult conditions, the clouds being very low over the hills, bringing back most valuable information. (Lt. Bowen's M.C. gazetted Aug. 16th, 1917.)

Lt. (actg. Capt.) John Denis Breakey. (France.) This officer has flown about 500 hours on active service. He has carried out 170 special missions, and has bombed and attacked enemy troops, transport, etc., from low altitudes with great success, causing serious damage. Capt. Breakey has shown marked ability and skill as a flight leader, and by his fine spirit of determination and disregard of personal danger sets a fine example to other pilots.

Lt. Walter Gerrard Brind. (France.) Since March, 1918, this officer has carried out 70 night-bombing raids and 14 night reconnaissances, displaying at all times marked perseverance and courage in carrying out orders, often in most adverse weather conditions. On Nov. 10th he carried out a most successful raid on a railway station, descending to 1,200 ft., despite heavy hostile fire, and obtained 10 direct hits.

Lt. Frederick John Shaw Britnell. (France.) This officer has flown about 500 hours on active service, and on all occasions, when engaged with the enemy, has shown great dash and marked courage. He has carried out some 162 special missions, and has engaged enemy troops, transport, etc., from very low altitudes with great success.

Lt. (actg. Capt.) Allan Runciman Brown (Aust. F.C.). (Egypt.)

Lt. Garfield Finlay (Aust. F.C.). (Egypt.) On Aug. 22nd Capt. Brown, with Lt. Finlay as his observer, attacked an enemy two-seater, forcing it to land in our lines. On four other occasions these officers have engaged and destroyed enemy aircraft, displaying marked gallantry and skill. In addition, they have rendered most valuable service in attacking enemy cavalry, anti-aircraft guns, and other ground targets, inflicting heavy loss.

Sec. Lt. John Renwick Brown. (France.)

Sec. Lt. Gerard Kannemeyer. (France.) On Oct. 14th these officers, unescorted, made a low reconnaissance of the enemy positions. They penetrated, at about 1,000 ft. altitude, some 9,000 yds. behind the enemy lines, obtaining information of considerable value. On other occasions they have made accurate contact patrol reconnaissances and taken photographs at low altitudes, displaying absolute fearlessness.

Sec. Lt. Sydney MacGillvary Brown. (France.) On Oct. 28th, when on offensive patrol, this officer, in company with three other machines, attacked nine Fokkers; three of the latter were destroyed, Sec. Lt. Brown accounting for one. In addition, he has three hostile aircraft and one balloon to his credit. He is a fearless and intrepid officer.

Lt. (Hon. Capt.) Leslie William Burbidge. (France.) On Oct. 23rd this officer displayed marked gallantry and bravery. After destroying a hostile machine his own machine collided, by mischance, with another of his formation on the return journey, and at once began to fall out of control. Capt. Burbidge, with great presence of mind and considerable personal risk, climbed out on the damaged plane, and so enabled his pilot to regain partial control, maintaining this position till the machine slowly side-slipped on to the ground. By his courageous action this officer undoubtedly saved the life of his pilot at considerable danger to his own, for, on the machine striking the ground, he was thrown from the plane and received serious injuries to his face.

Lt. (actg. Capt.) Malcolm Graham Stewart Burger. (France.) During the last battles this officer displayed marked gallantry and devotion to duty on low-flying bombing patrols, inflicting heavy casualties on numerous occasions. He has destroyed three enemy machines, and forced another to land.

Sec. Lt. (Hon. Lt.) Robert Alan Caldwell. (France.) This officer has been conspicuous for his daring attacks on ground targets. On Sept. 28th, descending to 400 ft. over a town, he found it congested with transport. Flying along the streets, he dropped bombs with excellent results, and also attacked enemy troops with machine-gun fire. Later, he materially assisted the advance of our infantry by diving on and engaging the enemy holding a bridgehead.

Lt. (actg. Capt.) Robert North Chandler. (France.) In aerial fighting this officer has destroyed three enemy aircraft and driven down two others out of control. He has also displayed marked courage in attacking enemy troops, etc., on the ground. On Oct. 28th, having attacked enemy troops with great success and silenced an anti-Tank gun, he later on silenced two enemy machine-guns and inflicted heavy casualties on infantry in shell-holes. Whilst so engaged his machine was hit in the engine and he was forced to land.

Lt. Joel Gordon Hirst Chrispin. (France.) This officer has carried out over 80 bombing raids far into enemy country and has shown most consistent determination and gallantry, notably on Nov. 4th, when, leading a formation of some 60 machines to bomb an enemy aerodrome, he encountered a large number of enemy aircraft. His progress was also seriously interfered with by many thick clouds. Undeterred by these difficulties, he never wavered, but led the whole raiding party straight to the objective, and descending to the low altitude of 1,000 ft., inflicted very serious damage on the aerodrome.

Lt. (actg. Capt.) Joseph William Greig Clark (Can. Ontario R.). (France.) On Oct. 5th this officer carried out a very successful shoot, causing a fire and an explosion, and completely destroying the position. During the shoot he was continually harassed by eight Fokker biplanes, but, exhibiting marked courage and skilful shooting, he drove down one in flames and dispersed the remainder.

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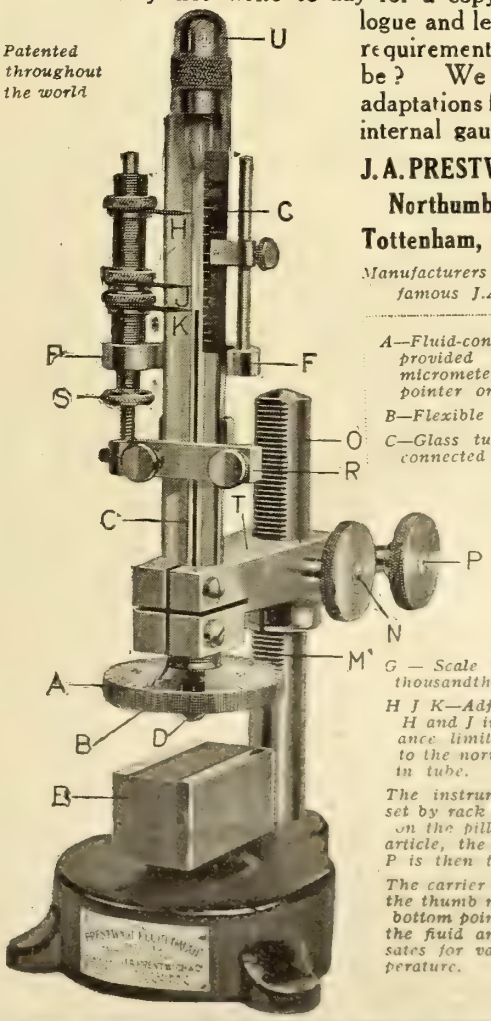
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The carrier F is adjusted by the thumb nut S to keep the bottom pointer K level with the fluid and thus compensates for variations of temperature.

Lt. (Hon. Capt.) Charles Thornton Cleaver, M.C. (France.)

Lt (actg. Capt.) Arthur Fredrick Peacey. (France.) On Oct. 11th these officers carried out a most daring and successful contact patrol. Flying at an average height of 50 ft. in the face of extremely heavy machine-gun fire, they at times descended to 20 ft to enable Capt. Cleaver to communicate with the troops. Much valuable information was obtained as to the strength and location of the enemy, proving of the greatest assistance to our troops. The machine and engine were hit by fire from the ground, but although these officers fully realised this they refused to leave the lines until the reconnaissance was completed. (Capt. Cleaver's M.C. gazetted Oct. 20th, 1916; Bar to M.C., June 18th, 1917.)

Lt. Thomas Linnæus Coates. (France.) On Oct. 28th this officer's balloon was attacked by enemy aircraft and brought down in flames. Lt. Coates descended in a parachute, but fell through the branches of a tree and was badly shaken. In spite of this, with most praiseworthy devotion to duty, he immediately re-ascended, and remained up till dark. On a previous occasion he was forced to parachute, and, despite a bad landing, at once re-ascended.

Capt. Adrian Trevor Cole, M.C. (Commonwealth Mil. Forces and Aust. F.C.). (France.) On Oct. 7th this officer carried out a most successful flying raid on enemy railway lines and stations. The success of the attack was largely owing to his cool and determined leadership, and our freedom from casualties was mainly due to the methodical manner in which he collected and reorganised the machines after the raid. He himself displayed marked initiative and courage in attacking troops and other objectives. Since May Capt. Cole has destroyed four hostile machines. (M.C. gazetted Aug. 16th, 1917.)

Lt. (actg. Capt.) John Collier. (France.) An officer of conspicuous determination and bravery. Under most unfavourable weather conditions he carried out, on Nov. 8th, a very important reconnaissance. Flying at a low altitude, he obtained a complete report which was correct in all details and of the greatest assistance to our advance. Capt. Collier is a fine leader, and has an enemy machine to his credit.

Lt. Kenneth Burns Conn (3rd Res. Bn., Can. E.F.). (France.) On Oct. 18th, when raiding enemy troops in retreat, this officer descended to 300 ft. and attacked three companies of infantry with machine-gun fire, inflicting casualties. So vigorous was his attack that the troops dispersed. Lt. Conn then attacked various other targets, displaying conspicuous skill and initiative.

Sec. Lt. (actg. Capt.) Norman Cooper (73rd Squadron). (France.) A fearless and skilful airman who has destroyed two enemy aircraft and driven down three others out of control. On Oct. 3rd certain of our troops were held up by a body of the enemy. Observing this Sec. Lt. Cooper dived and engaged them, driving them out of their trenches with machine-gun fire, and so enabled our troops to advance.

Lt. Alfred Frank Corker. (France.) This officer has carried out 80 night bombing raids, displaying conspicuous courage and disregard of danger. He has also been most successful in attacking ground targets. On the night of Oct. 14th-15th he attacked a train and obtained a direct hit, causing a fire and an explosion.

Lt. (Hon. Capt.) Hugh Aldred Courtenay. (Egypt.) On Sept. 21st this officer attacked an enemy column with bombs and machine-guns from an altitude of 500 ft. in extremely difficult country. He secured a direct hit on the head of the column, thus blocking the road and enabling our troops to capture large quantities of guns and other material. Capt. Courtenay is a keen and zealous officer of great initiative.

Lt Earl Frederick Crabb. (France.) A scout pilot of high merit; he is fearless and skilful. On Oct. 27th, having himself crashed an enemy machine, he went to the assistance of one of our own that was being attacked, and materially helped to shoot the enemy down. In addition to the foregoing, he has accounted for three other machines and has assisted in crashing a fourth.

Lt. (actg. Capt.) Eric Douglas Cummings (Aust. F.C.). (France.) This officer has proved himself an able and determined leader of offensive patrols. In carrying out these raids he has met with conspicuous success, heavy damage being inflicted on enemy material and personnel. This has been due in the main to his brilliant leadership and skilful navigation. Capt. Cummings possesses, in a marked degree, courage, combined with cool judgment.

Sec. Lt. Edgar George Davies. (France.) Bold in attack and skilful in manœuvre, this officer never hesitates to attack the enemy when opportunity occurs, without regard to disparity in numbers. On Oct. 7th, with three other machines, he attacked seven Fokkers; four of these were destroyed, Sec. Lt. Davies accounting for one. Since Sept. 16th he has to his credit four enemy machines and one kite balloon.

Lt. Gordon Davies. (France.) This officer has rendered conspicuous service during the last of the operations on counter-attack patrols, invariably showing marked initiative and determination. On several occasions he has carried out his mission successfully under adverse weather conditions when other officers have failed.

Sec. Lt. Oswald Charles Dawson. (Egypt.) This officer rendered exceptionally valuable service between Sept 19th and 26th, when acting as observer to Capt. Hanmer. The information he brought back was of the greatest value to the Desert Mounted Corps and materially assisted operations.

Lt. Robert Saunders De Bruyn. (France.) On Oct. 31st this officer carried out two photographic reconnaissances, completing seven hours and 50 minutes' flying and bringing back 70 exposed plates and much valuable information. On another occasion he obtained 24 exposures, flying for 4¾ hours. These are only two out of 37 successful photographic reconnaissances carried out by this officer, all entailing work of an arduous and trying nature on long solo flights at very high altitudes, frequently in adverse weather conditions In this service Lt. De Bruyn has shown gallantry and determination of a high order.

Lt. (actg. Capt.) Roy Edward Dodds. (France.) An officer who possesses high courage combined with great power of leadership. He has taken part in 60 bombing raids far over enemy territory, a large number of which he has led. In addition, he has carried out a number of successful photographic reconnaissances, frequently meeting and overcoming strong hostile aerial resistance. In the course of these flights he has destroyed four enemy machines and his observer has accounted for three others. A fine achievement, for the machine he flies is designed for heavy bombing and long reconnaissance rather than for aerial combats.

Capt. Eric George Edward Donaldson. (France.) This officer has led 27 bomb raids, displaying at all times conspicuous courage and perseverance. On Oct. 3rd, when on artillery reconnaissance, he saw one of our machines pressed by six enemy aircraft. Single-handed, he went to assist, and, pressing home his attack with vigour and determination, he forced the enemy to relinquish the engagement and retire over their lines.

Maj. (actg. Lt.-Col.) William Sholto Douglas, M.C. (France.) A very gallant officer and brilliant leader to whose personal influence and example is mainly due the fine record of his squadron, which, since Sept. 21st, 1917, has destroyed 201 and driven down out of control 149 enemy aircraft. On Oct. 17th, 18th, and 19th last Maj. Douglas carried out most successful reconnaissances of the army front at exceptionally low altitudes (at times descending to 20 ft. owing to dense clouds) and in face of intense hostile rifle and machine-gun fire. (M.C. gazetted Jan 14th, 1916.)

Lt. John Foster Drake. (France.) This officer has taken part in 70 successful raids and reconnaissances, and has been conspicuous for his tenacity and devotion to duty. On Nov. 1st he was one of a formation of six that was attacked by 25 enemy aeroplanes, and a running fight of 18 miles ensued. Being the rear unit of the formation, and maintaining that position throughout, the brunt of this severe attack was borne by this officer, and his endurance and skill against overwhelming odds undoubtedly saved the formation.

Lt. Frank Falconer Dutton, M.C. (Egypt.) An officer of great courage and endurance who sets an inspiriting example to his flight. On Sept. 19th he flew for 7¾ hours, carrying out an extremely valuable artillery patrol, which enabled our artillery to silence a number of enemy batteries, in addition to tactical and bombing flights (M.C. gazetted Sept. 22nd, 1916.)

Sec. Lt. Gower Wynn Elias. (France.) This officer has rendered most valuable service on contact and other patrols, the information obtained being invariably most accurate and of great value. On Oct. 9th his machine was hit by anti-aircraft fire and was rendered out of control; with rare presence of mind and courage he climbed out of the plane, thus balancing the machine and enabling his pilot to land in safety.

Lt. William Elliot. (Egypt.) On Sept. 27th this officer was detailed to drop an ultimatum on a body of hostile troops some 5,000 strong. Descending to 400 ft., although exposed to intense rifle and machine-gun fire, he remained until he actually saw the message picked up; a fine example of determination and courage. He returned with his machine badly shot about.

Capt. (actg. Maj.) Edwin Cheere Emmett, M.C. (S.A.D.F.). (Egypt.) During the late operations this officer has been distinguished for gallantry and devotion to duty. Before an attack he took a series of oblique photographs of the enemy's lines—a service that entailed considerable personal risk, as he was compelled to fly at a very low altitude in the face of heavy machine-gun fire. (M.C. gazetted Feb. 1st, 1917.)

Lt Arthur Reginald Fairbairn. (France.) During recent operations this officer's balloon was singled out for attack three times in two days. On the third day he was again attacked by six scouts when at a height of 1,500 ft. He behaved with the utmost coolness and gallantry in helping his fellow-observer, who was inexperienced, out of the basket before parachuting himself His determination in pushing his balloon forward during the recent advance has been most praiseworthy.

Lt Jules Edward Ferrand. (France.) On Oct. 26th this officer took part in an engagement with a large hostile formation. Singling out a Fokker he attacked it at close range, driving it down to crash Being isolated from his companions, he turned to regain our lines, but was at once attacked by seven Fokkers, who kept up a running fight for many miles. He maintained a stout defence against these long odds, crashing two of the enemy machines, and eventually reaching our lines with all his ammunition exhausted.

Lt (actg. Capt.) Charles Findlay. (France.) On Oct. 29th this officer led his flight with the greatest dash and determination against a hostile formation of about 50 machines. Reinforced by six more machines—making a total of 12 in all—he fought his patrol against the enemy's overwhelming numbers for upwards of half-an-hour, but the enemy being continuously reinforced he was eventually forced to withdraw. Cleverly extricating his formation he retired across the lines, our only casualties being one pilot and one observer wounded. The enemy lost heavily, five machines being shot down in flames (one by Capt. Findlay), four destroyed, and six driven down out of control.

Lt. Howard Bowden Fletcher (Aust. F.C.). Egypt.) On Aug. 24th two of our machines, Lt. Fletcher being the observer in one, engaged seven hostile aircraft; this officer and his pilot, in the combat that ensued, crashed two one of which burst into flames on hitting the ground. Lt. Fletcher has also rendered most valuable service on photographic reconnaissances and in obtaining information concerning roads, etc., displaying at all times a devotion to duty and disregard of personal danger deserving of high praise.

Lt. (actg Capt.) Kivas Burton Forster (Manitoba R.). (Italy.) This officer has rendered most valuable service in co-operation with our artillery, displaying in this service keenness and devotion to duty worthy of high praise. He also carried out, during one of the later battles, several patrols, obtaining much valuable information.

Lt. Charles Frederick Frank. (France.) Lt. Frank has co-operated with our artillery in 184 successful shoots, proving himself an exceptionally capable and efficient officer, with keen powers of observation. On Oct. 8th, under most difficult conditions, he succeeded in giving observation for three shoots. During this flight, owing to his proximity to actual operations, he was enabled to transmit valuable information as to hostile infantry movements.

Lt. (actg. Capt.) Maurice Michael Freehill. (France.) A brilliant leader who has destroyed five enemy aircraft and has displayed conspicuous bravery in attacking enemy troops on the ground. On Nov. 4th, observing that a machine-gun post was holding up the advance of our infantry, he attacked it from a very low altitude, inflicting heavy casualties on the crews and putting them to flight. Later on he carried out a reconnaissance of the Army front at a height of 50 ft. in the face of intense machine-gun fire, bringing back most valuable information.

Lt Hudson Fysh (Aust. F.C.). (Egypt.) A skilful observer, conspicuous for courage and determination, whether engaging the enemy in the air or attacking ground targets. He has taken part in numerous combats resulting in loss to the enemy, and has inflicted serious damage on hostile camps and aerodromes.

Lt. (actg. Capt.) William Dalrymple Gairdner. (France.) This officer has carried out 71 successful bombing raids and 11 photographic reconnaissances, displaying brilliant and courageous leadership on all occasions. On Nov. 4th, while leading a photographic reconnaissance, he was continuously harassed by enemy scouts. In the engagement four out of the 14 enemy machines were accounted for, Capt. Gairdner driving down one out of control. This fine achievement was mainly due to his brilliant leadership.

Sec. Lt. James Victor Gascoyne. (France.) During the months of October and November this officer has accounted for five enemy machines, and during recent operations he has displayed splendid daring

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and great skill in attacking enemy troops, etc. On Nov. 9th, although he was wounded in the head early in the attack and his machine was badly shot about, Sec. Lt. Gascoyne made a most successful attack on the enemy from a height of 100 ft., obtaining three direct hits and inflicting heavy casualties

Sec Lt. (Hon. Capt.) GORDON HARVEY GILLIS. (France.) This officer has carried out 18 successful bombing raids, showing at all times complete fearlessness and disregard of danger, notably on Aug. 30th, Oct. 9th, and Oct. 14th, when he rendered conspicuous service, causing heavy material damage to the enemy and bringing back valuable information.

Lt. (actg. Capt.) FRANK CLIFTON GORRINGE, M.C. (France.) During recent operations this officer was conspicuous for his gallantry and initiative in attacking enemy troops, transport, etc., notably on Nov. 9th, when, locating certain enemy troops dug in, he attacked them from 50 ft. altitude, causing numerous casualties. He then landed close behind our infantry and informed them of the enemy's position. (M.C gazetted March 4th, 1918.)

Sec. Lt. JAMES GRAHAM. (France.) In the late advance this officer rendered most gallant and valuable service on contact patrols, locating our own and enemy troops in spite of difficulties owing to smoke and mist, and in face of heavy hostile fire. While carrying out these duties he has frequently been opposed by hostile aeroplanes, and has proved himself an officer of courage and determination. On Oct 8th he was attacked by seven hostile scouts; one of these was shot down. In the combat both he and his observer were wounded, but, nevertheless, he succeeded in evading the enemy, though owing to all his controls being shot away he was compelled to land in "No Man's Land," only reaching our lines after dark.

Sec. Lt. JAMES HERBERT GRAHAME (107th Squadron). (France.) This officer has taken part in 24 successful bombing raids, and has consistently carried out his duties with the greatest perseverance, courage, and skill, obtaining a number of direct hits on the objectives, resulting in serious damage to enemy material.

Lt. (actg. Capt.) DUNCAN GRINNELL-MILNE. (France.) This officer has shown exceptional gallantry and disregard of danger on numerous occasions, notably on Oct. 5th, when he obtained a direct hit on a train with a bomb; he then attacked and destroyed in flames a balloon on the ground. On his return journey he attacked troops and transport with marked success, dropping his last bomb in the middle of a crowd of enemy troops.

Lt. (actg. Capt.) PHILIP GROSSET. (Italy.) An officer of untiring energy who has been remarkably successful in photographic and trench reconnaissance, taking on one day no less than 53 successful photographs in spite of most adverse weather conditions. He has also rendered excellent service on contact patrols in the late advance, his reports being invariably accurate and of great value.

Lt. FRANK LUCIEN HALE. (France.) A brilliant and very gallant officer who never hesitates to attack the enemy, however superior in numbers. On Sept. 27th, Lt. Hale, single-handed, attacked a formation of 10 Fokker biplanes who were manœuvring to attack one of our bombing formations, engaging one of the Fokkers, he drove it down out of control, and it was seen to break up in the air. By this gallant action the enemy were diverted from their objective. In the combat Lt. Hale's machine and engine were badly damaged; despite this, he, on his return journey, attacked a solitary Fokker and drove it down out of control. This officer has accounted for eight enemy aircraft.

Lt. (actg. Capt.) WALLIS HALFORD. (France.) This officer has taken part in 90 night-bombing raids, frequently under adverse weather conditions and in the face of heavy anti-aircraft fire. On the night of June 29th-30th he carried out three such raids, dropping 52 bombs on his objective with excellent results By his keenness and determination he inspired all who serve with him.

Lt. (Hon. Capt.) JOSEPH ESKEL HALLONQUIST (19th Res. Bn., Canadians). (Italy.) This officer at all times displays the highest skill and courage, setting a fine example to other pilots. He has accounted for five enemy machines, and during the recent operations has led four successful bombing patrols at low altitudes.

Lt. LESLIE HAMILTON. (Salonika.) A gallant and skilful scout pilot who never hesitates to attack enemy formations, however superior in numbers During recent operations he has rendered exceptional service. He has himself brought down, or assisted to bring down, six enemy machines.

Lt NORMAN HENRY HAMLEY. (Italy.) This officer is conspicuous for courage and determination. During the recent operations he has led five bombing patrols, attacking, with great success, retreating columns of hostile troops and transport, from low altitudes In addition, on Oct. 29th he destroyed an enemy machine.

Capt. (actg. Maj.) HENRY IVAN HANMER. (Egypt.) A brilliant and very gallant airman who is gifted with great organising powers combined with endurance and disregard of personal danger. He led the machines that were detailed to keep in touch with the Desert Mounted Corps, and it was due to Capt. Hanmer's energy and personal supervision that our machines were enabled to render the assistance they did.

Lt. (actg. Capt.) JAMES DONALD INNES HARDMAN. (France.) A bold and courageous officer who has shown most praiseworthy devotion to duty, both in the March retreat and during the more recent operations. On Oct. 30th, while escorting a bombing raid, he, with his flight, encountered some 40 enemy machines. In the combat that ensued he shot down two, and it was mainly due to his cool judgment and skill in leading that the flight inflicted heavy casualties on the enemy, destroying five machines and driving down another out of control. In all, this officer has seven hostile aircraft to his credit—destroyed or driven down out of control.

Sec. Lt. THOMAS MONTAGU HARRIES (24th Squadron). (France.) A fearless and gallant officer. On Oct. 12th, whilst flying at 100 ft. altitude, he observed 12 enemy machines-guns in action. Diving, he attacked them, silencing eight and compelling the other four to limber up and withdraw.

Lt. (actg. Capt.) RICHARD HARRISON. (France.) Owing to his skill and initiative this officer has been able to obtain most valuable information which has proved of the greatest assistance to our advance, notably on Oct. 29th, when he carried out a reconnaissance to clear up the situation in a certain area. This information was urgently required. Flying at an extremely low altitude, Capt Harrison not only succeeded in locating our troops and those of the enemy, but he also obtained an accurate estimate of their respective strength. He further observed and reported the position of six enemy batteries in action, which were in consequence successfully engaged by our artillery.

Sec. Lt. ROBIN HOWARD HAWORTH BOOTH. (Sea Patrol, Ægean.) For gallantry and skill during a raid on Constantinople on Oct. 25th, 1918, in which he decoyed two enemy fighters into such a position that they were eventually shot down by his observer. This officer ran considerable risks in the methods he adopted, but the success attained justified his courageous action and pertinacity

Lt. (actg. Capt.) ALLAN HEPBURN (France.) On Oct. 12th this officer made a very fine flight, calling for courage and determination of a high order. Thick clouds were within 200 ft. of the ground and the visibility was so bad that practically no flying was attempted. Despite these adverse conditions this officer volunteered to cross the lines. Climbing through the clouds, which were several thousand feet in depth, he flew above them, guided by compass, with no view of the ground. Continuing his flight until he estimated that he was in the vicinity of a certain objective, he descended, and found himself 150 ft. over an enemy railway station. Dropping his bombs, he destroyed a passenger train, and afterwards engaged enemy troops and transport with machine-gun fire. Having caused considerable damage, Capt. Hepburn climbed through the clouds and found his way home.

Sec. Lt. (actg. Capt.) OSCAR ALOIS PATRICK HERON. (France.) An officer conspicuous for his skill and daring in aerial combats. He has accounted for eight enemy aeroplanes. On Sept. 28th he attacked, single-handed, three Fokkers; one of these he shot down. On another occasion he, in company with five other machines, engaged six Fokkers, all six being destroyed, Sec. Lt. Heron accounting for two.

Lt. GEOFFREY BRUCE HETT. (France.) This officer has taken part in 50 bombing raids, proving himself a capable and resolute officer. On Oct. 30th, during a return journey, his formation was attacked by 30 scouts. Lt. Hett, flying in the rear, bore the brunt of this heavy attack. With skill and cool judgment he so manœuvred his machine that his observer was enabled to destroy two of the hostile aircraft before he was seriously wounded. Facing the enemy scouts, Lt. Hett maintained a successful combat until they were driven off by the arrival of some of our scouts.

Maj. HENRY PHILIP LAMBTON HIGMAN. (France.) Since Aug. 8th this officer has rendered exceptionally valuable service. On Oct. 10th, when observing from his balloon some 2,500 yards from the lines, he was subjected to constant anti-aircraft fire, and was also attacked by four enemy machines. His balloon being riddled by hostile fire, he was compelled to descend in a parachute. Although under shell fire, he at once had the balloon repaired and again ascended, completing his observation and furnishing most useful information.

Sec. Lt. (Hon. Lt.) JOHN CHARLES FRANCIS HOLLAND. (Salonika.) During a period of seven months this officer has flown over 200 hours, carrying out many long-distance reconnaissances and contact patrols and rendering most valuable service. On one patrol his machine, in company with another, was attacked by five others. One of these was shot down and the remainder were driven off. The reconnaissance was successfully completed.

Lt. THOMAS STANLEY HORRY. (France.) An officer of exceptional courage and daring. On Nov. 5th, in face of driving rain and low clouds, he led his patrol far into enemy territory in order to engage enemy troops and transport that were retiring. Reaching his objective, he attacked the enemy with vigour, causing heavy casualties He has in all destroyed three enemy aircraft and driven down another out of control, and has, in addition, taken a leading part in the destruction of six others.

Sec. Lt. FREDERICK JOHN HUNT (France.) A bold and skilful airman who has accounted for three enemy machines and two hostile balloons.

Capt. LEONARD FRANKLIN HURSTHOUSE. (Italy.) This officer has rendered most valuable service on reconnaissance and photographic duty, frequently under very adverse weather conditions. On Oct. 30th he took a prominent part in an attack on hostile columns, dropping his bombs and scattering personnel with machine-gun fire from a very low altitude. Whilst so engaged he was severely wounded, but managed to bring his machine back.

Capt. REGINALD VYE JAMES. (France.) This officer has taken part in 17 bomb raids, 13 of which he has personally led. The success of these raids has been largely due to the determination and courage Capt. James displayed, combined with leadership of high merit.

Lt (actg. Capt.) OLANS CHARLES WILLIAM JOHNSEN. (France.) A brilliant leader and gallant fighter. On Oct. 1st this officer led a bombing formation against a railway junction, and, owing to his skilful leadership, serious damage was caused. Three big explosions occurred in the station, wrecking a number of trucks, and a factory near by was demolished. He has taken part in 34 raids, 18 of which he has led. He has accounted for five enemy aeroplanes.

Lt HUGH ROBERT JUNOR. (Egypt.) On Sept. 17th this officer performed an act of conspicuous merit and gallantry. Single-handed, he engaged five enemy machines, and so protected the Arab force from aerial attack at a most critical time when they were engaged in destroying an important railway. Lt. Junor continued the combat till he was driven down by force of numbers, his petrol supply being practically exhausted.

Lt. EDWARD PATRICK KENNY, M.C. (Aust. F.C.). (Egypt.) Since joining the squadron in July last this officer has carried out 360 hours' flying on strategical and photographic reconnaissances. He has, in aerial combats, destroyed one enemy machine, driven down two out of control, and forced four to land. During recent operations he has shown great gallantry on numerous occasions in attacking ground targets from very low altitudes in face of intense hostile fire. (M.C. gazetted Sept. 16th, 1918.)

Lt. (actg. Capt.) ANDREW CAMERON KIDDIE. (France.) A gallant officer, who has proved himself resolute and courageous in aerial combats. He has to his credit six enemy machines and one balloon shot down in flames.

THE CASUALTY LIST.

MILITARY.

Reported Feb. 7th.

The following officer, who was a prisoner of war in Germany, has been released, and has arrived in England:—

MacTavish, Sec. Lt. D., Cam Highrs, attd. R.F.C.

Reported Feb. 8th.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Gilbert, Sec. Lt R S., R.F.C.; James, Capt C. E. H., M.C., Welsh R., attd. R.F.C; Joyce, Lt W., Bed. R., attd. R.F.C.; Mcpherson, Lt. R. C., Black Watch, attd. R.F.C.; Wingfield, Lt. E. H., R.F.C.

CASUALTIES AMONG W.Os., N.C.Os. AND MEN. THE DATES ARE THOSE OF THE OFFICIAL LIST.

The following soldiers, who were prisoners of war in Germany, have been released, and have arrived in England:—

JAN. 30th.—R.F.C.—Jones 2104 Cpl. E. (West Croydon); Tyrrell 47292 2nd Cl. Air Mech. R. (Gunnersbury).

AIR FORCE.

Reported Feb. 6th.

KILLED.—Bragg, Lt. E. W.
Brown, Capt. C. A.
Cotterell, Sec. Lt. R. J.
Midgley, Lt. G. G.
Warrilow, Sec. Lt. R. A. B
DIED.—Barker, Lt. F. E.
Robinson, Lt. E. C.
Tower, Capt. W. C. C.
REPATRIATED.—Barritt, Lt. G. L., Hempel, Lt. A. E., Luther, Sec. Lt. H G., Parke, Sec. Lt. J. E., Quilter, Sec. Lt. E. G. C., Reece, Sec. Lt. C. M., Roberts, Lt. F. L., Smith, Sec. Lt. R. M., Steeves, Lt. D. T., Swart, Lt. O. B., Trembath, Lt. N. T

Reported Feb. 7th.

CADETS KILLED.—Barnebrooke, A.
Heffernan, M. J.
Reid, C. G.
REPATRIATED.—Barnes, Lt. J. D.; Bousfield, Lt J. K., M.C.; Feez, Lt. C. M.; Garland, Lt. E. H.; Gilbert, Lt. R. S.; Morse, Lt. T. W.; Nicholls, Sec. Lt. W. H.; Read, Lt. L.; Rushworth, Capt. H. M.; Trollope, Capt. J. L., M.C.; Wearne, Lt. A.; Wilmott, Sec. Lt. F. B.

Reported Feb. 7th.

KILLED.—Baldwin, Capt. C. L.
Blain, Lt. C. W.
Humphrey, Sec. Lt. J. A.
Woolhouse, Sec. Lt. L. G.
Yorke, Lt. F.
DIED.—Finch, Lt. R. E.
Owen, Lt. T. J.
Rawlinson, Lt. P. I.
REPATRIATED.—Blakesley, Capt. R. G.; Blandy, Capt. G. K.; Blight, Lt. T.F.; Courtney, Sec. Lt. W. E. L.; Frith, Lt. R. G.; Hollis, Lt. A.; James, Lt. L. R.; Maclean, Sec. Lt. W. A.; McPherson, Lt. J. L.; Newstead, Sec. Lt. C. W.; Pocock, Lt. A. D; Wheeler, Lt. L. F.; Whitehead, Lt. W. H. N.

Reported Feb. 8th.

REPATRIATED.—Arnott, Lt. R. A.; Greenhow, Lt M. W.; Haig, Lt. F. W.; Heppell, Sec. Lt. P. F., Heyworth, Lt. E. L.; Johnson, Sec. Lt. J. W.; Kemp, Lt. H. T.; Leeson, Lt. D.; McCulloch, Sec. Lt. A. F. G.; Mitchell, Lt. H. B.; Ordish, Sec. Lt. B. W. A.

Reported Feb. 11th.

KILLED.—Barstow, Capt. J. E. J.
Grant, Sec. Lt. P. T.
Hitchcock, Sec. Lt. A. E.
Holstead, Lt. G. W.
PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—McCallum, Lt. J. R. R. G.
DIED.—Henderson, Sec. Lt. L. H.; Robinson, Capt. W. Leefe, V.C.
REPATRIATED.—Bodley, Sec. Lt. W. G. L.; Harvey, Lt. J. B.; James, Capt C. E. H., M.C.; Joyce, Lt. W.; Kingwell, Lt. W. R.; Kilsby, Sec. Lt. M. J.; Mapplebeck, Capt T. G; Wingfield, Lt. E. H.

Reported Feb. 12th.

KILLED.—King, Capt. C. F.
Lloyd, Sec. Lt. F.
Mitchell, Sec. Lt. J. T.
Nichols, Lt. E.
PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Middlecote, Lt. E. W. A. G.
DIED OF INJURIES.—Chambers, Sec. Lt. J. H
DIED.—Rose, Capt. A. W.

CASUALTIES AND REPATRIATIONS AMONG AIRMEN. THE DATES ARE THOSE OF THE OFFICIAL LIST.

DIED.

FEB. 5th.—Butcher 200675 Serjt. L. A. G. (Cove, Hants); Dunn 93000 1st Actg. Clk. W. J. (Birkenhead); Fletcher-Woods 23222 2nd Air Mech. C. W. F. (Newmarket); McLeod 403509 1st Air Mech. R. (Castle Douglas); Parry 135523 L.A.C. (Clerk) D. (Penparke); Shuttleworth 108290 1st Actg. Clk. H. (Walney Island); Sparrow 407973 2nd Air Mech. C. (Colchester); Squires 210893 Cpl E. J. W (Barnstaple); Turner 239368 2nd Plt. W. G. (Dublin); Wilson 406448 3rd Air Mech. E. (Westgate-on-Sea); Wright 300577 2nd Actg. Clk. R A. (Beckenham, Kent).

DIED OF INJURIES

FEB 5th.—Llewellyn 82160 1st Air Mech. Actg. Cpl. R. (Darlington).

REPATRIATED

FEB. 5th.—Campbell 445 Ch. Mech. H. (Auckland, New Zealand); Jones 2104 Serjt. Mech. E. J. (West Croydon); Parker 11901 1st Air Mech. R. H. C. (Twickenham); Stevens P.O. 26297 Serjt. Mech. E. G. (Aldermey Edge); Turner 67978 3rd Air Mech. J. A. (Grimsby); Tyrrell 403016 3rd Air Mech. A. R. (Gunnersbury); Ward 239875 Serjt. Mech. J. T. (Upperthorpe, Sheffield).

PERSONAL NOTICES.

MILITARY.

DEATH.

GARROD.—Lieut. Basil Rahere Garrod, 1st Loyal North Lancashire Regt., attd. 149 Squadron, R.A.F., who died on Feb. 4th from pneumonia, was the youngest and last surviving son of Colonel Sir Archibald Garrod, K.C.M.G., A.M.S., of 9, Chandos Street, W., and Wilford Lodge, Melton, Suffolk. He was 21 years of age.

ENGAGEMENT.

BUXTON—ROBERTS.—The engagement is announced between Second Lieut. Percy Edward Buxton, 7th London Regt. (attached R.A.F.), youngest son of Mr. and Mrs. Antony Buxton, of Illawarra, Totland Bay, Isle of Wight, and Ivy L. Roberts, youngest daughter of Mr. and Mrs. Charles Roberts, of Brussels Lodge, Kidderminster Road, West Croydon.

MARRIAGES.

BRYANT—PLATT.—On Feb. 4th, at Holy Trinity Church, Sloane Street, Major Charles E. Bryant, D.S.O., 7th Hussars and R.A.F., was married to Mrs Lionel Platt

COOK—WATSON.—On Feb. 8th, at Golder's Green Wesleyan Church, Captain Joseph William Cook, North Staffordshire Regt. (attd. R.A.F.), son of the Rt Hon. Sir Joseph Cook G.C.M.G., Minister of the Navy in the Commonwealth Government of Australia, and Lady Cook, was married to Constance Marion Watson, only daughter of Mr. and Mrs. J. B. Watson, The Ridgeway, Golder's Green, by the Rev. Dugald Clark, M.A., B.D., of Springburn Parish Church, Glasgow, assisted by the Rev. Alfred E. Whitham, of Leeds (cousins of the bride).

HALCOMBE—TURTON.—On Jan. 22nd, 1919, at St. Mary's Church, Battersea, Major Norman Marshall Halcombe, R.E. and R.A.F., fourth son of the late Arthur Follett and Edith Halcombe, Fern Grove, Urenui, New Zealand, was married to Blanche Sturt, eldest daughter of Wesley and Amy Turton, "Hawkshead," Lake Whakatipu, New Zealand, by the Rev. H. Foster Pegg.

HAMEL—BLANE.—On Feb. 1st, at St. George's, Bloomsbury, Lieut. Felix Curzon Hamel, Aus. F.C., second son of Felix Hamel, of Bole Hall, Tamworth, was married to Miriam Ella Stewart, eldest daughter of Gilbert G. Blane, of Foliejon Park, Windsor, and Alltan Donn, Nairn.

VANDYK—BERTON.—On Feb. 4th, at the Savoy Hotel, Strand, by the Rev. E. Levene, Lieut. Arthur Vandyk, formerly 12th Royal Fusiliers, 24th London Regt., and a R.A.F., youngest son of Mr. and Mrs. C. Vandyk, of 85, Bickenhall Mansions, W., to Constance, only daughter of Mr. and Mrs. Arthur Berton, of 77, Highbury New Park, N.

ST. CLAIR-MORFORD—KIRKPATRICK.—The marriage of Capt. A. C. St. Clair-Morford, M.C., R.M.L.I. (late R.A.F.), and Miss Victoria Alexandrina Mary Kirkpatrick, only daughter of Colonel and the Hon. Mrs. Kirkpatrick, of Kilshannig, Mallow, Co. Cork, took place at St. James's Church, Spanish Place, on Feb. 10th, Canon Longinotto, of Windsor, officiating.

BIRTH.

MARTYN.—On Feb 6th, at 9, Brunswick Walk, Cambridge, the wife of Captain T. J. C. Martyn, M.C., A.F.C., R.A.F., of a daughter.

AIR FORCE.

DEATHS.

BARON.—Captain Harold Hartley (Dick) Baron, R.A.F., who died on Feb. 7th at Somerville Hospital, Oxford, from complications following appendicitis, was the second son of Mr. and Mrs. John Baron, 112, Marine Parade, Brighton, formerly of Lindfield. He was 33 years of age.

CUMMING.—Lieut. Charles Linnæus Cumming, R.A.F., B.A. Oxon., M.Sc., Montreal, Ph.D. Princeton, was accidentally killed flying near Cologne whilst on service with the Army of Occupation. He was the only son of Linnæus Cumming, M.A., of Kilsby, near Rugby, and was 30 years of age.

DIMMOCK.—On Feb. 3rd, at Mont Dore Hospital, Bournemouth, Lieut. Edward Harold Dimmock, R.A.F., younger son of the late Edgar F. Dimmock and of Mrs. Dimmock, 4, Ellesmere Court, Anerley, S.E., died from pneumonia.

HALSTEAD.—It was stated at an inquest, on Feb. 4th, on Lieut. George William Halstead, R.A.F., of Hindhead, Surrey, who was killed in a flying accident at Castle Bromwich, that his machine did not appear to be more than 500 ft. high when he started a spinning dive. Not realising he was so low, he struck the ground before he could recover. A verdict of "accidental death" was returned.

LLOYD.—Lieut. Frank Lloyd, R.A.F., of Rochford, was flying over Westcliff at a low altitude when his machine struck an electric light standard and then a tree, and, bursting into flames, crashed to the ground. He was instantly killed. He had only been married a few days.

MICHAELSON.—Lieut. Richard Gibson Michaelson, R.A.F., who died on Feb. 9th at Grange-over-Sands from pneumonia, was the youngest son of Mrs. Michaelson, Yewbarrow, Grange-over-Sands. He was 24 years of age.

ENGAGEMENTS.

BIRD—BARTON FRENCH.—The marriage arranged between Major Augustus W. Bird, D.S.O., R.A.F., and Clarice Mary, only daughter of Mrs. Barton French and of the late S. Barton French, of New York and Virginia, U.S.A., will take place at St. George's, Hanover Square, on Wednesday, February 19th at 2.30 p.m. No invitations will be issued, but friends will be welcome at the church and afterwards at 139, Piccadilly, kindly lent by Baroness d'Erlanger.

HEWITT—WOODHOUSE.—The engagement is announced of Lieut. Norman Hewitt, R.A.F., son of Mr. and Mrs. Edward Hewitt, Swinton Park, Manchester, and great-grandson of Sir Elkanah Armitage, and Ruth, younger daughter of Sir Tom and Lady Woodhouse, Fairfax House, Farnborough, Hants.

LYMN—ARCHIBALD.—The engagement is announced be-

tween Capt. Charles R. Lymn, R.A.F., only son of Mr. and Mrs. F. C. Lymn, Matlock Bath, Derbyshire, and Miss A. G. "Nancy" Archibald, second daughter of Mr. and Mrs. David Archibald, 2, West Mayfield, Edinburgh.

MARRIAGES.

HAMEL-BARTLEY.—Lieut. Etienne Bruno Hamel, R.A.F., eldest son of Mr. and Mrs. Felix Hamel, of Bole Hall, Tamworth, was married on Wednesday, Feb. 5th, quietly, at Christ Church, Lancaster Gate, to Evelyn Mona, only daughter of Mr. Oscar Bartley, of 69, Lancaster Gate, Hyde Park.

HARRIES—HARRIS.—On Feb. 4th, at St. Martin's-le-Grand, York, "Biddy," only daughter of Mr. and Mrs. Ernest Harris, of Westholme, Bognor, Sussex, was married to Captain Huntley H. Harries, of the North-Western Area Branch Headquarters, R.A.F., York, and youngest son of the late Barrett H. Harries, of Byfleet, Surrey, by the Rev. George Trundle.

BIRTHS.

ADAMS.—On Feb. 4th, at the nursing home, "Montalt," Midhope Road, Woking, Mrs. G. E. Adams, wife of Captain H. A. Adams, R.A.F.—a son.

FRASER.—On Feb. 3rd, at "Fratons," Maidenhead Thicket, the wife of Lieut.-Colonel George Fraser, R.A.F.—a son.

JARRETT. On Feb. 6th, at 34, Albert Road, Regent's Park, the wife of Lieut. Lionel C. Jarrett, R.A.F., of a daughter.

WATT.—On Feb. 9th, at Bushey Lodge, Teddington, the wife of Lieut. Norman C. Watt, R.A.F., of a son

WHITE.—On Feb. 1st, at 49, Renmuir Street, Tooting, the wife of Flight Serjeant Harold White, R.A.F., B.E.F., of a daughter.

WOLLASTON GROOME.—On Feb. 6th, at Suffolk House, Surbiton, the wife of Captain A. W. W. Groome, R.A.F., of a daughter.

* * *

If any returned prisoner has any information concerning Second Lieut. T. A. Humphrey, R.A.F., who was reported missing on May 3rd last, and afterwards reported as having been killed on that date while flying with No. 25 Squadron, and will write to Mr. E. Humphrey at the Post Office, North Cray, Kent, such information will be gratefully received.

AN R.A.F. EXHIBITION AT NEWCASTLE.

It is announced that an exhibition of aircraft is to be held under the auspices of the Royal Air Force, at No. 9 Acceptance Park Aerodrome, Town Moor, Newcastle-on-Tyne. The exhibition will open to-day, Feb. 12th, and will remain open for about four weeks.

Many types of British service aircraft, various enemy machines, aero-engines, and models will be on show, and demonstrations of rigging, engine fitting, wireless operations, and of parachute descents will be given. Visits by airships will be amongst the attractions.

A number of side-shows—including R.A.F. bands, and lectures upon aerial topics, illustrated by lantern slides and cinematograph films—will be provided.

The whole of the proceeds will be devoted to Royal Air Force charities.

THE FLYING SERVICES MEMORIAL SERVICE.

The following communiqué has been issued by the Press Bureau :—

A Memorial Service to commemorate the Officers and Men of the Flying Services (R.N.A.S., R.F.C., and R.A.F.) who have fallen during the war will, with the permission of the Dean of Westminster, be held in Westminster Abbey at 12 noon on Feb. 19th. His Majesty the King has been graciously pleased to signify his intention to attend.

It is particularly requested that no correspondence in connection with this service be sent to the Abbey authorities. The distribution of tickets of admission will be made by the Air Ministry.

Applications for tickets of admission from relations and friends of Officers and Men of the Flying Services who have fallen during the war should be sent not later than the 12th instant to the Secretary, Air Ministry (Room 119), Strand, London. Each application should state the name of the deceased officer or man in respect of whom the application is made, and the degree of relationship. The seating accommodation is limited, and, therefore, it will not be possible to issue more than two tickets to any one applicant.

DEATH OF A NEW ZEALAND AVIATOR.

A cablegram from the Hon. H. F. Wigram, M.L.C., Chairman of the Canterbury (N.Z.) Aviation Co., Ltd., Christchurch, New Zealand, reports that Mr. Cecil M. Hill, Chief Instructor of that firm's Flying School, was killed on Feb. 1st. No further particulars are available.

Mr. Cecil M. Hill was formerly Chief Instructor of the Hall School of Flying, Hendon, and, on the formation of the Canterbury (N.Z.) Aviation Co., Ltd. (which was created primarily to train aviators for service with the Forces), Mr. Hill, through the kind assistance of the High Commissioner for New Zealand, was chosen for the position of Instructor of the Company, and arrived in Christchurch on May 3rd, 1917. A little over a month later he made his first passenger flight with the Hon. H. F. Wigram, and a year later the hundredth pilot to be trained at the School, took his certificate—no mean performance for a Colonial Flying School. It is said that Mr. Hill was very popular with all the pupils at the School because of his patience and kindness and untiring efforts.

TO CORRECT AN ERROR.

One who was closely connected with airships in their early days, both before and at the beginning of the war, writes to correct an error in the article on airships written by one "Ensign" in a recent issue of THE AEROPLANE.

This correspondent points out that the O.C. "Eta," when she started for France in the early days of the war, was Lieut. R. Griffith Lock, R.N., and that the No. 1 of the airship was Lieut. Fuller. Lieut. Lock—who later became Lieut.-Commander—is now in charge of the airship work of Armstrong-Whitworth, Ltd., so that his early experience has been turned to good account.

It is interesting to note that Lieut.-Commander Lock was also in command of "Beta" when that little ship went to France after the breakdown of "Eta."



HENDON OF TO-DAY: The presentation of aeroplanes to the Canadian Government at Hendon on Feb. 4th. The photograph is taken from the steps of the Officers' Mess, where the restaurant used to stand.

THE LAUNCHING OF SHIP-PLANES.

So much has been published lately about the wonderful advances made by the Navy, or by the Naval portion of the R.A.F., in the launching of aeroplanes from warships, that it seems worth while to show the amount of mental progress which has actually been made. Hereafter follows an article which appeared in THE AEROPLANE on July 11th, 1912, and with it appeared the sketch accompanying it:—

A METHOD OF LAUNCHING AEROPLANES FROM BATTLESHIPS.

By C. W. P.

The practicability of utilising aeroplanes in conjunction with battleships has long had the attention of the authorities, and various experiments have been carried out by private enterprise.

It has been suggested that if aeroplanes are to be used with the fleet at sea, they must either have the faculty of rising from and alighting on the surface of the surrounding water, or must run straight off the ship itself.

Now it has been found that both these methods are impracticable. In the first case, the aeroplane fitted with hydroplanes could not be used in any really rough sea, and in the second case, owing to the impossibility of having a flat obstructive structure erected on the ship (as in the case of an American warship), this alternative is out of the question; so the following idea is brought forward.

It will be remembered how the Wright brothers first used an apparatus for launching into the air. They, of course, used a single rail, along which the biplane was pulled by means of a cord running over a pulley at the end, thence back and up a tower, where it was attached to a large weight which was released at the right moment, thus forcing the machine along with a good starting velocity. Now it will be seen that this corresponding rail is fitted to the ship's boat derrick, which is let down into a prop, pointing horizontally out from the ship. The aeroplane scout is then projected along this rail in the same manner, the weight now falling inside the tubular mast.

On returning to the ship with information, of course, the aeroplane, built so that it will float with a certain amount of stability, would glide down into the water as near as possible, so that it could be picked up by the same derrick, none the worse for its bath.

If the wings were much damaged by alighting in a heavy sea, new ones could be very soon fitted at quite a nominal cost (compared with the cost of a 12 in. shell).

The advantage of this system over another method which has been suggested, by which the aeroplane was to run down a long wire rope, and kept up laterally by two more wire ropes, is that the boat boom can be trained out either side of the ship, so that the launch could always be made up into the wind (a very important feature).

As to the design of the aeroplane itself, it would have to be a far better job than is commonly seen to-day. This would come automatically in the making of large numbers, which could be standardised. Also, it is hoped that they will be designed by engineers, instead of by navigators, as in the case of a certain airship.

Firstly, they must be strong and small. The engine should be designed for economy of oil and petrol consumption, and not sacrificed to the god "h.p. per lb.," as in the rotary.

They must also be able to withstand hard handling, and be fool-proof.

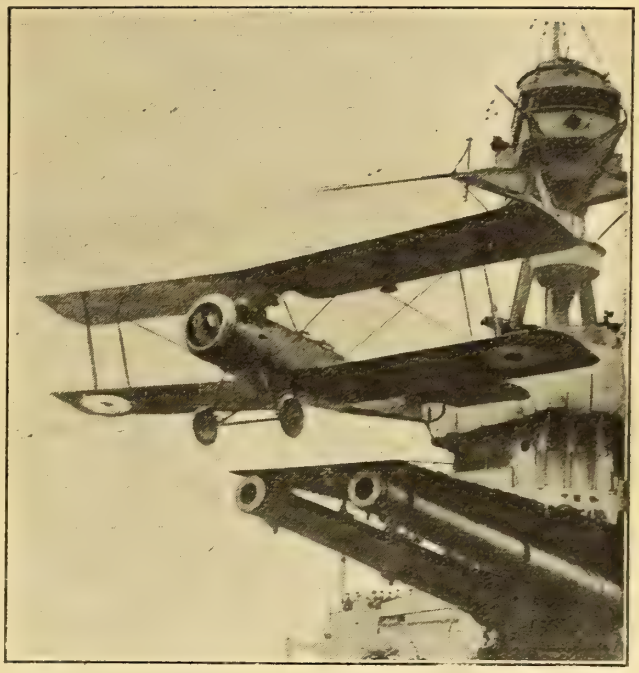
Owing to their being shot off at their natural flying speed, only a very small camber of wing will be necessary (i.e., that necessary for high velocity flight). Thus they can be made highly efficient and approach the ideal.

Land machines at present have to be able to lift at a much slower speed than their highest, owing to getting off the ground, hence their comparatively low efficiency.

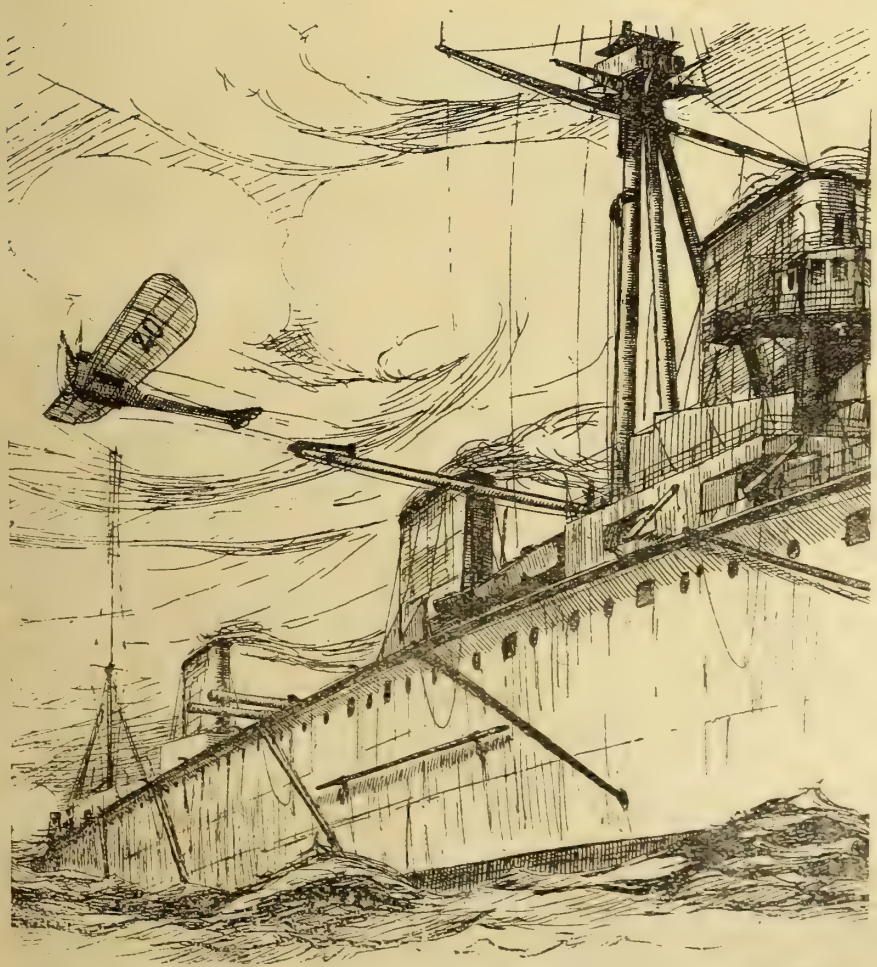
As to armament, there is no reason why a small Q.F. should not be carried, to destroy airships or fight other aeroplanes.

Comparison of the foregoing article with the photographs which appear herewith is of considerable interest. In the sketch—now 6½ years old—appears a perfectly simple suggestion which could have been put into use by the end of 1912, and could, before the War, have been developed into a very valuable method of operating aeroplanes from ships.

In the photographs appear the method evolved after four years of war. To anybody with an engineering training it must appear both dangerous and clumsy. Except for its own wheels there is apparently nothing to steady the aeroplane against



A Sopwith Ship-plane leaving a turret-platform in 1918.



ANCIENT HISTORY.—A Method of Launching Aeroplanes, suggested in 1912.

sudden side gusts or against the heaving of the ship, and the cumbersome attachment to the guns appears just about as awkward as it can possibly be.

It is, however, only fair to recognise the fact that what is actually in use is by no means the best thing which has been suggested. For example, one remembers that at least a couple of years ago, if not more, a whole scheme was worked out for the launching of aeroplanes from turrets along an extraordinarily light and simple wire rope-way. This, one recalls, was turned down by the Navy itself at the time, on the grounds that the Navy could not allow anything which carried any weight to be attached to their beloved guns. Yet here we have official photographs—published apparently with the idea of advertising the intelligence of the Navy—disclosing the fact that the simple wire rope-way arrangement has been neglected in favour of a thoroughly clumsy apparatus.

Even the wire rope-way itself scarcely strikes one as being as neat and simple as the launching derrick suggested in 1912, because the rope-way involved the guns in its operations, and did not provide for any assistance for the aeroplane from a catapult arrangement.

One commends the whole subject to the consideration of mere commercial steamship firms, who may in course of time be using aeroplanes in order to expedite the delivery of mails, for one feels sure that such firms will develop the use of ship-planes very much more quickly than will H.M. Navy.

THE R.N.A.S. IN FLANDERS.

The work of the Fifth Group, R.A.F., forms the subject of a communication issued to the Press by the Press Bureau on Jan. 24th. Having subtracted the unnecessary explanations and the unimportant incidents, one gathers the following facts:—

During 1915, Flt. Sub-Lt. Warneford, R.N.A.S., brought down the first Zeppelin to be destroyed in the air. [No reference is made to the earlier destruction of a Zeppelin by Lieut. Bigsworth, R.N.R., on an Avro, nor of the bombing of Düsseldorf and Cologne by Lieuts. Grey, R.N., Marix, R.N.A.S., and Collet, R.M., on Sopwiths.] Various raids were carried out on the airship sheds at Brussels, the docks at Hoboken and on Zeebrugge and Ghent. According to the official report, the machines used in these raids were principally Morane monoplanes and Voisin and Henri Farman biplanes.

In 1916 the first squadrons equipped for aerial fighting came into action. Continuous patrols were kept up between Dixmude, Nieuport, and Ostende. Spotting for the French and Belgian artillery was carried out, and the British artillery was protected from observation by continuous circular patrols. The Short land-bombers were used for night bombing and carried a number of 112 lb. bombs. In the summer of this year the first Sopwith triplane made its appearance and the report says:—

". . . in order to give the enemy the impression that there was a large number of them in use, it was flown continuously by many pilots."

The first Handley Page and de Havilland 4 squadrons were used for night and day bombing raids respectively in 1917. The aerodromes at Ghent and Bruges, and the docks at Ostende, Bruges, and Zeebrugge were bombed. Thirty thousand bombs were dropped by the Dunkerque squadrons during this year, and many anti-submarine patrols were carried out by the large Curtiss flying-boats. A Handley Page aeroplane successfully bombed the Luxemburg railway bridge at Namur, a distance of 250 miles out and back.

During 1918 the Fifth Group, R.A.F., appear to have added photography to their other occupations. The bombing and anti-submarine patrols seem to have progressed upon the same lines.

The German defences are stated to have been very strong and carefully organised. Some of the guns were of 8 in. calibre, and the vertical range of one gun at Westende was 22,000 ft. [Which is really nothing unusual.]

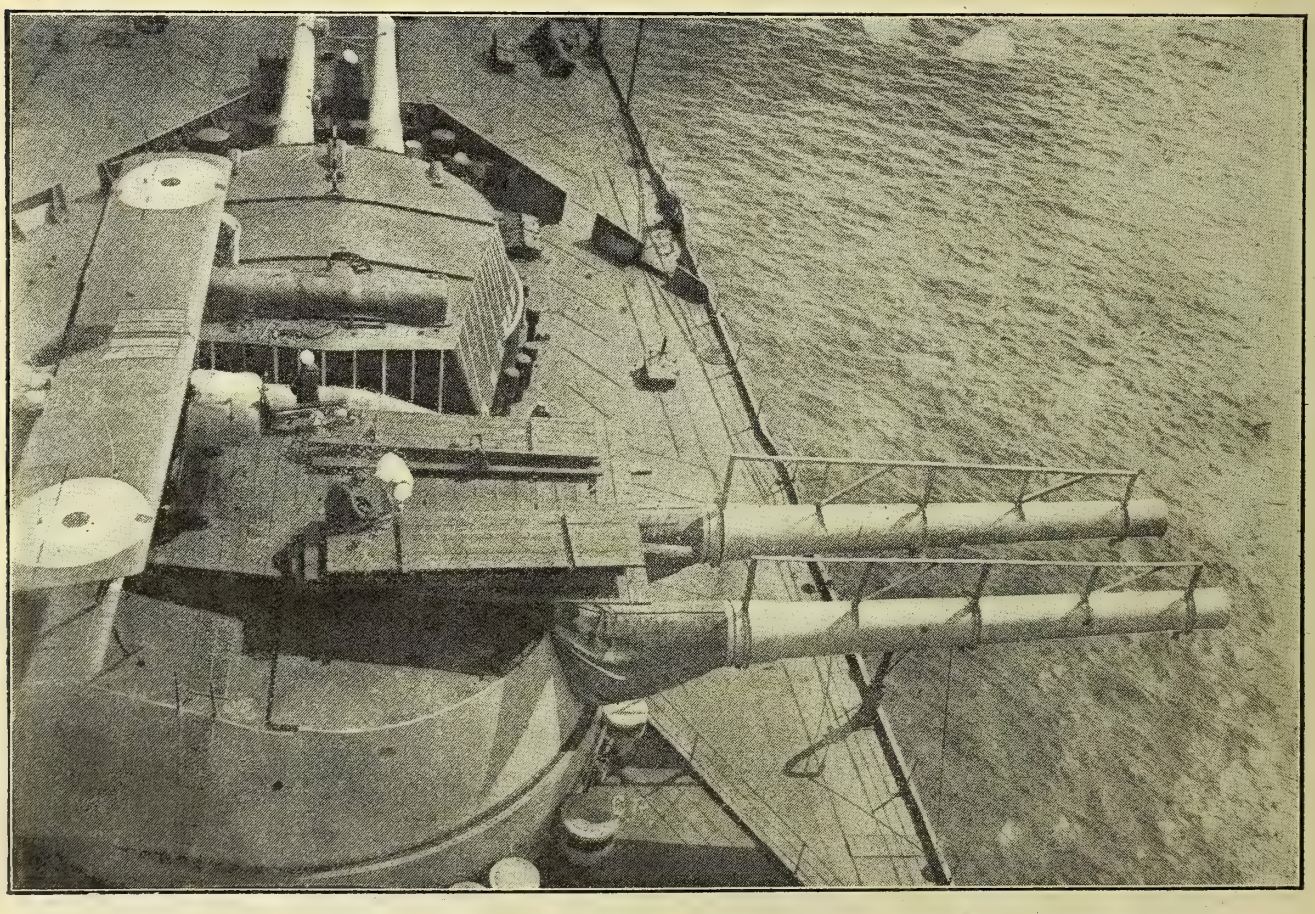
The following particulars are given:—During the lifetime of the R.N.A.S., 96 enemy aircraft were destroyed and 131 driven down out of control. The squadrons working with the Army destroyed 168 and drove 314 down out of control. These figures give a total of 709 up to December, 1917. During 1918, 223 enemy aircraft were destroyed and 223 driven down out of control, while the squadrons with the Army accounted 14 destroyed and 24 driven down out of control. The grand total is therefore 1,193.

AN INTERESTING ALLEGATION.

In view of the remarks made from time to time in the columns of The Aeroplane considering the neglect of the torpedo-carrying seaplane, it is interesting to note that the "Air Service Journal," New York, of Jan. 11th, alleges that, during the surrender of the German Fleet, a British aeroplane mother ship, carrying 20 torpedo-carrying aeroplanes, was present, as a precaution against any attempt at treachery on the part of the crews of the German ships.

A HIGH SPEED.

It is stated in the American Press that Lt. R. D. Baker, U.S. A.S., flew a distance of 90 miles in 20 minutes, in a flight from Fort Sill to Oklahoma. As to whether this was accomplished with a high wind is not known.



THE MODERN IDEA: A launching platform on a warship. The platform has been folded back, showing the supports on which it rests on the guns.

The AEROPLANE

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ON THE REORGANISATION OF THE R.A.F.

Wednesday, February 12th, 1919, will long remain a red-letter day in the history of British Aeronautics, for on that day was announced the reorganisation of the Royal Air Force on a basis which opens up prospects of a brighter future, both for Service and civilian aeronautics, than any which have appeared in the past.

The announcement was made in the following terms :—

The following appointments have been submitted to the King by the Secretary of State for the Royal Air Force, with the consent of the Prime Minister, and have been approved by his Majesty :—

MAJOR-GENERAL SIR H. M. TRENCHARD, K.C.B., D.S.O., to be Chief of the Air Staff.

MAJOR-GENERAL SIR F. H. SYKES, K.C.B., C.M.G., to be Controller-General of Civil Aviation.

MAJOR-GENERAL E. L. ELLINGTON, C.B., C.M.G., to be Director-General of Aircraft Production and Research.

In order to provide for the control of Civil Aviation it will be necessary to alter the constitution of the Air Council as established by the Air Constitution Act, 1917, and legislation to enable that alteration to be made and to provide temporarily for the control of Civil Aviation in general accordance with the recommendations of the Civil Aerial Transport Committee will shortly be introduced into Parliament. Pending the passing of that legislation, MAJOR-GENERAL SIR F. H. SYKES will be responsible to the Secretary of State, after which he will join the Council.

AIR COUNCIL.

It is proposed to constitute the Air Council as follows :—

President, THE RIGHT HON. WINSTON S. CHURCHILL, M.P., Secretary of State for the Royal Air Force.

Vice-President, MAJOR-GENERAL THE RIGHT HON. J. E. B. SEELY, C.B., C.M.G., D.S.O., M.P., who will act as the Deputy of the Secretary of State.

MAJOR-GENERAL SIR H. M. TRENCHARD, K.C.B., D.S.O., Chief of the Air Staff.

MAJOR-GENERAL SIR F. H. SYKES, K.C.B., C.M.G., Controller-General of Civil Aviation.

The office of Controller-General of Civil Aviation will be civilian in character, and in order to fulfil this condition Major-General Sir F. H. Sykes has consented to being placed on the retired list of the Royal Air Force.

MAJOR-GENERAL E. L. ELLINGTON, C.B., C.M.G., Director-General of Production and Research.

THE MARQUESS OF LONDONDERRY, M.V.O., Finance Member of Council.

SIR JOHN HUNTER, K.B.E., Administrator of Works and Buildings, pending the settlement of war building contracts.

SIR ARTHUR DUCKHAM, K.C.B.

To be an Additional Member of the Air Council pending the redistribution between the Air Ministry and the Ministry of Munitions of the functions relating to Aircraft Design, Supply, and Inspection.

SIR JAMES STEVENSON, Bart., Surveyor-General of Supply on the Army Council.

To be an additional Member of the Air Council for general business purposes, without control of any special Department of the Air Ministry. Sir James Stevenson will remain a Member of the Army Council.

BRIGADIER-GENERAL W. ALEXANDER, C.M.G., D.S.O.

To be an Additional Member of the Air Council representing the Ministry of Munitions.

LORD LONDONDERRY, SIR JOHN HUNTER, SIR ARTHUR DUCKHAM, and SIR JAMES STEVENSON will continue to serve in an honorary capacity.

The following additional appointments have been approved by the Secretary of State :—

MAJOR-GENERAL SIR GODFREY PAINE, K.C.B., M.V.O., to be Inspector-General without a seat on the Air Council.

BRIGADIER-GENERAL R. M. GROVES, C.B., D.S.O., A.F.C., to be Deputy Chief of the Air Staff.

REAR-ADMIRAL CECIL F. LAMBERT to be Director of Personnel.

THE RETURN OF "BOOM."

Naturally, from the R.A.F. point of view the chief interest centres in the appointment of Sir Hugh Trenchard to be Chief of the Air Staff. Only those who are in touch with the inner feelings of the active-service people in the Flying Services can appreciate fully how much this appointment means to those who have done the real work of the war.

On a previous, and less happy, occasion one has ventured to state that General Trenchard is known to the Flying Services as "Boom," not because he has any love of publicity—for he is one of the most retiring of men so far as the mere public is concerned—but as a mark of affection and esteem, and as a tribute to the fact that he is a big man in every sense of the word. He is one of the very few officers in any of the King's Services who are loved and feared at the same time, and one believes that one is expressing the feelings of the Flying Services when one says that the people in these Services are very much more afraid of losing his good opinion of them than they are of any discipline or punishment which he might feel obliged to inflict on them. Such fear, based as it is on personal regard, is the surest guarantee of the right spirit in the Air Force in the future.

On Wednesday, after the reorganisation became known, the R.A.F. seemed suddenly to take on a new life. To use an old and vulgar but very expressive metaphor, everybody was going about as pleased as a dog with two tails, and both of them wagging furiously. The question of the day was, "What do you think of the return of Boom?" The answer was so self-evident that nobody troubled to reply. It went without saying.

The old R.A.F. people are simply overjoyed to have their beloved leader back again. The old R.N.A.S. people believe in him because they know what he did for the R.F.C. And the new R.A.F. people have had the Trenchard tradition hammered into them by their seniors. So everybody is pleased.

THE EXPECTED HAPPENNING.

General Trenchard's return to a place of power has been expected ever since the storm raised by his resignation resulted in the abrupt departure of Lord Rothermere who "resigned" him. Just how or when he would return was beyond prophecy, but it was expected confidently none the less. There are some people who are inevitably predestined to influence progress in certain walks of life, and Sir Hugh Trenchard is an essential factor in Service aeronautics.

The situation now created is of considerable political interest. One may assume, though one writes without any inside knowledge, that General Trenchard's appoint-

ment was made by Mr. Churchill, either from his own knowledge of the General's work, or because he was well advised. The former seems to be the more probable explanation, in view of Mr. Churchill's tendency to rely upon his own judgment.

In either case one agrees with a senior officer of the R.A.F. who remarked, apropos "the Return of Boom," that it was "one up to Churchill."

So universally approved is the appointment, in fact, that even the "Morning Post" has failed to find in it any cause for an attack on Mr. Churchill. But possibly this is not evidence, for one was surprised to find in the "Post" some few days earlier a paragraph distinctly approving of something which Mr. Churchill had done for the Army. Perhaps it was this change in attitude which gave rise to the unfounded rumour that the "Post" was for sale.

Be that as it may, the fact remains that the appointment of General Trenchard has done much to establish confidence in Mr. Churchill's judgment and in his good intentions towards the building up of an adequate and efficient Air Force. None is more competent to produce high efficiency, good tone, and proper *esprit de corps* in the R.A.F. than is Sir Hugh Trenchard, and none is more certain to devote himself more successfully to securing an air force of a size adequate to the needs of the British Empire.

THE PRESS AND THE APPOINTMENT.

The other side of the political situation concerns the daily Press and its influence through political channels on the Services. It will be remembered that General Trenchard's resignation, or dismissal, last year came about through a disagreement with Lord Rothermere, who was transiently Secretary of State for the Air Force. It is possible that Lord Rothermere and Sir Hugh Trenchard may again disagree as to the administration of the R.A.F., especially if Lord Rothermere—in his public-spirited devotion to aeronautics—continues his former policy of taking advice from very young officers with, or without, grievances but certainly without administrative experience.

In those days, as a Minister of the Crown, Lord Rothermere was more or less barred from using his newspaper influence in support of his political operations. Now, however, as a newspaper proprietor, free and irresponsible, his newspapers are his natural, indeed almost his only, weapon, seeing that our democratic Government pays little or no attention to the House of Lords, where alone, outside the news-sheets, Lord Rothermere can air his opinions.

One may be misinformed, and if so one will be pleased to contradict the impression, but one is informed that the Lord Rothermere is now the controlling hand over the *Daily Mail* and its subsidiary journals—which may or may not include the *Times* newspaper. Whether this portends that the Viscount Northcliffe has dissociated himself from the Press in order to devote himself in future to politics is not made known, but developments will be watched with interest.

In any case Lord Rothermere has vast, and ever-increasing, influence with the newspapers of this country, so in the event of a disagreement of opinion between him and Sir Hugh Trenchard there is always a possibility of a Press offensive similar to that which has been launched against other distinguished and efficient officers in the past. One does not believe that Lord Rothermere would be influenced by the events of last year—including his own sudden retirement—in any future attack on General Trenchard, for doubtless he would let each case rest on its merits. But, for oneself, judging entirely by last year's *affaire*, one would unhesitatingly back Sir Hugh's mature experience and judgment in future matters affecting Service aeronautics against the opinions of any peer, politician, or newspaper proprietor, acquired at second hand from juvenile officers.

THE GENERAL FEELING.

There can be but few who regret the appointment of General Trenchard, and those few are the inefficients of the R.A.F. One of the wisest men of one's acquaintance regretted, when Sir Hugh was appointed C.A.S. at the beginning of 1918, that he had not been made Secretary of State instead of Chief of the Air Staff. His opinion then was that General Trenchard's immense foresight, his astounding grasp of detail, his uncanny knowledge of humanity, and his gift for inspiring personal devotion would have been better employed as a Minister of State than in doing the more or less routine work of organisation.

This was the judgment of one of our most successful business men, one entirely unconnected with aeronautics, who had no previous knowledge of General Trenchard, and who formed his opinion after meeting him in a purely official capacity. And who would care to say that this judgment was wrong? Sir Hugh Trenchard is a young man, and he has many years to live before reaching the age of the average Cabinet Minister.

THE TASK OF THE FUTURE.

Meantime he has a great task before him, for on the reorganisation of the Royal Air Force during the next few years depends the future safety of the British Empire. It seems unlikely that the Peace Establishment of the R.A.F. will exceed in size those of the Navy or Army, as many enthusiasts desire.

In his speech on the Amendment to the Address in Parliament on February 12th, Mr. Churchill conveyed the idea that the R.A.F. of the future would be merely required to be adequate to the needs of the Navy and Army. He made no reference to the building up of an enormous Independent Air Force, such as is essential to the defence of this country and to the offensive against our enemies in future wars.

Therefore Sir Hugh Trenchard is faced with the old familiar task of the British Army Officer, the making of bricks without straw. Fortunately he has already had experience of such work. He did it with irregular horse in South Africa. He did it in the governing of niggers in West Africa. He did it at the Central Flying School in 1912. He did it at Farnborough in 1914. He did it with the R.F.C. in the Field in 1915. And he did it with the Independent Force R.A.F. in 1918.

In every case he accomplished the impossible, and probably he would feel out of his element if charged with the task of merely doing what any ordinary man could do with adequate material. Consequently the Royal Air Force is justified in feeling that, despite all the black prospects which seemed to overshadow it until a week ago, its prospects are now brighter than at any time in its past history.

There is no need for anyone to bespeak on behalf of the new Chief of the Air Staff the cordial support of officers and airmen. He enters upon his arduous task assured of the personal devotion of everybody in the R.A.F. who is worthy to belong to that force. This is the great fact which tends to make his work easy. Personal good will is the one thing which can make the wheels of a human machine run easily. And of good will the Chief of the Air Staff has enough and to spare. It now remains only to see by what roads affairs progress. A great weight has been lifted from the minds of the Royal Air Force.

THE CONTROLLER-GENERAL OF CIVIL AVIATION.

The appointment of Sir Frederick Sykes to be Controller-General of Civil Aviation will certainly meet

with approval in all quarters. It is no disparagement of General Sykes' high qualities as a soldier to say that by becoming a civilian and taking control of civil aerial transport he has conferred a benefit on British aeronautics.

Before the war, on several occasions, Major Sykes, as he then was, spoke publicly concerning the future of military aeronautics. All his prophecies of those early days have come true, and his success as a prophet of war flying must inspire people with faith in his prophecies as regards peace flying.

His recent lecture to the City Fathers on the prospects of civil air transport demonstrated his faith in the new locomotion, and those who feel anxious about the proposed new laws which are to govern civilian flying will do well to read again and to read carefully the words of the official who will be chiefly charged with the administration and interpretation of those laws.

THE NEW LAWS.

There seems to be a fear in the Aircraft Industry that the new laws—which are already familiar in draft form to most people in the inner circles of aeronautics—will have the same effect on civilian flying as the old "red flag" law had on motoring and as popular prejudice had on cycling in the early days. One feels sure that his fear is ill-founded.

The red flag law was passed in a popular panic, because a steam vehicle of 1840 or so killed a man on a road, and it was maintained for years by the influence of the railways who feared the competition of road vehicles. The severity of magistrates on the cyclists of 1890 to 1895 was largely due to prejudice caused by the behaviour of "cads on castors," and the existing prejudice against motorists is largely due to the behaviour of "road hogs." The laws which operate against them were passed or are enforced by people who were and are prejudiced against cycling and motoring.

THE GREAT DIFFERENCE.

The great difference in the case of the new Air Laws is that they have been drafted by people who have an intimate knowledge of aeronautics, and that they have been so arranged as to prevent the "air hog" from coming into existence and causing public prejudice against flying. These laws are designed to protect the Aircraft Industry and the aircraft user against the possible growth of an anti-aeronautic feeling, and they should be regarded in that light.

On various occasions one has felt it one's duty to call attention to the harm which has been, and still is being, done to aviation and to the good name of the R.A.F. by the behaviour of young cads in the Flying Services who, by senselessly dangerous flying over inhabited areas and overcrowded holiday resorts, have caused ordinary citizens to hate the sight of an aeroplane. If such behaviour were permitted to mere civilians, deprived of the false glamour attached to these supposed "heroes of the air" in war time, it is evident that such public feeling would be created as would result in the prohibition of all flying over human habitations, and these prohibitions would in turn result in constant prosecutions and vicious penalties.

Similarly, if all and sundry were permitted to build and fly aeroplanes promiscuously, we should have conscienceless constructors turning out cheap jerry-built machines and engines, analogous to the heavily insured "coffin ships" of the Mercantile Marine of pre-Plimsoll days. They would be crashing all over the country, and would create endless prejudice against flying in general.

As one has said on previous occasions, nobody minds an aviator being killed, any more than anybody worries about a cyclist or a motorist being killed. But the public would soon begin to make a fuss if aeroplanes began breaking in the air and falling on their heads, and if loads of joy-riders were wiped out wholesale through badly built aeroplanes and cheap pilots being used by crooked transport firms.

Therefore it is obvious that in the interests of aeronautical progress, aeroplanes must be officially inspected and pilots must be officially approved, before they can be permitted to venture over the heads of the public.

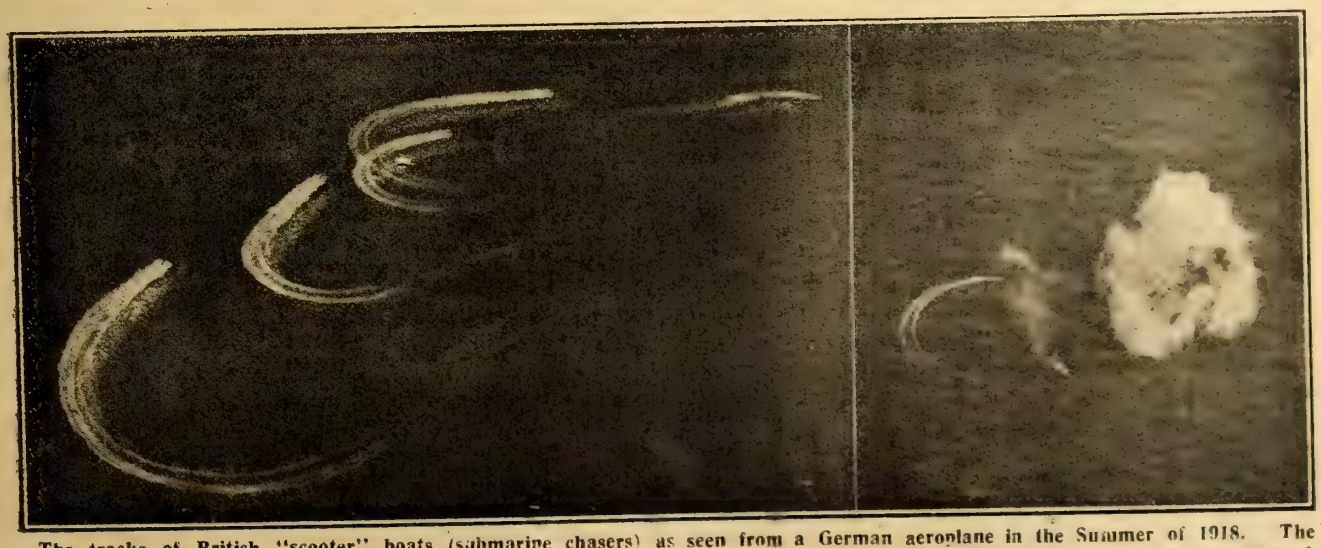
THE INTERPRETATION OF THE LAWS.

So it is with most of the other rules and regulations. If one looks carefully into them it will be found that they are quite as much a protection for aviators and aircraft constructors as for the public at large.

But, no matter how well laws may be drafted, they are always open to maladministration and misinterpretation by the prejudiced or ignorant, and it is here that one foresees the benefit of having as Controller-General of Civil Aviation an official who is a pioneer of aeronautics, an experienced aviator, and a firm believer both in the especial need for a big Air Fleet in this country, and in the value of international aeronautics as an aid to peace between nations.

A GUARANTEE OF PROGRESS.

General Sykes was one of the first British officers to fly, and though he has never posed as a first-class pilot he has covered more miles in the air than have many who do pretend to be pilots of note. Throughout his aeronautical career, which must by now be somewhere



The tracks of British "scooter" boats (submarine chasers) as seen from a German aeroplane in the Summer of 1918. The explosion of a depth charge is illustrated in the right-hand photograph. It has been suggested that the picture is an allegory of events at the Air Ministry.

in its tenth year, he has never failed to express his faith in flying, and it is absurd to suppose that he will ever consent to the use of any law which will hinder aeronautical progress.

If one judged solely by his prophetic utterances, one might imagine that Sir Frederick Sykes was more of a dreamer than a man of action, but his career in the King's Service has proved him to be at least as much a man of deeds as of words. Moreover, he has in many ways the qualities of a statesman, and one believes firmly that in his new walk in life he has a greater career open to him than he had even in the Army.

Therefore one regards the future of civilian flying with all the greater confidence because it is so largely dependent on the administrative ability and the proved foresight of Sir Frederick Sykes.

The Controller-General of Civil Aviation has his enemies, as has every man who possesses a strong personality and the determination to succeed along his own chosen lines of action, but he has also many friends, and his friends are, on the whole, more successful and more progressive than his enemies, which may be taken as a gauge of his own success. Possibly there may be men better qualified for the post, but one can think of none at the moment, whereas one can think of several very much worse who might have been appointed to the job and happily did not get it.

So here again British aeronautics has much for which to be thankful, and one sees a far brighter prospect than seemed at all probable a week or two ago.

AIRCRAFT PRODUCTION AND RESEARCH.

Many people concerned with aeronautics regard with surprise the appointment of General Ellington to be Director-General of Aircraft Production and Research. They argue that he is not a technical man and has had comparatively little to do with practical flying.

Personally one regards those two facts as the highest qualification for his particular post. Most of the ills from which the Flying Services have suffered in the past have arisen from the fact that the heads of the various technical departments have fancied themselves as technical or practical men, and have insisted on pushing their pet ideas down the throats of designers and constructors instead of sitting in calm unprejudiced judgment and selecting what was proved on test to be best.

All the little tin-pot brass hats in both Services have insisted on really experienced people making what they thought best, and not what was proved best. And so the Services have been without engines, or without seaplanes, or without first-class fighting machines at most critical moments.

General Ellington is a Staff Officer of the Regular Army, and has held staff appointments of the most responsible kind in the R.F.C. from the formation of the Corps. Since the happening of the R.A.F. he has held still more important appointments. And in all his appointments he has made good: largely because, in addition to using his undoubted personal ability, he has adhered rigidly to the manners and customs of the Regular Army and has not permitted the comic opera procedure of the semi-civilian Flying Services to obtrude itself into his departmental work.

Just precisely what is included in his new Department is not clear. Presumably it will include the whole of the Technical Department, which is now under the Ministry of Munitions. It has been said that Research will come under the Military side of the R.A.F. and Production under the civilian side. One assumes that in such case General Ellington will sit in judgment on both. At any rate one is confident that he will produce higher efficiency in both departments than has been the case hitherto.

It is said that all the Bolos of the Hotel Bolo have arranged nice little jobs for themselves under the new organisation, so that they will get more pay, do less work, and have more power, on the civil side of aviation than they have had during the war. One fancies that these gentry will not find their new situations as pleasant as they imagine.

THE CHIEFS.

With General Ellington to introduce the calm judicial Staff methods of the Army into the hitherto chaotic departments of production and research, with General Sykes to spur forward the development of civil aviation, and with General Trenchard, the great leader of men, to hammer and persuade efficiency into the military organisation of the R.A.F., things at home certainly look promising.

And it must be remembered that for another year at least, or probably two years, our Armies of Occupation must be kept adequately provided with an efficient air force. Here again we are happily placed, for Major-General Sir John Salmond has won the full confidence of those under him, and has maintained a high standard of discipline among the squadrons of the B.E.F., despite the lack of regular work and the harm done by agitators among the idle hands.

On the whole, therefore, despite the atmosphere of gloom which the Armistice has cast over the R.A.F., and over the Aircraft Industry, one is justified in feeling considerably more cheerful at the moment than one has had any right to feel at any previous date in the history of British Aeronautics.

THE AIR COUNCIL.

The composition of the new Air Council taken as a whole is distinctly interesting, and withal inspires more confidence than do most Government Committees.

Of Mr. Churchill there is little to be said. His belief in Air Power is well known. He is too much of a fighting man himself to believe in any League of Nations as a substitute for self-defence. He has energy and he has brains. As he grows older he will gain in steadiness of purpose. One can only hope that he will find time from his duties at the War Office to attend the meetings of the Air Council.

General Seely will doubtless be content to be the mouthpiece in the House of Commons of the Chiefs of the Air Force. If he transmits fairly accurately the pronouncements of Generals Trenchard, Sykes, and Ellington he will not go far wrong, and if he finds vent for his own enthusiasm and pearls of rhetoric in speeches round the country, at the openings of exhibitions, at lectures, and at presentations of aeroplanes to overseas Dominions, he will be doing quite useful propagandist work, for his hearers are not likely to be critical of terminological inexactitudes.

Sir Hugh Trenchard, Sir Frederick Sykes, and General Ellington between them constitute the creative and dynamic force of the Air Council. As to them there need be no anxiety.

Lord Londonderry has proved himself in other walks of life to be an excellent business man, and he should prove to be a distinct acquisition to the Air Council, as well as a check on over-enthusiasm.

Sir John Hunter, whose seat seems to be merely temporary, has already done good work in his department.

Sir Arthur Duckham, who appears to be also a temporary appointment, has, so one gathers, hardly come up to the high expectations which were entertained of him at first. That probably means that as Chief of Production he has not turned out to be another William Weir. But, on the other hand, one cannot learn of any glaring mistakes which he has made, so he will probably be of value on the Council.

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Sir James Stevenson will presumably be the connecting link between the Air Council and the Army Council in matters of supply, and so his appointment seems remarkably sound.

General Alexander has proved to be a useful Chief of Supply, and his pre-war record as a business head and as a controller of men show him to have ability of a kind which will be of value in after-the-war organisation.

THE ADDITIONAL APPOINTMENT.

Sir Godfrey Paine's absence from the Air Council seems somewhat regrettable, for his bluff and hearty Naval methods of doing things are calculated at times to get over difficult situations in an amicable manner. However, doubtless the job of Inspector-General will find him all the occupation which he needs.

General Groves, who recently has been in charge of the Naval side of flying operations, should make an excellent Deputy Chief of the Air Staff. He is a most persistent pilot, he possesses enormous energy, he has abundant brains and plenty of ideas, and he is admired and trusted by those who serve under him, so that he has all the qualifications for his post. He represents distinctly the most progressive type of Naval officer, and he appears to be the sole connecting link, on the constructive (not the constructional) side of the R.A.F. organisation between the Navy and the Air Force.

Rear-Admiral Lambert is not well known in connection with aeronautics. If one is not mistaken he was a Lord of the Admiralty in the days of the R.N.A.S., and according to all accounts—from the R.N.A.S. side—he was regarded as being something of a reactionary so far as aeronautics were concerned. At any rate one never heard that he had much sympathy for the R.N.A.S., so one does not regard his appointment as likely to lead to any undue preferment being given to officers of the late Naval Air Service.

Taking all the appointments together, most of them are very good, and none are very bad. From the point of view of Army aviation and Civil aviation everything looks bright. But, there seems inadequate provision for Naval aviation. Possibly this portends the formation by the Navy of an air service of its own, for the small Naval element could be washed out from the present appointments in the R.A.F. without causing any dislocation of work. And the Naval officers who are keen on the Air Force could transfer from the Navy. If such be the intention the appointments have been very skilfully made.

One hopes to see this new Naval Air Service in being ere long. Meantime, it seems that there is every prospect of the R.A.F., as a Military Force and as a Civil Service, being a success within the limits imposed by an impoverished Treasury and a pacifist Government.

C. G. G.

A PHILOLOGICAL INEXACTITUDE?

It is worthy of note that the official title of Sir Frederick Sykes is Controller-General of *Civil Aviation*. Now, "Aviation" is always taken as referring to the navigation of heavier-than-air machines, the corresponding word for lighter-than-air machines being "Aerostation." The word which covers both branches is "Aeronautics."

Does this limitation of General Sykes' title imply that he is limited to the control of aeroplanes? If so, it would appear that the Admiralty intends to assume control of Civil Aerostation, and that all civil aerial transport by airships will be under Naval control. Or is General Sykes' title merely a philological inexactitude? Perhaps Mr. Churchill will explain.—C. G. G.

A REVIVAL IN GERMANY.

People who imagine that the German nation, as a whole, considers itself defeated, are very much mistaken, and every activity in Germany should be watched with the utmost care.

There exists in Germany a society called the Deutsche Fliegerbund, whose aims are similar to those of the German Navy League, which was so largely influential in establishing the powerful German Navy. It is reported that this flying league is expected to promote a possible war in the future, when an attempt will be made at conquering the world from the air.

According to a Bremen paper, it is the intention of the League to undertake preliminary work in the training and encouragement of young men for the Air Service, and flying schools are to be established for the practical and theoretical instruction of boys from 15 to 18 years. It will be interesting to learn, when the time comes, to what extent, if any, the terms of the peace treaty will govern, or limit, militarist propaganda in Germany.

AIR MINISTRY APPOINTMENTS.

Sir James Masterton Smith has been appointed Assistant Secretary (Additional) to the Secretary of State for War and the Air Force.

THE CASE OF MISS VIOLET DOUGLAS-PENNANT.

The Secretary of the National Political League has received the following letter from Major-General Seely:—

"Air Ministry.

"Dear Madam,—With reference to your letter of Jan. 18th, forwarding a resolution of the National Political League Executive, I have made careful inquiry into the case of the Hon. Violet Douglas-Pennant.

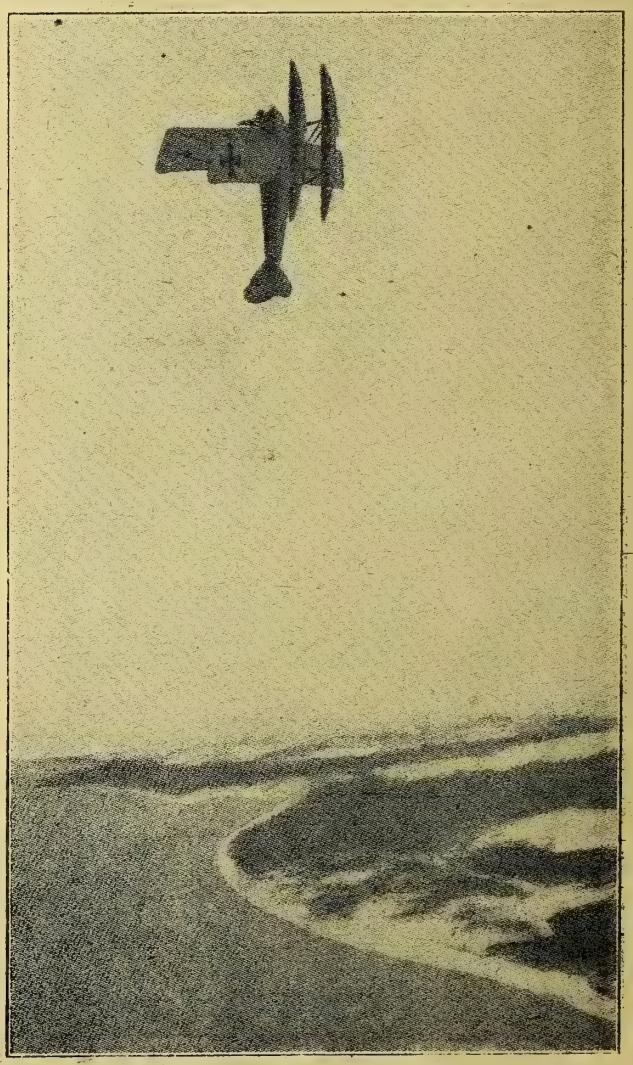
"The position is that this case was carefully examined personally by the late Secretary of State for the Royal Air Force, who came to the conclusion that in the best interests of the W.R.A.F. it was necessary that Miss Douglas-Pennant's connection with that Force should cease. The case subsequently came before the Prime Minister, with the result that the action of the late Secretary of State was upheld.

"In the circumstances I do not consider that there are any grounds for further action.—Yours truly, "J. E. B. Seely.

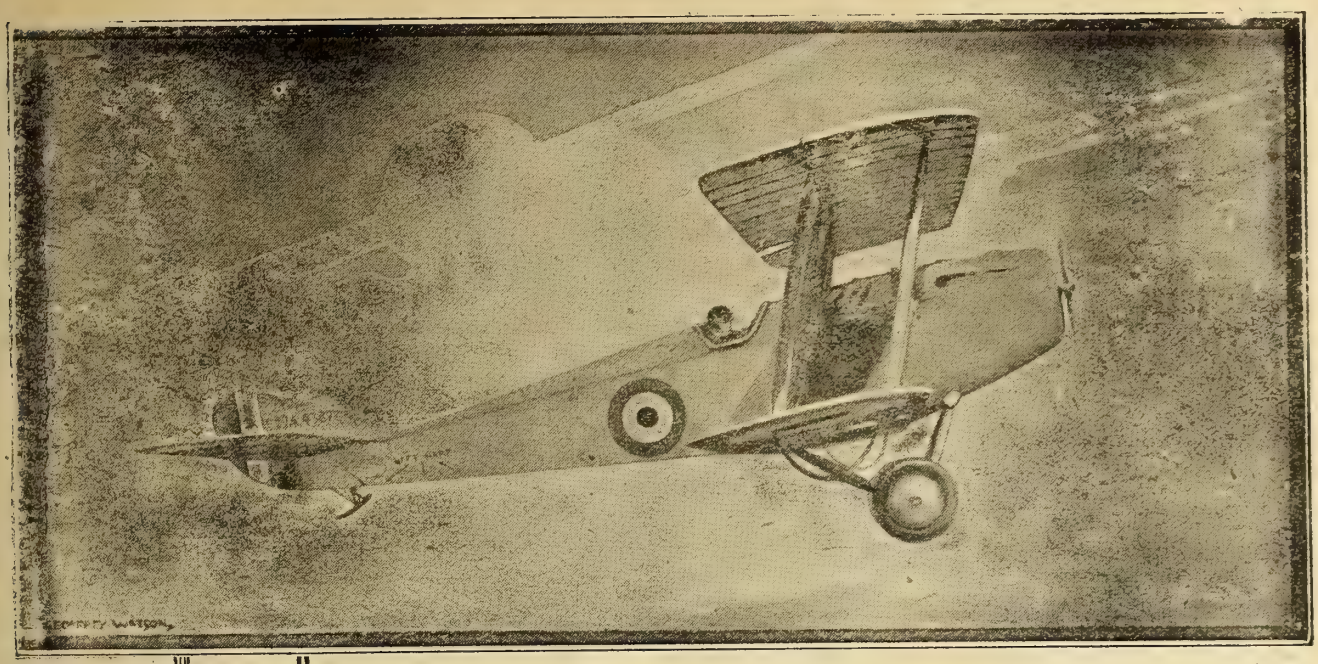
"Miss M. A. Broadhurst, M.A."

ACCORDING TO PLAN.

It is understood that definite arrangements were made on Feb. 13th for the evacuation of the Hotel Cecil by the Air Ministry. It is now stated that new premises will be taken in Kingsway—probably those formerly occupied by the Aircraft Production Department.

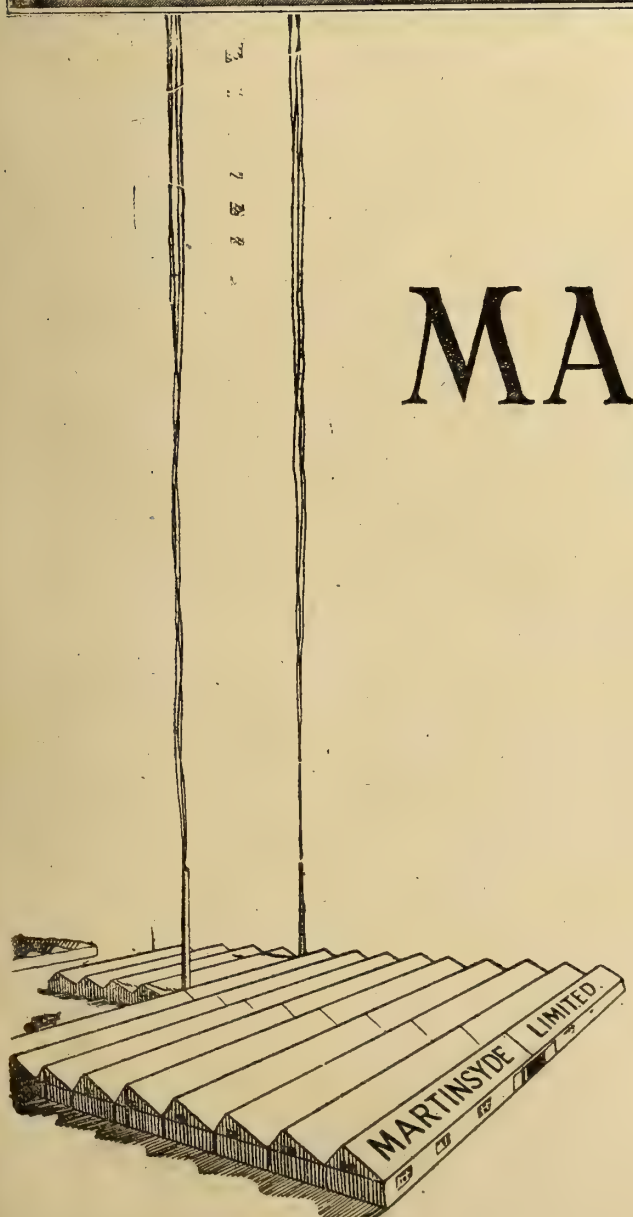


A Brandenburg Seaplane Looping over the Sands of Belgium.





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THE REGULATION OF CIVIL AERONAUTICS.

A Bill has been introduced in the House of Commons by Major-General J. E. B. Seely, C.B., Under Secretary of State for the Royal Air Force, defining the conditions under which civil aeronautics may exist in the times of peace. The Bill is drafted in vague terms, and there is little doubt that orders of any nature concerning aerial navigation may be issued under the terms of this Bill, if and when it becomes an Act of Parliament.

The Bill reads as follows:—

1.—(1) It shall be lawful for a Secretary of State by order to regulate aerial navigation over the British Islands and the territorial waters adjacent thereto, and in particular, but without derogating from the generality of the above provision, he may by any such order provide for—

(a) the grant, suspension and revocation of licences to pilots and other persons engaged in the navigation of aircraft.

(b) the registration, identification, inspection and certification of aircraft;

(c) the licensing, inspection and regulation of aerodromes;

(d) the conditions under which aircraft may be used for carrying goods, mails and passengers;

(e) the conditions under which goods, mails, and passengers may be imported and exported in aircraft into or from the British Islands, or from one of the British Islands to another.

(2) If any person contravenes or fails to comply with the provisions contained in any such order he shall be guilty of an offence under the Aerial Navigation Act, 1911; Provided that if proceedings are taken by the Commissioners of Customs and Excise for contravention of or failure to comply with any regulation made under paragraph (e), the proceedings shall be deemed to be proceedings for the recovery of a penalty under the enactments relating to customs.

(3) Every order made under this section shall have effect as if enacted in this Act, but as soon as may be after it is made it shall be laid before each House of Parliament, and if an address is presented to His Majesty by either House within the next subsequent twenty-one days on which that House has sat after the order has been so laid, praying that the order or any part thereof may be annulled, His Majesty may annul the order or part thereof, and it shall thenceforth be void without prejudice to the validity of anything previously done thereunder or to the making of a new order.

(4) The powers conferred by this Act shall be in addition to and not in derogation of the powers conferred by the Aerial Navigation Acts, 1911 and 1913.

2. The purposes of the Air Council shall include all matters connected with aerial navigation.

3. (1) This Act may be cited as the Aerial Navigation Act, 1919.

(2) This Act shall continue in force until Jan. 1st, 1920, and no longer.

AERONAUTICS IN PARLIAMENT.

Owing to continued scarcity of paper it has, unfortunately, been necessary to print in very compressed type the first speeches on Aeronautics in the new House of Commons. These speeches were of such importance that it would have been unfair to publish extracts only, and they will well repay the trouble of reading them in small type.

Captain Benn's speech voices the opinions of many active-service pilots, though there are several points on which one would disagree from him if space permitted.

Colonel Moore-Brabazon's maiden speech discloses him as a deep thinker, as well as a humorist of a high order, whose wit will win for him considerable reputation. He has the remarkable distinction, as Mr. Churchill pointed out, of holding the first certificate issued by the Aero Club, and he is certainly the only holder of "No. 1-Ticket" in any country to be either an active-service aviator or a Member of Parliament. It would seem that Ireland has once more provided Great Britain with a very notable Parliamentarian—which, one would note, is not at all the same thing as a politician. One hopes to see Colonel Brabazon develop into a statesman, for he is still young, and shows great promise.

Mr. Churchill's speech is worthy of him at his best. It is entirely friendly in tone to the friendly criticisms directed at his department, and gives one cause to expect much good constructive work from him for the good of British aeronautics in the future. All three speeches deserve to be read carefully, in view of forthcoming developments in military and civil aeronautics. —C. G. G.

RANKS AND TITLES IN THE R.A.F.

It has been announced that the use of Naval or Military titles for the ranks in the R.A.F. are to be abolished. Suggestions for substitutes will be welcomed, and will be published if sufficiently sensible, or if—on the other hand—sufficiently amusing.

About the best suggestion, so far, is that an R.A.F. General should be called a "Heliarch," on the good and sufficient grounds that he governs things which are driven by a helix, or screw, and that he may govern by putting the screw on those under him. The idea is witty, and worthy of the General officer who propounded it.

Quite a popular proposal is that Sub-Lieuts. should be called "Ensigns," and full Lieuts. "Cornets." This, however, is, again, borrowing Army titles. The same scheme suggests "Flight Leader" for Captain, "Squadron Leader" for Major, and "Wing Leader" for Lieut.-Col. These titles are cumbersome. Moreover, under the new rule that there shall be no Majors under 25 years of age, and no Lieut.-Cols. under 30, it is doubtful whether the C.Os. of squadrons and wings will do very much leading of fighting formations in future wars, for many "star turns" of the early twenties are not keen on flying after a few years.

A further objection is that "Wing Leader" might lead to unfortunate mistakes. For example, supposing it had been in vogue of late, one can conceive that in the event of one of those minor mutinies which are euphemistically called "strikes" in the R.A.F., some official at the Air Ministry, who might suffer from a slight lingual impediment which prevented him from rolling the letter "r" adequately, might issue a verbal order to put the ring-leader under arrest—that is, assuming that anybody at the Hotel Bolo ever gave a decision about anything at all rapidly. The result might be that the local Wing Leader might be "sent to clink" instead of the chief mutineer. Possibly the fate might be well deserved, for, in most mutinies, the local C.O. is frequently as much to blame as his men for the lack of discipline which makes a mutiny possible. But, on the other hand, the feelings of a very worthy Lieut.-Col. might be unjustly hurt.

Another suggestion, from a ribald young officer is as follows:

Flying Branch:—Sec. Lieut. = Airbird. Lieut. = Flybird. Captain = Flightbird. Major = Squadbird. Lieut.-Colonel = Wingbird. Colonel = Groupbird. Brig.-General = Bigbird.

Technical Branch:—Sec. Lieut. = Monogent. Lieut. = Duogent. Captain = Trigent. Major = Quartogent. Lieut.-Colonel = Nogent.

The perpetrator explains that the termination "bird" will denote clearly the flying branch, and that the termination "gent" will emphasise the dignity of the technical people. He claims that the banality of all the titles will meet with the prompt and universal approval of the daily Press.

Has anybody any more brilliant suggestions to make?—C. G. G.

W.R.A.F. RATIONS.

Although, on the whole, the affairs of the W.R.A.F. are progressing as favourably as could be expected, one does occasionally hear complaints which seem to deserve the attention of those in high places. One of the latest matters which seems to deserve investigation is the matter of rations.

It is said that the rations allotted to the W.R.A.F. are, approximately, only half as much per head as the rations allotted to the male rank and file of the R.A.F. Doubtless this scale of rationing was arranged on the supposition that a woman only needs half as much food as a man. One suggests, however, that a woman who is doing a hard day's work can develop quite as healthy an appetite as even a hard-working man, and therefore her rations should be on a considerably more generous scale than 50 per cent. of a man's rations.

The question is particularly worthy of attention at present, in view of the fact that a number of the W.R.A.F. women are working something like twelve hours a day, chiefly for the benefit of the officers and men in the R.A.F., most of whom would think themselves extremely hardly used if they were asked to do more than eight hours' work a day.

In fact, one has heard of minor mutinies in the R.A.F. by men who claim that they should not be asked to work more than forty hours a week. If the men are only to work forty hours a week while the women work something like eighty, it would seem more reasonable that the rations of the men should be cut down to half the rations of the women, and there seems no particularly good reason why the men of the R.A.F. should be rationed at the nation's expense for appetites generated in the course of sports and other amusements for their own benefit.

One would like to state that the basis of this paragraph is not a complaint from a half-starved Wrat, but comes from a very comfortably fed R.A.F. officer, who is generously sympathetic towards the hunger of those who are working so well for the comfort of the R.A.F.

AN EXTRAORDINARY ACCIDENT.

"La Guerre Aerienne," now called "La Vie Aerienne," for Feb. 6th, records a remarkable accident which befell the observer of a French kite balloon on April 11th, 1918. The balloon had been sent aloft carrying Sergt. Verneuil and Adjudant Pinaud for observation duty, and the balloon was attacked by a German aeroplane which promptly set the balloon on fire, and at the last moment the two observers jumped overboard with their parachutes, which opened satisfactorily. The French anti-aircraft guns were then turned on to the German aeroplane and secured a hit, causing it to fall towards the earth, breaking up as it did so. By an extraordinary coincidence a heavy piece of the wreckage struck one of the parachutes and split it up so that the unfortunate observer fell to the ground and was killed. The German aviator suffered a similar fate.


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AERONAUTICS IN PARLIAMENT.

THE DEBATE ON THE ADDRESS.

During the debate on the Address in the House of Commons on February 12th, the following speeches were made respecting the Royal Air Force :—

Captain Wedgwood Benn: I rise to move, at the end, to add the words,

> "But humbly regrets that no assurance is given that the merging of the Air Ministry and the War Office under one head is but a temporary measure of convenience, inasmuch as to disintegrate the Air Service or subordinate it to the other fighting services is detrimental to the Empire's aerial development."

This is an Amendment intended to protest the necessity for the unity and independence of the Royal Air Force. The Amendment, you may say, was not put down on the initiative of the Members who are supporting it, but was rather provoked by the action of the Government; because, despite the fact that this House has passed the Air Ministry Act setting up a Secretary of State for the Air who is to be co-equal with the Secretary of State for War and the First Lord of the Admiralty, in the construction of the Government the two offices—the War Office and Air Ministry have been combined under one head, and in the judgment of those who are supporting this Amendment, which is put down in the names of Members all of whom have been actively engaged during the war in the Royal Air Force, the union of the two offices under one head threatens the unity and independence of the Royal Air Force.

It is not necessary that I should explain that this is not an attack either upon the right hon. and gallant gentleman the Under Secretary of State for War or upon the War Minister, and I can say, speaking for myself, that were he Minister for Air and nothing else there is no one I would rather see in office, nor is there anyone, in my judgment, who has contributed more by energy and imagination to the Service of the Air. What troubles us is that the right hon. Member for Dundee (Mr. Churchill) combines the two offices in his person, and it is the very fact that he has such ability and such gigantic energy which makes us uneasy, because, in our judgment, the War Office will come first, and the fact that he will control it with his great ability and energy will necessarily subordinate the interests of the Air Ministry. It is too late in the day for it to be necessary for me to explain the necessity for an Air Ministry independent of the other Services That has been decided by this House, and it is based upon the unity which exists among all the Air Services in material and on land and water and in the unity of training, because, except in the final stages, there is no difference in the training of a pilot whether he is to fly a seaplane, an observation machine, or a scout. It is not necessary for me to dwell on this point because it has been agreed upon by this House, and it was one of the points in which there was said to be inaction on the part of the first Coalition Government.

In our judgment unless the Air Force is independent it cannot remain united. We consider that on the independence of the Air Force depends entirely the basis on which alone its unity can be preserved. The right hon. gentleman the Minister for War, who is also the Minister for the Air, will be faced with problems like this. About this time of the year Estimates are being prepared. We know what happens. The Departments ask for much more money than the Cabinet is willing to grant, and there is a general series of interviews and representations, and each Department has to cut the coat according to the cloth.

We will suppose that a certain amount of money has been set aside for defence purposes, and that the question is whether that money is to be spent, say, on cavalry or on aeroplanes. Which side will the right hon. gentleman take if such a question comes before him? He represents both Services, and his position is really impossible. Previously such a question would be settled by reference to the Prime Minister and the Cabinet, but the right hon. gentleman in his dual capacity will find himself at least an embarrassed, if not a partial, judge.

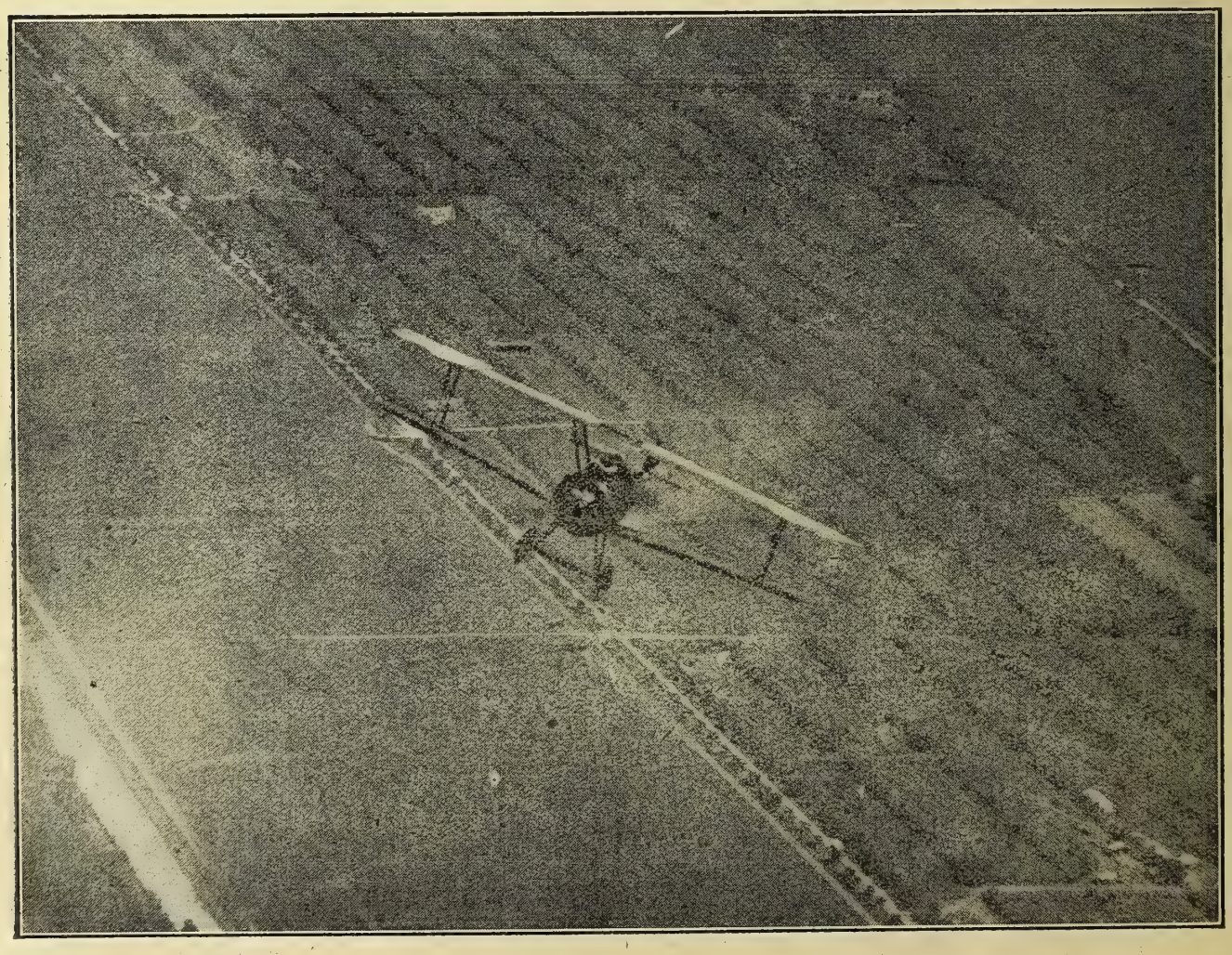
There are other matters on which conflict is possible between the Air Ministry and the War Office. I was not present when it took place, but I believe that a year ago there was a dispute between the two Ministries on the question of the medical service. Anybody who has been in the Air Service knows perfectly well that there is a large field for air medical service, and that the problems of a medical service for the air are really quite different and quite specialised, and are not the same as problems of the War Office.

The right hon. gentleman probably agrees with me that there is a case for a separate air medical service. In any case a pledge was given on the subject, and why was it not done during the War? It was not done because the War Office would not agree, although very distinguished medical experts in this House pressed for it, and a compromise had to be arrived at in deference to the wishes of the War Office. If that problem arises again, and the conflict arises again, which side is the right hon. gentleman the Secretary of State for War and Air going to take?

But I do not base the case against War Office control of the air even on a matter like that, and on matters like that, which could be elaborated indefinitely. I say that the whole Army point of view on air subjects is unsound. It is not the air point of view. There is such a thing as an air sense, and persons regard the air in the same way as the sailors regard the sea. That air sense you will never get in people trained only on the land.

I have observed matters in the Army and the Navy. I know the sort of thing the Army people want. They want spectacular points, such as "How many Huns have been destroyed to-day?" That is really not the fundamental fact in air warfare, and is really ancillary to the real service that the Air Force renders in observation and defence; but the Army point of view is what is in the newspaper, and they want the interesting thing, and they ask, "How many Huns have been destroyed in the course of the day?"

There is also their attitude towards the technical side. The progress



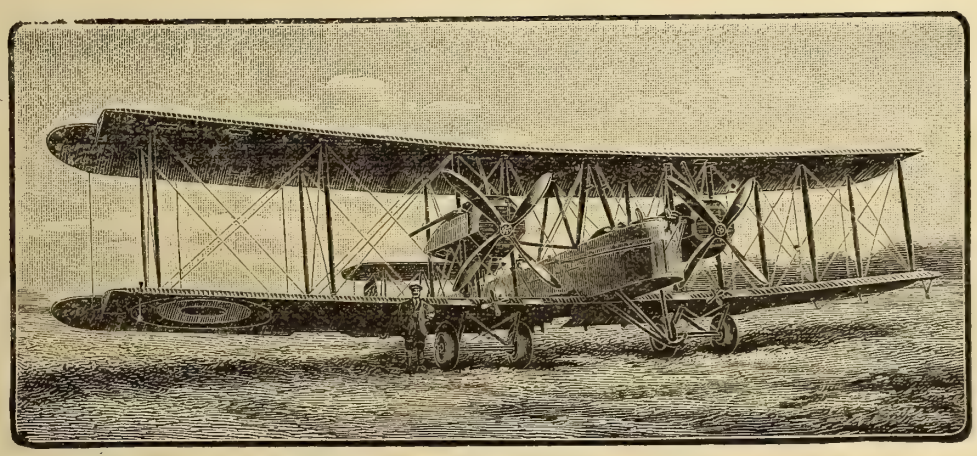
A Sopwith Camel in Italy before the Armistice. The pilot is said to have been Major Barker, V.C., D.S.O., M.C.

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of the air, I make so bold to say, depends entirely on mechanics. It is exactly in the same state as when the Navy changed from sail to engines. The Army point of view never gives proper weight to the mechanical side, and to constant improvement in mechanism, by which alone progress can be made. I have ventured to point out some of the conflicts that may come before the right hon. gentleman, and some of the ways in which his heart may be torn in his dual capacity as Minister for War and Air.

What about the naval side? It was only with the very greatest difficulty that the Air Ministry was formed to include the machines which were under the orders of the Navy. Now there is a very great suspicion in naval circles of the union even to-day. Many of the men on the naval side of the Royal Air Force have been in the Navy. Does not the right hon. gentleman think that they would be a little suspicious when they found that their promotions or rewards had to be decided by the Secretary of State for War? It may be said that these matters of promotions and ribbons are small matters, but soldiers and sailors do not work for money. They work for honour, and they think a great deal of those things. I think the man in the Navy who renders service in the air would be rightly suspicious if he found that such matters have got to be decided by the War Office.

In my judgment, when the union took place some mistakes were made. The naval fliers were put into the united Air Force, and the titles selected for them were military. I do not think that was necessary, and I think it was a mistake, because I do not think the military titles, such as colonel, captain, and brigadier, are in the least applicable to the Flying Force. I think it would have been better to select naval titles if the question was one between the Army and Navy, but I do not see why you should not have special terms for the Air Service. The very existence of these titles fosters the separatist spirit which exists in the naval part of the Air Service to-day.

Then there is the question of discipline. Discipline in the Air Force was based upon discipline in the Army, and in my judgment that was a mistake also. Of course, during the War Acts had to be adopted holus-bolus, because there was no time to go into details, but I do not think that the discipline which is suitable for the Army is necessarily the type of discipline suitable for the Air Service. Personally, I think the Army discipline and the whole penal code in the Army wants revision, and I think its punishments and its ideas are mediæval, archaic and ineffective, and they are certainly not suited to the peculiar psychology of the airmen.

What happens? A number of flying men are in a ship. Even when they were Royal Naval Air Service men there was never that knitting together between them and the ship's company as there was between the whole company itself, and when they became Royal Air Force men the feeling of division became more acute still. The captain of the ship, who exercised a very complete and rather paternal control over the whole ship's company, resented having on board a number of people in a uniform that he did not recognise and subject to a discipline that he did not understand and strongly suspected. That caused a desire for separation, and that desire, I think, would be very greatly increased by the knowledge that those men were under the control of a Minister whose first charge he would suppose must necessarily be the War Office, and not the Air Ministry.

Demobilisation is now taking place. The Air officers consist of people, some of whom were soldiers and others sailors before joining the Air Force, while others still entered directly. It is among these that you have the best chance of fostering the real *esprit de corps* of the Air Force, but these are the very people who are being demobilised first, and you have as a result a tendency already set up to leave in the higher positions of the Service the very men whose desire to get away from one another and to get back again to their first love, either the Army or the Navy. You get the sort of thing which, in my opinion, is the worst possible thing for the Air Force, and that is men who do not know whether they are going to succeed in the air or whether they will not go back to the Artillery, or to their old ship; and if you have men whose interest is divided you never can get that whole-hearted support and enthusiasm and real *esprit de corps* which must be the basis of success in aviation in the future.

I dare say the right hon. gentleman will explain either that this is a purely temporary arrangement—if it is we must accept it as such, but we should like to know how long it will last—or he may say that it is a step in the direction of the co-ordination of the three Services and of the creation of a Ministry of Defence. Perhaps his filial piety causes his mind to turn back thirty years to when Lord Randolph Churchill presented a memorandum suggesting a Minister of Defence, who should combine both the Navy and the Army under his control. But I would remind the right hon. gentleman that one of the reasons why that very scheme was turned down by one of the strongest Committees that ever sat on Defence, of which Lord Sydenham was secretary, was because the Navy could not be convinced that under such a scheme it was not going to get the worst of it.

If that was well founded then, how much more true would it be for the Air Force to be suspicious, being the youngest of all, that she was not going to get an equal position with the older Services under such a scheme? I suppose that what will really happen will be, not that there will be one Minister in charge of the three Services, but that our defences will be governed by some Committee partaking of the character of the Imperial Defence Committee or the War Cabinet.

We are, therefore, entitled to ask what will be the exact functions of the Air Ministry under such a Committee, and whether this present plan of uniting the two under the control of one right hon. gentleman is going to assist a successful arrangement of that kind?

During the War the smallest part of the work of the Air Force has been done by the Independent Air Force, which is the part which operates not under the orders of either the Army or the Navy. In my opinion, and I think my hon. and gallant Friends who support me in this Amendment will agree, that Force will have the greatest part of the work to do in the future. There will be a punitive expedition, perhaps, or there may be police work to be done in the way of a force to be put at the disposal of a League of Nations in order to enforce its decisions. This will be partaking of the character of the work of the Independent Air Force.

In the particular part of the theatre of war in which I was employed some years ago a great deal could have been done if there had been an effective Independent Air Force. I mean against Turkey. The whole of the Turkish coast line was exposed, but there was absolutely no organisation of the Air Force to enable us to attack it. Hon. gentlemen may remember that the Bagdad Railway passes the Gulf of Alexandretta at a point only 15 miles from the coast, perfectly flat land over which it is quite easy to fly, as we did repeatedly, but we had no organisation of machines to enable us to blow up the railway, which crosses two rivers by bridges 130 metres wide, I think, if I remember rightly—a single line. That railway could undoubtedly have been destroyed if we had had the material to do it, and that would have meant isolating the forces of the Turks in the East from their headquarters in Asia Minor.

Then there is the case of the Hedjas. As hon. Members remember, the Turks for a long time kept a garrison at Medina, from which a single line of railway runs through the desert to the north. If we had had a sufficient and properly organised Independent Air Force, there is not the least doubt that that line could have been cut repeatedly, the garrison of Medina forced to surrender, and the King of the Hedjas would have had his victory months, and perhaps a year, sooner than he had.

As it was, the capture of Jeddah was a decisive military action by air. The place was bombed and the Turks surrendered without any land force being required at all, which is an instance of a decisive action by air.

At Aden there was a man with a force some twenty-five miles inland and no one would attack him because it was too hot. It was simply the heat of the desert which protected him. If we had had an effective Independent Air Force he would have been wiped out. That is the sort of thing which will happen in future. It is one of the things that the Air Force will have to undertake on the military side.

Then there is the civilian side, which is far more important. These are some of the commonplaces of their work—licensing aircraft, certifying pilots, regulating patrols, laying down international law, and so on, as well as a great deal of pioneer work.

The Aircraft Industry is, of course, at a very critical point. It has lost, or is losing its best customer. The War having ceased, the best customer is cutting down its orders, and it is not a time when the industry can afford to do the necessary pioneer work. And yet a great deal of pioneer work has got to be done.

The sort of work that the Air Ministry will do, I suppose, is something of this kind: The air must be policed. You must prevent smuggling—a big job. You may both find and signal distressed vessels. A great deal of the work done by coastguards could certainly be done by aircraft. The air patrols would see a vessel in distress and might bring it succour, and certainly bring back news so that assistance could be rendered.

Then there are expeditions. An expedition already is fitting out in America and taking aircraft to explore the Northern regions. Undoubtedly there is the use of aircraft for the production of rain by a discharge of electric currents between aircraft in the clouds.

There is the whole arrangement of codes and signals in the air. Nothing could be more grotesque than the present arrangements by which a signal is made in a naval code and made into the military code I have know a message take eight hours, though the actual message was sent in as many seconds from one place to another. All that has to be arranged by the Air Ministry.

Then there is the whole question of the navigation of the air. You must have charts showing the speed of winds at different heights. There is also the question of telling aircraft which are lost their position by means of wireless telegraphy. Then there is the provision of lighthouses, and all sorts of signals in fog

All this sort of work has got to be done by the Air Ministry, and the question we have to ask is: Is a proper foundation for this sort of work being prepared by the association of the Air Ministry with the War Office? It is perfectly obvious from the enumerations I have given of the purposes of the Air Ministry that no good thing can possibly come by associating this great, live, progressive Service with the War Office. As a matter of fact, it is much more akin to Admiralty work. But I should have been the very last, having served in the Royal Naval Air Service when under Admiralty control, to recommend that the Service should be put under the command of the Admiralty.

I am not speaking of the regime of the right hon. gentleman (Mr. Churchill) at the Admiralty. I only wish I had been serving when he was at the Admiralty. Rather than the War Office or Admiralty, I would see a civilian element introduced in the Air Ministry so as to be in touch with all the genius of civilian energy that has done so much to give us the mastery of the air we enjoy at the present moment.

The Royal Air Force can look back without shame on the records of the last four years. It can look forward to an unparalleled opportunity of service in the cause of humanity. That, in my judgment, depends entirely on the preservation of its unity and its independence.

Colonel Moore-Brabazon: I rise, with a certain amount of nervousness, for the first time in this House to make my maiden speech, but I am reassured somewhat by Members who have told me that even those gentlemen who speak on the Front Bench have not always distinguished themselves by their maiden speech. My own case, I think, is a little different from other Members of this House, because I stand for the Chatham Division of Rochester, where there is situated a very big manufactory of aircraft, so that the question of aeronautics and aviation played a more prominent part there than perhaps in other constituencies.

Consequently, after they have placed their confidence in me and elected me, the first thing I find is that the Government have introduced a measure for an arrangement of offices which is so much against what we understood in the past that I have, even at this early time, and much against my will, to raise my voice in protest.

I have been told that the House will lend its ear to a Member who knows his subject. Some fourteen years' intimacy with aeronautics having given me knowledge, I look around and hope that I may be accorded that ear. I divide that fourteen years into three periods. I am here now again as a civilian. There was a time when I was a civilian. There was a time when I was a soldier—or an airman—and there was a time when I was at the Air Ministry. I do not know under what class that occupation would come.

Anyhow, the whole history of aviation in this country is so short that I have not to appear in this House with grey hair or a long beard to show that I have been associated with it from the start. I want, if I can, to convey to this House how in all that time the spirit of opposition from those great offices, like the War Office and the Admiralty, has been dominant.

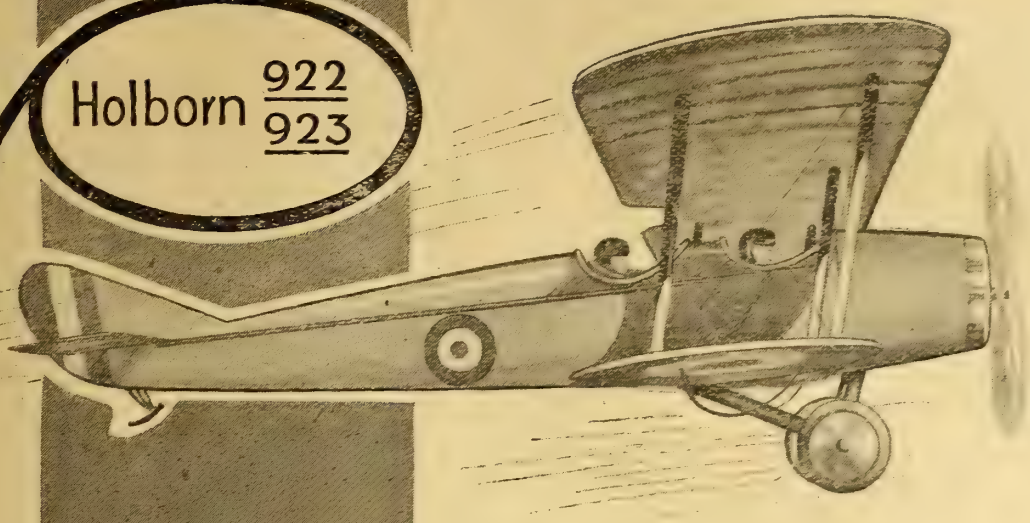
In the very early days of aviation, in 1911, certain members of the Aero Club were so impressed with the possibilities of aircraft from a purely military point of view that they arranged a deputation to the War Office, and made an offer to the War Office to provide two aeroplanes, with the pilots and all the necessary paraphernalia, so that the aeroplanes might be tried during the Army manœuvres of that year. I formed one of that deputation.

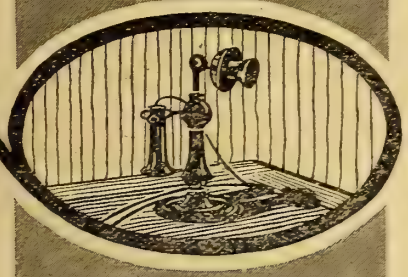
I approached, I must say, the building with some confidence. After being kept waiting three-quarters of an hour we were told that the aeroplanes were not wanted for war purposes, that no one could see any use for them. That was the sort of encouragement one got in those days.

Lest, however, the Admiralty should think that they are less blameworthy, let me tell the House that the Aero Club again had to teach the first four naval pilots. These were taught by private members of the club because no action would be taken by the Navy in the matter.

I want to skip from that time to the War. When the War came on there was a Flying Corps, a small one, I admit, but already the right hon. gentleman the Minister for War had, for the best purpose, I do admit—still he had done it—taken a part of the original Flying Corps and had turned it into the Royal Naval Air Service. I know

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his intentions were of the very best, but so many great mistakes are made under those circumstances.

It is popularly supposed that the Flying Corps and the Air Services during the War were welcomed by everybody at the front. Such, I assure hon. Members, was not at all the case.

First of all, the thing was not in the book. And reconnaissances, the most elementary, of course, of all the uses of aircraft, were not in any way believed in.

Then we got a little further. When trench warfare began we went in for photography, and we produced all sorts of photographs. We tried to get the people to accept them. They said they were very pretty but they did not see any use for them. We had as a Flying Corps actually to start to make maps before the Army would make them.

There was a lieutenant-colonel, now a famous general, who carried in his pocket a pocketful of photographs. After every interview he used—like a commercial traveller—to produce one and say, "You must have one of these; you will find them very useful."

Then, again, I want to show hon. Members another instance of opposition from the Army mind—that is in regard to Artillery. It is well known that every gunner thinks he knows exactly where his shot goes. That is one of those popular fallacies one cannot dispel. The Royal Flying Corps did their very best to help them to correct their shots. Yet it was not until we actually showed the marks made by the shells, by photographs, that they were practically forced to use aeroplanes for firing heavy guns. On that matter I remember well an officer, who was killed, flying over Ypres salient and sending back by wireless this curious message: "If anyone is firing at the centre of Bellewarde Lake he is hitting it."

Do not let the Navy think that they are not to blame. We are told in the papers every day to remember the Dover patrol. I very much remember it in the early days of the War. It will be remembered that the Navy were in charge of that stretch of coast. They allowed to be built up there an enormous enemy artillery which never ought to have been allowed for one moment to exist. It never would have existed if aircraft had only been used as it should have been.

Instead of that, the most antiquated methods were adopted by the Admiralty. They brought up huge constructions, dropped them in the sea, and put a man upon them; and he was asked to observe the fall of the shots behind a hill which he really could not see. The while there were squadrons at Dunkirk dying to do the work.

I bring forward these points to show the constant opposition there is to anything new, and we have never got over that even to this day. After seeing what opposition there was to the R.N.A.S. there was naturally a feeling between the two Services to get together to be allowed to do their work.

When the R.A.F. was formed that was a red-letter day in aviation, because it was the declaration of independence of a new Service. If one can make a simile, the egg of aviation was cracked and out came the chick. What plumage it was to take on we did not know, but the plumage turned out somewhat heterogeneous.

A few of us here believe in the future of aviation, and we want to know whether the Government do. We want to know what the arrangement is and whether it is permanent or not. If it is simply to help demobilisation let us be told so. Perhaps the Government have taken it into their heads to start some aviation experiment on their own, and this is but "Kite-flying" for a Ministry of Defence.

Had the present arrangements been reversed, and had there been a Secretary of State for Air, and an Under Secretary of State for War, that would at least have shown that the Government saw what things were coming to, because although the Air Service is going to be very expensive it is in many ways going to save the State money.

The whole outlook in different parts of the Empire must change. For instance, a squadron will do all the work of several garrisons in India, but if you keep your two Ministries together, and if the Secretary of State for War is to take the advice of soldiers, is it not within the bounds of possibility that there will come up from the soldiers a recommendation to eliminate themselves in favour of another Service?

This arrangement has already started almost an agitation for the old Royal Naval Air Service. I do not know very much about the organisation of the Admiralty, and it has always been somewhat of a mystery to me that they have been able to produce anything more than a trireme.

But the Navy have some grievances in the matter of Royal Air Force officers on board their ships. The future of the Air Service can be rather likened to the Admiralty and the Navy in which the fundamental training is the same, but in which at the end the different officers choose the separate branch of the Service into which they would like to go, as, for instance, submarine, mining, navigating officer, or gunner.

In the Air Service it would not be difficult to arrange some form of regiments or corps, one of which would be devoted, say, to the naval side, one to the military side, one to pure bombing, one to pure fighting, and one to the offensive against troops. That is a thing that can easily be done. It only requires a little organisation and a little imagination.

We now come to the commercial side of aviation. Of course, an enormous amount of nonsense has been written about this by people who know very little about it, but I am glad to think that the Indian rope trick has taken precedence in the literary field for the moment.

I think we can compare the future of aviation a little with motoring. We find to-day in motoring that taxation is heavier and legislation is more oppressive in this country than in any other civilised country in the world, and we must remember that motoring never started only in the hands of the Government.

The whole of the future of aeronautics now rests in the hands of the Government. That is an awful thought.

The first thing that we want is to release all flying. We want flying permitted in this country apart from Government machines. Already there is a trend for designs to go different ways. The war machine and the commercial machine are very different things, and the designs are going in absolutely opposite directions.

Up to quite recently no firm was allowed even to build an aeroplane which was not approved by the technical side of the Air Ministry. I am going to touch a little on that last year of mine which I spent in the Air Ministry. I want to show the House the enormous rise of militarism therein. The Air Ministry was fuller of generals than any other building in England.

Even to-day the civil direction of aviation is run by a general. There is scarcely a department which is not run by a general, and where we did expect a civilian politician at the head we find a major-general.

There is at this moment a demobilisation going on in the Air Ministry which I regard with very great alarm. The Air Service, as it was at the end of the War, was composed of civilians who had come into that force, and a few Regular officers. Those civilians, who were the blood of that Service, are going out every day, and there are being left there nothing but old Regular officers. You cannot change the spots of a leopard. Most of those at the head of Departments were generals, and were Staff officers in the War Office, and that is their spiritual home to-day.

Never did the future of a great movement, a new age almost, depend upon careful organisation at one particular time more than aviation depends upon it now. Through this War, with the united efforts of all manufacturers, and with our wonderful flying officers, we have got to the top of the tree. We must keep there. We cannot, by lethargy and by trying to run the thing on a military line when it must be run on a civilian basis, jeopardise the position we have won.

There is one bright spot, and that is the personality of the Secretary of State for Air. He does enjoy the confidence of most people interested in the air. He has imagination, and I believe he has the movement at heart. He has started by shaking a little of our confidence, but if he can in any way restore that, he will find in our little committee the greatest help, because we are out to show that not only is the sea his Majesty's ocean, but that the air is his Majesty's also.

The Secretary of State for War (Mr. Churchill) We have listened to two very pleasant speeches, and I do not think we could wish for anything better than that speeches of that kind should be the characteristics of the new House of Commons, because they were both speeches made by men who, with long study and considerable achievement, have made themselves masters of the subject with which they have dealt. They were characterised not only by knowledge, but by earnestness.

Everyone is delighted to see my hon. and gallant friend (Captain Benn), fresh from his victories in the air and at the polls, speaking for the first time from the front Opposition Bench, and those who are acquainted with the mystery of the birth and growth of our aviation Services know what a help the hon. and gallant gentleman (Colonel Brabazon) has been. I believe his ticket as an air pilot is actually No. 1—and what a claim he has, not only from his service as a flying officer and a pioneer of that development, but as a pioneer in aerial photography. Everyone would recognise and admit his claims to the attention of the House on such an occasion. I am, however, called upon not simply to pay compliments, but to define the policy of the Government on a Motion which, if it were successful, would entail a change of Government.

The Prime Minister is responsible for the decisions which have led to the present arrangement, and in ordinary circumstances he would have been here this evening to reply to the speeches which have been made, but he has already addressed the House yesterday and again to-day, and I believe will speak on our Amendment to-morrow, and therefore it falls to me to defend my own qualifications for this double office in his absence, and to do the best I can to repeat to the House the arguments which I understand actuated him in arriving at that decision. My right hon. friend, I know, had first of all in his mind a great wish not to multiply unduly the offices of the Government. In various directions it is necessary to create new offices, and so far as possible he wished to reduce the scale of the Parliamentary staff by which the Government is carried on.

Although the Air Service is an arm which will acquire increasing importance as the years go by, there is no doubt that after the demobilisation is complete the size of the Air Service compared with either the Army or the Navy will be very much smaller, and it was not considered by the Prime Minister at the present period in aviation development that a separate Secretaryship of State was required for the administration of the Air Service.

In the second place, we are confronted at present with the great operation of demobilisation, which affects the Army and the Air Service in very similar ways though not absolutely identical, and which affects them in ways different from those in which the Navy is affected. The Navy has only been expanded two and a half times, the Air Service has sprung into existence, and the Army has been multiplied by ten. This makes the shrinkages which have to be made in the Air Service and the Army involve decisions in regard to pay, conditions, and regulations governing the transition of men from military to civil life which I say, without hesitation, can far better be taken in regard to those two kindred Services if they are taken from a common point of view and if the two Departments can be made to march in step and not overthrow the policy of the one by separate or independent action on the part of the other.

Therefore, it is specially in regard to this period of demobilisation that I make this point. When demobilisation is complete another important task will lie before us. We shall have to redistribute the garrisons of the British Empire in the light of the lessons we have learned in the war, and in view of the fact that a new element, a new arm, has come into the military category, and though we must not anticipate the decisions of the Peace Conference, that our military responsibilities, particularly in the East, may be somewhat enlarged.

If you are to have the highest amount of military power developed with the least possible cost you have to redistribute your garrisons, with the air and military forces harmoniously interspersed and disposed about the Empire. There are good reasons why an effective arrangement of squadrons, all working from powerful well-established bases, could be held with a minimum of expense and difficulty and the greatest amount of security, whereas without that aerial development very large forces of infantry, cavalry, and artillery would require to be maintained at the greatest possible expense.

It is the harmonious interweaving of the Air Force with the Army in the redistribution of the military forces, in the redistribution of our overseas garrisons, that the hope of our discharging the great tasks that lie before us without an undue burden upon the public exchequer mainly lies. That redistribution can far better be made if it is made from one point of view and if the two Services which are primarily concerned walk together in step and are not competitive rivals in the field.

Therefore, I say that, at any rate at present and in the future—the immediate future—there is special reason why the Air and the Military Secretaryships of State should be directed from a common standpoint. But I should like to assure my hon. friends that in the meantime, without prejudice to anything that may or may not be done in the future, the integrity, the unity, the independence of the Royal Air Force will be sedulously and carefully maintained.

There is not the slightest intention of merging them in the Army, of merging the administration of the Royal Air Force in the War Office, of subordinating it to the War Office, or of derogating from its separate, independent state as a Royal Air Force. I have done my best on every opportunity which has so far fallen in my way to make that perfectly plain, and if at any time another arrangement is thought preferable, and the needs which make this present arrangement appropriate are no longer in existence, the Air Force will be found to have been so conducted and so managed that it could immediately undertake an independent existence with my right hon. friend (General Seely) as pilot under its own steam, or any other arrangement could be made which would enable the offices to be divided. There is no question whatever of rupturing the integrity of the Air Force.

So far from the Air Force having been disintegrated by what has taken place since the present Government was formed, we have enlarged our scope. The manufacturing and production departments of the Ministry of Munitions have been handed over to the Air Force. Anyone acquainted with the importance of these departments will

realise what an accession that has been to the substance and strength of the air organisation. Instead of civilian aviation being split up between all the different Departments, the Board of Trade, the Foreign Office, or whatever it may be, as some people had suggested, it will now be definitely placed in the sphere of the Air Ministry

I am very glad indeed that General Sykes has been induced to take charge of this most important and growing branch of aviation. If you are to choose the head of a civil branch of aviation your choice is limited to two classes of men. You must either choose a Service man or an aircraft manufacturer, and while I recognise to the full the services which the aircraft manufacturers have rendered there can be no doubt that a Service man of distinction is to be preferred, and for this reason: Whichever great head of an aircraft factory you choose to develop civil aviation for the Government you would certainly engender in the breasts of all his rivals and competitors in the trade a feeling of great insecurity and suspicion that would undoubtedly dog his steps.

But General Sykes has most patriotically consented to retire from the military profession, and to take civilian garb, in order to emphasise the civilian character of this Department, and to devote his great abilities to developing to the utmost, as far as it lies in the province of the Government, to the progress of civil and commercial aviation.

We have already taken preliminary steps to introduce a Bill to the House to enable us to get private flying started, at first under regulations, which at a later date can be greatly relaxed, and I trust that progress will be made in that sphere.

My hon friend opposite drew a picture of quarrels between the Air Office and the War Office, in which the Air Office would always be the sufferer. I am not quite sure that that is a picture which carried conviction to his own mind At any rate, I can promise him that there will be very few quarrels between the heads of those two Departments. That, at any rate, is an assurance which I can give him. Whether that will completely reconcile him to the arrangement I cannot tell. But there is another step which he recommended which I think it right and proper to take.

In order to emphasise the distinction between the Air Force and the two parent Services it is necessary that the titles and ranks of the officers should be different from those which are employed in the two parent Services. There is no topic which gives rise to more fertile and provoking discussion than the invention of titles and styles, and therefore I will not venture to submit to the House at present and of those which we save in mind, but I am glad to say that General Trenchard, who has resumed his post in the Royal Air Force, is confident that a good scheme of perfectly distinctive titles can be devised, from which it will be seen that so far from the Royal Air Force being merged in the War Office it has, in fact, taken notable steps towards emphasising its own independent characteristics.

I should like to point out to those in this House who are very much interested in aviation that at the present stage much harm may easily be done by over-estimating its capacity and capability. The hon. gentleman who spoke drew attention to the extravagant estimates which are set about in the newspapers as to the immediate possibilities of commercial aviation.

Generally, we shall not help to forward this cause if we begin by teaching the public to expect from it all sorts of performances which, although they are now within view, are certainly not yet within reach. The Air Force must neglect nothing that can add to its body and its substance. We want everything that the technical departments and the production processes can give us. We want everything we can get from the Navy and from the Army. We want everything we can procure from our own unaided effort

The officers of the Air Force must be drawn from three sources. There must be Air Force officers of permanent commission, but there must also be Army and Navy officers who are seconded, who will come in and do three or four years of flying, and then go back to the parent Services, teaching the parent forces what the air is worth and what it can do for them; and then, perhaps, some of them will come back at a later date as Staff officers or in command.

Unless you have that process you will not be able to make a fair proportion between the lower ranks of the Service and the higher ranks which are open to the legitimate aspirations of those embarking on the career. Unless you have a proper proportion between the higher posts at the top of the Service and the young men who enter at the bottom you will find that you will not get that class which is absolutely necessary if the high tone of the Service is to be maintained—that class of efficient young men of enterprise and daring who are indispensable to the force.

Every profession must have its proper proportion. I have been getting out statistics to see how many curates there are to every archbishop, how many sub-lieutenants to every admiral, how many lieutenants to every field-marshal, and so on. In the Air Force we have the same great disproportion of the young officers of the flying age, and unless you can derive from the two other parent forces something that will take this off, so that they will look to their own Services for their final advancement, you will find it very difficult to provide a reasonable share of advancement and promotion for those who have to enter on this profession. I have, I hope, done something, if not to reassure my hon. friend, at any rate to placate him.

There is only one more word which I can say before I sit down, and I say it because the Prime Minister specially referred to it when instructing me on the subject Reference has been made by both speakers to what is called the Ministry of Defence. There can be no Ministry of Defence, however good that may be in theory and as an ultimate ideal, actually there can be no Ministry of Defence until you have created a staff of extra-officers who have grown up year after year having studied the question of war and the defence of the Empire from the general point of view, and unless that staff have gradually gained the confidence of their respective branches and are familiar with all the branches. You have to build up a great body of combined war thought, capable of producing professional, expert leaders to advise the Government, not from an Army point of view or a Navy point of view, but generally over the whole field of war.

Until you possess that body of officers, believe me, it is idle to speculate on the possibilities of a Ministry of Defence. That is a task which certainly cannot be accomplished and achieved until not merely the officers have been trained, but have grown up and are in such a position in their respective Services as will entitle them to the confidence of their comrades and their profession. It is a matter of a good many years' work.

However, nothing in what has been done in the association of the Air Force and the Army under the conditions I have specified, with entirely separate offices, is inconsistent in any way with that ideal, if it is thought to be possible. It may be said that two-thirds of the road has already been covered. I end as I began, by thanking both the Mover and the Seconder for the kindly terms in which they have expressed their differences, and I trust that in the few words which the House has allowed me to address to it on the subject I have done something to remove their objections, or, at any rate, to diminish their hostility

Lord Hugh Cecil: While I am glad to recognise the very conciliatory tone of my right hon. friend's speech, I must say I do not think he convinced me by any of his arguments—if arguments they can be called—that the arrangement suggested is a wise one. It appears that the Government are anxious to save the difference in the salary between an Under Secretary of State and a Secretary of State. Does my right hon. friend think it worth while to put forward an argument of that kind in the House of Commons at this time of day?

Then we are told it is necessary that the Air Force and War Office should work together in respect of demobilisation and other matters. Is my right hon. friend so indocile that unless he was a subordinate official he would find it impossible to work with him, and disagreement would be inevitable? These arguments only inspire distrust, and create the impression that something is being attempted which the Government dare not avow. They are protesting it is essential that the War Office should be over the Air Force, which is the very thing we want to avoid. Surely my right hon. friend can see it is absolutely essential for the efficiency of the Air Service that it should be entirely detached from the control of the War Office.

Experience has shown us that wherever the War Office has intruded its fingers there has followed inefficiency and disaster. As long as the War Office had anything to do with the Air Service it had a mischievous effect, and nothing could be more likely to imperil the future and efficiency of the Air Service than any return to the arrangement adopted in the past I merely want to enter a protest in case my right hon. friend thought his explanation was a satisfactory one.

Captain Benn: In view of what the right hon gentleman has said, and after consultation with my hon. and gallant friends, I beg to ask leave to withdraw the Amendment.

Amendment, by leave, withdrawn.

THE AERIAL NAVIGATION BILL.

On Feb. 17th the Aerial Navigation Bill passed its second reading and the Committee stage. As the official report of the debate was not available up to the time of going to press, the following abbreviated report is taken, with all due acknowledgments from the "Daily Telegraph." Further attention will be given to the official report next week.

THE SECOND READING.

The "Daily Telegraph's" report reads as follows:—

Major-General Seely moved the second reading of the Aerial Navigation Bill, the object of which is to make temporary provision for the regulation of aerial navigation and for purposes connected therewith. He said that without legislation of this kind it would be impossible to permit civilian flying at all. The object of the Bill was purely to secure reasonable safety for the public. It was not desired to impose any restrictions on civilian flying which would prevent people evolving new types or doing anything which they thought would advance flying. The Bill would only apply until the beginning of next year, because a further Bill would have to be introduced giving effect to the decisions of a convention, which would meet shortly in Paris. Already considerable progress had been made in agreement with France and America and other Allied nations, and he hoped general agreement would be come to as to the regulation of flying.

Mr. Joynson-Hicks, while not prepared to vote against the measure, pointed out that the proposed regulations would probably form the foundation of a Bill to be introduced later on, and he protested against this form of legislation to be carried out at the whim of a Secretary of State. A very strong committee, which had gone into the whole question of the regulations as to flying in this country, had drawn up a model Bill, and if the Government had adopted that it could have been carried through at a single sitting. He thought the House should have a little more information with regard to these regulations

Lieut. Mosley, who, as the youngest member of the House, asked for the indulgence of hon. members, said that during the war bureaucratic control had had this nation in its grip, and they might adduce from this Bill that they stood in very great danger of this terrorising influence being extended to embrace this youngest child of the British public. It was admitted that State control was beneficial in some quarters where the safety and comfort of the community were jeopardised, but the air was the very last conceivable sphere of human activity which should be brought under the control of the clerks at Whitehall. The Bill spoke of the "inspection and certification of aircraft," and there was a shrewd suspicion in the trade that "inspection" implied the arbitrary right of the State to supervise and to intervene at every step of the daily business of the private exploiter of aviation. Official perspective in this matter was somewhat deficient. Development in this great new sphere had been achieved almost entirely by individual effort and sacrifice in face of an official lethargy and passive opposition which had seldom been equalled in the long record of blunders which stood to the credit of British bureaucracy. (Hear, hear.)

Sir J. Fortescue Flannery hoped that the Government, while doing nothing to throttle improvement in aircraft, would stick to the principle of seeing that nothing was left undone that would tend to secure the public safety.

Lieut.-Col. Moore-Brabazon said that any Bill which would allow civilian flying would be welcomed, but they must recognise that they were giving to the Government a blank cheque in aviation. He wanted an assurance that firms would be allowed to design their own machines without control, and he hoped the State would not hamper the industry by excessive inspection on the ground of the safety of the public If companies were going

to carry people in their machines they would have to pay something if people were killed. Therefore he said the right body to regulate and inspect machines were Lloyds' and not the Government.

Mr. Denniss thought that unless the Bill was inspired by people in sympathy with the commercial aspect of aircraft the industry would very much suffer. He wanted to know whether the War Council would reserve to themselves all the rights of experimental flying from the United Kingdom to our various dependencies. It was a matter that might kill by regulation.

The Second Reading was agreed to.

COMMITTEE STAGE.

The House went into Committee on the Bill, Mr. Whitley in the chair.

Major-General Seely, in reply to Mr. Joynson-Hicks, said it was intended to give those interested in private flying every possible latitude subject to public safety.

On the motion that Clause 2 stand part of the Bill,

Mr. Joynson-Hicks asked under what authority General Sykes had been appointed to deal with civil aviation. He could find no legal authority under which the Government was entitled to appoint anyone to do with civil aviation, and he was not sure the Air Council was the proper body to control this branch of aeronautics. He suggested that civilians should be added to the Air Council.

Major-General Seely assured the hon. member that there was power to appoint Major-General Sykes. This Bill would enable General Sykes, who was in charge of civilian aviation, to sit on the Air Council, which already comprised several civilians.

The Bill passed through Committee and was reported to the House.

PARIS NOTES.

The aeroplanes engaged in the Paris-Lille mail service which has recently been instituted start from Le Bourget aerodrome, from which the old Paris-Le Mans-St. Nazaire service was run. It is expected that this latter service will be resumed at an early date. The machines and pilots engaged have been lent to the postal authorities by the military authorities.

It is reported that the French Government is also employing aeroplanes for the provisioning of the liberated northern provinces, and large quantities of foodstuffs have been taken to Valenciennes and to Maubeuge. This work is under the direction of M. Louis Bréguet, who is employing 50 machines on the work. After its completion he intends to start a service between Paris and Strasbourg.

It is reported that the Farman "Goliath" aeroplane carried a number of officers to England, who were visiting that country on a special mission.

Jules Védrines has been contributing articles to the "Journal" describing his special missions in dropping spies behind the enemy lines. Apparently, the agents employed were customs officials from the invaded provinces who had retreated in advance of the enemy. These men were highly paid for their work, which was necessarily of a dangerous nature.

The practice was to make them regular members of the aerodrome personnel with which they worked, disguised as a new mechanic, or gunner—and such were the precautions taken, that many of the officers at the aerodrome were unaware of the work upon which Védrines was engaged.

On the appointed day, Védrines would take his special passenger and deposit him behind the lines with instructions to meet at a rendezvous at such a time, on such a day, generally about six days later. Sometimes, however, the spy was unable, for reasons best known to himself, to appear at the rendezvous.

Vèdrines was a member of the famous No. 3 Squadron, called the "Storks," commanded by the Commandant Brocard. He was responsible for the training of the late Capt. Guynemer. In the course of the career of the squadron, its pilots flew Blériots, later Nieuports, and still later Spads. It was during the Nieuport vogue that it sprang into prominence, and became the crack squadron of France. The story of how the squadron obtained its *nom-de-guerre* is interesting.

Védrines was in charge of the advanced training of fighting pilots, and used to tell his pupils how the stork taught her brood to fly by pushing them to the edge of the nest, making them flap their half-fledged wings, and, in due time, leaving them to shift as best as they could for themselves.

It is said that a French Aeronautical Mission which is proceeding to the United States will include among its members Lieutenants Réné Fonck, Nungesser, and M. R. Esnault-Pelterie, the maker of the R.E.P. monoplanes. M. Esnault-Pelterie is president of the Chamber of Aeronautical Industries, and will represent the trade side of the mission.

An interesting situation has arisen in France by the action of the Police authorities in making an inventory of all the machines, and inspecting the books of the leading aeroplane constructors. This action was the result of special powers conferred upon the police, owing to an injunction obtained by the Compagnie Générale de Navigation Aérienne, the French proprietors of the Wright patents. This action on the part of the French Wright Concessionaires is causing considerable concern in France, as a royalty of £40 per machine is claimed, and as 40,000 machines have been delivered to the State, a sum of nearly two million pounds is involved. The manufacturers naturally want to know whether they are to pay the indemnity, or the Government, because they have already been paid for the machines, and have paid their taxes to the Government.

The Caudron machine which flew from Paris to Brussels, arrived back at Villacoublay on Feb. 12th, after a flight lasting for two hours and five minutes.

The "Goliath" Farman biplane which recently flew from Paris to London and back in a day occupied considerably less time on the outward trip than on the return.

The official time table was as follows:—

PARIS-LONDON. Left.		LONDON-PARIS. Left.	
Toussous le Noble.....	11.55	Kenley	12.23
Abbeville	1.08	Folkestone	1.18
Boulogne	1.38	Berch	2.06
Folkestone	1.57	Abbeville.....	2.28
Kenley	2.30	Beauvais	3.08
		Toussous le Noble	3.46
Total Time	2.35	Total Time	3.23

The journey was performed at an average altitude of 2,500 ft., which was increased to 3,500 ft. during the passage of the Channel.

It is reported that the Farman Company is constructing an aerial taxi and a single-seater runabout. The former machine is an enclosed three-seater, with pilot in front and two passengers side by side Two Renault or Lorraine engines will be used. The machine will be hired out by the hour or the month.

It is reported that the "Goliath" machine, which flew to London, is to fly from Paris to Brussels and back.

The project to fly a C.23 Caudron to London has been cancelled, owing to the unwillingness of the proprietor to "militarise" his machine and crew. He, therefore, intends to make arrangements for a Paris-Brussels service. The initial trip was therefore made by M. Boulard with a mechanic and six prominent French journalists, two of whom made the return trip on a C.21, which had accompanied the big machine, piloted by M. Chanteloup.

It is expected that another C.23 will fly from Villacoublay to Toulouse or Marseilles.

The French aeronautical mission which is to tour the United States is taking over the following machines:—Hanriot (Le Rhône engine), Bréguet (Renault), Nieuport (Hispano-Suiza, 300 h.p.), Spad (Hispano-Suiza, 200 h.p.), Spad (Lorraine, 300 h.p.), Farman (Salmson), and an S.E.A., pursuit machine.

M. Robard has been given the post of Administrator of the Société des Moteurs Gnôme, in place of the late M. Séguin.

LONDON TO PARIS.

A British Military aeroplane, carrying dispatches, completed a flight from Paris to Hendon in one hour and fifty-five minutes. The flight was not intended to be a speed test.

The Air Ministry forwarded the following for publication on Feb. 13th:—

Yesterday a British service machine of the London-Paris courier service flew to Paris and back in 4 hours and 20 minutes flying time. The return journey was made in 1 hour 50 minutes, which lowers the record previously made by 5 minutes.

[One would remind the Ministry that there is no recognised London-Paris record.—Ed.]

A GOOD AIRSHIP FLIGHT.

It is stated that a British non-rigid airship—N.S.11—patrolled the North Sea for 4 days, 4 hours, and 50 minutes, carrying a crew of 2 officers and 8 men, and covering, it is believed, a distance of about 2,000-2,500 miles.

This possibly constitutes an unofficial world's duration record for a non-rigid airship, but it is not known whether the Germans have made flights of longer duration.

A MILITARY SURVEY.

It is understood that Captain Shortridge, R.A.F., has left Cape Town for the North, for the purpose of arranging landing grounds at Bulawayo and other places in Central Africa in connection with the flight of Brig.-Gen. Herbert from Egypt to the Cape on a Handley Page machine.

Arrangements have already been completed at Pretoria and Bloemfontein. It is expected that Brig.-Gen. Herbert will reach Victoria Falls about the middle of February.

A NEW METHOD.

Lieut. James McCullough, an American Army pilot, recently sighted a whale several miles off the Californian coast, and killed it with machine-gun fire after a chase of two miles.

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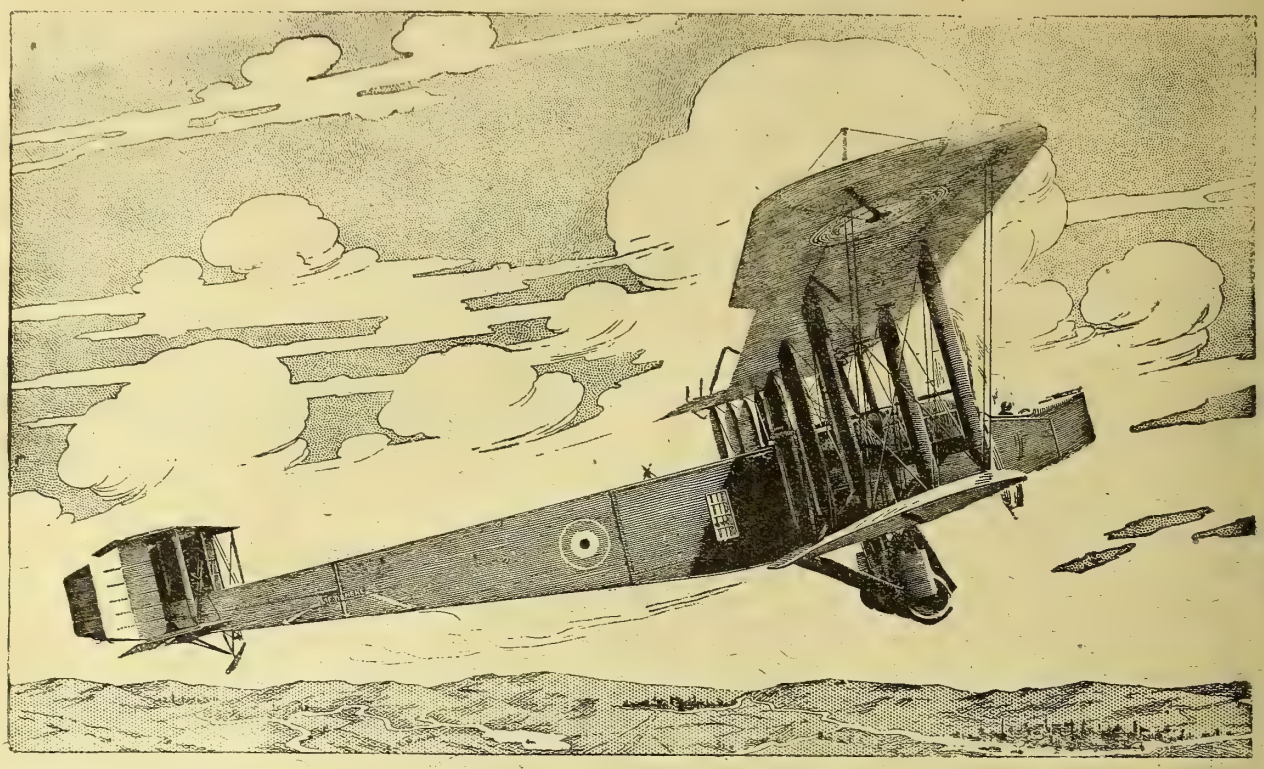
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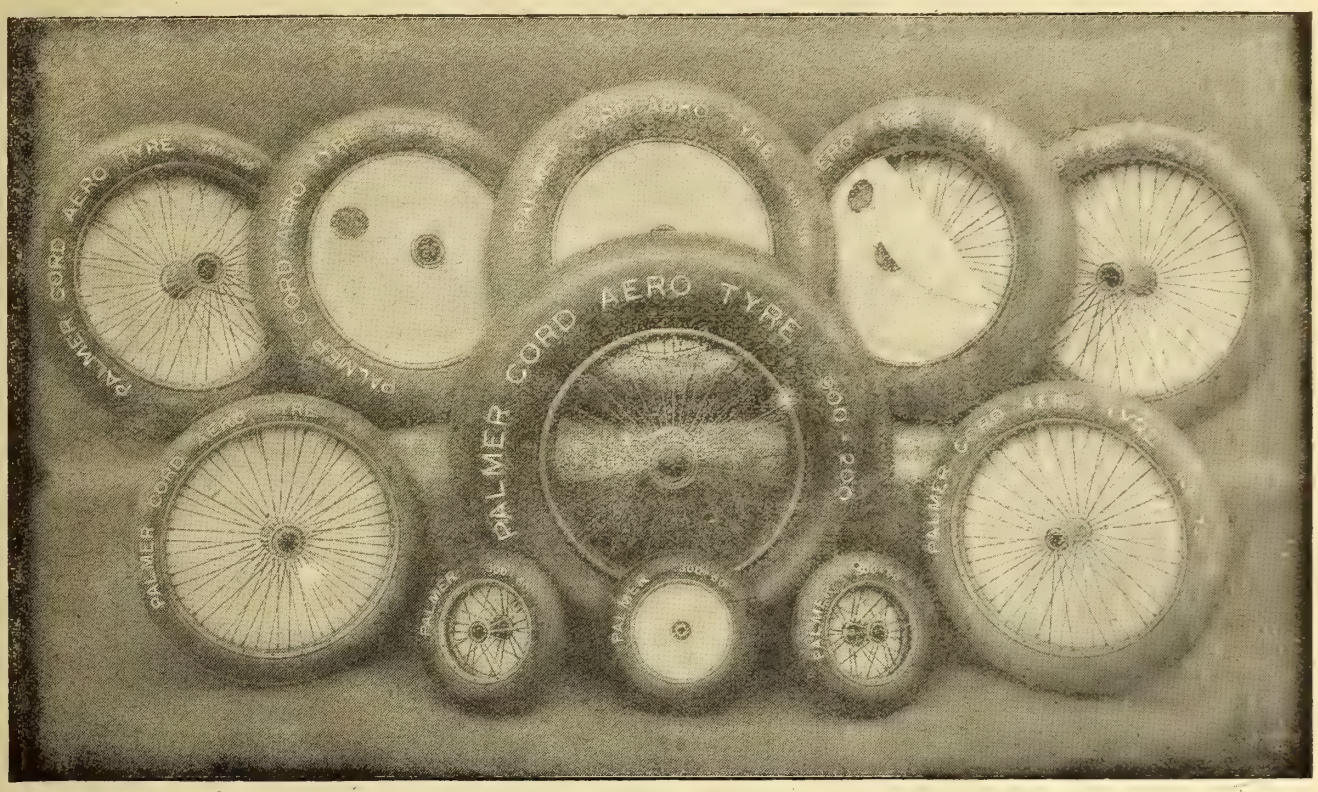
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300×60	16	111.12	25.4	Central	700×100	33	150.	38.09	Central	800×150	†41	185.	55.	Central
,,	17	72.39	12.7	Central	,,	77	178.	44.45	132 46	,,	82	185.	55.	135 50
450×60	30	89.	31.75	Central	,,	92	185.	55.	135 50	,,	85	185.	55.	Central
575×62	21	160.	28.	Central	,,	95	185.	55.	Central	,,	†205	185.	60.32	Central
,,	34	150.	31.75	104 46	,,	96	178.	55.	132 46	1000×150	97	250.	65.4	Central
,,	111	150.	38.09	104 46	,,	99	178.	38.89	132 46	,,	102	185.	55.	125/60
650×65	78	178.	44.45	132 46	,,	112	150.	40.	Central	,,	201	185	60.32	125 60
,,	79	178.	44.45	Central	650×125	119	178.	55.	132/46	900×200	107	185.	55.	Central
,,	100	178.	38.09	132/46	750×125	33	150.	38.09	Central	,,	108	185.	55.	125,60
,,	101	178.	31.75	132/46	,,	77	178.	44.45	132 46	,,	128	220.	66.67	Central
600×75	21	160.	28.	Central	,,	92	185.	55.	135 50	,,	202	185.	60 32	Central
,,	34	150.	31.75	104 46	,,	95	185.	55.	Central	,,	208	185.	60.32	125 60
,,	111	150.	38.09	104 46	,,	96	178.	55.	132 46	1100×220	134	220.	66.67	Central
700×75	78	178.	44.45	132 46	,,	99	178.	38.89	132/46	1250×250	136	250.	80.	Central
,,	79	178.	44.45	Central	,,	112	150.	40.	Central					
,,	100	178.	38.09	132/46	800×150	†36	185.	55.	135 50	1500×300	115	304.8	101.6	Central
,,	101	178.	31.75	132/46	,,	†40	185.	60.32	135 50	,,	126	304.8	152.4	Central

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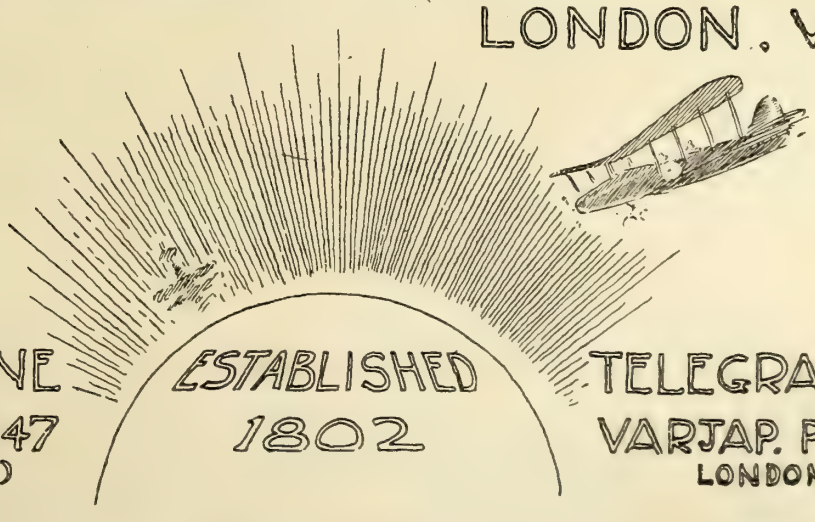
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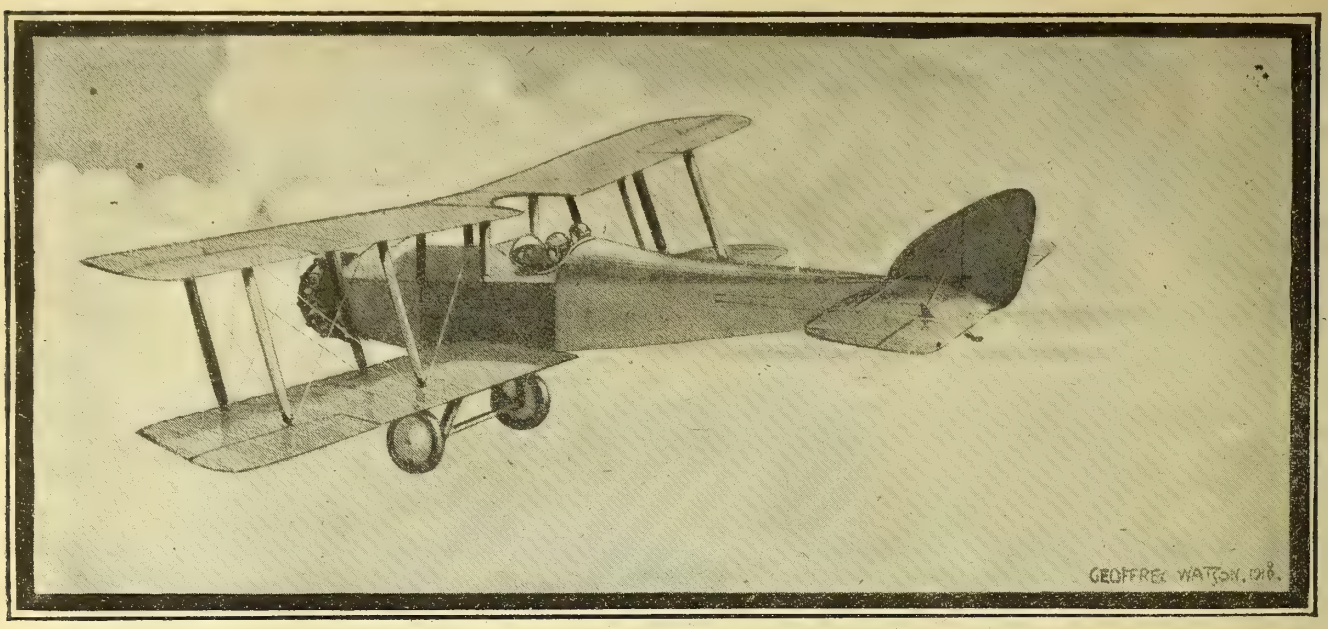
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THE WEEKLY COMMENTARY.

In a further instalment of the articles upon the "Design of Aircraft for Commercial Purposes," Capt. W. H. Sayers, R.A.F., shows the influence of traffic conditions upon the costs of an aircraft service.

His examples show in a graphic manner the very serious effect upon costs of a service which does not employ the available cargo capacity of the machines engaged upon it to the greatest possible extent, and that this difficulty is not to be solved directly by a choice of machines of such a size that the service will occupy them fully, since a change in size extending beyond certain fairly narrow limits will result in an increase in the capital and the running costs per ton mile of available cargo, unless the general lines of aeroplane design hitherto in favour are modified.

A description of the Sunbeam "Arab" engine will be found in this issue. This description is of German origin, and of particular interest on account of its frank recognition of the merits of many of the features of design.

The author's opinion that this particular engine must be regarded as "a superfluous multiplication of the types," will be appreciated at its true worth by those readers of THE AEROPLANE who are acquainted with the services which it rendered during the last twelve months of hostilities.

An article by Mr. Massac Buist, reprinted from the "Morning Post," which gives the opinions of a well-known American technical writer upon certain phases of the relations between employers and employees in British motor factories, is included in this week's issue.

Although one may find it difficult to believe that the relations between employers and employees, which Mr. Beecroft suggests are usual in America, are actually representative of the normal conditions, there can be no doubt that they are desirable.

A brief description of a small American machine which is credited with an extraordinarily high speed is given in this issue. Whatever opinion may be formed of the general capacity of American aircraft designers to produce useful machines, their courage in adopting novel methods of construction is undeniable.

THE DESIGN OF AIRCRAFT FOR COMMERCIAL PURPOSES.—II.

BY CAPT. W. H. SAYERS, R.A.F.

In the present state of affairs it is not possible to put forward any figures relating to the cost of operating aircraft upon commercial services which can claim to be even approximately accurate.

It is quite possible, however, to demonstrate the nature of the effect upon costs of varying conditions by making very rough assumptions.

In all that follows it is very clearly to be understood that the figures taken as a basis are nothing more than this. Figures have been chosen so that they may bear some sort of resemblance to the probable truth; but they are in no sense advanced as serious estimates of the actual costs under the assumed conditions.

Commencing then upon a more detailed examination of the subject, it will be considered that a service is to be operated between two points, A and B, under the following conditions. Machines are to be employed which, in addition to the necessary fuel and crew for the journey, can carry one ton of cargo for each two tons of fully laden machine. Fully loaded, these machines can fly at something over 100 m.p.h., and will maintain an average land speed of 85 m.p.h. in service.

The prime cost of such machines complete is to be at the rate of £2,250 per ton of fully loaded machine, and the other capital costs of the service will amount to as much again. That is, the total capital outlay upon the service is £4,500 per ton of loaded machine. At 5 per cent. per annum the total capital charges amount to £225 per annum per ton of loaded machine. Flying 24 hours per day every day, each machine would cover roughly 740,000 miles per annum, and each ton of loaded machine would cost $\frac{£225}{740,000}$ = 0.74 pence per mile; or twice that figure (1.48 pence) per ton mile of available cargo capacity.

The capital cost per ton mile capacity is inversely proportional to the actual time flown, and is therefore $1.48 \times \frac{24}{T}$ pence, where T is the average time, in hours, flown per day.

It is further taken that £3 per hour per ton (loaded) is the direct operating cost of such machines. This is $\frac{£3}{85} \times 2 = 16.8$ pence per ton mile cargo capacity.

Assuming that all machines wait for their full load before commencing their journey, Fig. 1 shows the variation of cost per ton mile of cargo, as the machines are more or less continuously in service. It is obvious on inspection that it will be extremely uneconomical to employ machines so large that a great proportion of their total time is spent on the ground waiting for a full cargo.

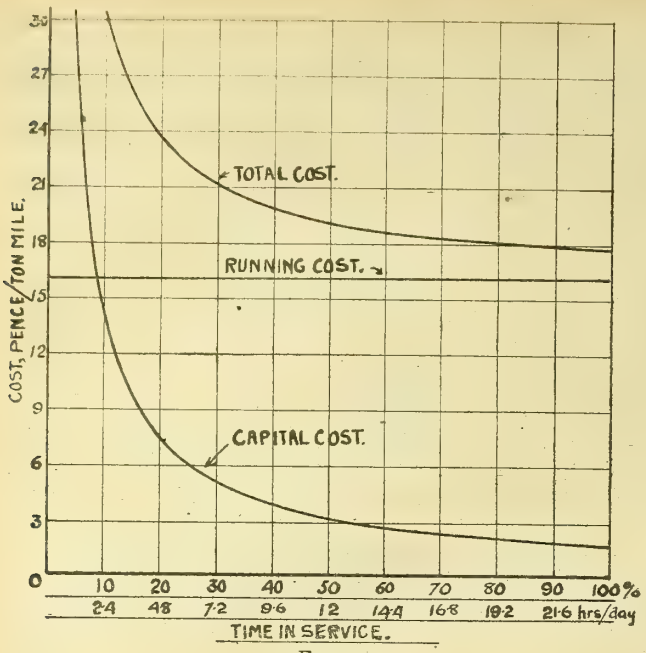


Fig. 1.

Machines for such a service must therefore be designed of a cargo capacity sufficiently small to avoid this source of loss.

If instead of waiting for a full cargo a regular service at predetermined times is to be run—cargo or no cargo—a rather different state of affairs is apparent. Such a predetermined service entails a definite mean value of time spent in the air per machine. It will be assumed that this is 20 per cent. of the whole—an average of 4.8 hours per day. Then from Fig. 1 it can be seen that the capital cost per ton mile of cargo space available is 7.4 pence.

If less than full load is carried, the capital cost per ton mile becomes $7.4 \times \frac{1}{L}$ where L is the fraction of the full load actually carried. The running costs per machine hour are reduced somewhat if less than full load is carried, owing to the smaller quantity of fuel consumed, but otherwise the running cost per ton mile of cargo varies inversely as the load carried. In Fig. 2 these two costs, and their sum, the total cost per ton mile carried, have been plotted against the mean load carried. A dotted curve shows the nature of the reduction in running cost per ton of cargo capacity which has been assumed in arriving at the running cost per ton mile of actual cargo carried.

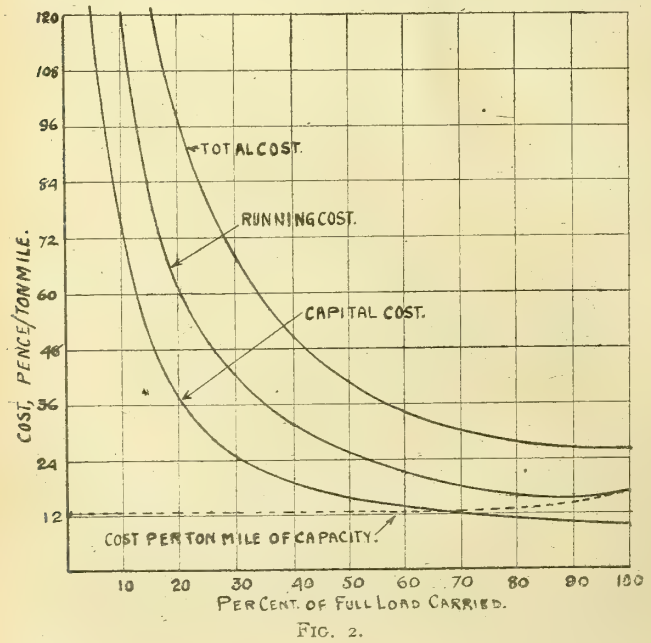


Fig. 2.

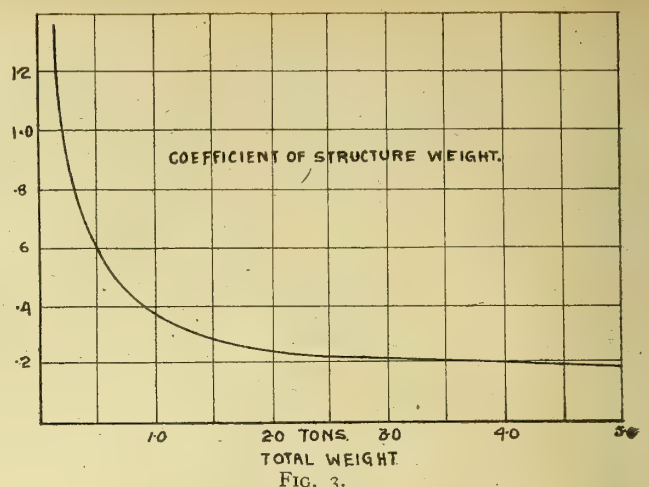


Fig. 3.

Fig. 2 emphasises even more than does Fig. 1 the importance of suiting the capacity of the machines to the needs of the traffic catered for. Incidentally these figures provide a warning against the rash assumption that every commercial machine must be as large as possible.

Unfortunately the choice of a machine of suitable size for any given service further complicates the question of costs.

From the principles of mechanical similarity it can be shown—in any "family" of aeroplanes, each one of which is a scale enlargement, or reduction, in every particular of every other—that identical performance and equal factors of safety will be obtained when the total weight is as the square of the linear dimensions, and when the h.p. is directly proportional to the total weight. At the same time the weight of the machine structure will vary with the cube of the linear dimensions.

The weight of power plant and engine mountings will be very nearly at a constant rate per h.p., and therefore at a constant rate per ton of loaded machine.

Thus in any such "family" of geometrically similar machines, the smaller the machine the larger is the ratio of total disposable load to the total weight of loaded machine. "Total disposable load" here means not possible cargo, but cargo, fuel, oil, crew, and equipment.

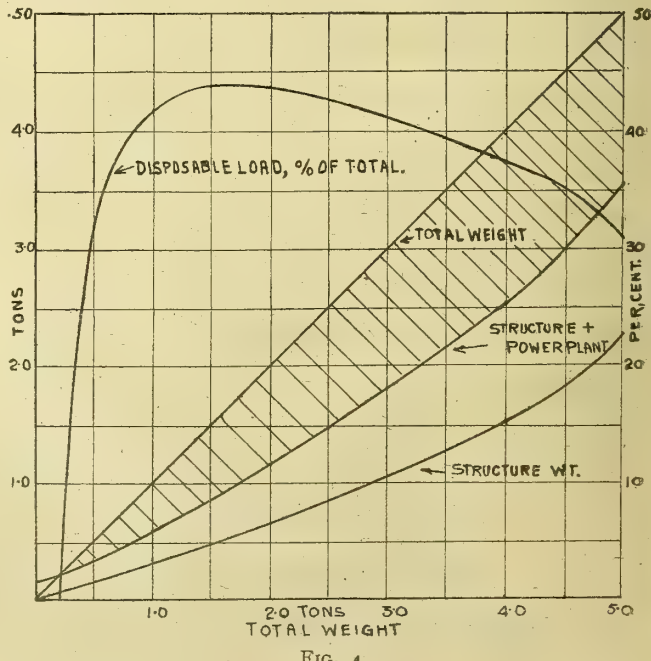


Fig. 4.

THE

NAPIER

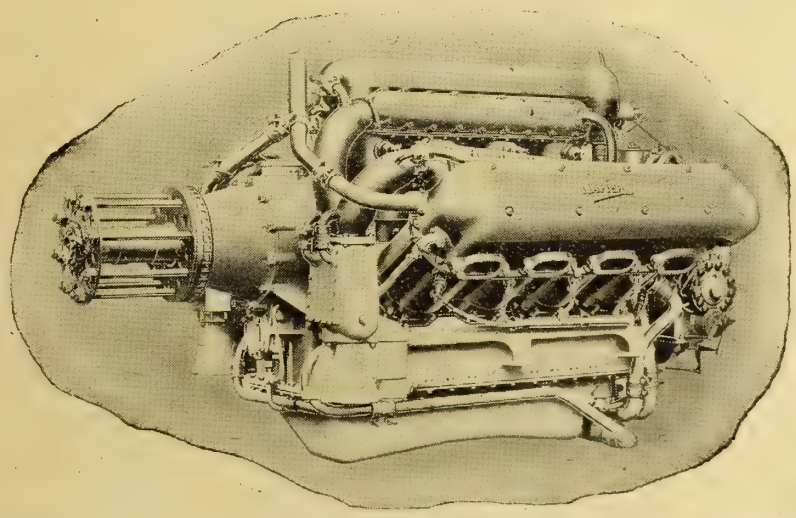
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In actual practice, machines are not built in geometrically similar series. In large machines it is possible to employ a better disposition of structural members and a more advantageous choice of materials. Thus while in the hypothetical "family" of machines the structure weight $S = C \times W^{3/2}$, where C is a constant and W is the total loaded weight of machine, in actual machines C becomes a variable figure, decreasing as the size of machines increases.

The nature of the variation is shown in Fig. 3, which represents a fair approach to normal practice at the present moment. Obviously the value of this coefficient of structure weight can be decreased by improved design and finer workmanship and at a corresponding increase in capital cost.

From Fig. 3 the lower curve of Fig. 4—showing the actual weight of the structure in machines of from 0 to 5 tons fully loaded—is obtained. To the structure weight so obtained the weight of power plant is added, which gives a second curve of unloaded machine weights. The shaded space between this curve and the diagonal line, which represents the total weight loaded, gives the disposable load. The value of disposable load is also shown as a percentage of the total machine weight.

The power plant weight has been taken as .4 lbs. per h.p. and 150 h.p. per ton of loaded machine, at the rate, therefore, of 600 lbs. per ton.

From these curves it can be seen that a variation in the size of machine used in any given service will introduce a further variable factor into the costs, since it either varies the proportion between the gross weight of machines and the weight of cargo which can be carried, which will have an effect upon the prime cost per ton of cargo space available and upon the fuel and oil consumption for a given cargo ton mileage, or, if by suitable design and construction this ratio is kept constant, the capital cost per ton of cargo capacity will increase with the size of machine.

(To be continued.)

A GERMAN CRITIQUE OF THE SUNBEAM "ARAB" ENGINE.

The issue of Dec. 20th, 1918, of the German motor and aero paper, "Der Motorwagen," contains an illustrated article by Civil Engineer Otto Schwager, of Charlottenburg, on "A New English Aero Motor of Unknown Manufacture," of which an abstract follows. THE AEROPLANE is naturally not responsible for the criticisms of the engine which it contains.

An eight-cylinder high-speed engine, resembling the Hispano-Suiza engine in appearance and arrangement, made its appearance some time ago on the Western Front. The engine is apparently made by the English Sunbeam firm at Wolverhampton.

The main data of this new motor are as follows:—

Cylinder bore = 120 mm.
Stroke = 130 mm.
Total cylinder capacity = 11.8 litres.
Compression ratio = 5.39.

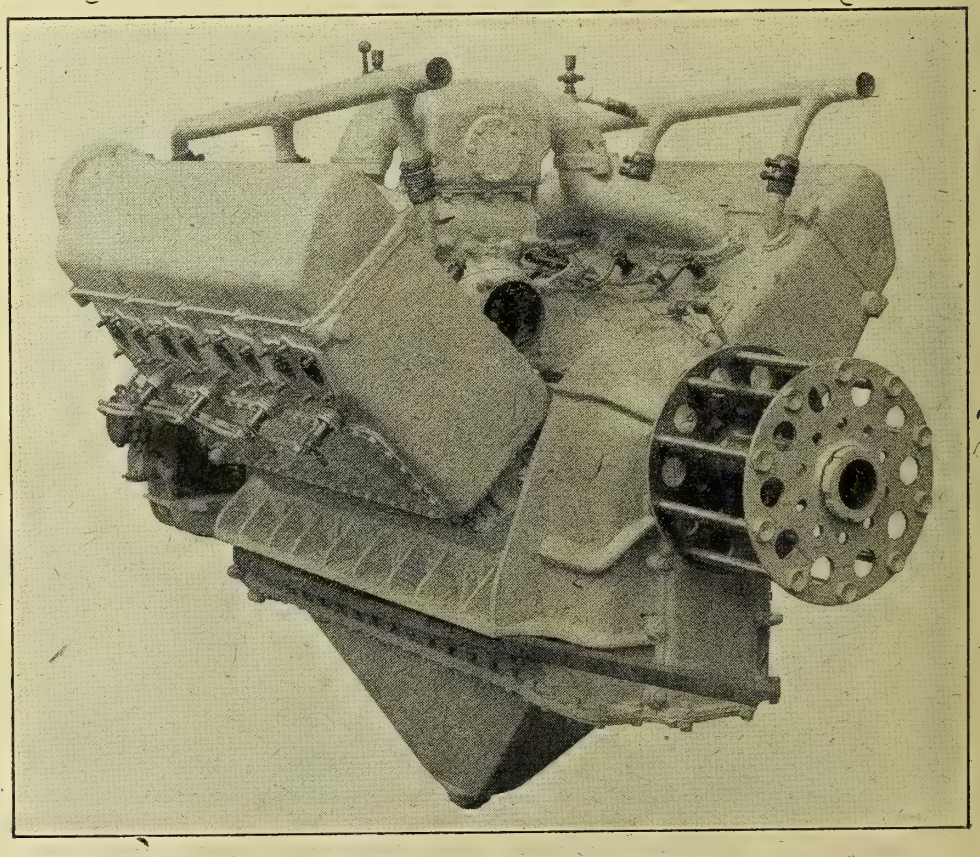
The engine appears to be designed for a similar rotation speed to the Hispano-Suiza 2,000 r.p.m., and the performance, assuming mean effective pressure of 8.4 kg. per sq. cm., works out at 220 h.p. Between the camshaft and the airscrew a spur-gear has been installed with a reduction ratio of 5.3, the airscrew running thus at 1,200 r.p.m. for 2,000 r.p.m. at the crankshaft. The weight of the motor without water and oil, airscrew boss and exhaust manifold amounts to 240 kg., which corresponds with 1.09 kg. h.p.

All these figures correspond almost exactly with those of the 220 h.p. Hispano-Suiza engine, with which latter its exterior has much in common. Yet it shows quite a number of novel features, some being improvements upon the Hispano-Suiza, although, taken on a whole, it cannot be considered a serious development of its prototype. Its creation must rather be considered a superfluous increase of the types. Nevertheless, this engine possesses many noteworthy details, distinguishing it from its model and affording the designer many hints.

The engine is mounted on an aluminium crankcase, fundamentally different from that of the Hispano-Suiza. The crankshaft is carried entirely by the upper half, as is the practice in various German motors. There is even more reason for choosing this design, as with each set of four cylinders cast together in a block and bolted to the crankcase, an arrangement giving the greatest resistance to torsional stresses can be used. Furthermore, the designer has displaced the joint between the top and bottom parts of the case as far as possible below the crankshaft, still further stiffening the upper half against such stresses, which are always pretty low in V-type motors with block cylinders. The bearing brasses are lined with white metal and bolted to the top part of the case, through cast aluminium covers.

The bearing covers are further supported by fish-plates of a rolled aluminium alloy, apparently duralumin, and the whole is bolted to the top part of the crankcase.

There is less reason for this design than for that of the upper crankcase, as it should be possible to make the bearing covers considerably more torsion-proof for the same weight. The gear-casing is well strengthened by ribs cast direct on the front part of the case. For mounting in aircraft a continuous ledge, cross-ribbed upwards and downwards, is cast level with the crankshaft centre line. Immediately above this ledge a channel for the oil-supply to the crank bearing is cast in, thus dispensing with oil-pipings, but making the oil-supply depend on accurate



Airscrew End of "Arab" Sunbeam Engine.

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moulding. The bottom part of the crankcase is formed mainly as a light oil sump, and is divided from the top part by means of an oil-filter for most of its length. Thus cleaning the oil-filter is only possible when the motor is taken down, which is apparently unimportant, owing to the large free section of the filter. The weight of the whole crankcase amounts to about 47½ kg. against only 36 kg. by the Hispano-Suiza engine. The advantages of the original design seem thus not to have been turned to full effect.

Including the support in front of the small gear wheel, the crankshaft has six main bearings. The diameter of these main journals is 59 mm., that of the connecting-rod bearings is 50 mm. The centre crankshaft bearing is much longer than the rest. Though the crankshaft appears stronger than that of the Hispano-Suiza one, its weight is only 16.2 kg., against 23 kilos. of the Hispano-Suiza shaft. This result is achieved by ample boring of the shaft to the extent of 38 mm. diameter between the gear wheel and the first crank to 42 mm. in the rest of the crankshaft bearings and to 32 mm. in the crank-pins.

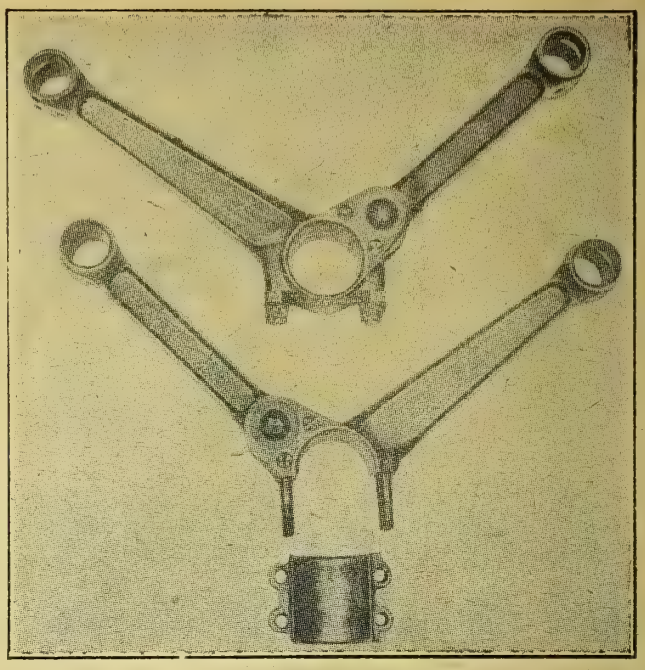
Taking the most unfavourable condition that the piston pressure is distributed on two main bearings 48 mm. long, the surface load = 72 kg. sq. cm. at 30 atmospheres maximum explosion pressure, which corresponds at n = 2,000 r.p.m. to a value for the friction loss $\varkappa$ of = 436 m. kg. per sq. cm. per sec.

The connecting rods (illustrated here), contrary to the Hispano-Suiza, have been formed as articulated rods. In spite of the resulting uneven piston movement the articulated rod is to be preferred to the forked rod on the score of reliability, though the latter represents undoubtedly a more elegant design. It renders possible a strong design of connecting-rod bearing cap; and, secondly, the friction at these bearing connecting-rods can be better dealt with, though care must be taken not to attain this advantage at the cost of too heavy a main connecting-rod. In the present case weight is saved by leaving out brasses in the connecting-rod bearing and casting the white metal in the rod head, with the attendant risk of greater damage to the crankshaft if a bearing runs. The auxiliary connecting-rod is attached to the main rod in the usual way by a bolt 30 mm. diameter and 40 mm. bearing length. The two rods are both of double T-section. The rod end for the bronze gudgeon-pin bush of 30 mm. diameter and 51 mm. bearing length shows the usual form, and is provided with a number of weight-reduction holes. The lubrication of the gudgeon-pin, contrary to the Hispano-Suiza practice and to the rest of the well-known motor designs, is by oil splashing, which simplifies the lubrication system, but does not increase the reliability.

Assuming the maximum explosion pressure, but neglecting the inertia forces, the various bearing loads will be as shown in the following table :—

Bearing	Diameter. Cm.	Bearing length. Cm.	Surface load. kg. per cm²
Main connecting rod pin...	5.0	5.2	130.5
Joint pin	3.0	4.0	283
Gudgeon-pin	—	5.1	222

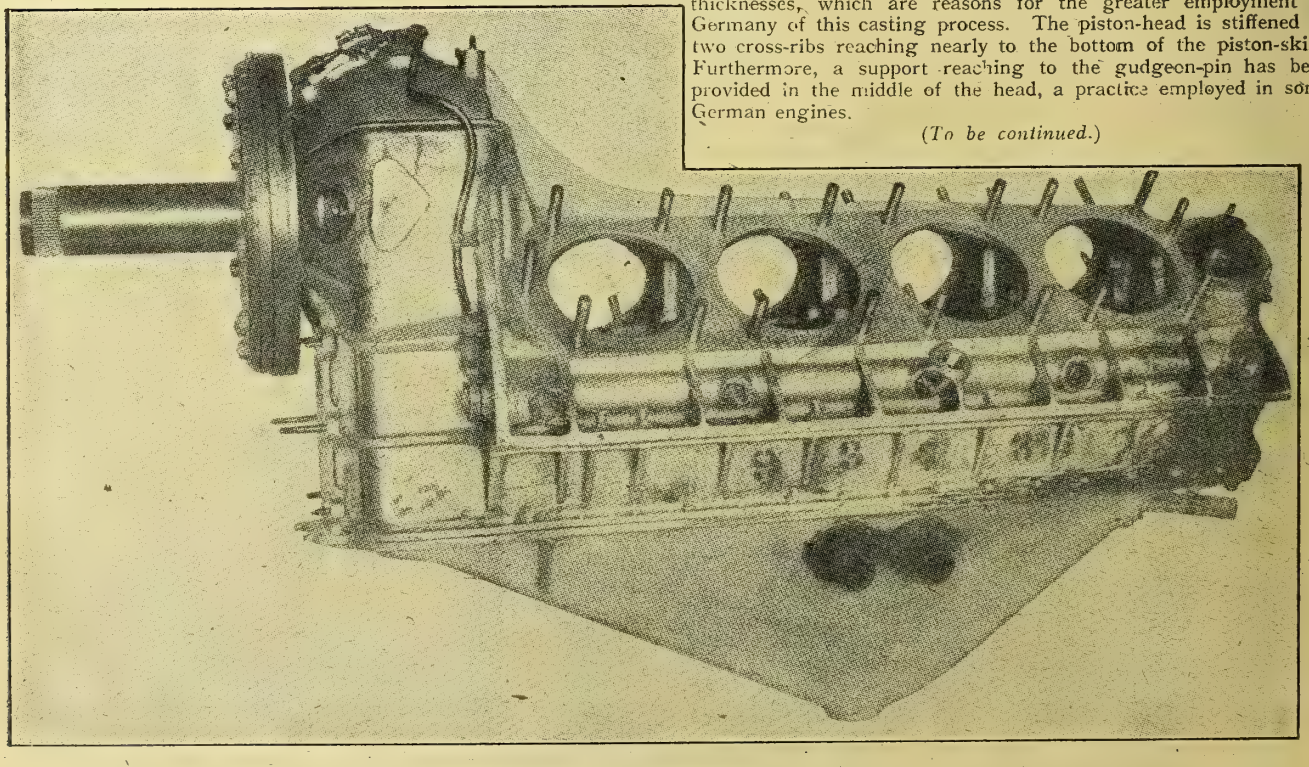
The friction losses for the connecting-rods at 2,000 r.p.m. work out at 681 kgm. per sq. cm. sec. Taken altogether, the design and construction of the connecting-rods must be considered successful, especially considering their weight, which for a complete set of two is 2.075 kg. against 2.57 kg. in the Hispano-Suiza motor.



Connecting Rods of the Sunbeam "Arab."

An astonishing feature of the piston design is its small height, amounting only to 73 mm., against 105 mm. in the Hispano-Suiza motor. This small height has been chosen to reduce the weight of the reciprocating masses and thereby keep the horizontal inertia forces low. The weight of the finished piston with rings and pin amounts only to 1.165 kg., against 1.4 kg. in the Hispano-Suiza, or 10.2 grammes per sq. cm. of piston surface, as against 12.3 in the prototype. The piston is an aluminium die casting, which practice appears to play an increasing part in foreign aero-motor manufacture, and justifiably so. Firstly, the die casting produces a most exact blank, thus relieving the designer from providing a margin to cover core eccentricities, allowing him to choose the dimensions, giving the necessary stiffness; and, secondly, die-cast metal possesses better strength qualities than usual sand-castings (about 20-22 kg. sq. mm. and 4-4½ per cent. extension against 10-15 kg. sq. mm. and 1-2 per cent. extension), thus permitting a further reduction of the wall thicknesses, which are reasons for the greater employment in Germany of this casting process. The piston-head is stiffened by two cross-ribs reaching nearly to the bottom of the piston-skirt. Furthermore, a support reaching to the gudgeon-pin has been provided in the middle of the head, a practice employed in some German engines.

(To be continued.)



The Assembled Crankcase, Sunbeam "Arab."

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AEROPLANE v. SEAPLANE.

The following letter has been received :—

Sir,—In your issue of Jan. 30th I read an article entitled "Aeroplane v. Seaplane." This is a subject on which I have very strong views, and views which are directly opposite to those of the writer of this very interesting article. May I please therefore put forward a few remarks?

Firstly, why in the case of the proposed Atlantic flight—purely a freak event—should surprise be expressed that aeroplanes are proposed to be used? When one goes from Europe to America to win £10,000, the first consideration should be the capacity for the longest possible duration of flight. Consequently any emergency flotation gear should be as light as possible, so obviously floats or a flying boat would not be used. The statement that the floats are not heavier than land chassis is not agreed to; besides, the landing chassis could be dropped as proposed by the late Gustav Hamel.

The author scores heavily, I admit, on the landing ground question—an argument never before seen by myself. Happily, however, there are plenty of good flying grounds all over the country, and in places where aeroplanes are going to pay, such as for express service between capitals of most countries of the world, landing grounds will be found.

It is doubtful, in my opinion, if for very long non-stop services the heavier-than-air craft will pay; rather will airships come into their own. Very large aeroplanes have to have such high engine power, which means large fuel capacity and less room for passengers and cargo, whereas in the case of the airship the larger they become the better the useful load capacity percentage.

As for a holiday trip to Cape Town—lucky man—or millionaire.

In my opinion, there is only one use to which seaplanes will be put for money-making purposes, and that is, always barring seaside joy-riding, for river transport in the tropics, where landing grounds are non-existent.

(Signed) C. W. P.

THE CHRISTMAS "BULLET."

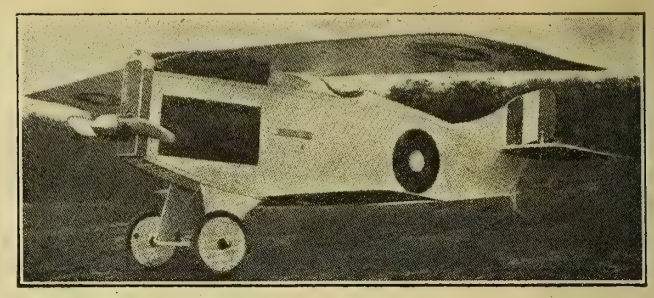
A single-seater tractor biplane of quaint appearance was tested at the U.S.A. Government Experimental Field No. 1 on Dec. 3rd and 7th.

The machine is named the Christmas "Bullet" after its designer, Dr. W. W. Christmas, and is driven by a Liberty "6" engine, which develops 185 h.p. at 1,400 r.p.m. The "Bullet" was reported to have attained a speed of 170 m.p.h. at three-quarter throttle.

The "Bullet" has what is termed one-and-a-half planes, as used in the Nieuport biplanes, the upper plane having a span of 28 ft. and a chord of 5 ft., the lower plane being 12 ft. in span with a chord of 2½ ft. External bracings and struts do not exist, the upper wing being fitted to the top of the fuselage and the lower wing to the bottom.

The wing curve is one developed by Dr. Christmas, and is of fairly deep section between the main wing spars, but tapers off sharply aft of the rear spar, merging into a flat and thin flexible trailing edge. The wing thus maintains a high angle of incidence and a fair camber at low speeds, and a lower angle and a flatter camber at higher speeds. This system of wing construction is reminiscent in a measure of the earlier Bréguet and Caudron machines.

Both upper and lower planes have the same aspect ratio. The upper plane has a maximum thickness of 5 ins. Fuller details of the wing construction cannot at the moment be given, as patents are still pending.



Three-quarter Front View of the Christmas "Bullet."

The car-type radiator and engine are placed in the front part of the fuselage, which is very deep. The two-bladed airscrew has a projecting bullet-shaped hub. The landing carriage struts are of deep section, such as is used in the Curtiss land machines and Burgess seaplanes. The pilot's cockpit is located behind the upper plane, affording a fairly good view in most directions.

The elevator is not divided, as the rudder is fitted to the vertical fin in such a manner as not to interfere with free elevator movement. This method is similar to that employed in the Pfalz single-seater scout. The tail-skid is fitted to the stern-post.

The principal details of the Christmas "Bullet" are as follows :

Span, upper plane	28 ft.
Span, lower plane	12 ft.
Chord, upper plane	5 ft.
Chord, lower plane	2ft. 6 ins.
Area, upper plane	140 sq. ft.
Area, lower plane	30 sq. ft.
Length overall	21 ft.
Weight, machine empty	1,820 lbs.
Weight, fully loaded	2,100 lbs.
Minimum speed	50-60 m.p.h.
Maximum speed	175 m.p.h.
Cruising radius	550 miles.
Ceiling	14,700 ft.

THE LIBERTY ENGINE.

The following letter has been received :—

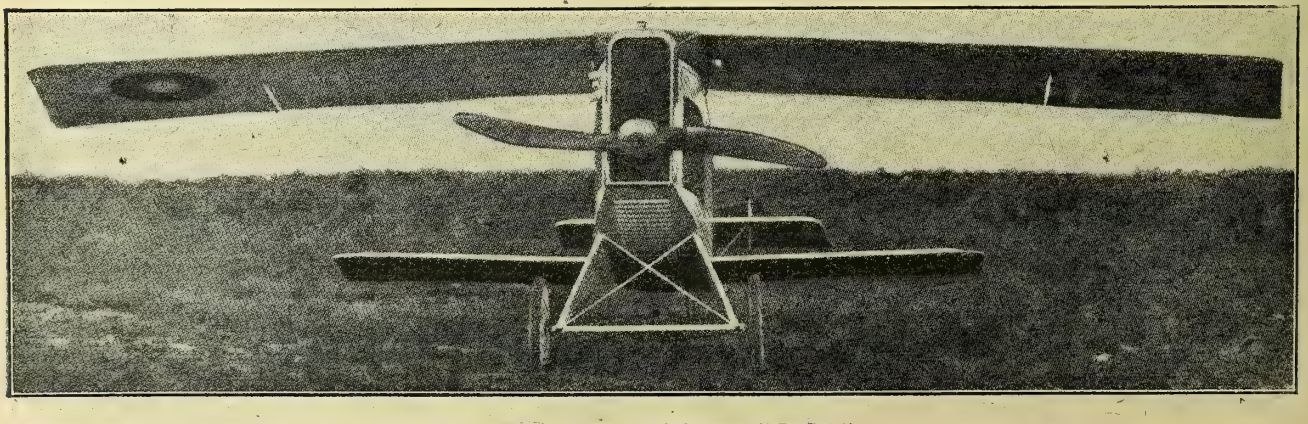
Sir,—In your issue of January 29th, in the article on Liberty engine, I see the statement : "Angle between Cylinders.—In the Liberty engine the included angle between the cylinders is 45 degrees; in all other existing 12-cylinder engines it is 60 degrees. This feature is new with the Liberty engine," etc.

Unless I am very much mistaken, the 240-h.p. Renault-Mercédès, which I first saw in the R.N.A.S. in 1916, had an included angle of about 50 degrees.

I have had many Liberty engine "fans" point out to me points of construction which they claim as "Liberty features," whereas in reality they have been standard practice for some two years previously on many aero-engines.

(Signed) Seaplane Pilot.

In this connection it must be pointed out that The Aeroplane has merely reproduced Mr. Wardrop's description, and does not necessarily endorse all the claims made for the Liberty engine by its American admirers.



Front View of the Christmas "Bullet."

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APATHY IN THE MOTOR FACTORY.

The following article by Mr. Massac Buist appeared in the "Morning Post" of January 20th. It is quoted with full acknowledgment to the pluck of that excellent paper in telling the British manufacturer a few home truths about himself, and it should be a valuable warning to the Aircraft Industry, which is in grave danger of falling into the same "wait and see" habits as other British industries.

Mr. Beecroft is a very able and observant American, who recognises what is good in this country and what is not good in the United States. He does not think that everything made in America necessarily licks creation, and he admits that we know how to make good things in this country. But he sees, and does not hesitate to tell us, that our methods are wrong. Therefore, one commends his views and Mr. Buist's interpretation of them to the readers of this paper:—

Mr. Beecroft's Views.

Mr. David Beecroft, directing editor of some twenty-six American technical publications, is a member of the mission invited by the Ministry of Information to Europe in order to investigate our war activities. He has been making investigations since the beginning of November, and having studied motor manufacturing enterprise in France and Italy, as well as in this country, he has formed views which are instructive and interesting. His impressions on what we are going to do when peace is established are particularly worthy of note, though it is, of course, impossible for a foreigner to grasp all our problems in such a hurried visit.

Apparently the first and last impression he has gathered is that we have lost what the Americans call the spirit of commercial aggression. Since the Armistice was signed every American manufacturer is seeking not merely to keep his pre-war factory capacity working to the utmost, but to employ to the limit his enormously expanded resources due to wartime enterprise. By contrast, the visitor finds one maker after another in this country indifferent to opportunity.

An Extraordinary Attitude.

Here are Mr. Beecroft's observations in his own words:

When I ask your manufacturers what they are going to do to enjoy a due share of the world markets, especially in the non-manufacturing Dominions overseas, not one, but a dozen answer me either that those markets are America's in any case, or that they are already doing as much as they could do there.. To us such an attitude is inconceivable. If a manufacturer in the States cannot meet demand he enlarges his factory until he can do so.

I have found in this country a number of manufacturers with huge buildings which they have put up, notably for aircraft production, to meet the sudden demands due to war. I ask: What are their plans for keeping men and machinery in those buildings henceforth? Many reply that as far as the buildings are concerned they think they will pull them down and sell the materials for what they will fetch. To an American such an attitude is staggering. I ask whether they are aware that in Strassburg the Germans had a special headquarters concerned solely with directing operations to destroy those French towns which fell into their hands without a shot being fired, the only object being to eliminate so much French wealth. Yet here in Britain are men proposing themselves to destroy British wealth!

Apparently some are simply sitting down waiting for a tariff to be imposed. Under that head the American motor manufacturer's attitude is either that he is prepared for President Wilson to remove the tariff against foreign manufacturers on the understanding that we can resume exporting without duty to this country, or he is willing we should have an equal tariff with you, whether it remains at the present American rate of 45 per cent. maximum or is reduced to 15 per cent.

We can quite well stand a tariff for most classes of American cars; but I would point out that if you put up a fabulous tariff against them that would not stop the sale of American cars in Britain. On the contrary, it might cause a number of our makers to produce here. This proposition is the more tempting in face of the large buildings you have set up for manufacturing purposes during the war, and which are now appearing to you largely a drug on the market. Consequently, from the American manufacturer's point of view, he could have his choice at low prices of a wide variety of very fine buildings in suitable situations about your country. Sir Eric Geddes, too, announces British Government factories for sale.

All Classes Want Educating.

Your manufacturers tell me they have no option but to hesitate because of the manner in which they are treated in respect of labour on the one hand and by Government Departments and taxation on the other. Of course we have gone very deeply into the labour proposition. What I tell you under this head must be qualified in its application to your case by certain aspects of the problem that do not exist in America. One of the first things that struck me on coming into this country is the lack of education of your masses. In the States strikes are no less familiar to us than they are to you, but the American strikes for the opportunity to make more money, not to get money for nothing. The working man in the United States of America knows that he can get more money only if the goods he makes can be sold. In your country I should say that all classes want educating.

Whether I take your workers or your manufacturers, I find the idea is not how cheap, and, therefore, how universal, can we make motoring, thereby keeping going the biggest industry possible, but how much can we get for how little motoring? That attitude is as absolutely inconceivable to us as is your scheme of paying men and women to do nothing. I have been in Europe during your General Election, and am still unable to understand how any nation could go to work, as yours does, in the matter of paying the people to do nothing. Instance the three months out of the next six months' pensions scheme for munition workers; or, again, the Government putting up half a million houses; or, yet again, the proposition of your big landed proprietors, most of whom I am told have better hearts than heads. If their tenants have a bad year they excuse them the rent.

Charity a Life Policy.

Whichever of these aspects you consider, I put it to you: How can you have masses with any character when they have no hills to climb and when charity is made a life policy? Remember, our workers are no less keen than yours to get as much money as possible, but an idea no less firmly rooted in their heads is that they will not take anything without earning it. They will take neither cash nor kind for doing nothing. Instead, they want to do as much as possible.

We have none of that feeling which appears to be universal over here—that the worker grudges the employer the profit he makes. When a worker in America is satisfied with what he is getting he would be quite crest-fallen if his employer was not also making a fine thing out of the deal. Indeed, he would leave any factory that was not doing well to get equal terms in one the proprietor of which was making a fortune. In our country the masses are educated to realise that it is not a question of their living on the existing wealth of the nation, but that if their employment is to be secure and the country is to go ahead everyone is dependent on the success of his fellows, which is possible only by creating fresh wealth. In England, as distinct from the Continent of Europe or from the States, the masses seem to be chiefly concerned with living on what wealth remains after the superb sacrifices you have made and the splendid part you have played in winning victory.

Psychology of the Worker.

As to your factory system in general, perhaps you have not studied the psychology of the worker to the extent we have done. We use the cinematograph, which we bring to bear on every operation. By this means we study scientifically every motion a man or woman worker makes in doing a certain operation. Thus, if a single movement of the body is found to be unnatural or strained, we go into that operation and try to eliminate that movement. We also show each worker how to acquire the correct series of labour-saving movements for his operation. Take, again, the question of what I call internal transport in the factory—the handling of parts as each operation has been completed on them. There is far too much hand labour in your workships. In one of your big cities I was in a motor and aircraft factory where five hundred hands were engaged in hauling stuff about; yet, in the same city, I came across another factory, under American management, where 18 men and machinery did all that was necessary under that head.

In your factories there is far too much putting parts on the floor between operations. We never let anything touch the floor. It is useless labour, and is morally bad for the worker. I made one of your works managers look at a man who was bending wood in connection with aircraft construction. He was doing his work very well. After he had bent each piece he had to drop it on the floor. I observed him do 36 pieces in succession. On each occasion there was a moment's mental hesitation before the man, who put all he knew into doing his job properly, dropped the part on the floor. That is natural.

Exigencies of space prevent my giving more of Mr. Beecroft's observations on this occasion.

ANOTHER GIANT AEROPLANE.

It is now permissible to state that Mr. G. W. Tarrant, of Byfleet, Surrey, the manufacturer of the famous Tarrant Army huts, is constructing a huge triplane with a wing span of 150 ft. and a length of 75 ft. It will be fitted with six engines, developing in all 3,000 h.p., and it is expected to show a speed of 80-100 miles an hour for a 500-mile flight. The machine was originally designed as a bomb-carrier, but it has been adapted to carry passengers or cargo.

Should an attempt be made on an Atlantic crossing, cargo and passenger carrying space will be sacrificed for a provision of extra petrol tanks of sufficient capacity to give the machine the necessary range of action.

PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by THE AEROPLANE from the current Official Patents Records :—

PATENTS APPLICATIONS.

Annison, R. H. Aeroplanes, hydroplanes, etc. No. 2095. Jan. 28th.
Bellairs, S. C. M. Stopping and starting aircraft in restricted areas. No. 2457. Jan. 31st.
Blackburn Aeroplane & Motor Co. Landing-chassis for aircraft. No. 2335. Jan. 30th.
Burden, J. H. Method of springing for undercarriages of aeroplanes, etc. No. 2313. Jan. 30th.
Cotton, J. H. Aerial craft. No. 2057. Jan. 28th.
Goodsir, P. W. Level-indicating apparatus for use on aircraft. No. 990. Jan. 27th.
Goodyear, E. J. Clinometer for aeroplanes. No. 2346. Jan. 30th.
Holt, H. E. S. Parachute flares. No. 2371. Jan. 30th.
Holt, H. E. S. Parachutes and means for facilitating descent therewith from aircraft. No. 2372. Jan. 30th.
Howard, J. Toy aeroplane. No. 2014. Jan. 27th.
Lanchester, F. W. Alighting-mechanism of aeroplanes. No. 2359. Jan. 30th.
Mardon, E. Aeroplanes, etc. No. 2189. Jan. 29th.
Mayrow, J. J. Aerofoils, wings, etc., for aeronautical machines. No. 2342. Jan. 30th.
Mayrow, J. J. Aerofoils, wings, etc., for aeronautical machines. No. 2343. Jan. 30th.
Munro, J. M. M. Aeronautical ground-speed indicator. No. 2325. Jan. 30th.
Page, F. H. Mechanism for releasing bombs, etc., from aeroplanes. No. 1956. Jan. 27th.
Rae, H. F. Propeller. No. 2185. Jan. 29th.
Smith, A. Aircraft. No. 2562. Feb. 1st.
Soc. des Moteurs Salmson. Shock-absorbers for aeroplane radiators. No. 2238. Jan. 29th.
Sopwith Aviation Co. Aeroplanes. No. 2358. Jan. 30th.
Stabilimenti Biak. Axle for aeroplane carriages. No. 2383. Jan. 30th.
Swift, G. A. Flying toys. No. 2333. Jan. 30th.
Wilson, R. P. Aircraft. No. 2355. Jan. 30th.
Aeronautical Instrument Co. Means for indicating at a distance No. 2823. Feb. 5th.
Airey, G. H. Apparatus for finding out from an altitude distance to ground or water. No. 3098. Feb. 8th.
Calthrop, E. R. Parachute-launching devices. No. 3155. Feb. 8th.
Furniss, J. Hydro-aeroplane. No. 3088. Feb. 7th.
Jones, E. S. Dirigible parachutes. No. 2715. Feb. 4th.
Rees, E. S. G. Aeroplanes, etc. No. 2664. Feb. 3rd.
Soc. des Ateliers d'Aviation L. Breguet. Means for supporting and releasing tanks or reservoirs on aircraft. No. 2674. Feb. 3rd.
Sunbury Aviation Co. Clockwork motor governor. No. 2648. Feb. 3rd.
Wirtz, L. Manufacturer of propellers for aircraft. No. 3127. Feb. 8th.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER FEBRUARY 20TH, 1919.

122,426. July 19th, 1915. Lesseps, J. de, and Suffit, R., Courtois. Apparatus for indicating the straightness or curvature of the course of aircraft.
122,427. Feb. 3rd, 1917. Soc. Esercizio Bacini, and Gogliolo, T. S. Propellers.
122,458. Jan. 22nd, 1918. Regent Carriage Co., and Boca, J. Strainers and like devices for use on aircraft.
122,506. Feb. 5th, 1918. Saunders, Ltd., S. E., and Thomas, H. H. Stays or tension members.

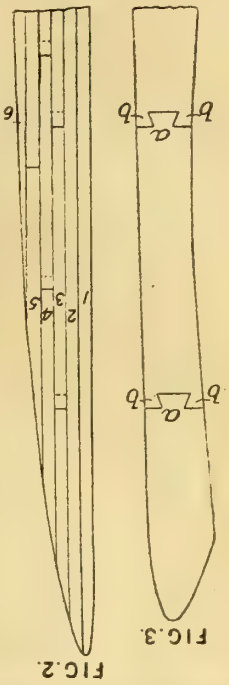
COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER FEB. 27TH, 1919.

122,655. June 5th, 1917. Pilkington Bros., and West, L. Mirrors for use on aircraft and automobiles, and for other purposes.
122,657. Feb. 21st, 1918. Harvey, T., and Tulloch, T. G. Means for communicating to and from aircraft.
122,686. Jan. 26th, 1918. British Emaillite Co., and Goldsmith, J. N. Means for reducing the visibility of aeroplanes.
122,693. Jan 29th, 1918. Birkett, R. W. Propellers for aerial and marine vessels.
122,705. Feb. 2nd, 1918. French, G. F. Lacing webbing.
122,710. Feb. 5th, 1918. Bolotoff, S. V. de. Means for receiving strut-ends in aeroplanes and other strictures.
122,731. Feb. 28th, 1918. Parkes, S. R. Wire strainer or turnbuckle.
122,732. March 4th, 1918. Field, R. Spirit or like level or device for aeroplanes or aircraft.

ABRIDGMENTS OF RECENTLY PUBLISHED SPECIFICATIONS.

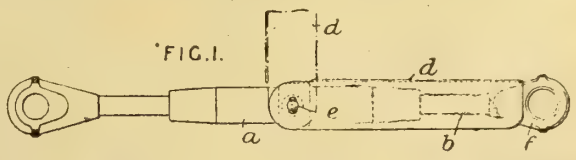
120,627. Screw propellers. CHAPLIN, P. F., The Grange, Beaconsfield, Buckinghamshire.

In laminated propellers for aircraft, the joints of the laminæ forming a blade are at different radial distances from the axis of the propeller, and there is no straight line of joints across the blade. Figs. 2 and 3 show such a propeller, in which the laminæ 1, 2, and 6 are in undivided lengths, while the laminæ 3, 4, 5 have joints *a*, *b*, arranged as described.



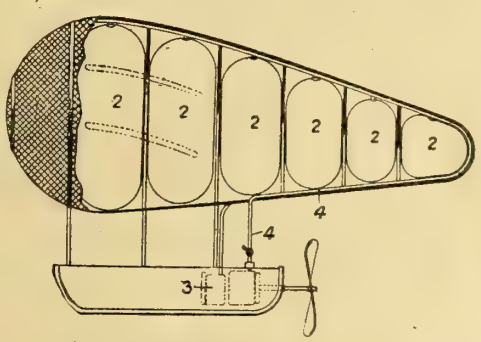
121,032. Wire-strainers. SAUNDERS, LTD., S.E., Columbine Works, Medina Road, and WOODFORD, W. G., Rushmore Villa, Victoria Road, both in Cowes, Isle of Wight.

A locking-device for aeroplane and like stay-wire strainers, comprising a screwed sleeve engaging right and left-handed screwed rods, consists of a U-shaped sheet-metal cap *d* pivoted at *e* to the sleeve *a* and adapted to embrace the eye *f* of one of the screwed rods *b*. The locking-member is cut away near the pivot to allow it to be turned into the position shown in dotted lines, so that it may be employed in rotating the sleeve. In a modification, the locking-member may be bent to streamline form and may be duplicated to engage both screwed rods.



120,943. Aeronautics FOX, H. WILSON, 20, Lowndes Square, London.

AERIAL MACHINES WITH AEROSTATS; AEROSTATS.—An aerial machine comprises an aerostat, supporting-planes associated with the aerostat, and means for utilising the gas of the aerostat as

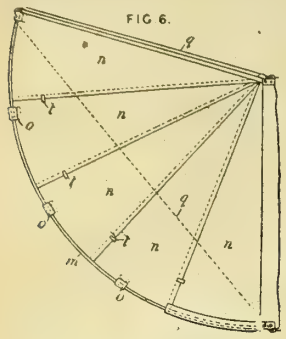


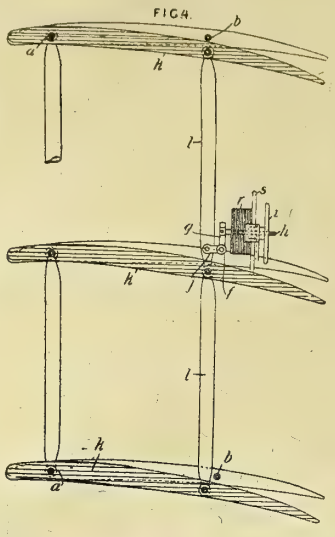
fuel for the engine in addition to the usual fuel. The aerostat is rigid or semi-rigid, with ballonets 2 connected to a common-pipe 4 provided with a valve for controlling the flow of gas to the engine. An air-pump 3 may force air into the envelope as the gas is used. The planes may be of the monoplane, biplane, or triplane type, and are capable of supporting the machine when all the gas is used. The car may be of boat-like form and detachable.

120,777. Aeronautics. CRAGG, E., 124, Joy Street, Syke, Rochdale, Lancashire.

STEERING AND BALANCING; PROPELLING; PLANES, CONSTRUCTION OF.—An aeroplane has the centre portions of its planes adjustable in incidence and its tips variable in area, and has two propellers adapted to be coupled in various ways to either or both of two engines. Fig. 4 shows a cross-section of a triplane wing in which main spars *a*, *b* of tubular metal extend the whole length of the planes and are horizontal for one-third their length in the centre. The central sections *k* of the planes are pivoted about the front spar *a* and are linked together by struts *l* which are connected to arms *f* on the shaft *f* pivoted in bearings on the rear inter-plane struts of the fixed portions of the plane. The shaft *f* has an arm *g* connected to a screwed spindle *h* adapted to be moved by turning a handwheel *i* provided with a nut. The spars *b* act as stops for the centre sections *k*. Mounted at the ends of each plane are curved rails *m*, Fig. 6, engaged by eye-pieces *o* on plane sectors *n* adapted to slide into the sections adjacent to the main planes. Cords *q* passed over guide pulleys and over a drum *r*, Fig. 4, enable the

sectors *n* to be expanded and collapsed simultaneously by turning a hand-wheel *s*. Spring tongues *t* on the outer edges of the sectors

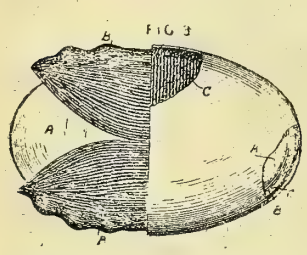


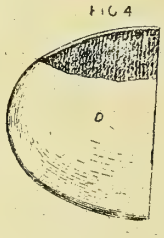


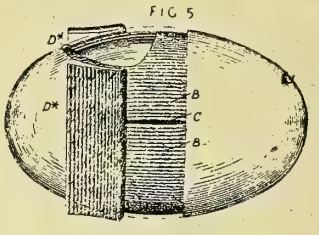
engage holes in the adjacent sectors as they are successively drawn out. The movable plane ends may each be formed in one piece instead of in sectors. Propellers mounted on the planes are driven by gearing from two engines in the fuselage, clutches being arranged between the two engines and adjacent gearing and a clutch being placed between the driving-shafts on the two sides of the machine.

120,618. Making hollow bodies. Sloper, T., Southgate, Devizes, Wiltshire.

Relates to a method of making footballs, floats for aeroplanes, and other hollow bodies from rubbered cord fabric and without a



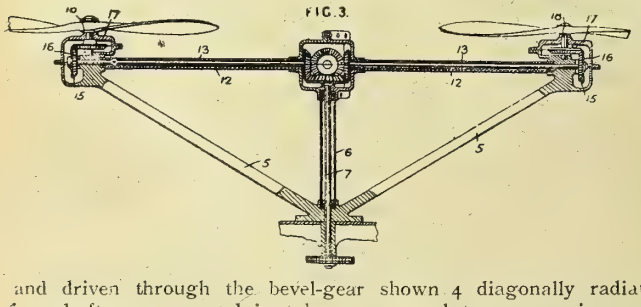




mechanical joint. According to the invention, unvulcanised rubbered cord is assembled on the outside of a former, the envelope thus made is slit open at one end by parting adjacent cords sufficiently to enable the former to be removed, and the opened portion is then closed again ready to receive a second layer of rubbered cord. Fig. 3 shows a football in an intermediate stage of its manufacture, with the first layer opened out for the removal of the former A. The second layer preferably consists of cords C laid around one-half of the ball before the former is removed; the other half is made up as a cap D and applied bodily. The layers B, C may be partially or wholly vulcanised before removing the former or applying the cap D. If it is desired to fit a bladder inside the ball, the layer B is provided with a permanent slit and the cap part D with a flap, as shown, which can be turned back to give access to the bladder. For floats, a fluid-tight liner which is left permanently in place may be built on the former. This liner may have a slit for the removal of the former and a flap for afterwards sealing the slit to make it fluid tight. A collapsible former may be used.

121,056. Aeronautics. Hyatt, N. L., and Lloyd, H. M., Dresden, Ontario, Canada.

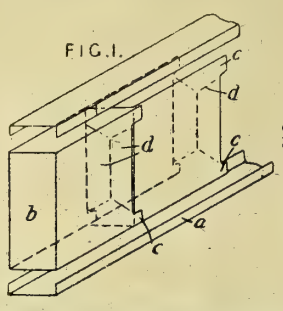
Aerial machines without aerostats; propelling.—An aeroplane provided with a number of lifting-propellers arranged above the planes on opposite sides of the machine and rotating in different directions has the propellers driven from a vertical shaft 7 adapted to be clutched to the main motor. This shaft extends through a tubular standard 6 secured to the top of the fuselage

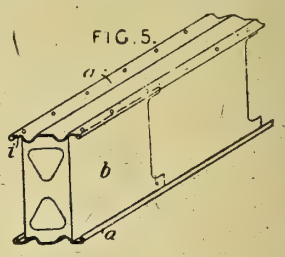


and driven through the bevel-gear shown 4 diagonally radiating shafts 13 arranged in tubes 12 secured to gear casings 16 supported by stays 5. The propeller shafts are driven from the shafts 12 by bevel-gear 15, 17, the wheels 15 on the other pair of shafts engaging the wheels 17 on the opposite sides of the shafts 18 so as to drive that pair of propellers in the opposite direction to the propellers shown. The standard 6 and stays 5 applied to a biplane extend through the upper plane.

121,006. Aeronautics. Taverner, C. W., and Mooney, D. J., 48a, Gillingham Street, London.

A metal spar for wings, ailerons, etc., has thin metal flanges united by webs in the form of vertical rectangular tubes. Fig. 1 shows channel-section flanges *a* adapted to be riveted to web-sections *b* formed by bending thin metal to form three closed sides,

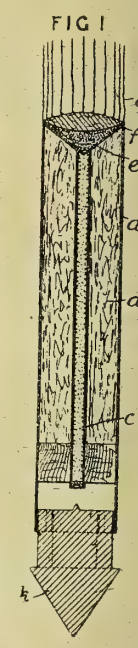




from two of which tongues *d* are cut and are either bent over and secured together or riveted to the next section. Projections *c*, left when the tongues *d* are cut, overlap and are riveted to the adjacent section. Flanged holes and embossed parts are formed in the sides of the webs for lightness and strength. Fig. 5 shows a modification in which the web sections have flanges *i* riveted to flanges *a* of the form shown.

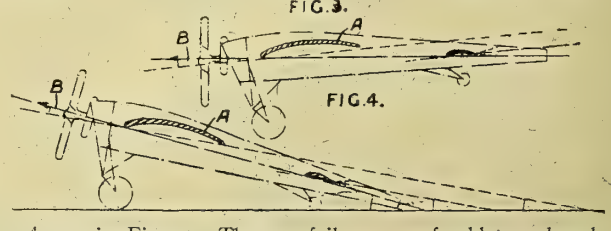
121,045. Darts for airmen. Annison, R. H., 16, Water Lane, Great Tower Street, London.

Consists in making a dart for airmen to drop from aircraft with a cylindrical or oval body *a*, a direct-impact nose-fuse *k*, a central fuse-tube *c*, and a small explosive charge *e* for blowing off the top *f* and igniting an incendiary, illuminating, spark-producing or smoke-producing charge *d*. Streamers *g* are provided to ensure the vertical fall of the dart. The striker *k* of the fuse is held in place by grooves and studs, resilient gripping-tongues, bayonet-joints, or transverse safety-pins. A float is added when the dart is to be dropped in water.



121,378. Aeronautics. Chamier, F. W., 50, Jermyn Street, and Howard, W. F., 104, The Avenue, Ealing, both in London.

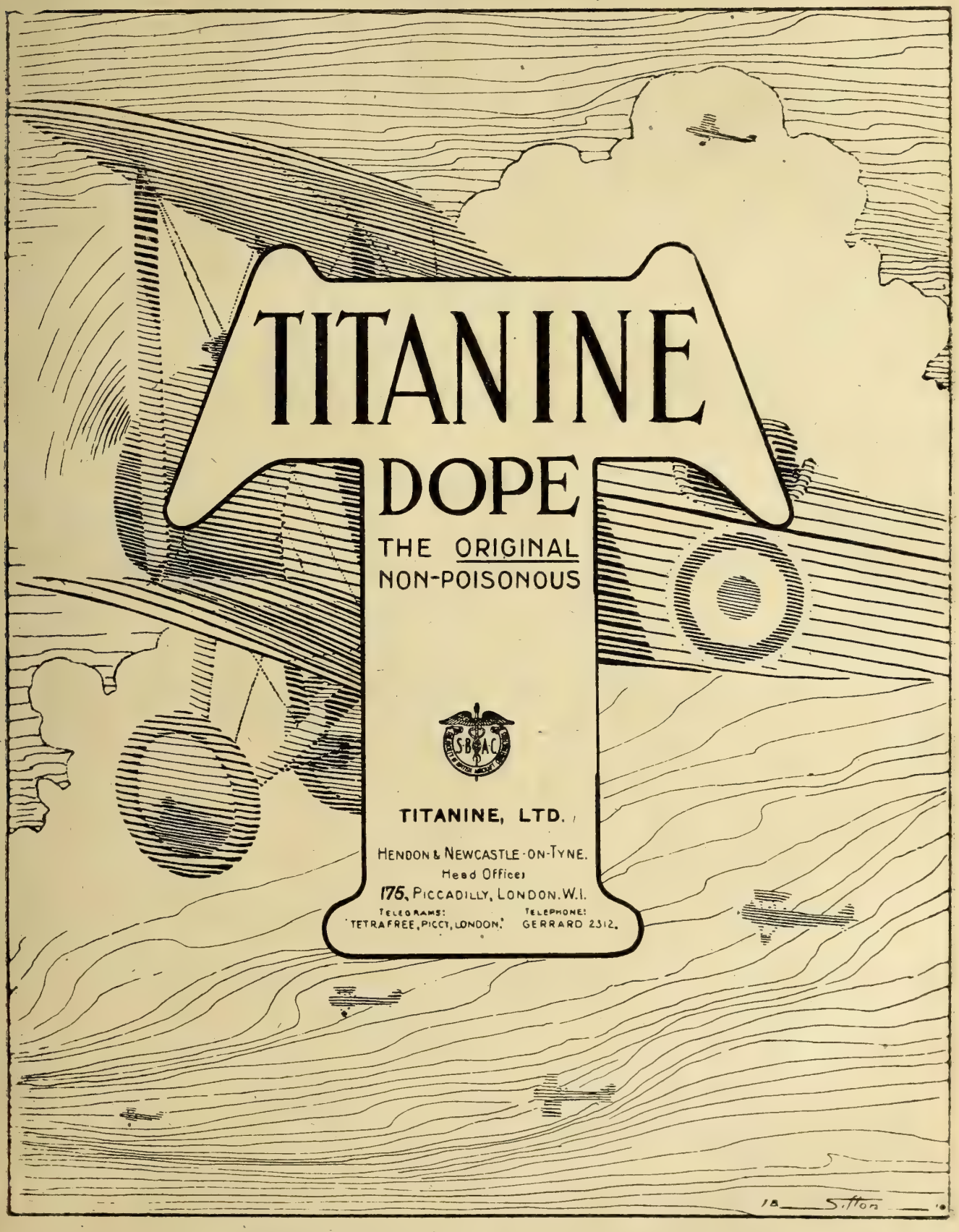
Planes, arrangement and construction of; propelling.—The aerofoils A of aeroplanes, etc., are so arranged that, when the machine is on the ground or climbing, the chords of the aerofoils have an angle of incidence which is positive but less than the angle between the line of propeller thrust B and the ground, as shown in Fig. 4, so that the aerofoils have a negative incidence when the machine is in flight with the propeller thrust horizontal,



as shown in Fig. 5. The aerofoils are preferably cambered so that the sine of the angle between the propeller thrust and the chords of the aerofoils is equal to the ratio of the maximum ordinate of the camber to the chord of the aerofoil.

A RETURN TO CIVIL LIFE.

Amongst the many employees of C. A. Vandervell & Co., Ltd., who have now returned to the firm to take up their old jobs is Lieut. Ernest Leighton, late of the Royal Air Force, who joined the Army in 1914. Mr. Leighton takes up his old position as manager of the installation department.


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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AIRCRAFT TRADER

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

FEB. 13th, 1919.

COPPER.—This market is very quiet. Buyers are still refraining, and the recent news received from U.S.A. is not likely to create any confidence. In fact, this is one of the chief factors which has caused a further decline in the price during the past week.

It has been stated that the stocks held in America reach approximately 445,000 tons, and producers state that they are faced with the possibility of losing £16,000,000. Although the situation may be exaggerated, it is certainly very serious.

There are, of course, other factors which are causing consumers to hold back, including the huge quantities of scrap which are available, and the present industrial unrest, which shows very few signs of terminating.

From the foregoing, it will be seen that a further decline of prices is inevitable, and there is very little possibility of large buyers coming into the market while it is in such a very unsettled condition.

COMPARATIVE PRICES.

	£	s.	d.	
Standard To-day, Feb. 12th ...	80	0	0	per ton.
Last week	87	10	0	,,
1918	110	5	0	,,
1917	138	0	0	,,
Average, 1914	49	0	0	,,

TIN.—This appears to be the only metal market where there are signs of activity and even here there is much to be desired. The demand here is fairly good, but the large consumers are only buying moderate quantities. The announcement that the War Trade Department has now given permission for the export of Tin to all countries except those bordering on enemy countries may create a brisk demand, as consumers will certainly endeavour to immediately open up business with those countries which are very anxious to obtain supplies, and stocks here are not very large.

On the other hand, there are huge stocks in U.S.A., and although, as stated last week, it was rumoured that an arrangement had been made with the solder and babbit manufacturers, the arrangement has not been officially confirmed; there is also a general feeling that large stocks have been accumulated in Dutch East Indies, and, of course, the F.M.S. Government is still holding all the metal which it has purchased from the Straits producers.

It will, therefore, be seen that although the stocks held here are only fair, the world stocks must be extremely high. The F.M.S. Government has reduced the buying price for the ore which it is purchasing.

It will be seen that although the market, generally speaking, has been fairly firm, prices have continued to decline.

COMPARATIVE PRICES.

	£	s.	d.	
To-day, Feb. 12th	225	0	0	per ton.
Last week	245	17	0	,,
1918	309	15	0	,,
1917	200	5	0	,,
Average, 1914	120	0	0	,,

LEAD.—This market is very dull at present, and the fear that in buying there will be a rapid reduction in values is very marked among buyers of Lead, and the report, showing the stocks held by the Government on Feb. 1st, has practically put buyers out of the market.

The stock on Dec. 1st was 49,111 tons; the report dated Feb. 1st gives the stock at 86,493 tons.

The position generally is very weak, and although the official Government price has again been reduced, it is more than likely that it will have difficulty in disposing of any appreciable quantity at the present price, the feeling being that prices are still too high; it is even reported that there have been recent transactions in American Lead at lower prices. There is, of course, the difficulty of procuring shipping space.

The Government may decide to remove all export restrictions, as in the case of Tin. If this step is taken it may stabilise the market a little, but, even then, it is difficult to see how consumers here can compete with U.S.A., unless the price is again reduced.

On the 3rd inst. the following reduced home prices came into force:—

	£	s.	d.	
Sheet Lead, delivered outside London	42	0	0	per ton.
Old ,, ...	22	0	0	,,
Ground English White Lead, 5 tons and over	63	0	0	,,
,, ,, less than 5 tons	66	5	0	,,
English Red Lead	49	0	0	,,

COMPARATIVE PRICES.

	£	s.	d.	
To-day, Feb. 12th (average)	27	10	0	per ton.
Last week (,,)	30	10	0	,,
1918	29	0	0	,,
1917	30	0	0	,,
Average, 1914	19	10	0	,,

STEEL.—This market was fairly active, although the present industrial unrest is apparently responsible for the present dulness. Certain trades have plenty of orders in hand, and although they are not buying freely, fair orders have been placed, and they are anxious to get on full scale production, but there is a lack of confidence.

The Twist Drill Manufacturers Association has decided that the reduction in the price of High-Speed Steel is more than balanced by the advances in wages and other factory costs which have occurred since te existing price list was published in March, 1918.

Although this decision has been made, it is not unlikely that the price of High-Speed Steel will be again reduced in the near future. It is even rumoured that the Government alone hold approximately 1,000 tons in stock, and the orders placed since the Armistice was signed are very small.

TIMBER.—There is no alteration in the Timber position. There are very large stocks of Silver Spruce in the country, but the demand is down to zero. The first public sale of Hardwoods was held last week, and the prices obtained would indicate that the market is likely to increase in stability.

At the same time consumers are holding back, and are not eager to purchase any appreciable quantities. The same attitude is being adopted towards all classes of Timber, and recent fluctuations in prices certainly justify their action.

FABRIC.—As stated previously large quantities of aeroplane Linen Fabric have been offered for sale by the Air Ministry, and apparently fair quantities have been sold. It is not yet known what prices have been obtained, but some of the material must have been sold for a price in the vicinity of 2s., as offers have been made to various constructors at 2s. 3d., and it is, therefore, quite apparent that there will be a huge loss on this material by firms who must have purchased some of the material.

The present official prices of Linen Fabric are 3s. 1d. and 3s. 3d. It is, of course, quite possible that the Government is disposing of the most inferior qualities which have been supplied to them. At the same time, constructors are being charged at the above prices for this Fabric.

Buyers need to be very careful in dealing with the offers received from various sources, as the qualities are not of the best, and it is advisable, if possible, to ascertain the maker's name before purchasing.

The demand for Fabric is, of course, very small indeed, and very little material is being sold. Official prices remain unchanged, but it is understood that they will shortly be fixed by the Government, and it is expected that there will be an advance in price.

FLAX CONTROL.

The Army Council has made an Order prohibiting the unlicensed sale or purchase of any flax or tow imported into the United Kingdom. At the same time the following Orders are cancelled:—

Russian Flax and Tow (No. 1) Order, 1916; Russian Flax and Tow (No. 2) Order, 1916; Russian Flax and Tow (Insurance) Permit, 1916; Russian Flax and Tow (Control) Notice, 1917. Imported Flax (Dealings) Order, 1918; Imported Flax (Dealings) Amendment Order, 1918.

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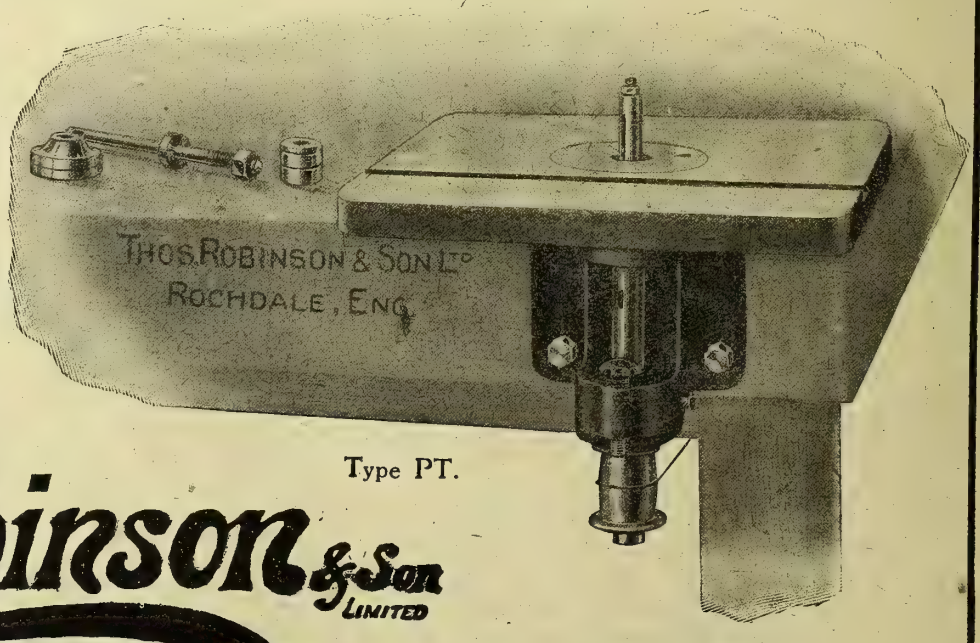
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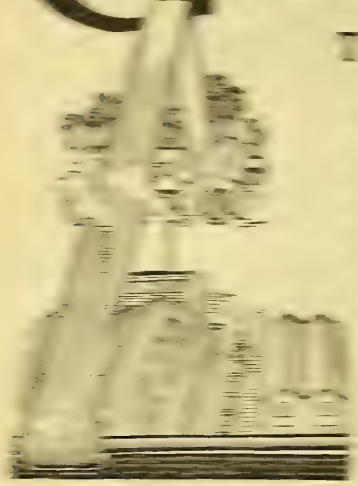
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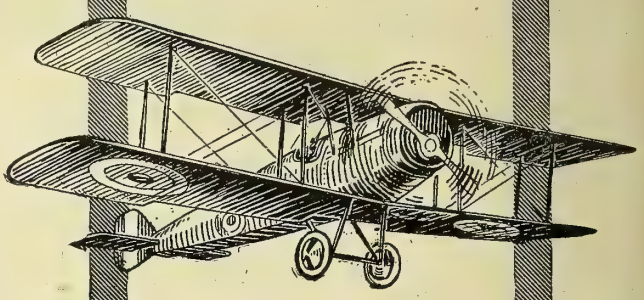
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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

THE GOVERNMENT AND THE AIR.

By "Medway."

The Government is at present faced with a very pretty problem as to what arrangements it can conceivably make which will render possible a free development of aerial traffic on really sane common-sense lines. At present we have about 105 departments of the Government primarily charged with about 105 jobs apiece; thus, for instance, the Board of Trade is divided and subdivided into branches and sections, and it is more than likely that its left hand has no conceivable idea of what its right hand is doing.

We are told that we shall shortly be blessed with a brand-new department under the grandiloquent title of the "Ministry of Ways and Communications." Talking of ways, there are generally speaking two ways of doing anything, namely, the right way and the wrong way, and in forming this new Ministry the Government has, without a doubt, gone about it the wrong way.

It is usual to put a farmer at the head of the Admiralty and a lawyer at the head of the War Department, while the chief qualification of most other Ministers is that they should know nothing whatever about their jobs. The country has taken a most unreasonable dislike to this procedure, in spite of the fact that it bears the hall-mark of antiquity. It has been suggested that it would really be a rather good thing if the average Minister were in some way qualified to fill his position.

Mr. Lloyd George, always willing to do something strikingly original, has seized upon this notion and applied it freely wherever its application did not happen to clash with party political arrangements and the maintenance and cohesion of a coalition formed of people with diametrically opposite views.

We still find the farmer at the Admiralty, and the War Office in charge of somebody whose character partakes less of the soldier than of the chameleon. In forming the new Ministry of Ways and Communications, however, Mr. Lloyd George thought he saw his opportunity, particularly as Sir Eric Geddes happened to be his star turn at the moment.

The Wrong Place for an Expert.

Now this new Ministry is just the one of all others in which we did not want an "expert." The reason is that a traffic expert is almost inevitably expert only as regards one form of traffic. Now the new Ministry has, presumably, to consider all kinds of Ways and Communications. The man who has made a life-study of one form of communication is the worst possible man to form an unbiased view as to where the methods of competitors ought to come in. By training he is entirely prejudiced. Of course, an exceptionally great man might soar above any such drawback, but there is no reason to suppose that Sir Eric Geddes is exceptionally great.

Now all this may appear to have very little to do with aerial traffic, but I suggest it has a lot to do with it. For the time being aerial developments have been thrown in as a side-line in Mr. Winston Churchill's job. It is quite obvious that this arrangement is not meant to be permanent; hence the natural suspicion that, while military aeronautics may be left under the wing of the War Department, commercial aeronautics will be handed over to the Ministry of Ways and Communications.

This would be the worst thing that could happen, because the Ministry in question will consist mainly of a staff of railway man, with a railway man at the head. Such people will not consider aviation seriously, and will only consider it at all because public opinion forces them to do so. In general, they would rather like to be led to the conclusion that there is nothing in it.

The Railway Muddle.

The gross muddle that the railways have made of their own business does not encourage one to hope that they would be much more efficient in managing someone elses. Altogether one may hope and pray that commercial aviation will be left outside the grasp of this new octopus.

In that case, what is to happen to it? There is no existing department fitted to take sole charge of it; there is equally no existing department that is not more or less concerned in it. The War Office, the Admiralty, Board of Trade, the Post Office, the Foreign Office, and half a dozen more are all interested to some extent, but only to a strictly limited extent. Give the job to any one of these, and it will be carried through solely with the object of reaching a certain limited objective.

I suggest what we need is a totally distinct Ministry divided into two main sections, namely, military aeronautics and commercial aeronautics. The former should be a department of the Air Ministry and also of the Ministry of Defence. This may sound impossible, but we already have an analogy; the department of Overseas Trade belongs to the Board of Trade and also to the Foreign Office, and since this arrangement was made it has really begun to do some useful work for the first time in its history. Before that it used to be pulled both ways at once by about equal forces, with the result that it stood still. Now that it has got both forces operating in more or less the same direction, it is getting a move on.

The Department Desired.

We should have, then, our Department of Military Aeronautics, being a joint department of the Air Ministry and the Ministry of Defence. Alongside of it we should have our Department of Commercial Aeronautics. This again would not be in itself entirely independent. It would have to be served by committees, or individuals, working in liaison with the Department of Military Aeronautics, the Post Office, the Board of Trade, and the Ministry of Ways and Communications. These officials, or committees, would have to see to it that these various departments did not forget the existence of commercial aviation or belittle its possibilities.

There is a good reason why military aviation and commercial aviation should come under one roof. The

requirements of the one must influence the development of the other. If commercial aeronautics developed without any regard whatever for military considerations, we should be sacrificing a great deal of our potential power of offence and defence. On the other hand, if commercial aeronautics were actually controlled by military requirements, efficiency from the commercial standpoint would be hopelessly lost.

A Parallel Case.

Let us take a parallel instance on a small scale. The motor-'buses in Paris are run by a company granted a monopoly by the Government on certain terms. These terms include a number of structural requirements. When the war broke out, it was publicly admitted that some of the features of the Paris motor-'bus had been incorporated simply and solely to make it a useful vehicle if the Army happened to want it. These features may have made it a little more costly than it need be to operate it, but the operating company was given a return in the shape of official protection against competition.

Similarly it might be well worth while for the people in charge of military aeronautics to be permitted to make grants in order to encourage the incorporation of certain features in the machines and in the ground systems of ventures primarily commercial. So far as ground organisation is concerned, the military people ought to do a good deal and pay a good deal. So far as machines are concerned, they should not interfere too much, and they probably could work best on a sort of subvention system, like that which applied to motor-lorries before the war.

Under this system the owner of a motor-lorry was paid an annual subsidy if the vehicle was of an approved type. It was up to him to consider whether the subsidy was sufficient to justify him in paying something extra for the vehicle, or buying a vehicle which in certain respects might not be exactly what he wanted. Probably by the subvention system we could bring into existence a big fleet of aeroplanes primarily commercial, but well suited for certain classes of military service. Similarly the owner of a sporting aeroplane might be subsidised with a view to the development of another, but a totally different type.

Conclusion.

Enough has, I think, been said to show that military and commercial aviation must not be entirely divorced from one another. Also that commercial aviation must not be entrusted to a department that is interested in other—possibly competitive—forms of traffic.

Perhaps my suggestion as to the sort of organisation we ought to have may be a poor one—there are hundreds of possibilities, and it may be some time before anyone hits upon the best solution. In the meanwhile we can, at least, set about eliminating such solutions as are fundamentally faulty. Personally I like the idea of one central Ministry for all air matters with liaison committees, or branches, each one under the central department, and also forming a part of some other Ministry. The idea may sound complex, but I believe it would prove workable. At the same time I am open to conviction and willing to admit that, in three months' time, I may think quite differently, especially if my few remarks lead other people to consider the problem and suggest original solutions of it.

THE FRENCH AERIAL POST.

There were two reasons why the French authorised the inauguration, during war time, of an aerial post from St. Nazaire-Paris, the first, necessity, due to the inefficient and slow transport of mail on the Western Line, the second, to obtain data upon which to make a report on the subject of aerial postal connection generally. This report has been made to the Minister of Commerce, and is now receiving his attention.

The report states that military aviation can help greatly and immediately by lending or giving aeroplanes, engines, spare parts, hangars and national factories as repair shops to the postal department; the Department of Posts and Telegraphs will recruit their own personnel. The report says that immediately the service is a working proposition 500 pilots will be employed; these aviators must be selected for their intelligence, integrity and soundness. They will be able to earn 20,000 francs (£800) a year counting the bonuses they are to receive over a thousand kilometres. Ten years is reckoned to be the longest period over which an aviator can continue to render useful service to the postal authorities.

The report further points out that if he is not extravagant the aviator will be able to retire with 100,000 francs (£4,000) capital and that if he possesses the necessary qualities he may be made a director of one of the lines and so augment his income.

The aeroplane which will go quickly and cover a great distance has not yet reached that state of perfection where one can rely on its departure in any weather and on its arrival, without delay or breakdown. If the service becomes irregular the aerial post is doomed. The public will not rest content to know that its correspondence has not arrived and that it is in a field or a river far from anywhere; it will have paid its surtax on each packet and, as a business proposition, will want the goods delivered.

In this connection "L'Auto" has some very interesting suggestions. One, a means of employing wireless telegraphy as well as an aeroplane to deliver a communication, and this is how it will be done. Letters will be sent in duplicate in a specially made envelope, one portion of which will contain the actual letter and in another portion a resumé of the letter in clear or in code. If owing to bad weather or fog the mail does not leave, the two portions will be dispatched, the resumé sent by wireless, the other following by ordinary mail; thus will the destinataire receive the confirmation of the wireless message.

If the mail carrying aeroplane has an accident en route it will be known immediately, because according to the "Auto," the pilot will be required to send his code number to earth every five minutes. When the allotted time has passed and no message is received from the pilot the operator will report a breakdown and will proceed to send the mail by wireless. This does not seem a very workable plan, the author of the article does not say whether each machine is to be equipped with two wireless sets in case one refuses to work, because it is conceivable that the wireless might be out of order though the aeroplane reaches its destination safely in accordance with schedule, in which case it would be unnecessary to send the mail by wireless.

As to the financial profit of an aerial mail there would seem to be no doubt. Assuming that a rapid machine carries 100 kilogrammes of postal matter on a distance of 500 kilometers, it has been calculated, proved and verified that the expenses are covered by 20 kilogrammes of postal matter; the 80 per cent. will remain as profit, and can be utilised either as letters or small registered packets.

The American Washington-New York mail lost £800 in May, £600 in June, but from August there has been an increasing monthly profit.

The French authorities calculated that on letters weighing under 20 grammes the following charge will be necessary:—

500 kilometres	0 franc	75 cents.
500-800 kilometres	1 ,,	— ,,
Above 800 kilometres	1 ,,	50 ,,

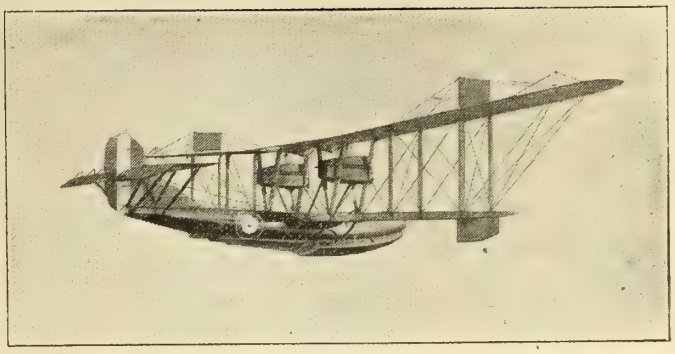
and will increase in direct ratio to weight and distance.

The same authority is not of opinion that a night mail service is at present practical. He is of opinion that night mails will leave the large towns at dusk and be transported by train till dawn and then retransferred to aeroplane carriers. For example, the mail for Paris-Rome will be sent by train to Marseilles, picked up at 10 a.m., and arrive in Rome the same evening. Another example is that of mail for Nice which will gain 24 hours by a combination of train and air. The mail arriving at Marseilles at 10 a.m. will be transferred to the aero mail and distributed in Nice in the afternoon, whereas by train alone it would arrive at Nice in the evening and not be distributed till the next day.

One does not think it is an idea which will commend itself to British minds, although it is very original. There seems little to militate against the immediate commencement of night air mail routes. Surely our experience gained in extensive night raids is sufficient proof of this?—F. T. N.

FUTURE COMMERCIAL AVIATION.

During the course of a lecture delivered to the members of the City of London United Wards Club at the Cannon Street Hotel on Wednesday, Feb. 5th, Mr. Handley Page said that he was convinced that we should not have huge machines carrying hundreds of passengers. The great thing that the aeroplane would do was to provide quick transport over very long distances.



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THE COMMERCIAL POTENTIALITIES OF AVIATION.

My title is that of a chapter by Capt. A. J. Swinton, in a book rather loosely christened the "British Aircraft Industry" and published for the "Times" by Hodder & Stoughton. I do not venture to criticise this book as a whole. The editor of THE AEROPLANE has written some of the most interesting chapters in it, and has advised as regards others. This might—but probably would not—make me a little bit careful, but I should certainly not like to tackle Mr. A. E. Berriman when he writes on "Science and Aeronautics," and indulges in such caustic comments as "Force = k. A.93 V1.86," or the legal editor of the "Times" as regards his contribution on "The Law of the Air."

Returning to the particular chapter about which I feel a little more capable of expressing my opinion, I want to start by admitting that Capt. Swinton has in the main expressed much of what I should have liked to have said myself, and has done it better. Consequently, I can only pick out a few points where I disagree with him, just to show that I have an opinion of my own, and refer my readers to his chapter for a very lucid general explanation as to why an aerial service is a real commercial proposition.

Capt. Swinton remarks that aerodromes "covering perhaps fifty or more acres must necessarily be several miles outside a city." I cannot see why this should be the case. Are we going to make just the same mistake about aerodromes as we did about railways?

For example, it has taken Cambridge about three-quarters of a century to grow round its railway station, which is still very inconveniently placed in relation to the real heart of the town. If we take fright at the idea of aeroplanes flying over houses, or will not face the greater expense of taking up land at the nearest available point to the centre, it is our own fault and is not a necessity.

Sooner or later, towns will grow towards and round their aerodromes. It only needs a very little faith to believe that even if the aerodrome is put as near the centre as we can get it, the progress that will have been made before it is surrounded will have been such that there then remains no possible reasonable opposition to its presence. Certainly, we cannot get into the middle because the proposition will be too expensive, but that is no reason for going to the other extreme.

Probably a common practice will be for the man who wants to take an aeroplane to telephone to that aerodrome and have a car sent down for him while the machine is being got ready. If the average journey from house or office to the aerodrome can be got down to ten minutes or a quarter of an hour, then the aeroplane will compete with the train over much shorter distances than if we stick the aerodrome down in the country, where it must take at least half-an-hour to get to it.

A Matter of Classification.

My next mild quarrel with Capt. Swinton is over his statement that heavier-than-air flying machines "can be classified under two heads: those which fly over land and those which fly over sea." This statement, appearing in a book intended for popular consumption, seems to me to be misleading, tending to give an impression that for some reason or another a long journey, partly over land and partly over sea, could not be performed without one or more changes of machine. Also that the use of the privately-owned aeroplane must be restricted because it falls into one or other of these categories.

I think it would have been better to describe the two classes as: "Those which are primarily intended for flight over land and those which are primarily intended for flight over the sea, it being clearly understood that either type is of fair utility for both purposes."

I take it that it will not be long before we can get a machine which will ascend and alight easily and safely both on land and on sea. There may be an exception in the case of long ocean routes, for which it is possible that very specialised machines will develop.

On the subject of the carriage of heavy or bulky goods, Capt. Swinton says there is no prospect here except in a few extraordinary cases. "These few cases are those in which the intrinsic value of the cargo is so high compared to the cost of freight that the latter can be neglected." It will probably occur to the reader that in such cases people will hesitate to dispatch their goods by aeroplane until the aerial service has been able to demonstrate a definite superiority over all other methods in respect of safety.

The point I wanted to make is, however, that among the few exceptional cases, we want to include those in which the market value of the cargo is largely dependent upon the time of its delivery. A fair number of such instances must arise. In our own small way we know that there are times when we would, for example, pay 10s. for a box of matches or £5 for a bottle of whisky.

The question is not the intrinsic value, but the degree to which the thing is urgently required.

Cinema Work.

If, for instance, a producer of cinema films can get double the price for the record of some historic event, if he can provide for it to be shown on the evening of the day when that event takes place, then it may be worth his while not only to use an aeroplane to carry the film, but to hire the whole thing to carry the apparatus necessary for developing and preparing the film and doing all the preliminary work en route.

Just one more point of difference of rather the same character. Immediately after the sentence last quoted, I find the following:—"Where these conditions obtain and where the only other possible means of carriage involves a large outlay of capital, the case for the carriage of goods by aeroplane is a strong one." Here I would like to have seen added something on the following lines:—The case is also a strong one when the only other possible means of carriage involves very great loss of time coupled with high costs.

For instance, as pointed out, an example of large outlay of capital would be the building of a railway over the Andes or Alps. An example of my suggested additional case would be the crossing of a great desert or the passage through thickly-wooded trackless country by means of animal-drawn baggage train. In such a case we have to take into account a point which, in a different connection, Captain Swinton emphasises admirably elsewhere in this chapter—namely, the salary cost of a journey or the value of time spent by the traveller while making the journey. If a man's time is worth £1,200 a year, then a long slow journey with a baggage train occupying three months, has cost him £300 on his own account, to say nothing of the depreciation of his animals and the length of his wages bill. In such an instance, the aeroplane may well be not only the quickest but the most economical method of transport.

A Minor Discrepancy.

Finally, I note some discrepancy between Capt. Swinton's figures and those of the Aerial Transport Committee. He puts the aerial journey to Capetown at two and a half days and the cost of conveying a thousand written words from London to Capetown at about 3d. He suggests an actual change of a half-penny a word with a minimum of 1s. 6d., which would certainly show a magnificent profit if the service were well utilised. The committee, on the other hand, in comparing aerial transport with the transmission of messages by cable, suggested that the cost of conveying a letter of 5,000 words from London to Johannesburg would be about 2s. 6d. Perhaps the discrepancy is really only in a difference of opinion as to what ought to be the profit accruing to the people who run the service. Obviously, the rate should not be based on words, which would necessitate an examination of each document, and must, therefore, curtail the utility of the service. It should be based solely on weight, and if the figure of 3d. for half an ounce is about right, then a 5,000-word letter written on the lightest possible paper might, as the committee proposes, be carried at a profit for about 2s. 6d. As regards the time taken, it seems to me that some time is likely to elapse before we have a London to Capetown service running in as little as two and a half days.—"MEDWAY."

THE U.S. POSTAL SERVICE.

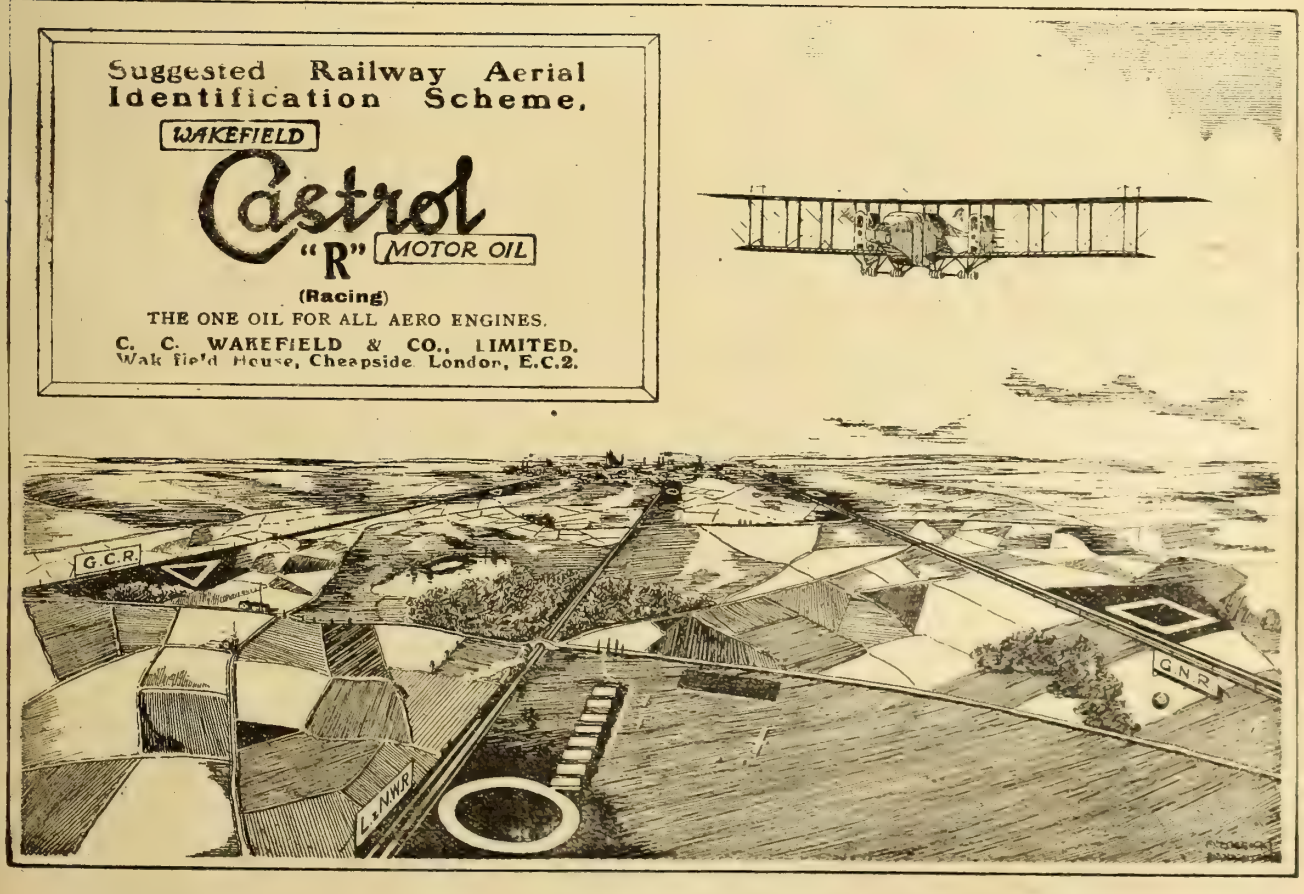
Considerable trouble is apparently being experienced by the U.S. Postal Authorities on the material side of their Aerial Post Service. The department is apparently convinced that the military single engine two-seater tractor type biplane is unsuited for mail purposes, and the New York, Cleveland, Chicago service has been suspended until a number of Handley Page biplanes have been assembled from material supplied by the War Department.

In the meantime, about 100 single-engine machines have been returned to the War Department as unserviceable for mail purposes. However, a number of heavily built Curtiss R. type aeroplanes with the low compression edition of the Liberty engine, and also a new type of Curtiss machine, are being used. The top speed of the new machine is alleged to be 140 miles an hour, and its landing speed 40 miles an hour.

It is also said that the Glenn-Martin twin-engine machine is also likely to be popular among the postal aviators, although, in view of the statement of the Second Assistant-Postmaster-General to the effect that it was impossible to obtain regular full loads of mail for the smaller machines over the New York-Washington route, it seems that special efforts will have to be made to provide sufficient mail to load up the bigger machines.

The Postal Authorities are apparently of the opinion that special aeroplanes are really required for postal purposes, and the U.S. War Department is now reconstructing aeroplanes to fulfil the necessary conditions.


What flying has taught us—
The demand of the aeroplane for the utmost power from the lightest and most trustworthy engine, and our concentration on that problem, has taught us much—and each owner of the new Austin "Twenty" will benefit thereby.
More power with less weight and greater reliability combined with silent running, flexibility and marked economy are characteristics of the new Austin "Twenty" and assure its selection by discriminating motorists.
The new Austin "Twenty"
THE AUSTIN MOTOR CO., LTD.,
Head Office: NORTHFIELD, BIRMINGHAM
Telephone—Kings Norton 230.
Telegrams—"Speedily, Northfield."
And at London, Manchester and Paris.


Suggested Railway Aerial Identification Scheme.
WAKEFIELD
Castrol
"R" MOTOR OIL
(Racing)
THE ONE OIL FOR ALL AERO ENGINES.
C. C. WAKEFIELD & CO., LIMITED.
Wakefield House, Cheapside London, E.C.2.
G.C.R.
L. & N.W.R.
G.N.R.

CIVIL AERIAL TRANSPORT.

UNITED KINGDOM.

It was announced at a meeting of the Yarmouth Town Council on Tuesday, Feb. 11th, that three applications had been made for a site on the beach from which to give passenger flights in seaplanes. It was resolved to invite tenders for the exclusive right of flying from the beach for three years. The Corporation will provide a landing station on the North Beach, and also a site for hangars.

It is said that an aerial service will be established in Wallasey, Cheshire, by Whitsuntide. It is proposed to have luggage and passenger flights across the River Mersey, and half-hour flights around Cheshire, departing and landing on the shore at New Brighton.

It is understood that Bath City Council has given Colonel Henderson, R.A.F., permission to hold a flying fair for a week in Bath.

The Dover Corporation have been asked for permission to start aerial pleasure trips with seaplanes by a company which desires a site for a hangar close to the sea.

The Town Clerk is to communicate with the Naval Authorities as to whether one of their hangars is likely to be available, and, if this is not the case, to approach the Harbour Board regarding a site on the front.

It is stated in the daily papers that Colonel Arthur Henderson, R.A.F., has written to the Leeds Corporation proposing to organise flights from that city before demobilisation is complete at the low rate of 12s. 6d. a flight.

It is also stated that another scheme is being promoted with a view to establishing a regular aerial service for passengers between Leeds and London.

It is understood that the Blackburn Aeroplane and Motor Co., Ltd., Leeds, has been offered every facility for making flights at Whitby, by the town authorities.

GERMANY.

According to a Berlin telegram, the German Air Traffic Co., Ltd., is negotiating with a Scandinavian banking syndicate with a view to beginning a regular aerial passenger and postal service between Germany and Scandinavia. It is proposed to use German aeroplanes.

The Swedish Aeronautical Union, it is understood, does not believe the plans will be accepted, and states that Germany has once before unsuccessfully attempted to monopolise Swedish aerial traffic.

ITALY.

A newly formed Postal Experiments Brigade, located chiefly at Centocelle, and having as its object the practical application of transport of mail, of which so much theory has been put on paper, is succeeding in maintaining a Rome-Naples twice-daily post on S.V.As. The Royal Authorities assisted at the start of the first mail.

Flights of S.V.As. and Capronis from the northern cities to Centocelle are part of the brigade's schemes, and are almost daily. A 600 Caproni biplane, with enclosed and heated cabin, has been found very satisfactory on the Milan-Rome route. Ten passengers are carried.

A military courier between Padua and Vienna on S.V.As. is also a regular fixture, limited, of course, to great affairs of State.

All these early post machines seem to be driven by 250 Isotta Fraschinis.

H.M. the King of Italy, who seems to prefer the lighter type vehicle, was again up for a long trip with some of the staff on an M. round the capital.

Another one of the O series of airships has been lost in a storm, much as were the two reported blown out to sea a short time ago.—T. S. HARVEY.

SWEDEN.

A company, called the Swedish Air Traffic Company, with a capital of over £55,000, has been formed with the object of establishing aerial traffic routes in Sweden, and between Sweden and other countries.

UNITED STATES OF AMERICA.

It was recently announced by the Manufacturers' Aircraft Association that Mr. J. M. McElroy, chief engineer of the Sturtevant Aeroplane Co., Boston, and Mr. Noble Fox, of Massachusetts, are planning the establishment of an airship service between New York and Chicago.

It is expected that four large rigid airships, of the Zeppelin type, will be used on the service, which is to be extended to places overseas as soon as possible.

CANADA.

It is stated that an Air Service is to be established in Canada in connection with the Royal North-West Mounted Police.

AN IMPORTANT COMBINE.

On Feb. 11th the "Morning Post," alone of all daily papers, published a report taken from the "Aftontidningen," of a German scheme to gain control of air traffic in Scandinavia. A combine, consisting of the Allgemeine Elektrische Gesellschaft, the Hamburg-America Line, the Zeppelin Company, the Deutsche Bank, and the Schaffhausen Bankverein, has been formed, which, having already gained control of the German aerial traffic, is negotiating with a Scandinavian combine to supply machines solely from the Friedrichshafen factories.

The German centre for traffic will be Warnemünde, and the Scandinavian Stockholm. The trip from Warnemünde to Stockholm will take from four to five hours, from Stockholm to Christiania three hours, to Reval or Helsingfors 2½ hours, to Petrograd five hours, Stockholm to Copenhagen four hours, Stockholm to Libau three hours.

A CORRECTION.

In the description of the Cosmos Engineering Co.'s new engines, Jupiter and Mercury, which appeared in this paper recently, the manufacturers, formerly known as Brazil Straker and Co., Ltd., were described as "still more formerly known as Straker-Squire, Ltd." The firm of Straker-Squire, Ltd., write to point out that this statement is inaccurate, since the only association between Brazil Straker and Co., Ltd., and Straker-Squire, Ltd., has been that the former firm produced a portion of the output of Straker-Squire, Ltd, who are in possession of their own works in the ordinary way. The exigencies of the war have brought about a discontinuance of working between these two firms, and Mr. Sidney Straker, who was a Director of Brazil Straker and Co., Ltd., has retired from that firm, in order to devote his energies exclusively to the Straker-Squire Co., who are now in possession of large manufacturing facilities.

ADMIRALTY SALES.

The Admiralty has for disposal a quantity of proofed airship fabric cuttings, lying at Bristol.

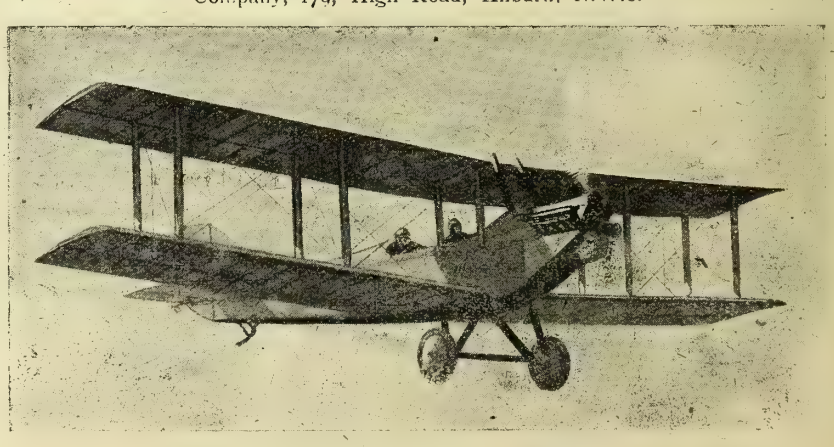
Tender forms, due for return Feb. 27th, 1919, may be obtained on application to the Director of Contracts (Branch 2a), Admiralty, Whitehall, S.W.1.

A PROMISING FLYING SCHOOL.

As was recently announced, the Central Aircraft Company, which, during the war, has fulfilled important contracts for the Admiralty and the Air Ministry, is now organising a large flying school based on very sound lines. It is intended that pupils shall receive instruction of a kind which will prove useful in practical flying, and on types of machines similar to those commonly in use, and not designed specially merely to scrape pupils through their certificate tests at the minimum cost.

The school will be under the personal supervision and management of Mr. Herbert Sykes, O.B.E., who, as a test pilot of long experience, knows exactly what is necessary for a pupil to learn if he is to become an efficient pilot. The type of machine which will be used for instruction is a 75-h.p. dual control "C.A.C." tractor biplane.

The firm does not intend to confine its activities merely to instructional work, but will also supply aeroplanes for sporting and other purposes. A speciality will be made of a 100-h.p. two-seater biplane with a stationary radial engine, and built on common-sense lines. The proprietors of the company are willing to book orders for the above-mentioned two-seater sporting machine, or for any other type intended for commercial or pleasure work, and inquiries (including applications for enrolment at the school) should be addressed to the Central Aircraft Company, 179, High Road, Kilburn, N.W.6.



The C.A.C. Training Tractor Biplane.

AIRCRAFT FINANCE

THE IDEA OF PREFERENTIAL TREATMENT.

When dealing with the unbearable strain upon industry imposed by the Excess Profit Duty the suggestion was made that there should be a general readjustment of the weight of taxation.

The necessity for this is indisputable, and it seems imperative, too, that preferential treatment should be accorded to those adolescent industries, like Aircraft, which possess potentialities of great economic development, that they might thereby be stimulated advantageously towards the realisation of their proper position in the economic structure.

Narrow-Minded Views.

The idea that aircraft was developed solely for the purpose of winning the war, and that, the war being now no more than an incident of history (with a large legacy of debt), aviation should be left to its own devices, is a shallow and narrow-minded view. War has demonstrated its capabilities, but only to a limited degree; the transition period will show its commercial limitations, financially, at all events, if not physically. Drastic alterations and revolutionary improvements, inseparable from any evolutionary movement toward economic permanency, represent a big financial risk to the Aircraft Industry.

Remission of Heavy Taxation.

This being so, it is the duty of the State to treat the Industry tenderly and with care in order that perfection may be expedited, or, at all events, progress stimulated as much as possible. The whole world is clamouring for some sort of thing called the millennium, which may, or may not, be as futile as the infant crying for the moon.

As aviation provides the quickest form of locomotion, which is one of humanity's greatest desires, one might quite logically argue that the Aircraft Industry has therefore a serious claim for special treatment. Perhaps that is stretching the point unduly, but then it is the acknowledged weakness of mankind to demand more than it can conscientiously expect, in order that it may obtain something with which to be going on.

An Invidious Comparison.

Admittedly the industry is blessed with a little preferential readjustment in respect of the levy of excess profits, but so are a host of other industries of older standing, which attained permanency before the war.

Comparisons may be odious, but the fact remains that aircraft has only done comparatively as well as these other preferentially treated industries because of the fact that it found a single and special consumer for its wares: that consumer was the Government.

Now the demand from this source is ceasing, if it has not already actually ceased, the other industries may fall back on their old clientèle, but the special clientèle of aircraft is no longer in need of anything like the same quantity of goods.

Exceptional Disadvantages.

Therefore it is up to the Industry to find new markets. It is pretty evident from the exceptional and special circumstances that aircraft will not easily find these new markets: it must itself create them by demonstrating the utility and capabilities and superiority of its specialities. It is an awkward position, but a position pregnant with great possibilities, provided that, instead of restrictive regulations, financial and otherwise, the State offers a little encouragement.

Excess profits might be very well abolished altogether in the case of aircraft.

An Incentive to Enterprise.

Confessedly there are people who are able to make money under the most exceptionally adverse physical and financial conditions. At least, they appear to be profitably employed: whether a careful scrutiny would prove that their claim is fundamentally sound is another matter.

But in any case it is not such a minority that counts: one must take the general average. It is assumed that special inducements from the State, as distinct from spoon-feeding, are essential for the well-being of the Industry, and that the old doctrine of *laissez-faire* is exploded.

Suppose, therefore, that the State were to sacrifice its claim in respect of excess profits, being content with the ordinary taxation levy, there would be a powerful incentive to development and progress of aviation. Perhaps there might be some bold and rash experimentation in aerial transport with unsuccessful financial results.

The failure would deter others, and would stimulate development on sound lines, for the requisite financing would be a much easier matter to arrange than if the investor was concerned with an excess profit proposition only in the experimental stage of development, and therefore involving correspondingly greater risks.

Attracting New Capital.

It would be rash to assume that the absence of this tax liability necessarily means that money would flow into aerial ventures to an unlimited extent and regardless of all other consideration. That postulates that the investor is a stupid person, which he is not.

But the advantage of no excessive liability for possible profits would compensate largely for the greater risks attaching to the experimental ventures, and the necessary capital would probably be obtainable on fairly reasonable terms. The provision of an adequate amount of capital on reasonable terms is obviously essential for the progress and development of aerial transportation.

Opportunity of the Financial Sharks.

The objection is that such preferential treatment would encourage vice in aviation financing. Parasitic growths are inseparable from any new movement. So long as human nature is what it is, financial sharks will exist and flourish at the expense of the unsophisticated: the machinations of such sharks have given a piquant flavour to all movements, new and old, in the financial world.

The flavour is observable in aviation already: doubt-

less it would become more pronounced: it will become more pronounced in any case during the next few years coincident with the progress of the industry. One questions whether the vice will be correspondingly greater in the event of preferential treatment producing a revival in aviation.

CURRENT TOPICS.

Oil Boomlet Interesting.

But for the sustained activity and buoyancy of oil shares, the Stock Exchange would not be able to boast of a decent volume of business. The dividends, which are large, but only up to the level justified by circumstances during the war, has gingered up Home Railway securities a little: the effect was not permanent. Therefore oil shares have saved the situation. Their upward movement is based on the greater commercial possibilities of oil as a fuel: the threat of almost perpetual trouble in the coal-mining industry naturally adds to the merits of the shares as a speculative risk.

Probably some shares have been established at a level of value quite beyond what is warranted by intrinsic merit. That is the common experience of all Stock Exchange movements of this kind: the chaff is not properly separated from the wheat.

Aircraft Shares Quiescent.

Not much interest is absorbed by aircraft and kindred shares. Rolls-Royce have been steadily bought up to 46s. by people who believe the prospects are very encouraging. Napiers are changing hands at 31s. 6d., and the letters of renunciation in respect of the new shares at 2s. 6d. In about a month a declaration of the bonus on a similar scale to that of last year is looked for. Notwithstanding the recent inspired notice, Whitehead Aircraft are selling at lower prices, ranging about 13s. 6d. to 14s., and only in small lots at irregular intervals.

Dawson's Associated Companies.

Dawson's Associated Companies, Ltd., which has just been registered, is a novelty so far as aviation is concerned. With a capital of £100,000 in £1 shares it is intended to organise, financially and commercially, the development of, and to act as buying and selling agents for, John Dawson & Co., Newcastle-on-Tyne, Ltd., aircraft manufacturers. It suggests a parent company which will create auxiliaries, sponsor them, see that they grow up and provide a source of profit. The idea is all right; it is not a novelty in the financial world.

Integral Propeller Scheme.

Shareholders of the French Chauvière Integral Propeller Co. have sanctioned the increase in the capital from 1,700,000 francs to 3,400,000 francs by the creation of 17,000 6 per cent. cumulative preference shares of 100 francs. These new shares are to be offered to the existing shareholders. At the same time power has been obtained to increase the capital eventually to 7,500,000 francs by the creation of 41,000 new 100 franc ordinary shares. The additional capital will enable the company to develop its peace programme. Incidentally the company's name is to be changed to the Société Anonyme des Anciens Établissements Chauvière.

Tripper Joy-Rides: Capital, One Million.

Most of the new aerial transport ventures have been too modest with their capitalisation when newly registered: this can scarcely be said of the Great Northern Aerial Co., whose capital is given at £1,000,000. The idea is to run coastal and cross-Channel services by seaplane and flying-boat plying between popular health resorts within a 100-mile radius of the Isle of Man. The scheme is prosaic: the capitalisation takes one's breath away. Fancy having to raise a million (without any consideration for debenture borrowing) for the purpose of making a profit out of joy-riding trippers. By comparison the capital of many important shipping companies is small, and there are times when they barely make both ends meet. On the face of it, there is some bluff about this million-pound proposition.

Guy Motors.

At the shareholders' meeting the chairman said:—

We are at present gradually turning over to our post-war business, and I have no doubt that our production will be in every way satisfactory. The lorries have in some respects been redesigned in the light of the unique experience obtained during the war, and brought to a very high standard of efficiency, and will undoubtedly still further enhance the company's reputation, and we are also preparing an additional department of the business. The esteem with which our production is held is evidenced by the fact that with our present facilities the output for this year has already been considerably over-applied for, and further extensions are, therefore, necessary, and, in our opinion, will prove advantageous to the company in enabling us not only to help to satisfy the demands of our clients, but broaden our business and goodwill, and also enable us to better withstand competition.

The Managing Director (Mr. Sydney S. Guy) said:—

I do not think there is much that I need say with regard to our past year's working, as the results are shown by the balance-sheet which has been put before you. It might, however, be of interest to you to know that during the past year we broke what we understand is the world's record for production of aero engines by producing a 350 h.p. engine, the first of an entirely new type, in 24 days, to which I might add that when we commenced manufacture the design was only partly completed, and we received, amongst many congratulations, a wire from Sir William Weir (now Lord Weir), Director-General of Aircraft Production. I may say that during the past two years the turnover of the company has increased fivefold, and, as regards output of a certain type of engine which we have been manufacturing for the Ministry of Munitions and depth charges for the Admiralty, we are informed that we have had a larger regular weekly output and total production than any other contractors manufacturing these supplies.

It is announced that the recent issue by the Austin Motor Co., Ltd., of 1,000,000 6 per cent. cumulative "B" preference shares of £1 each has been very largely over-subscribed.

Cellulose Committee.

Sir Frederick Banbury on February 13th asked the Prime Minister when the Committee appointed to consider the report of the Select Committee on National Expenditure on cellulose acetate would make its report.

Mr. Bonar Law said the Committee had not yet completed the taking of evidence, but it was expected that the report would not be long delayed.

New Capital for S. Smith and Sons.

It is the intention of S. Smith and Sons (Motor Accessories) to increase its capital from £300,000 to £500,000 in order to keep pace with the development of the business. The fact that the shares rose on the news suggests that the new capital will be offered to shareholders on advantageous terms.

NEW COMPANIES.

Flighticraft, Ltd.—Issue on Jan. 29th, 1919, of £300 and on Jan. 31st, of £200 Debentures, parts of a series already registered.

Dawson's Associated Companies, Ltd.—Private company. Registered Feb. 6th. Capital £100,000 in £1 shares. To organise, financially and commercially, the development of, and to act as buying and selling agents for John Dawson and Co., Newcastle-on-Tyne, Ltd., aircraft manufacturers. The sub-subscribers (each with one share) are:—G. H. Humphrey, 4, Ellison Place, Newcastle-on-Tyne, aircraft manufacturer; E. F. Emmet, 10, Fenchurch Buildings, E.C., solicitor. Permanent governing director: G. H. Humphrey. Registered office: 10, Fenchurch Buildings, E.C.3.

MANN, EGERTON AND COMPANY, LTD.

The Fifteenth Annual General Meeting of this Company was held at Norwich on Feb. 1st to receive the Directors' Report and Accounts for the 12 months ending Sept. 30th, 1918.

The profit earned for the year was £55,670 16s. 7d., which, with £10,744 8s. 4d. brought forward from the previous year, provided a sum of £66,415 4s. 11d., which was dealt with as follows:—

In paying the fixed dividend of 7 per cent. on the preference shares, absorbing £5,267 12s. 8d., and a dividend of 20 per cent. on the ordinary shares, absorbing £5,811 9s. 4d.; in transferring to reserve £12,000, and in writing off the balance of the goodwill account, namely, £5,000.

After making these appropriations there remained a balance of £38,336 2s. 11d. to be carried forward to the current financial year, subject to a deduction in respect of the liability to Excess Profits Duty for the year to Sept. 30th, 1918, at present unascertained.

LONDON AVIATION LIQUIDATION.

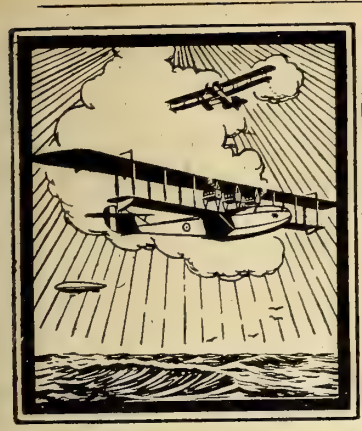
In pursuance of the provisions of the Companies (Consolidation) Act, 1908, a meeting of the creditors of the above was held on the 11th inst., at the offices of the liquidator, 166, Piccadilly, W.

At the same meeting Mr. W. L. Staines was appointed to act as liquidator. The latter submitted a statement of affairs showing the position as at January 23rd last, and this disclosed total liabilities of £15,406 11s. 5d. The amount due to creditors was £11,547 13s. 1d., while there was a bank overdraft of £1,858 18s. 4d. The balance of the liabilities of £2,000 represented the issued capital of the company.

The assets were set down at £3,400 3s. 6d., from which had to be deducted £280 14s. 6d. for the claims of preference creditors, leaving net assets of £3,119 9s., or an apparent deficiency of £12,287 2s. 5d.

There was a claim against the Government amounting to some £6,000 in respect of losses on contracts, while the Company also claimed to be entitled to a refund of rather more than £1,000 in respect of extra wages paid under various awards.

Dissatisfaction was expressed at the position disclosed, and eventually a resolution was passed in favour of the appointment of Mr. E. H. Hawkins, of Messrs. Poppleton, Appleby, and Hawkins, accountants, of 4, Charterhouse Square, E.C., as the liquidator of the company. A committee of inspection was also nominated.



NAVAL & MILITARY AERONAUTICS



GEOFFREY WATSON

FROM THE "LONDON GAZETTE."

AIR MINISTRY, February 8th.

His Majesty the King has been graciously pleased to confer the undermentioned rewards on officers and other ranks of the Royal Air Force in recognition of gallantry in flying operations against the enemy:—

AWARDED THE DISTINGUISHED FLYING CROSS.—(*Continued.*)

Lt. (actg. Capt.) CHARLES STEWART TOUZEAU LAVERS. (France.) On a recent occasion this officer led his scout formation, escorting bombers to an objective 39 miles over the lines; all the bombing machines were brought safely back. This was the 20th successful escort formation that he had led during a period of two and a half months. On several occasions enemy aeroplanes have attacked his formation, but they have invariably been driven off, which reflects the highest credit on his skill and determination. He has several machines to his credit, and has assisted in the destruction of others.

Lt. GEORGE EDGAR BRUCE LAWSON. (France.) A pilot of courage and skill, bold in attack and gallant in action, who has accounted for five enemy aeroplanes. On Sept. 27th he attacked 15 Fokker biplanes that were harassing one of our bombing formations, driving down one in flames. He then engaged a second; in the combat the two machines collided, and the enemy aeroplane fell down completely out of control. Although his machine was badly damaged, Lt. Lawson successfully regained our lines.

Sec. Lt. (Hon. Lt.) CYRIL REGINALD LEEKE (France.) This officer has displayed conspicuous courage and devotioon to duty on many occasions, notably on Nov. 1st when flying as observer on artillery and counter-attack patrol. On this occasion his machine was attacked three times by large hostile formations, one numbering 14. With marked skill and cool courage he drove off these attacks, thus enabling his pilot to carry out his reconnaissance.

Lt. (actg. Capt.) WILLIAM ALEXANDER LESLIE. (France.) This officer has carried out 63 successful night bomb raids and nine successful night reconnaissances. On seven occasions he has carried out three raids in one night. Frequently, owing to adverse weather conditions, he has only succeeded in reaching his objective by the exercise of great determination and skill. However severe the hostile fire may be, Capt. Leslie never hesitates to descend to low altitudes in order to make certain of hitting his objective.

Lt. (actg. Capt.) HARRY NELSON LETT (France.) This officer has carried out 80 successful bombing raids and nine photographic reconnaissances, displaying at all times high personal courage and initiative. On Nov. 1st his formation was attacked by about 25 enemy machines. Although outnumbered by nearly four to one, the formation destroyed one scout and drove down two others out of control. This fine achievement was largely due to Capt. Lett's most able leadership.

Lt. (actg. Capt.) HUGH PUGHE LLOYD, M.C. (France.) This officer has rendered signal service on many occasions, notably on Nov. 1st, when, noticing four hostile batteries harassing our advancing infantry, he, by sending calls to our artillery, succeeded in silencing them. During this flight he was continuously attacked by hostile formations, which he succeeded in driving off; despite this opposition he carried out a low reconnaissance, obtaining most valuable information as to the position of our advanced troops. (M.C. gazetted June 22nd, 1918.)

Sec. Lt. (Hon. Lt.) FRANK MASTERMAN LOLY. (France.) This officer has done over 200 hours' war flying as an observer. On Oct. 18th, accompanying the leader of a special bombing raid, he descended in his heavy bombing machine to 2,500 ft. above an enemy railway station. From this altitude, unusually low for the type of machine, and in face of heavy fire, he, with remarkable coolness and precision, aimed his bombs; one fell on the station buildings, and another on an ammunition train, which was completely destroyed.

Sec. Lt. COLIN LUKE LOWE. (France.) During unfavourable misty weather this officer has shown most undaunted perseverence in carrying out low-flying patrols over the enemy lines, and in obtaining the maximum amount of information. On Oct. 19th he stayed up four hours; for the greater part of this time he was over the enemy lines at a height of between 50 and 300 ft. He brought back most valuable information, warning our advancing infantry of a machine-gun ahead of them, thereby probably saving a number of casualties.

Lt. (actg. Capt.) JAMES MCBAIN. (France.) This officer has rendered conspicuous service on reconnaissance duty, his reports being exceptionally clear and accurate. The majority of these reconnaissances have been carried out at very low altitudes, and in face of severe hostile fire. Complete reliance could always be placed on any information he brought back, however unfavourable the conditions were under which the reconnaissance was made.

Lt. ASHLEY VERNON MCCANN (Aust. L.H. and Aust. F.C.). (Egypt.) A keen and gallant officer who has rendered conspicuous service during recent operations in attacking hostile troops on the ground. On Oct. 19th he, in company with his pilot, Capt. Smith, performed a very gallant act. They engaged a hostile two-seater many miles over the enemy lines and drove it down; it appeared to land intact, but the occupants were forced to abandon it owing to machine-gun fire. Lt. McCann and Capt. Smith thereupon landed, and, keeping the enemy officers covered by machine guns, set light to their machine, completely destroying it.

Lt. PAUL JOSEPH MCGUINNESS, D.C.M. (Aust. F.C.). (Egypt.) A bold and gallant airman who has displayed marked initiative and skill in attacking and destroying enemy aircraft, notably on Aug. 24th, when, with his observer, he crashed two enemy machines in an engagement against heavy odds. He has also carried out successful attacks on enemy aerodromes, inflicting heavy casualties and causing serious damage. (D.C.M. gazetted May 31st, 1916.)

Lt. JOHN ALEXANDER MCGREGOR. (France.) On Oct. 15th this officer rendered valuable and gallant service when on contact patrol. Flying at a height between 200 and 300 ft. in exceptionally bad weather, and in face of intense hostile fire, Lt. McGregor obtained most valuable information as to the position of our troops and those of the enemy. Owing to the heavy fire to which he was subjected his patrol tank was pierced, and he was compelled to descend in "No Man's Land." On regaining our lines he at once reported to the nearest battery, and as a result of the information he was able to give artillery fire was opened on enemy forces that were advancing to attack.

Lt. GEORGE DOUGLAS MACHIN. (France.) This officer sets a fine example of cool courage and devotion to duty to all balloon officers of his section. Subjected to heavy shell fire, with his balloon damaged by same, he has on several occasions remained in the air and continued his observations. Twice his balloon so damaged fell rapidly, landing him on the roof of a house the first time, and on the second occasion in a wood. On another occasion, forced to make a hurried descent, his parachute collided with that of his fellow observer, and he had a heavy shock on landing. Unshaken by such incidents, he retains his keenness and nerve.

Lt. JOHN MACLEOD MACKAY (87th Can. Batt.) (France.) Since April this officer has carried out over 130 patrols, and has been conspicuous for his gallantry and devotion to duty, both in attacking ground targets and in aerial combats. In the latter he has accounted for two enemy machines.

Lt. (actg. Capt.) JOHN HARRY MCNEANEY. (France.) A gallant and courageous airman who has accounted for five enemy aeroplanes, displaying at all times marked skill and devotion to duty. On Sept. 28th, in company with two other machines, he engaged about ten Fokkers; four of these were destroyed, two by Lt. McNeaney.

Lt. (actg. Capt.) FINLAY MCQUISTAN. (France.) By his example of determination and courage Capt. McQuistan has inspired the greatest confidence in the other pilots of his squadron. He has led over 30 squadron offensive patrols, and the success attained by his squadron during the past three months is largely due to his skilful leadership. This officer has destroyed or driven down out of control nine enemy machines.

Sec. Lt. ANTHONY JACQUES MANTLE. (Sea Patrol). (Ægean.) On Oct 25th, 1918, he led his flight for 2½ hours in a successful raid on Constantinople. His formation was attacked by hostile scouts on the journey, but by clever airmanship he succeeded in destroying two enemy machines without incurring loss to his flight. Sec. Lt. Mantle rendered valuable services previously in the Adriatic, for which he was mentioned in dispatches in the "London Gazette" of Jan. 1st, 1919.

Lt. HAROLD STANLEY RYOTT MAUGHAN (Aust. F.C.). (Egypt.) On Oct. 19th, whilst escorting bombing machines, Lt. Maughan saw an aeroplane of another squadron go down in enemy territory; without hesitation he at once landed, rescued the pilot and observer, and brought them back to our lines, displaying cool courage and presence of mind deserving of high praise.

Maj. REGINALD STUART MAXWELL, M.C. (France.) On Nov 16th, on a low-bombing raid against a railway station, this officer led his whole squadron to within 100 ft. over the objective, thus enabling them to drop their bombs with the greatest possible effect on the trains, transport, etc., in the station. After dropping these bombs he led the formation against troops, etc., crowded on a main road, causing great confusion and inflicting heavy casualties. His magnificent example inspires all who serve in his squadron. (M.C. gazetted January 1st, 1917.)

Lt. (actg. Capt.) JOHN LEAM MIDDLETON. (France.) This officer has flown about 220 hours over the enemy lines, and has, with great determination and disregard of personal danger, carried out numerous low-flying bombing patrols, inflicting heavy casualties on enemy troops, transport, guns, etc. He has, in addition, accounted for four enemy machines.

Capt. BERTIE ARTHUR MILLSON, D.S.C. (France.) This officer has carried out 64 raids at night, displaying at all times great perseverance in reaching the objective and marked gallantry in attack, notably on the night of Oct. 3rd-4th, when he twice raided an important railway junction, dropping his bombs with skill and precision from 800 ft., obtaining direct hits, and causing serious damage. On the night in question no other machine bombed from a height of less than 4,000 ft. owing to the very heavy hostile fire. (D.S.C. gazetted April 17th, 1918.)

Lt. (actg. Capt.) JOHN ROBERT MILNE. (Salonika.) As a flying officer and flight commander Capt. Milne has shown the greatest coolness and determination, and has invariably displayed qualities of leadership and command of a very high order.

Sec. Lt. CONRAD ALAN MOTH. (France.)

Lt. JEWITT RICE SMITH. (France.) On the night of Nov. 4th-5th these officers started out to bomb a railway station, but after two hours they were compelled to return owing to engine trouble. Obtaining another machine they again set out, although from the weather chart they realised that there was every probability of a gale before morning. Reaching the objective they obtained three direct hits. On the return journey they met the storm and landed at the aerodrome in a 60-mile per hour gale after a flight of six hours and fifteen minutes in addition to the two hours' flight on their first attempt. It is difficult to speak too highly of the fine spirit of determination and devotion to duty displayed by these two officers on this occasion.

Lt. ERNEST ANDREW MUSTARD (Aust. F.C.) (Egypt.) During the recent operations this officer has shown exceptional ability as a bomber, obtaining numerous direct hits on railway lines, stations, etc.: exten-

sive damage was caused, and the enemy lines of communication were seriously interfered with. In an aerial combat he forced an enemy aeroplane to land, and destroyed it with machine-gun fire.

Sec. Lt. GERALD BASIL NICHOLAS. (France.) This officer has carried out 95 night bombing raids, and has displayed marked skill and initiative. He has been extremely successful in low reconnaissances and attacks on ground targets, having twice obtained direct hits on trains at a height of about 800 ft.

Lt. (actg. Capt.) HEDLEY FRANCIS NICHOLLS. (France.) This officer has rendered exceptional service on contact patrols, setting a fine example of keenness and courage to his flight and squadron. On Oct. 9th he attacked, with his machine-gun, an enemy battery, causing heavy casualties and a general stampede.

Capt. JOHN HAMILTON NORTON, M.C. (Egypt.) On all occasions this officer displays gallantry and devotion to duty, notably on July 29th, when, in co-operation with our artillery, he carried out a shoot against two anti-aircraft pits. On approaching this target Capt. Norton was wounded in the left foot, notwithstanding this, he continued the shoot, and succeeded in destroying both pits, thereby putting out of action two hostile guns. (M.C. gazetted May 25th, 1917; Bar to M.C., April 22nd, 1918.)

Sec. Lt. (actg. Lt.) WILFRED LAURENCE FALKINER NUTTALL. (France.) This officer has shown marked devotion to duty and disregard of danger in carrying out low reconnaissances over the enemy lines. These have been for the most part in very unfavourable weather, but in spite of this he has consistently shown great determination in obtaining the required information as to the position of the enemy troops, and has pushed his observations well forward in face of heavy hostile fire.

Lt. MAURICE ALEXANDER O'CALLAGHAN. (France.) This officer has been conspicuous for his excellent work on contact and photographic patrols. Subjected frequently to heavy hostile fire, and handicapped by adverse weather conditions, his reports have invariably been accurate and of great value. On Oct. 8th, when on photography duty, he was attacked by seven scouts. In the combat that ensued he crashed one of these, but the remainder, pressing home their attack, forced his machine down to crash in "No Man's Land," Lt. O'Callaghan being wounded. He and his observer made their way to our lines after dark.

Lt. HAROLD OLDHAM. (Egypt.) A gallant and able officer, who has done continuous good work, especially on contact patrols, frequently under difficult conditions. On Sept. 22nd, in spite of clouds 500 ft. above the hills and in face of heavy hostile fire, Lt. Oldham reached his objective and rendered a valuable report.

Sec. Lt. WILLIAM ARTHUR OWENS. (France.) A gallant and determined officer, who is conspicuous for his skill in aerial combats. He has accounted for five enemy machines.

Lt. LOUIS HENRY PAKENHAM-WALSH. (Sea Patrol, Mediterranean.) As an observer officer he rendered valuable services in obtaining photographs of the enemy's position at Beirut, and also as a "spotter" for the French cruiser "Requin" off the Palestine coast, near the Wadi Hesy. During the performance of these duties he was regularly exposed to hostile anti-aircraft fire and very frequently to attacks from the enemy's fast aeroplanes. Lt. Pakenham-Walsh subsequently rendered gallant service in the attack on the "Goeben" on Jan. 28th, 1918, in the Dardanelles.

Lt. WILLIAM EUSTACE PALK. (France.) On Nov. 4th, after bombing enemy troops and transport, this officer attacked, from a very low altitude, two companies of enemy infantry, turning their orderly retirement into a rout. On numerous occasions the damaged state of his machine has borne testimony to his boldness in pressing home his attacks on various ground targets.

Lt. CARRICK STEWART PAUL (Aust. F.C.). (Egypt.)

Lt. WILLIAM JAMES ALEXANDER WEIR (Aust. L.H. and Aust. F.C.) (Egypt.) Lt. Paul is a gallant and skilful pilot, who has been very ably assisted by his observer, Lt. Weir. These officers have shown great initiative in attacking ground objectives on numerous occasions, notably on Aug. 14th, when, in face of intense hostile fire, they, at a very low altitude, attacked bodies of enemy cavalry, causing heavy casualties. They have also displayed great courage and skill in air combats, having destroyed four enemy aircraft.

Lt. (actg. Capt.) JAMES WILLIAM PEARSON. (France.) On Oct. 26th, while leading a patrol, this officer observed a formation of enemy scouts. Diving to the attack, he engaged one and drove it down out of control. He then attacked a second, which he drove down to crash. In all he has accounted for seven enemy aircraft, setting at all times a fine example of skill and courageous determination.

Lt. (actg. Capt.) GEORGE SHEPHERD PEFFERS. (France.) A courageous and determined officer. On Sept. 18th, flying for over three and a half hours in low clouds and rain, he obtained information as to the advance of our tanks and infantry when all others had failed. While employed on this duty he attacked and silenced a gun which was shelling our tanks.

Lt. GEORGE CLIFTON PETERS (Aust. F.C.). (Egypt.)

Lt. JAMES HAMILTON TRAILL (Aust. F.C.). (Egypt.) On Aug. 24th Lt. Peters, with Lt. Traill, as observer, in company with another machine, attacked seven hostile aeroplanes; they succeeded in crashing two and drove down a third out of control. This is only one instance out of many in which these officers have displayed marked skill and gallantry in attacking and destroying enemy aeroplanes. Their keenness and devotion to duty in aerial combats and in attacking ground targets sets a fine example to others.

Sec. Lt. HARLEY PHILLIPS. (France.) An officer of marked courage and perseverance who invariably completes the task allotted him, however difficult. He has displayed conspicuous bravery in carrying out photographic and other reconnaissances, and in attacking ground targets in face of severe hostile fire.

Lt. GEORGE EBBEN RANDALL. (France.) A brave and resourceful flight commander who has, within the last four months previous to Nov. 11th, led 71 offensive patrols. On Nov. 10th, engaging a superior number of enemy aircraft, he himself shot down two, and the remainder were driven off by his flight. In addition to the foregoing he has four other enemy machines to his credit.

Sec. Lt. (Hon. Capt.) ALEXANDER CECIL RANKIN, M.C. (Italy.) A most skilful and gallant observer, who carried out numerous contact patrols during recent operations, frequently at very low altitudes, his reports being most careful and accurate. He has set a high standard of efficiency in photographic and reconnaissance work, allowing no difficulties to deter him from carrying out his objective. (M.C. gazetted September, 1916.)

Lt. HENRY COYLE RATH. (France.) A bold and resolute fighter in the air who has six enemy aeroplanes to his credit. On Oct. 14th he, with three other machines, engaged a large number of enemy scouts; five were shot down, Lt. Rath destroying two.

Lt. (actg. Capt.) WILLIAM ERNEST REED. (France.) A brilliant and skilful scout leader. On Oct. 20th, although seriously handicapped by clouds, he led a successful patrol over the enemy lines. Attacking a large formation of enemy machines, his own formation accounted for five, he himself destroying one and driving down another out of control. In addition to these he has to his credit three other enemy aircraft.

Lt. (actg. Capt.) ROBERT WILLIAM REEVE. (Egypt.) An officer of outstanding merit, whose gallantry and reliability are proverbial. On Sept. 19th he made four flights, attacking hostile troops with machine-gun fire at a low altitude, displaying marked courage and disregard of danger. The information he brought in of the enemy positions was of the greatest value.

Capt. GEORGE HANCOCK REID. (Sea Patrol, North Sea.) As pilot of a Short seaplane he was engaged on a raid on Zeppelin sheds in Schleswig-Holstein on March 25th, 1916, in which he displayed great courage, ability and resource under the most trying circumstances, which included prolonged flying in a snowstorm and immersion for over three hours in the sea.

Lt. (actg. Capt.) GEORGE RABY RILEY, M.C. (France.) An officer who shows the greatest dash and gallantry in leading low-bombing and defensive patrols. On Sept. 27th he obtained two direct hits with bombs on an enemy balloon on the ground, which set it on fire. Later he attacked another balloon in the air, shooting it down in flames. (M.C. gazetted Sept. 16th, 1918.)

Capt. JAMES MILNE ROBB. (France.) This officer has destroyed seven enemy aircraft, and under his brilliant leadership his patrols have accounted for numerous others. On Oct. 13th he attacked and silenced three hostile howitzers which were in action.

Capt. CHARLES ROBINSON ROBBINS, M.C. (France.) In contact patrols, artillery co-operation, and photographic reconnaissances Capt. Robbins has shown marked skill, energy, and perseverance. On Nov. 4th, in a counter-attack patrol, he was conspicuous for his courage, flying at a very low altitude in face of intense hostile fire, and dispersing a body of enemy infantry, his machine being riddled with bullets. (M.C. gazetted Jan. 1st, 1917.)

Capt. GORDON BLEWS ROBOTHAM. (France.) This officer is conspicuous for the skilful handling of the balloon sections under his command. Since Aug. 8th he has advanced his two balloons over 50 miles, despite numerous obstacles, and has succeeded in maintaining at all times close touch with the operations, although frequently subjected to severe shell fire. Capt. Robotham has carried out 330 successful shoots in co-operation with our artillery.

Lt. (actg. Capt.) ALFRED CLIFFORD SANDERSON. (France.) On Nov. 5th this officer set a fine example of determination and devotion to duty. In pouring rain and at a height seldom over 200 ft., he carried out a reconnaissance of the Army front, locating the enemy forces by drawing their rifle and machine-gun fire. The information thus obtained proved of the utmost value.

Lt. (actg. Capt.) HARVEY CLINTON SENIOR. (France.) This officer has carried out over 100 night-bombing flights, and he has been conspicuous for his gallantry and disregard of danger. On the night of Sept. 28th-29th he was detailed to carry out an important reconnaissance of the Army front. Flying very low, he was enabled to make a very complete and exhaustive report. During the flight he obtained direct hits on an ammunition dump, causing a big and prolonged explosion.

Lt. EVANDER SHAPARD. (France.) On Nov. 4th, in low clouds and heavy rain, this officer led his patrol to attack enemy troops on the ground. Descending to so low an altitude that his machine was marked by his own bombs, he attacked a dense concentration of enemy troops and transport in face of heavy fire at point-blank range. He has accounted for six enemy aircraft, and inspires the greatest confidence in his patrol by his intrepid daring and resource.

Lt. STANLEY MAURICE SHARPE. (Salonika.) A brave and capable officer, who has carried out many valuable long-distance photographic reconnaissances with marked success, invariably displaying great keenness and courage.

Lt. JOHN ALEXANDER SHEARER. (France.) Always keen and eager to ascend, however bad the weather, this officer sets a very high example of devotion to duty. He has taken part in over 160 successful shoots in the last five months, and has obtained for the various formations concerned much valuable information.

Lt. THOMAS MACMILLAN SHIELDS. (France.) This officer has shown consistent courage and powers of observation when on contact patrols, having on numerous occasions rendered most valuable reports as to the positions of our own and enemy troops. He has also done excellent photographic work. When engaged on the latter service he was, on Oct. 8th, attacked by nine Fokker biplanes; one of these was driven down out of control. Further observation being impossible owing to the presence of these aeroplanes, he was compelled to retire, which he successfully accomplished, displaying marked skill in eluding the enemy.

Lt WILLIAM SIDEBOTTOM (203rd Squadron). (France.) This officer has carried out numerous offensive and low-bombing patrols with courage, skill, and judgment. He has also proved himself a bold and resolute fighter in aerial combats, having nine enemy machines to his credit.

Lt. HAROLD WILLIAM SKINNER. (France.) This officer has flown about 500 hours on active service, and on all occasions has shown fearlessness in action against the enemy. During recent battles he has rendered conspicuous service, engaging troops, transport, guns, etc., from very low altitudes, and obtaining many direct hits on ground targets with bombs. He has destroyed four enemy machines.

Lt. (actg. Capt.) FRANCIS RYAN SMITH, M.C. (Aust. F.C.). (France.) This officer combines high individual enterprise and determination with exceptionally able leadership. These qualities were conspicuous on Oct. 14th, when, leading a patrol of five machines, he saw a formation of 12 Fokker biplanes above him. Relying on the co-operation of another higher formation of Bristol machines, he deliberately manœuvred his formation into a disadvantageous position in order that our higher patrol might be able to attack the enemy while the latter's attention was concentrated upon destroying his, Lt. Smith's, formation. The stratagem was entirely successful, with the result that two enemy machines were destroyed and two others were believed to crash. The Fokkers were then reinforced by eight more machines, and in the ensuing combat Lt. Smith shot down one in flames, his patrol destroying two others. We suffered no casualties. (M.C. gazetted Nov. 14th, 1916.)

Sec. Lt. (actg. Lt.) HAROLD SMITH. (France.) An officer of high courage and determination. On Oct. 1st, in exceptionally inclement weather, he successfully bombed a railway station, being the only officer who reached the objective. On another occasion, when ten miles over the enemy lines, his pilot fainted and fell over the controls, forcing the machine to steep dive. Pushing back the pilot off the controls, Lt. Smith regained control of the machine and brought it safely to our lines

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Capt. Ross Macpherson Smith, M.C. (Aust. L.H. and Aust. F.C.). (Egypt.)

Lt. Walker Alister Kirk (Aust. F.C.). (Egypt.) During the months of June and July these officers accounted for two enemy machines, and they have been conspicuous for gallantry and initiative in attacking ground targets, frequently at very low altitudes. The keenness and fine example set by these officers cannot be over-estimated. (Capt. R. M. Smith's M.C. gazetted May 11th, 1917; Bar to M.C. March 26th, 1918. The awards of first and second Bars to the D.F.C. Cross are also announced in this "Gazette.")

Sec. Lt. William Watson Smith. (Italy.) This officer has shown exceptional keenness and efficiency as an observer. He has taken part in numerous reconnaissances, and his reports are invariably clear and accurate, containing valuable information which has proved of great assistance in our recent operations.

Lt. (actg. Capt.) Neil Reitz Smuts. (France.) During recent operations this officer has displayed marked courage and initiative in attacking ground targets from low altitudes, inflicting heavy damage on the enemy. On Sept. 28th he demolished at least four gun teams and limbers, causing very heavy casualties among the personnel and horses.

Capt. Frank Ormond Soden. (France.) A bold and skilful officer who has accounted for three enemy aeroplanes and two balloons during recent operations.

Lt. (actg. Capt.) John Speaks. (France.) A gallant and courageous officer. On Oct. 8th he attacked, from a height of 100 ft., an enemy balloon on the ground, nine miles over the line, and set it on fire. Later, seeing a train, he descended to 50 ft and fired at it till it stopped. He then attacked and scattered horse transport, causing great confusion; and before finishing his patrol Lt. Speaks bombed a hostile town.

Capt. (actg. Maj.) Herbert Victor Stammers. (France.) On Sept. 18th this officer rendered very gallant and meritorious service in carrying out an aerial reconnaissance at a low altitude over the enemy lines during our attack. The reconnaissance was rendered most difficult by our smoke screen, and during the whole flight Maj. Stammers was subjected to heavy machine-gun fire and aerial hostility. Despite this, with unflinching courage, this officer persevered, and was enabled to submit a most valuable report to corps headquarters.

Lt. William Steele. (Egypt.) On Sept. 17th this officer gallantly landed and rescued two officers who were compelled to land behind the enemy lines. Between that date and Sept. 23rd Lt. Steele led and took part in a number of very successful bombing raids, and, although wounded in the hand on Sept. 19th, he remained on duty.

Lt. Robert Sterling. (France.)

Sec. Lt. James Owen. (France.) On Oct. 1st, when on contact patrol, these officers displayed marked gallantry and endurance. Flying at altitudes from 500 to 1,000 ft. for three hours, they successfully located the enemy defence lines. Frequently attacked by machine-gun fire from the ground, they never refused to engage. Having obtained the information required, they attacked enemy transport that was crowded along a certain road, continuing the attack as far as 7,000 yards behind the enemy lines.

Capt. John Heron Storey. (Egypt.) A bold and courageous officer, who has rendered exceptional service on artillery and reconnaissance work. On Sept. 11th, whilst reconnoitring, his observer was wounded and his machine badly damaged by a direct hit from an anti-aircraft gun. Capt. Storey succeeded in bringing his machine back, and at once proceeded to complete his reconnaissance in another machine, thereby displaying devotion to duty of a high order

Sec. Lt. Frank Thomas Stott. (France.) This officer has completed 118 hours' service flying, and has taken part in many successful bombing raids, displaying marked keenness and courage, notably on Oct. 4th, when, three leaders having been forced to fall out owing to engine trouble, he assumed the leadership of a bombing raid on a railway siding, although at that time his machine was badly damaged by anti-aircraft fire. He led the formation over the objective with such excellent judgment that seven direct hits were obtained and considerable damage done.

Lt. (actg. Capt.) Charles Sutherland. (France.) The services rendered by this officer on contact and reconnaissance patrols during recent operations are deserving of high praise. Subjected at times to severe hostile fire, handicapped by adverse weather conditions and by our own smoke barrage, Capt. Sutherland allows no difficulties to interfere with the carrying out of his allotted task, invariably bringing back valuable and accurate reports of the positions of our own and enemy troops, which have been of the greatest assistance in our operations. He sets a fine example of steady devotion to duty.

Lt. (actg. Capt.) Robert Bruce Sutherland (Can. Local Forces). (Egypt.) This officer has done very valuable work during the last year on this front. Between Sept. 17th and 23rd he was conspicuous for his gallant and brilliant leadership.

Lt. (actg. Capt.) Ronald Sykes (201 Squadron). (France.) An excellent patrol leader, who displayed marked gallantry on Sept. 27th. While engaged in dropping bombs on enemy infantry in a sunken road he was attacked by four enemy aeroplanes. Out-manœuvring them, he retired west. As soon as the hostile aeroplanes had withdrawn, he returned and fired a number of rounds into the infantry at 200 ft., causing many casualties. He then dived on another party of 15, who became so demoralised that they surrendered to one of our men.

Sec. Lt. Leslie Walter Thres. (Italy.) A very keen and reliable pilot, who has done excellent work in co-operation with our artillery. The success he has achieved in this service has been largely due to his unfailing perseverance and devotion to duty.

Sec. Lt. George Irving Thomson. (France.) On Nov. 6th the machine in which this officer was flying was hit by a shell and the left aileron control shot away. At once it began to fall completely out of control. At a height of 500 ft. Sec. Lt. Thomson, with fine presence of mind and contempt of danger, climbed on to the right-hand lower plane, thus enabling the pilot to bring the machine on an even keel and to land safely in our lines.

Lt. Albert Victor Tonkin (Aust. F.C.). (Egypt.) A gallant and determined officer who, in various engagements, has destroyed two enemy aircraft and driven down seven others. During recent operations he has been conspicuous for his boldness in attacking hostile troops on the ground. On three occasions Lt. Tonkin has been forced to land beyond our lines. On one of these, his machine being riddled with bullets, he was taken prisoner, but was subsequently recaptured by our advancing troops.

Lt. (actg. Capt.) Thomas Cathcart Traill. (France.) An officer of marked skill and bravery, who has shot down three enemy machines and seriously damaged a fourth. On Oct. 23rd his machine accidentally collided with one of ours at a height of 7,000 ft., and a part of the left plane was carried away, the machine being thereby rendered out of control. With great presence of mind Capt. Traill ordered his observer to climb out and so directed him to balance the machine which enabled him to obtain partial control. Displaying rare skill and determination, he managed to land his damaged machine safely.

Lt. Philip Murray Tudhope. (France.) On Oct. 18th this officer displayed marked presence of mind and initiative. Seeing an enemy battery proceeding along a road towards a town which he knew was held by our troops, Lt. Tudhope descended to a low altitude to accelerate its progress. So successful was this manœuvre that the leading gun was driven into the hands of our infantry and captured; the remainder wheeled about and retired, pursued by this officer.

Lt. Kenneth Russell Unger. (France.) A gallant and skilful officer. On Oct. 30th, separated from his patrol owing to engine trouble, he was attacked by seven Fokkers; undaunted by the odds against him he without hesitation, engaged them, and by skilful manœuvring, shot one down to crash. He has accounted for nine enemy aeroplanes and one kite balloon.

Sec. Lt. Reginald Charles Van Der Ben, M.C. (Egypt.) During recent operations this officer's reconnaissance work has been invaluable in keeping touch with the advanved cavalry and in reporting the disposition of the enemy. Sec. Lt. Van Der Ben is a keen and zealous officer, always ready to volunteer for any service requiring quick initiative and daring. (M.C. gazetted Sept. 24th, 1918.)

Lt. (actg. Capt.) Henry Edward Walker, M.C. (Egypt.) A gallant and courageous officer who has served continuously on the front for twelve months, during which period he has shot down several machines Throughout recent operations his bombing has been exceptionally accurate, a large percentage of direct hits on transport, etc, being obtained. (M.C. gazetted Sept. 16th, 1918.)

Lt. (actg. Capt.) John McDonald Walker. (France.) On Oct. 9th, during an artillery patrol, this officer was, on two occasions, attacked by eight and two Fokker biplanes in succession. Displaying marked courage and determination, he drove off these attacks and continued his patrol far into the enemy country engaging troops and transport from a low altitude with bombs and machine-gun fire. On another occasion when on patrol he was attacked by seven enemy machines which he drove off, and most successfully completed his patrol.

Capt. John Banks Walmsley (Indian Army). (Salonika.) A resolute and gallant officer and a most efficient flight leader. On Sept. 4th, when on contact patrol, his machine was set on fire; his observer having extinguished it, Capt. Walmsley descended to 500 ft. in order to attack the enemy trenches. His engine was again hit and set on fire, but he succeeded in bringing the machine home, thus displaying marked skill and presence of mind.

Maj. Andre Adolph Walser, *M.C.* (France.) A brilliant and exceptionally able squadron commander who, by his unsparing efforts and his fine personal example, has raised the morale of his squadron to a very high level. The comprehensive and detailed information obtained by Maj. Walser in the large number of low reconnaissances he has conducted has proved of the greatest value to his corps. (M.C. gazetted Nov. 14th, 1916.)

Lt. Kenneth Bowman Watson. (France.) On Oct. 28th, when on offensive patrol, this officer took part in an engagement between six of our machines and 22 Fokkers. In the combat that ensued four of the latter were destroyed, Lt. Watson accounting for one. In addition to the foregoing he has four other machines to his credit.

Awarded the Distinguished Flying Medal.

49701 Serjt.-Mech. Charles Beeks (Byton, Radnorshire). (Egypt.) This non-commissioned officer observer has displayed the greatest courage and keenness during recent operations. Untiring and efficient in his devotion to duty, he is of the greatest assistance to the officers under whom he serves.

2834 Serjt.-Mech. Thomas Dowsett (Perth, Australia). (Salonika.) During the operations, August to October, 1918, this pilot was engaged in more than 100 bombing raids on the 16th Corps front, on several occasions taking part in three fights, and sometimes four, in one day, displaying courage and keenness at all times.

201343 Mas.-Mech. Richard Mullins (Shepherd's Bush). (Sea Patrol, North Sea.) As observer in a Short seaplane during a raid on Zeppelin sheds in Schleswig-Holstein on March 25th, 1916, he rendered valuable services, displaying marked courage, initiative and resource in this hazardous undertaking.

217050 Serjt.-Mech. (Obsr.) William Parnell Murphy (St. John's Wood, N.W.). (Indt. Force, France.) During sixteen months this non-commissioned officer has acted as observer on 58 night-bombing raids, showing at all times exceptional keenness and enthusiasm His bombing, shooting and observations have been brilliant, and his ability in navigating his machine to and from the objective have been marked.

203956 Corpl.-Mech. Albert Arthur Parker (Aston Clinton, Tring). (France.) This non-commissioned officer has rendered exceptionally good service as bomber and observer, displaying utter fearlessness and disregard of danger when exposed to heavy hostile fire.

214791 Serjt. Francis Harry Pritchard (Runcorn, Liverpool). (Sea Patrol, Flanders.) For gallant conduct as an observer on May 28th, 1918, in a bombing raid carried out from a height of only 200 ft. on the South Lock Gate of Zeebrugge. It has since been ascertained that the Lock Gate in question was considerably damaged on this occasion.

19301 Serjt.-Mech. Ernest James William Watkinson (Reading). (France.) This non-commissioned officer has over 100 hours' war flying to his credit, and has taken part in 60 bombing raids. He has destroyed one hostile aeroplane, and has proved himself an exceptionally skilful and courageous bomber, notably on Oct. 10th, when, flying at a height of about 1,000 ft. under heavy fire from the ground, he directed his bombs with such accuracy that one hit the rolling-stock in the station and another the transport on a road.

Awarded the Air Force Cross.

Maj. William Henry Dyke Acland, M.C

Lt. Lewis Edward Best (Egypt); Lt. Wilfred John Butler (Egypt).

Lt. (actg. Capt.) Arthur Leslie Chick; Lt. (actg. Capt.) Geoffrey Clapham; Lt. Robert St. Hill Clarke (Egypt); Lt. Stanley Victor Cowell (Egypt); Lt. (actg. Capt.) John Cullen (Scot. Horse) (Egypt).

Capt Archibald Paul Dickie; Lt. (actg. Capt.) Charles Kenneth McKinnon Douglas (France).

Capt. (actg. Maj.) Cyril Herbert Gardner (France).

Lt. Edward Haigh; Lt. Sidney Charles Howes (Egypt).

Capt. Eric Digby Johnson (France).

Capt. Edward Guy Landon.

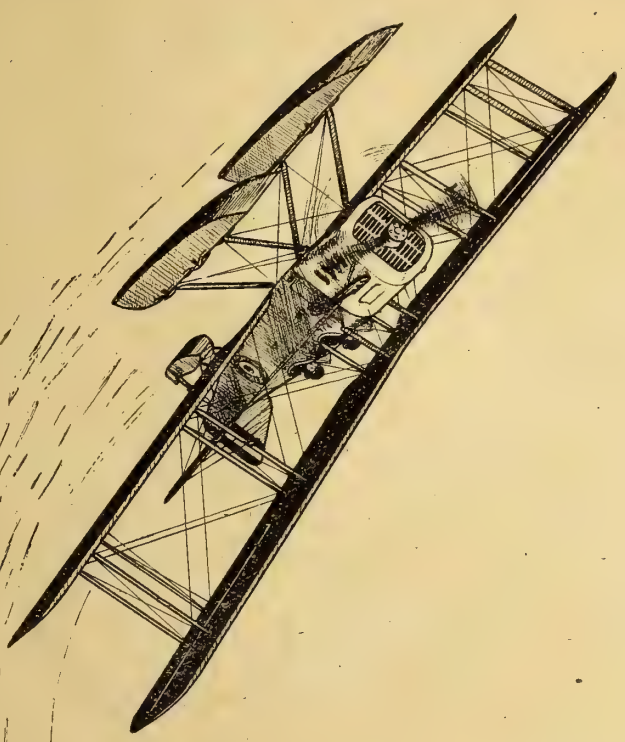
Capt. (actg. Maj.) James McKelvie (France); Capt George Francis Meager; Sec. Lt. (Hon. Lt.) Arthur James Moody (France); Lt. George Alfred Morgan (Egypt); Capt. Christopher Musgrave (Egypt).

Sec. Lt. Eric Priest (Egypt).

Lt. (actg. Capt.) John Seabrook (Egypt).

Lt. William Arthur Ernest Taylor; Lt. (actg. Capt.) Cresswell Turner.

Lt. Richard Butler Wainwright; Lt. George Waugh (4th Wing) (Egypt); Lt. (actg. Capt.) James John Williamson (Egypt); Lt. George Harpham Willows (Egypt).



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C.W.T.

AWARDED THE AIR FORCE MEDAL.

220540 Cpl. Mech. Reginald Bance (Halstow, Rochester); 228527 Air Mech., 2nd Cl., Frederick William Augustus Barter (Tilehurst); 216239 Air Mech., 3rd Cl., William Ernest Gordon Beer (Bishopston, Bristol); 200047 Cpl. Mech. Bertram Bocking (Bloomsbury); N224793 Cpl. Mech. John Lancelot Boxall (Croydon); 201137 Serjt. Mech. (O.) Edmund Leigh Brown (Scillies).

217642 Ch. Mech. George Thomas Clarke (London, S.E.); 225263 Air Mech., 3rd Cl. (W.T.), Henry Crisp (Tewkesbury); 203139 Ch. Mech. Benjamin Charles Cunnington (Dalston).

205780 Air Mech., 1st Cl. (O.) Richard Ford (Cherbourg); 32511 Air Mech., 1st Cl., Thomas Foster (Bury, Lancs.).

45733 Serjt. Pilot Clifford Hare (Forest Gate); 220261 Air Mech., 3rd Cl. (W.), Frederic George Hayward (Corfe Mullen).

202624 Cpl. Mech. Arthur William John (Bridgend, S. Wales).

212339 Serjt. Mech. Henry James Leech (Roche, Cornwall).

212030 Air Mech., 1st Cl. (E.), Reginald Frank Nailer (Mullion); 218591 Serjt. Mech. (O.) George Thomas Newbold (Scillies)

15628 Mas. Mech. Richard Griffith Owen (Mardy, Glam).

517 Actg. Ch. Mas. Mech. Herbert Howard Perry (Harrow).

N218371 Ch. Mech. Charles Regan (Balbriggan); 213504 Air Mech., 3rd Cl., Reginald James Rook (Fulham).

234878 Air Mech., 2nd Cl. (W.T.), Leslie Arnold Shepperson (Derby); 200468 Mas. Mech. George Hall Skinner (Derby); 5570 Air Mech., 1st Cl., John Howlett Smith (Bradford); 206270 Cpl. Mech. (E.) Sydney James Soames (Mullion).

216153 Serjt. Mech. Robert Tomlins (Shrewsbury); 211809 Air Mech., 2nd Cl., Joseph William Trevelyan (Gillingham).

213509 Air Mech., 3rd Cl., Jack Walker (Gloucester); J9564 Serjt. Mech. William Philip Williams (Mullion).

AWARDED THE MERITORIOUS SERVICE MEDAL.

78866 Serjt. Clerk S. B. Ayling (Dalston, N.E.) (Mesopotamia).

32549 Serjt. Clerk A. Clarke (Kensal Rise) (Mesopotamia).

78867 Serjt. Clerk G. Downs (Peel, Isle of Man) (Mesopotamia).

3983 Ch. Mech. P. W. Evans (Sevenoaks) (Mesopotamia).

7245 Air Mech., 1st Cl., J. H. Goddard (Woking, Surrey) (Mesopotamia); 266619 2nd Cl. Pte. L. A. Godfrey (Beaconsfield, Bucks) (France).

28834 Serjt. Mech. J. Kinggett (Guildford) (Mesopotamia).

18683 Ch. Mech. H. S. Morris (Wickham Market) (Mesopotamia); 44002 Air Mech., 1st Cl., J. B. Murray (Hillside, Montrose) (France).

28571 Ch. Mech. T. A. Rhaney (St. Andrews, Fifeshire) (Mesopotamia).

18199 Corpl. E. T. F. Smith (Glasgow) (Italy).

CORRECTIONS.

The undermentioned officers were awarded decorations as announced in "London Gazette," No. 30989, dated Nov. 2nd, 1918. Their correct descriptions are as specified below:—

Capt. (actg. Maj.) Claude Russell Cox, A.F.C. (Manch. R.).
Maj. (actg. Lt.-Col.) Howard Lister Cooper, A.F.C.
Maj. Frederick Cecil Baker, A.F.C. (D.C.L.I.) (since awarded D.F.C. in addition to the A.F.C.).
Capt. Llewellyn Edwards, A.F.C. (No. 12 Group).
Lt. James Leybourne Smith, D.F.C. (Aust. F.C.).

AWARDS OF FOREIGN DECORATIONS.

His Majesty the King has granted unrestricted permission for the wearing of the undermentioned decorations, conferred on the officers and other ranks indicated, for valuable services rendered in connection with the war:—

ROYAL AIR FORCE.

CONFERRED BY THE GOVERNMENT OF THE FRENCH REPUBLIC.

The Legion of Honour.
Croix de Chevalier.

Lt.Col. (actg. Col.) Robert Hamilton Clark-Hall, D.S.O
Maj. Oliver George Graham Villiers, D.S.O.
Lt. (actg. Capt.) George Cecil Gardener, D.F.C.

Awarded the Croix de Guerre.

Lt. William Melville Ackery, D.F.C. (with Star.)

Capt. (actg. Maj.) Claude Gordon Beatson (with Bronze Star); Lt. (actg. Capt.) Victor Sydney Bennett (Newfd. Regt.) (with Palm).

Lt. Howard Wilfred Clayton (with Bronze Star); Capt. (actg. Maj.) George Mitchell Croil.

Lt. Norman Stuart Dougall (with Palm).

Lt. Hallam Tennyson Randle Ford (with Star); Sec. Lt. Thomas Hastayne Formby (with Palm).

Lt. (actg. Capt.) George Cecil Gardener, D.F.C. (with Palm); Lt. (actg Capt.) Henry Arthur Frank Goodison (with Star, July 15th, 1918); Lt. William Edrington Gray, D.F.C. (with Palm).

Lt. (actg. Capt.) Marmaduke Langdale Horn (with Bronze Star).

Lt. Arthur Cecil Lester (with Palm).

Lt. (actg. Capt.) George Chisholme Mackay, D.F.C. (with Palm); Lt. (actg. Capt.) John Robert Milne, D.F.C. (with Palm); Lt. (actg. Capt.) George Bernard Mutton.

Maj. Charles Henry Nicholas.

Maj. (actg. Lt.-Col.) Edward Osmond (with two Palms).

Sec. Lt. John Edward Parke (104th Sqdn) (with Silver Star); Lt. Frederick William Pickup, D.F.C. (with Palm).

Lt. James Reid (65th Sqdn., France) (with Silver Star); Capt. John Robinson, D.F.C. (with Palm); Lt. Frederick Stratton Russell, D.S.C. (with Palm).

Lt. John Sangster (with Silver Star); Lt. (actg. Capt.) Charles Hodgkinson Smith, M.B.E. (with Palm); Lt. (actg. Capt.) Eustace Julian Smyth (with Palm).

Lt.-Col. George Eardley Todd (with Palm); Lt. Frederick Dudley Travers, D.F.C. (with Palm).

Maj. William Laurie Welsh, D.S.C. (with Palm).

Medaille d'Honneur, Silver.

Sec. Lt. Frederick Tidbury Beer.

Medaille d'Honneur (with Swords, Silver).

5599 Ch. Mech. John Tiltman Stokes (Hastings).
5056 Ch. Mas. Mech. Harry Aubrey Weight (Reading).

Medaille d'Honneur (with Swords, Bronze).

21316 Cpl. Mech. Frank Thornton Birkinshaw (Erdington).
66305 Cpl. Mech. Frederick John Smith (Manningtree).
1694 Serjt. Ewart Richard Woods (St. Ives).

Medaille Militaire.

J3083 Serjt. Mech. Samuel Eli Allatson (Southend); 202615 Serjt. Mech. Leonard Albert Allen, D.F.M. (Henley-in-Arden).

218930 Actg. Corpl. (W.T. Obsr.) Matthew Brown Blackadder (Falkirk); 220547 Air Mech., 2nd Cl. (W.T.), William Herbert Brown (Croydon).

214348 Serjt. Obsr. Edward Farley (Watford).
K12282 Serjt. Mech. George Henry Lade (Polegate).
220266 Actg. Corpl. Ewart Oswald Norris (Cheltenham).
203137 Serjt. Mech. Gilbert Spragg (Swansea).
232650 Serjt. Mech. (W.T.) Bernard Edward Guy Taplin, D.F.M. (Southampton).
212468 Serjt. Mech. John William Walker, D.S.M. (Darlington).
2454 Ch. Mech. Thomas Mitchell Yates (Cheadle)

CONFERRED BY H.M. THE KING OF ITALY.

Order of the Crown of Italy.
Officer.

Lt.-Col. Charles Humphrey Kingsman Edmonds, D.S.O., O.B.E.

Cavaliere.

Capt. George Francis Meager, A.F.C.

Order of St. Maurice and St. Lazarus.
Officer.

Lt.-Col. (actg.Col.) Arthur Murray Longmore, D.S.O.

Cavaliere.

Capt. John Augustus Barron.

Bronze Medal for Military Valour.

Lt. (Hon. Capt.) Martin George McL. Cahill-Byrne
Sec. Lt. (Hon. Lt.) Stafford Jackson, M.C.

Croce di Guerra.

Lt. Ralph Braithwayt Beevor.
Sec. Lt. (actg. Lt.) Arthur Leopold Cockburn; Lt. Charles Leslie Cox.
Lt. Thomas Foster Everitt.
Sec. Lt. Roy Holmes Foss.
Lt. Cecil Ernest Gaspar Gill.
Capt. Harold Hindle James.
Sec. Lt. (actg. Lt.) George René Kull.
Lt. James Scott Lenncx.
Lt. (actg. Capt.) Charles Midgley Maud, D.F.C.; Lt. Harry De Cew McDiarmid; Lt. Archibald Lorne McLaren; Lt. (actg. Capt.) Kenneth Barbour Montgomery, M.C.
Capt. Vincent Washington Hobson Ranger, M.C.; Lt. Robert Gillespie Reid.
Lt. Norman Samuel Taylor.
Lt. Aubrey Freeland White.

CONFERRED BY H.M. THE KING OF BELGIUM.

Ordre de la Couronne
Officier.

Maj. Herbert George Brackley, D.S.O., D.S.C.
Capt. (actg. Maj.) Ronald Grahame, D.S.O., D.S.C., D.F.C.
Col. Frederick Crosby Halahan, D.S.O., M.V.O.
Maj. Ernest William Norton, D.S.C.
Maj. (actg. Lt.-Col.) Edward Osmond.
Maj. William Laurie Welsh, D.S.C.

Chevalier.

Lt. (actg. Capt.) Charles Philip Allen.
Lt. Norman Stuart Dougall.
Lt. Stanley Wightman Mountain.
Lt. Frederick William Pickup, D.F.C.

Ordre de Leopold.
Chevalier.

Capt. George William Biles, D.F.C.
Capt. Archibald Sydney Cheshire, M.B.E.; Capt. Leslie Pritchard Dunkley Cooper.
Capt. Samuel Denys Felkin, M.B.E.
Lt. (actg. Capt.) Norman Leslie Garstin; Capt. (actg Maj.) Russell William Gow, D.S.O., D.S.C.
Lt. (actg. Capt.) George Chisholme Mackay, D.F.C.
Capt. John Robinson, D.F.C. (202 Sqdn.).
Capt. John Romilly Swanston, D.F.C.
Capt. (actg. Maj.) Bert Sterling Wemp, D.F.C.

Croix de Guerre.

Capt. Edward Ball (late Royal Navy).
Capt. Benjamin Roxburgh-Smith, D.F.C.
Sec. Lt. Leonard Jepson Skinner.

Ordre de Leopold II.
Chevalier.

214412 Serjt. Mech. George Betteridge (Vauxhall, S.W.).
17826 Cpl. Mech. Arthur Marshall (Codlington, Beds.).
7533 Cpl. Mech. Allen Walker (Marston, Manchester); 10786 Serjt. Mech. Arthur Henry Woollgar (Stratford).

Decoration Mititaire.

43265 Air Mech. Cecil Bernard Carr (Canonbury, N.).
93513 Serjt. Mech. John Herbert Hall (Leeds); 130650 1st Pte. Tom Holdsworth (Harrogate).
129247 2nd Pte. Bertie Herbert Patman (Sidcup).
7345 Air Mech., 1st Cl., Francis Archibald Rice (Duffield, Derby); 402609 2nd Cpl. Storeman, Walter Roper (Leeds).
7958 Actg. Cpl. Clerk, Charles Robert Shorland (Margate).

CONFERRED BY H.M. THE KING OF THE HELLENES.

Cross of Commander.
Order of the Redeemer.

Lt.-Col. (actg. Brig.-Gen.) Francis Conway Jenkins, C.B.E.

Greek Military Cross, Class II.
("War Cross.")

Capt. Grahame Donald, D.F.C.

Greek Military Cross, Class III.

Lt. Thomas Lowden Palmer.
Lt. Jarvis Rupert Francis Randell, D.F.C.
Lt Harvey Tennant Williams. (Deceased.)

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A Message of Thanks.

THE Proprietors of Pratt's Perfection Motor Spirit wish to extend their cordial thanks to all who have loyally co-operated with them in meeting the severities and difficulties of the past 4½ years. With the end of the Great War, on the threshold of Peace, and of the great Motor Era, they wish to assure the Trade that every possible step that can lead to a perfect distribution and a continuance of those very gratifying relations which they have always enjoyed with the Trade, is being taken. The part played by Petrol in general in the War has been of very high importance; and now that we are all looking forward to the removal of War's restrictions, energetic measures are being taken steadily to accumulate stocks to meet that almost certain record demand that will presently be felt. In the meantime, the necessity for using War Brands is still with us, and will continue to be until present stocks are exhausted, after which the regular high-class grades of Pratt's Motor Spirit (and of "Taxibus"—for heavy vehicles) will become available.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

CONFERRED BY THE GOVERNMENT OF THE UNITED STATES OF AMERICA.

The American Distinguished Service Cross.

Sec Lt. Thomas Brierley Dodwell, D.S.O.

CORRECTIONS.

The descriptions of the undermentioned officers, whose names appeared in "London Gazette," No. 31098, of Jan. 1st, 1919, are now correctly stated :—

Lt.-Col. Percival Scott Rickcord.
Maj. (actg. Lt.-Col.) Edward Roux Littledale Corballis, D.S.O.
Capt. Thomas Gerald Glyn Bolitho, M.C., D.F.C.
Capt. Francis Neville Halsted, D.S.C., D.F.C.
Capt. (actg. Maj.) Harold Spencer Kerby, D.S.C., A.F.C.
Capt. Bertrand Alexander Malet, D.F.C.

WAR OFFICE, Feb. 8th.

His Majesty the King has approved of the undermentioned rewards in recognition of bravery in the field :—

AWARDED A BAR TO THE MILITARY CROSS.

Lt. HARRY FARQUHARSON BARNES, M.C. (16th Balloon Coy.). (France.) During the operations from Aug. 21st to Oct. 1st this officer's balloon was very heavily shelled (one balloon being totally destroyed), and was subjected to attacks by hostile aircraft. Lt. Barnes, however, kept it well forward, and rendered very valuable assistance to our artillery, showing conspicuous skill and determination throughout (M.C. gazetted Jan. 1st, 1917.)

AWARDED THE MILITARY CROSS.

Sec. Lt. CLIFFORD THOMAS PERRINS (45th Balloon Section). (France.) On Oct. 11th this officer displayed marked gallantry and courage. The enemy commenced to shell the camp where Sec. Lt. Perrins was getting the telephone trailer into position preparatory to moving forward. Twelve men of his party were killed or wounded by the first shell, he himself being slightly wounded. Despite this, and the fact that the enemy kept up a continuous and accurate fire on the position, he, with two non-commissioned officers, continued to attend to the wounded until they had all been removed to a place of safety.

AWARDED THE MILITARY MEDAL.

For Bravery in the Field, in France except where otherwise stated :—

41142 Air Mech., 2nd Cl., W. G. Aylward (Kennington, S.E.).
20954 Ch. Mech. A. Badland (Bradford).
2679 Ch. Mas. Mech. G. H. Cutrall (Marlow-on-Thames).
15824 Serjt. Mech. R. E. Deakin (Macclesfield).
402998 Air Mech., 1st Cl., W. H. Hearn (Tunbridge Wells).
11219 Flt. Serjt. J. Jacobs (Stepney, E.) (Egypt); 22074 Cpl. Mech. D. J. Jones (Carmarthen); 38377 Air Mech., 1st Cl., H. Jones (Bolton).
67653 Air Mech., 2nd Cl., W. J. Kibble (Croydon); 105647 1st Cl. Pte. C. Knevitt (Deptford, S.E.).
53023 Cpl. Clerk W. G. Price (Tottenham).
49993 Air Mech., 1st Cl., J. S. Simmers (Aberdeen).

AIR MINISTRY, Feb. 11th.

R.A.F.—The following temp. appts. are made at the Air Ministry :—Staff Officers, 2nd Cl.—And to be actg. Majs. while so empld., if not already holding that rank :—Capt. (actg. Maj.) W. C. Murray, Oct. 2nd, 1918; Lt. (actg. Capt.) G. G. Fairbairn, Nov. 7th, 1918.

Staff Officers, 3rd Cl.—And to be actg. Capts. while so empld., if not already holding that rank :—(P.) Capt. E. V. Anideini, Jan 8th; (Q.) Lt. G. F. Law, Jan. 8th.

The rank of Lt. E. G. Clement is as now described, and not as stated in "Gazette," Jan. 31st.

The date of appt. of Lt. (actg. Capt.) J. Duncan is Nov. 15th, 1918, and not as stated in "Gazette," Jan. 31st.

The following temp. appts. are made :—Area Comdr.—Col. (actg. Brig.-Gen. T. I. Webb-Bowen, C.M.G., and to be actg. Maj.-Gen. while so empld., vice Maj.-Gen. F. C. Heath-Caldwell, C.B., Feb. 1st.

Staff Officers, 2nd Cl. (Higher Grade).—And to be actg. Majs. while so empld., if not already holding that rank :—Capt. P. C. Carr, Capt. J. L. Robertson, Nov. 7th, 1918; (P.) Lt. (actg. Capt.) H. C. Bobbett, Dec. 8th, 1918.

Staff Officers, 3rd Cl.—And to be actg. Capts. while so empld., if not already holding that rank :—Sec. Lt. H. Sorrell, Dec. 11th, 1918; (P.) Lt. (actg. Capt.) H. D. A. Dart, Nov. 7th, 1918; (Q.) Capt. R. G. Home, Jan. 14th; (T.) Lt. (actg. Capt.) E. E. Colquhoun, M.B.E., Jan. 8th; Lt. K. A. Smith, Jan. 22nd.

Staff Officer, 4th Cl. (2nd Gr.).—The surname of Lt. E. A. de Sain is as now described, and not as stated in "Gazette," Jan. 14th.

FLYING BRANCH.—Capts. to be actg. Majs. while empld. as Majs. (A.) :—L. D. McKean, Sept. 1st, 1918; C. Y. McDonald, A.F.C., Nov. 16th, 1918.

Capts. to be graded for pay as Capts. while empld. as Capts. (A. and S.) :—P. H. Mackworth, D.F.C., G M.F. O'Brien, D.S.C., Oct. 1st, 1918; R. M. Stirling, Jan. 1st.

Lts. (actg. Capts.) to be graded for pay as Capts. while empld. as Capts. (A. and S.) :—J. S. A. Ferguson, R. C. Tyler, Oct. 1st, 1918.

Lt. (actg Capt.) W. Mitton retains the actg. rank of Capt. while empld as Capt. (A.), from (Ad.), Feb. 6th.

Lts. to be actg. Capts. while empld. as Capts. (A.) :—(Hon. Capt.) C. B. J. Lancaster, (Hon Capt.) H. H. de B. Monk, M.C., J. E. Wood, Sept. 1st, 1918; W. A. de L. Y. Bainbrigge, A. M. Lewis, R. L. Truelove, D. F. Woodford, R. M. H. Young, Oct. 1st, 1918; J. M. Mackay (Quebec R.), Nov. 24th, 1918.

Lts. to be actg. Capts. while empld. as Capts. (A. and S.) :—J. L. Stocks, July 24th, 1918; R. W. W. Hardie, Sept. 1st, 1918; J. R. Allen, G. I. Moody, Jan. 1st.

Sec. Lt. H. Hackney to be actg. Capt. while empld. as Capt. (S.), Jan. 1st.

Sec. Lt. H. W. Kelly is granted the hon. rank of Lt., May 18th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. W. W. Stratton (Lt., Can. A.S.C.), Nov. 18th, 1918; Lt. J. A. McGinnis (Lt., Sask. R.), Jan. 3rd; Lt. J. R. Zieman (Lt., E. Ont. R.), Jan. 8th, 1918; Lt. (Hon. Capt.) J. A. Jackson (Capt., Brit. Col. R.), Jan. 10th; Sec. Lt. (Hon. Lt.) A. Boyes (Lt., Manitoba R.); Sec. Lt. (Hon. Lt.) C. A. Brown (Lt., Quebec R.); Sec. Lt. (Hon. Maj.) G. A. E. Chapman, D.S.O. (Maj. E. Kent R.), Jan. 11th; Sec. Lt. (Hon. Lt.) A. W. H. Arundell (Lt., Quebec R.); Sec. Lt. (Hon. Lt.) E. Bottrill (Lt., C. Ont. R.); Lt. C. S. Hall (Lt. W. Ont. R.); Lt. J. Lorimer (Lt., Can. Res.); Sec. Lt. (Hon. Capt.) G. T. Reid; (Capt., Can For. Corps); Sec. Lt. (Hon. Lt.) A. S. Robertson (Lt, Can. F.A.); Lt. G. H. Rogers (Lt. E. Ont. R.); Lt. (Hon. Capt.) M. K. Ryan (Capt., Alberta R.), Sec. Lt. (Hon. Lt.) R. H. Schroeder (Lt., Brit. Col. R.); Sec. Lt. (Hon. Lt.) B. A. Wilson (Lt., Brit. Col. R.), Jan. 13th; Sec. Lt. (Hon. Lt.) A. B. Dewberry (Lt., Can. F.A.); Lt. R. J. Elliott (Lt., E. Ont. R.); Sec. Lt. (Hon. Lt.) R. H. V. Scherk (Lt., C. Ont. R.), Jan. 14th; Sec. Lt. (Hon. Lt.) W. A. Meyrick (Lt., Quebec R.), Jan. 15th); Sec. Lt. (Hon. Lt.) G. Carmichael (Lt., Brit. Col. R.); Lt. T. W. M. Conkey (Lt., Manitoba R.); Lt. (Hon. Capt.) F. T. D. Steel (Capt., R.A.S.C.), Jan. 17th; Sec. Lt. N. T. Hornby (Lt., Quebec R.), Jan. 18th; Sec. Lt. (Hon Lt.) W. McKay (Lt. E. Ont. R.), Jan. 20th; Sec. Lt. (Hon. Capt.) A. S. Fraser (Capt., Dor. R.); Sec. Lt. (Hon. Lt.) S. W. Orr (Lt., C. Ont R.); Lt. S. E. Vouse (Lt., Can. Res.), Jan. 21st; Lt. G. M. Dean (Lt., Can. F.A.), Jan. 30th.

The following are transfd. to Unempld. List :—Sec. Lt. J. V. Lewis, Jan. 5th; Capt. (actg. Maj.) Lord G. H. L. Dundas, Jan. 7th; Maj. F. M. Ballard, Lt. K. G. Siddaway, Jan. 11th; Lt. C. L. Silvester, Jan. 13th; Lt. J. R. Preece, Lt. R. G. Reid, Sec. Lt. F. W. Smith, Jan. 14th; Sec. Lt. W. G. D. Maclennan, Lt. R. K. McConnell, Jan. 15th; Sec. Lt. C. A. Firmin, Sec. Lt. H. R. Hughes, Sec. Lt. E. H. Maw, Sec. Lt. S. P. Powell, Jan. 16th; Capt. (actg. Lt.-Col.) E. A. O. A. Jamieson, A.F.C., Lt. (actg. Capt.) W. M. Carlaw, Lt. R. H. Cowan, Sec. Lt. J. H. Gibson, Sec. Sec. Lt. C. E. Reynolds, Jan. 17th; Sec. Lt (Hon. Lt.) B. B. Davis, Sec. Lt. A. S. MacPhail; Lt. J. L. Nairn, Capt. P. Seymour, Jan. 18th; Sec. Lt. H. C. Turner, Capt. W. E. M. Whittaker, Jan. 19th; Sec. Lt. R. H. Mullins, Sec. Lt. R. E. H. Soringett, Capt. L. G. Wright, Jan. 20th; Capt. C. G. Burnin, Sec. Lt. P. Naylor, Maj. Hon. E. A. Stonor, Capt. R. G. Taylor, Lt. H. W. Whale, Sec. Lt. G. M. Whitaker, Sec. Lt. J. Wilkinson, Lt. B. F. Wilmer, Lt. B. R. Worthington, D.F.C., Jan. 21st; Sec. Lt. A. I. Dodsworth, Lt. J. Dunbar, Sec. Lt. J. Heddle, Sec. Lt. W. H. Miller, Sec. Lt. V. C. Moynes, Lt. E. O. Peel, Capt. H. N. Sandys, Lt. (actg. Capt.) A. C. Sanderson, Sec. Lt. W. F. Smith, Lt. G. E. Taylor, Jan. 22nd; Lt. G. B. Anderson, Lt. B. B. Halleck, Sec. Lt. R. W. Jones, Sec. Lt. H. W. Pope, Lt. A. H. Read, Sec. Lt. B. S. Sylvester, Sec. Lt. C. M. Whitham, Jan. 23rd; Sec. Lt. S. O'B. Bagnall, Sec. Lt. T. H. Carter, Lt. J. S. Curtis, Lt. F. A. N. Duk, Lt. E. A. Gay, Lt. A. T. D. Glaholm, Sec. Lt. A. D. Hadden, Lt. F. N. Katzin, Sec. Lt. J. T. D. Margrave, Sec. Lt. R. B. Maxwell, Lt. D. S. T. Pettitt, Sec. Lt. A. F. Welch, Jan. 24th; Lt. E. O. Danker, Sec. Lt. O. R. Llynn, Lt. N. Garland, Lt. L. M. Glover, Sec. Lt. G. R. Mason, Lt. D. Maclaren, Sec. Lt. R. Newton, Sec. Lt. W. Pollock, Jan. 25th; Lt. C. H. Dixie, Lt. L. Del Nevo, Capt. I. A. J. Duff, M.C. (Dor. R.), Sec. Lt. A. Le Gault, Jan. 26th; Lt. W. E. Bryan, Sec. Lt. B. C. Dupont, Lt. H. P. Elliott, Lt. G. Hudson, Lt. N. W. Jackson, Sec. Lt. J. F. Lyon, Jan. 27th; Lt. E. J. Detmold, Sec. Lt. A. G. Hatten, Sec. Lt. J. Hague, Lt. P. F. G. Heffer, Lt. F. W. Keddie, Lt. H. Kendall, Lt. F. Nash, Sec. Lt. H. T. Perkins, Sec. Lt. G. N. Poole, Jan. 28th; Sec. Lt. J. L. Dwyer, Sec. Lt. C. A. Giddings, Sec. Lt. R. N. Gosling, Sec. Lt. L. W. Greenwood, Sec. Lt. R. C. Petter, Sec. Lt. W. T. Poole, Jan. 29th; Sec. Lt. P. Pilkington, Jan. 30th; Lt. (actg. Capt.) T. C. Annan (Arg. and Suth. Highrs.), Lt. J. M. Faulks, Sec. Lt. G. M. Fanelli, Capt. W. R. E. Harrison, Lt. G. W. Lavington, Sec. Lt. C. M. K. Morrison, Sec. Lt. P. C. Saxby, Jan. 31st; Lt. D. C. Kinmond, Sec. Lt. L. C. Pallett, Feb. 2nd; Lt. J. H. Dewhurst, Sec. Lt. (Hon. Lt.) J. C. McIlroy, Feb. 4th; Sec. Lt. G. W. Kitchen, Feb. 5th; Sec. Lt. S. E. Minrath, Feb. 9th; Sec. Lt. R. Riffkin, Feb. 10th.

Capt. H. C. Barber relinquishes his commn. on acct. of ill-health and is permitted to retain his rank, Feb. 12th.

The following Lts. relinquish their commns. on acct. of ill-health, and are permitted to retain their rank :—A. F. Barker (Hamps. R.), H. Blofeld, M.C. (contracted on active service), G. G. Campbell (contracted on active service), P. F. Clayton, R. J. Cullen (R. Highrs., T.F.) (contracted on active service), G. D. Falkenberg (contracted on active service), S. C. Mimmack (contracted on active service), D. W. Pratt (contracted on active service), Feb. 12th.

Lt. J. S. Jones, M.C., relinquishes his commn. on account of ill-health, Feb. 12th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—G. Bradbury (caused by wounds), L. S. Dudson, S. R. Norcott (contracted on active service), S. F. B. Pile, F. C. Phillips, Feb. 12th.

Sec. Lt. (Hon. Lt.) T. T. Morton (Lt., W. Yorks R.) relinquishes his commn. on account of ill-health, Feb. 12th.

Sec. Lt. R. L. Uden is antedated in his appt. as Sec. Lt (A.), with effect from July 9th, 1918.

The initials of Lt. (actg. Capt.) F. T. Muncey are as now described, and not as stated in "Gazette," Jan. 21st; the surname of Sec. Lt. F. E. W. Davis is as now described, and not as in "Gazette," Jan. 21st.

The initials of Lt. J. O. Barclay are as now described, and not as in "Gazette," Jan. 21st.

The notification in "Gazette," Oct. 11th, 1918, concerning Lt. (actg. Capt.) W. H. Buckeridge is cancelled (substituted for notification in "Gazette," Jan. 21st).

The notification in "Gazette," Jan. 24th concerning Lt. G. F. Davies is cancelled.

ADMINISTRATIVE BRANCH.—Maj. A. C. E. S. Bowlby to be Maj., from (T.) April 1st, 1918.

Capt. H. W. R. Haslehurst to be actg. Maj. while empld. as Maj., April 1st, 1918.

Capt. R. Goudie to be Capt., from (A.), Sept. 19th, 1918

Lt. (actg. Capt.) D. L. P. S. Stuart-Shepherd, D.F.C., retains the actg. rank of Capt. while empld. as Capt., from (A.), Nov. 27th, 1918

H. M. Seton-Karr (Capt., L. Gds. and M.G.C.), is granted a temp. commn. as Capt., Oct. 9th, 1918, with senty. from April 1st, 1918.

Lts. to be actg. Capts. while empld. as Capts. :—(Hon. Capt.), H. M. Parsons, from (O.), July 15th, 1918; (Hon. Capt.) C. W. A. Millar, Sept. 28th, 1918; E. H. A. Lockwood, Oct. 24th, 1918; R. F. Hamlyn, Dec. 1st, 1918; L. Abraham, Jan. 1st; (Hon. Capt.) J. R. Croxford, Jan. 22nd.

Sec. Lts. to be actg. Capts. while empld. as Capts. :—A. G. Adams, June 1st, 1918; (Actg. Lt.) C. T. Johnson, (Actg. Lt.) I. Wardle, Jan. 1st; (Hon. Capt. W. C. Green, M.C., from (T.), Jan. 20th.

R. Cambier-Parry (Lt., R. Welsh Fus.) is granted a temp. commn. as Lt., Aug. 29th, 1918, with senty., from April 1st, 1918.

H. R. Edwards (Lt., R.F.A.) is granted a temp. commn. as Lt., Nov. 15th, 1918. (Substituted for notification in "Gazette," Nov. 26th, 1918.

Lts. (A.) to be Lts. :—T. Aitken, Aug. 14th, 1918; D. A. Parker, Sept. 12th, 1918; A. E. Alderton, Oct. 30th, 1918; G. P. Leitch, Nov. 4th, 1918; C. Saunders, Nov. 19th, 1918; R. N. H. Hughman, Nov. 25th, 1918; D. M. Pinkerton, Nov. 26th, 1918; H. B. Hudson, M.C., Dec. 4th, 1918; D. R. Griffiths, R. G. R. Townsend, Dec. 17th, 1918; M. S. Faraday, E. R. Seymour, Dec. 19th, 1918; L. H. Wrightmeyer, Dec. 20th, 1918.

Lts. (O.) to be Lts. :—T. N. Robinson, Oct. 31st, 1918; H. L. Walter, Dec. 4th, 1918; D. N. Brampton, M.C., Jan. 3rd.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. :—A. E. Houghton, July 27th, 1918; W. R. Taylor, Aug. 28th, 1918; L. M. Moss, Sept. 21st, 1918; K. K. McLean, M.B.E., Oct. 1st, 1918; E. Powell, Dec. 1st, 1918; F. T. L. Avis, F. C. Bird, E. G. Boone, W. G. Chate, F. W. Healey, L. J. Marden, J. L. Saxton, Jan. 1st.

The following are transfd. to unemployment list :—Sec. Lt. C. A. Broadhurst, Jan. 13th; Sec. Lt. N. R. Rice, Jan. 15th; Lt. T. C. Morgan, Jan. 19th; Sec. Lt. F. V. Mataraly, Jan. 20th; Capt. N. G. Hodson, Sec. Lt. B. H. Moore, Jan. 22nd; Sec. Lt. S. T. Phillips, Jan. 23rd; Lt. C. G. H. Smith, Jan. 24th; Sec. Lt. C. E. Eastwood, Sec. Lt. W. H. Evans, Lt. (Hon. Capt.) J. Milne (Leic. R., T.F.), Sec. Lt. T. B. Nelson, Jan. 25th; Sec. Lt. R. W. Forsyth, Sec. Lt. C. H. Green, Sec. Lt. A. T. S. Grigsby, Jan. 26th; Lt. Sir C. S. Kirkpatrick, Bt., Sec. Lt. T. H. Lamb, Sec. Lt. (actg. Capt.) M. M. Merriman, Sec. Lt. K. C. H. Newman, Jan. 28th; Sec. Lt. T. L. Gulliver, Sec. Lt. L. C. Maitland, Sec. Lt. S. G. Menell,

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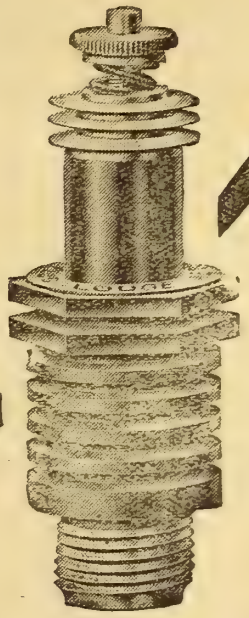
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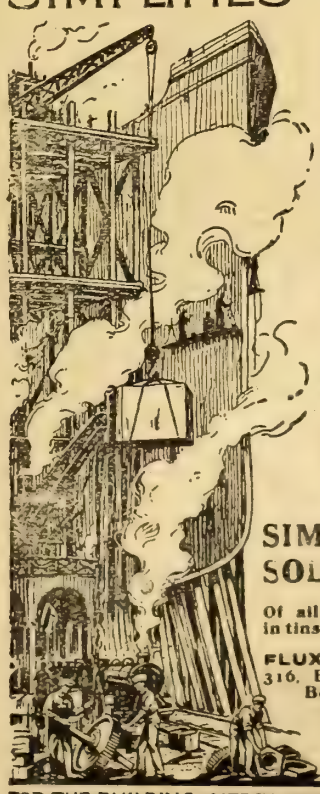
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Sec. Lt. G. B. Newton (Lond. R.), Jan. 29th; Sec. Lt. P. A. P. Monaghan, Capt. A. C. Osborne, Jan. 30th; Sec. Lt. D. A. McCallum, Feb. 1st.

The following Lts. relinquish their commn. on account of ill-health :—E. H. Maddick (Lt., W. Kent. R.), (contracted on active service), (Hon. Capt.) J. Milne (R. Scots), C. D. Soman (North'd. Fus.), Feb. 12th.

Sec. Lt. C. J. Donnellan relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Feb. 12th.

The notification in "Gazette," Dec. 13th, 1918, concerning Lt. (Hon. Capt.) G. Prater is cancelled.

Technical Branch.—Maj. T. F. G. Strubell to be Maj. (Gr. A.), from (S.O.), June 20th, 1918. (Substituted for notification in "Gazette," Aug. 6th, 1918).

Capts. to be actg. Majs. while empld. as Majs. :—D. P. Geddes (Gr. A.), W. G. C. Munsie (Gr. B.), Nov. 1st, 1918; W. E. L. Seward, M.C., Nov. 4th, 1918.

The following are granted temp. commns. as Capts. (Gr. B.) :—C. M. Alport (Lt., R. Highrs.), (substituted for notification in "Gazette," Nov. 29th, 1918, H. C. Kinred (Lt., Glouc. R.), May 24th, 1918.

Lts. to be actg. Capts. while empld. as Capts. (Gr. A.) :—H. F. Groves, Aug. 16th, 1918; E. S. Steddy, Dec. 10th, 1918; F. W. Brooks, Jan. 1st.

Lts. to be actg. Capts. while empld. as Capts. (Gr. B.) :—J. A. Atkinson, June 1st, 1918; D. R. Smith (Quebec R.), Aug. 1st, 1918; R. Gregory, M.C., Aug. 19th, 1918; H. L. Waddington, Nov. 1st, 1918; (Hon. Capt.) F. Grave, from (Ad.), F. W. Partington, Dec. 1st, 1918; A. R. B. Gill, Jan. 1st.

Sec. Lts. to be actg. Capts. whilst empld. as Capts. (Gr. A.) :—(Actg. Lt.) H. P. Leigh, Aug. 20th, 1918; H. H. Kalber, Sept. 3rd, 1918; (Hon. Capt.) C. G. Bannister, Oct. 2nd, 1918; J. A. Atkinson, Dec. 10th, 1918.

Sec. Lts. (actg. Lts.) to be actg. Capts. whilst empld. as Capts. (Gr. B.) :—H. St. C. Roy, M.C., Aug. 31st, 1918; P. H. Morrish, Sept. 21st, 1918.

Lt. G. M. Roberts to be Lt. (Gr. B.), from (A. and S.), Nov. 21st, 1918, (substituted for notification in "Gazette," Dec. 13th, 1918).

Lt. F. W. Brooks to be graded for pay as Lt. (Gr. A.) whilst empld. as Lt., Oct. 7th, 1918.

Lt. C. M. Bevan to be graded for pay as Lt. (Gr. B.) whilst empld. as Lt., Oct. 7th, 1918.

Lts. to be Lts. (Gr. A.) :—S. Power, from (O.), Nov. 26th, 1918; B. S. Higgs, from (Gr. B.), Dec. 24th, 1918, substituted for notification in "Gazette," Jan. 10th.

Lt. L. Rawnsley to be Lt. (Gr. B.), from (A.), Oct. 3rd, 1918

Lts. (Ad.) to be Lts. (Gr. B.) :—S. R. L. Poole, M. Walker, Jan. 21st.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Gr. A.) :—R. E. H. Heenan, Aug. 1st, 1918; J. W. Caddy, S. T. Littleton, Oct. 1st, 1918; P. B. Barlow, (Hon. Lt.) R. E. Moore, Oct. 7th, 1918; H. Little, Dec. 1st, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Gr. B.) :—T. G. Boyland, S. Curzon, J. T. Williams, Oct. 1st, 1918; H. D. Torres, Nov. 1st, 1918; W. Warwick, Nov. 30th, 1918; A. W. R. Trusler, F. Wheatcroft, from (Ad.), Dec. 3rd, 1918.

The following are transfd. to unempld. list :—Sec. Lt. C. G. Nops, Jan. 13th; Sec. Lt. E. E. Lewis, Jan. 14th; Lt. F. A. Mills, Jan. 16th; Sec. Lt. W. P. F. Bisgood, Sec. Lt. (actg. Lt.) W. B. Morison, Jan. 17th); Lt. A. B. Blayney, Sec. Lt. (actg. Lt.) A. E. Millson, Jan. 18th; Sec. Lt. C. Elwell, Jan. 19th; Lt. R. B. Robinson, Jan. 20th; Sec. Lt. (Hon. Lt.) R. Law, Jan. 22nd; Sec. Lt. W. J. Lawrence, Jan. 23rd; Sec. Lt. D. Wright, Jan. 24th; Sec. Lt. A. H. Angwin, Lt. W. Calvert, Jan. 25th; Lt. A. Chapple, Capt. H. Colbourne, Sec. Lt. J. N. Duthoit, Lt. M. C. Evans, Sec. Lt. J. J. Hegan, Capt. B. E. J. Petre, Sec. Lt. G. L. Platfoot, Jan. 26th; Lt. A. F. Elliott, Sec. Lt. (Hon. Lt.) W. R. Gundry, Sec. Lt. H. T. Mackie, Capt. E. R. Moxey, Sec. Lt. J. O. Pakeman, Jan. 28th; Capt. H. B. FitzHerbert, Capt. G. S. Hall, Sec. Lt. (Hon. Lt.) A. C. C. Rawlins, Jan. 30th; Sec. Lt R. G. B. Blanchard, Lt.-Col A. C. Bishop, Capt. W. Evans, Sec. Lt. W. P. Farrow, Sec. Lt. F. I. G. Ghisi, Jan. 31st; Lt. R. J. Fetherston, Maj. R. E. Goddard, Lt. C. F. Overy, Feb. 1st.

Lt. W. Moulding relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Feb. 12th.

Sec. Lt. H. S. Graves resigns his commn. to resume his medical studies, and is permitted to retain his rank, Feb. 12th.

Physical Training Branch.—Capt. A. F. Marlowe to be graded for pay as Lt. whilst empld. as Lt., from (A.), Nov. 27th, 1918

Medical Branch.—Capts. to be graded for pay as Capts. (Gr. B, Rate 1) :—A. A. Atkinson, W. H. H. Bennett, R. E. Bell, H. S. Baker, R. D. Goldie, J. J. C. Hamilton, F. C. Kemson, J. M. Kirkness, A. MacLennan, J. A. Parsons, F. Roberts, C. P. C. Sargent, A. Scott-Turner, C. J. G. Taylor, C. Webb, N. R. Williamson, Oct. 1st, 1918.

A. E. P. Parker (temp. Surg., R.N.) is granted a temp. commn. as Capt., Dec. 12th, 1918, with seny. from April 1st, 1918.

Capt. H. C. Bazett, M.C., M.B., F.R.C.S. (R.A.M.C., Spec. Res.), is transferred to unempld. list, Feb. 2nd.

Chaplains Branch.—Rev. J. W. G. Pearse (temp. Chap. to the Forces, 4th Cl., A.C.D.) is granted a temp. commn. as Chaplain, with the relative rank of Capt., Feb. 7th.

Memoranda.—Capt. G. M. B. Dobson to be actg. Maj. whilst holding a special appointment at the Ministry of Munitions, Dec. 3rd, 1918.

2nd Lt. A. H. Turner, A.P. (T.), to be Lt. (without the pay and allowances of that rank), Jan. 27th

The following are transferred to unempld. list, from (S.O.) :—Capt. A. L. Butcher, 2nd Lt. (actg. Capt.) P. E. Negretti, Feb. 1st; Capt. (actg. Lt.-Col.) H. E. A. Lindsay, O.B.E., Feb. 3rd; Capt. J. W. Cole, Feb. 4th.

Lt. (actg. Capt.) J. E. Wain relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt., Feb. 12th.

War Office, Feb. 12th.

His Majesty the King has been graciously pleased to approve of the under-mentioned rewards for distinguished services rendered in connection with Military operations in the field :—

Awarded the Military Cross.

Lt. George Alexander Hill, 4th Bn., Manch. R., attd. R.A.F.
Sec. Lt. Sidney George Reilly, R.A.F.
Lt. George Gibson Tomling, R.A.F.

Air Ministry, Feb. 14th.

R.A.F.—The following temp. appt. is made at the Air Ministry :—Staff Officer, 3rd Cl. (P.).—Lt. (actg. Capt.) H. G. Stuart, M.C., and to retain the actg. rank of Capt., while so empld., Nov. 10th, 1918.

The following temp. appts. are made :—Staff Officer, 1st Cl.—Lt.-Col. G. R. Bromet, D.S.O., O.B.E., vice Capt. (actg. Lt.-Col.) F. S. Isaac, Feb. 4th.

Staff Officer, 3rd Cl. (O.).—Maj. M. Marsden, Jan. 22nd.

Flying Branch.—Capt. (actg. Maj.) C. J. Galpin, D.S.O., retains the actg. rank of Maj. while empld. as Maj. (A. and S.), from S.O., Jan. 6th.

Capt. H. A. Westendarp to be actg. Maj. while empld as Maj. (A.), Jan. 17th.

Lts. to be actg. Capts. while empld. as Capts. (A.) :—H. T. Lydford, R. T. B. Houghton, N. McLeod, J. J. A. Thompson, Aug. 15th, 1918; F. L. Atkinson, Sept. 1st, 1918; J. R. Moore, A.F.C., Oct. 1st, 1918; A. L. Paxton, A. R. Walker, Nov. 1st, 1918; H. V. Pendavis, D.S.O., Dec. 17th, 1918.

Lts. (O.) to be Lts. (A.) :—L. H. Mackay, Nov. 17th, 1918 (substituted for notification in "Gazette," Dec. 10th, 1918; P. C. Taylor, Dec. 30th, 1918.

Lt. E. J. Mott (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Lt. (A.), Oct. 16th, 1918.

Lt. W. A. Clark to be Lt. (O.), from (A.), April 1st, 1918.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their ranks as Sec. Lts. (A.) :—E. R. H. Pretlove, June 1st, 1918 (substituted for notification in "Gazette," Nov. 8th, 1918); W. G. Watson, June 5th, 1918; C. J. C. Sheridan, July 31st, 1918; T. H. Pearson, Aug. 28th, 1918; C. Longland, V. O. Hazeldine, R. R. Martin, J. I. Gillman, W. Leithead, R. W. Norris (since killed), Oct. 12th, 1918; P. W. Atkins, Oct. 28th, 1918; F. Pyle, Nov. 9th, 1918.

The following are granted temp. commns. as Sec. Lts. (A.) :—G. L. Blaine (Capt., S. A. Inf.), and to be Hon. Capt., July 8th, 1918; G. H. Rogers (Lt., E. Ont. R., C.E.F.), and to be hon. Lt., F. Neal (Sec. Lt., Hert. R., T.F.), Sept. 25th, 1918; R. M. Fletcher (Lt., Lond. R., T.F.), and to be Hon. Lt., Sept. 29th, 1918; S. H. Wells (temp. Sec. Lt., R. Fus.), Nov. 5th, 1918; S. Rawlings (temp. Sec. Lt., Essex R.), Nov. 9th, 1918.

The following Prob. Flight Officers (late R.N.A.S.) are granted temp. commns. as Sec. Lts. (A.) :—A. G. Ward, June 2nd, 1918; A. R. Heaver, June 15th, 1918; E. G. Gallagher, July 12th, 1918; V. D. Wethered, Oct. 15th, 1918.

Prob. Flight Officer E. Hudson (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (A. and S.), June 4th, 1918.

M. M. Grice (Lt. North'd. Fus., T.F.) is granted a temp. commn. as Sec. Lt. (K.B.), and to be Hon. Lt., Aug. 8th, 1918.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts. (Obsr. Officers) :—W. R. Jackson, May 31st, 1918; H. D. Buchanan, G. Windle, July 18th, 1918; W. Smith, Sept. 30th, 1918 (date of 1st commn. Feb. 21st, 1918); D. J. C. Huton, Oct. 18th, 1918.

The following are granted temp. commns. as Sec. Lts. (O.) :—D. G. J. Odlum (temp. Lt., Manch. R.), and to be Hon. Lt. V. Brent (temp. Lt., Middx. R.), and to be Hon. Lt., M. A. Watney (Lt., Gen. List), and to be Hon. Lt., April 1st, 1918; J. T. White (Sec. Lt., Notts. and Derby. R., T.F.), April 4th, 1918 (substituted for notification in "Gazette," Jan. 14th; W. A. Winter (Lt., Can. Eng., C.E.F.), and to be Hon. Lt., April 4th, 1918; A. E. Evans (2nd Lt., E. Surr. R.), Apr. 5th, 1918; D. Henderson (temp. Sec. Lt., Sea Highrs.), H. Sainsbury (Lt., E. Lancs. R., T.F.), and to be Hon. Lt., O. A. Broomhall (Lt., L'pool R., T.F.), and to be Hon. Lt., April 12th, 1918; F. H. Stock (temp. Sec. Lt., R.W. Kent R.), April 20th, 1918; W. Cooke (temp. Lt., W. Yorks. R.), and to be Hon. Lt., May 20th, 1918; J. D. Le Grove (temp. Lt., W. Yorks. R.), and to be Hon. Lt., W. R. Trounce (temp. Lt., Glouc. R.), and to be Hon. Lt., S. J. R. B. Simmons (Lt., Lond. R., T.F.), and to be Hon. Lt. G. L. Warner (Lt., Quebec R., C.E.F.), and to be Hon. Lt., May 22nd, 1918; G. G. Harris (temp. Lt., R.F.A.), and to be Hon. Lt., May 25th, 1918; P. Pickering (Lt., R.F.A., T.F.), and to be Hon. Lt., May 27th, 1918; F. J. Burton (Lt., Army Cyclist C., T.F.), and to be Hon. Lt., June 1st, 1918; L. G. Taylor (Sec. Lt., Manch. R., T.F.), June 5th, 1918; F. A. Lawson (temp. Sec. Lt., R. W. Fus.), W. J. Mills (temp. Sec. Lt., North'd Fus.), J. H. Blaschack (Sec. Lt., R.F.A., Spec. Res.), June 14th, 1918; W. Woodstack (Sec. Lt., R.F.A., Spec. Res.), June 20th, 1918; L. A. Clack (temp. Sec. Lt., York. L.I.), July 18th, 1918; R. E. Higginson (Sec. Lt., Lanc. Fus., Spec. Res.), L. E. T. Burley (temp. Sec. Lt., Durh. L.I.), J. B. Appleton (Lt., A. Cyclist Corps, T.F.), and to be Hon. Lt., Aug. 8th, 1918; R Hayward (temp. Sec. Lt., N. Staff. R.), L. J. Hoare (temp. Sec. Lt., Yorks. R.), W. D. F. Liston (Lt., I.A.R.O.), and to be Hon. Lt., J. Platt (temp. Sec. Lt., R. Dub. Fus.), E. Lawson (Lt., R. Highrs., T.F.), and to be Hon. Lt. W. A. Manson (Sec. Lt., Gord. Highrs., T.F.); W. J. Porter (Sec. Lt., Gord. Highrs., T.F.), R. G. Saunderson (Lt., R.F.A., Spec. Res.), and to be Hon. Lt. G. H. Simister (temp. Sec. Lt., Welsh R.), Oct. 18th, 1918; A. F. Harris (Sec. Lt., Hamp. R., T.F.), J. E. Pereira (Sec. Lt., I.A.R.O.), M. C. Buheel (Capt., R. Scots., Spec. Res.), and to be Hon. Capt., Oct. 25th, 1918; G. A. Body (Sec. Lt., E. Kent R., T.F.), N. Burke (temp. Sec. Lt., Oxf. and Bucks L.I.), S. Moyles (temp. Sec. Lt., R. Dub. Fus., attd. W. Rid. R.), R. C. Williams, Sec. Lt., S. W. Bord (Spec. Res.), D. Thomson (temp. Sec Lt., Manch. R.), Nov. 3rd, 1918.

Prob. Flt. Officer W. T. Ward (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (Obsr. Officer), May 27th, 1918

The following Prob. Flt. Officers (late R.N.A.S.) are granted temp. commns. as Sec. Lts. (S.) :—R. W. Jones, June 14th, 1918; K. P. Kirkwood, July 12th, 1918.

The following Prob. Flt. Cadets are granted temp. commns. as Sec. Lts. (A.) (substituted for notification in "Gazette," Dec. 6th, 1918) :—137973 L. Buckley-Bridge, 137984 A. P. K. Hattersley, 137997 F. N. Quy, May 28th, 1918.

110903 Flt. Cadet E. A. F. Wilding is granted a temp. commn. as Sec. Lt. (A.), June 28th, 1918 (substituted for notification in "Gazette," Nov. 26th, 1918).

The following Flt. Cadets are granted temp. commns. as Sec. Lts. (A.) :—137989 F. C. McConnell, 137991 H. A. M. Miller, May 28th, 1918; 137983 G. P. Hendrickze, 137976 L. E. Brockman, 137975 E. Bernstein, May 29th, 1918; 137992 T. O. Morgan, June 11th, 1918; 137978 J. Carter, June 28th, 1918; 184887 E. S. Bowman, 184943 R. A. Lund, 184953 J. H. A. Mollison, 184942 J. T. A. Lochner, July 23rd, 1918; 184946 G. E. Martiensen, Aug. 8th, 1918; 3158 L. C. Ennis, Aug. 12th, 1918; 184995 C. P. Wiseman, Aug. 18th, 1918; 184900 D. W. de Kock, 128204 N. H. Muir, Aug. 23rd, 1918; 100578 W. D. C. Hutton, Aug. 29th, 1918; 94882 W. D. Wood, 94787 O. F. G. Crosby, 528055 F. H. V. Nostrand, Aug. 31st, 1918; 29716 J. W. New, 57526 E. A. Roberts, Sept. 19th, 1918; 184960 R. R. H. Picot, Sept. 29th, 1918; 184896 W. A. Darwell, Oct. 3rd, 1918; 184901 G. Dismore, 94013 D. W. Giles, 500523 S. J. Perry, Oct. 12th, 1918; W. W. Pike, Oct. 13th, 1918; 1818 R. F. B. Caukwell, Oct. 16th, 1918; 260383 N. Ferrand, 110889 J. E. Stevens, W. Shorrock, Oct. 17th, 1918; 281120 C. F. Waudby, 26062 W. C. Garner, 6100 A. W. Hughes, Oct. 18th, 1918; 706469 H. J. Palmer, 260173 S. A. Williams, 290270 G. B. Demaine, H/260113 H. E. Lines, S/7233 B. G. Whatmough, Oct. 19th, 1918; 295940 J. B. Bushe, 2383 F. Dummer, 586 D. M. McArthur, 36860 S. B. Milner, Oct. 21st, 1918; R/42351 S. H. Emerson, M2/152607 T. E. White, 511673 C. H. Friese-Greene, Oct. 22nd, 1918; 240799 T. A. Bowditch, H/325705 R. J. Browning, 200383 H. E. Blades, 66198 H. P. Moore, 161752 J. F. Gourlay, 110579 J. A. T. Bryant, G/22960 E. Pendlebury, 184989 H. R. A. F. Watson, Oct. 23rd, 1918; 230260 H. E. Whiteman, Oct. 24th, 1918; 02608 A. Craig, 275005 J. Harston, Oct. 26th, 1918; M2/153563 A. B. Jones, 50764 M. B. Glover, Oct. 27th, 1918; 236437 R. Ellis, Oct. 28th, 1918; 321090 H. Ward, Oct. 29th, 1918; 784016 W. R. Godard, Oct. 30th, 1918; 966777 J. T. Newton, 275051 A. E. Elliott, 14960 E. H. Puckering, 012617 A. Sutton, S/33668 S. J. Alderson, TR/5/90163 L. J. Hall, 78908 S. T. Price, 25814 E. Bird, 70354 F. F. McNeil, Oct. 31st, 1918; H. Jowett, Nov. 3rd, 1918; 345156 E. C. Roberts, 624822 G. E. Pratt, 290505 H. S. Hatton, Nov. 5th, 1918; 320049 G. C. Lacey, 184882 A. H. Bell, 184890 R. D. Calvert, 184983 V. Thelwall, 184996 F. H. Yeo, Nov. 6th, 1918; 355316 W. E. Sanger, S/6243 T. W. Minihane, 818 M. J. McKessack, 3/27168 J. Evans, Nov. 7th, 1918; 9625 E. S. Smyth, Nov. 8th, 1918; 552190 G. R. Whamond, 315152 H. V. A. Salter, Nov. 9th, 1918; 96487 A. B. Lumb, 735382 J. Forrestone, 25856 W. J. Allan, Nov. 10th, 1918.

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The following Flt. Cadets are granted temp. commns. as Sec. Lts. (A. and S.) :—9710 C. S. Van der Poel, June 22nd, 1918; 128203 G. E. Lavin, June 28th, 1918; 128202 E. O. Korner, Aug. 31st, 1918; 137953 I. F. Stott, Sept. 28th, 1918; 137872 A. F. Nelson, Oct. 26th, 1918; H. L. Lucena, Nov. 2nd, 1918; 117048 D. Walker, Nov. 10th, 1918.

The following Flt. Cadets are granted temp. commns. as Sec. Lts. (A'ship.) :—J. Sproston, July 23rd, 1918 (substituted for notification in "Gazette," Oct. 1st, 1918); R. Bond, Aug. 21st, 1918; 236757 R. J. Chapman, 767205 C. A. Hopkins, Nov. 7th, 1918.

The following Flt. Cadets are granted temp. commns. as Sec. Lts. (Obsr. Officers) :—96040 G. W. A. Onions, May 13th, 1918 (substituted for notification in "Gazette," Aug. 2nd, 1918); 134926 L. D. Jacobs, 184980 A. J. Storm, July 23rd, 1918; 137880 S. A. Pindar, Aug. 24th, 1918; 1282660 J. Hogg, Aug. 31st, 1918; 83043 L. Scholes, Sept. 2nd, 1918; 175809 G. H. Lunn, 175210 W. H. Phethean, Sept. 3rd, 1918; 30268 E. C. W. Bray, Oct. 10th, 1918; 31999 F. H. Gill. 91028 E. W. Harriott, 9148 G. H. Metcalfe, 270675 E. E. Salmon, Oct. 19th, 1918; L. W. Hopkins, W. A. Westacott, Oct. 23rd. 1918; 175516 A. S. Farquhar. 173527 W. Porter, Oct. 25th. 1918; 200601 G. H. Price, 700354 S. W. J. Ward, 152230 L. J. Betts. Oct. 26th, 1918; 551419 G. L. Cox, Oct. 27th, 1918; 178934 S. D. Spalding, 158075 G. A. Dover, 240880 J. McGrail, Nov. 2nd, 1918; 117480 G. M. Strachan, 178692 F. P. Hodgson, 838286 R. A. Crecine, Nov. 3rd, 1918; 265438 N. H. Haylock, 100571 W. F. Jagger, Nov. 6th, 1918; 176441 L. W. Tyrrell, 137601 H. O. Brown, 178002 H. D. Clacher, 177919 C. W. Christie, 128877 N. A. S. Kelly, 863 K. D. McClure, 177042 H. H. Robbins, A. B. Newman, Nov. 8th, 1918; 3313 F. G. Thomas, 176180 G. N. Malcolm, 175809 O. S. Evans, 203225 A. Burns, G. F. Ward, Nov. 9th, 1918.

The following Flt. Cadets are granted temp. commns. as Sec. Lts. (S.) :—110801 C. J. McFadden, July 13th, 1918 (substituted for notification in "Gazette," Nov. 22nd, 1918; 12244 K. R. Goodacre, Sept. 27th, 1918; 535069 F. C. Maugham, Oct. 19th, 1918; T. C. Becker, Oct. 22nd, 1918; 19801 W. R. Godard, Oct. 23rd, 1918.

Lt. L. D. Adams is removed from the Service for absence without leave, May 19th, 1918.

Lt. H. L. Tighe is cashiered by sentence of a General Court-Martial, Jan. 21st.

The following relinquish their commns. on ceasing to be empld. :—Lt. N. R. Murphy (Lt., Quebec R.), Sept. 13th, 1918; Sec. Lt. (Hon. Lt.) F. C. Kent (Lt., Sask. R.), Dec. 6th, 1918; Lt. G. M. Dean (Lt., Can. F.A.), Dec. 30th, 1918; Sec. Lt. M. R. Dickinson (Sec. Lt., Middx. R.), Jan. 3rd; Lt. J. I. Bundy (Lt., Can. M.G.C.), Jan. 4th; Lt. (Hon. Capt.) M. H. Park (Capt., E. Ont. R.), Jan. 7th); Sec. Lt. A. A. Campbell (Lt., Can. Corps); Lt. T. R. Scott (Lt., Can. Corps), Jan. 12th); Lt. A. H. Pannill (Lt., E. Ont. R.); Sec. Lt. (Hon. Lt.) J. L. Sutherland (Lt., C. Ont. R.), Jan. 13th.

The following are transfd. to unempld. list :—Lt. S. R. Mantle, Jan. 10th; Lt. W. R. Hibbins, Jan. 11th; Sec. Lt. S. N. Jacobson, Jan. 16th; Lt. (Hon. Capt.) H. R. Jones, Sec. Lt. (Hon. Capt.) G. Mitchell, Lt. P. C. Simmons, Sec. Lt. C. H. Simms, Sec. Lt. W. J. Weir, Jan. 17th; Lt. F. W. Bethell, Sec. Lt. J. F. White, Jan. 18th; Lt. A. Alexander, Lt. W. K. Crewe, Jan. 19th; Sec. Lt. D. F. E. Whitehouse, Lt. P. S. Williams, Jan. 20th; Lt. J. Balfour, Capt. R. W. Lane, Lt. R. G. Sellars, Lt. A. G. Tremain, Lt. R. Wilson, Sec. Lt. V. D. Wethered, Jan. 21st; Sec. Lt. W. F. Abbott, Sec. Lt. E. S. Bale, Capt. J. R. Crouch, D.S.C., Sec Lt. G. M. Morrison, Sec. Lt. A. Smith, Lt. H. H. Stuttard, Sec. Lt. C. E. V. Taylor, Jan. 22nd; Lt. F. J. Buckland, Sec Lt. R. G. Burns, Lt. P. W. Cunliffe, Sec. Lt. C. R. Sharpe, Capt. J. Tweedie-Smith (E. Surr. R.), Sec. Lt. W. West, Lt. W. Wilkinson (W. York. R.), Jan. 23rd; Sec. Lt. J. B. Davies, Lt. B. P. Russell, Lt. L. H. Thomas, Jan. 24th; Sec. Lt. (Hon. Capt.) R. D. Blackman, Lt. E. G. Boulenger, Sec. Lt. W. E. China, Capt. (actg. Maj.) T. F. Morris, Lt. C. C. Summers, Jan. 25th; Sec. Lt. G. O Anderson, Lt. J. E. L. England, Sec. Lt. T. R. Hilton, Jan. 26th; Sec. Lt. H. N Bostock, Sec. Lt. J. Carlisle, Sec. Lt W. T. Watson, Jan. 27th; Sec. Lt. R. G. Alderson, Lt. J. G. Duff (R. Innis. Fus.), Sec. Lt. H. W. Ford, Lt. C. L. Fraser, Sec Lt. K. B. Gibb, Jan. 28th; Lt. (actg. Capt.) V. Beecroft, Sec. Lt. H. A. Coysh, D.F.C. (R.G.A., Spec. Res.), Sec. Lt. J. E. S. Dunham, Sec Lt. A. Holden, Sec. Lt. P. Jackson, Lt. A. E. Murrell, Lt. A. N. Pitchford, Lt. C. B. Rait, Jan. 29th; Capt. (actg. Maj.) J. O. Galpin, D.S.C., D.F.C., Lt. J. A. Higham, Lt. (actg. Capt.) C. A. Lewis, Lt. W. W. Smith, Sec. Lt. E. R. Thom, Jan. 30th; Sec. Lt. A. Anderson, Lt. (actg. Capt.) R. D. Best (A.S.C., T.F.), Lt. E. S. Harvey, Sec. Lt. H. G. Haydon, Sec. Lt. N. McL. Hill, Sec. Lt. H. V. Jones, Lt. G. G. Kell, Sec. Lt J. C. Leggett, Sec. Lt. R. S. Oakley, Jan. 31st; Sec. Lt. H. D. Raves, Sec. Lt. (Hon. Lt.) A. T. Holman, Sec. Lt. V. E. Jackson, Lt. F. Kettle, Sec. Lt. P. H. Lambert, Lt. N. S. MacGregor, Sec. Lt. W. D. Melhuish, Feb. 1st; Lt. (actg. Capt.) W. Hubbard, D.F.C., Sec. Lt. J. A. Lisle, Sec. Lt. T. G. Murray, Sec. Lt. G. L. Newman, Capt. A. B. Owens, Lt. (actg. Capt.) J. L. Paine, Sec. Lt. (Hon. Lt.) C. G. K. Pile, Feb. 2nd; Sec. Lt. E. Hall, Feb. 3rd; Lt. R. W. Hathaway, Feb. 4th; Sec. Lt. R. Morrison, Lt. M. A. Peacock, Feb. 5th, Sec. Lt. (Hon. Capt.) A. H. Mellows, Feb. 6th; Lt. W. C. Pierce, Feb. 7th; Lt. C. A. Harrison, Feb. 12th.

Capt. G. A. Maclean relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Feb. 15th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—A. L. Code (caused by wounds), C. H. Dunster, H. D. Jack, L. H. C. Rutter (contracted on active service), Feb. 15th.

The following Lts. resign their commns. on account of ill-health :—L. S. Gray (contracted on active service), H. C. Hyde (Leic. R.), R. W. Jackson (Can. Local Forces), Feb. 15th

The following Sec. Lts. relinquish their commns on account of ill-health, and are permited to retain their rank :—A. Nicholson, F. L. Roberts (contracted on active service), C. H. Wilcox (contracted on active service), Feb. 15th.

Sec. Lt. G. P. Forbes relinquishes his commn. on account of ill-health, Feb. 15th.

The surname of 2644 Flt. Cadet A. T. Jeffery is as now described, and not as stated in "Gazette," Dec. 10th, 1918.

The initials of Lt. W. von S. Pryor are as now described, and not as stated in "Gazette," Jan. 28th.

The surname of Capt. (actg. Maj.) R. Grey is as now described, and not as stated in "Gazette," Jan. 24th.

The Christian name of Sec. Lt. William Campbell is as now described, not as stated in "Gazette," Jan. 24th.

Sec. Lt. S. T. Franks is antedated in his appt. as Sec. Lt. (A and S.), with effect from April 15th, 1918

The notification in "Gazette," Dec. 13th, 1918, concerning Lt. E. A. Clegg is cancelled.

Administrative Branch.—Maj. A. R. Woodland to be actg. Lt.-Col. while empld. as Lt.-Col., Jan. 20th.

The following are granted temp. commns. as Majs., seny. April 1st, 1918 :—W. J. King, M.C. (temp. Maj., Rif. Brig.), Aug. 27th, 1918; A. R. Woodland (Maj., Shrops L.I.), Sept. 25th, 1918; V. J. Kelly (temp. Maj., attd. R. Muns. Fus.), Oct. 4th, 1918.

The following to be graded for purposes of pay as S.O. 2 (2nd Gr.) :—Capt. (actg. Maj.) O. C. Johnsen, Aug. 22nd, 1918; Maj. W. J. King, M.C., Oct. 7th, 1918.

The following are granted temp. commns. as Capts., seny. April 1st, 1918, and to be actg. Majs. while empld. as Majs. :—D. G. F. Darley (Capt., D. Gds.), D. C. Johnson (temp. Capt., Gen. List), Aug. 22nd, 1918; W. R. Hoare (Capt., Hants. R., T.F.), Aug. 31st, 1918; A. F. Morris (temp. Capt., Welsh R.), Sept 7th, 1918.

A. W. Barrington-Foote (Capt., Hrs., Spec. Res.) is granted a temp. commn. as Capt., and to be actg. Maj. while empld. as Maj., July 13th, 1918.

F. H. Hooper (Lt., R.F.A., T.F.) is granted a temp. commn. as Lt., seny. April 2nd, 1918, and to be actg. Maj. while empld. as Maj., Nov. 7th, 1918.

The following are granted temp. commns. as Capts., seny. April 1st, 1918 :—A. Howe (Capt., R. W. Kent. R.), June 6th, Clayton (Capt., R. W. Surr. R.), Aug. 24th, 1918.

R. Goacher (Maj. and Qrmr., Gen. List, T.F.) is granted a temp. commn. as Capt., and to be Hon. Maj., April 1st, 1918.

The following Capts. and Qrmrs. are granted temp. commns. as Capts. :—J. Allen (Spec. List), W. J. Adkins (Gen. List, T.F.), G. A. Brown (Spec. List), E. Mills (R. W. Kent R.), R. Rennison (Gen. List, T.F.), F. Spearing, D.C.M. (Spec. List), T. M. Woodward (Gen. List, T.F.), April 1st, 1918; A. Warnock (Ox. and Bucks L.I.), Oct. 8th, 1918.

The following are granted temp. commns. as Lts., seny. April 1st, 1918, and to be actg. Capts. while empld. as Capts. :—L. G. Russell (temp. Lt., R. Fus.), July 20th, 1918; R. G. Norman (temp. Lt., Essex R.), Aug. 8th, 1918.

Lts. to be actg. Capts. while empld. as Capts. (substituted for notification in "Gazette," Jan. 31st :—E. A. Comeau, Dec. 6th, 1918; R. E. Roberts, Dec. 16th, 1918; M. Tarbet, Jan. 20th.

Lts. to be actg. Capts. while empld. as Capts. :—J. P. P. L. Biggs, July 1st, 1918; H. L. McNaughton, July 15th, 1918; R. Kane, Sept. 23rd, 1918; R. Elphick, Oct. 1st, 1918; J. E. Rosselli, from (S.O.), Oct. 2nd, 1918; A. G. W. Grantham, Oct. 29th, 1918; R. E. Meek, Nov. 1st, 1918.

Sec. Lt. (actg. Lt.) S. Tew, to be actg. Capt. while empld. as Capt., Jan. 8th.

Lts. (A.) to be Lts. :—K. F. Hilder, Aug. 7th 1918; R. MacC. Marshall, Oct. 19th, 1918; G. S. McGregor, Oct. 29th, 1918; J. L. Callie, Nov. 19th, 1918; A. G. Bailey, D.F.C., Dec. 6th, 1918; (actg. Capt.) L. D. Brown, Dec. 9th, 1918, and relinquishes the actg. rank of Capt.; B. I. Ward, Dec. 10th, 1918; W. M. B. Skinner, Dec. 17th, 1918; N. F. Spurr, Jan. 1st; W. J. McLean, Jan. 7th, V. N. Bonnes, Jan. 10th; E. E. Stock, M.C., Jan. 23rd.

Lts. (O.) to be Lts. :—B. E. H. Whiteford, M.C., Nov. 21st, 1918; B. S. Andrew, Nov. 23rd, 1918; B. Instone, Nov. 29th, 1918; E. B. Selby, Dec. 18th, 1918.

Lt. J. A. Gorges to be Lt., from (S.O.), Jan. 29th.

Capt. C. D. Smart, M.C., to be graded for purposes of pay as Lt. whilst empld. as Lt., from (A.), June 3rd, 1918

The following are granted temp. commns. as Lts., seny. April 1st, 1918 :—A. G. Horlock (Lt., E. Kent R.), May 30th, 1918; A. G. W. Grantham (Lt., Dor. R.), July 20th, 1918; W. S. H. Reid (Lt., Dev. R., T.F.), July 21st, 1918; E. M. Drake (temp. Capt., Gen. List), Aug. 12th, 1918, and to be Hon. Capt.; R. H. M. Park (Lt., Ir. Gds., Spec. Res.), Aug. 23rd, 1918; W. J. E. Owen (temp. Lt., Gen. List), Aug. 31st, 1918; R. D. H. Draper (temp. Lt., York L.I.), P. H. Drury (Lt., S. Wales Bord.), R. H. Rook, M.C. (Lt., W. York. R., Spec. Res.), Sept. 7th, 1918; W. I. M. Constable (Lt., R. Sco., T.F.), J. Garvin (temp. Lt., Welsh R.), Sept. 14th, 1918; C. E. W. Neat (Lt., R. Ir. Fus., Spec. Res.), Sept. 19th, 1918; G. MacMullen (Lt., Herts R.), Sept. 20th, 1918; R. Kane (Hon. Lt. and Qrmr., R.N.D.), Sept. 23rd, 1918; F. W. D'Alton, M.C. (Lt., R.G.A.), Oct. 12th, 1918

The following are granted temp. commns. as Lts. :—W. F. Alderton (Asst. Paymr., R.N.R.), H. A. Hannay (temp. Lt., S. Wales Bord.), K. S. Hunter (Lt., D. Gds.), A. C. Illingworth (temp. Lt., W. Rid. R., T.F.), C. Verner (temp. Lt., Bedf. R., April 1st, 1918; W. A. Waterman (Lt., Bord. R.), June 25th, 1918; A. A. Bowes (temp. Lt., attd. Manch. R.), Sept. 13th, 1918; E. G. Akhurst (Lt., Dev. R., T.F.), H. Hemingway (Lt., Middx. R., Spec. Res.), Sept. 14th, 1918; J. W. Upcott (Lt., Mon. R., T.F.), Sept. 18th, 1918; C. B. Stead (Lt., R.H.A., T.F.), Oct. 1st, 1918; F. A. Perren (Lt., Hants R.), Oct. 2nd, 1918.

T. M. Ross (Maj. and Qrmr., R. Sco. Greys) is granted a temp. commn. as Lt., April 15th, 1918, seny. April 1st, 1918, and to be Hon. Maj.

The following Capts. and Qrmrs. are granted temp. commns. as Lts., and to be Hon. Capts. :—W. T. Calthorpe (Spec. List), E. W. Crosbie (Gen. List, T.F.), J. F. Dawson (Spec. List), A. A. Goodman (Gen. List, T.F.), D. W. Harper (Spec. List), A. Jamieson (Spec. List), A. P. Lunam, M.C. (Gen. List), H. F. P. Morris (Gen. List), H. Pallett (Gen. List), F. Paterson (Spec. List), J. Roberts (Suff. R.), E. V. Tarrant (Hants R.), S. E. Wall (Spec. List), J. Woulds, D.C.M. (Spec. List), B. T. Whittaker (Gen. List), April 1st, 1918.

The following Capts. and Qrmrs. are granted temp. commns. as Lts., with seny. April 1st, 1918, and to be Hon. Capts. :—W. H. Soper (Spec. List), April 3rd, 1918; G. Howard (Gen. List), June 6th, 1918; S. Snow, M.C. (Gen. List), July 1st, 1918; F. G. Davies, M.C. (Gen. List), Sept. 11th, 1918.

The following Lts. and Qrmrs. are granted temp. commns. as Lts. :—H. J. Axten (Gen. List), J. F. Battersby (Spec. List), A. J. Barber (Spec. List), M. D. Cunningham (Spec. List), J. Connell (Spec. List), W. Clay (Gen. List), G. Davidson (Gen. List), C. F. Gear (Spec. List), W. A. Grudgings (Spec. List), H. Higgins (Spec. List), J. W. Holdsworth (Spec. List), J. Hill (Spec. List), G. H. Hill (Gen. List), W. J. Jones (Gen. List), S. Lindsey (Spec. List), A. Lucking (Spec. List), C. F. Morris (Spec. List), A. Mitchell (Spec. List), P. J. Murphy (Spec. List), H. T. Nance (Spec. List), H. H. Spencer (Spec. List), J. Saunders (Spec. List), E. G. Steer (Spec. List), P. Valette (W. York. R.), W. White (Spec. List), G. Wilson (Spec. List), A. C. W. Williams (Spec. List), April 1st, 1918; G. E. Tarrant (Spec. List), April 4th, 1918, seny. April 1st, 1918; W. C. Alexander (T.F. Res.), Sept 13th, 1918, seny. April 1st, 1918.

Sec. Lt. (Hon. Lt.) J. Cobley to be Lt., April 2nd, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. :—E. Staples, Aug. 9th, 1918; (Hon. Lt.) F. E. Gauntlett, from (O.), Aug. 24th, 1918 (substituted for notification in "Gazette," Oct. 15th, 1918); L. P. Kirk, Dec. 1st, 1918.

The following are granted temp. commns. as Sec. Lts., with seny. from April 1st, 1918, and to be actg. Lts. whilst empld. as Lts. :—A. V. Hastings (Sec. Lt., R. Dub. Fus.), July 7th, 1918; G. Hull (temp. Sec. Lt., R. Ir. Rif.), July 12th, 1918; L. M. King-Harman (Sec. Lt., Rif. Brig.), July 23rd, 1918; P. Hammond (temp. Sec. Lt., N. Staffs. R.), Aug. 8th, 1918; H. G. Lyne (Sec. Lt., Linc. R.), Aug. 27th, 1918; C. G. Campbell (2nd Linc. R., T.F.), Sept. 7th, 1918; E. W. Jackson (temp. Sec. Lt., R. Dub. Fus.), W. A. Renshaw (temp. Sec. Lt., North'd. Fus.), W. Twamley (temp. Sec. Lt., R. Dub. Fus.), A. D. Turner (temp. Sec. Lt., March. R.), Sept. 14th, 1918; R. Wight (Sec. Lt., R. Sco., T.F.), Sept. 18th, 1918; C. F. Beeson (temp. Sec. Lt., Ox. and Bucks L.I.), F. Ridley (temp. Sec. Lt., Ches. R.), Sept. 19th, 1918; A. Elliott (Sec. Lt., R. Lanc. R., T.F.), Oct. 15th, 1918.

Sec. Lts. to be Sec. Lts., from (A.) :—W. Comb, Sept. 2nd, 1918; C. D. Davis, Sept. 23rd, 1918; H. MacKay, Oct. 28th, 1918; H. F. Walker, Dec. 6th, 1918; J. Skinner, Dec. 20th, 1918; P. A. Miller, Jan. 5th; C. P. Bertioli, Jan. 15th.

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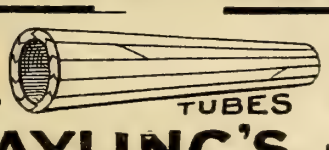
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Sec. Lt. F. A. Katte to be Sec. Lt., from (A. and S.), Dec. 16th, 1918.

Sec. Lt. G. C. Shakespeare to be Sec. Lt., from (K.B.), Jan. 10th.

Sec. Lts. to be Sec. Lts., from (O.):—T. K. Ludgate, Nov. 11th, 1918; J. M. Scott, Nov. 25th, 1918; C. F. Ambler, Dec. 3rd, 1918.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts.:—T. Whittaker, Aug. 8th, 1918; W. J. H. Gallard, Nov. 9th, 1918.

R. P. Briscoe (temp. Sec. Lt., Worc. R.) is granted a temp. commn. as Sec. Lt., June 26th, 1918, with seny. from April 1st, 1918.

Prob. Flt. Officer H. West (late R.N.A.S.) is granted a temp. commn. as Sec. Lt., Sept. 23rd, 1918.

The following Sec. Lts. are removed from the Service, his Majesty having no further use of their services as officers:—S. Laban, Nov. 7th, 1918; W. Chester, Dec. 2nd, 1918.

The following relinquish their commns. on ceasing to be empld.:—Capt. J. Crow (Qrmr. and Hon. Capt., Gen. List, T.F.), Nov. 28th, 1918; Capt. P. J. Whitty (Capt., R. Ir. R.), Jan. 17th.

The following are transferred to unempld. list:—Capt. T. C. Macaulay, Jan. 5th; Lt. H. H. Coffin, Jan. 20th; Sec. Lt. W. E. McCulloch, Jan. 21st; Sec. Lt. J. McP. Mitchell, Jan. 22nd; Lt. (actg. Capt.) J. S. Anderson, Sec. Lt. W. Brickhill, Lt. (Hon. Capt.) (actg. Maj.) R. C. Green, Jan. 23rd; Sec. Lt. F. W. Heazell, Sec. Lt. G. C. Tozer, Jan. 25th; Sec. Lt. H. G. Bishop, Sec. Lt. J. I. C. Boger, Sec. Lt. C. G. Bray, Jan. 26th; Sec. Lt. A. H. Burn, Jan. 27th; Sec. Lt. S. C. Bown, Sec. Lt. C. W. Brown, Sec. Lt. A. Brownhill, Sec. Lt. R. W. Callan, Sec. Lt. L. Hamblin, Jan. 28th; Sec. Lt. W. E. Back, Sec. Lt. D. Dawson, Sec. Lt. (actg. Lt.) W. J. Dayrell-Steyning, Sec. Lt. E. Garerd-Hill, Sec. Lt. F. S. Heywood, Jan. 29th; Lt. W. G. Gunning, Sec. Lt. (actg. Lt.) A. J. E. Sumner, Jan. 30th; Sec. Lt. W. A. R. Heaven, Lt. G. Mawer, Jan. 31st; Lt. F. C. Meyer, Sec. Lt. G. H. Nutter, Feb. 1st; Sec. Lt. J. T. Histed, Lt. (actg. Capt.) W. F. Merritt, Sec. Lt. W. Odam, Feb. 2nd; Lt. A. E. C. Marshall, Feb 4th.

Lt. J. D. Newsom relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Feb. 15th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—A. W. Kelly, A. H. Mitchener, J. R. Wilcox (contracted on active service), Feb. 15th.

The Christian name of Sec. Lt. William Cox is as now described, and not as stated in "Gazette," Jan. 24th.

TECHNICAL BRANCH.—Capt. H. J. C. Smith to be actg. Maj. whilst empld. as Maj. (Gr. A), Oct. 25th, 1918 (substituted for notification in "Gazette," Dec. 31st, 1918).

Lt. (actg. Capt.) H. W. Prockter retains the actg. rank of Capt. whilst empld. as Capt. (Gr. A.), from (Ad.), Dec. 17th, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (Gr. A):—J. H. Winch, April 11th, 1918; T. M. Howard, Aug. 14th, 1918; H. F. Wilkinson, Sept. 1st, 1918; B. O. Newman, Nov. 1st, 1918.

Sec. Lt. (actg. Lt.) L. B. Clarkson to be actg. Capt. whilst empld. as Capt. (Gr. A), from (Ad.), Oct. 1st, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (Gr. B):—A. L. C. Fuller, Oct. 17th, 1918; B. F. Wood, Nov. 1st, 1918; P. M. T. Hill, Dec. 1st, 1918.

Sec. Lts. to be actg. Capts. whilst empld. as Capts. (Gr. B):—(Actg. Lt.) W. A. Winter, H. H. Williams, Dec. 6th, 1918.

The following are granted temp. commns. as Lts., and to be actg. Capts. whilst empld. as Capts.:—J. Shields (Lt., R.F.A., T.F.), April 22nd, 1918; F. E. H. Paget (Lt., Gren. Gds.), April 29th, 1918.

The following Lts. to be graded for purposes of pay as Lts. (Gr. A):—G. W. Charley, Aug. 9th, 1918; H. C. Short, A. Wragg, Dec. 13th, 1918, Lt. T. E. A. Griffith to be Lt. (Gr. B), from (A.), Nov. 5th, 1918.

The following are granted temp. commns. as Lts. (Gr. A), with seny. from April 1st, 1918:—E. Gallagher (temp. Lt., R. Innis Fus.), H. V. Manly (Lt., R. Dub. Fus.), July 11th, 1918; H. A. Moncrieff (Lt., Dor. R.), Aug. 30th, 1918.

W. G. Seager (temp. Lt., New Armies) is granted a temp. commn. as Lt. (Gr. B), Sept. 18th, 1918, with seny. from April 1st, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Gr. A.):—E. J. Cox, W. J. Ley (substituted for notification in the "Gazette," Dec. 31st, 1918), Oct. 1st, 1918; (Hon. Lt.) R. E. A. Mallet, M.C., Nov. 1st, 1918; A. E. Gooch, Dec. 1st, 1918.

G. W. Cooke (Sec. Lt., Middx. R.) is granted a temp. commn. as Sec. Lt., and to be actg. Lt. whilst empld. as Lt. (Gr. A), July 11th, 1918.

Sec. Lts. to be Sec. Lts. (Gr. A), from (Ad.):—J. T. Histed, Oct. 13th, 1918; W. Littlemore, N. W. Lamb, Nov. 28th, 1918; (actg. Capt.) M. Sheriff, D.C.M., and to relinquish the actg. rank of Capt., D. A. Batwell, Dec. 1st, 1918; C. Jones, Dec. 19th, 1918.

Sec. Lts. to be Sec. Lts. (Gr. B), from (Ad.):—A. P. Manners, Sept. 5th, 1918; P. H. C. Martin, Sept. 12th, 1918; F. P. Ward, Nov. 28th, 1918.

The following are granted temp. commns. as Sec. Lts. (Gr. B):—H. Soper (temp. Lt., R. Fus.), and to be Hon. Lt., April 1st, 1918; G. R. Willis (temp. Sec. Lt., S. Lan. R.), July 3rd, 1918, seny. April 1st, 1918.

Sec. Lt. C. C. Parrott, D.C.M. (late Gen. List, R.F.C., on prob.), is confirmed in his rank as Sec. Lt. (Gr. B), July 18th, 1918.

Sec. Lt. (Hon. Capt.) G. H. Lounsbury (Capt., New Brun. R.) relinquishes his commn. on ceasing to be empld. Dec. 31st, 1918.

The following are transferred to unempld. list:—Sec. Lt. (actg. Lt.) W. L. Vining (substituted for notification in "Gazette," Jan. 24th); Sec. Lt. (Hon. Lt.) J. Robertson, Jan. 18th (substituted for notification in "Gazette," Feb. 4th), Jan. 9th, Lt. A. A. MacConnell, Jan. 19th; Capt. A. D. Bateman, Sec. Lt. A. G. Clayton, Jan. 20th; Sec. Lt. (Hon. Lt.) L. C. Atwood, Capt. R. Cadman, Capt. N. F. Stockbridge, Jan. 21st; Sec. Lt. A. J. Christie, Sec. Lt. C. M. S. Churchill, Sec. Lt. C. W. Claire, Lt. A. L. Thomas, Jan. 22nd; Maj. G. H. Gordon, Sec. Lt. (actg. Lt.) H. Hanson, Sec. Lt. D. P. McN. Laing, Jan. 23rd; Sec. Lt. A. Cornall-Tolley, Lt. W. T. H. Hawkins, Jan. 24th; Sec. Lt. W. E. Norton, Jan. 25th; Lt. W. S. Pattinson, Jan. 26th; Lt. H. C. Nelson, Jan. 27th; Capt. D. A. H. Legard, Sec. Lt. (Hon. Lt.) (actg. Lt.) L. J. C. Lord, Jan. 28th; Sec. Lt. W. A. Frame, Lt. C. A. Lunghi, Jan. 29th; Capt. G. D. Meynell, Jan. 30th, Sec. Lt. L. Palgrave, Lt. J. H. B. Porter, Feb. 1st; Lt. H. C. Newton, Feb 2nd; Lt. D. Parker, Capt. H. W. Plews, Feb. 3rd; Lt. K. Messervy, Feb. 4th; Sec. Lt. H. G. Hawkes Feb. 5th.

Lt. A. S. Donaldson relinquishes his commn. on account of ill-health, Feb. 15th.

Sec. Lt. J. A. Smith relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Feb. 15th.

PHYSICAL TRAINING BRANCH.—Lts. to be actg. Capts. while empld. as Capts.:—K. S. Hunter, from (Ad.), June 1st, 1918; G. L. Moss, from (O.), Aug. 26th, 1918.

Sec. Lt. P. W. Smith to be actg. Capt. while empld. as Capt., from (A.), Feb. 1st.

T. Butterfield (temp. Lt., attd. L'pool R.) is granted a temp. commn. as Lt., seny. from April 1st, 1918, and to be actg. Capt. while empld. as Capt., Aug. 10th, 1918.

S. D. Harrower (Sec. Lt., Bedf. R.) is granted a temp. commn. as Sec. Lt., and to be actg. Capt. while empld. as Capt., Sept. 27th, 1918.

G. H. Price (Sec. Lt., Middx. R., T.F.) is granted a temp. commn. as Sec. Lt., seny. from April 1st, 1918, and to be actg. Lt. while empld. as Lt., July 16th, 1918.

MEDICAL BRANCH.—A. S. Glynn, M.B. (temp. Capt., R.A.M.C.), is granted a temp. commn. as Capt., Nov. 3rd, 1918, seny. from April 1st, 1918.

G. McK. Thomas is granted a temp. commn. as Lt., Feb. 12th.

Capt. A. E. McCulloch is transferred to unempld. list, Jan. 19th.

Capt. L. G. Davies relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Feb. 15th.

DENTAL BRANCH.—Lt. H. Wardill to be Lt., from (A.), July 23rd, 1918.

MEMORANDA.—Sec. Lt. (Hon. Capt.) W. A. Moore to be actg. Maj. while specially empld., Oct. 17th, 1918.

Lt. J. F. Shaw is granted the hon. rank of Capt., Dec. 18th, 1918.

Sec. Lt. T. MacD. Kellough to take rank and prec. as if his appt. as Sec. Lt. bore date, Dec. 4th, 1918.

Sec. Lt. A. E. Cheal relinquishes his commn. on ceasing to be empld., Aug. 27th, 1918.

The following are transferred to unempld. list, from (S.O.):—Sec. Lt. (actg. Lt.) G. F. Allison, Jan. 31st; Maj. (actg. Lt.-Col.) H. A. Browne, Feb. 1st; Maj. J. K. Curwen, Feb. 5th; Lt.-Col. (actg. Brig.-Gen.) G. Livingston, C.M.G., Feb. 14th.

Lt.-Col. (actg. Brig.-Gen.) F. C. Jenkins, C.B.E., Feb. 15th, and is granted the hon. rank of Brig.-Gen.

Capt. P. A. Denny (Arg. and Suthd. Highrs.) relinquishes his commn. on account of ill-health, Feb. 15th.

WAR OFFICE, Feb. 15th.

REGULAR FORCES. — ESTABLISHMENTS. — R.F.C.—MIL. WING.—Adjt.—Temp. Sec. Lt. A. S. Thompson, Gen. List, from a Flying Officer, and to be temp. Capt. (with pay and allces. of Lt.) whilst so empld., Oct 8th, 1917.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, Feb. 13th.

The following officers were severally introduced into the presence of the King, when his Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

THE MOST HONOURABLE ORDER OF THE BATH (MILITARY DIVISION).—Received the honour of Knighthood: Knight Commander.—Maj.-Gen. Sefton Brancker, R.A.F.

COMPANIONS.—Maj.-Gen. Richard Munday, R.A.F., and Brig.-Gen. Lionel Charlton, R.A.F.

THE MOST DISTINGUISHED ORDER OF SAINT MICHAEL AND SAINT GEORGE.—Companions.—Brig.-Gen. Ralph Bagnall-Wild, R.A.F., Col. Arthur Bigsworth, R.A.F., and Col. Toni Mackie, R.A.F.

THE DISTINGUISHED SERVICE ORDER AND THE MILITARY CROSS AND BAR.—Capt. Donald MacLaren, Can. Sqdn., R.A.F.

THE DISTINGUISHED SERVICE ORDER.—Lt.-Col. Charles Rathborne, R.A.F.

The King then conferred decorations as follows:—

THE MILITARY CROSS.—Capt. Robert Dodds, Can. Inf., attd. R.A.F.; Lt. David Burgess, R.A.F.; Lt. Hugh Crichton, R.A.F.; Lt. Cecil Richards, late R.A.F.

BUCKINGHAM PALACE, Feb. 15th.

The King held an Investiture in the Ball Room of the Palace at 10.30 o'clock this morning.

The following officer was invested with the Distinguished Service Order:—

Capt. Arthur Cobby, A.F.C.

The King then conferred decorations as follows:—

TWO BARS TO THE DISTINGUISHED SERVICE CROSS.—Capt. Joseph Fall, R.A.F.

THE DISTINGUISHED SERVICE CROSS.—Maj. Edward Hopcraft, R.A.F.; Capt. John Hunter, R.A.F.; Capt. John Scott, R.A.F.

THE MILITARY CROSS.—Capt. John Duigan, A.F.C.

ADMIRALTY APPOINTMENTS.

The following appts. have been made:—

FEB. 12th.—Lt.—E. O. Patter, to "Furious," Feb. 11th.

R.N.R.—Mid. (temp.).—G. Matveieff, to "Argus."

FEB 14th.—Mate.—J. Booth, to "Furious," Feb. 13th.

FEB. 13th.—R.N.R.—Lt.—A. G. Morgan, D.S.C., to "Argus," Feb. 8th.

THE CASUALTY LIST.

MILITARY.

CASUALTIES AND REPATRIATIONS AMONG WT.OS., N.C.O.S., AND MEN. THE DATES ARE THOSE OF THE OFFICIAL LIST.

The following soldiers, who were prisoners of war in Germany, have been released, and have arrived in England:—

FEB. 3rd.—R.F.C.—Johnston 2458 Cpl. R. G. (Tillicoultry); Summers 13958 Cpl. W. (Harlesden).

The following soldiers, who were prisoners of war in Turkey, have been released, and have arrived in England:—

AUSTRALIAN IMPERIAL FORCE.

FEB. 4th.—Aust. F.C.—Hudson 12 K. L.

DIED.

FEB. 4th.—Aust. F.C.—Thorburn 3485 W. H.

FEB. 6th.—Aust. F.C.—Davis 3310 F. G.; Shilcock 769 W. C.

AIR FORCE.

Reported Feb. 14th.

REPATRIATED.—Bennett, Lt. C. D.; Pattisson, Lt. J. R.; Robertson, Lt. J. A. M.; Sinclair, Lt. L. R.; Smith, Capt. S. C. W.; Wesson, Sec. Lt. J. S.

Reported Feb. 15th.

CADETS KILLED.—Frederick, C. C.
Johnson, A. E.
Littley, J.

REPATRIATED.—Leash, Lt. J. W.; Owen, Capt. J. C. F.; Patterson, Lt. A.; Smith, Lt. G. J.; Smith, Capt. L. A.; Smith, Lt. N.; Weir, Capt. A. G.

CORRECTION.—KILLED.—King, Capt. C. F., should read King, Capt. C. F., M.C., D.F.C.

Reported Feb. 18th.

KILLED.—Robertson, Lt. P.
Sinclair, Sec. Lt. R.
Webster, Lt. A.

White, Sec. Lt. F. H.
DIED OF INJURIES.—Berkley, Lt. C.
DIED.—Hucks, Capt. B. C.
Wilkinson, Lt. C.
REPATRIATED.—Britton, Sec. Lt. E. A. C.; Dawson, Lt. S., D.F.C.; Nelson, Lt. R. C.; Pearson, Lt. J. McL.

CASUALTIES AND REPATRIATIONS AMONG AIRMEN. THE DATES ARE THOSE OF THE OFFICIAL LIST.

DIED.

FEB. 12th.—Bridgland 405025 3rd Air Mech. C. W. (Bermondsey); Byrne 404297 3rd Air Mech. G. E. C. (Plymouth); Castle 403881 3rd Air Mech. W. (Putney); Doran 233242 2nd Clk. J. (Southampton); Evans 301289 Serjt. Mech. F. (Chester); Lewis 138115 2nd Air Mech. J. (London, N.); McFarlane 77765 2nd Air Mech. W. (Wishaw); McGregor 89381 Pte. A. (Thornley); Ormes 136546 3rd Air Mech. R. A. (Walthamstow); Pitt 45684 1st Air Mech. R. T. W. (Clapton Park, N.E.); Vickery 85216 2nd Pte E. L. (Hackney, N.E.).

FEB. 13th.—Bate 38754 L/A J. T. (Harborne, Birmingham); Bignall 6407 Cpl. H. (Nottingham); Howell 202722 P/O D. (Peterson); Mee 100930 2nd A/C G. I. (Manchester); Sapsford 33799 L/A/C G. L. (Enfield); Wilson 162818 3rd Air Mech. H. J. (Coventry).

DIED OF INJURIES.

FEB. 12th.—Nethercott 67570 1st Pte T. R. (London, E.).

DIED OF WOUNDS.

FEB. 13th.—Yates 103484 3rd Air Mech. H. (Liverpool).

DROWNED.

FEB. 12th.—Guy 79556 2nd Air Mech. G. T. (Liverpool).

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.

FEB. 13th.—Kent 163247 2nd Pte. F. R. (Bristol); Lear 22902 Cpl. Mech. J. (Hull); Timbrell 162322 2nd Pte. A. (Nailsworth); Williams 131859 3rd Air Mech. H. J. (Wood Green).

REPATRIATED.

FEB. 12th.—Bailey 3740 1st Pte. A. F. (Kettering); Canning 206109 1st Pte. S. A. (Tottenham, N.); Crites 98457 Serjt. Mech. C. P. (Ontario, Canada); Dangerfield 170 Serjt. Mech. J. (Shepherd's Bush); Davies 4356 Serjt. Mech. T. H. C. (Tonpentre); Fletcher 170290 Cl. B Cadet P. (Sandown, Isle of Wight); Guyot 36287 3rd Air Mech. J. (Bushey, Watford); Harding 3467 1st Air Mech. H. A. (Swindon); Holden 2259 1st Air Mech. W. (Warrington); Irwin 3389 Serjt. Mech. B. (Carbis Bay); Law 6537 1st Air Mech. L. O. (Harrogate); Long 103725 1st Pte. W. T. (Cardiff); Metcalfe 24236 3rd Air Mech. C. W. (Gomersall); Morton 2173 Serjt. Mech. G. J. (Whitefield); Moult 77562 1st Pte. W. (Hyson Green).

FEB. 13th.—Jones P/28402 Cl. B. Cadet W. E. (Tunbridge Wells); Jones 217874 P/O W. E. (Cheltenham); Oliver 7655 Serjt. Mech. S. J. (Buttlands Wells); Reed 108592 Serjt. Mech. J. H. (East Dulwich); Richman 61852 1st Pte. W. (Greenodd); Sinclair 13809 1st Air Mech. H. L. (Hermitage); Steward 317014 Serjt. Mech. G. H. (Edinburgh); Sutcliffe 407086 Cpl. Mech F. R. (Melksham); Vitty J/1769 P/O C. H. (Darlington); Wallace 3118 Serjt. Mech. A. C. (Edinburgh); Wilding 100000 Serjt. Mech. J. (Warrington).

PERSONAL NOTICES.

NAVAL.

ENGAGEMENT.

BAYLEY—PEAKE.—The engagement is announced, and the marriage will shortly take place, between Capt. R. Maurice Bayley, D.F.C., R.A.F. (late R.N.), son of Mr. Ernest W. Bayley, of Rye, Sussex, and Enid Care, younger daughter of Mr. and Mrs. F. T. Peake, Port Tewfik, Egypt.

MARRIAGE.

MASON—FRENCH.—On Oct. 15th, 1918, at St. Mary's, Holly Place, Capt. John Melbourne Mason, D.S.C., D.F.C., R.A.F., eldest son of the late Mr. and Mrs. Kenyon Mason, was married to Alma, eldest daughter of W. G. French, of Sydney, by the Rev. J. P. Valentine.

MILITARY.

DEATHS.

CLIFFORD.—Lieut. Colin Hamley Clifford, R.A.F., who died on Feb. 10th of double pneumonia following influenza at the R.F.C. Hospital, Eaton Square, was the youngest son of Mr. and Mrs. Geo. W. Clifford, of Bournemouth.

He enlisted in October, 1914, in R.F.C. as air mechanic, was promoted Flight Serjeant in December, 1915, and went to France in 1916, obtaining his pilot's certificate in the same year. In February, 1917, he received his commission, and was actively engaged in night flying in the defence of London during the raids of that year. He met with a bad flying accident which rendered him unfit for flying for some time, but returned to ground duty about February, 1918. He was educated at Wimborne College, Wimborne. Mr. Clifford married Evangeline Hilliard, of Down Street, Mayfair, last September.

DUNLOP HILL.—Major Alan Dunlop Hill, R.A. and R.A.F., who died on Feb. 8th, at 55th Casualty Clearing Station, France, from pneumonia following influenza, was the husband of Noël Dunlop Hill, St. Andrew's.

GARROD.—Lieut. Basil Rahere Garrod, R.A.F., whose death was announced last week, was educated at the New Beacon, Sevenoaks, Marlborough, and the Royal Military College. On passing out of Sandhurst, in December, 1915, he was gazetted to the 1st Loyal North Lancashire Regt. After a year at Felixstowe with the Reserve Battalion he joined his regiment in France in January, 1917. He was invalided home with trench fever in the following July. In November of the same year he was attached to the R.F.C., and returned to France as senior observer with the 149th (night-flying) Squadron, in May, 1918. He was serving with the squadron at the time of his death.

KING.—Capt. Cecil Frederick King, M.C., D.F.C., R.A.F., the son of Mr. and Mrs. F. H. King, Springfield Dukes, Chelmsford, was recently killed, owing to a collision in the air, at Sedgeford, Norfolk. Capt. King, who was 19 years of age, was educated at Charterhouse (Verites). On leaving school early in 1917 he joined the Royal Flying Corps, and in September of the same year he went to France, where he served continuously for 13 months as Flying Officer and Flight Commander. He shot down 22 enemy machines, 19 of which were officially confirmed, and also did fine work in attacking enemy troops at low altitudes with his machine-guns and bombs. He was awarded the French Croix de Guerre avec Palme for services rendered to the French Army during the second battle of the Marne, July, 1918. Capt. King was recently transferred to Sedgeford as a Fighting Instructor.

ENGAGEMENT.

GLYNN—KING.—The engagement is announced between Capt. Clive B. Glynn, D.F.C., Liverpool Scottish and R.A.F., fifth son of Dr. T. R. Glynn and Mrs. Glynn, of Liverpool, and Nerquis Hall, Flintshire, and Marian, youngest daughter of Mr. and Mrs. James King, of Dawlish, Devon, and granddaughter of the late Mr. Joseph Nicholls, of White Hall, Handsworth, and Seavington House, Somerset.

MARRIAGE.

WILLIAMS—GORDON BELL.—The marriage took place on Feb. 18th between Capt. Charles Romer Williams,, late of the Welsh Guards, and Eleanor, widow of Capt. Charles Gordon Bell, R.F.C., at the Chapel Royal, Savoy.

BIRTH.

GAME.—On Feb. 15th, at 64, Harnham Road, Salisbury, the wife of Colonel Philip Game, R.A. (Acting Major-General, R.A.F.), of a daughter.

AIR FORCE.

DEATH.

STRANSOM.—Lieut. Norman G. Stranson, R.A.F., who was reported missing on the Western Front on May 10th last, is now officially presumed killed on that date. He was the second son of Mr. and Mrs. Stransom, of Hounslow, and was 22 years of age.

ENGAGEMENTS.

CLEGHORN—BARR.—The marriage of Lieut.-Col. Alexander Cleghorn, R.A.F., elder son of Mr. and Mrs. Alexander Cleghorn, 14, Hatfield Drive, Glasgow, and Morag, only daughter of Emeritus Professor Archibald Barr, LL.D., and Mrs. Barr, Westerton-of-Mugdock, Milngavie, will take place (leave permitting) in the Bute Hall, Glasgow University, on Wednesday, March 5th, at 2 p.m. No invitations are being issued, but all friends will be welcome at the ceremony.

WEDGWOOD-MALTASS.—The engagement is announced of Lieut. Josiah (Peter) Wedgwood, R.A.F., elder son of the late Rev. Josiah Wedgwood, of Norwich, and Mrs. Wedgwood, of Neatishead, Norfolk, and Edith Helen, only daughter and younger child of the late Neville E. Maltass, of Westbourne Terrace Road and Harrow, and the late Mrs. Maltass.

MARRIAGES.

CORBITT—BARKAS.—On Feb. 11th, at Richmond, Capt. A. J. Corbitt, R.A.F., was married to Madelaine Jeanne Barkas.

VAN VELDEN—FORD.—On Feb. 5th, at Reading, C. J. Hugo Van Velden, R.A.F., Oudtshoorn, S.A., was married to Delia R. Ford, daughter of the late Douglas M. Ford, and Mrs. Ford, of Tidenham Chase, Monmouth.

WILLIAMS—GIBSON.—On Feb. 13th, at St. Mary's Church, Cowes, Major E. L. Williams, R.A.F., was married to Biddy, daughter of Dr. and Mrs. Gibson, of Cowes.

BIRTHS.

DOBREE-TOPLIS.—On Feb. 16th, at "Annandale," Private Nursing Home, Redhill, Surrey, to Dorothy, wife of Lieut. A. A. Dobrée-Toplis, R.A.F.—a son.

LOVEMORE.—On Feb. 8th, at the Nursing Home, 22, The Crescent, Rugby, the wife of N. B. Lovemore, R.A.F. (The Haven, Hilton), of a son and daughter.

* * *

Lieut. Hatton Charles Conron, R.A.F., of the 205th Squadron, has been missing since May 18th. His machine (D.H.4, No. 8,410) was last seen leaving the squadron and descending N.W. of Quesnal. His observer was officially reported killed, but no mention was made of the pilot, and all inquiries have failed to elicit any information. Would any members of the squadron who were over the enemy lines with him on that day, or others who may have heard of his fate, kindly communicate with S. R. Conron, 44, Hyde Park Gate, London, S.W.7?

Lieut. P. H. Goodhugh, R.A.F., was taken prisoner on Aug. 30th, 1918. Any information will be gratefully received by Miss Goodhugh, c/o Bank of Montreal, Waterloo Place, London.

* * *

Any information concerning Sec. Lieut. C. C. Brouncker, R.A.F. (pilot), who has been missing since Nov. 4th last, and Sec. Lieut. C. D. Macdonald, R.A.F. (observer), flying a D.H.9 machine, No. F.1,187, will be gratefully received by H. A. J. Brouncker, The Elms, Parkside, Eltham, Kent.

A TYPOGRAPHICAL ERROR.

The Editor of The Aeroplane desires to thank numerous readers who have drawn attention to an error which appeared in The Aeroplane last week, when a photograph illustrating a squadron of D.H.9 biplanes bore an inscription stating that the machines were D.H.9as. The error was, in fact, purely typographical; but the correctors afford interesting evidence of the care with which The Aeroplane is read.

ATHLETICS IN THE R.A.F.

On Thursday, February 13th, the first of a series of inter-Service Association matches was played on the Fulham Football Ground, the Army (London District) playing the R.A.F. After a good game, which was necessarily rather slow, owing to the hard and slippery state of the ground, the match ended with both teams having scored two goals each.

On Wednesday, February 19th, teams representing England and Scotland in the Royal Air Force will meet at Chelsea Football Ground. This will be the first of a series of R.A.F. international matches.

GRATUITIES IN THE R.A.F.

Sir,—May I be allowed to express my thanks to you for bringing a grievance, which so many of us have, to public attention. My case is practically on all fours with that of "An Officer in the R.A.F.," and I would respectfully urge you, who have always been so ready to help the Flying Services through all the changing scenes of their past life, to use your influence to see that this injustice is put right as soon as possible, should no immediate action be taken by the Air Ministry.

(Capt. R.A.F.)

A PENSIONS CASE.

The Ministry of Pensions has had brought to its notice the case of an airman, 21 years of age, suffering from gunshot wounds received while descending in a parachute, and gas poisoning. He has also lost an eye. The man, who has three children, is in receipt of a pension of 10s. 6d. a week. Further information is desired, by the Ministry, to establish the truth of the statement, in order that the pension may be increased. It is understood that the man, who comes from South Wales, is living in Camberwell.

GENERAL BRANCKER'S VIEWS.

Major-Gen. Sir W. S. Brancker, speaking at a luncheon given by the Lord Mayor of Newcastle on Feb. 12th in connection with the opening of an aircraft exhibition in the City, said that the future of commercial aviation lay not in short distance passenger flights, but in vast distances, in opening up undeveloped countries, and in forming an even stronger link with our overseas dominions.

The future would see mails carried by 300-mile stages to Cape Town, Calcutta, and probably Australia. So far as the Atlantic was concerned, the airship would be used. The Government was alive to the future of aviation, but was limited to what the Treasury, now pledged to retrenchment, would give.

The country would have to depend on individual enterprise. The League of Nations involved, to a certain extent, disarmament, but England was the one nation that would have to keep up an appreciable standing Air Force if we were to be safe in the future.

Probably the future safety of the country depended on the air, and we therefore depended on our warlike strength in the air. Other countries were more self-contained, and, on the declaration of war, would have large air fleets at their immediate disposal.

The exhibition, which includes both British and enemy machines, was opened by Brig.-General Becke. It is being held by the Royal Air Force to show how aviation has been developed during the war.

ARMY PROPAGANDA.

On Feb. 2nd the original draft of the first leaflet dropped by British aviators among German troops was sold by Mr. George Robey at the Victory Matinée at the Coliseum.

In an accompanying letter Major-Gen. Swinton, the original "Eye-Witness" with the British Forces in France, says the message was prepared (in good German transcript) by him in September, 1914, for the German soldiers on the Western front, to let them know the true situation. In the beginning of October, 1914, 25,000 copies were printed in Paris, and dropped over the enemy lines by our aeroplanes. The leaflets were printed on bright paper on both sides.

It tells of Allied unity and enormous reserve power; denies allegations that we provoked the war and that we ill-treated German soldiers; declares that Germany has already lost her colonies, that Japan is with us, and that the British Fleet is all-powerful and holds the key of final victory.

THE LATE ANTHONY WESTLAKE.

It is with regret that one announces the death of Mr. Anthony J. Westlake, from septic pneumonia, at the age of 49. One who knew him well writes:—

His name will be familiar to all those who in the early days of aviation identified themselves with the conquest of the air. Mr. Westlake, although not, strictly speaking, one of the pioneers, came on the scene so early as to be one of those whose work forwarded the cause of aeronautics to some considerable degree in the sense of original research painstakingly carried out.

He began his business career quite early in life as a motor-car constructor, but fascinated by the more romantic profession then opening out in aviation he turned his energies towards the construction of the flying machine. His motor-car experience was latterly of great service to him, and for some considerable period he held a technical position with the Gnôme and Le Rhône Company, where he assisted considerably with the development of the rotary engine.

An earlier engagement was with the Graham White Company, where, in the comparatively small days before the war, he superintended their metal shops, his work placing the Company in a position to undertake far more extensive contracts at the outbreak of war. He joined the Royal Aeronautical Society early in 1917.

All those who remember Mr. Westlake, and he had many friends, will bear witness to his many amiable qualities and his invariable optimism. Just before he died, Mr. Westlake had taken up a responsible post in the Ministry of Munitions, which he held until his death.

Mr. Westlake's father, who has reached the advanced age of 80, is still living, and his name is familiar as a great authority on mediæval art—particularly stained glass. All those who knew the subject of this memoir will realise the effect this had on his life and career. Mingled with the practical qualities of a sound engineer, there was, in his character, a veiled mysticism which contributed very largely to that singularly charming personality to which all his friends will bear witness.



The AEROPLANE

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ON THE AIR NAVIGATION BILL.

Since the last issue of this paper appeared, the Aerial Navigation Bill has become the Air Navigation Bill, chiefly, it seems, because the Under-Secretary for the Air Ministry finds that "air" is an easier word to pronounce than "Aerial." One recalls that the same Right Hon. and Gallant Member preferred the word "airman" to the word "aviator," and disliked the word "aviation," some six or seven years ago.

In this case, however, one is disposed to agree with the alteration, because the older title might suggest an aerial Bill on navigation, whereas the altered title can only refer to a Bill on the navigation of the air. Philologically, or grammatically, the new title is bad, for both navigation and air are substantives, and so cannot qualify one another, but the English language is so carelessly handled, both in fact and form, in the modern Parliament that philological inexactitudes scarcely count in these days.

Be that as it may, the Bill has passed its Second Reading, the Committee Stage, the Report Stage, and its Third Reading, and may by now have become an Act. For good or evil no amount of discussion can alter it till it comes up for reconsideration at the beginning of next year. It is purely a temporary measure, put forward in all good faith by the Air Ministry so that civilian flying may become legal. The only doubtful quantity is the effect of the regulations which are to be issued under the Act when it comes into force. And here there seems to be no need for undue anxiety.

The Power Behind.

One can scarcely be accused of giving away State secrets when one says that the real power behind the scenes, in drawing up these regulations, is the Society of British Aircraft Constructors, more commonly known as the S.B.A.C. It is obvious from the experiences of war that the efficiency of the R.A.F.—which means the safety of the Empire in the future—is in the hands of S.B.A.C. For, without the loyal help and good will of the S.B.A.C., the R.A.F. cannot have the best aeroplanes and engines.

Despite General Seely's asseveration, some years before the war, that "the best brains in the nation" were concentrated in the Royal Aircraft Factory, the ultimate test of war proved beyond argument that the "Trade"—despised and rejected of Government men, such as Mr. Lanchester and others of his kidney—held not merely the key to the situation but the whole door and all its fittings. Without the "Trade" the Flying Services could not have either the quantity or the quality of aircraft needed to beat the Hun. Our ultimate "command of the air"—a possibility in which General Henderson publicly expressed his disbelief—was obtained by means of Trade aeroplanes and Trade engines.

To-day, those in authority at the Air Ministry, having learned their lesson in the grim school of active service, recognise that progress can come only from free and open competition, and not at all from the vitiated and confined atmosphere of a Government dockyard, such as the late unlamented Royal Aircraft Factory tried to become. The result is that the said Authorities have the kindliest possible feelings towards the Aircraft Industry, and are working on the most amicable terms with the S.B.A.C.

Making the Regulations.

If one is not misinformed, the method of settling the regulations which are to be enforced under the Air Navigation Act has been somewhat as follows:—

A number of officials of the Bolo House, chiefly of the minor and obstructive kind, one imagines, have drawn up—each in his own department—a mass of complicated regulations, each group of which is carefully calculated to enhance the authority of the department concerned and to increase the importance of the chief of that department. One department is to inspect, consider, and approve, or disapprove, all designs on paper. Another is to do likewise with stress diagrams. Another is to do likewise with material. And so on, through partly finished parts, assembling, rigging, and complete machines. Another is to watch all trials and tests. Another is to inspect aerodromes and accommodation generally. Another is to register the age, size, birthmarks, and personal habits of every passenger before every flight. Another is to elaborate tests as to the sobriety and moral character of every pilot before he leaves the ground for each trip. Another department is to keep officials at every aerodrome to remove every sparking plug of every engine and make sure that it is performing its natural functions before any engine is allowed to be started. Each department is to maintain a staff of clerks, distributed throughout the country in specially built garden cities, to record, register, and transmit in triplicate to the Air Ministry (Civil Department) reports on each sparking plug, pilot, passenger, engine, aeroplane, aerodrome, split-pin, and other such vital matters as may affect Air Navigation. Thus unemployment of Bolo officials would be prevented, and the horn of the office-wallah would be exalted.

A Sound Policy.

Fortunately the Chiefs at the Air Ministry have more sense than their subordinates. They, in order to co-operate with the S.B.A.C., passed all these fool draft regulations along for the consideration of the Aircraft Industry. The S.B.A.C. formed a Committee of sound practical men, with Sir Sefton Brancker as chairman. This Committee sat on the proposed regulations, one by one, rapidly and effectively. Where a proposal was

reasonable it was accepted. Where it was not, the Committee said politely but in effect "To Hell with it," and put a large blue pencil through it. And the new High Authorities at the Bolo House, being themselves eminently sensible practical men, seem to have agreed in practically everything with the S.B.A.C. Which is very much as it should be.

Possibly, not having received any official communication on the subject either from the Air Ministry or from the S.B.A.C., one has not reported the proceedings with even the mitigated accuracy of Hansard, but one gathers unofficially that in a general way the original drafting and the subsequent disintegration of the regulations made by the place-providing, progress-preventing bureaucrats of the Bolo House followed the lines hereinbefore indicated.

Which is why one does not feel very anxious about the new regulations. When the Chiefs of a great department have the sense to draft their laws in collaboration with the people to be governed, instead of merely assuming them all to be potential criminals at the start—as in the case of our idiotic motoring laws—one feels a distinct respect for the said Chiefs, and one knows that they will have the cordial support of all those concerned with the progress of aeronautics.

C. G. G.

THE BILL IN THE HOUSE OF COMMONS.

But for the continued scarcity of paper, the proceedings in the House of Commons would have been printed in full. Unfortunately it is impossible to do so. Those who desire to read the debates *verbatim* can obtain copies of Hansard of the dates, Monday, February 17th, and Friday, February 21st, from this office for the sum of ninepence, post free. One has paid more for less amusing reading.

Under the circumstances the best one can do is to give a *précis* of the debate, with a running commentary thereon, and hope that none of the honourable members concerned will quarrel with one for omitting some of their gems of speech.

THE SECOND READING.

General Seely, in moving the Second Reading on February 17th, explained that the Law Officers of the Crown advised that the Air Ministry had no power to make Regulations for civilian flying without legislation. One is glad to have this explanation, for it accounts for the milk in the cocoanut, as it were, but—as the late Mr. E. V. B. Fisher used to remark—*not* for the hairy exterior.

He stated further that there was "no desire to impose upon civilian flying any restrictions which would in any way tend to prevent people from evolving new types or doing anything which they think will advance flying. But, of course, it is necessary to have power to secure the safety of the public." There is the keynote of the whole Bill. It boils down to the old saying of the classic menagerie showman: "Before we go any further, Ladies and Gentlemen, we must attend to the manners of this here establishment. Not that we wish to interfere with the harmless pursuits of the animals, but the feelin's of the Public *must* be considered. Bill, stop that monkey scratchin' hisself!"

The Under-Secretary explained that this was a temporary measure because later it would be necessary to legislate on a larger scale in accordance with the provisions of the International Convention to be agreed with the Allied Powers. This Bill would enable civilians to "commence to fly" and "the sooner we permit all those interested to fly the better for all concerned." With which all will agree.

Mr. Joynson-Hicks protested against "legislation being carried out at the whim of the Secretary of State," by "simply introducing an enabling measure" to "enable himself to make any kind of regulations he thinks fit" which would "probably form the basis of future legislation." He said that "these regulations are bound to interfere with the liberty of the subject in every possible way," and advocated the introduction of the "model Bill" drawn up by the Civil Aerial Transport Committee.

Candidly one would prefer an Act drawn up in collaboration by General Trenchard, General Sykes, and the S.B.A.C. Committee to anything produced by that comic omnium-gatherum the C.A.T. Committee, humorously known as the Cat and Dog Committee, owing to the way in which it squabbled. However, Mr. Joynson-Hicks seems to think otherwise. He also doubted whether the Secretary of State could "take away the right of any man to prevent flying over his own land"—which is the old *usque ad cœlum* doctrine applied to private property, and is as ridiculous as it is old.

He further advocated that "the type of aircraft should be certified as being an airworthy type," and said that "it would be quite out of the question to attempt to deal with the certication of the air-worthiness of any individual machine." Here Mr. Joynson-Hicks is absolutely wrong, for unless each machine is inspected there is nothing to prevent the aircraft jerry-builder from getting a certificate on one good machine, and cutting costs on all the rest. He might not do it in machines for home use, but he might do it on foreign orders, and the reputation of the whole Aircraft Industry would suffer in consequence.

On the subject of aerodromes, Mr. Joynson-Hicks seemed to think that the regulations should prevent the use of certain grounds which are known to be unsafe. Which is a reasonable proposition.

As regards third party damage caused by aeroplane accidents, he said that the C.A.T. Committee thought that "an aeroplane should be treated as liable for all the damage it creates, and that it should not be necessary for anybody to prove, or attempt to prove, negligence, because it would be impossible." Here again one disagrees. Presumably he includes the owner and/or pilot "as liable." If it did much damage the aeroplane would not probably itself be in a fit state to be interested in the proceedings. An accident is an accident and may be covered by anti-aircraft insurance, but the great majority of aeroplane accidents which do damage are caused by negligence, and in a very great number of cases negligence on the part of the pilot can be proved.

Mr. Mosley, who claimed to be the youngest member of the House, and to have had a year's experience of flying and a considerable crash, made a somewhat flowery and needlessly polysyllabic speech from which one gathers that his "contention" is that the air is the very last conceivable sphere of human activity to be brought too closely beneath the eye of the clerk in Whitehall." He objected to inspection, and advocated heavy penalties when negligence could be proved. Personally one advocates both together. One is with him, however, when he objects to interference with design and says: "Imagine in a few years' time some enterprising manufacturer introducing a novel design to the Government Department. Consider the hunt that would ensue through dusty tomes for precedents, and the abrupt refusal when it was discovered that no analogous type had been used in the Great War." One cannot guarantee a succession of Trenchards and Sykeses at the Air Ministry, so one agrees that interference with progress must be blocked at the start.

Sir Fortescue Flannery supported the Bill as it stood, and pointed out that "No one has yet referred to the fact that the general provisions of this Bill are identical with the existing provisions and experience of some generations now of the relationship of the Government with the manufacture and carrying on of navigation by sea and travelling by railway and road on land." As he said, "no omnibus can run the streets of London without having had a certain amount of Government inspection and certification." At the same time he appealed to the Under Secretary for the Air to "do everything in his power to prevent the strangling of improvements which at one time so discredited the Board of Trade in their system of inspection of railways and steamships."

Lieut.-Col. Moore-Brabazon regretted that the Prime Minister had caused "a very excellent Minister, the Right Hon. Gentleman, the Member for Dundee, Mr. Churchill, to lead a double life," "by making him Secretary of State for Air as well as for War." He said that in this Bill the House was giving the Government "a blank cheque in aviation." Under the proposed system, he said, the manufacturers of this country must stop immediately, but he understood that the Under-Secretary for Air had already "consulted with the Trade" and had "promised some modifications." He asked for two assurances, firstly that people would be allowed to design their own machines without control, and secondly that the State should not be allowed to hamper the Industry by excessive inspection during the construction of machines. Government inspection had not helped aviation. Lord Kelvin said that dynamic flight was impossible. Government designed machines "even with all the help they got from scientific gentlemen" had been "knocked out" by private firms. He thought that the right body to inspect machines was Lloyd's and not the Government, for "Lloyd's insurance people" would have to come into commercial aviation. Which sentiments contain a very high percentage of truth and common sense.

Mr. Denniss agreed with the Bill because, as he said, "It is too soon to allow the British Public to be put at the mercy of every rash individual who chooses to go in for aeroplanes either for sport or for commercial purposes." Which also is sound sense, especially when one knows something of the behaviour of the air-hogs of the R.A.F., and of the get-rich-quick commercial propositions now afoot. He said that pilots' licences should be given by the Government. At the same time he warned the Government against permitting legislation analogous to the "red flag" law which "put England behind the Continent in the manufacture and development of motor traffic." He wanted to know whether, in view of the R.A.F. pioneer flights to India, "the Air Council will reserve to themselves all the rights of experimental flying from the United Kingdom to the various Dependencies. That is a matter which they might kill entirely by regulation." He also told a story of the conventional kind against the War Office of 1915, but omitted to give the War Office explanation as to why his magneto-making friend was turned down. One generally finds that in most matters affecting supply and organisation the War Office has been right.

Apropos the *usque ad cœlum* doctrine, Mr. Denniss pointed



HENDON AS IT IS: A Scene at the "top end" of the Aerodrome. The familiar railway bank and the houses on Hendon Hill will be recognised despite the new foreground

out that it does not apply in its inverted sense to ownership below ground—as applied to oil, for example—and he doubted its validity in law. He also raised objection to the word "aerial," which he alleged to be Greek.

Captain Wedgwood Benn welcomed the Bill because "it concentrated in the hands of the Air Ministry the various powers which might possibly be diffused among various Departments of the State." He wanted to know whether the Bill gave the Air Ministry power to run pioneer work in aerial navigation on the civilian side. Also, whether it was not possible to limit certification of aircraft to public service vehicles, so as to avoid interference in private enterprise by "unimaginative officials."

General Seely, replying, emphasised the fact that this was a temporary measure, to legalise civilian flying. He made the important announcement that certification (with which one imagines he includes inspection) would "be done daily by persons appointed by the manufacturers with the approval of the Air Ministry." This, he explained to Mr. Joynson-Hicks, would include the daily inspection of every machine, as on such a line as London to Manchester. Ordinary Statute Law would deal with such things as forging certificates. The Air Ministry was determined that "the State shall only endeavour to open the way to skill and energy."

As regards inspection of design, when going through the Regulations drawn up in the ordinary form, "following the precedent in regard to land craft" (whatever that may be), he found it laid down that "aircraft should be examined as to its *suitability and safety.*" He said that he struck out the word "suitability," because it seemed to him that the State had nothing to do with that. If anyone proposed to fly to Australia the Air Ministry would be delighted to help, and if he wanted to fly a new kind of machine which might seem to the Air Ministry ill-adapted for the purpose, he would not be stopped so long as the Air Ministry was satisfied that the machine was reasonably safe. As to suitability, one is of the opinion that public service vehicles ought to be certified as suitable as well as safe, and as for flying to Australia, that is a matter which can wait till the International Convention is fixed.

Replying to Colonel Moore-Brabazon, General Seely said that anybody could build aircraft without submitting designs to the Air Ministry, who would "only insist that they are reasonably safe." As to opening pioneer routes, the R.A.F. would take the duty on if the Treasury approved the expenditure. This Bill would not help, but it would enable people to begin experimental flying.

He also said that everybody was entitled to break his own neck. This will be a comforting ruling for would-be suicides, but one advocates strongly that the Public should be protected against such people, as well as against the mere fool experimenter and the reckless flier, and one disagrees utterly from General Seely's dictum that "After all, the risk to those below is similar only to the risk people have of being run over by motor-cars." One need not cross a road when a car is coming, but one cannot avoid overhead risks. General Seely said: "I do not think it necessary to require any form of inspection of machines to be flown by men themselves, nor is there any need that they should have certificates." A cheap-and-nasty aeroplane flown by a cheap-and-nasty pilot would be a constant menace to the Public and to the reputation of British aeronautics.

General Seely gave a definite pledge that the new Act should not be included in the Expiring Laws Continuance Bill. As regards third-party accidents, he said that the Attorney-General could not say whether negligence would have to be proved. Personally, he (General Seely) thought it would have to be proved.

The Bill then passed its Second Reading.

THE COMMITTEE STAGE.

The Committee stage was taken on the same day, Feb. 17th.

Mr. Joynson-Hicks moved that in Sub-Section 1, the words "with the approval of a Select or Grand Committee of the House of Commons" be inserted after "Secretary of State," apparently so as to limit the personal power of the Secretary of State in making regulations on his own account. He also asked that some of the proposed Regulations should be disclosed.

General Seely offered to hand round the Regulations as soon as possible.

Major Sir Henry Norman also wanted the Regulations before passing the Bill.

Mr. Joynson-Hicks suggested circulating the Regulations to the executive of the Parliamentary Air Committee, to which all M.Ps. interested in flying belonged.

Captain Wedgwood Benn promised that nobody would obstruct the Bill, and suggested circulating the Regulations also to the Air Force Committee, consisting of all M.Ps. who have served in the R.A.F. during the war.

General Seely promised to do so.

The amendment was withdrawn.

Mr. Denniss moved to substitute "air" for "aerial."

General Seely agreed that "aerial" was "a horrible word" and "so difficult to say." One merely asks why and when? He agreed to make the alteration in the Report Stage and the amendment was withdrawn.

Captain Wedgwood Benn moved to add, at the end of Sub-Section 1*b*, the words "used for carrying passengers, goods, and mails."

General Seely said that that was the intention, but, if accepted, it might prohibit the use of other words. He suggested "especially those used for the carriage of passengers, goods, and mails," then the State would be safeguarded if it had to inspect at some other time for some other purpose.' The suggestion was adopted.

Major Sir Henry Norman carried an amendment altering Sub-Section 1*e* to "the conditions under which goods and mails may be imported and exported, and passengers transported," thus making the sentence into decent English.

Mr. Joynson-Hicks wanted to know under what authority the Government appointed General Sykes to deal with civil aviation. He said that he was not sure how far the Air Council was the right body to deal with civil aviation, and did not think it right to put the whole control of civil aviation in this country under a military autocracy. One can assure Mr. Joynson-Hicks that it will be much better than putting it under a civilian bureaucracy, and he would have been more strictly correct if he had called the Air Council a military aristocracy, for it includes quite the best people available.

He suggested a sub-section decreeing the appointment of "civilian members of the Air Council to act only in connection with the question of civil aviation." The idea is not bad. Mr. Joynson-Hicks himself, and, say, Mr. Charles Bright, whose addendum to the Air Enquiry Committee's Report in 1916 was so prophetic and so valuable, would certainly be well fitted to look after civilian interests.

General Seely said that General Sykes' appointment to control civil aviation had been approved on legal advice, and the Bill would give power to make him a member of the Council. General Sykes would remain on the retired list of the R.A.F. A soldier was selected because practically everyone interested in flying had joined one or other branch of the Service. He pointed out that they had a considerable number of civilians on the Council—Mr. Churchill, who was demobilised; Lord Londonderry; Sir Arthur Duckham; Sir James Stevenson; and Sir John Hunter. Which is quite true, but none is a civilian member of the Council in the way which Mr. Joynson-Hicks suggested. Each is a specialist, and, except Mr. Churchill, none is really deeply concerned in, with, or for aeronautics as such.

Further, General Seely assured the House that the Government has "no intention of going into the aircraft manufacturing business." He said: "If we ever attempted to do it, what I say now would be brought up against us and make the thing impossible, for a Ministerial pledge is a Ministerial pledge that has to be kept as long as the Government survives." One does not expect this Government to survive for long, but it will probably bob up again in a re-edited edition, so it will be as well to file General Seely's words for reference. One has seen a good deal of Ministerial pledges in one way or another, and has heard many Ministerial utterances which have not proved strictly true—for example, the claim of a certain Colonel Seely to have 60 aeroplanes in flying order when he only had 13—so one is neither convinced nor impressed by pledges in Parliament.

Captain Wedgwood Benn dissented from Mr. Joynson-Hicks' criticisms because the Air Council sought power "not only to deal with all these aerial matters, but to prevent other Government Departments from interfering." That, as he said, "seems to be an extremely desirable thing." He pointed out that the civilian has "a very proper and well-grounded suspicion of military control," and that "the names of the most successful machines during the war prove how much we owe to the civilian manufacturer." Quite so, but Captain Benn forgets to mention that the greatest harm done to aviation and to the R.N.A.S. and to the R.F.C. was done by civilian "experts" pulling Service strings, and never by the Service people themselves. He concluded by hoping that "so far from military predominance after the war, the Ministry, which deals with the most progressive of sciences, will be kept in touch with the most progressive of civilian opinion." With which last sentiment all will agree.

And so the Bill passed the Committee Stage.

THE REPORT STAGE.

On Feb. 21st the Air Navigation Bill as amended in Committee was considered.

General Seely formally moved to use the word "Air" instead of "Aerial" in the title of the Bill, and this was accepted.

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Lieut.-Colonel Cecil L'Estrange Malone moved at the end of Sub-Section 1*a* to insert the words "for the conveyance of passengers, goods, or mails for hire or reward." He pointed out that the issue of the amendment was the restriction of individual right in experimental flying, and asked the Under-Secretary for Air to give the greatest possible scope to individual enterprise and energy.

General Seely entirely agreed with the spirit of the Amendment, but did not wish to accept it, for the reason that the actual words would limit inspection by the State to those who carried goods, passengers, or mails, it might be presumed for hire. Possibly some company, or some eccentric person, might evade the Regulations by not charging for their flights and might retard the progress of aviation by causing accidents with unsuitable machines. He again gave his assurance that the Air Ministry had no intention of interfering with experimental aeroplane building or flying.

The Amendment was then withdrawn.

Lieut.-Colonel Malone then moved two other verbal Amendments which permitted him to ask whether the appointment of Major-General Sykes to be Controller-General of Civil Aviation included only heavier-than-air craft.

Lieut.-Colonel Moore-Brabazon seconded the Amendments.

General Seely replied that General Sykes would be concerned with lighter-than-air as well as heavier-than-air craft. He said that although the Admiralty are principally concerned in the construction of lighter-than-air craft, the Controller-General of Civil Aviation will be charged with the mapping out of air routes, with securing landing grounds, the supervision of routes and regulations for air travel, with the arrangements to link up this country with the Continent and Overseas Dominions, and so on. All these involved heavier-than- as well as lighter-than-air machines, and would "come under General Sykes' purview."

General Seely then moved to insert in Sub-Section 1*b* the words "especially those used for carrying passengers, goods, or mails," and said that these words were put in to emphasise on behalf of the Government their intention to confine their activities to craft "which either wholly ply for hire or attempt to evade proper inspection." It will be noticed by the intelligent reader that these words are substantially the same as those proposed by Colonel Malone, but the skilful insertion of the word "especially" prevents the Act from being limited in its scope.

A slight discussion between the Speaker and General Seely, who had evidently made a mistake in the number of the sub-section to which he referred, resulted in the amendment being transferred to Sub-Section *a*.

Captain Wedgwood Benn asked whether the Air Ministry would be prevented from interfering with private individuals, or experimental enterprises.

General Seely explained again that the object of these words was to confine inspection to those who carried passengers, goods, or mails for hire, and "conceivably to extend it to those who might attempt to evade the Regulations by not charging for a service that was really not safe."

Lieut.-Colonel Moore-Brabazon moved to insert at the end of Sub-Section 1*b*, "but no such inspection, or certificate, shall be refused on the ground that plans were not submitted to the Secretary of State prior to the completion of the aircraft."

He said that this measure, which looked very innocent, gave power to inspect aircraft for a public service, but there was a possibility that the Government was going to control the design of all aircraft in this country. That would lead to absolute stagnation in the Aircraft Industry. Private firms must be allowed initiative in design. Private firms had almost invariably beaten the Government in design and in turning out successful aircraft. His proposal would make it more difficult for the Government to squash a radically new departure in design, for the machine would be brought complete for trial and would then have to be judged on its performance.

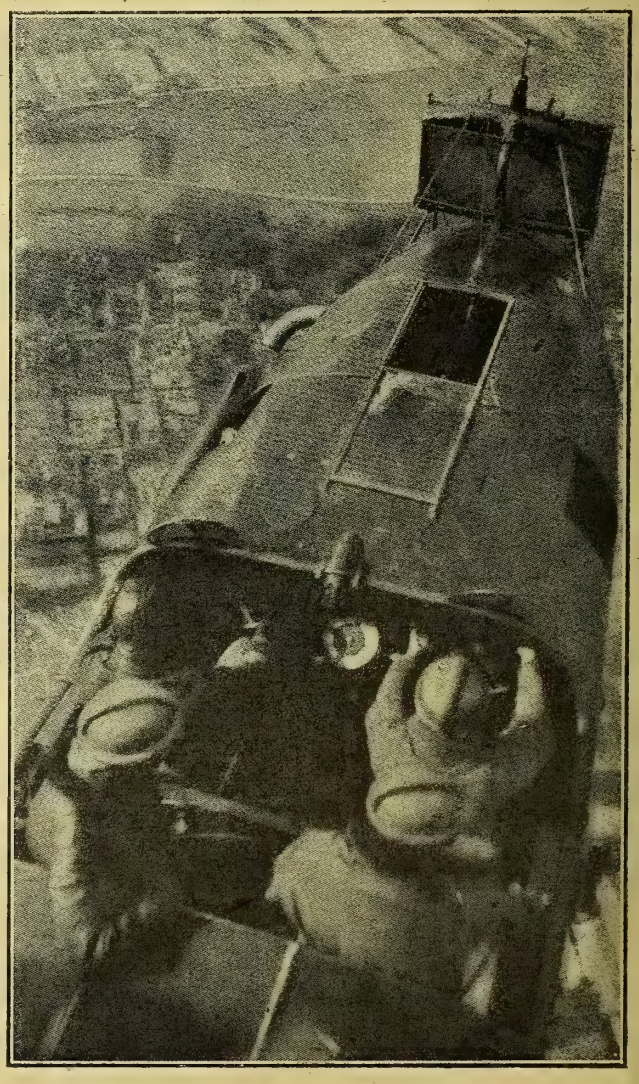
It would be dangerous to allow aircraft design to be centred in the Controller-General because that would assume that he must necessarily be the best man always. The Government must appreciate that with a load on its neck of this sort no firm was going to start exploiting new ideas merely to hand them over to the Government. He believed that at the back of the Bill was the idea that no machine should be built in this country unless it had the potential possibility of being turned into a war machine straight away. If the Government had that in mind, he protested.

He continued: "If the Government want aircraft built so that they can turn them into war machines at a moment's notice, then let the Government say so, and let them subsidise them, but do not let such a thing be introduced under cover of this Bill. If the Government are going to compel machines to be useful for war, then they are going to sacrifice their usefulness for commercial work."

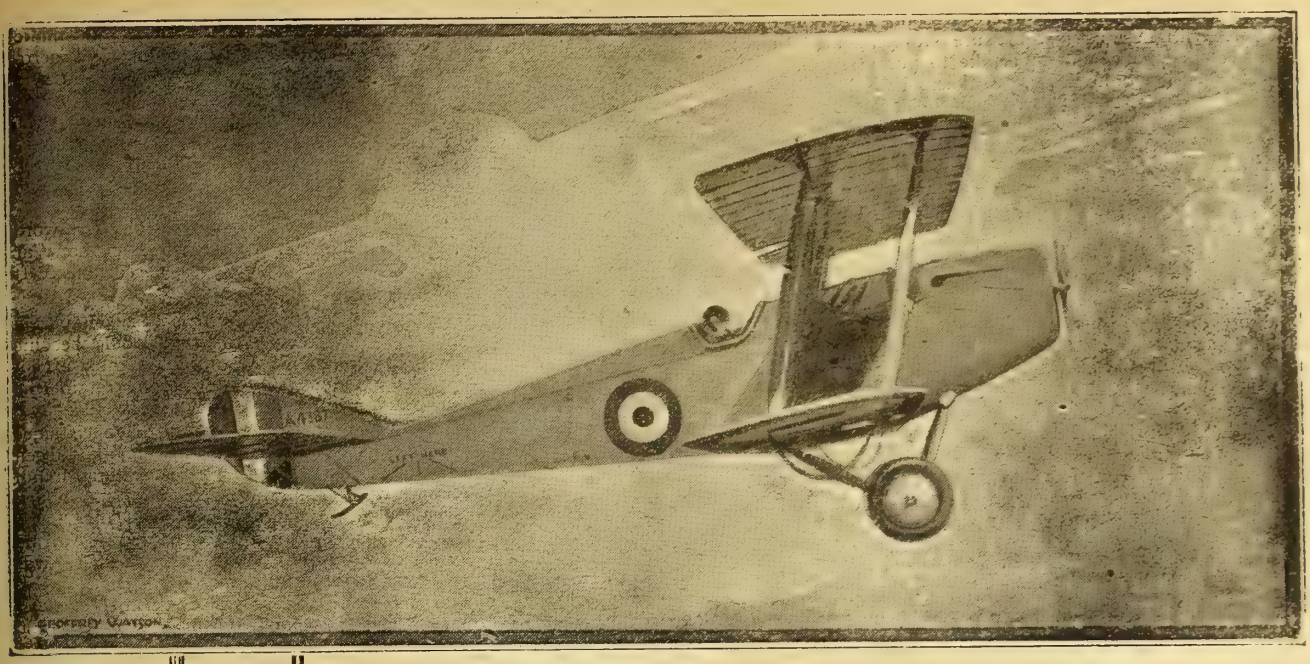
Major Oscar Guest seconded the Amendment, and said that as a pilot during the war for four or five years he felt rather strongly on the matter. Every encouragement must be given to invention in aeroplane design. He was convinced that five years from now aeroplanes would play a very large part in the transport of mails and goods throughout the world, and it seemed to him the question was whether this country was going to reap the benefit of that expansion and was going to win in the race of invention and progress. If we could secure the lead in civilian aircraft, as we undoubtedly now have in military aircraft, it would augment the commercial prosperity of the country.

General Seely quite agreed with every word that fell from the two honourable and gallant members, and welcomed Major Guest as a practical flying man, whose advice on these subjects would be of great value to the House. He suggested that, instead of putting the Amendment into the Bill, he should undertake to make it perfectly clear in the Regulations and even to make it more drastic and complete than in the Amendment. He quite agreed that they did not want any Government Department to keep on interfering with design. The duty of the Air Ministry was to see that aircraft were reasonably safe; it did not matter what they were like; they might be of a design of a most fantastic character; but unless it was proposed to carry people for hire, and they were bound to break the neck of the passenger, it was not their business to interfere. They would act solely on the lines on which the State acts with regard to ships. If a ship was reasonably seaworthy, then, whatever its design, it was certified.

As regards uniformity, or standardisation, of design so as to have an aircraft available for use in war, he said unhesitatingly that the State must not, and would not, while the present Ministry had anything to do with the direction of policy, adopt so fatal an error. In his judgment, "as an humble student of air matters," the divergence which we now saw beginning between civil and war types was going to be on an ever-increasing scale. He was quite sure that within a very few years the civilian transport machine would have diverged in a far greater degree from the fighting machine than the merchant ship has diverged from the battle cruiser.



THE GIANT: The nose of a German five-engined Biplane, showing the two pilots, photographed from the centre section of the upper plane.





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He could assure them that there was no intention of trying to interfere with designs just because Government Departments do interfere, and he would undertake to put in special words to make the intention quite clear. Still less had they the intention to try and make the Air Force a little cheaper by compelling civilians to build their machines to Air Ministry design. He said that he had had long consultations with the Society of British Aircraft Manufacturers, and these had been continued between the Controller of Supply and the Secretary of the Air Ministry, and they were completely satisfied that the Regulations made the intentions plain.

Captain Benn said that there would be changes of personnel in the Air Ministry, and he hoped there would be a big change in the direction of restoring to the Ministry its independence and taking it away from the control of the War Office. It would be much more satisfactory if what they desired were put into the Bill and did not depend upon the will of the Air Ministry of the day. There could be no objection to making assurance doubly sure by inserting the words in the Act itself. People who were going to make experiments ought to have the assurance that nothing will be done to interfere with the success of their undertaking. That assurance would be better given by an Act of Parliament than by relying on Orders in Council made by the Air Ministry and laid on the table of the House, which it might be inconvenient to discuss.

General Seely agreed to put words to the effect of the Amendment into the larger Bill later on, but not into the present Bill. The larger Bill would be introduced directly we had got the adhesion of the foreign countries to the Convention.

The Amendment was withdrawn, and a minor verbal Amendment was introduced by General Seely.

Commander Bellairs moved to leave out Sub-Section 3, because he objected to the very drastic powers in this Bill. He said: "I am sometimes tempted to think that the procedure of Nabob's Vineyard was a very clumsy process; they had not invented Orders in Council in those days." It is not clear whether "Nabob" is a misprint of Hansard's, or a mistake of Commander Bellairs'. The mixture seems happy, as it combines the original Naboth idea with the nefarious proceedings charged against the late Warren Hastings. The objection raised by Commander Bellairs was to the difficulty of amending Regulations by raising an Address to the King in a House which was not particularly interested in anything except itself.

General Seely again made promises that the Government would not practice any deception on the House. Sundry other verbal Amendments were then passed.

THE THIRD READING.

The Third Reading of the Bill was taken also on Feb. 21st.

Lieut.-Colonel Moore-Brabazon asked whether the civil side of aeronautics was adequately represented in the Conference in Paris on Air matters. He also asked for information concerning the Air Ministry's scheme for air routes and aerodromes, as, for instance, whether these were to be a self-supporting organisation, or whether there would be a charge on the companies actually using the aerodromes. He wanted an assurance that Treasury agreement would be secured for any scheme the Air Ministry might put forward for the benefit of aviation.

General Seely said that if all went well civil aviation would become the main business of the Air Ministry, but at present we were still at war. General Sykes was in charge of negotiations on the civil side, and General Trenchard on the military side.

As regards aerodromes, the Air Ministry wanted "to make flying much more safe by providing a large number of aerodromes, some of which are now military aerodromes and will be so used, and some of which will be civil aerodromes." Further, he said "the military will, of course, pay the whole of the expense of the military aerodromes, and in the case of those military aerodromes which will be exclusively confined to the military, except, of course, in case of forced landings, there, of course, the whole cost will fall upon the State."

It is noteworthy that General Seely uses specifically the word "military," so that one is tempted to ask whether the War Office is, in fact, going to control, and pay for, aerodromes. It would be well to have this point made clear.

Continuing, General Seely said that in the case of purely civil aerodromes they hoped that before long they would become entirely self-supporting and involve no cost to the State, except so far as the Government found it convenient to retain the right to land in them, and for that, of course, they would pay.

He said that air travel had made considerable advance since he last spoke in the House. One of our airships had been travelling in the air for 101 hours, and the speed, although not conclusively computated, was estimated at 50 m.p.h., which meant that it had covered a distance of over 5,000 miles. During the voyage considerable winds were met. They were less afraid of storms in the air than any ship on the water. There was no danger of "the heavy overfall of a following sea." He promised that, so far as the Treasury would permit, the Air Ministry would do everything possible to ensure the future and safety of civilian flying.

Lieut.-Colonel Moore-Brabazon asked whether inspection on certification would be a State charge.

General Seely confessed that he had no answer ready to that question. He could not remember the rules as regards to ships, but he thought it would be reasonable to adopt similar rules.

Lieut.-Colonel Malone said that in spite of the right honourable gentleman's protestations, he had before him a case that did not agree with them. A large commercial body submitted a scheme to the Air Ministry in which they desired assistance in opening up a route between certain districts. They received a lot of platitudes from the Air Ministry, but no conclusion was devised or arrived at. In a subsequent commnication the authors of the scheme said, "If Britain does not arrange a service in this locality, France will." He therefore brought this matter to the notice of the right honourable gentleman in order to assure that something a good deal more definite and specific might be given to such commercial bodies. He also gave General Seely the date of the communication from the Air Ministry.

Whereupon the Bill was read a third time and passed.

It now remains for it to pass the House of Lords and for it to receive the Royal Consent, after which we may hope to see the Regulations.

It is generally expected that civilian flying will become legal by April 1st, the beginning of the next financial year, but it would not be wise to anticipate its legalisation on that date. On the whole the situation seems fairly satisfactory, but one cannot even now help regarding with some suspicion the earnest protestations of goodwill to the Aircraft Industry and to civilian flying transmitted from the Air Ministry *via* General Seely. One is tempted to say "Thou dost protest too much," and to quote the old tag, "*Timeo Danaos et dona ferentes.*"—C. G. G.

ANOTHER APPOINTMENT.

Mr. Reginald Nicholson, M.P., has been appointed Parliamentary Private Secretary to Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., Under-Secretary of State for the Royal Air Force.

THE AIR ATTACHE TO THE U.S.A.

Brig.-General L. E. O. Charlton, C.B., C.M.G., D.S.O., R.A.F., has been appointed as Air Attaché to the British Embassy at Washington. He sailed for America on Feb. 10th on the "Aquitania."

THE R.A.F. IN THE ÆGEAN.

For the purpose of carrying out reconnaissance and bombing flights over Constantinople, a Royal Air Force Group was stationed in the Ægean, with aerodromes at various points on the mainland, and on islands on the Archipelago. Mudros was the base from which the attacks were made, and from January, 1918, until the cessation of hostilities in that theatre of war, raids were made as often as the weather permitted, both by day and by night.

During that period, 50 aeroplanes in all flew over Constantinople, the moral effect of this alone being considerable.

When the reconnaissance flights were first started in January, 1918, the only machines available for this work had not a sufficient fuel capacity. They, consequently, had to be altered to give them an air endurance of six hours, the time usually taken to complete the out and home journey being from 5¼ to 5¾ hours, according to the weather conditions. Later on a larger type of machine arrived, but it was found that the hot weather overheated the engines. This was rectified, after many experiments, in a rather clever manner.

The flight to Constantinople was among the longest raiding flights carried out continuously during the war, the distance being 440 miles. The circumstances of the flight entailed a severe and prolonged strain upon both pilots and observers. During practically the whole of a raid they were flying over water and over enemy territory, with the knowledge that if forced to land on the water there was very little chance of being rescued.

The night raids were a particularly fine performance. In the Ægean very frequent changes in the weather are experienced, and on the return at the end of a long flight the pilot had to find a small island upon which the aerodrome was situated. As there are many islands in the Ægean, and this particular one was some distance from the mainland, this was no easy matter even on a calm, dark night, but was extremely difficult in cloudy weather.

Life at Mudros was dull, and reinforcements, reliefs, and stores were always a long time in coming.


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THE LATE W. L. WADE.

Those who have been at all closely in touch with The Aeroplane newspaper during the past five years knew and appreciated the work of Walter Lewis Wade, who has been throughout the war the chief editorial assistant on the staff of this paper. Ordinary readers also knew his literary ability from his various signed articles, and the paragraphs initialled W. L. W. All such will deeply regret to learn that Walter Wade died on the morning of February 24th, from the effects of influenza.

He was never a strong man, and in the early days of the war he was rejected on account of a defective heart on seven occasions when he tried to join the Army. Nevertheless he was full of pluck and determination, and as he was not allowed to serve his King as a fighting man he devoted himself with all his energy to advancing the cause of aeronautics.

He was an indefatigable worker. His knowledge of aeronautics was wide, and based on practical experience dating back to 1909, so that his numerous articles in all sorts of publications did much good work in spreading a proper view of Service aviation among the people.

He felt that his life's work consisted in working for the advancement of aeronautics, and he devoted himself to the propagation of that gospel with an energy which overtaxed his strength. The result was that when he was attacked by the present epidemic, his overstrained nervous system was unable to resist. Walter Wade died in the cause of British Aeronautics as surely as if he had been killed on active service.

Personally, as anyone may gather from his repeated attempts to join the Army, he was a truly brave man. He knew fear when in danger, but was able to conquer it. Despite his defective nervous system, he had wonderful nerve. He loved flying, and could never have enough.

When he found that he could not join the Army as a combatant, he joined the Special Constabulary, in which he served for three years, till compelled to leave owing to ill-health. Like all intelligent men who have had anything to do with that force, he loathed the waste of time which the work involved, and he despised the pettiness and dishonesty of many of the people connected with the service, but when there was a big air raid in being he thoroughly enjoyed himself, for it was his nearest approach to that active service in the field which he desired.

Last year, when the parachute question was occupying so much attention, Walter Wade determined to do a parachute-drop from an aeroplane, and did so, thanks to some kind friends in the parachute business. He thus had the distinction of being the only person outside the King's Services and the "trade" who has had such an experience and has given a clear account of the operation in print. I submit that in taking such a risk purely in the true quest for knowledge in the public interest Walter Wade displayed the best kind of bravery.

He first became known to me in the early days of the London Aerodrome at Hendon, when he was an untiring volunteer worker with anyone who would let him help. Later, when competitions became the regular thing, he developed into one of the regular unpaid officials of the aerodrome, acting as pylon-keeper and observer in all the competitions. He was also an enthusiastic amateur photographer, and owned a wonderful collection of aerial photographs of his own taking.

In 1913 Walter Wade joined the staff of The Aeroplane, giving up a settled job in the City for exceedingly precarious prospects in connection with the science and industry to which he had devoted himself. He was then about twenty years of age. In the succeeding six years he developed into a kind of human encyclopædia of aeronautical history, and also acquired a useful working knowledge of practical aeronautical engineering, so that at the time of his death at the early age of 26 there were few people in this country or any other who had greater general knowledge of his subject than he.

None could wish for or imagine greater loyalty than Walter Wade has given to me during the six years in which we have worked together. He has been my mainstay throughout the difficult years of the war, and I looked forward to a time when his devotion to duty might be rewarded by a position which, though it might involve greater responsibilities, would entail less hard work for his delicate constitution.

It is the irony of fate that all the other men who worked for The Aeroplane should have had the privilege of serving the King in uniform, and should have survived the war and have won distinction in their various spheres, and that Walter Wade should have fallen a victim to ill-health which, if not contracted on active service, was certainly contracted in the service of his Country.

He leaves a young widow, to whom he had only been married for some six months. To her and to his own relatives all will offer their heart-felt sympathy. For myself, I have lost a friend and a fellow-worker whose place can never be adequately filled.—C. G. Grey.

[The funeral of Walter Wade will take place at Golder's Green Crematorium on Saturday next at 10 a.m. He desired that no flowers should be sent.]

AN R.A.F. MEMORIAL SERVICE.

On Wednesday, Feb. 19th, a Memorial Service was held at Westminster Abbey in memory of officers and men of the Royal Air Force (including the Royal Naval Air Service and the Royal Flying Corps) who have fallen in the war. H.M. the King, who wore the uniform of General-in-Chief of the Royal Air Force. Capt. H.R.H. Prince Albert, R.A.F., and many officers and men of the Flying Services, were present.

From 11.30 until a little before noon, a string band, composed of members of the R.A.F., played hymns in the West Cloisters, among others being an "In Memoriam," which was specially written for this Service.

When the King had taken his seat, after passing through a guard of honour formed by members of the R.A.F., and W.R.A.F., the Service began.

The subsequent proceedings were very impressive, and the following address was read by the Chaplain-in-Chief :—

"Let us now remember before God our Comrades, the Officers and Men of the Royal Air Force, who laid down their lives that we might live, and thank Him for their splendid example.

"Members of a new Service, which from small beginnings has grown into a mighty host, they have worthily upheld the noblest traditions of our historic Services.

"In constant touch with the enemy; by day, by night; whether in defence of home, or across the battle-line in France, Italy, Macedonia, the Dardanelles, Palestine, Mesopotamia; in every campaign, in every clime; they have played a noble part in the titanic struggle for Liberty and Freedom, which, by God's good providence, has ended in complete victory for the Allied Cause. Deeds of valour and acts of heroism, which fire our imagination and rouse our enthusiasm, have been of daily occurrence in this young Force. Temperate in victory, dogged in defeat, they have enhanced the untarnished reputation of British Arms for chivalry and devotion.

"'Their name liveth evermore.'

"Weep not! Many of you present here to-day mourn the loss of son, husband or brother. Nay, rather be comforted in that they were privileged to take part in the most self-sacrificing Crusade which Britain, proud of her glorious past, has ever undertaken. What nobler cause! For it is the cause of Humanity, the cause of Christ, the cause of God.

"Let us this day thank God for their noble sacrifice, and pray that they may, with sins forgiven by the precious blood of Jesus Christ, stand accepted in the Great Day."

The Service, which was well attended, concluded with the playing of "The Last Post" and the National Anthem.

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AIRCRAFT IN PARLIAMENT.

The following written answer was given on Feb. 18th :—

ROYAL AIR FORCE: OUTFIT ALLOWANCE.

Commander N. Craig asked the Under-Secretary of State to the Air Ministry whether at the time of the signing of the Armistice a number of cadets in the Royal Air Force, having passed all their examinations, were in process of qualifying for commission by putting in the requisite number of hours flying; whether he is aware that, in accordance with a practice recognised in the Army as well as in the Royal Air Force, and in view of the difficulty of obtaining uniform in the period elapsing between the granting of a commission and the time for reporting for duty, many cadets placed orders for uniform with Service tailors and passed in payment orders on Service bankers; whether the granting of commissions has since the signing of the Armistice been stopped or very largely reduced; whether he is aware that these circumstances have occasioned hardship both upon cadets and suppliers; and whether he will take steps to assist these cadets in discharging obligations to suppliers, incurred upon a reasonable and legitimate anticipation of becoming commissioned officers?

General Seely: All flight leaders who qualified for commissions before the date of the Armistice have been granted commissions, carrying the right to the full outfit allowance of officers. The question of granting a special outfit allowance to flight cadets who qualified for commissions after the Armistice, but have not been granted commissions, is now under consideration, and an announcement on the subject will be made shortly.

* * *

The following written answers were given on Feb. 19th :—

DEMOBILISATION: OFFICERS.

Mr Jo nson Hicks asked the Under-Secretary of State to the Air Ministry if he will state how many officers there were in the Royal Air Force on November 11th, 1918; how many have resigned; and how many have been compulsorily demobilised?

General Seely: The total number of officers in the Royal Air Force on November 11th, 1918, was 30,122; since that date 582 have resigned, and, in addition, 3,359 have been demobilised.

WAR PAY.

Mr. Forestier-Walker asked the Under-Secretary of State to the Air Ministry whether he is aware that the 1d. per day war pay is not applicable to the Royal Air Force; and whether he is prepared to put the members of the Royal Air Force on the same basis as they would have been had they still been in the Royal Flying Corps as regards pay and war pay?

General Seely: War pay is not granted to members of the Royal Air Force with certain exceptions, for the reason that the rates of pay were fixed on an inclusive basis. Members of the Royal Air Force who were transferred from the Royal Flying Corps were allowed, on transfer, either the Royal Flying Corps rate of pay (plus war pay) or the Royal Air Force rate (excluding war pay), whichever was the more beneficial.

LONDON AIR DEFENCE.

On February 24th, **Mr Kellaway** in a written answer to General Sir Ivor Philipps, stated that the plan of suspending entanglements from balloons to check aeroplane attacks was patented as early as 1913. Several hundreds of proposals of this nature had been received by the Inventions Department and considered by the responsible authorities by October, 1917. The plans actually adopted in October, 1917, were from designs of screens used in the defence of Venice, and any credit for their initial adoption and operation is due to the Italian Government.

[This appears to be an extremely incorrect statement.—C. G. G.]

VOLUNTEERS FOR ROYAL AIR FORCE OF OCCUPATION.

The following document has been communicated officially :—

All airmen who have been demobilised (whether they have been transferred to the Reserve or are still on demobilisation leave) and who wish to serve in the Royal Air Force of Occupation under the special Bonus conditions authorised for that Force, may do so if found suitable.

Any such airman should make application in writing to the Officer Commanding, Royal Air Force, Reception Depot, nearest his home, stating clearly his name, official number, substantive rank held in the regular Air Force immediately prior to dispersal, trade and home address.

In addition, if the airman is on demobilisation leave, he must state the date on which his leave expires. In the latter case it must be understood that unless the airman expresses a wish in his application to rejoin the Royal Air Force forthwith, he will not be required to report at the Reception Depot until after the expiration of his leave.

The following is a list of the Royal Air Force Reception Depots in the United Kingdom, to one or other of which the airman should address his application :—

No. 1, R.A.F. Reception Depot, 40, Upper Brook Street, Mayfair, W.1, London.

No. 2, R.A.F. Reception Depot, 8, Tyndall's Park Road, Clifton, Bristol.

No. 2 (b), R.A.F. Reception Depot, 12, Newport Road, Cardiff.

No. 3, R.A.F. Reception Depot, Carlton Chambers, Paradise Street, Birmingham.

No. 3 (a), R.A.F. Reception Depot, 8, George Street, Nottingham.

No. 3 (b), R.A.F. Reception Depot, 12, Abercromby Square, Liverpool.

No. 4 (a), R.A.F. Reception Depot, The Mount, Springfield Mount, Leeds.

No. 4 (b), R.A.F. Reception Depot, 10, Sydenham Terrace, North Road, Newcastle-on-Tyne.

No. 5, R.A.F. Reception Depot, 9, Somerset Place, Sauchiehall Street, Glasgow.

In the case of airmen in Ireland, the application should be addressed to the Officer Commanding No. 3 (b), Reception Depot, 12, Abercromby Square, Liverpool.

On the receipt of the application the Officer Commanding Reception Depot will notify the airman whether he is accepted, which will be dependant on his passing a medical examination subsequently at the Reception Depot, and the date on which he should report, and forward to him at the same time a railway warrant for his journey.

Every airman who is finally approved will be required to sign an agreement to the effect that, on consideration of payment to him of the special Bonus authorised under Air Ministry Weekly Order 163 of 1919, he is willing to serve in the Royal Air Force of Occupation for a period not exceeding one year after the expiration of the present war or for such less period as his services may be required.

This notice is in supersession of that which was published in the press on February 4th, 1919.

THE SEARCH FOR MISSING OFFICERS.

The following letter appeared in the "Morning Post" on February 19th, 1919 :—

Sir,—My son, Capt. C. H. Stokes, R.A.F., was reported "missing" on October 29th, 1918. Early in December Lieut. L. H. Eyres, who was acting as his observer when the casualty occurred, was repatriated and made his report to the authorities on his arrival in this country, and the report was in effect as follows: That on the date in question a German shell had passed through the pilot's cockpit, taking off my son's leg below the knee, injuring his left arm, and putting the engine out of action; that a safe landing was nevertheless effected, and both my son and Lieut. Eyres were taken prisoner by the Germans; and that the Germans rendered first aid to my son and took him away in a motor-car, telling Lieut. Eyres that they were taking him to the hospital at Maubeuge.

It is now officially stated that a list has been prepared, and either has been or is to be presented to the German authorities, and a demand made that they account for all such prisoners. My daughter-in-law, Mrs. C. H. Stokes, has been in communication with the head of the Casualty Department of the Air Ministry, and has inquired whether her husband has been entered as "wounded and a prisoner" or merely as "missing," and has been told that he has been reported as "missing" only; and this gentleman declines to alter this description to "wounded and a prisoner," or even "reported wounded and a prisoner," because he says my son has not been so "officially" reported. It is obvious that the facts reported by Lieut. Eyres, a British officer, who was an eye-witness of what occurred, is of the utmost importance if any real effort is being made or is to be made to find Capt. Stokes. The fact that he has been traced to their hands would compel the Germans to follow up the trail and trace him to his ultimate destination, whereas if only reported to them as "missing" no such onus would be cast upon them.

I wonder whether there is anyone in the Casualty Department of the Air Ministry capable of appreciating what the feelings of a wife, who has already suffered more than three months of mental torture, must be when those in authority, whose duty it is to strive to the utmost for the return of our wounded prisoners, coolly inform her that they cannot give the Germans correct information as to her husband's case, because that information was derived from the British officer who was with him when he was taken prisoner, and not, as I understand their position, from German sources.—Yours, etc., H. STOKES.

Admiralty Registry, Royal Courts of Justice,
February 18th.

[It would seem from this letter that Lieut. Eyres' report has not yet reached the Casualty Branch, Air Ministry, which would naturally be unable to alter its lists until official information was received.]

ATTACHED OFFICERS.

Sir,—I should like to bring to your notice the position of Infantry officers attached R.A.F. for training as pilots.

We were doing our final training in machine-guns and bombs when the Armistice "broke out," and, in the ordinary way, would have been posted to training squadrons early in December. As it is, we have been hanging round here doing nothing of use to ourselves or anyone else, and being at that time promised that we should, if we wanted to, qualify for our wings, which made us more contented.

Now, however, we hear that we are to be returned to our units, which seems both unfair and stupid, because we have had good ground training, and all that remains is to put the teaching into practice.

Again, a very large number of pilots are going to be required for commercial aviation, so why should we not be trained (those who wish)? This surely would not be very difficult with the existing machinery.

There would be, I suppose, about a couple of hundred of us when people who want to get away are deducted. The remainder of us intend, if we get the chance, to stick to aviation. Having qualified as pilots, we would, if not wanted, be placed on a reserve to come up for training, say, twice a year, and so have a good supply of pilots for the next war that happens along.—(Signed) "WILLING."

AN EXCITING CINEMATOGRAPH FILM.

It is reported that recently a mock air fight between a German biplane and a French machine was organised at one of the American aerodromes in France. An American pilot flew a captured Hannoveraner biplane and manœuvred against another pilot flying a Spad. Meanwhile a moving picture photographer sat in the observer's seat of a third machine which kept as close to the manœuvring aeroplanes as was wise. Artistic verisimilitude was lent to the performance by the swerving of the German machine and the falling of a figure therefrom to the ground. Thereafter, of course, the German machine apparently spun down to its fate on the earth.

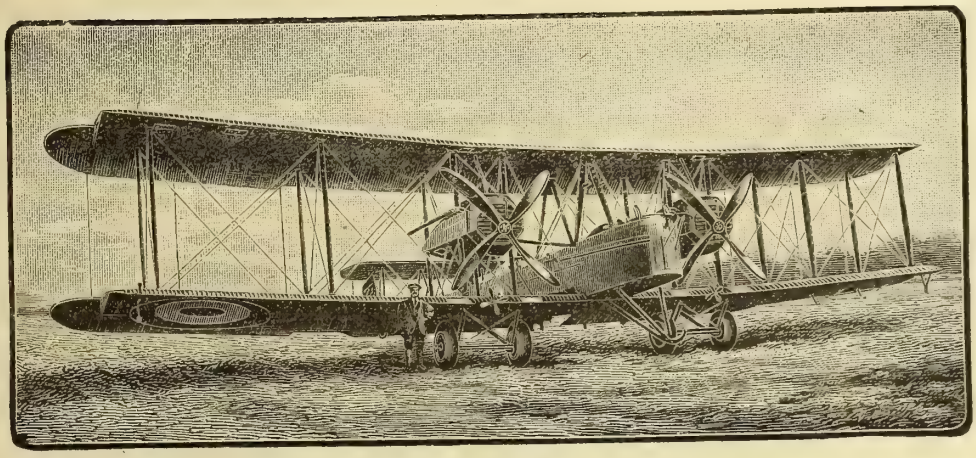
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NEW TITLES IN THE R.A.F.

The question of new titles for the various ranks in the R.A.F. is assuming serious dimensions. The great danger when the subject first arose was that the titles might be as productive of ridicule as the new uniform. That danger is not likely to arise with General Trenchard at the head of affairs, for none ever had a keener sense of the ridiculous, or a finer sense of the dignity attaching to the King's Service than has that distinguished soldier.

It was once suggested that ranks should be indicated by the names of birds, for example, Eagle for General, and Eaglet for Lieutenant. These were the only words which one heard mentioned, and the idea was so ridiculous that it seems to have been dropped. Imagine introducing a man as "My friend Eaglet Jones." Presumably, the bright brains which struck the idea would have called a Medical Officer a Vulture, and all the ground officers would have been Ostriches, Emus, Kiwis, Apteryxes, and Penguins—according to seniority. Technical officers would, of course, be Parrots, Macaws, Parakeets, etc., as the birds which talk most and fly least.

The notion of reviving the old Roman ranks was less dangerous, but even that was too near the ridiculous. A Squadron-Commander would have been a Centurion, and "Centurion Smith" sounds a trifle too like a comic American name to be taken seriously. Also, if a fair lady addressed a Brigade Commander as "Dux," there might be some unpleasantness with Mrs Brigadier. The only consolation would be that the rank and file would have to be called Hoplites, a fairly appropriate title for men who, despite their desire to fly, seldom get further than hopping lightly in and out of the machines flown by other people.

It is eminently desirable that whatever titles are chosen should be purely English, and that they should not be fabricated or "portmanteau" words, for such words can only bring ridicule upon the R.A.F., which is already regarded none too seriously by the Senior Services.

For some curious reason the Air Force has not coined any slang terms for the various ranks, or they might have been adopted officially, much as the Navy adopted Admiral from the French word Amiral, the French in turn having taken it as a kind of inverted compliment from their old Mediterranean enemies the Barbary Pirates, whose leaders were the local Emirs. "El Emir" became "Emir el"—as one writes "Boots pairs one officers for use of"—and so Amiral. The word has nothing to do with "admire," as so many people think.

It is true that a Flight-Serjeant is colloquially addressed as "Flight," and one has heard Lieut.-Colonels and Colonels called "Wing" and "Group" respectively, but the words are scarcely suitable for titles, as they are too commonly in use in other connotations.

Some people go so far as to wish to import a mixture of titles from the Near and Far Easts. A General would be a Hetman, a Colonel a Hospodar, and so forth or otherwise. Some would like the titles of the Egyptian Army to be introduced, such as Bimbashi. Others wish for Indian titles such as Rissaldar, Subadar, Jemadar, *et cetera*. All these are equally impossible, and would only lead to confusions.

Whatever titles are chosen must be English. One fully realises the difficulty of coining complete titles, for the existing titles in the Navy and Army merely grew. So far as one can discover, the only person who is likely to solve the difficulty is the Hon. John Fortescue, the historian of the British Army, whose intimate and peculiar knowledge of the King's Services and whose unimpeachable good taste would either find the right words or prove the impossibility of finding them.

Meantime, the young and happily irresponsible officers of the R.A.F. have been busy as usual. One such bright brain suggests combining existing grades and ranks scientifically into one word somewhat thus :—

Flying officer + Lieutenant = Flewtenant, which would naturally abbreviate into Flute.

Flight-Commander + Captain = Flaptain.

So far, he manages to retain something of an aeronautical aspect about his words, but he falls away when he suggests :—

Squadron Commander + Major = Squajor.

He excuses himself by explaining that the word remotely suggests the square jaw of the commanding officer.

He is still more adrift over the higher ranks, for he arrives at :—

Wing-Commander + Colonel (pronounced Kernel) = Wormall.

Surely such a word could only be applied to Technical Colonels who do no flying, and so are earth-bound.

Similarly, the suggestion that Brigadier = Terradier, on the grounds that Generals do not fly, also applies to ground officers only, for the active-service Brigadiers, and the pick of those at home, fly most pertinaciously.

Be that as it may, the effort is worthy of our daily Press, and the officer deserves due recognition. One hopes that his attempt will encourage others to try their iniquity.—C. G. G

MAJOR-GENERAL TRENCHARD IN PARIS.

Major-General Sir H. M. Trenchard, K.C.B., Chief of the Air Staff, arrived in Paris on Feb. 19th, in order to attend discussions in connection with the terms of the continued Armistice.

THE FRENCH AIRSHIP PLANS.

According to a Reuter's telegram sent from Paris on Feb 10th, "Excelsior" publishes the report of an interview which a correspondent had with M. de Kerguezec, the Reporter of the Naval Estimates.

M. Kerguezec said that he thought it necessary that France should possess rigid airships to be stationed on the Atlantic and Mediterranean coasts, for the purpose of communicating with Toulon, Bizerta, Algiers, and even Senegal.

M. Kerguezec regretted that France was so behind in regard to rigid airship building, but he suggested that this difficulty could be overcome by bringing the German Zeppelin airships to France under the Armistice conditions.

THE POLAR EXPEDITION.

It has been announced in New York that Mr. William K. Vanderbilt has given £2,000, and Mr. Charles H Sabin £1,000 to start a fund of £50,000, which will permit Captain Bartlett, commanding the Roosevelt Expedition, to carry out his projected exploration of the Polar regions.

FLYING FOR THE DISABLED.

I am a pilot in the Royal Air Force.

Shortly after graduating, I was unlucky enough to crash rather badly, and, the machine taking fire, my injuries were unusually severe. This occurred almost a year ago, and, according to the doctors, I was extremely lucky to survive; in fact my people despaired of my recovery.

Without boring you with a lot of horrible details, I will sum up my injuries and say I have lost my left leg and my right eye has had to be removed. I have a broken right wrist, my upper jaw was smashed in two places, and I have numerous burns and minor troubles. It sounds quite a lot, but my main disabilities are just the loss of a leg and an eye. However, I am very much alive at present and, strangely enough, most keen to fly again.

My reason for writing this is to raise the question, "Can a man, disabled to this extent, fly?" I not only mean, *can* he fly—anyone can, more or less—but I mean, should he be debarred from flying?

Personally, I contend that if, after getting through with such a crash, he still wishes to fly, then he will do so and fly well too.

Many arguments arise from my case, the chief being that though such a man may feel he wants to fly again, he will find, upon trying, that he has lost his nerve. Of course, this can only be settled by trial. If one really gets the flying fever (and having followed flying for some years now, I consider I have it pretty badly) it is most difficult to accept the decree that one can never fly again.

Some time before the armistice was signed, I was sent to a hospital where artificial limbs are fitted, and there I was asked if I wanted to be found something to do when I was fixed up. I asked to be allowed to carry on flying, and quite thought my wish was to be granted.

I have received in answer to my application a curt note to the effect that my request could not be granted, and on asking the authorities to reconsider their decision I received a still shorter note with a blunt intimation that there was nothing to add to the contents of the first note.

The man responsible for those letters—they were both signed by the same person—didn't even appreciate the fact that though smashed up I still wished to carry on at the great game of flying, and I can only conclude that he is a "ground-wallah." Otherwise he would understand the magnetism of flying, and would have answered my letters a bit more feelingly, anyhow.

Still, I am only barred from flying by the R.A.F. I still have hopes in other directions, and, unless the Royal Aero Club forbids me to fly, I hope one day to show the authorities that "to err is human." Of course, on the face of it, a man minus a leg and an eye ought to have finished with actual flying; but many men with artificial legs flew *as pilots, and on active service too;* and, again, I know of a case of a man who had only one eye, who also flew.

The argument put against this, and a very futile one it seems to me, is that no pilot I can cite has the double injury. If a man minus a leg is allowed to fly, also a man minus an eye (taking the cases separately), I cannot see why one with the double injury should be barred; for, from a pilot's point of view the loss of a leg is practically negligible, and the absence of an eye is the only drawback; and as that has not been an absolute bar, the argument *against* the man with both injuries flying is squashed. At least this is my opinion but perhaps I am prejudiced as I am putting my own case. I should be glad to hear other opinions on this subject.

I may add that I am not suffering from any mental trouble, so my desire to fly after such a crash is not to be accounted for thus.

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PARIS NOTES.

March 1st is intended to be another red-letter day in French civilian aviation, for on this date a new airway will be inaugurated, viz., Paris-Bordeaux. The route will start at the Bréguet aerodrome at Le Bourgêt, and will pass over Etampes, Orleans, Romorantin; Chateauroux, Angoulême, Blanquefort, and Bordeaux. When a regular service is established, it is proposed to extend it farther south by Cozaux to Biarritz.

The route has been well prepared. It is proposed to make only one stop en route, at Chateauroux, where there exists an aviation school. Breakdown gangs are, in addition, to be held in readiness at Orléans and Angoulême. All these aerodromes are linked up by telephone and wireless, so that pilots, before starting, need be in no doubt as to the weather conditions farther down the line. Although primarily designed for an aerial postal service, it is the intention of the Civil Aviation Authorities to run a daily commercial service, a machine leaving each terminus daily.

Readers of these notes have already been informed of the arrangements made by M. Bréguet for provisioning the liberated provinces by means of aeroplanes. The route followed is as follows:—Le Bourgêt, Senlis, Sacy-le-Grand, Esquennoy, Saint Just-en-Chaussée, Amiens, Arras, and La Brayelle-Douai. This is not the most direct route, but is followed to minimise the risks of forced landings on ground cut up by shell-fire and overrun by trenches and barbed wire.

On the 13th inst., fifteen aeroplanes left Le Bourgêt, six for Valenciennes, and nine for Maubeuge, carrying between them one and a half tons of blankets, winter clothing, and condensed milk. Thirteen of these machines returned the same day, the two others having landed at Chalons-sur-Marne.

The French Air Ministry have in hand the details of a competition to be held some time this year, in order to discover the best type of commercial aeroplane available for use. One hopes if the contest is not to be confined to French makers—and there is no ruling on this point at the moment—that British firms will be well represented thereat.

There is no doubt that France is admirably and uniquely placed in the universe for making experiments in commercial and postal aviation. There is always sufficient distance between her towns to make the service a financial success, and she has unequalled opportunities for experimenting in cross-water trips to England and Ireland on the one hand, and to various parts of North Africa on the other.

Since Coli and Roget made their trip, a month or so ago, certain influential and—needless to add—interested people have clamoured for the establishment of an aerial postal service between France and her trans-Mediterranean province, Algeria. The postal service is at present run by naval destroyers, and is consequently very expensive. Certainly it seems that it would be cheaper to employ aircraft, and, of course, it would effect an immense saving in time. At all events, pending a decision on this point, there is to be an experimental flight to Morocco—i.e., from Paris to Dakar. The French are of opinion that Dakar is destined, by reason of its geographical situation, to be the principal aerial post in Europe for South and Central America, not only from Western Europe, but from Egypt, India, etc.

The distance from Paris to Dakar is 4,450 kilometres; the present journey by trains and boat occupies ten to twelve days, whereas it is anticipated that it will be reduced to two days by aeroplanes. The route is divided into three stages, viz.:—

Paris-Fez (passing Pau and Tangier)	1,800 kil.
Fez-Mogador-Port Etienne	1,400 kil.
Port Etienne-Dakar	750 kil.

The stop at Fez will only be made on the initial flight in order that the aviators may receive a fitting reception in the Moroccan capital. Ordinarily the route will run directly from Tangier to Mogador. One hopes that the semi-Oriental reception to be given will not seriously affect the continuance of the voyage. Albeit from what one knows of these affairs 'twould seem to be in jeopardy.

Similar to our Parliamentary Air Committee is a group of French deputies in the Senate. A few days ago these deputies went to Colonel Dhé and impressed upon him the necessity for re-co-ordinating the services of military and naval aviation, which have been somewhat "dispersed" since the signing of the armistice.

In other words, they are desirous that, instead of demobilising the personnel, both pilots and mechanics, they should be retained in order to further French industry in this connection. Apparently these good deputies are disturbed by the activities of the British Air Ministry in making experimental flights to India and the Cape.

ITALY.

The papers say that a Mission, composed as follows, has left Genoa on board the "Tommaso di Savoi," for the Argentine to exhibit Italian progress in flying matters to the population of that country. The head of the Mission is Capt. De Marchi, who has with him seven other Service men, among them Locatelli and Scaroni, with Nav. Lt. De Riseis for the demonstration of Marine flying.

Capt. De Marchi has under him, too, some 100 men, including some N.C.O. pilots and the motormen serving the 22 machines which are to be used to show the Argentinos what can be done in the air.

Meanwhile, the Greek nation has sent its own people here to see for themselves what is being done. One of their objects is—as I stated in a recent contribution—to settle about a post route, and, presumably, a service thereby which shall not leave out the ancient Capital of Art and Learning, Athens.

The Marchetti biplane, on which Serjt. Liut performed so excellently at Coltano under the controlling eyes and instruments of all the authorities recently by attaining a speed of 260.8 kilometres per hour, is a small single-seater with 21 metres of supporting surface, a single pair of interplane struts, and an unusual system of cross-bracing by tubes. Coming from the Terni-Vickers works at Spezia, an all-metal construction is to be expected.

The record was effected over a timed course out and home eight times. The distance was a kilometre each way, and the time for the eight trips out and back varied only by 1/5th of a second.

The Spa motor firm—a photo of whose 200 engine of the Vienna excursion I sent you in the autumn—now announce that a biplane powered by one of these engines has done 260.8 kilometres per hour at Pisa, or, more precisely, at Coltano. The performance, says the advert., was verified by the Sporting, Military and any other authorities whose business it is. The Italian Aero Club vouching for the figure, it must be accepted for the time as the speed record for this country. The machine is presumably that turned out by the Vickers-Terni people, of which, in spite of peace proposals, the hush-hush policy seems to be thought necessary.—T. S. Harvey.



A Henri Farman Steel Biplane (140 h.p. Salmson Engine), leaving the Aerodrome of the 30th Squadron, R.F.C., at Sheik Said, Mesopotamia, with bags of food for the besieged garrison at Kut-el-Amara.

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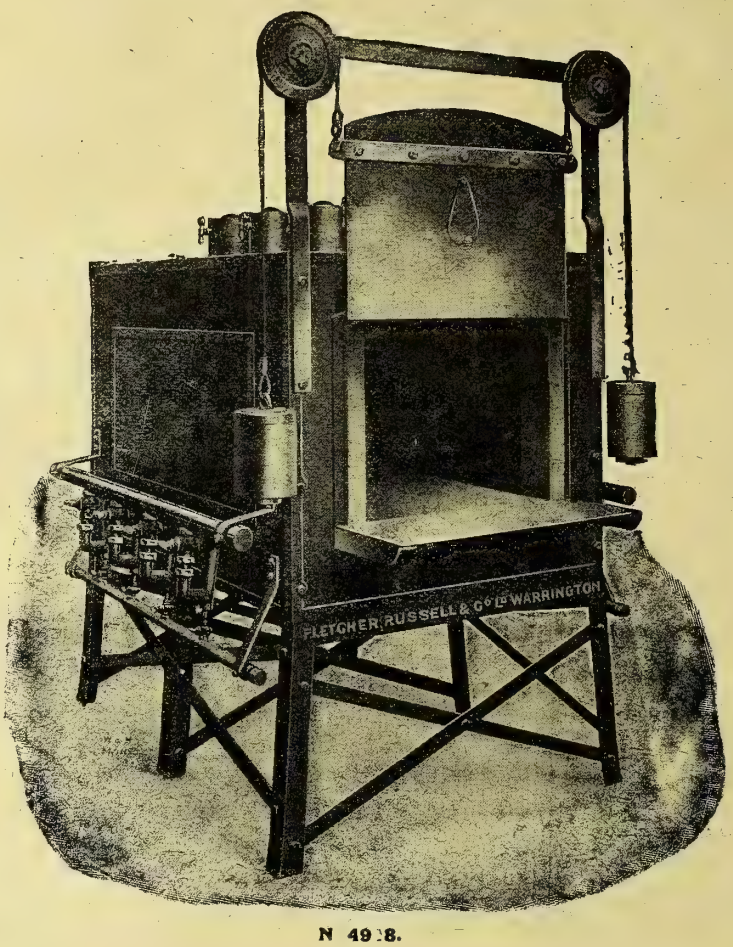
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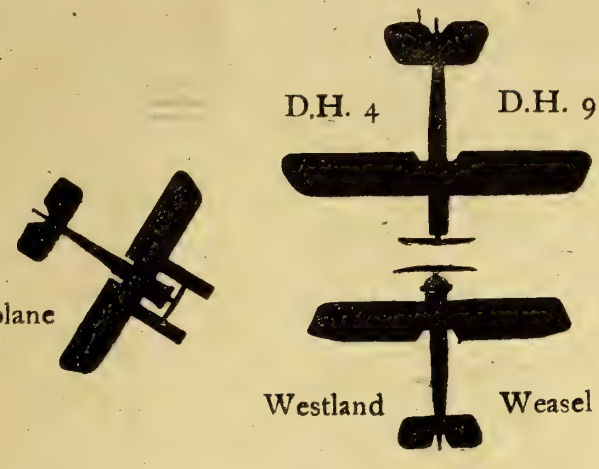
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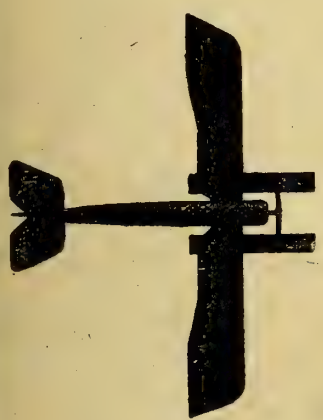


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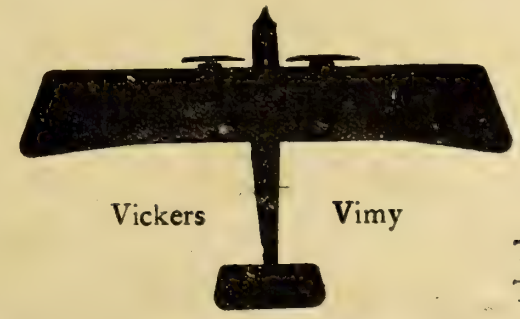
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Sopwith 1½' Strutter



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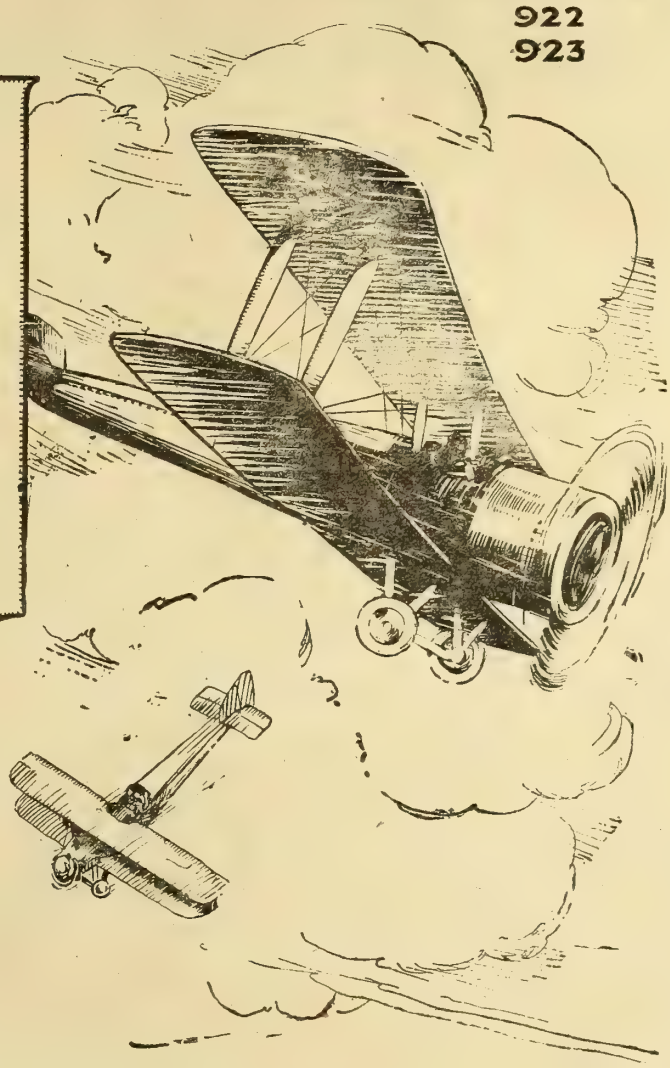
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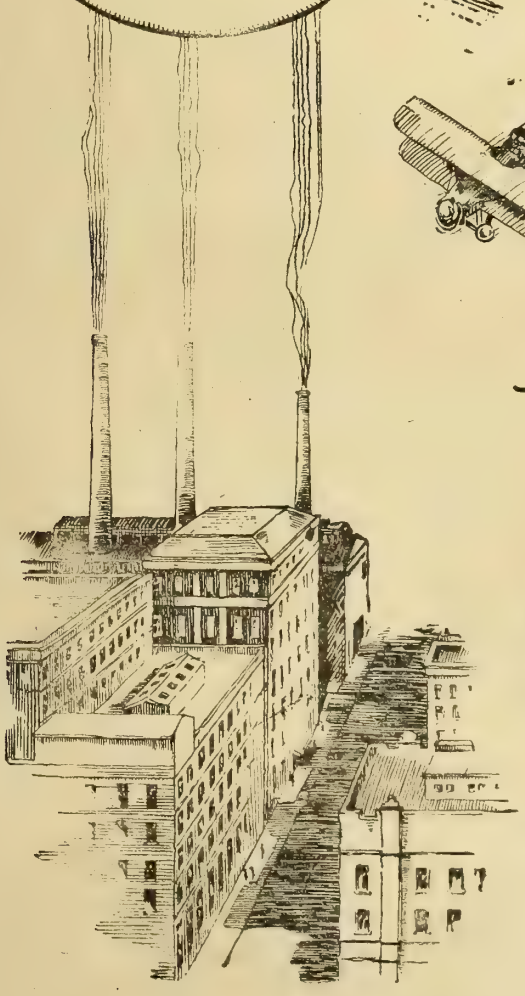
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THE WEEKLY COMMENTARY.

In this week's instalment of the articles on "The Design of Aircraft for Commercial Purposes" the great desirability of increasing the ratio of disposable load to empty machine weight is dealt with, and certain methods by which this end may be obtained are discussed. The conclusion is reached that increase in the surface loading of wings offers the most promising field for experiment to this end, and a belief is expressed that it is possible to obtain very considerable advantages in this way.

The German description of the Sunbeam "Arab" engine, which began in the issue of February 19th, is concluded in this week's number.

An article by Mr. H. P. Vowles, A.M.I.C.E., deals with the principles and practices of "Works Costing." The vital importance of accurate costing upon sound principles in so diverse an industry as the manufacture of aircraft should be obvious.

An abstract of an article from the "Scientific American" gives further particulars as to the commercial production of helium for airships in the United States. There appears to have been a very large amount of misconception on the value of this gas, even well-informed people assuming that, since the density of helium is twice that of hydrogen, therefore the available lift is only one-half of that obtained with the lighter gas. Actually, since air is approximately 14 times the density of hydrogen, 1 lb. of hydrogen displaces 14 lbs. of air, and provides a lift of 14 lbs., less its own weight—or 13 lbs. net. The same volume of helium weighs 2 lbs., and still displaces 14 lbs. of air, giving a net lift of 12 lbs.

In addition, the rate of diffusion of a gas through a porous envelope is inversely as its density, and helium will therefore diffuse less rapidly than does hydrogen, and will maintain a more constant purity.

THE DESIGN OF AIRCRAFT FOR COMMERCIAL PURPOSES.—III.

By Capt. W. H. Sayers, R.A.F.

Considering now the direct effect of the previous investigation of the nature and habits of costs upon the design of aircraft, it is evident that to attempt either to reduce direct operating costs without considering the effect of such an economy upon capital charges, or to reduce capital charges without bearing in mind the effects which may result to the operating costs, may lead to very unsatisfactory results.

Both types of cost must be considered and a suitable compromise reached between the two desiderata of the machine cheapest to build and the one cheapest to run, which will give the lowest possible total costs.

Since capital costs per ton mile increase rapidly with decreasing use of the machines in service, whilst the operating costs are less affected, the relative importance of the two types of cost will vary with the type of service.

Thus for a traffic which entails a high daily average of hours flown in service, economy in operation will justify an increase in prime cost as compared with a service which only calls for a low average of hours in the air, where low prime cost will be of more importance than low running costs.

It may therefore be considered as certain that ultimately machines for commercial purposes will vary very considerably according to the nature of the service for which they are intended.

Considering the aeroplane in its present stage of development, however, there is little likelihood of a commercial service maintaining a daily average of as much as 5 hours' flying per day. Also, no present aeroplane can be credited with a useful life exceeding three years of steady use, which entails a depreciation charge on the prime cost of the machine of at least 33⅓ per cent. per annum—a charge identical in its incidence to capital charges. This charge from the designer's point of view must be treated as a capital charge.

One is therefore brought to the conclusion that, in most commercial services of the immediate future, capital charges will assume a very great importance as compared with running costs, and that there is therefore a future for machines wherein low first cost, combined with reliability and robustness of construction have been secured even at a considerable increase in the cost of running, and possibly at a considerable sacrifice in performance.

For commercial purposes prime cost must be measured in terms of cargo capacity. From the manufacturing standpoint, cost is roughly proportional to the weight of empty machine, assuming that similar materials, similar methods of construction, and uniform standards of workmanship are employed.

Therefore, if any great increase in the ratio of disposable load to structure weight can be obtained without an undue increase in the cost per lb. of structure, an important advantage may be obtained.

It has already been indicated that on present-day standard practice, a high ratio of cargo capacity to structure weight can only be obtained over a limited range of sizes.

One of the most important problems, therefore, is to increase this ratio and to extend the range over which it may be kept at a high value, without increasing the prime cost of machines per ton of cargo capacity.

The previous considerations as to the variation of the cargo capacity to total weight ratio, based on average present-day practice, assume approximately uniform loading per square foot, uniform factors of safety, and roughly equal cost per lb. of unloaded machine.

None of these factors is necessarily constant.

If a machine of definite overall dimensions is loaded with increasing total loads, and if the cross sections of all spars and all bracing wires are increased directly as the total load, then a constant factor of safety can be obtained, with a structure weight directly proportional to the total load.

If a "family" of machines of varying loadings and overall dimensions, similar in their general arrangements and proportions, but with the sections of their members suited to the loadings, is considered, then theoretically the weight of any machine in the family is proportional to the loading per sq. ft. and to the cube of any leading linear dimension—such as the span. Thus actually the factor determining the ratio of structure weight to total weight is any characteristic linear dimension. Here again practice will not agree with theory in that machines are not built strictly to the degree of similarity demanded by the theory.

Nevertheless, a very great increase in the ratio of useful load to structural weight can be secured if the loading per sq. ft. can be sufficiently increased.

Actually all designers of large machines have increased the loading per sq. ft. of their wing surfaces—and for this very reason. Unfortunately such an increase in loading, on any given form of aerofoil, leads to an increase in minimum speed (proportional to the square root of the loading), a decrease in climbing rate and in ceiling, and, if carried beyond very narrow limits, to a great loss of speed for the same weight—to—h.p. ratio.

But it is believed that it is possible, by suitable aerofoil design, to increase the surface loading to a very much greater extent than has yet been attempted in practice, and to gain thereby a very large saving in the costs of aerial transport under favourable conditions. The possible extent of such a saving will be dealt with in detail hereafter.

If the factors of safety of any given aeroplane are reduced throughout in any given ratio, the structure weight of that machine may be reduced in that ratio.

Advantage has been taken of this fact in the design of large machines, and is justified by the fact that since such machines are neither expected to, nor liable to, indulge in aerial acrobatics, they are not subject to the same abnormal loadings as are the smaller types.

Obviously there are definite limits to the extent to which it is advisable to reduce safety factors in commercial machines. As knowledge of the stresses to which a machine is subjected in the air becomes more accurate, it will become possible to estimate safety factors more closely, and to proportion all members more accurately to the work they may have to do. Progress in this direction can only come through experience, and is now likely to be a relatively slow process.

By the use of superior material, and better and more accurate workmanship, it is possible to reduce the weight of structure, at an increase in the specific cost per lb. of empty machine. It is improbable, under prevailing conditions, that any great improvement can be achieved without increase of specific cost at a greater rate than the decrease in structure weight—i.e., it is not likely that such improvement in detail design and workmanship will lead to a decrease in the prime cost of a machine to carry a given net load. Such improvements will occur, and to a large extent, with increasing demand and improved methods of manufacture, but the improvements will be gradual in their nature.

These considerations lead to the conclusion that, if any serious reduction in the prime costs of aircraft for commercial purposes is to be effected immediately, it must probably be looked for in the direction of developing machines with heavy surface loadings, and the immediate question is, to what extent is it practicable to increase such loading? This question resolves into the two further questions:—

(1) What effect will increase of loading have on machine performance?

(2) What effect will it have upon the costs of running a commercial service?

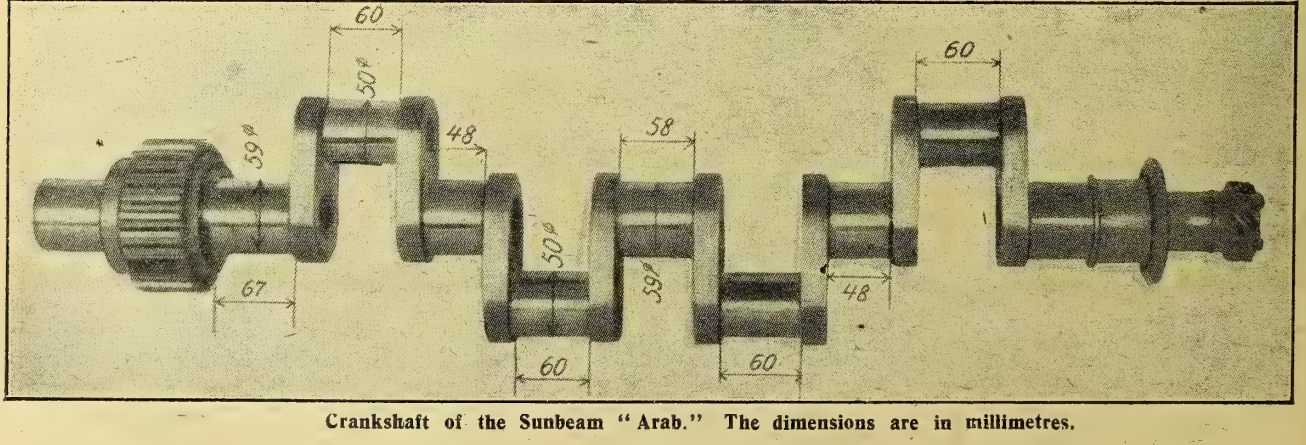
(To be continued.)

A GERMAN CRITIQUE OF THE SUNBEAM "ARAB" ENGINE.

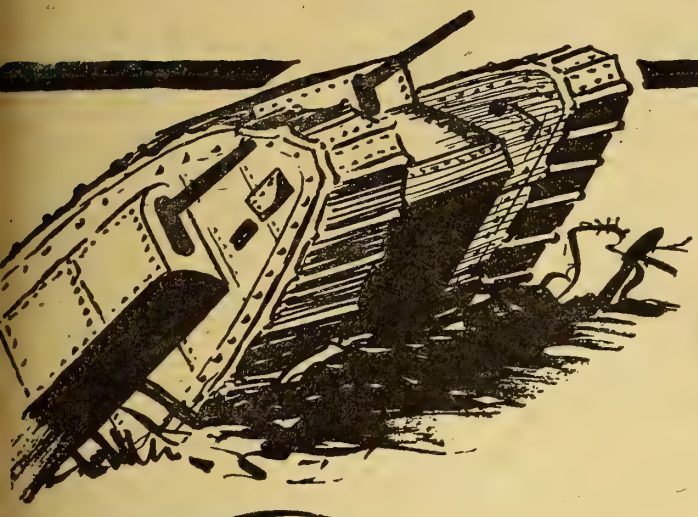
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Three piston rings are provided above the gudgeon-pin. A fourth ring at the other end of the piston is fitted to scrape off surplus oil. The gudgeon-pin is locked against side displacement by spring rings and studs resist turning. Where the gudgeon-pin bearings penetrate the body of the piston, the latter has been milled flat to avoid seizing caused by distortion of the piston.

The cylinder block is another interesting design item. As in the Hispano-Suiza motor the four cylinders are united in a single aluminium casting. In this case the cylinder casing is extended to the crankcase to which it is fixed through very strong flanges, which renders the whole construction rigid indeed. The steel liners of 2 mm. wall thickness are not screwed in, but are held and prevented from moving by a collar, turned at the bottom. Two small exhaust valves and one large inlet valve are mounted in the cylinder head, inclined slightly in relation to the cylinder shaft, with bronze seats screwed into the aluminium casing. Inserted cast iron bushes serve as valve-stem



Crankshaft of the Sunbeam "Arab." The dimensions are in millimetres.



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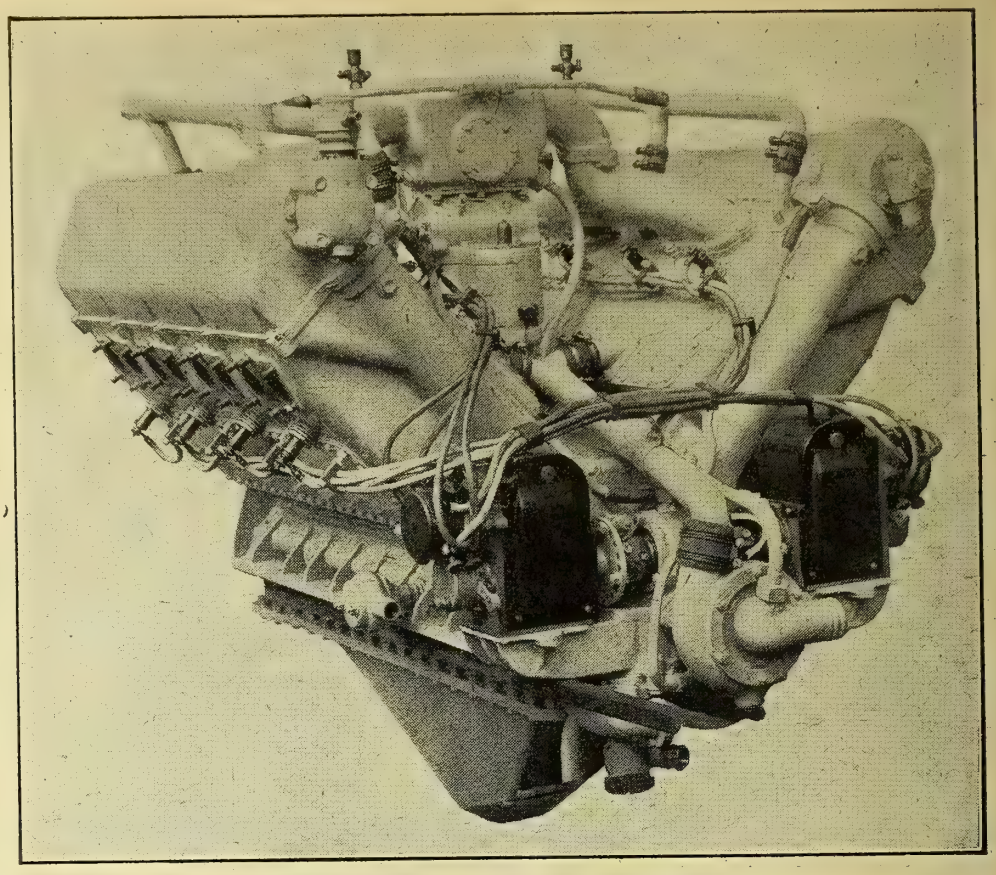
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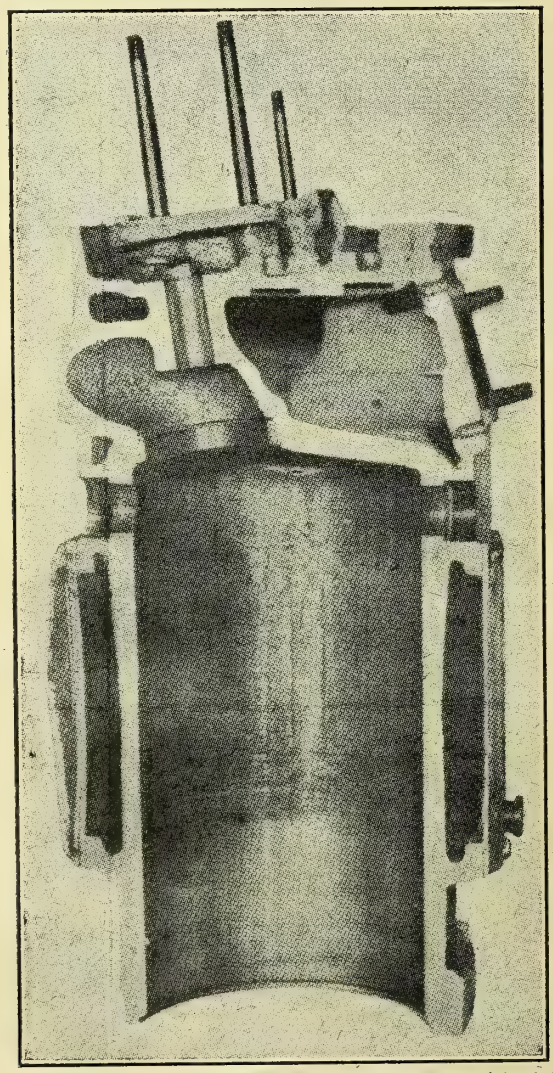
guides. Special steel bushes are provided on both sides for the plug-threads. Below the plug socket the water-jacket casting is open, with aluminium sheet covers, strengthened by pressed ribs, and fixed with 16 screws to flanges on the block. The top side of the cylinder block is provided with a straight through tunnel carrying the camshaft bearings.

The weight of the cylinder block, ready for erection. with all studs is 35.6 kg., somewhat heavier than in the Hispano-Suiza engine.

The valve gearing differs fundamentally from that of the Hispano-Suiza, this motor being equipped, as already mentioned, with two small exhaust valves of 36 mm. diameter, and one large inlet valve of 53 mm. diameter per cylinder. The valves are operated by the camshaft through twin-armed levers for the exhaust valves, and single-armed ones for the inlet valve. There are no cam-rollers, the rocking levers bear direct on the cams. The lever end does not press direct on the head of the valve stem, but on an inserted thrust-jacket. The play between the latter and the lever can only be readjusted by inserting sheet discs in the jacket. A better arrangement might have been devised here. The whole valve-gearings is enclosed in an oil and dust-proof casing as in the Hispano-Suiza. The lubrication takes place through the hollow camshaft.



Magneto End of "Arab" Sunbeam Engine.



A Section through a Cylinder of the "Sunbeam "Arab."

The camshaft drive is by an auxiliary shaft, running in a casing cast on at the end of each cylinder block parallel to the cylinder.

The twin-carburetter, mounted between the cylinder blocks, is a Claudel-Hobson, with altitude regulation, much used by enemy aero-motors, with no special features. As in the Hispano-Suiza the incoming air is pre-heated by the radiator, the carburetter intake is fitted with a heating jacket, and the induction pipes are without any heating device. With induction pipes of greater area, combined with the amply dimensioned inlet valve, the charging of the cylinders is better provided for than in the Hispano-Suiza, and the performance, stated at the beginning of the article, should be surpassed.

The ignition arrangements correspond both as regards to position and drive with Hispano-Suiza practice.

The circulating pump is of the usual centrifugal type, and is driven direct from the rear end of the crankshaft. From the pump the cooling water enters the water-jacket of each cylinder block on the inner side of the cylinders between the third and fourth cylinder in each block. To obtain an equal distribution of the water inside the water-jacket, each cylinder block is provided with three gutters, any steam pocket formation being avoided by their favourable position.

The lubrication system is a simple circulation system with a pump extracting the oil from the lowest point of the very deep sump. The oil is pumped by a circulating pump into the already described oil ways in the upper half of the crankcase, thence distributed to the different bearings. At the front end of this oil channel a branch pipe to the gear box leads oil to the gear wheels. The oil collected in the lower part of the crankcase is then returned by the suction pump to the oil tank, which may be replaced by an oil radiator.

The reduction gear is of the usual spur wheel type, and of the following main dimensions:—

Gear ratio, 2,000/1,500; gear teeth, 27/45; gear diameters, 110.97 m./194.95 mm.

The shaft of the large wheel serves at the same time as air-screw hub, the rear flange of which is in one piece with the shaft. A cam ring, operating the machine-gun control, is screwed to the hub.

Briefly, it may be said that the motor is a somewhat belated, partly improved, edition of the Hispano-Suiza motor, but shows no great development of the original, though in many details it can give German aero-motor designers hints. Specially the use of aluminium die castings should be emphasised.

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THE ELEMENTS OF WORKS COSTING.

By Hugh P. Vowles, A.M.I.M.E.

It has been the writer's privilege, during the war, to be concerned with the reorganisation of a considerable number of small engineering and aircraft factories; and of the many deficiencies met with, none was more striking than the widespread lack of knowledge, on the part of managers and managing directors, of the elements of factory costing.

Yet the ability to analyse costs, and thereby to control expenditure, is surely as essential to efficient works management as that other prime function of a manager, the increase of output. Nevertheless, quite recently, the managing director of not one, but *several* small aircraft factories, was heard to complain that the operating expenses in his London works were 120 per cent., whereas at one of his provincial factories they were only 50 per cent.

Upon being questioned, it was found that he had overlooked the differences in rent, rates, taxes and district labour rates, and further he was unable to say what was included in the term "operating expenses," or *of* what these expenses were 50 per cent. Such abysmal ignorance is, of course, an extreme case; but it serves to indicate a mental confusion by no means rare.

Scientific Methods.

Now, costing is simply applied science, and is the outcome of a determination to arrive at facts, however unpalatable such facts may be. Science "is the denial that chance impulse and individual will and happening constitute the only possible methods by which things may be done in the world. It is an assertion that things are in their nature orderly, that things may be computed, may be calculated upon and foreseen."—(H. G. Wells.)

In this spirit let us first consider the objects of costing; then define certain terms which are frequently used very loosely; and, finally, outline briefly the elements of a costing system. It may be useful also to add a few remarks on estimating.

The Objects of Costing.

The main objects of a costing system are to enable the management:—

(1) To control expenditure within the limits of production and financial efficiency.

(2) To obtain an indication of time and material wastage.

(3) To realise the incidence of factory and general expenditure.

(4) To obtain information essential to the preparation of estimates and tenders.

Other reasons will, no doubt, occur to the reader, but these are sufficient for our present scope.

Definitions.

Confusion has arisen in some minds in consequence of the loose manner in which the terms "oncost," "factory charges," "establishment charges," and "overhead charges" are used. To eliminate the possibility of such confusion arising here, these terms are defined, and used throughout this article, in the following sense:—

Factory Charges.—These include General Works Administration Expenses, such as wages paid to foremen, charge-hands, works clerks, viewers, tool-setters, toolroom hands, etc. Also materials and labour not directly chargeable to production or maintenance. They exclude capital expenditure and general business administration expense as defined below.

Oncost.—This is a vague term, and will not, therefore, be used.

Establishment Charges.—These include General Business Administration Expense, such as salaries paid to managers and office staff; also all expense of a general nature, incidental to the running of the business as a whole; such as rent, rates and taxes, insurance, telephone, stationery, postage, and so forth. It should be borne in mind that even where premises are owned, an allowance is usually made for rent.

Overhead Charges.—This term will be used to indicate the total of Factory and Establishment Charges.

Costing Procedure.

It is not intended here to discuss a system which will give the detailed results necessary to a large undertaking, but rather to outline the elementary considerations from which a costing system can be elaborated to suit individual requirements. Nor is there any intention of dealing with those points regarding which acute differences of opinion exist, such as machine hourly rates, etc. Again, Capital Expenditure, and that other item of expense, Selling Cost, are matters which, in the writer's opinion, fall outside the scope of this paper.

There are three main considerations in costing, viz.:—

(1) Cost of labour.

(2) Cost of materials.

(3) Overhead charges.

The third of these, however, includes part of the cost of labour and materials; such as, for example, the labour of cleaning the works, and materials such as oil or emery cloth which cannot be charged to any particular job. Items (1) and (2) must, therefore, be subdivided into:—

Direct labour and materials, namely, that which can be directly charged to productive work; and indirect labour and materials, namely, that which is of a general nature and cannot be so charged. Moreover, item (3) consists of factory charges and establishment charges, as already defined. We may thus set out our three main items afresh as follows:—

Cost of:—

(1) Direct labour.

(2) Direct materials.

(3) Overhead charges, comprising:

(a) Factory charges.

(b) Establishment charges.

It may be noted that where a works includes several departments (i.e., fitting shop, machine shop, woodmill, assembly shop, etc., the factory charges should be kept separately for each department. To this we may return presently.

The productive work of a factory is divided into productive units called "jobs," and each job is given a number. Sometimes a job may comprise the whole of a contract, but where different classes of workmanship are involved it will obviously be convenient to divide the contract into several jobs.

Again, in the case of repetition work, the contract may be split up into batches, each batch being a separate job. Thus when these jobs are costed, comparisons can be made as to the cost of each batch. Indirect or "non-productive" labour is allocated to a series of "standing jobs"; or jobs which carry on indefinitely, but are costed periodically.

Let us take our three main divisions in order:—

(1) Labour Cost.—This is arrived at by a system of Job Cards and Time Sheets. Each job has its card, bearing the job number and instructions to the foreman as to the nature and extent of work to be carried out to that number. Each workman has time sheets, on which are entered the numbers indicating the jobs on which he is working, together with the time of starting and stopping work on each job. Also the number of "pieces" in the case of piecework. We will assume that there is a job clerk in the works office, whose duty it is to enter on the time sheets the job numbers, etc. Sometimes cards are substituted, which can have starting and stopping times stamped on them by a time recording clock.

Time sheets on completion are checked and signed by the foreman or charge-hand, and sent to the cost office weekly, where the hours for each employee are totalled on his time sheets, and checked against the total time of the same individual as shown on his clock or "working hours" card. This constitutes a Time Check. In addition, the employee's hours booked on the time sheets are multiplied by his rate, the result being checked against the week's wages as calculated from the clock cards. This constitutes a Wages Check.

The hours expended by each employee on each job, and known as Job Times, are posted in the cost office to a Labour Summary, consisting of a vertical column for each job. The total for each column gives the weekly Job Labour cost. This (including added time, such as overtime extras and National Insurance) must agree with the total wages paid for the week. The labour is then analysed on the Summary into Direct and Indirect Labour, and the Direct Labour cost posted to a job ledger.

(2) Material Cost.—All materials must be issued from stores against stores requisitions, which must quote the job number involved, and should be signed by the workman and initialled by the foreman. If all the materials issued are not used, the surplus must be returned to stores with a Credit Note. It is scarcely necessary to describe forms in such general use. They are in duplicate, sometimes in triplicate, one copy being intended for the cost office. Cost office copies are "priced" by someone conversant with current prices (it will be found convenient to compile a Price Card Index from current invoices, etc., for reference) and handed weekly to the Cost Office, where the "prices" for each job are posted to a Weekly Job Material Summary. The stores superintendent sometimes keeps a Goods Outwards Book, recording all goods issued to the shops, the weekly total of which should check against the total of the Weekly Job Material Summary.

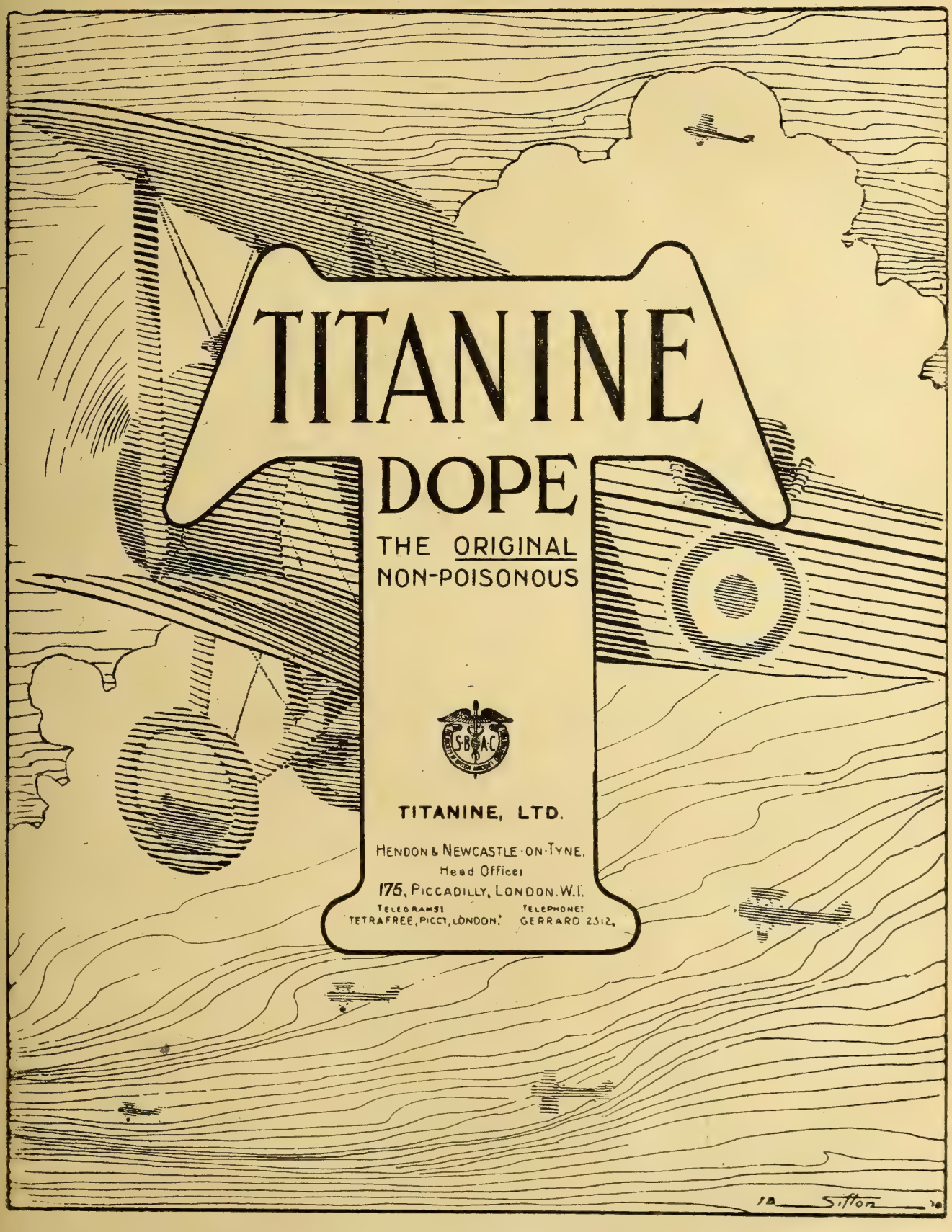
Job Material Costs are then posted to the Job Ledger.

The Job Ledger is ruled so that jobs can be conveniently costed for labour and materials. There will also be columns for Factory Charges and Establishment Charges.

(3) Factory and Establishment Charges.—These costs should be readily summarised from the Financial Books, Salary Sheets, and Standing Job records. It is found convenient to express the totals in each case as percentages of direct labour cost, *not* direct labour plus material cost. The reason is that (using the language of the Calculus) overhead charges are a function of direct labour, whereas material cost is an independent variable.

For example, cost of supervision can be reduced if the labour in the factory is permanently cut down by one-half. But if, having made tanks of aluminium, they are subsequently made of tinned steel, the reduced cost of materials does not result in reduced cost of supervision.

These percentages will be entered in the columns provided in


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the Job Ledger. As stated previously, where there are several works departments, Factory Charges will be allocated accordingly, and a percentage worked out in each case.

The Job Ledger will now show :—

Direct Labour Cost.
Direct Material Cost.
Departmental Factory Charges. (Percentage.)
General Establishment Charges. (Percentage.)

The total of these gives the Total Manufacturing Cost.

It will be seen that the Departmental Factory Charges for a sheet metal shop may be, say, 50 per cent., and for a machine shop, say, 90 per cent. So that if the General Establishment Charges are 30 per cent., the total Overhead Charges are in one case 80 per cent., and in the other 120 per cent. This clearly indicates the necessity for departmentalising, for estimating purposes; for if these expenses were "lumped together," it would result in a price being quoted for tinsmiths' work, probably far in excess of that quoted by a competitor whose factory dealt with sheet metal work only. Perhaps a few notes on Estimating would form a fitting conclusion of this paper.

Estimating.

For this purpose a special form will be found convenient, consisting of columns for Labour, Special Tools, Materials, Summary, and remarks. The form may be suitably headed with date, main contractor's name, nature of work and the like information. In the Labour column the various operations should be enumerated, and against each item the time estimated to be taken is entered, together with the worker's rate. The total will give Estimated Time Cost.

The cost of any special tools required should next be estimated, and divided by the number of similar articles to be made, so as to get the cost chargeable to each article. Next, the materials can be estimated from the inquiry drawings as to quantities, and priced from the Price Card Index. Finally, the Summary will be made as follows :—

(1) Labour.
(2) Factory Charges. (Percentage.)
(3) Special Tools.
(4) *Materials.*
= Total Works Cost.
add (5) *Establishment Charges.* (Percentage.)
= Total Manufacturing Cost.
add (6) Contingencies at X per cent. of Manufacturing Cost.
add (7) *Profit at Y per cent. of this total.*
= Price to be Quoted (Less Selling Cost).

The X per cent. contingencies may sometimes be omitted, but it will generally be found that this item is fully justified by (a) Scrapped Work, and (b) matters arising which cannot be foreseen at the time of tendering. It may possibly be in the region of 5 per cent., but must clearly be based on individual experience. The percentage of profit is also a matter for each individual works.

Finally, the reader is warned that all Cost Accounts are approximations only, but none the less valuable for that. And further, it is one thing to institute a Costing System, but quite another to handle the human element so as to ensure that the basic details as to hours worked, materials used, etc., are returned with reasonable accuracy and promptitude.

This is a matter calling for constant vigilance and "following up." A manager must, in his limited field, apply those qualities which, with wider application, make for able statesmanship. He must, in short, look before and after, and have a range of vision enabling him to grasp the situation and destiny of his company and of the people under his control.

BRITISH RIGID AIRSHIPS.

The "Daily Mail," of February 14th, contains the following statements as to the R.33 class of rigid airship :—

The first of the type has been built for the Admiralty by Messrs. W. G. Armstrong, Whitworth and Co., Ltd., near Selby, Yorks, and was originally designed for ocean-going war service. A trial flight may be made in a few days.

Mr. H. H. Golightly, the works manager, gives the following details :—

Length	670 ft.
Diameter	79 ft.
Capacity	2,000,000 cu. ft.
Fuel for 8 days' continuous running	

A speed of at least 70 miles per hour is expected on trial.

The weight in flying trim will be over 60 tons, with carrying capacity of between 27 and 30 tons. She is expected to be capable of a non-stop journey across the Atlantic *and back*. For war purposes she was to have carried four 580-lb. and eight 250-lb. bombs, also machine and other guns.

All along the internal corridor in the hull runs a girder from which the petrol and water ballast tanks and so forth are supported. In the cabin space hammocks for a crew of 23 can be slung. The five engines total 1,250 h.p.

DOPE AND ITS DETERIORATION.

A paper by Mr. E. W. Aston, M.A., D.Sc., A.I.C., of the Royal Aircraft Establishment on "Fabric and Dope," read before the Royal Aeronautical Society on Wednesday, Feb. 12th, dealt almost entirely with researches into the rate of deterioration of doped fabric under exposure, and with the methods employed in those researches.

The paper is of very great interest to those who are concerned in the manufacture of dope, and is also of interest from the purely scientific point of view. To the aeroplane manufacturer the results of the paper may be summed up very shortly.

They are briefly that deterioration of doped fabric is entirely due to the action of light, that rays of a shorter wave length than those in the visible spectrum, i.e., ultra-violet rays, are the main cause of such deterioration, and that by a proper use of protective pigment such deterioration can be practically abolished. A considerable portion of the paper deals with the measurement of fabric tautness. It is hoped very shortly to deal fairly extensively with methods of measuring the tautness produced by doping, and reference will then be made to this part of the paper.

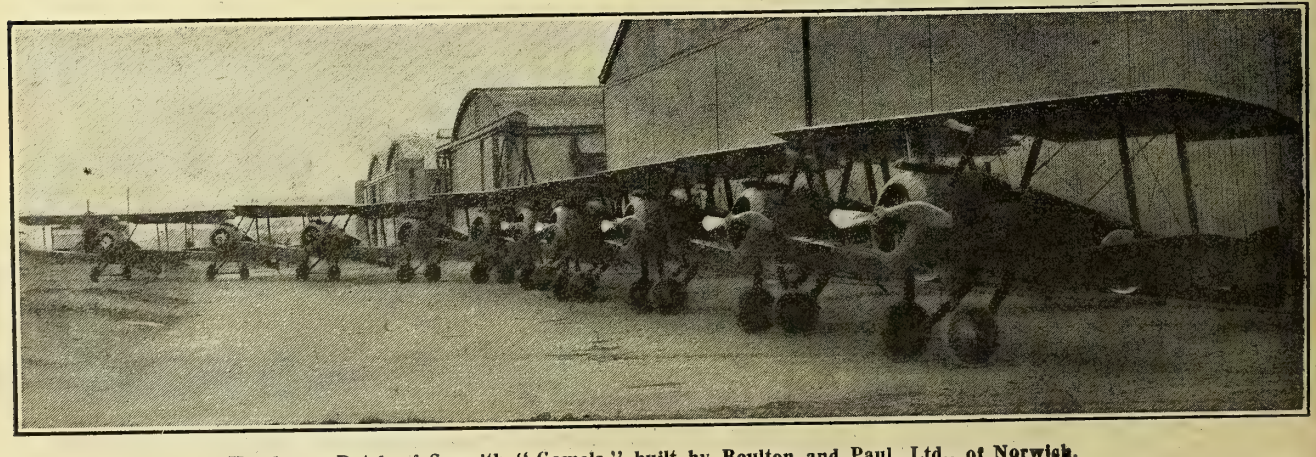
TO PREVENT RUST.

In many instances where metal is in close contact with metal —such as in the case of bolts, nuts, etc.—there is a distinct tendency for rust to form, and especially so when the articles have been exposed to water. This obviously means that it will be difficult to separate the two pieces of metal when needed, and also that the articles will be so damaged as to prevent further use.

However, it is claimed for "Universoline," that all metal articles lubricated with it can be separated quite easily, and, furthermore, will be in an undamaged condition.

"Universoline" is in the form of a paste, and can be obtained packed in barrels of 3½ to 5 cwts.; also in iron kegs of 112, 56, 28, and 14 lbs. net weight. The price is 2s. 6d. per lb., including packing and carriage rate.

Any readers of The Aeroplane, who may be interested in this material, can obtain a sample tin on application to Sterns, Ltd., Royal London House, Finsbury Square, London, E.C.2, who are the manufacturers.



A Handsome Batch of Sopwith "Camels" built by Boulton and Paul, Ltd., of Norwich.

HELIUM AND THE AIRSHIP.

Baron Ladislas D'Orcy contributes an interesting article to the "Scientific American" of January 25th, on the removal of the principal weakness of the airship, namely, its liability to catch fire owing to the inflammable properties of the hydrogen in its envelope.

In the past the difficulties of providing a non-inflammable substitute have proved to be an unsurmountable stumbling block. The existence of suitable gases was well known, but the great difficulty was how to produce them commercially at a reasonable cost.

The most suitable inert, non-inflammable gas, helium, is the second lightest known, the lightest, of course, being hydrogen. Helium is relatively abundant in all minerals which contain radium, thorium, or uranium, such as thorianite, cleveite, etc., but the operation of separating helium has involved such a great expense that its use as a hydrogen substitute could not seriously be considered. As a matter of fact, the cost varied between £400 and £1,200 per cubic foot.

Shortly before the outbreak of war an investigation was made in the U.S.A. to ascertain the composition of the natural gases which occur in the deposits in the South-West, where they serve for illuminating purposes. It was then found that the natural gases of Kansas, Oklahoma and Texas contained about one per cent. of helium.

The discovery, however, was not followed up, there being no demand which would have warranted the development of the necessary apparatus for drawing off the helium, for the good and sufficient reason that this gas could only have been used in large quantities for filling airships, and there did not exist at the time a single American airship.

To Help the War.

It was, however, pointed out by the British Government that the American Government could make an important contribution towards winning the war by producing helium on an industrial basis.

The problem was promptly taken up by the Bureau of Mines and the Aircraft Board, with the result that an experimental plant was constructed on original lines, and each of two companies engaged in the production of liquid air was induced to build a plant to its own designs. All these plants are now in operation, but that developed by one of the liquid air companies has so far given the best results, and, in fact, the solution of the whole problem is almost entirely due to its efforts.

A large production plant to cost about £400,000 is now being built for this concern at Fort Worth, Texas, by the Bureaux of Steam Engineering and Yards and Docks of the Navy Department, and will be operated by the firm for the Navy, which has control of all U.S. Government airships.

Baron D'Orcy states that shortly before the Armistice was signed quantities of helium had been shipped abroad for use in American observation balloons, and plans had been perfected for the construction of a large Anglo-American fleet of rigid helium-filled airships for the purpose of conducting a large-scale bombing campaign against the strategic centres of Germany.

Incidentally it is amusing to try to imagine the state of mind of the pilot of a German fighting machine who had dashed through a heavy anti-aircraft barrage to attack a kite balloon with incendiary bullets, only to find that his missiles had no appreciable effect on the peace of mind of the balloon or of its occupants.

Electrical Dangers.

The author of the article states that in addition to the drawback to the use of hydrogen because of its liability to be ignited by exhaust collectors, etc., is the fact that the envelope of an airship runs some risk of becoming electrified and of emitting sparks from creases in its fabric, a result which may lead to fire. It is said that the Germans overcame this risk by the use of a cotton fabric lined with gold-beaters' skin, which apparently does not become self-electrified.

It is also well known that hydrogen, when mixed with air, is not merely inflammable, but is highly explosive, and in rigid airships, therefore, its use always involves a certain amount of risk of explosion, owing to leaking hydrogen mixing with the air in the outer skin of the airship.

If, as there is every hope, it is found practicable to produce helium in large quantities, all these objections to the use of the airship, both for commercial purposes and for Service purposes, will be removed, and in time of war the airship will not run any risks other than those which are sustained by any other vehicle of transit.

Comparative Densities.

The principal drawback to the use of helium in the place of hydrogen is its much greater density, its lifting force being about 8 per cent. less than that of hydrogen, because helium is about twice as heavy as hydrogen. This does not, of course, mean that helium will lift only half the weight of that lifted by hydrogen, because the ruling ratios are those between the respective densities of the two gases and that of the air. In other words, helium will lift about 65 lbs. per thousand cubic feet, as against 70 lbs. lifted by commercial hydrogen. This drawback is, however, insignificant in view of the enormous advantages possessed by helium as a lifting gas.

AN ITALIAN TRANSPORT COMBINE.

Sixty-four firms, associates of the S.I.A.I., roughly translatable as the Syndicate of Industrial Aeronautics of Italy, recently met and decided to throw open the syndicate's doors to all firms engaged in mechanical transport in this land. The interpretation of the phrase is as wide as possible, and the invitation is expected to be generally accepted.

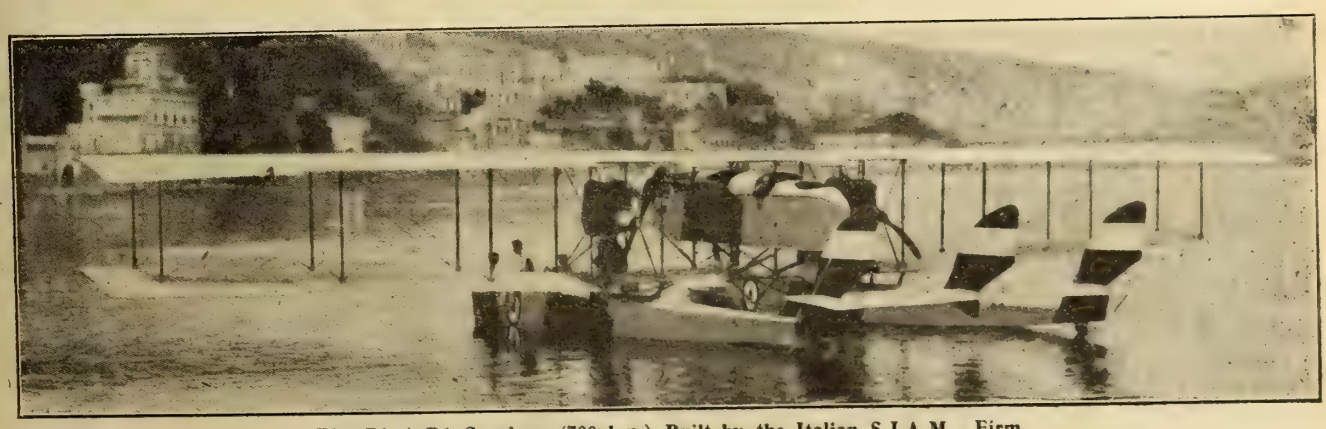
The union for mutual help of all these progressive business houses would make the syndicate a very big lump of leaven in Italy's commercial activity, and should give her just that thrust necessary to keep her tail up against the trade competition of the rejuvenated world which our talking men—I write the word not unrespectfully, for there is a place and time for all things—are so vehemently promising to evolve for us.

The signatory firms state that their united capital exceeds the milliard of lire, and offer to modify the title and formularies of the S.I.A.I. so as to include all parties, which incidentally would result in less confusion in writing of the society itself and other concerns, such as the Santoni-Savoia Company, of Sesto Calende, also a S.I.A.I., and one of the signing firms, etc. It is fortunate for other nations that this mechanically minded people was so overlooked when Nature assigned the world's mineral deposits.—T. S. H.

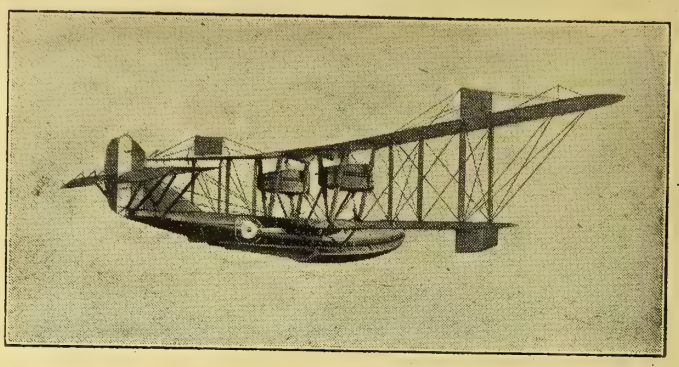
NEWALL GAUGES.

It is announced that the Newall Engineering Company, which, during the latter part of the war, was taken over by the Ministry of Munitions and operated as a national gauge factory, has now reverted to its former proprietors, Peter Hooker, Ltd. Accordingly, the company intends to reorganise and develop its well-known pre-war business in gauges, micrometers, and measuring machines, together with additional specialities which will shortly be announced.

The Newall Engineering Company has appointed Capt. R. J. Bray, late Director of the Machine Tool Section, Aircraft Production Department, as general manager, and very interesting developments are expected.



The Ricci R1 Seaplane (700 h.p.) Built by the Italian S.I.A.M. Firm.



Phœnix
BRADFORD

Contractors to H.M. GOVERNMENT.
DESIGNERS AND CONSTRUCTORS OF AIRCRAFT.

Speciality
LARGE FLYING BOATS.

TELEPHONE: Bradford 3700 (7 lines)
PRIVATE BRANCH EXCHANGE. 530 Victoria.

Thornbury Works : BRADFORD.
Dick Lane Works :
VICTORIA STREET, WESTMINSTER, LONDON. S.W.1

TELEGRAMS: Dynamo, Bradford
Phedyna, London



ARMSTRONG, WHITWORTH
NEWCASTLE-UPON-TYNE.

TELEPHONE :- 500 GOSFORTH.
TELEGRAMS :- ARMSTRONG AVIATION, NEWCASTLE-ON-TYNE.

PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by THE AEROPLANE from the current Official Patents Records :—

PATENT APPLICATIONS.

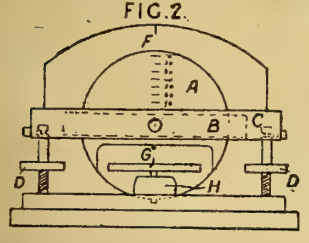
Allen, E. Balloons or airships for signalling. No. 3219. Feb. 10th.
Barbarou, M. J. B. Carburetters for aviation engines. No. 3783. Feb. 15th.
Curtis, C. D. Screw wire-strainers and locking-clip. No. 3367. Feb. 11th.
Ellis, G. B. Rotary air propellers. No. 3466. Feb. 12th.
Gowan, C. H. B. Navigating instrument for aircraft. No. 3339. Feb. 11th.
Hasler, H. N. Apparatus for mooring and/or handling airships. No. 3535. Feb. 13th.
Hefford, P. H. Aeroplanes. No. 3290. Feb. 11th.
Holt, H. E. S. Parachutes. No. 3341. Feb. 11th.
Jarman, C. R. Brake for aeroplanes. No. 3487. Feb. 13th.
Joseph, R. Toy aeroplane. No. 3236. Feb. 10th.
Morris, P. J. O. Brake for aeroplane. No. 3432. Feb. 12th.
Phillips, J. Airship. No. 3730. Feb. 15th.
Simons, F. F. Flying machines. No. 3614. Feb. 14th.
Stewart, J. A. Drive mechanism for airships. No. 3707. Feb. 14th.
Weight, W. H. Aircraft. No. 3377. Feb. 11th.
Weight, W. H. Aircraft. No. 3480. Feb. 13th.
Winn, A. E. Drift-determining instruments for aircraft. No. 3549. Feb. 13th.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER MARCH 6TH, 1919.

122,916. Feb. 6th, 1918. Hodges G. Planes of flying machines.
122,948. March 6th, 1918. Collis, A. Automatic device for indicating the position and angle in which an aircraft is flying.
120,192. Oct. 23rd, 1917. Le Cocq, G. A. A. L. Construction of hangar for dirigibles.
122,974. April 25th, 1918. France, A. G. Turnbuckles or wire-stretching devices for aeroplane wires and other purposes.
123,014. Aug. 31st, 1918. Haynes, E. F. Aerial fuse bombs.

ABRIDGMENTS OF RECENTLY PUBLISHED SPECIFICATIONS.

FIG.2.



120,942. Clinometers. ROWLES, S. G. Kethro, St. John's Road, Orpington, Kent.

A gyroscopic clinometer for aircraft, submarines, etc., comprises a graduated sphere A suspended in gimbal rings B, C and weighted with a gyroscope H. A pointer G is fixed to a bridge F on the ring C, which is adjusted by screws D.

121,464. Aeronautics. SOC. DES MOTEURS SALMSON (SYSTÈME CANTON-UNNÉ), 74, Rue St. Lazare, Paris. Nov. 27th, 1918, No. 19580. Convention date, Dec. 11th, 1917. Not yet accepted. Abridged as open to inspection under Sect. 91 of the Act.

STEERING AND BALANCING; CARS AND CABINS; FRAMEWORK.—The pivotal members for the elevators and rudder of an aeroplane

FIG.2.

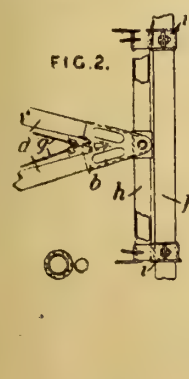


FIG.1.

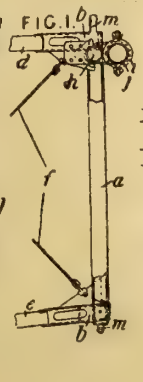
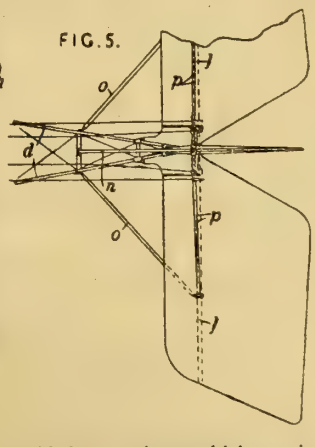


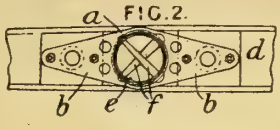
FIG.5.



are supported by a vertical tube welded to sockets which receive the rear ends of the fuselage longerons, the sockets being held in position by the fuselage stay-wires. Figs. 1 and 2 show the sockets *b* welded to a vertical tube *a* and held on the ends of the longerons *d*, *e* by the stay-wires *f*, *g*. The tubular shaft *j* for the elevators is carried by bearings *i* supported by a cross-tube *h* passing through and welded to the tube *a*. The rudder is pivoted on the tube *a* by means of pivots m, m^1. Inclined tubular braces *o*, *n* and stay-wires *p* are arranged as shown in Fig. 5.

121,467. Aeronautics. SOC. DES MOTEURS SALMSON (SYSTÈME CANTON-UNNÉ), 74, Rue St. Lazare, Paris. Nov. 27th, 1918, No. 19583. Convention date, Dec. 13th, 1917. Not yet accepted. Abridged as open to inspection under Sect. 91 of the Act.

FIG.2.



PLANES, CONSTRUCTION OF; FRAMEWORK.—A metal fitting for connecting the ribs of aeroplane elevators to the pivot tube comprises a socket *a* which is secured by pins *f* to the pivot tube *e* and formed with laterally-extending wings *b* for bolting to the ribs *d*.

120,612. Aircraft. BOXELL, S., 21, Hollingbury Road, Brighton.

PROPELLING. An aircraft propeller has blades arranged to revolve round a central axis and these blades are geared in a particular manner so as to obtain lifting or propelling forces only or combined lifting and propelling forces The driven shaft A mounted in ball-bearings carries frames D, E in which the blades G are pivoted. Each blade carries a worm-wheel T which is driven by a worm K mounted on a shaft J capable of sliding and caused to rotate by the pinion N which is always in gear with toothed plate R fixed to the framework. Longitudinal motion is imparted to the shafts J by normally stationary cams R, S adapted to be moved along the shaft A by the lever T. The cam R is for obtaining a combined lifting and propelling force, while the cam S is used for lifting only or propelling only according to its position.

FIG 1

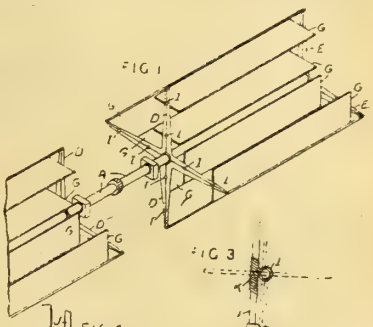


FIG 3

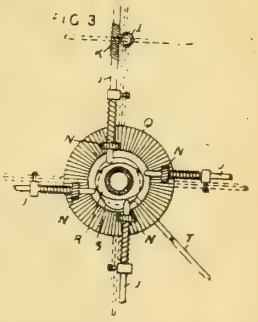
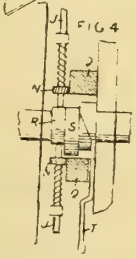


FIG 4



120,694. Clinometers. BRERETON, H. T., 3, St. Albans Road, Hatfield, Hertfordshire.

An instrument for use on aeroplanes comprises a vertical counterbalanced pointer *a*, pivotally mounted in front of a graduated dial *g* fixed in a casing provided with lugs d^1 for attachment to an aeroplane. In the form shown, the weight *h* for counterbalancing the pointer is attached to the pointer itself, but in a modification it is attached to a rod fixed to the spindle *b*. The ends of the pointer 1, 2 are of contrasting colours and in the normal position are over spaces 3, 4 of contrasting colour on the dial.

FIG 1.

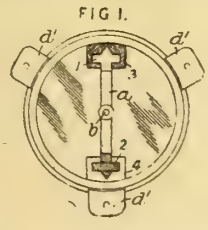
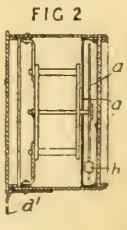


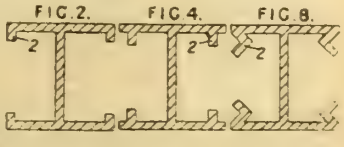
FIG 2



121,459. Girders; aircraft. CARETTA, E., 30, Via Legnano, Turin, Italy. Nov. 1st, 1918, No. 17921. Convention date, Dec. 12th, 1917. Not yet accepted. Abridged as open to inspection under Sect. 91 of the Act.

An aluminium or other light metal girder, chiefly for aircraft, is formed with longitudinal ribs 2 on the inner face of both flanges and either on or close to the edges. The ribs may be inclined inwards or outwards, or may be zig-zag in section. The girders are made by extrusion through a die having the cross-section desired.

FIG.2. FIG 4. FIG 8.





GWYNNES
LIMITED.

CONTRACTORS TO H.M. GOVERNMENT

MANUFACTURERS AND SOLE LICENSEES IN THE BRITISH EMPIRE

"CLERGET" PATENT AERO ENGINES.

ENGINEERS, LONDON.

"GWYNNE, LONDON."

THE AIRCRAFT TRADER

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

FEB. 20th, 1919.

COPPER.—The tendency towards lower prices continues, but there has recently been a little more interest shown, the sales recorded during the past week having been fairly good, although there was a set-back on Monday, when it was announced that the Government had reduced the price of Electro £13 per ton and B.S. £12 per ton.

The statement that the stock of Copper in U.S.A. at the beginning of 1919 was in the vicinity of 445,000 tons appears to be incorrect, the figures having apparently included Copper in transit and being converted. The correct figure appears to be about 50,000 tons. There is every indication that large quantities of Copper are required, but consumers are still backward and lack confidence. The turn must come soon, and it is expected that there will be a big rush of orders when the market begins to get stabilised.

It is difficult to understand why the price of Copper sheets should be £132 per ton when standard is down to £70, and unless the prices of manufactured Copper are kept at a more reasonable level it is no use expecting consumers to come into the market.

A new brand of B.S. Copper has been included in the official list of standard brands of the London Metal Exchange. The makers are the Metallurgical Company, Ltd., and the brand will be known as "M.C.L." B.S. Copper.

COMPARATIVE PRICES.

To-day, February 19th	£75	0	0	per ton.
Last week	80	0	0	,,
Last month	92	10	0	,,
Average, 1918	115	11	6	,,
August, 1914	49	0	0	,,

TIN.—This market is still in a very unsettled condition, although prices here are much lower than Eastern prices. The stocks here are not large, but buyers are reluctant to commit themselves, and as soon as sellers attempt to exert the slightest pressure the market becomes very nervous.

The F.M.S. position is unchanged, and needs watching very closely. The U.S.A. situation appears to have reached a deadlock, and the delay in effecting a settlement is increasing the bitterness shown by consumers.

COMPARATIVE PRICES.

To-day, February 19th	£206	10	0	per ton.
Last week	225	0	0	,,
Last month	249	15	0	,,
Average, 1918	329	11	0	,,
August, 1914	120	0	0	,,

LEAD.—There are many sellers, but buyers are few; the only orders placed are by consumers who are in very urgent need of supplies, and they only purchase enough for their immediate requirements.

It is known that large quantities are wanted, but the price is still too high, and the heavy stocks held by the Ministry have put the market in a lifeless condition.

COMPARATIVE PRICES.

To-day, February 19th	£26	10	0	per ton.
Last week, average	27	10	0	,,
Last month, average	36	5	0	,,
Average, 1918	30	2	0	,,
August, 1914	19	10	0	,,

STEEL.—Generally speaking, this market is very quiet; the industrial unrest has increased the uncertainty and caused consumers to become very chary. The future is very obscure, and until labour settles down a steadier tone cannot be expected. There are very large stocks of High-Speed Steel available, but buyers are only purchasing small quantities.

At present prices have an upward tendency; but it is not expected that this will be maintained, although, as stated previously, the whole position is very uncertain.

TIMBER.—The Timber situation does not show any improvement in the aeroplane section, and it is not expected that there will be any demand until it is seen what the peace demands are likely to be. Recent prices quoted for Walnut and Mahogany indicate a weakening in values, and, although prices may decline still further, it is expected that, when firms get on their peace programmes, the demand will increase considerably and the market will stiffen.

THE MONTHLY MARKET PRICE LIST.

FEB. 20th.

The prices given below are the prices ruling on the above date.

TERMS.—Usual for the various materials mentioned.

Prices must not be taken as specific quotations for definite quantities delivered to any part of the country.

ALUMINIUM.

Ingot	£150 per ton.*

BRASS.

Sheets	14⅝d. per lb.
Strip	13⅝d. per lb.
Wire	14d. per lb.
Tubes	15¼d. per lb
Castings	14d. per lb.
Turning Rod	13½d. per lb.
Brazed Tubes	17½d per lb.

COPPER.

Ingot, Standard, Cash	£76 per ton.*
Ingot, Standard, 3 mos.	£72 10s. per ton.*
Best Selected (net)	£95 to £90 per ton.
Sheets	£132 per ton.
Wire	14¼d. per lb.

FABRIC.*

Linen, R.A.F., 17C, Spec., 36 in. wide, 3s. 1d. p. yd.
Linen, R.A.F., 17C, Spec., 38in. wide, 3s. 3d. p. yd.
Linen, R.A.F., 17C, Spec., 42 in. wide, 3s. 7d. p. yd.
Spaced, R.A.F., 17C, Spec., 37½ in. wide, 2s. 1d. p. yd

GUN METAL.

Castings, Plain	1s. 7d. to 2s. per lb.

LEAD.*

Virgin Pig	£26 10s. per ton, c.i.f. net
Sheets	£42 per ton, D/d net.
Pipes	£42 10s. per ton net.
Dry White	£54 10s. per ton, less 5 per cent.
White in Oil	£66 5s. per ton. (lots over 5 cwt. less 5 per cent.)
Red in Oil	£49 per ton, less 2½ per cent. (lots under 5 cwt. less 5 per cent.)
Red in Oil	£49 per ton, less 2½ per cent.

NICKEL.

Nickel	£195 per ton.

PHOSPHOR BRONZE.

Ingots, 5 cwt. and under	£150 to £172 per ton. (Subject to Copper and Tin Fluctuations.)
Castings	1s. 6½d. to 1s. 10d. per lb.

PHOSPHOR COPPER.

Ton lots	£180 to £186 per ton.

STEEL.

High Speed, 14 p. cent., Tungsten, 3s. 4d. p. lb., basis*†
High Speed, 18 per cent., Tungsten, 3s. 11d. p. lb. basis.

ALLOY STEELS TO AIR MINISTRY SPECIFICATIONS.

Round and Square:—

Specification No. S2	£86
Specification No. S2 (bright-drawn)	£115
Specification No. S8	£86
Specification No. S10	£70
Specification No. S12	£75
Specification No. S14	£43
Specification No. S15	£70
Specification No. S16	£70
Specification No. S17	£75
Specification No. S18 (oil-hardened)	£86
Specification No. K1	£75

Specification No. K2 .....£75
Specification No. K3 .....£86
The above prices are for ¼ in. to 5/16 in. only, other sizes are proportionate.

HEXAGONS.

	.455 and .525	.601 and .710
Specification S2	£79	£77
Specification S8	£79	£77
Specification S2 (bright-drawn),	£112	£112
Specification S8 (bright-drawn),	£112	£112

SPELTER.

English f.o.b., Birmingham £45

TIN.

Tin £213

TINPLATES.

Tinplates (Cokes) .....33s. 3d., basis, f.o.t.*

TIMBER.K

	Official.
Silver Spruce	10s. 4d., c.f.
*English Ash—	
Selected Logs	7s. 6d., c.f., f.o.r.
Selected Lengths and Thicknesses of Plank	10s. 6d., c.f., f.o.r.
Mahogany	1s. 7d. to 1s. 10d.
Walnut	1s. 7d. to 1s. 10d.

* For further details see Home Grown Timber Prices Order.

ZINC.

Zinc Sheets (American)...£95 to £100 f.o.b., New York.
*Official Prices. †Includes Selection and Delivery.

STEEL FOR MOTOR-CARS AND AIRCRAFT.

Much could be written concerning steel alloys. The characteristics of steels required in the different parts of motor-cars and aeroplanes are almost infinite; in one place the requirements are toughness to resist fracture; in another, extreme hardness to stand friction; and in yet another, elasticity under shock. Therefore, it is obvious that the material of each part must be made specially.

Standard tests, indicating the exact degree in which the steel for each individual part must possess the required characteristics, are published both officially and under the authority of recognised bodies like the Engineering Standards Committee.

The ever-growing demand for new qualities and variations in steels in order to keep pace with the new engineering problems has brought forward a succession of types, and the fittest have survived. The pioneers of motor-car construction called into being a whole series of alloy steels, conforming to new standards of weight and resistance. Aircraft steels have followed a similar process of evolution.

Very early in the history of the motor-car great demands were made upon the producers of fine steel. To increase the speed of cars, and reduce running costs, the minimum weight of the finished car was placed at a figure not easily obtained at that time. Most important of all was the reduction of weight in racing cars. Steel-makers were, therefore, urged to produce steels of greater strength and tenacity than were then available, so that parts could be made less massive, while retaining their original strength.

When the aeroplane was introduced as a new method of transport, the weight question again became very acute. The urgent necessities of war called for enormous quantities of alloy steels, which had not only to be fully equal to standard in mechanical tests, but also thoroughly reliable in use. The steel-maker was supplied with what, at the time, seemed impossible specifications, and after a great deal of labour produced even better results than were demanded. Laboratory research was the secret of this success.

Edgar Allen and Co., Lt., Imperial Steel Works, Sheffield, have issued a book, "Steel for Motor-Cars and Aircraft," which unveils some of the mysteries of steel, describes the large variety of Allen steels, their specified uses, and the Air Ministry and other official tests to which they conform. The book is illustrated, and can be obtained free of charge on application to Edgar Allen and Co., Ltd.

HARLAND AND WOLFF APPOINTMENTS.

It is officially announced that, in consequence of the death of Mr. George Cuming, senior managing director of Harland and Wolff, Ltd., Lord Pirrie has appointed Mr. R. Crighton, who is in charge of the Southampton and Liverpool Branches, as deputy chairman of the company and chairman of the managing directors, and Mr. F. F. Robbeck as managing director of the engine works in Belfast, in addition to the Diesel Engine Works at Glasgow, of which he is already managing director.

BOARD OF TRADE ANNOUNCEMENT.

The Board of Trade announce that the Controller of Timber Supplies has arranged with the Admiralty that sales of Timber from Admiralty stocks direct to Shipbuilders and Ship-repairers will cease on March 1st next.

The Admiralty are prepared to receive from Timber Merchants who specialise in Shipbuilding requirements offers to purchase any portion of the Admiralty stocks.

Particulars of the stocks available can be obtained from the Admiralty Agents, Messrs. Denny, Mott and Dickson, Ltd., London, Liverpool, Glasgow, Newcastle-on-Tyne, and Cardiff.

The prices for the Timber will be in accordance with the revised list of maximum prices published in the Board of Trade Journal dated February 6th, 1919, less the customary allowance of £3 15s. per standard. All applications must be for fair specification of the stocks, and no selection will be allowed.

Applications should be addressed to the Director of Materials and Priority, Admiralty, Great George Street, London, S.W.1.

THE DISPOSAL OF SURPLUS STOCKS.

On previous occasions advertisers in The Aeroplane have been reminded that it is possible for them to utilise the advertising space occupied by them for making announcements concerning matters of topical interest to the Aircraft Industry generally. It has also been pointed out that advertising space may be filled with announcements as to anything they have to sell, not only in the nature of their principal products, such as aeroplanes, engines, or the like, but also all manner of surplus stock of standardised parts and raw materials. Quite apart from this, however, the "Aircraft Trader" pages of The Aeroplane are always open to those engaged in the Aircraft Industry who wish publicity to be given to matters of interest to the industry at large. If, for instance, they desire to buy or sell anything, a paragraph in The Aeroplane, which will be read by everyone interested in aircraft matters, will probably put them in touch with the people they are anxious to meet. No charge of any description will be made for rendering this service.

AN INGENIOUS DRILL PROTECTOR.

Brown Brothers, Ltd., of 22-34, Great Eastern Street, E.C.2, are now handling, among many other interesting devices, a simple appliance to prevent the tendency of small drills to snap during use.

This appliance is called the "Central" Drill Protector, and consists of a length of hard brass, drilled from one end to the other, with about three-quarters of its length slotted on one side, the internal diameter being equal to the diameter of the drill to which it is applied. The drill is inserted into the protector, leaving only sufficient of the cutting end projecting for the depth of the hole to be drilled. The split end of the protector is inserted into the drill chuck, and the chuck is then tightened up in the usual manner.

If it is required to drill a hole of greater depth than usual, all that is necessary is to release the chuck and slide the protector farther up the drill for the extra length required, and then to tighten up the chuck again.

The initial cost of this protector is extremely small, and it is soon made good by the result of saving broken drills, as with its use the drills can be employed until they become too short for re-sharpening.

Firms interested in this ingenious money-saving device are recommended to write to Brown Brothers, Ltd., asking them for a copy of a leaflet describing the "Central" Drill Protector. In applications it is desirable to mention the name of The Aeroplane.

THE SUNBEAM PROGRAMME.

Included in the 1919 programme of the Sunbeam Motor Car Co. is a super-sporting model car which is to be fitted with a 100-h.p. 6-cylinder aero-engine. This type of engine, which is known as the "Dyak," follows closely the 8-cylinder 150-h.p. Sunbeam which was fitted to some British airships.

Another car for 1919 is the 16-h.p. model, the engine of which has a bore and stroke of 80 by 150 mm. It is lubricated by means of a gear pump forcing the oil through the crankshaft and connecting rods.

For the cooling system a centrifugal pump circulates the water through a honeycomb radiator, behind which is the usual belt-driven fan. The drive is transmitted to the four-speed and reverse ball-bearing gear box through a leather cone clutch and universally jointed clutchshaft, while the final drive is through level gears.

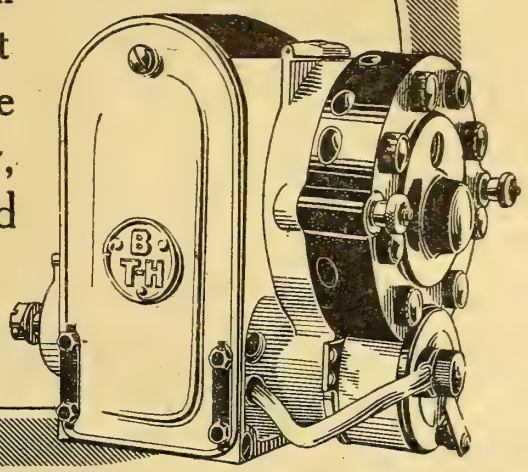
The brakes are both of the internal expanding type, that on the propeller shaft being pedal operated, while the wheel brakes are connected with the usual side lever.

Steering is of the adjustable worm and sector variety, mounted on ball bearings. The petrol tank, of twelve gallons capacity, is carried on the rear of the frame.

A new 24-h.p. 6-cylinder model is also included in the 1919 Sunbeam programme.

B.T.H. Magnetos

are characterised by correctness of design, soundness of construction and reliability in service. It follows, therefore, if you desire magnetos of the highest quality, all British in design and construction, specify B.T.H. Magnetos.



THE BRITISH THOMSON-HOUSTON CO. LTD.
Electrical Engineers & Manufacturers.
Lower Ford Street, Coventry, England.

Member of the British Ignition Apparatus Assn

Oven Furnaces constructed and fired on the DAVIS Patent

Revergen

(REGD. TRADE MARK)

PRINCIPLE

show a Saving in Gas Consumed of $33\frac{1}{3}$ %

as compared with any other known system of Oven Furnace Firing with Town's Gas

PROOF BY DEMONSTRATION ARRANGED — PAMPHLET GRATIS

The Davis Furnace Company (Proprietors: The Davis Gas Stove Co. Ltd.)
THE DIAMOND FOUNDRY, LUTON

Engraved Plates

We make Dials, Instruction Plates, etc., in any quantity, to any specification from metal, ivory, ivoroid or bone—guaranteed lasting, no matter what the climatic or working conditions to which they are subjected.

:: :: :: ::

Resident A.I.D. Examiners at our works.

British Metal (Kingston) Ltd.
The Factory Kingston-on-Thames, England

While still engaged upon several war-time adaptations of

BOWDEN WIRE

Mechanism, the great extension of premises, plant & machinery effected during the war makes it possible for us to deal *promptly with fresh orders for all kinds of pre-war goods*

We invite enquiries.

Bowden Wire Ltd. TRADE MARK
LONDON

VICTORIA ROAD, WILLESDEN JUNCTION
N.W. 10.

Godbolds.

The Guardian Angel Parachute



RELIABILITY FIRST SECOND ALL THE TIME

E. R. Calthrop's Aerial Patents, Ltd.
Eldon St. House, Eldon Street, London, E.C.2

Telephone (2 lines)—
London Wall 3266 & 3267.

Telegraphic Address—
"Savemalivo, Ave, London

FLUXITE
SIMPLIFIES SOLDERING



Building the Mercantile Fleet

During the great War **FLUXITE** rendered incalculable assistance in the building of our Battleships and Auxiliary Craft.

Now that **VICTORY** is achieved **FLUXITE** is doing its part in the building of Merchant Ships to make good the losses by U-Boats.

FLUXITE does soldering work better and more easily even under difficult conditions.

In the Home, **FLUXITE** enables the "layman" to repair pots, pans, and other metal articles speedily and efficiently.

FLUXITE

the Paste Flux that

SIMPLIFIES SOLDERING

Of all Ironmongers, in tins 8d., 1/4 & 2/8.

FLUXITE, LTD.,
316, Bevington St.,
Bermondsey,
England.



FOR THE BUILDING of MERCHANT SHIPS & REPAIRS IN THE HOME

COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

GROUND ORGANISATION.

By "Medway."

If there is any type of man who is more than commonly despicable it is the person who is too proud to change his opinion; the sort of ass who, because he thought something before the war, feels that he is bound to think the same thing now; who, because he thinks it now, will also think it in twenty years' time, even though he may have been proved wrong in the interval.

I always feel that there is one thing to be said in favour of our most successful politicians. That is, that by hunting up their old speeches you can always find a statement exactly opposite to the one that they have made this afternoon. This shows, or at any rate *may* show, a willingness to move with the times.

When one sets out to write for purposes of propaganda, it is generally necessary to concentrate on one point at one time. If that point cannot be pushed home by gentle pressure, it must be rammed in with a mallet or even with a sledge-hammer. Often, in order to make a point, it is necessary to take a more or less one-sided view; to accentuate one side of the case and come near to ignoring the other side.

A few months ago a lot of people were shouting out that the one great advantage of aerial transport lay in the immense potential speed of the aeroplane. In laying stress on this particular feature, they tended to create an impression that they were putting forward the only really big argument.

Under the circumstances it seemed to me that it was the right thing to do to harp upon another good string. I, therefore, chose as my text on more than one occasion something to the effect that the aerial service is independent of the made road. I am not entirely going back upon this statement, but I am prepared to modify it sufficiently to explain why I thought it advisable to start off with a diatribe against people with cast-iron opinions.

The Importance of Ground Organisation.

The fact of the matter is that it becomes more and more evident, month by month, that ground organisation has got to have a great deal to do with the success of long-distance aeroplane services. The old argument that a prepared route from point to point is unnecessary holds good, but we must admit that, in place of the prepared line, we must at least prepare a number of detached spots. In fact, there is a growing realisation of the dependence of commercial aerial transport on prior preparation of landing grounds and depots along the route.

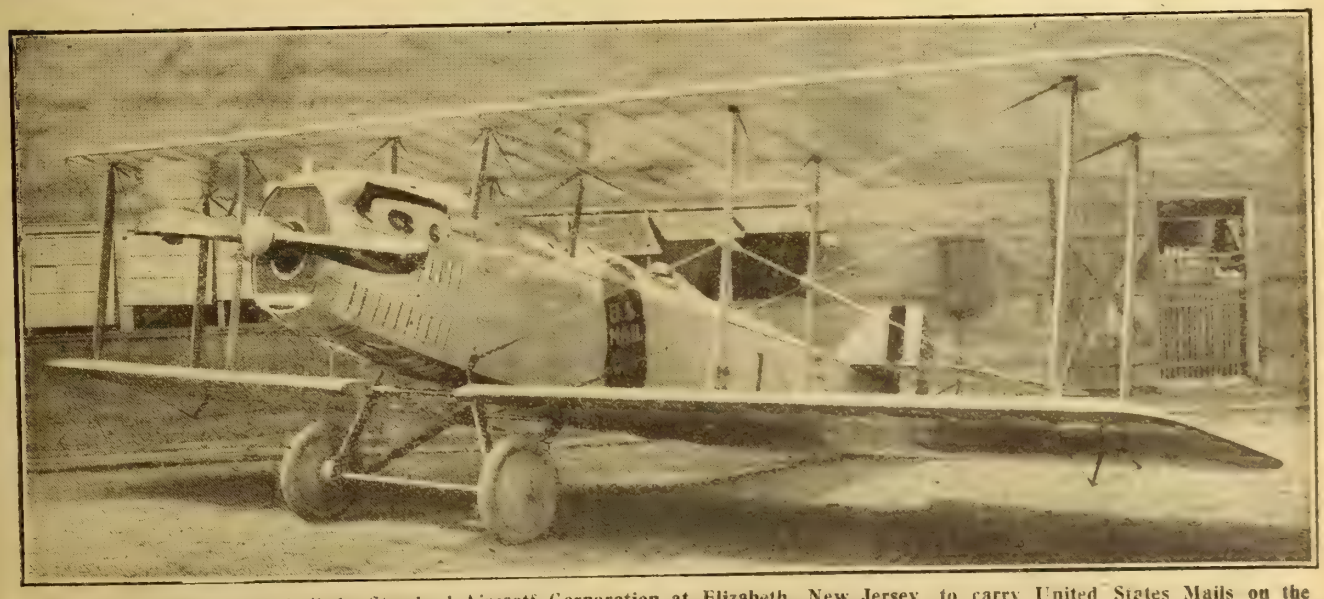
In plain English, this means that, whatever one may have said to the contrary, a prepared route in a sense is necessary. One might wriggle out of the accusation of contradicting oneself by pointing out that a number of detached spots are not the same thing as a complete line.

However, the real essence of the business is that money must be spent on the ground or on the water, as the case may be, before a long-distance aerial route can become commercial. The money so spent must be classed with that which goes to the establishment of railway lines and stations, to the building of harbours or to the making of roads. It constitutes, in fact, a capital charge.

Capital Charges.

Now we know that, whether it be road, rail, or landing ground that has to be prepared, somebody has got to pay the cost. If the whole cost has to be paid by the user of the route, higher fares must be charged for the carriage of passengers, heavier rates for the carriage of goods.

A railway has to build its own line and equip its own depots. Afterwards it has the monopoly of the use of its property. As a general thing, the owner of a road



A "Spad" type Aeroplane built by Standard Aircraft Corporation at Elizabeth, New Jersey, to carry United States Mails on the New York-Philadelphia and Washington route.

vehicle does not have to build his own road. It is built for the general convenience of the public, and he only pays a part of its cost in his capacity as a ratepayer or taxpayer, as the case may be. He has, however, no monopoly in the use of the road.

In the case of aerial services there are, then, two possibilities. One is that a company may organise a route, purchase landing grounds, equip them, build depots, and so on, and charge the interest on the capital invested and the cost of maintenance of the ground organisation against the aerial service. In return, it has an effective monopoly, or the right of levying any tolls or dues that it pleases.

The other is that the nation may organise the routes, providing landing grounds at suitable points, and allowing them to be used by anybody who chooses to conduct an aerial service.

Intermediate between these two proposals comes a scheme of organisation of the routes by a nation or a group of nations, charges being made on a reasonable scale for the use of the landing grounds and depots, including the use of what may be called the lighthouse or signalling organisation.

Now, if a nation or nations were to organise a route to India or some other distant land, and to charge for the use of facilities given a sum which would make the proposition immediately self-supporting, the cost of aerial transport would be enormously increased. So long as only a few aeroplanes were using the route, the tolls paid by each machine would have to be immense, fares and rates would be prohibitive, and commercially the whole thing would be a failure.

The Nation's Duty.

Thus it would seem that the right scheme is for the nation or nations to create the ground organisation, estimating its probable use a few years ahead, and charging tolls which should make the organisation self-supporting in, say, ten years' time, if expectations were realised. Ultimately, the estimated use would probably be exceeded. Then the Government routes would begin to show a profit to the relief of the taxpayer. For the first few years, however, they would certainly show a loss, and probably a considerable one.

This loss must be faced, unless we are going to throw up the sponge at the start. We want commercial aeronautics as an Imperial asset, and only to a very secondary degree for the financial gain of the individual. We must, therefore, invest Imperial funds in organising the routes which are obviously indicated. The capital earmarked for the purpose must suffice to pay interest upon itself for the period during which a loss is to be expected. At the end of that period, if things went reasonably well, the Government would begin to get a return.

The whole thing is merely another instance of a speculative investment which cannot be expected to pay just at first. Such investments are not shunned by individuals, and must not be shunned by the community. In the long run, when the organisations of aerial routes are in continual use, the charge for the maintenance of landing grounds and so on will be trifling in comparison with the other figures involved. They may add a penny a mile or so to the cost of aerial transport.

In the first instance, however, the ground organisation is likely to represent a much bigger capital investment than the machines that make use of it.

We must not, therefore, assume that, because an aeroplane can travel more or less without having a route prepared for it, there would be no charge to be considered over and above the actual operating costs involved during the flight itself. This is an aspect of the business that must not be neglected by people who are invited to put their money into alluring proposals for aerial transport based on optimistic estimates which leave the ground organisation more or less out of account.

FUTURE CURTISS INTENTIONS.

It is understood that the proprietors of the Curtiss Aeroplane and Motor Corporation of New York, a firm which built a very large proportion of the aeroplanes and engines ordered by the U.S. Government during the war, and thereby found employment for some 17,000 people, has no intention of shutting down its activities as the result of the Armistice.

In the nature of things, the output of aeroplanes will diminish for some time to come, and the number of workers has therefore, been reduced, but a large staff is being retained which will be occupied in building up a business in connection with commercial aeronautics.

The Curtiss firm places much confidence in the ability of its salesmen to arouse the practical interest of Army and Navy men, and other sportsmen, in private flying, and special efforts in the first instance will be made to popularise the flying boat, as it is felt that this type of machine will appeal to the general public as being apparently safer than the land machine, although it is expected that after a general demonstration has been made of what the flying boat can do, a demand will arise for aeroplanes to be privately owned which can start from, and alight on, the land.

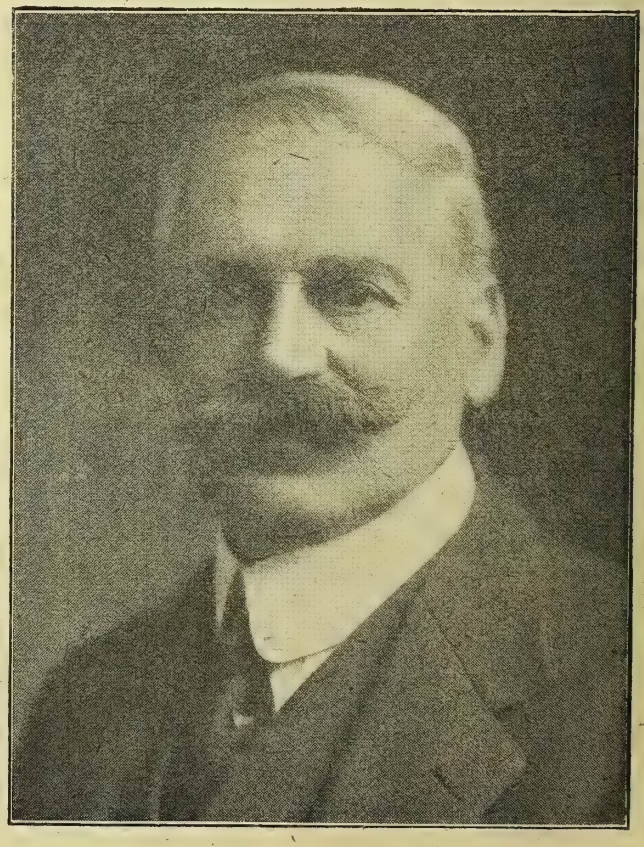
The firm also expects to find a considerable market for its products among Government Departments, particularly in the supply of machines for the aerial mail service. Also there will be a fair demand for machines for military and naval purposes, and, if American popular opinion is to be respected, considerable attention will be devoted to aerial coastguard services.

It is expected also that the Geological Survey Department will order a number of machines in exploring great tracts of swamps which have never been surveyed.

Taking everything into consideration, therefore, the Curtiss Company seems very optimistic as to its operations, both in the near and distant future.

SIR WILLIAM BEARDMORE'S APPOINTMENT.

Sir William Beardmore, head of the firm of that name, was among the eight new members of the Institution of Civil Engineers elected at the last meeting.



Sir William Beardmore, M.I.C.E.

MINISTRY of MUNITIONS

Aircraft Salvage Branch.

FOR SALE.

ENGINES. Lot SB. 6/5.

Quantity.		H.P.		Condition.
100	Renault	80 h.p.		New Engines
50	,,	,,		Overhauled (made serviceable)
50	,,	,,		Condition various
60	Le Rhone	110 h.p.	French	New Engines
51	,,	120 h.p.	French	New Engines
100	Curtiss	90 h.p.		New Engines
15	,,	,,		Overhauled (made serviceable)
12	,,	,,		Condition various

SHOCK ABSORBER CORD. Lot SB. 6/4.

645	yards Black Shock Absorber Cord	3/8"
290	,, ,, ,, ,,	7/16"
3000	,, ,, ,, ,,	1/2"
898	,, ,, ,, ,,	5/8"
537	,, White ,, ,, ,,	5/8"

NEW—in various lengths.

ACETYLENE FLARES. Lot SB. 5/5.

About 450 Portable and Hand Acetylene Flares. Complete—Candle Power 100 to 500.

Tender forms for the above and all particulars may be obtained from the:—

AIRCRAFT SALVAGE BRANCH,
YORK HOUSE, KINGSWAY, W.C.



PETROL WILL IMPROVE

THE present Motor Spirit is merely a War-time expedient.

WHEN it is possible once more to announce

PRATT'S MOTOR SPIRIT

also "**Taxibus**" for heavy vehicles, they will be equivalent in quality to the well-known pre-War standard—if not better.

Anglo-American Oil Co., Ltd.,
36, Queen Anne's Gate,
LONDON, S.W.1.

Anglo's **BENZOL** can now be obtained through the principal Garages and Dealers in the country. Neither vouchers nor licenses are required for the use of **BENZOL**, which is free from all restrictions.

AERIAL LIFEBUOYS.

It would be curious if one came across a shipping company which announced that for reasons of economy, and difficulties in obtaining supplies, that life-saving jackets would only be supplied to the number of a third of the complement of their ships, and that such of the passengers who cared, up to the number of 33⅓ per cent., could appropriate the said jackets for their personal use in case of emergency.

Assuming that such a shipping line continued to be patronised, the result of the announcement would make an interesting psychological study, because one of several results might be experienced.

For instance, it might become customary to rush and secure a lifebelt as soon as one boarded the ship, so that queues would wait outside the dock gates about 48 hours before the ship was due to sail; on the other hand, the passengers might be so high-minded as to refuse to avail themselves of an advantage which would necessarily be denied to others; or, alternatively, they might refuse to avail themselves of the loan of lifebelts for fear of being accused of possessing "cold feet."

All the foregoing may sound very silly; it is intended so to sound, because it is a fair analogy to the state of mind of certain Air Ministry officials.

It has already been stated in the public Press that aeroplanes are to be used for the transport of delegates and other officials concerned with the Peace Conference.

As representations have been made as to the great value of the lives of these individuals, the question of the provision of parachutes has naturally been raised, and it has been conceded that these appliances might conceivably be useful in case of emergency.

There is an extraordinary rumour, however, current that for various reasons, including certain technical difficulties in fitting a large number of parachutes conveniently so that they can be used without difficulty in case of need, it has been decided to fit only a few parachutes, the harness of which can be worn by passengers who occupy certain seats in the machine; so that the passengers will have to decide among themselves as to which among their number shall enjoy this measure of precaution and which of them shall be content to fly or fall by the safety of the aeroplane itself.

One cannot imagine that a gathering of peace delegates would scramble ungracefully among one another for the right to use a parachute; it is much more likely each individual would courteously say, "After you, sir!" when the critical moment arrived, with the result that nobody would use the parachutes. In case of disaster it would indeed be a sad story if the whole company on an aeroplane went to their deaths when safety was possible, at any rate to some of their number.

If, as one believes, air risks are still sufficiently great to merit the provision of safety devices, there seems absolutely no excuse for not providing a sufficiency of these devices to give everyone on board an equal chance, and to remove at the same time any risk of an unmanly panic at a moment of danger by persons who regretted that they were not equipped with parachutes, and who in their desperate struggle for safety impeded the escape of those who had had the common-sense to don the parachute harness in the first place.

THE U.S. POSTAL SERVICE AND LIBERTY ENGINE TROUBLE.

As a result of the failure of the New York-Chicago aeroplane postal service, to which reference was made in The Aeroplane last week, criticisms have arisen in the American aviation papers concerning the unsuitability of the Liberty engine for the mail aeroplane. It is pointed out that the Liberty engine is a high compression apparatus intended to work at great altitudes, and that for post office work flying at altitudes exceeding 10,000 feet is neither necessary nor desirable.

In consequence of the lightness of construction of the engine and the wear and tear due to its alleged super-compression, it spends three-quarters of its time on the ground undergoing overhauls, and its mounting in the D.H.4, which had to be adapted to take it with regard to the exigencies of space and aerodynamics, makes it extremely inaccessible. Under war-time conditions, when an army of mechanics was available, the inaccessibility of the engine was not a very serious problem, but for postal purposes, where labour has to be economised, an engine so built into a machine that it is almost impossible to get at the water pump and other fittings at its rear, is perfectly useless.

In the view of the "Air Service Journal," the power plant on a proper mail aeroplane should consist of two heavy-duty motors of the Mercédès type, which will run almost for ever with a low fuel consumption, while provision of two engines should enable the pilot to complete his journey with one completely out of action.

On the other hand, an official U.S. Post Office Department announcement states that the trouble has been the *condition* of the engines in use, and it is stated that this is not due to any inherent defect in the engines, but to the carelessness with which they were assembled at the factory, and also to the delay in delivery to the Post Office Department which made it impossible for the department to overhaul the engines before an attempt was made on carrying out the service.

Personally, one would have thought that under these circumstances it would have been wise for the Post Office Department to have delayed the inauguration of the service until such time as the engines were overhauled. An official mentioned an instance of the haste with which these engines had been assembled in the factories; namely, that various foreign substances were found in the engines, a notable case being a large piece of cardboard in the float chamber of the carburetter. Pending various trial flights and a complete overhaul of the defaulting engines, the operations of the mail service were postponed.

In the course of a discussion on the subject in Congress, Mr. La Guardia, in answer to the Second Assistant-Postmaster-General, who stated that the Army had no dependable aeroplanes to turn over to postal service, said that the Army had 1,495 D.H.4s fitted with Liberty engines, and that if the Liberty engine was all that it was stated to be, it was an ideal machine for postal purposes.

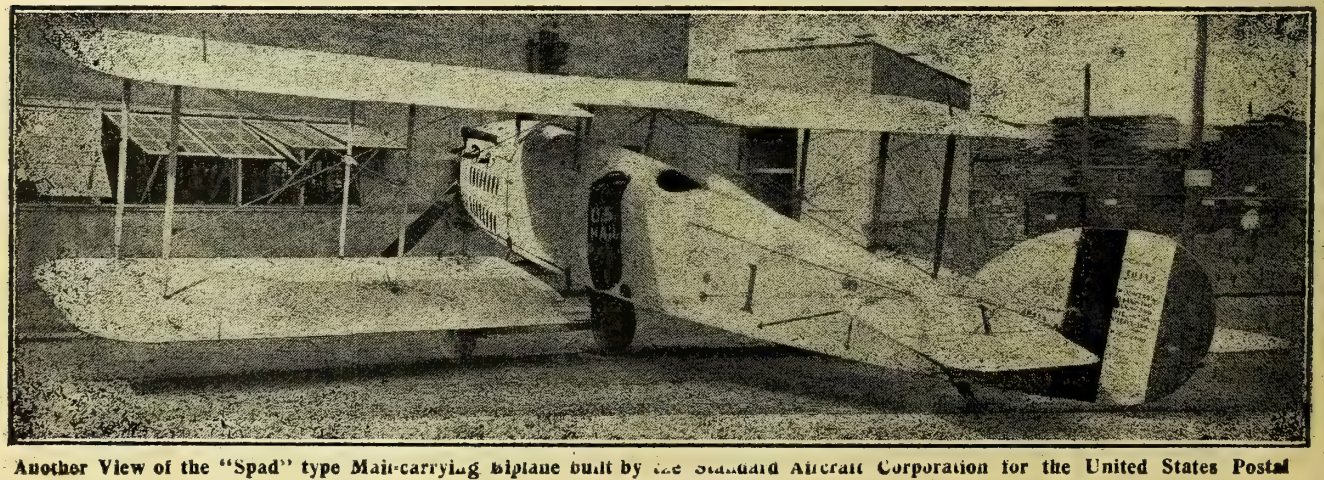
He also remarked that the D.H.4 was a reconnaissance and day bombing-machine and not a fighter, and that the United States did not during the course of the war turn out a single pursuit machine, although a good many of his colleagues were under the impression that the skies of France were black with American-built battleplanes. He said plainly that they were not.

The D.H. 4 was the nearest to a perfect machine sent abroad, and it ought to be an excellent machine to use for transportation of mails at the time. He also spoke words of praise for the Curtiss J.N.4 with the Hispano-Suiza engine for short stages. He also pointed out that it was necessary to use Army type aeroplanes for mail-carrying, to prevent the wastage which would accrue from the non-use of aeroplanes which the Army could not fly.

It seems fairly evident, therefore, that the views of the U.S. Army and U.S. Postal Department are somewhat widely divergent.

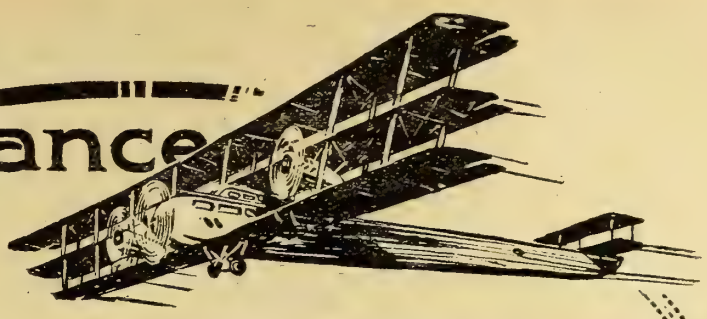
THE EMPLOYMENT OF WOMEN.

On Wednesday, Feb. 5th, a deputation of aircraft workers was received by Sir David Shackleton at the Ministry of Labour, when questions arising through the employment of women in aircraft factories, with special reference to proposals which were made last October, but upon which action was delayed, were discussed.



Another View of the "Spad" type Mail-carrying Biplane built by the Standard Aircraft Corporation for the United States Postal Department.

Long Distance Flights



The First British and International Aerial Navigation Company will shortly place at the service of the public a unique series of long distance passenger flights, both for business and holiday purposes, which obviate the delays and annoyances of transfer from train to tender, tender to liner, etc., which are the great drawbacks of the present system.

Features of the service will be speed, safety and perfect comfort—all passenger nacelles being protected from the wind and internally heated. The first routes open will be those between London and Ireland, and London and France. Full particulars will appear in the papers shortly.

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CO-PARTNERSHIP AND COMMERCIAL FLYING

Matters of considerable moment to the development of Commercial Aeronautics were discussed by various speakers at the dinner given on Feb. 22nd by Handley Page, Ltd., to its staff.

As most people in the Aircraft Industry know, Handley Page, Ltd., was one of the first firms in the Industry to establish a system of Profit Sharing with the employees, and apparently this system has now been accepted by the workers in spite of the opposition of the class of workman who believes that British Commercial Supremacy can best be attained by limiting the work of each man in a firm to the speed of the worst man.

The company at the dinner consisted, on this occasion, of the Staff of the works only, owing to the fact that although a year ago the great hall of the Connaught Rooms was big enough to hold the majority of the factory personnel of the firm, the increase in the past year has been so great that this year the hall was barely big enough to accommodate the Staff.

Much as one believes in the general idea of Co-Partnership and Profit-Sharing, any belief which one may have in the fitness of the average employee to have a hand in the management of the firm where he or she is employed was considerably weakened by the behaviour of a section of the guests, composed chiefly of the "elegant youth" and the "office flapper" type, who, so far from having the brains to take part in the management of affairs, had not even the sense of decency to hold their tongues while the various important people concerned with the management of the firm were telling the employees matters of the greatest importance to their own future.

One assumes that the office staff of a firm is a trifle better educated, and on a trifle higher social plane than are the factory operatives. Therefore, if the office staff displays so little intelligence one has not much hope of rough factory hands being capable of participating in the management.

After the usual loyal toast, the Earl of Hardwicke, in proposing His Majesty's Forces, said that the Germans said, "But for the British Navy we should have won." Nobody could pay a higher tribute to the Navy than that. As for the Army, it would be more appreciated when history came to be written.

Major McMahon, D.S.O., who replied to the toast, made the astounding admission that he was a Colonial. One has long been under the impression that the Australians hated being called colonials, and considered themselves a free and independent nation.

Major McMahon said that as an Australian he saw the British better than they saw themselves. Without His Majesty's Services there would be no British Empire; the Navy was the best thing Britain had got before the war. As to the Army, he thought, up to the end of 1916, that England would be beaten. The world thought that England was decadent—many Colonials thought that. In 1915 the Army was up against the finest organisation in the world; he took off his hat to the Germans as organisers. In 1915 there was only a thin line holding the Germans; our artillery was only allowed three shells a day for four guns!

In the battle of the Somme in 1916 the British Army did not consist of soldiers, but to use a vulgar expression, "it had guts!" The war could not have been without men such as those, and the people at home could trust the future of the Empire to the men who had stuck it out abroad.

Mr. Hubbard, the Works Manager, proposing the toast of "The Old Firm," said that people sometimes wanted to know what was the difference between Mr. Handley Page and the firm. The difference was that the firm was Handley Page, Limited, whereas the Managing Director was Handley Page, Unlimited!

The past 12 months had been a year of progress. A year ago they were getting into the new works, trying to collect material and to enlarge the staff, and they had the Air Board jumping on them all the time. By the summer they were really turning out machines; now the works covered 15 acres and had adjoining it an aerodrome of 160 acres, which was the nearest aerodrome to the centre of London. The Staff and the employees had increased fourfold in the past year and the output sixfold.

A year ago the giant four-engine aeroplane was being designed; it was not created, nor begotten, but proceeded. It was known as the V.1500 type. He had been told that "V" stood for "Valcott," who was still with them. But it also stood for "Victory." Personally, as Works Manager, he thought that "V" stood for "five"—five Giants a week from the works!

He believed that theirs was the best of all the giant machines. The original design needed very few alterations. The pilots actually said it was better to handle than the two-engined machine, and he congratulated the designer and staff on it. The flights it had made showed its excellence; that from Ipswich to India was the greatest achievement. A squadron of these machines was actually built to bomb Berlin, and everybody was bitterly disappointed when it was prevented from doing so by the signing of the Armistice. He believed that the Germans knew this and signed the Armistice to stop it.

Mr. Hubbard reminded those present that the firm had arranged to share its profits with the employees. It was already paying out those profits, whether it made any profit or not, and, if it managed to make as much as it was paying week by week as a profit bonus, it would do extremely well. All employees should realise that the firm was their friend and that they should be the friends of the firm. Mr. Handley Page, the Capitalist of the firm, was the hardest worker in it.

Mr. Handley Page, replying to this toast, started by saying that he had been recommended in making this speech to "stand up, speak up, and shut up!" He said that no doubt employees thought and said that theirs was a rotten firm, that material was never ordered, when it was ordered it never came, and when it came it was never made into anything! The Progress Department, when they wanted to find out how things were going, doubtless found the Stores like Mother Hubbard's cupboard. Yet there was a great increase in output in spite of the ever-increasing organisation.

After all, their best reward was the appreciation of the Royal Air Force. He pointed out behind him on the wall a very dirty and torn White Ensign. This, he told them, was the flag of the first R.N.A.S. Squadron of H.Ps. which went to Belgium. It had flown in many a raid, but the Germans had never been able to tear it down.

He reminded his hearers that the tide of the war first turned in Palestine, and the first act in that great offensive was the bombing by Handley Page machines of the Turkish Central Signal Station, which prevented news of important movements from getting to Headquarters. In France the turn of the tide started when the Americans captured St. Mihiel, and that was after the German lines of communication had been bombed by Handley Pages. He remarked that a Handley Page "Communication" machine, acting between France and England, carried 770 passengers across the Channel in 4 months, without mishap.

The giant Handley Page machine had carried 40 passengers and a pilot, together with enough petrol for the journey to Paris and back. Their machines had gone to Constantinople and India, and halfway to the Cape, and if some of the people who talked so much about what they are going to do did not do it soon there would not be much left for them to do.

In the past the firm had made no announcements about its intentions until a big flight was done, but if there was anything big to do, "The Old Firm" was not the last in the race. The Handley Page would be employed on Passenger Services as soon as conditions admitted. They were not to think that the firm intended to run all the services in the world; anyone could run services if they had the money and the machines, but "The Old Firm" had not got machines which were going to be built, but already had the right sort of machine for the last two years.

Lord Morris of St. John's, Newfoundland, and Lord Belper, had joined the Board, and both were keen on improving the lot of the employees.

The workpeople spent most of their time in the works, and he wanted them to realise that they are with a good firm. A new Recreation Room was being built, which would be big enough to hold all the firm's employees, and he remarked, "Your interests and the interests of the firm are one."

Mr. Handley Page then referred to a new use for the Handley Page machines: they had been used as the text of a sermon. The parson had told a story of how a machine went up carrying with it a rat which had been gnawing at its vitals, and when it reached the pure high atmosphere the rarefication of the air was such that rat fainted and fell out. The moral is obvious.

Mr. Handley Page hoped that as the firm mounted higher and higher the rats would fall out of it, and he concluded by saying that there was now greater need than ever for all to pull together and make for success.

Lord Morris, who proposed the toast of "The Visitors," remarked how grateful he was for the opportunity of proposing this toast, which included the Staff there present. Although he was new to the Aircraft Industry, he had been long enough with the firm to know the loyal support which had been given to it by the Staff. He fully appreciated the necessity for loyalty in a highly techinacl organisation such as this.

Loyalty would be still more necessary in the great Industrial War of the future. The nation was handicapped by a great debt; he hoped the Germans would be made to pay, but he was not sure that they would be. In this Industrial War we should have no Allies, and we should have to stand or fall by our own efficiency.

We had got to increase output by paying better wages and by giving the employees an interest in the business. Tribunals should be created in all trades to judge each case of a complaint and see if the men were getting the best wages each industry or each individual firm could stand.

If all worked together we should pull through, but he reminded them that labour could not do without capital, and that capital could not do without labour. With high wages and a correspondingly big output they could maintain the trade supremacy of England.

Mr. Kimber Bull replied to the toast in a neat speech.

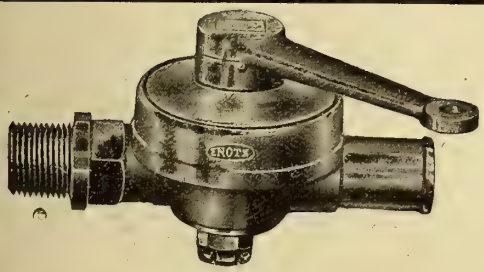
Among the distinguished company present was Rear-Admiral Mark Kerr, R.N., and Colonel Mulock, R.A.F.

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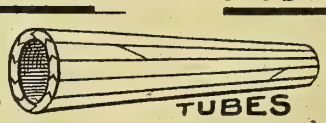
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AIRCRAFT FINANCE

STATE CONTROL OF CAPITAL REQUIREMENTS.

One of the liberties sacrificed as a result of the war was the free and unfettered emission of new capital and loans by public companies and public bodies. The necessity of a concentrated financial effort by the nation brought into being the New Issue Committee of the Treasury, which regulated and controlled, sanctioned and prohibited borrowing in accordance with the utility or superfluousness of the new money. Some rather harsh criticism is now being directed against the Committee by people possessed of the idea that the financial necessities of industry and commerce are pressingly urgent if there is to be a healthy recuperation during and after the transition period.

Promoters Would Jubilate.

Aircraft and aviation are probably as much, if not more, concerned in the matter of new capital as any industry; the subject, therefore, is interesting enough. One can picture the seraphic smile of the at present manacled promoter, with a head full of brainy ideas and pockets cleared for the reception of spurious profit, if all the restrictions were removed from the public flotation of the thousand and one new projects either registered for titular purposes or simply pigeon-holed until the psychological moment. The investing public, gullible and otherwise, would be inundated with appeals to get rich quick, to help the country to lead the world in commercial aviation just as the country led in the past with shipping and similar sugar-coated tabloids of bitter experience, calculated to regulate the mental faculties and ultimately impoverish the bank balance.

Claims of Aviation.

That particular type of financier never intentionally did any good to an old and established and proved industry; the type can certainly be dispensed with altogether by a young and vigorous industry that has everything to lose by allowing the growth of such vice. And yet what other industry opens up such wonderful possibilities for the culture of such parasites? It appeals to the public not simply because of its novelty, but because aircraft opens up an epoch-making change in the general economic structure, or, at all events, it promises to do so. Canute commanded the tide to cease flowing; one supposes it is just as futile to expect that there will not be a debauch of pernicious aviation promotions if and when an opportunity offers.

Relief at First Opportunity.

Therefore the advent of the free and unfettered and unrestrained issue of new or additional capital in the company world promises some undesirable developments, menacing, perhaps, to the true interests of aviation. That is an unfortunate prospect; at the same time it cannot be denied that the necessity of industrial development and evolution demand that the restraint of this Sub-Committee on ordinary capital requirements should be relaxed at the earliest moment consistent with national safety. Without the requisite financial facilities, industry cannot be expected to develop vigorously, and vigorous development is essential in order to counterbalance the effect of war.

Illogical Arguments.

It is all very well to maintain that industry has thriven during the war, and therefore ought to be left to develop by means of the accrued advantages. Admittedly, because of the natural desire to escape the burden of exceptional taxation, a lot of undertakings contrived to provide more than adequate provision for renewals and depreciation, thereby creating almost new and supplementary plant and also to build up large reserve funds and strengthen their financial position generally; this alone, however, does not enable them to provide out of internal resources the additional capital necessary for development purposes. This policy of internal improvement was fundamentally sound, and calculated to be helpful just when physical and financial strength were vital. Additional capital is necessary to enable this strength to assert itself.

Partial Supervision in Being.

A suggestion was put forward by one of the many Committees that henceforth there should be Treasury supervision of new and additional creations. Frankly, if Government control of this character is proved to be necessary, it will be a regrettable circumstance. In certain European countries such control has always been exercised through the medium of the Bourses, in which a certain degree of supervision is vested in the State. State supervision would mean systematised officialdom without physical perfection and with very serious deficiencies. What does the average official know about the actual financial necessities of a commercial undertaking? He is quite incapable of distinguishing between vital requirements and what may be needed to develop a purely speculative programme.

Possibly such supervision might postpone the birth of some of the aerial "ramps," or even disable them in some way; it is very doubtful whether it would kill them completely; the clever promoter would be put on his metal and slip in between the flaws in the Company Laws.

Freedom of Action Imperative.

Anyway, the brainy official would scotch some good commercial ideas as often as, if not more often, than he would turn down obvious ramps, and the suppression of any latent genius in critical times like those promised in the immediate future would simply give foreigners a valuable option over this country's commercial possibilities. Therefore, the best thing is complete freedom of action on the part of the commercial interests in the matter of financing plans without State interference of any kind. The bad will get mixed up with the good, and eventually the good will fully compensate for the vice, if it does not actually swamp it out of existence.

THE LATE MR. EDWARD POWELL.

The motor trade has suffered a serious loss in the death of Mr. Edward Powell. Foremost for many years in all matters relating to the Motor Industry, he was elected President of the Society of Motor Manufacturers and Proprietors in June, 1914, and retained that position until November last. He joined the board of Humber, Ltd., Coventry, in 1890, became Chairman in 1900, and was Chairman and Managing Director up to the time of his death.

CURRENT TOPICS.

LABOUR WORRIES AND THE FINANCIAL WORLD.

If it were not for the uncertainties surrounding the Labour position generally, the Financial World would be much more confident. As it is, there is a feeling that something may happen, and so the Stock Exchange is slowing down in case its suspicion proves true, and a general disturbance occurs. Even Oil shares are less buoyant: it is significant that prices show no weakness, because it implies the firm belief that Oil is to be King of the future.

RUMOURS ABOUT VICKERS.

As to Domestic shares, some interesting and unconvincing rumours are floating about to the effect that Vickers and the Metropolitan Wagon Co., which has become a very important undertaking, with a finger in many rich industrial pies, are to amalgamate. Probably, the rumour is not correct, so far as it applies to Vickers. Rolls-Royce shares have been steadily bought at slightly higher prices, and Napiers, too, have been singled out for special attention, the new shares being about 32s..

BIG CELLULOSE FINANCING.

The British Cellulose and Chemical Manufacturing Co. has just created a debenture loan of £1,950,000 in favour of the Ministry of Munitions. Whether this is actually new money, or a renewal of some of the loans already granted, is not quite clear. It looks, however, like new money, in which case the position of the company may be said to be getting interesting.

FREDERICK SAGE AND CO., LTD.

The large profit of £36,605, compared with £26,073, is shown by Frederick Sage and Co., Ltd., for last year. The dividend is 8 per cent. against 6 per cent., and £20,000, an increase of £15,000, is put to reserve, bringing that fund up to £30,000. The issued capital is £209,550, of which £139,550 is in ordinary shares. One notices that goodwill figures as an asset for £81,780 in the balance-sheet, and work in progress, after deducting cash received on account, appears at £103,426.

A COMING FUSION.

It is said, on what seems to be reliable authority, that White and Poppe, who have an important motor-engine business, and Dennis Bros., the motor people, are likely to be amalgamated in the not distant future.

NEW COMPANIES.

DISCHARGED SAILORS, SOLDIERS AND AIRMEN'S CO-OPERATION, LTD.—Registered Feb. 18th. Capital £15,000 in £1 shares, to carry on the business of storekeepers and universal providers. Among the numerous businesses specifically mentioned are:—Bakers, boot makers and repairers, boat builders, booksellers, stationers, chemists, provision dealers, clothiers, drapers, cycle and motor manufacturers, entertainment providers, furniture makers, gas and electric fitters, hairdressers, hatters, hosiers, ironmongers, jewellers, musical instrument makers, opticians, farmers, saddlers, toymakers, and tobacconists. General power is taken to carry on "any business affording employment for discharged soldiers, sailors or airmen." Minimum cash subscription on which the directors may proceed to allotment, seven shares. The first directors are:—L. H. Neal, 21a, Standard Road, Hounslow, traveller; W. A. Jeal, 217, Staines Road, Hounslow, farmer; H. Harries, 113, Grove Road, Hounslow, traveller; T. W. H. Sarll, Whitton Park, Hounslow, war correspondent. All the above are discharged soldiers except H. Harries, who is described merely as "Soldier," Qualification (except first directors), £500 shares. Registered office: Crosby House, High Street, Hounslow.

HAMER HOLMES, LTD.—Private company. Registered Feb. 12th. Capital £10,000 in £1 shares. Aircraft manufacturers (as regards both heavier and lighter than air machines), manufacturers of aircraft propellers and accessories, timber merchants, furniture manufacturers, coach and motor carriage builders, boat and barge builders, ship fitters, etc. The subscribers (each with one share) are:—W. D. Oddy, 47, Gledhow Wood Grove, Leeds, engineer; J. W. Hamer, 5, West Hillay Street, Woodhouse Street, Leeds, cabinetmaker; W. Holmes, Rosegarth, Broad Lane, Bramley, patternmaker. First directors:—J. W. Hamer and W. Holmes. Solicitor:—J. Wade, 72, Albion Street, Leeds.

STABILISER (AERONAUTICS), LTD.—Private company. Registered Feb. 13th. Capital £1,000 in £1 shares. To take over the patent and other rights of the Knudsen Stabiliser for aeroplanes or aircraft, now belonging to Hans Knudsen, of 49, Thrale Road, Streatham Park, S.W. The subscribers (each with one share) are: E. Cripwell, 55, Temple Row, Birmingham, solicitor; G. A. Parker, The Chalet, Oatswell Road, Hall Green, company director. Subscribers appoint the directors. Registered office:—6, Cherry Street, Birmingham.

MORTGAGES, CHARGES, AND SATISFACTIONS.

FLIGHTCRAFT, LTD.—Issue on Feb. 7th, 1919, of £300 Debentures, part of a series already registered.

WHITEHEAD AIRCRAFT (1917), LTD.—Mortgage on "Parkside," Feltham, Middlesex, and land in rear thereof, dated Dec. 24th, 1918, to secure £2,000. Holder: J. A. Whitehead.

A CHANGE IN NAME BUT NOT IN SPIRIT.

Sir,—Mr. Ascol has changed, or, rather, added to, his Company's name; at Somerset House, W.C., before the Registrar of Joint Stock Companies, on Feb. 14th (Valentine's Day), Mr. Ascol obtained permission to change the name of the Company to the Motor and Aircraft Supplies Company, Limited.

A request has been made to call the Company "Ascol," Limited, but the Board of Trade said that "Ascol" neither indicated the business done nor the name or names of the Directors. The fact that the word is part of our Trade Mark did not help us within the meaning of the Act.

Had the Managing Director changed his name by deed-poll to "Ascol," which he could do, the Company could then be known as "Ascol," Limited—such is the law.

In order to save our customers such a mouthful as our present title, we shall continue to make ourselves known as "Ascol" House, and by this name shall we be known abroad in foreign lands and at home.

(Signed) for The Motor and Aircraft Supplies Co., Ltd.,
G. H. MANSFIELD (Managing Director).

PLYWOOD.

A notification has been sent out by the Ministry of Munitions, Aircraft Department, stating that plywood is no longer under the control of the Department of Aircraft Production, and the schedule of makers' prices is now no longer in force, also contractors are not required to submit orders to that department for approval.

AN EXCELLENT EXAMPLE.

The Central Aircraft Company, of 179, High Road, Kilburn, have issued a catalogue which may well be taken as a model by all aircraft constructors who propose to extend their activities beyond the limits of the British Isles.

Not only is the catalogue excellently produced with all essential information in clear and easily understandable terms, but it is printed in English, French, and Spanish.

Details are given of three standard types of machine to be manufactured, including a sporting or touring two-seater model of 100 h.p., a twin-engined 320-h.p. eight-seated machine of very attractive appearance, and a school machine with a 75-h.p. motor.

THE LONDON-PARIS RECORD.

It is now learned that the machine which created the unofficial record for a flight between London and Paris on Feb. 13th was an "Airco" D.H.4, as was the machine which set up the previous record. The time taken for the latest flight was one hour fifty minutes.

AIR RAID INSURANCE.

It was stated by Mr. Bridgeman, Feb. 24th, in reply to Mr. Kennedy Jones, that the excess of premiums over payments under the Government aircraft insurance scheme amounts to more than ten millions.

This money has been handed over by the various companies who effected aircraft insurance for the Government to the National Exchequer.

AN OLD FRIEND IN A NEW GUISE.

The older hands concerned with aviation will be interested to learn that as the result of medical advice, Mr. A. Dukinfield Jones, who for the duration of the war has been experimental and test pilot to the aviation department of Sir Wm. Beardmore and Co., Ltd., has decided to give up flying for the present and will in future concern himself with business on the ground.

Mr. Dukinfield Jones was well known as a pilot in the early days at Brooklands, and before the outbreak of war spent some time in Germany in connection with commercial aviation. When Sir W. Beardmore and Co., Ltd., began to construct D.F.W. aeroplanes in this country, he was engaged by the firm to fly these machines. He has done excellent work as a test pilot throughout the war.

Mr. Dukinfield Jones has gone into partnership with Mr. W. F. Grafton, under the title of the Grafton, Jones Co., at 44, Robertson Street, Glasgow. The firm is engaged in designing and producing instruments of various kinds connected with aviation and engineering generally, and are also acting as engineering agents in the Glasgow district.

Among other interesting instruments the firm is selling the Grafton Tautness Meter, an instrument which is used widely in connection with aircraft construction, and in telegraph, telephone, and tramway engineering, as it is suitable for testing wires and cables of all gauges.

One would, however, be surprised if Mr. Dukinfield Jones's future enterprises did not lead him gradually back to work in connection with actual flying.—W. L. W.



NAVAL & MILITARY ·AERONAUTICS·



GEOFFREY WATSON

FROM THE "LONDON GAZETTE."

AIR MINISTRY, Feb. 18th.

R.A.F.—The following temp. appts. are made at the Air Ministry:—Staff Officer, 1st Cl.—Maj. C. L. Baillieu, O.B.E., and to be actg. Lt.-Col. while so empld., Feb. 11th.

Staff Officers, 2nd Cl.—(Air.)—Maj. A. R. Boyle, M.C., vice Capt. (actg. Maj.) C. M. Carington, Jan. 10th. (P.)—Capt. H. H. Walmsley, O.B.E., and to be actg. Maj. while so empld., Jan. 17th. The notifications in the "Gazette" of Jan. 24th and Jan. 3rd concerning 31 Maj. A. R. Boyle, M.C., are cancelled.

Staff Officer, 3rd Cl.—Capt. H. G. Hutchinson, vice Lt. (actg. Capt.) A. D. Finney, Feb. 12th.

The following temp. appt. is made:—Staff Officer, 2nd Cl. (Higher Grade) (P.).—Capt. (actg. Maj.) F. T. Bridger, and to retain the actg. rank of Maj. while so empld., Dec. 13th, 1918 (substituted for notification on page 201 of "Gazette," Jan. 3rd).

FLYING BRANCH.—Lts. (O.) to be Lts. (A.):—G. D. Marks, Nov. 11th, 1918; R. J. Findlay, Feb. 4th.

Sec. Lt. C. W. Smallbone to be Sec. Lt. (A.), from (O.), Sept. 26th, 1918 (substituted for notification in "Gazette," Oct. 29th, 1918).

The following Cadets are granted temp. commns. as Sec. Lts. (A.):—H. D. Anderson, C. G. Ball, W. E. Beam, W. A. Bell, E. V. Boyd, S. H. Bremner, E. E. Buckerfield, R. F. Burnett, R. H. Cole, F. B. Common, C. E. Delaney, V. M. Delong, H. E. A. Doxsee, E. S. Grant, F. T. Hall, R. E. Harrington, J. G. Heavy, F. H. Howard, J. H. Johnston, E. P. Kelly, D'A. J. M. Leck, L. Lennan, E. A. Locking, J. C. Long, C. M. Love, J. Milton, H. McC. Morden, C. C. Mounce, L. G. Murnin, W. H. McKeigan, J. B. McMartin, M. C. Oliver, R. B. Paine, W. C. Rigg, T. O. Robinson, A. Stirling, B. J. Svenceski, W. R. Usher, D. Wyman, Nov. 11th, 1918.

The following Flt. Cadets are granted temp. commns as Sec. Lts. (A.):—F. R. Eason, Aug. 30th, 1918; 55903 L. Wyeth, Sept. 30th, 1918; C. F. L. Chester, Oct. 29th, 1918.

R. S. Cole (Lt., R.W. Kent R., T.F.) is granted a temp. commn. as Sec. Lt. (K.B.), and to be Hon. Lt., Aug. 8th, 1918.

Sec. Lt. H. Howes (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Obsr. Officer), Nov. 2nd, 1918.

The following are granted temp. commns. as Sec. Lts. (Obsr. Officers):—J. E. H. Chadwick (Sec. Lt., Manch. R., T.F.), May 28th, 1918; T. L. Lovell (Lt., Lanc. Fus., T.F.), and to be Hon. Lt., July 15th, 1918; T. I. Phillips (temp. Sec. Lt., R.W. Fus.), Oct. 13th, 1918; T. C. Chattoe (Sec. Lt., R.G.A., Spec. Res.), Nov. 8th, 1918.

The following Cadets are granted temp. commns. as Sec. Lts. (O.):—W. G. Bamber, J. C. C. Dion, G. W. Knight, S. Marshall, F. G. McGinn, A. H. McLean, R. E. F. Tivy, Nov. 11th.

The following Flt. Cadets are granted temp. commns. as Sec. Lts. (Obsr. Officers):—R. F. Tomlinson, Oct. 26th, 1918; 179054 G. C. Jeremiah, Nov. 5th, 1918.

Flt. Cadet 9482 C. S. P. Davies is granted a temp. commn as Sec. Lt. (S.), Nov. 9th, 1918.

The following relinquish their commns. on ceasing to be employed:—Sec. Lt. (Hon. Lt.) J. A. MacDiarmid (Lt., Sask. R.), Dec. 11th, 1918; Lt. (Hon. Capt.) K. G. Macdonald (Capt., Can. A.P.C.), Dec. 14th, 1918; Sec. Lt. (Hon. Lt.) G. N. Tresidder (Lt., E. Ont. R.), Dec. 20th, 1918; Lt. V. A. Lanos (Lt., Cent. Ont. R.), Dec. 23rd, 1918; Lt. A. Sattin (Lt., W. Ont. R.), Dec. 31st, 1918; Lt. M. S. McLean (Lt., Nova Scotia R.); Lt. (Hon. Capt.) A. L. Taylor (Capt., Sask. R.), Jan. 10th; Sec. Lt. J. Freeman (Lt., Brit. C. R.), Sec. Lt. (Hon. Lt.) R. G. Michaelson (Lt., E. Ont. R.), Jan. 11th; Lt. (Hon. Capt.) W. I. Bailey (Capt., Quebec R.), Jan. 13th; Lt. B. A. Cooke (Lt., Alb. R.), Jan. 14th; Lt. J. E. King (Lt., W. Ont. R.), Jan. 15th; Sec. Lt. (Hon. Lt.) F. L. Mitchell (Lt., Cent. Ont. R.), Jan. 16th; Sec. Lt. C. C. G. Logie (Sec. Lt., Scot. R.), Feb. 3rd.

The following are transfd. to the Unempld. List:—Lt. A. E. Smith, Dec. 29th, 1918 (substituted for notification in "Gazette," Jan. 14th); Sec. Lt. H. Aukland, Lt. C. H. Mather, Jan. 10th; Lt. H. B. Monaghan, Capt. S. H. Starey, Jan. 15th; Lt. D. E. Gray, Lt. T. D. Manning, Lt. (Hon. Capt.) (actg. Capt.) J. L. Middleton, Jan. 16th; Lt. A. A. Callaghan, Jan. 17th; Lt. N. Midgley, Lt. G. H. Wood, M.C., Jan. 18th; Capt. C. J. Hallinam, Lt. J. C. J. de la Ferte, Sec. Lt. H. G. Wheeler, Sec. Lt. R. A. Whitehead, Jan. 20th; Lt. H. J. B. Bain (A. and S. Highrs.), Sec. Lt. H. B. Wilson, Jan. 21st; Lt. J. K. Chatham, Lt. C. Donald (Gord. Highrs.), Lt. C. V. Halford-Thompson, Jan. 22nd; Sec. Lt. A. D. McC. Blair, Sec. Lt. (Hon. Lt.) H. Coverdale (Lt., Lond. R., T.F.), Lt. (actg. Capt.) N. C. Jones, D.F.C. (Lt., R.F.A., T.F.), Sec. Lt. A. K. Shufflebotham, Lt. W. A. Stillwell, Jan. 23rd; Sec. Lt. K. E. Allan, Sec. Lt. (Hon. Lt.) R. Auld (Lt., R. Scot. Fus.); Lt. R. De La Bere, Sec. Lt. J. M. Clarke, Sec. Lt. D. Mumford, Sec. Lt. L. G. C. Perryer, Sec. Lt. R. L. Washington, Jan. 24th; Sec. Lt. (Hon. Lt.) R. P. Allday, Sec. G. McK. Craig, Sec. Lt. N. H. C. Loft, Sec. Lt. T. D. Sykes, Lt. A. G. Warner, Jan. 25th; Capt. A. M. Harding, Lt. D. J. Pilmore-Bedford, Lt. A. H. Welsh, Sec. Lt. C. Whitehead, Jan. 26th; Lt. W. Hill, Jan. 27th; Lt. L. H. Cryer, Sec. Lt. A. R. Lees (Lond. R., T.F.), Jan. 28th; Lt. H. A. Chippindale, M.C. (R.F.A., T.F.), Sec. Lt. E. A. Devine, Lt. (Hon. Capt. A. A. Greenslade (S. Lanc. R.), Sec. Lt. J. W. Hill, Lt. A. Parsons, Sec. Lt. H. Pattinson, Lt. J. C. Tusting, Jan. 29th; Lt. B. Adie (R.W. Kent R.), Sec. Lt. V. F. Dorey, Lt. A. T. Edem-Eadon (N. Staffs R.), Lt. F. Ellam, Lt. A. A. English, M.C., Lt. S. C. Eschmann (Suff. R.), Sec. Lt. G. M. Ferguson, Lt. S. T. Francis, Sec. Lt. J. W. Hamilton, Sec. Lt. G. Kaines-Thomas, Jan. 30th; Sec. Lt. P. Bebbington, Sec. Lt. E. M. Boxer, Lt. J. B. Carr (Middx. R.), Sec. Lt. I. H. Christie, Sec. Lt. D. A. Colquhoun, Lt. J. C. C. Cotes, Sec. Lt. C. A. L. Coutts, Capt. F. Dunn, Lt. W. L. Gopsill, Lt. (actg. Capt.) H. A. Hamersley, M.C., Sec. Lt. (Hon. Lt.) A. O. Helps (Sec. Lt.), Jan. 31st; Sec. Lt. H. Holmes (date of 1st commn. Aug. 10th, 1918); Sec. Lt. A. J. Attwood, Sec. Lt. J. B. Boyter, Lt. A. C. Coombs, Lt. E. Everatt, Sec. Lt. A. B. Fee, Sec. Lt. A. C. Fenn, Lt. J. Frost, Sec. Lt. W. Ginger, Sec. Lt. R. A. Grant, Major W. G. Moore, Sec. Lt. (Hon. Lt.) A. C. Orchin, Sec. Lt. H. S. Philp, Lt. T. B. Wallas, Feb. 1st; Lt. K. D. Campbell, Maj. W. E. F. Davidson, Sec. Lt. W. Denham, Sec. Lt. H. G. Daulton, Lt. C. M. Davis, Sec. Lt. L. A. Dodge, Lt. T. F. Everett, Capt. C. Faber, Sec. Lt. W. Garbett (E. Yorks R.), Lt. D. S. Clover, Lt. (actg. Capt.) F. M. Hicks, Lt. M. A. Hebb, Capt. W. R. Hoare (Capt., Hants R., T.F.), Sec. Lt. A. Holdsworth, Lt. R. H. Humphries, Lt. C. Knight, Sec. Lt. J. C. Lawrence, Sec. Lt. C. A. Lucy, Lt. L. A. Wingfield (R. Fus.), Feb. 2nd; Lt. O. H. Cantrill, Sec. Lt. (Hon. Maj.) E. Crewdson (Maj., R.E.), Sec. Lt. R. A. Forth, Feb. 3rd; Lt. C. G. Davenport (R.F.A., T.F.), Capt. T. S. Edelston, Sec. Lt. J. W. Elder, Sec. Lt. W. G. Gardner, Sec. Lt. R. D. Hambrook, Sec. Lt. R. Ingram, Sec. Lt. J. MacLusky, Sec. Lt. (Hon. Lt.) J. R. Orton, Sec. Lt. F. Priestman, Sec. Lt. P. A. Sainsbury, Sec. Lt. R. C. Unmack, Sec. Lt. De La Virgne, Sec. Lt. H. S. Wills, Feb. 4th; Sec. Lt. E. G. Emery, Sec. Lt. B. V. Featherstonhaugh, Lt. W. J. Greenslade, Lt. (actg. Capt.) F. Hobson, M.C., Sec. Lt. S. B. Howson, Lt. J. T. P. Jeyes, Lt. H. C. Kent, Lt. (Hon. Capt.) L. Laing (D.L.I., T.F.), Capt. G. V. Leather, Lt. V. Z. Stone, Lt. H. O. Thomas, Lt. W. J. Walford, Lt. J. H. Wilkinson, Lt. H. S. Wright, Feb. 5th; Sec. Lt. G. Bannerman, Lt. N. T. Croft (Lond. R.), Lt. R. H. Cross (D. of Lancs. Own Yeo., T.F.), Sec. Lt. D. Manners, Feb. 6th; Sec. Lt. (Hon. Lt.) P. R. Ambrose (Essex. R.), Sec. Lt. A. E. Button, Sec. Lt. A. H. Duggan, Lt. R. J. MacLachlan, Sec. Lt. W. Manning, Capt. W. H. Peirce, Lt. A. J. D. Peebles, Lt. L. S. Skevington, Feb. 7th; Lt. D. S. MacKenzie, Sec. Lt. G. C. Noble, Sec. Lt. F. P. Wheatley, Feb. 8th; Sec. Lt. G. M. E. Bennett, Sec. Lt. (Hon. Lt.) A. H. Waddy (Bedf. R.), Feb. 9th; Lt. D. I. Davies, Sec. Lt. J. H. Nicholass, Feb. 11th; Sec. Lt. H. Mercer, Feb. 12th; Sec. Lt. P. S. Crovat, Feb. 15th; Lt. E. H. Cutbill, Lt. (Hon. Capt.) A. de Selincourt, Feb. 16th; Capt. D. M. S. Watson, Feb. 17th.

Capt. T. U. D. Truman relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt., Feb. 19th.

Lt. R. W. J. Weeks relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Lt., Feb. 19th.

Sec. Lt. J. W. Taylor relinquishes his commn. on account of ill-heakth, and is permitted to retain the rank of Sec. Lt., Jan. 27th (substituted for notification in "Gazette," Jan. 7th).

Sec. Lt. H. W. Robinson relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Sec. Lt., Feb. 19th.

Lt. T. H. R. Riggs is antedated in his appt. as Sec. Lt. (O.) to April 20th, 1918.

Sec. Lt. E. G. Corey is antedated in his appt. as Sec. Lt. (A. and S.), May 28th, 1918 (substituted for notification in "Gazette," Oct. 22nd, 1918, p. 12,494).

The notification in "Gazette," Dec. 24th, 1918, concerning Sec. Lt. E. F. Murphy is cancelled.

The name of John Frederick Young is as now described and not F. J. Young as stated in "Gazette," May 24th, 1918.

The surname of No. 75720 A. T. Reid is as now described and not as in "Gazette," Nov. 15th, 1918.

The Christian names of Sec. Lt. John Harrison Gardner are as now described and not as in "Gazette," Jan. 24th.

The initials of Sec. Lt. K. E. Allan are as now described and not as in "Gazette," Sept. 17th, 1918.

ADMINISTRATIVE BRANCH.—Lts. to be actg. Capts. whilst empld. as Capts.:—E. N. T. Edwardes, Feb. 1st; D. F. Hurr, M.C., Feb. 11th.

Sec. Lt. H. Baker to be actg. Capt. whilst empld. as Capt., Feb. 1st.

W. J. T. Wright (Lt., Can. Rly. Serv.) is granted a temp. commn. as Lt., Aug. 21st, 1918, seny. from April 1st, 1918.

Sec. Lts. to be Sec. Lts. from (A.):—L. E. Walmsley, Dec. 17th, 1918; J. McAuley, Jan. 10th; (Hon. Capt.) G. H. Blake, D.C.M., Feb. 8th, and to be Hon. Capt.

Sec. Lt. H. D. Thornton to be Sec. Lt., from (A. and S.), Nov. 26th, 1918.

Sec. Lt. H. S. Downs to be Sec. Lt., from (T.), June 15th, 1918.

Sec. Lts. to be Sec. Lts., from (O.):—H. Ridley, Nov. 10th, 1918; T. N. Drake, Nov. 22nd, 1918; E. H. Cooke, Dec. 3rd, 1918; T. Stockdale, Jan. 2nd.

Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts.:—H. O. Warren, Nov. 25th, 1918; H. T. Joy, Feb. 8th.

G. D. Ashby (Sec. Lt., R.G.A., Spec. Res.) is granted a temp. commn. as Sec. Lt., July 16th, 1918, and with seny. from April 1st, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. C. E. Vickers (temp. Asst. Paymr., R.N.R.), Sept. 14th, 1918; Lt. (actg. Capt.) C. F. Apthorp, Feb. 3rd, and is permitted to retain the rank of Capt.

The following are transfd. to Unempld. List:—Sec. Lt. S. A. Mountain, Jan. 7th; Lt. C. J. Killeen, Jan. 11th; Lt. C. L. Shaw, Jan. 13th. Sec. Lt. S. H. Adams, Sec. Lt. W. F. Ayrton, Sec. Lt. P. Geach, Jan. 21st; Sec. Lt. S. G. Ball, Sec. Lt. J. W. Stevens, Jan. 22nd; Sec. Lt. R. P. Cobb, Jan. 24th; Sec. Lt. B. Bosker, Sec. Lt. T. E. Coppinger, Sec. Lt. G. Crouch, Jan. 25th; Sec. Lt. W. H. Carling, Lt. R. W. Coop, M.C., Lt. H. E. Gooding, Lt. (actg. Capt.) H. Jeffryes, Sec. Lt. W. F. D. Welch, Jan. 26th; Sec. Lt. P. C. V. Halliwell, Jan. 28th; Sec. Lt. A. Bragg, Sec. Lt. J. Flett, Sec. Lt. W. Marklew, Jan. 29th; Sec. Lt. A. E. Edwards, Jan. 30th; Lt. E. R. Childe-Freeman, Sec. Lt. A. K. Dawson, Lt. E. L. French, Sec. Lt. (actg. Capt.), H. M. Woodhouse, Jan. 31st; Lt. W. E. Cutlan, Sec. Lt. H. Oliver, Sec. Lt. F. E. Phelps, Feb. 1st; Lt. (actg.

Capt.) E. G. Etheridge, Sec. Lt. W. Epsley, Feb. 2nd; Sec. Lt. A. Mackie, Feb. 3rd; Sec. Lt. L. de B. Lewis, Feb. 4th; Sec. Lt. G. A. Bainbridge, Sec. Lt. W. E. Burrill, Lt. (actg. Maj.) R. L. Briscoe, Lt. S. C. Conner, Sec. Lt. E. Drummond, Feb. 5th; Sec. Lt. (actg. Lt.) G. E. Valentine, Feb. 6th; Lt. L. V. Marchant, Feb. 7th; Lt. W. R. Haggas, Sec. Lt. B. S. Tydd, Feb. 8th.

Sec. Lt. (actg. Capt.) H. L. Nelson, Feb. 11th.

Capt. (actg. Maj.) H. W. R. Haselhurst relinquishes his commn. on account of ill-health caused by wounds, and is permitted to retain the rank of Maj., Feb. 19th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—V. B. Allen, L. Smith (contracted on active service), Feb. 19th.

Sec. Lt. (actg. Lt.) B. W. Swan relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., Feb. 19th.

Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—S. R. S. Burnett, F. J. A. Cooper, E. M. Prowse (contracted on active service), A. C. Mitchell, Feb. 19th.

Sec. Lt. F. G. Corbett is antedated in his first appt. as Sec. Lt., from Aug. 18th, 1918.

Sec. Lt. G. W. Hough is antedated in his first appt. as Sec. Lt., from Aug. 18th, 1918.

TECHNICAL BRANCH.—C. A. Brown (Lt., R.N.V.R.) is granted a temp. commn. as Capt. (Gr. A.), Sept. 8th, 1918.

Lt. (Hon. Maj.) E. N. L. White to be actg. Capt. while empld. as Capt. (Gr. A.), Oct. 1st, 1918 (substituted for notification in the "Gazette," Oct. 4th, 1918)

Lt. C. B. Dolphin to be Sec. Lt. (Gr. A.), from (Ad.), and to be Hon. Lt., May 8th, 1918.

Sec. Lt. J. Nairn to be Sec. Lt. (Gr. A.), from (Ad.), Jan. 1st.

J. C. Howard (temp Sec. Lt., Labour Corps) is granted a temp. commn. as Sec. Lt. (Gr. A.), Aug. 19th, 1918, and with seny. from April 1st, 1918.

Sec. Lts. to be Lts. (Gr. B.), from (Ad.) :—J. Johnstone, Nov. 1st, 1918; A. H. Jackson, Jan. 24th; H. E. Young, Feb. 4th; F. O. Finn, Feb. 6th.

Sec. Lt. R. D. Clerk (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Gr. B.), June 1st, 1918.

J. R. Cross (temp. Sec. Lt., R.E.) is granted a temp. commn. as Sec. Lt., Sept. 9th, 1918 (substituted for notification in "Gazette," Oct. 29th, 1918).

Sec. Lt. (Hon. Lt.) W. L. Heape (Lt., E. Lancs. R.) relinquishes his commn. on ceasing to be empld., Dec. 11th, 1918.

The following are transfd. to Unempld. List :—Sec. Lt. W. A Gaze, Jan. 11th; Sec. Lt. (Hon. Lt.) R. G. Campbell, Jan. 15th; Sec. Lt. (Hon. Lt.) H. Forbes, Sec. Lt. (Hon. Lt.) W. F. Peatfield, Jan. 17th; Lt. (actg. Capt.) A. D. Broughton, Jan. 18th; Sec. Lt. P. F. Garnett, Jan. 19th; Sec. Lt. A. M. Coombs, Lt. E. C. Richardson, Jan. 21st; Sec. Lt. J. K. Bell, Lt. F. W. Roberts, Sec. Lt. (Hon. Lt.) S. A. Salmon, Jan. 23rd; Lt. F. S. Smith, Jan. 25th; Sec. Lt. S. H. Cummings, Jan. 26th; Maj. F. W. Gardner, Lt. W. H. Griffith, Jan. 29th; Lt. (actg. Capt.) C. A. Christmas, Sec. Lt. T. Goulding, Jan. 30th; Sec. Lt. F. Baxter, Lt. H. F. Fulford, Jan. 31st; Sec. Lt. H. A. Blackburn, Lt. C. Boyd, Sec. Lt. J. L. Carter-Cherry, Sec. Lt. (Hon. Lt.) (actg. Capt.) G. H. Crick, Sec. Lt. A. Dunderdale, Capt. J. H. Dunn, Sec. Lt. A. McD. Falconer, Lt. (actg. Capt.) R. W. Jepson, Lt. (actg. Capt.) C. S. Johnston, Lt. G. D. Morris, Sec. Lt. R. Peel, Feb. 1st; Maj. E. M. L. Ainslie, M.B.E.; Sec. Lt. A. J. Knight, Feb. 2nd; Lt. J. Goodenough, Feb. 3rd; Sec. Lt. R. M. Adam, Lt. G. W. Charley, Maj. P. L. H. Dodson, Lt. W. Hamilton, Feb. 4th; Lt. M. B. Brown, Sec. Lt. W. Johnstone, Lt. L. W. Mather, Feb. 5th; Lt. C. B. D. Campbell, Lt. D. Easdale, Sec. Lt. L. Evans, Lt. A. G. Hall, Lt. A. W. H. Osborne, Maj. A. F. Sidgreaves, Feb. 6th; Lt. O. M. D. Bell, Sec. Lt. P. F. Dorte, Sec. Lt. J. M. Floyd, Sec. Lt. H. S. Gain, Sec. Lt. (Hon. Lt.) J. S. D. Harries-Jones, Feb. 7th; Capt. B. J. S. Brown, Feb. 8th; Lt. S. S. Scott, Feb. 9th; Maj. R. V. C. Brook, Feb. 11th.

Sec. Lt. J. O. Trinder is removed from the Service, his Majesty having no further occasion for his services as an officer, Jan. 10th.

Lt. (actg. Capt.) W. T. Taylor relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., Feb. 19th.

The surname of Sec. Lt. G. W. U. Clissold is as now described, and not as stated in the "Gazette" of Dec. 13th, 1918.

The initials of G. W. Webb are as now described, and not as stated in the "Gazette" of Feb. 4th.

The notification in the "Gazette" of Jan. 7th concerning Lt. (actg. Capt.) W. T. Taylor is cancelled.

CHAPLAINS BRANCH.—Principal Chaplain for Roman Catholics.—Rev. J. Dey, D.S.O. (Chap., A.C.D.), is granted a permanent commn. as Chaplain, with the relative rank of Lt.-Col., and is granted the relative rank of Col. whilst empld. as Principal Chaplain, Dec. 9th, 1918.

Rev. B. W. Keymer, O.B.E. (T./Chap. to the Forces, 4th Cl., A.C.D.), is granted a temp. commn. as Chaplain, with the relative rank of Capt., and to be Deputy-Chaplain-in-Chief, with the relative rank of Col. whilst so empld., Feb. 18th.

The following temp. appt. is made :—Asst. Principal Chaplain for Wesleyans.—Rev. J. S. Hobson (A.C.D.), and is granted a temp. commn. as Chaplain, with the relative rank of Capt., and is granted the relative rank of Maj. whilst empld. as Asst. Principal Chaplain, Feb. 3rd.

Rev. W. J. Selby relinquishes the appt. of Depy. Chaplain-in-Chief, Feb. 17th.

MEMORANDA.—Capt. H. G. Day to be actg. Maj. whilst holding a special appt. at the Ministry of Munitions, Jan. 22nd.

Capt. G. M. F. O'Brien, D.S.C., is confirmed in his rank as Capt.

Lts. to be actg. Capts. while holding special appts. at the Ministry of Munitions :—S. H. Hawes, E. L. Ravenscroft, Dec. 1st, 1918; A. E. Thorne, C. W. Winwood-Smith, Jan. 1st.

Lts. to be Hon. Capts. :—W. Clay, W. J. Jones.

Sec. Lts. to be Lts., but without pay and allowances of that rank :—H. R. Horswill, Dec. 1st, 1918; (Hon. Lt.) (actg. Lt.) V. H. Tait, Jan. 1st.

The following are transfd. to Unempld. List :—Lt. (actg. Capt.) A. W. Chapman, from (S.O.), Jan. 17th; Sec. Lt. (actg. Capt.) A. A. Longworth, from (S.O.), Feb. 2nd; Capt. (actg. Maj.) Hon. G. St. J. Brodrick, M.C., from (S.O.), Feb. 5th; Capt. B. W. Bentinck, Feb 8th; Capt. W. P. Nicholls, from (S.O.), Feb. 9th; Capt. H. E. Steinberg, from (S.O.), Feb. 12th; Capt (actg. Lt.-Col.) R. B. Bourdillon, M.C., A.F.C., from (S.O.), Feb. 15th.

Sec. Lt. (actg. Lt.) W. R. Simpson relinquishes his appt. as S.O., and actg. rank of Lt., Jan. 1st.

ADMIRALTY, Feb. 20th.

The King has been graciously pleased to approve of the award of the following decorations to the undermentioned officers, in recognition of their services during naval operations carried out in conjunction with military operations in Palestine from October to December, 1917 :—

To receive the Distinguished Service Cross.

Flt. Lt. (actg. Flt. Comdr.) Edward James Pointer Burling, R.N.A.S. (now Capt., R.A.F.)

Carried out very successful spotting work in connection with the bombardment of Deir Sineid. During this work he was attacked by a very fast hostile aeroplane, and it was only due to the extremely clever handling of his aeroplane that the machine was not destroyed.

To receive a Bar to the Distinguished Service Cross.

Flt. Lt. Henry Vernon Worrall, D.S.C., R.N.A.S. (now Capt., R.A.F.).

Carried out very successful spotting work for "Requin" off the Wadi Hesi.

WAR OFFICE, Feb. 20th.

REGULAR FORCES.—ESTABLISHMENT.—R.F.C.—MIL. WING.—Equipment Officers, 2nd Cl.—From the 3rd Cl. and to be temp. Lts. whilst so empld. :—

Temp. Sec. Lt. H. C. C. Gates, Gen. List, Oct. 23rd, 1917.

Sec. Lt. R. J. Saunders, Spec. Res., March 15th, 1918.

The names of the undermentioned have been brought to the notice of the Secretary of State for War for valuable services rendered in connection with anti-aircraft services in the United Kingdom :—

Barlow, Lt. (actg. Capt.) H. W., R.G.A.; Boreham, Temp. Capt. (actg. Maj.) G. H., R.G.A.; Brooks, Lt. (actg. Capt.) C. D., R.G.A.; Buckle, Capt. (actg. Lt.-Col.) C., R.G.A. (T.F.).

Cousin, Capt. (actg. Maj.) A. J., R.F.A. (T.F.); Crane, Temp. Capt. I. F., N. Lanc. R.

De Mahé, Maj. (temp. Lt.-Col.) H. H. C. M. de C. de la B., Prince, R.F.A.

Edmunds, Lt. H. P., R.F.A. (T.F.).

Hamlett, Capt. (actg. Lt.-Col.) H. W., R.F.A. (T.F.); Hewitt, Lt. (actg. Capt.) T. S., R.G.A. (T.F.); Hill, Lt. (actg. Capt.) A., R.G.A. (T.F.); Hinton, Lt. (actg. Capt.) W. H., R.F.A.; Homewood, Lt. T. S., R.G.A. (S.R.).

Ingman, Lt. H. J., R.E. (T.F.).

Jeffery, Lt. (actg. Maj.) R., R.F.A.

Kingscote, Capt. and Bt. Maj. (actg. Lt.-Col.) A. R. F., M.C., R.G.A.

Lawrence, Temp. Lt. (actg. Capt.) S., M.C., R.F.A.; Lewis, Lt. (temp. Capt.) O. W. H., R.G.A. (T.F.).

Mills, Capt. (actg. Lt.-Col.) H. P. F., R.G.A.; Phillips, Lt. (actg. Capt.) E. W., R.G.A. (T.F.).

Redlich, Lt. (actg. Capt.) S., R.G.A. (S.R.); Robertson, Lt. (actg. Maj.) H. G., R.G.A. (S.R.).

Simon, Maj. and Bt. Col. M. St. L., R.E.

Thompson, Lt.-Col. W. M., D.S.O., R.E.; Thomson, Temp. Capt. (actg. Maj.) G., R.G.A.; Townsend, Maj. C. V. M., R.F.A. (T.F.).

Whittaker, Temp. Capt. W. E. de B., Gen. List.; Williams, Lt. (actg. Capt.) H. H., R.G.A. (S.R.); Woods, Lt. A., R.E. (T.F.).

Bode, 132184 Gnr. S., R.G.A. (Now 444725, R.E.).

Callaway, 142484 Gnr. (actg. Cpl.) A. H., R.G.A.; Coryner, 90273 Gnr. (actg. Serjt.) W. C. G., R.G.A.; Cook, 564537 Spr. (actg. Lt.-Col.) C. E., R.E.; Compeyron, 466909 Spr. P. A., R.E.; Cullen, 547144 Cpl. (actg. Serjt.) W., R.E.

Davey, 118918 Cpl. (actg. Serjt.) T. N., R.G.A.

Garlick, 149773 Bombr. (actg. Serjt.) E., R.G.A.; Gray, 128084 Bombr. (actg. Serjt.) T. S., R.G.A.

Hattersley, 562649 2nd Cpl. (Air Mech. S. Serjt.) A. W., R.E.; Hopkins, 118842 Cpl. (actg. Serjt.) A. W., R.G.A.; Howell, 140205 Gnr. (actg. Cpl.) E. J. W., R.G.A.

King, 564227 Spr. (actg. 2nd Cpl.) H. G., R.E.

Lasham, 166808 Gnr. (actg. Bombr.) S. R., R.G.A.

Murton, 319452 Gnr. (actg. Cpl.) H., R.G.A.

Rawson-Bottom, 562363 Cpl. (Air Mech. S. Serjt.) W. E., R.E.; Rutter, 118488 Cpl. (actg. Serjt.) H. T., R.G.A.

Salmon, 118829 Gnr. G. W., R.G.A.; Smith, 466587 Spr. R., R.E.

Terry, 118696 Cpl. J. J., R.G.A. (Now 528643, R.E.).

Williams, 104969 Gnr (actg. Cpl.) T., R.G.A.

AIR MINISTRY, Feb. 21st.

R.A.F.—The following temp. appts. are made at the Air Ministry :—Staff Officer, 1st Cl.—(Air)—Lt.-Col. R. A. Wilson, D.S.O., Feb. 1st.

Staff Officers, 3rd Cl.—(P.).—Capt. P. A. Moodie, Jan 13th; Lt. J. B. Sharples, M.B.E., Feb. 1st, and to be actg. Capt. while so empld.; Capt. C. J. Marchant, M.C., Feb. 10th.

The following temp. appt. is made :—Staff Officer, 1st Cl.—(To be graded for pay at Air Ministry rates).

Maj. D. Harries, and to be actg. Lt.-Col. while so employed., vice Maj. (actg. Lt.-Col.) F. W. Lucas, M.C., June 26th, 1918 (substituted for notification in "Gazette," Aug. 20th, 1918).

The date of appt. of Capt. (actg. Lt.-Col.) A. J. Child, M.C., is May 3rd, 1918, and not as in "Gazette," May 21st, 1918.

The date of appt. of Capt. (actg. Lt.-Col.) F. S. Isaac is May 19th, 1918, and not as in "Gazette," June 7th, 1918

Staff Officers, 4th Cl. (2nd Gr.).—The date of appt. of Lt. C. T. S. Mendl is April 27th, 1918, and not as in "Gazette," Jan. 14th.

The date of appt. of Lt. P. B. Fricker is June 6th, 1918, and not as stated in "Gazette," Jan. 14th).

FLYING BRANCH.—Capt. W. W. Carey-Thomas, M.C., to be actg. Maj. (A.) while specially empld., Feb. 5th.

Capts. to be actg. Majs. while empld. as Majs. (A.) :—M. B. Blake, Aug. 1st, 1918; W. E. G. Murray, Sept. 16th, 1918; A. Coats, A.F.C., D. U. McGregor, M.C., R. H. B. Kerr, H. A. B. Robb, M.C., A.F.C., Sept. 23rd, 1918; C. D. Fellowes, M.C., A.F.C., J. C. B. Firth, M.C., A. Goodfellow, G. L. Lloyd, M.C., from (T.); E. J. Watkins, Oct. 1st, 1918; C. A. Turton, Nov. 1st, 1918; M. R. N. Jennings, M.C., Dec. 27th, 1918.

Lts. (actg. Capts.) to be actg. Majs. while empld. as Majs. (A.) :—F. G. Garratt, Sept. 23rd, 1918; J. E. Bonniksen, Oct. 1st, 1918; M. M. Sisley, A.F.C., Nov. 1st, 1918.

Capt. N. G. Stewart-Dawson, D.S.C., to be actg. Maj. while empld. as Maj. (A. and S.), Oct. 1st, 1918.

Capt. R. J. Slade, D.S.C., to be graded for pay as Capt. while empld. as Capt. (O.), Jan. 31st.

Lts. to be actg. Capts. while empld. as Capts. (A.) :—F. L. B. Hebbert, June 1st, 1918; E. S. Duggan, R. N. Swann, Aug. 1st, 1918; E. Haigh, Aug. 31st, 1918; E. J. A. Burke, D. Coates, D. S. Glover, J. H. Gotch, A.F.C., (Hon. Capt.) W. Petre, (Hon. Capt.) R. S. Witchell, A. M. Wray, M.C., A.F.C., Sept. 1st, 1918; P. R. T. Chamberlayne, A.F.C., T.C. Clifford, W. R. Cox, M.C., B. F. G. Cunliffe, G. Eastwood, W. P. Eastwood, R. E. Heath, A. E. Hedges, D'A. F. Hilton, M.C., W. F. Hamilton, C. W. Hamilton, H. P. M. Kesterton, M.C., (Hon. Capt.) W. L. Lister, S. B. Martin, T. Marburg, A.F.C., W. G. B. McKechnie, R. J. Stubington, B. R. Vertannes, Oct. 1st, 1918; W. Dancy, J. L. Horne, A.F.C., G. N. Prout, W. A. McMichael, D. A. Savage, M.A., Oct. 2nd, 1918; G. W. Ferguson, M.C., R. J. Housden, Nov. 1st, 1918; H. Hercock, Nov. 21st, 1918; E. D. Mackay, Jan. 8th.

Lt. R. S. Davies to be actg. Capt. while empld. as Capt. (O.), Oct. 1st, 1918.

Lt. G. A. Binning to be Lt. (A.) from (O.), Jan. 4th.

Sec. Lt. H. N. Hasler to be Sec. Lt. (A. Ship) from (T. Gr. A.), Oct. 14th, 1918.

Flt. Cadet 117366 S. Barker is granted a temp. commn. as Sec. Lt. (A.), Aug. 29th, 1918.

Flt. Cadet 227739 R. Morrison is granted a temp. commn. as Sec. Lt. (A.), Oct. 18th, 1918.

F. Smith (temp. Sec. Lt., York L.I.) is granted a temp. commn. as Sec. Lt. (A.), May 27th, 1918 (substituted for notification in "Gazette," June 28th, 1918, concerning L. T. Smith).

The following Prob. Flt. Officers (late R.N.A.S.) are granted temp. commns. as Sec. Lts. (A.) :—L. E. Pocock, May 19th, 1918; H. E. Barry, July 8th, 1918; E. B. F Auld, July 14th, 1918; E. H. S. Tye, Oct. 12th, 1918.

P. de Coninck (late Sub. Lt., R.N.V.R.) is granted a temp. commn. as Sec. Lt. (A.), Oct. 29th, 1918.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts. (O.) :—A. G. Middleton, June 1st, 1918; S. Jones, June 5th, 1819; J. H. M. Woods, Aug. 8th, 1918 (substituted for notification in "Gazette," Jan. 10th); R. H. Craig, Aug. 8th, 1918 (substituted for notification in "Gazette," Jan. 10th).

The following Flt. Cadets are granted temp. commns as Sec Lts. —(O) :—137567 A. P. Hancock, Aug. 31st, 1918; A. Toes (since killed), Sept. 20th, 1918.

The following are granted temp. commns. as Sec. Lts. (Obsh. Officers) —A. R. Cowan (temp. Lt. Res. R. of Cav.), and to be Hon. Lt., April 1st, 1918; S. T. Goodman, M.C., D.C.M. (temp. Capt., R. Fus.), and to be Hon. Capt., July 6th, 1918 (substituted for notification in "Gazette," July 12th, 1918; F. W. Ross (Sec. Lt., R. War. R., T.F.), Nov. 2nd, 1918.

The following Prob. Obsr. Officers (R.N.A.S.) are granted temp. commns. as Sec. Lts. (Obsr Officers) :—J. A. Ellis, J. M. Dunn, April 4th, 1918; L. A. Thrower, C. J. Lewis, April 25th, 1918; J. G. M. Farrall, R. H. S. Calver, May 6th, 1918; R. C. Emmett, May 25th, 1918; G. L. Comba, S. King, July 18th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. P. S. Birkbeck, Sec Lt. R. L. Davies, July 13th, 1918; Lt. J. F. Lewall (Lt., Brit. Col. R.), Jan. 10th; Lt. H. L. Polson (Lt., Can. M.G.C.), Sec. Lt. (Hon. Lt.) D. W. Stewart (Lt., W. Ont. R.), Jan. 11th; Lt. D. M. Christie (Lt., Can. Forces), Sec. Lt. (Hon. Lt.) H. M. Fulton Lt., Nova Scotia R.), Sec. Lt. (Hon. Lt.) S. H. Munro (Hon. (Lt., Y.M.C.A., C.E.F.), Jan. 13th; Lt. I. L. Barnhill (Lt., Nova Scotia R.), Jan. 22nd; Lt. R. C. Farrow (Lt., Can. Field Art.), Jan. 29th, Lt. H. A. McCormick (Lt., Nova Scotia R.), Jan. 30th; Lt. R. C. Pitman (Lt., Nova Scotia R.), Feb. 1st; Lt. H. S. Hill (Lincoln R., T.F.), Sec. Lt., J. J. Palmer (Lond. R.), Feb. 3rd; Capt. R. M. Findlay (Lt., County of Lond. Yeo.), Sec. Lt. (Hon. Capt.) M. Savill (Capt., R. W. Surr. R.), Lt. E. S. Seaton, (Lt., Lond. R.), Feb. 4th; Sec. Lt F. W. C. Elles (Temp. Sec. Lt., Ind. Army), Feb 8th.

The following are transfd. to the unempld. list :—Lt. S. Harlow, Jan. 15th; Lt. B. S. Allen, Sec. Lt. T. S. Anderson, Jan 21st; Capt. H. Lawson (substituted for notification in "Gazette," Feb. 7th), Lt. L. M. Y. Williams (Lond. R.), Sec. Lt. F. K. Wilson, Jan. 23rd; Lt. (actg. Capt.) H. C. R. Owen, Sec. Lt. L. A. Wilson, Jan. 24th; Lt. (actg. Capt.) J. E. Addinsell, Lt. N. V. Clarke, Sec. Lt. (Hon. Lt.) C. W. Murray (Queen's Own R. Glas. Yeo., T.F.), Sec. Lt. H. J. E. Whitefield, Sec. Lt. A. W. Yardley, Jan. 25th; Sec. Lt. W. Howarth, Jan. 26th; Lt. K. G. P. Headrie, Lt. H. T. Parsons, Jan. 27th; Lt. J. F. A. Baker, Jan. 28th; Sec. Lt. W. I. Bannatyne, Sec. Lt. P. D. Brookes (Lond. R., T.F.), Sec. Lt. W. E. Hall, Sec. Lt. L. B. Jordan, Jan. 29th; Lt. G. F. Burns, Lt. S. T. Butteris, Sec. Lt. J. A. C. Critchley, Sec. Lt. A. R. Crosthwaite, Jan. 30th; Lt. R. M. Anderson (High. L.I.), Lt. C. E. E. Boult, Sec. Lt. W. S. Brooks, Sec. Lt. A. E. Brown, Lt. (actg. Capt.) E. D. Clarke, Sec. Lt. A. H. Combs, Lt. F. N. Harrison, Capt. J. P. Inglefield, Sec. Lt. (actg. Capt.) R. Jackson, Lt. J. Langlands, Sec. Lt. A. Laskey, Jan. 31st; Sec. Lt. A. H. Derby, Lt. C. A. Hutchins, Sec. Lt. (Hon. Lt.) G. L. S. Lightfoot, Sec. Lt. F. H. Redfern, Lt. (actg. Capt.) G. B. Solomon, Lt. O. H. C. Webb, Feb. 1st; Lt. P. S. Bell, Sec. Lt. (Hon. Lt.) J. C. Burbidge (Rifle Bgde.), Sec. Lt. C. J. Clarke, Sec. Lt. F. T. Cockburn, Lt. S. J. C. Ellis, Sec. Lt. G. Harvey, Lt. K. J. P. Laing, Lt. G. W. White, Lt. (Hon. Capt.) L. D. B. Monier-Williams, Feb. 2nd; Lt. (actg. Capt.) J. L. S. Gill (Lanc. Fus.), Sec. Lt. W. F. Gibson, Sec. Lt. L. W. Launchbury, Sec. Lt. C. W. J. Lawrence, Sec. Lt. D. E. Llewelyn, Lt. L. R. Tait-Fox, Feb. 3rd; Sec. Lt. D. S. Davies, Lt. H. L. Groom, Lt. H. M. Harris (Lt., R. Scots), Lt. (Hon. Capt.) G. St. G. Stedall (Lond. Yeo., T.F.), Sec. Lt. F. G. Stevens, Feb. 4th; Lt. A. H Berg, Lt. L. E. Bickel, Sec. Lt. E. H. Brand, Sec. Lt. R. Carnie, Lt. J. K. Carruth, Sec. Lt. A. E. Connolly, Sec. Lt. G. N. Dixon, Lt.-Col. I. Fraser, Sec. Lt. J. D. Graham, Sec. Lt. W. H. Greaves, Sec. Lt. E. Groves, Lt. W. R. McMenan, Sec. Lt. L. F. Newnham, Lt. H. R. Watt, Feb. 5th; Sec. Lt. (Hon. Capt.) P. Bell (R. Welsh R., T.F.), Sec. Lt. S. W. W. Field, Lt. J. J. C. Hamman, Lt. H. Howard, M.C., Sec. Lt. A. H. McIntyre, Lt. D. C. C. Murray (R.E., T.F.), Lt. S. H. Vickers, Sec. Lt. A. G. Weston, Sec. Lt. R. J. O. Wilson, Lt. R. W. Whalley, Feb. 10th; Sec. Lt L. F. Hill, Lt. O. Matson, Feb. 7th; Capt. (actg. Maj.) H. H. Balfour, M.C. (K.R. Rif. Co., Spec. Res.), Lt. A. E. Fitness, Maj. O. T. Gnosspelius, Lt. C. M. Hallett, Lt. S. E. Hancox, Sec. Lt. C. D. Laubenque, Sec Lt. F. K. Langton, Lt. L. P. Smith, Sec. Lt. W. J Wilkinson, Lt. G. Wood, Lt. S. Wright,, Feb. 8th; Sec. Lt. R. J. Davey, Sec. Lt. H. S. Ellis, Lt. J. M. E. Murray, Feb. 9th; Lt. (Hon. Capt.) E. Beadon, Lt. H. Dewhirst, Lt. O. J. Hargrave, Sec. Lt. L. N. Mudditt, Sec Lt. H. Pritchett, Sec. Lt. B. Rhodes, Lt. J. L. Toyne, Feb 10th; Lt A. A. Battson, Lt. G. S. Chester, Sec. Lt. J. A. Holmes, Sec. Lt. (Hon. Lt.) A. Le Blanc, Lt. C. R. Sands (Sher. For.), Sec. Lt. B. Smulian, Sec. Lt. E. Wilman, Lt. (actg. Capt.) F. C. A. Wright, Feb. 11th; Sec. Lt. J. H. Marland, Feb. 12th; Capt. F. Webb, Feb. 13th; Sec. Lt. A. Baistow, Feb. 14th; Lt. R. C. Taylor (temp Sec. Lt., R. War. R.), Feb. 16th; Lt. S. G. Spiro, Feb. 19th.

Capt. D. K. Johnstone relinquishes his commn on account of ill-health, and is permitted to retain the rank of Capt., Feb. 22nd.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—S. Anderson (High. L.I.) (caused by wounds), W. C Gibbard, C. F. Muirhead (contracted on active service), E. H. Tredcroft (contracted on active service), Feb. 22nd.

Lt. E. O. Perry (Lt., Notts and Derby R., T.F.) relinquishes his commns. on account of ill-health contracted on active service, Feb. 22nd.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—W. A. Bune (contracted on active service), G. A. Cameron, H. Drummond-Wolff (contracted on active service, J. R. Johnson, E. Willis (contracted on active service), Feb. 22nd.

The notification in "Gazette," May 31st, 1918, concerning Capt. S. T. Ravenscroft is cancelled.

The notification in "Gazette," Nov. 22nd, 1918, concerning Lt. L. J. N. Mackay is cancelled.

The notification in "Gazette," Jan. 14th concerning Sec. Lt. P. C. Drummond is cancelled.

The notification in "Gazette," June 11th, 1918, concerning Sec. Lt. A. C. Kermode is cancelled.

The notification in "Gazette," Feb. 4th, concerning Lt. W. C. Marsh is cancelled.

Sec. Lt. W. H. Oldfield is antedated in his appt. as Sec. Lt. (O.) to July 23rd, 1918.

ADMINISTRATIVE BRANCH.—A. H. C. Kearsey, D.S.O. (Maj., Hrs.), is granted a temp. commn. as Maj., Seny. April 1st, 1918, and to be actg. Lt.-Col while empld as Lt.-Col., Sept. 17th, 1918.

Capt. (Hon. Maj.) H. B. Nutting to be actg. Lt.-Col. while empld. as Lt. Col., Oct. 8th, 1918 (substituted for notification in "Gazette," Dec. 20th, 1918).

Capts. to be actg. Majs. while empld. as Majs. :—M. A Seymour, Oct. 1st, 1918; F. H. Hawksford, from (T.), Nov. 1st, 1918; F. R. P. Dexter, Nov. 13th, 1918.

The following are granted temp. commns. as Capts. :—L. E. Innes-Baillie (temp. Capt., R. Mar.), April 1st, 1918; T. M. Ross (Maj. and Qrmr., R. Sco. Greys), and to be hon. Maj. (substituted for notification in "Gazette," Feb. 14th; F. R. P. Dexter (temp. Capt., Yorks L.I.), June 4th, 1918, seny. April 1st, 1918.

Capt. G. Aste to be Capt. from (S.O.), Jan. 28th.

Lt. (actg. Capt.) S. Ransom retains the actg. rank of Capt. while empld. as Capt. from (T.), Jan. 3rd

Sec. Lt. (actg. Capt.) J. F. Kerr to be graded for purposes of pay as Capt. while empld. as Capt. from (T.), Sept. 1st, 1918.

Lts. to be actg. Capts. while empld. as Capts. :—A. A. Frew, A. M. Thomas, from (A.), July 1st, 1918; P. Arbon, from (A.), Aug. 1st, 1918; J. J. Wilson, Aug. 29th, 1918; E. L. Ardley, G. A. Hutchinson, J. G. Pyrie, Sept. 1st, 1918; J. V. Hay, from (O.), Sept. 30th, 1918, G. J. Blackmore, from (T.), J. C. Kinmond, Oct. 1st, 1918; H. M. Taylor, Oct. 2nd, 1918; D. H. Houston, Oct. 15th, 1918; A. S. Dark, K. H. Leake, Nov. 1st, 1918; S. B. Hicks, from (A.), Nov. 14th, 1918; (Hon. Capt.) J. H. Hannay, Nov. 22nd, 1918; J. B. Pirie, Dec. 24th, 1914.

Sec. Lts. to be actg. Capts. whilst empld as Capts. :—G. D. Ashby, (Hon. Lt.) J. McAllister, Oct. 1st, 1918; J. N. Dillon, Nov. 22nd, 1918; L. Marquard, from (A. and S.), Jan. 13th; G. T. Armitage, Feb. 1st.

J. P. Coghlan (temp. Lt., Res. of Cav.) is granted a temp. commn. as Lt., with seny from April 1st, 1918, and to be actg. Capt. whilst empld. as Capt., Sept. 23rd, 1918, to Jan. 21st.

Lts. (A.) to be Lts. :—A. Parrish, July 16th, 1918; A. H. Hepworth, Sept. 12th, 1918; A. W. Robertson, D.F.C., Oct. 3rd, 1918; H. M. Hames, Oct. 10th, 1918; T. H. Butler, Nov. 12th, 1918; A. G. Storey, Nov. 13th, 1918; J. A. Dales, Nov. 14th, 1918; A. G. Flatt, Nov. 18th, 1918; E. E. Hamilton-Jackson, Nov. 20th, 1918; E. R. Ortner, Nov. 25th, 1918; W. T. Kuschke, Nov. 26th, 1918; H. Goodwin, Nov. 27th, 1918; T. S. Bulman, Nov. 30th, 1918; H. V. M. Hoskins, S. Thompson, Dec. 3rd, 1918; A. Cattanach, W. E. Gilbert, O. G. Thomas, Dec. 4th, 1918; M. L. James, E. O. Peel, Dec. 5th, 1918; Lt. Taylor, Dec. 9th, 1918; (Hon. Capt.) H. O. D. Wilkins, Dec. 16th, 1918; P. T. Harris, Dec. 18th, 1918; C. L. P. Mullany, B. F. Macdonald, R. J. Thomas, Dec. 19th, 1918; J. H. Underwood, Dec. 31st, 1918; R. G. Taggart, Jan. 2nd; (Actg. Capt.) R. C. St. J. Dix, M.C., and relinquishes actg. rank of Capt.; E. S. Smithyes, Jan. 9th; E. Tasker, A.F.C., Jan. 24th.

Lts. (O.) to be Lts. :—(Hon. Capt.) J. A. Mansfield, July 1st, 1918; N. Smith, July 8th, 1918; B. G. Brown, July 16th, 1918; J. Paisley, Oct. 4th, 1918; R. W. H. Grasdorff, Nov. 7th, 1918; (Hon. Capt.) E. Beadon, M.C., Nov. 19th, 1918; G. H. Fozzard, Nov. 22nd, 1918; H. Shaw, Jan. 3rd.

Lts. to be Lts. :—J. H. Pollitt, from (S.O.), Nov. 20th, 1918; D. I. B McCulloch, from (T.), Jan. 8th.

The following to be graded for pay as Lts. while empld. as Lts. :—Lt. A. MacNamara, April 1st, 1918; Lt. E. E. N. Smith, from (T.), Aug. 26th, 1918; Capt. H. Sherwood, from (A'shp.), Jan. 16th.

Lt. J. F. C. Bennett (Capt., Lond. R., T.F.) is granted a temp. commn. as Lt., seny. April 1st, 1918, and to be Hon. Capt., Sept. 9th, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. :—G. N. J. Shaw, June 1st, 1918; (Hon. Lt.) G. Watts, from (T.), Aug. 13th, 1918; A. Lindsay, Sept. 13th, 1918; R. Q. Hamilton, from (T.), Sept. 25th, 1918; R. N. Lamb, Dec. 18th, 1918.

Sec. Lts. to be Sec. Lts., from (A.) :—F. P. Dodsworth, Nov. 17th, 1918 (substituted for notification in "Gazette," Feb. 4th); Hon. Lt. W. V. Trubshawe, Dec. 10th, 1918, and to be Hon. Lt.; R. W. F. Smee, Dec. 16th, 1918; Hon. Lt. D. Millar, Dec. 17th, 1918, and to be Hon. Lt.; O. M. Smith, Dec. 20th, 1918; F. W. B. Anderson, Jan. 24th.

Sec. Lts. to be Sec. Lts., from (O.) :—R. E. Linder, Nov. 11th, 1918; A. C. Roberts, Nov. 18th, 1918; L. J. Edwardes, Dec. 6th, 1918; Hon Lt. C. S. Preston, Dec. 16th, 1918, and to be Hon. Lt.; C. O. Shelswell, Jan. 9th.

Sec. Lt. T. S. Mobey to be Sec. Lt., from (K.B.), Nov. 2nd, 1918.

Sec. Lt. W. G. Wheatland to be Sec. Lt., from (A. and S.), Jan. 1st.

Sec. Lt. H. J. Young (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., April 1st, 1918.

D. S. F. E. Maule-Cole (Hon. Lt., Ret. List, Spec. Res.) is granted a temp. commn. as Sec. Lt., Nov. 1st, 1918.

The following are transferred to unempld. list :—Sec. Lt. L. G. H. Aspinal, Jan. 16th; Lt. H. P. O. Broadbent, Jan. 23rd; Sec. Lt. G. P. Browne, Sec. Lt. J. Clubb, Jan. 24th; Lt. T. B. Fraser, Sec. Lt. W. C. C. Taylor, Jan. 27th; Sec. Lt. E. Aldwinckle, Sec Lt F. Allanson, Jan. 28th; Sec. Lt. E. C. Birkett, Jan. 29th; Lt. J. B. H. Tate, Jan. 31st; Lt. (actg Capt.) C. E. Bagram, Lt. D. S. C. Newton, Feb 1st; Sec. Lt. J. S. Botterton, Sec. Lt. F. W. T. Davis, Feb. 2nd; Sec. Lt (actg. Lt.) T. Hobson, Feb. 3rd; Sec. Lt. (Hon. Lt.) (actg. Capt.) J. G. Beckham, Feb. 4th; Capt. R. D. Clinch, Lt. E. J. Dowty, Feb. 5th; Sec. Lt. N. K. Lawton, Feb. 7th; Lt. W. J. C. Brown, Feb. 8th; Lt. R. T. Fryett, Sec. Lt. S. Gaskell, Sec. Lt. R. Tompson, Feb. 9th; Sec. Lt. C. R. Millbourn, Sec. Lt. J. McLennan, Sec. Lt. L. J. Martyr, Feb. 11th.

Maj. W. G. Chambers relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Feb. 22nd.

Lt. H. Townsend relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Feb. 22nd.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—E. G. Hellard, A. R.H. Hora, Feb. 22nd.

The initials of R. E. Sothcott are as now described and not as stated in "Gazette," Jan. 24th.

The notification in "Gazette" of Sept. 17th, 1918, concerning Sec. Lt. A. E. Houghton is cancelled.

The notification in "Gazette" of Sept. 6th, 1918, concerning Lt. A. C. Dent is cancelled.

TECHNICAL BRANCH.—Maj. (actg. Lt.-Col.) G. P. Grenfell, D.S.O., to be actg. Lt.-Col. (Gr. A), and to be actg. Col. whilst empld. as Comdt. Wireless Experimental Establishment, Dec. 12th, 1918.

Capt. (actg. Maj.) C. H. Rowe retains the actg. rank of Maj. whilst empld. as Maj. (Gr. A.), from (S.O.), May 23rd, 1918, to Sept. 10th, 1918.

Capt. J. D. Rennie to be actg. Maj. whilst empld. as Maj. (Gr. A), Dec. 29th, 1918.

Capts. to be actg. Majs. whilst empld. as Majs. (Gr. B) :—A. B Murray, Aug. 18th, 1918; L. S. Metford, Sept. 16th, 1918.

Capt. A. H Peake-Jones to be graded for purposes of pay as Capt. whilst empld. as Capt. (Gr. A), Jan. 1st (substituted for notification in "Gazette," Feb. 7th).

Capts. to be Capts. (Gr. B) :—O. H. Mason, from (Ad.), Oct. 1st, 1918; A. J. Carlow, from (A.), Oct. 2nd, 1918.

Lt. (actg Capt.) F. J. Cooke retains the actg. rank of Capt. whilst empld. as Capt. (Gr. B.), from (Ad.), Oct. 1st, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (Gr. A) :—J. W Askham, April 22nd, 1918; E. J. Phelps, July 1st, 1918; W. J. Cooper,

Aug. 1st, 1918; A. H. Meldrum, R. J. Shanks, Sept. 1st, 1918; G. P. Achurch, M.B.E., Sept. 30th, 1918; C. D. Fairweather, G. J. C. Gunn, T. McI. Mackay, Oct. 1st, 1918; W. C. Bagnall, G. Baillie (substituted for notification in "Gazette," Jan. 31st), J. P. Burden, Nov. 1st, 1918; W. F. Floyd, Dec. 1st, 1918; A. L. Pearce, Jan. 1st.

Lts. to be actg. Capts. whilst empld. as Capts. (Gr. B) :—H. Bristow, S. A. Mitchell, July 1st, 1918; E. Gayton, H. V. Page, Aug. 1st, 1918; F. Freeman, from (Ad.), Aug 15th, 1918; G. E. Phillips, Sept. 2nd, 1918; J. A. Butcher, Sept. 18th, 1918; C. A. Lawlor, F. D. Williams, from (Ad.), Oct. 1st, 1918; E. H. Jones, P. H. Paul (substituted for notification in "Gazette," Jan. 31st), A. E. Rampton, Nov. 1st, 1918; D. Low, Nov. 14th, 1918; F. H. Bartlett, Nov. 30th, 1918.

Sec. Lt. P. V. Davies to be actg. Capt. whilst empld. as Capt. (Gr. A), Nov. 1st, 1918.

Sec. Lts. to be actg. Capts. whilst empld. as Capts. (Gr. B.) :—(Actg. Lt.) E. A. Tottle, July 1st, 1918; (actg. Lt.) A. E. Marriott, from (Ad.), Aug. 15th, 1918; (Hon. Lt.) (actg. Lt.) J. A. Hone, (actg. Lt.) W. S. C. Stephens, Oct. 4th, 1918; A. H. Waterman, Oct 15th, 1918; W. W. Brabner, T. Campbell, Nov. 1st, 1918; T. W. King, Dec. 1st, 1918; H. Barnes-Moss, Feb. 4th.

Lts. (O.) to be Lts. (Gr. A) :—R. Robertson, June 21st, 1918; H. R. Stewart, Sept. 25th, 1918; F. L. Steben, Oct. 1st, 1918.

Lt. P. S. Taylor to be graded for purposes of pay as Lts. (Gr. A), Nov. 1st, 1918.

Lts. to be Lts. (Gr B) :—G. W. E. Baker, from (A.), April 1st, 1918; T. A. M. S. Lewis, from (A.), Feb. 3rd.

Lts. to be graded for purposes of pay as Lts. (Gr. B) :—T. H. Cooper, June 1st, 1918; R. W. Jefferson, Jan. 1st.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Gr. A) :—S. T. Kemp, D. G. Robinson, April 1st, 1918; S. E. W. Taylor, June 1st, 1918; G. R. Eaton, A. E. Fisher, Aug. 1st, 1918; (Hon. Lt.) V. P. Spurway, Aug. 14th, 1918; S. Barrow, Oct. 1st, 1918; R. Locke, Oct. 2nd, 1918; W. F. Arnold, Oct 18th, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Gr. B) :—(Hon. Lt.) W. J. Rice, April 1st, 1918; (Hon. Lt.) J. A. Hone, W. S. C. Stephens, April 8th, 1918; W. J. Scott, July 15th, 1918; O Fielding-Clarke, R. W. Hogg, Aug. 1st, 1918, C. E. Kitchenside, R. S. MacD. Salt, Sept. 1st, 1918; N. C. Raffin, from (Ad.), Sept. 19th, 1918; L. V. Mackenzie, P. Merrivale, Oct. 1st, 1918; (Hon. Lt.) J. C. Lathan, E. A. Sullivan, Nov. 1st, 1918; J. Anderson, H. H. Fanthorpe, H. S. Rogers, G. W. Sturman, Nov. 15th, 1918.

Sec. Lt. E. Chesterfield to be Sec. Lt. (Gr. A), from (Ad.), Jan. 23rd.

Sec. Lts. to be Sec. Lts. (Gr. B), from (Ad.) :—(Hon. Lt.) W. V. Gray, and to be Hon. Lt., Oct. 1st, 1918; W. O'Donoughue, Jan. 21st.

P. E. Stubbs is granted a temp commn. as Sec. Lt., April 1st, 1918.

Flt. Cadet 1913 A. L. Parry is granted a temp. commn. as Sec. Lt. (Gr. A), Oct. 24th, 1918.

Lt. J. MacDiarmid (Lt., R.N.) relinquishes his commn. on ceasing to be empld., Dec. 2nd, 1918.

The following are transferred to unempld. list :—Capt. G. K. G. Kerr, Jan. 2nd; Sec. Lt. O. P. Aarvold, Jan. 19th; Capt. H. French, Jan. 20th; Lt. (actg. Capt.) G. P. Achurch, M.B.E., Jan. 23rd; Lt. A. W. Hamlin, Jan. 26th; Lt. (Hon. Maj.) R. A. Constantine, Sec. Lt. C. S. M. Raikes, Jan. 27th; Sec. Lt. (Hon. Lt.) E. J. C. Bockett, Jan. 28th; Sec. Lt. R. G. Nelson, Jan. 29th; Capt. J. Latta, Jan. 31st; Lt. J. Cawley, Lt. T. P. Francis, Lt. H. B. Golding, Feb. 1st; Lt. R. W. Jefferson, Feb. 2nd; Sec. Lt. (Hon. Lt.) S. Davis, Lt. R. W. L. Phillips, Feb. 4th; Sec. Lt. P. C. Barratt, Capt. W. N. Cronshaw, Sec. Lt. (Hon. Lt.) C. E. Kennedy, Capt. D. A. Pearson, Sec. Lt. (Hon. Lt.) H. C. Short, Feb. 5th; Capt. R. R. Alexander, Capt. C. Ingram, Feb. 6th; Sec. Lt. (actg. Lt.) D. H. Baylis, Sec. Lt. S. Curzon, Feb 8th; Sec. Lt. A. C. Merrill, Maj. F. R. Samson, Feb. 9th; Lt. F. H. Kelf, Feb. 10th; Lt. S. O. Hillman, Feb. 11th; Capt. C. B. Gasson, Lt. H. W. Pollock, Feb. 16th; Sec. Lt. (Hon. Lt.) (actg. Lt.) E. A. Laurie, Feb 2nd.

Capt. C. Tollemache relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Feb. 23rd.

Sec. Lt. F. A. Worlidge relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Feb. 22nd.

PHYSICAL TRAINING BRANCH.—To be actg. Capts. whilst empld. as Capts. :—Sec. Lt. A. J. Adams, from (T.), June 1st, 1918 (substituted for notification in "Gazette," Feb. 11th, concerning Sec. Lt. A. G. Adams); Lt. W. H. Evans, June 15th, 1918; Sec. Lt. (Hon. Lt.) C. Wilson, from (T.), Jan. 21st.

MEDICAL BRANCH.—Lt.-Col. T. D. C. Barry, C.B.E., is granted the actg. rank of Col., Oct. 2nd, 1918.

The following Majs. are granted the actg. rank of Lt.-Col. :—R. H. McGiffin, G. D. Bateman, B. R. Bickford, D.S.O., Oct. 2nd, 1918.

The following Capts. are granted the actg. rank of Maj. :—W. Darling, M.C., J. M. Kirkness, T. S. Rippon, B. A. Playne, D.S.O., P. H. Hadfield, R. H. Knowles, P. L. Moore, A. A. Atkinson, J. J. C. Hamilton, F. C. Jobson, M. R. Dobson, J. MacGregor, M.C., F. N. B. Smartt, A. A. Bisset, H. Stedman, L. C. M. Wedderburn, H. M. S. Turner, H. E. Whittingham, A. Scott-Turner, C. J. G. Taylor, O. H. Gotch, H. G. Anderson, M.B.E., H. A. Hewat, W. Enraght, D. Ranken, Oct. 2nd, 1918.

Capt. (actg. Maj.) C. E. Thwaites retains the actg. rank of Maj. while empld. as Maj., from (S.O.), Feb. 12th.

P. O. Moffat (temp. Capt., R.A.M.C.) is granted a temp. commn. as Capt., Oct. 1st, 1918, seny. from May 14th, 1918.

The following Lts. are granted the actg. rank of Capt. :—C. H. Vernon, G. W. Harbottle, L. C. Broughton-Head, Oct. 2nd, 1918.

R. H. Turner is granted a temp. commn. as Lt., Feb. 18th.

Capt. D. Ross is transferred to unempld. list, Feb. 1st.

MEMORANDA.—Hon. Lt. R. J. Grant to be Hon. Capt. while holding a special appt. at the Ministry of Munitions, May 1st, 1913.

Lt. T. Griffiths is granted the hon. rank of Capt.

Sec. Lt. H. S. Downs to be Lt., June 16th, 1918.

Sec. Lt. G. Carruthers to take rank and prec. as if his appt. as Sec. Lt. bore date Nov. 28th, 1918.

Lt. (actg. Maj.) F. W. M. Pedley relinquishes the actg. rank of Maj. on ceasing to be specially empld., Nov. 28th, 1918.

Maj.-Gen. Sir W. S. Brancker, K.C.B., A.F.C., retires on retired pay, Jan. 13th.

The following are transferred to unempld. list, from (S.O.) :—Capt. H. W. J. Chipchase, Feb. 2nd; Maj. (actg. Lt.-Col.) C. A. J. Butter, Lt.-Col. L. H. Strain, D.S.C., Lt. (actg. Capt.) A. V. Sale, Feb. 7th; Capt. R. C. Boustead, Lt. (actg. Capt.) A. D. Finney, Feb. 11th; Maj. (Hon.) L. G. W. Guest, Feb. 17th.

Capt. (actg. Maj.) L. L. Batten (Glouc. Yeo., T.F.) relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Maj., Feb. 22nd.

WAR OFFICE, Feb. 22nd.

His Majesty the King has been graciously pleased to approve of the award of the Meritorious Service Medal to the following Warrant Officer :—

7613 W.O. Bushby, W. Aust. F.C.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, Feb. 19th

His Majesty, accompanied by the Prince Albert, was present at a Memorial Service which was held at Westminster Abbey for the officers, warrant officers, non-commissioned officers, and men of the Royal Naval Air Service, the Royal Flying Corps, and the Royal Air Force who have fallen in the war.

The King was attended by Capt. Sir Charles Cust, Bt., R.N., and the Earl of Cromer, and Maj. Louis Greig was in attendance upon the Prince Albert.

BUCKINGHAM PALACE, Feb. 24th.

The following officers were severally introduced into the presence of the King, when his Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

THE MOST DISTINGUISHED ORDER OF SAINT MICHAEL AND SAINT GEORGE.—COMPANIONS.—Brig.-Gen. Tom Webb-Bowen, Col. Archibald Christie, R.A.F., and Lt.-Col. Evelyn Gordon, R.A.F.

THE DISTINGUISHED SERVICE ORDER.—Lt. Harry Taylor, A.F.C., Col. Arthur Longmore, R.A.F, and Maj. Christopher Brand, R.A.F.

The King then conferred decorations as follows :—

THE DISTINGUISHED SERVICE CROSS.—Maj. Basil Gregg, R.A.F., and Capt. Charles Maitland-Heriot, R.A.F.

THE MILITARY CROSS.—Maj. Ogilvie Davis, R.A.F., Lt. Maximilian Mare-Montembault, N. Somerset Yeo., attd. R.A.F.

THE ALBERT MEDAL.—Flt. Serjt. Thomas Nicoll, R.A.F.—"For an act of gallantry in France on Feb. 26th, 1918, when two bombs exploded under an aeroplane, burning the machine entirely and causing considerable loss of life. Owing to the explosion a phosphorus bomb attached to another machine standing near to it was ignited. Flt. Serjt. Nicoll, with great presence of mind and regardless of the danger to himself, unhooked the burning bomb and carried it to a place of safety. By his prompt action Flt. Serjt. Nicoll, whose hands were badly burned, saved the second machine and prevented further serious damage and loss of life which would probably have been caused."

THE CASUALTY LIST.

MILITARY.

Reported Feb. 19th.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Pentecost, Sec. Lt. C. G., R.F.C.

The following officers, who were prisoners of war in Germany, have been released and have arrived in England :—

McLean, Lt. W. A., R.F.C.; Mapplebeck, Capt. T. G., King's (L'pool R.), attd. R.F.C.; Pocock, Lt. A. D., R.F.C.

CANADIAN FORCES.—Baker, Capt. R. P., B.C. R., attd. R.A.F.

Reported Feb. 24th.

AUSTRALIAN FORCE.—ACCIDENTALLY KILLED.—Weingarth, Lt. J. H., A.F.C.

REPATRIATIONS AND CASUALTIES AMONG W.Os., N.C.Os. AND MEN. THE DATES ARE THOSE OF THE OFFICIAL LIST.

The following soldiers, who were prisoners of war in Germany, have been released, and have arrived in England :—

FEB. 12th.—R.F.C.—Judge 492 Cpl. V. C. (Southsea).

FEB. 15th.—R.F.C.—Barnes 42054 E. W. (Hull); Conlin 106042 P. (Barrow-in-Furness); Crust 7700 1st Cl. Air Mech. W. S. (Maida Vale, W.); Dempsey 21293 Serjt. J. (Edinburgh); Ederix 3217 Serjt. M. H. (Reading); Guyat 36287 3rd Cl. Air Mech. J. G. (Kensington, W.); Harvey 52315 E. D. (Havant); Hoggard 49929 3rd Cl. Air Mech. T. H. (Bridlington); Holman 45286 3rd Cl. Air Mech. W. (Willesden, N.W.); Humble 21972 Mech. Serjt. G. (Newcastle-on-Tyne); Jeacock 12187 2nd Cl. Air Mech. F. (Birmingham); Long 67775 Serjt. L. S. (South Hackney, E.); Marshall 9253 Cpl. E. (Kettering); Pollitt 88145 F. (Pendleton); Russell 78284 Serjt. F. (Stepney, E.); Smith 65541 F. (Manchester); Sutcliffe 407086 Cpl. F. R. (Melksham); Taylor 58038 T. H. (Gloucester); Wilson 151 Cpl. A. (Wellingore).

AUSTRALIAN IMPERIAL FORCE.

DIED.

FEB. 15th.—Aust. F.C.—Frederick 2695 C. C.

AIR FORCE.

Reported Feb. 20th.

KILLED.—Cumming, Lt. C. L.
Thomas, Sec. Lt. P.
DIED.—Roberts, Lt. D. J.
Simmonds, Sec. Lt. E. G.
Wakeford, Sec. Lt. F. R. S.

Reported Feb. 22nd.

KILLED.—Schingh, Lt. J. E.
Waters, Sec. Lt. A. J.
DIED.—Barnes, Lt. A.
Baron, Capt. H. H.
Dimmock, Lt. E. H.

Reported Feb. 24th.

DIED OF INJURIES.—Heathers, Sec. Lt. P. C.
DIED.—Garrod, Lt. B. R.
Hill, Maj. A. P. D.
Suttle, Capt. W. P.

Reported Feb. 26th.

REPATRIATED.—Blake, Lt. J. W.; Carroll, Lt. C. E.; Copley, Lt. A.; Lefroy, Lt. C. B. H.; Leslie-Moore, Lt. A.; Lewis, Lt. A. D. M.; Main, Lt. R.; Moxon, Sec. Lt. N. F.; Simpson, Lt. J. W.

PERSONAL NOTICES.

NAVAL.

ENGAGEMENT.

ENSTONE—LILIENFELD.—The engagement is announced between Capt. A. J. Enstone, D.S.C., D.F.C., R.A.F., and Elsie, only daughter of the late Arthur Lilienfeld and Mrs. Lilienfeld, of 28, Bryanston Square.

BIRTH.

McCLEAN.—On Feb. 18th, at Rusthall House, Tunbridge Wells, Aileen, the wife of Lieut.-Col. F. K. McClean (late Wing-Commander, R.N.A.S.), of a daughter.

MILITARY.

DEATHS.

BRITTON.—Lieut. Arthur Frederick Britton, M.C., and Croix de Guerre (late R.A.F.), who died on Feb 19th, at 46, Norfolk House Road, Streatham, of double pneumonia, was 30 years of age.

DAVIES.—Lieut. Edgar George Davies, D.F.C., R.A.F., the elder son of Mr. and Mrs. W. G. Davies, of Tufnell Park, who was killed at Cologne in a flying accident on Feb. 6th, aged 20, was one of the recipients of the Distinguished Flying Cross in the last list gazetted. He had been in the Service two years, entering the Queen's Westminster Rifles shortly after he attained the age of 18. He transferred to the R.F.C. and received his wings last spring, crossing to France at the end of August. In the 10 weeks between his arrival and the armistice, Mr. Davies brought down 33 enemy machines, 19 of which were officially confirmed. In the award of his D.F.C. he was described as "bold in attack and skilful in manœuvre," and it was stated that he never hesitated to attack the enemy, without regard to disparity of numbers.

ENGAGEMENTS.

CLARKE—GORDON.—The engagement is announced between Anthony William Clarke, jun. (late Lieut., R.F.C.), eldest son of Mr. and Mrs. Anthony Clarke, Halden House, High Halden, Ashford, Kent, and Eva, youngest daughter of Mr. and Mrs. Balfour Gordon, of Castelnau, Barnes, and Fifeshire, N.B.

GORDON-DAVIS—McNEILL.—The engagement is announced between Capt. C. Gordon-Davis, M.C., N. Staffs. Regt. and R.A.F., elder son of the late Mr. F. Gordon-Davis and Mrs. Gordon-Davis, of Wellington, South Africa, and Winifred Ethel, youngest daughter of the late Mr. J. McNeill and Mrs. McNeill, of Cape Town, South Africa.

LONGRIDGE—HOLLAND.—The engagement is announced of Capt. R. B. Longridge, 16th Lancers and R.A.F., son of Mr. R. C. Longridge, of Knutsford, and Alice Mary, daughter of Capt. the Hon. and Mrs. C. T. Holland, of Leamington.

MULCAHY-MORGAN—HEAPE.—The marriage arranged between Major T. W. Mulcahy-Morgan, M.C., R.A.F., and Miss Barbara Mary Heape will take place on Thursday, March 6th, at St. Paul's, Knightsbridge, at 2.30 o'clock. All friends will be welcome at the church.

BIRTH.

ELLISON.—On Feb. 21st, at "Keneflon," Moseley, to the wife of Alfred Ellison, late R.F.C. and R.A.F., of a son.

* * *

Lieut. John D. Gilbert, Sussex Yeomanry, attached to 56 Squadron, R.F.C., was reported missing on Oct. 18th, 1917. He was flying an S.E.5, No. B.529 machine over Bas Warneton, near Ypres, and was seen to come down in the German lines. Neither his name nor the number of his machine has been reported. Any information from returned prisoners from that part of the line will be most gratefully received and acknowledged by Mrs. Fergusson, 17, Park Place, Cheltenham.

AIR FORCE.

DEATHS.

BRODIE.—Lieut. Eric Burnlee Brodie, R.A.F., who died on Feb. 11th, as the result of a flying accident at Cologne, was the eldest son of John A. Brodie, M.M.I.C.E., and Mrs. Brodie, Aigburth Hall, Liverpool. He was 20 years of age.

BUDGE.—Rowland Charles Budge, R.A.F., who died at New Malden, of pneumonia, was the husband of Gladys Budge, and son of the late John and Fanny Budge, of Clapham. He was 32 years of age.

FLOYD.—John Marcon (late R.A.F.), who died on Feb. 22nd of pneumonia, following influenza, was the eldest son of the late Rev. C. G. Floyd, of Holme, Norfolk, and Mrs. Floyd, of 7, Sloane Street, S.W.

PATEY.—Capt. Herbert A. Patey, D.F.C., R.A.F., died on Feb. 18th, at 4, Sherriff Road, West Hampstead, N.W.6., of double pneumonia. He was 20 years of age.

STANLEY.—Capt. Ronald Bruce Stanley, R.A.F., who died on Feb. 17th, at the War Hospital, Sunderland, of double pneumonia, was the eldest son of Charles Stanley, Esq., of Datchet. He was 27 years of age.

WATERHOUSE.—Lieut. Joseph Waterhouse, R.A.F., who died on Feb. 18th, at Chiseldon Camp, of pneumonia, was the eldest son of Frank Waterhouse, of Seattle, Washington, U.S.A.

ENGAGEMENT.

FRANCIS—RUDLAND-WOOD.—The engagement is announced between Lieut. L. Ernest Francis, R.A.F. (late of Weihai-wei, North China), only son of the late Frederick J. Francis, Esq., of Sidcup, Kent, and Doris Ravina, eldest daughter of E. Rudland-Wood, Esq., of Ripon, Yorkshire.

MARRIAGES.

BEVIS—ORMOND.—On Feb. 15th, at St. Columba's, Pont Street, London, H. Victor Bevis, R.A.F., son of Lieut.-Col. Bevis, Southsea, was married to Violet, daughter of the late Mrs. George Ormond, Melbourne, Australia.

BIRD—FRENCH.—The marriage of Major Augustus Wieland Bird, D.S.O., R.A.F., and Miss Clarice Mary French, daughter of the late Mr. Seth Barton French, of New York and Virginia, U.S.A., and of Mrs. Barton French, of Paris, and 3, Albemarle Street, W., took place at St. George's Church, Hanover Square, on Feb. 19th. The ceremony was performed by the Rev. C. J. M. Godfrey, vicar of South Beddington, Chaplain to the R.A.F.

CARR—MARION.—On Feb. 11th, in Paris, Major Philip Comyns Carr, R.A.F., of 9, Paulton's Square, Chelsea, elder son of the late J. Comyns Carr, was married to Lucie, only daughter of M. Pierre Marion and the late Mme. Marion, of 12, Rue des Taillandiers, Paris.

CLAYTON—HOLLAND.—On Feb. 20th, 1919, at the Parish Church of St. Mary Magdalene, Richmond, Surrey, Lieut. Percy Frederick Clayton, R.A.F., of 69, Church Road, Richmond, and 15, Watling Street, London, E.C., eldest son of Frederick Clayton, of Chelsea, was married to Doris Mary Holland, daughter of Frederick Holland, of 5, Church Road, Richmond.

HUBBARD—T'SERCLAES.—On Feb. 19th, at the Brompton Oratory, Capt. W. H. Hubbard, D.F.C., R.A.F., only son of Mr. and Mrs. C. H. Hubbard, Toronto, was married to Mademoiselle Germaine de T'Serclaes, eldest daughter of Baron and Baroness de T'Serclaes, of Twisden, Great Chart, Kent.

PRETYMAN—HEARD.—The marriage arranged between Lieut.-Col. George Pretyman, D.S.O., O.B.E., R.A.F., and Miss Maureen Heard took place at Brompton Parish Church, on Feb. 25th.

WILLIAMSON—MORTON-YORK.—On Feb. 19th, at Church of the Sacred Heart, Bournemouth, by the Rev. W. J. Crofton, S.J., Captain Wilson Trevor Williamson, R.A.F., son of Rev. Prebendary Williamson and Mrs. Williamson, of Cheltenham, was married to Emily Lilian, daughter of the late Henry Morton-York, Solicitor and Coroner of Gloucester, also late of Hove, and Mrs. Morton-York, of Talbot Hurst, Bournemouth.

BIRTHS.

ARMSTRONG.—On Feb. 20th, at 53, Victoria Road, Tuebrook, Liverpool, to Berthe, wife of Capt. J. Victor Armstrong, R.A.F.—a son.

IRON.—On Feb. 21st, 1919, at Streatham Manor, Leighan Avenue, Streatham, S.W., the wife of Lieut.-Colonel D. Iron, R.A.F., of a daughter.

SHIPWRIGHT.—On Feb. 14th, at Treloyhan, St. Ives, Cornwall, the wife of Capt. D. E. B. K. Shipwright, R.A.F.—a son.

SHORT.—On Feb. 16th, at Formosa House, Farnborough, the wife of Capt. F. Short, R.A.F., of a son.

* * *

Lieut. A. E. Rudge, R.A.F., was last seen over La Bassée on July 22nd. Any information will be gratefully received by his mother, 2, Rue Chamfort, Paris, France.

THE ZEEBRUGGE AND OSTEND OPERATIONS UNDER VICE-ADMIRAL SIR ROGER KEYES, K.C.B.

A despatch from Vice-Admiral Sir Roger Keyes, K.C.B., R.N., describing the operations in connection with the attempts made on April 22nd-23rd and May 10th, 1918, to block the harbours at Zeebrugge and Ostend, dated May 9th and June 15th, 1918, was published in the "London Gazette" on Feb. 19th, 1919. The following references were made therein to the Royal Air Force :—

"The attack upon the Zeebrugge Mole, as well as the bombardment of Zeebrugge by monitors and from the air, were designed to distract the attention of the enemy from the main operations. Without this diversion the attempt of the blocking ships to pass round the end of the Mole, to enter the harbour, and to reach the ship-canal entrance at the inner end must almost certainly have been discovered, with the result that the vessels would have been sunk by the shore batteries long before they reached their goal."

"Similarly the bombardment of the Ostend defences by our shore batteries in Flanders, by the monitors and also from the air was designed to cover the attempt to block the entrance to that harbour."

The preparation and training for the attack began many months before the date selected for the operations. The plan was carried out on St. George's Day (April 22nd) under somewhat adverse conditions.

"The concentration of the attacking fleet had to take place about 63 miles distant from Zeebrugge and Ostend. As the length of time needed for reaching these objectives after the forces had been assembled was seven hours, it was inevitable that there should be a period of not less than four hours of daylight during which enemy observation by air and submarine might discover our movements. In order to guard against this, which would have meant the certain failure of the expedition, it was necessary for the patrols and air forces to show the utmost degree of vigilance and energy. There is every reason for believing that, as a result of their efforts, the enemy remained up to the last entirely unaware of our intentions."

"I am much indebted to Brigadier-General Charles L. Lambe, C.M.G., D.S.O., commanding the 7th Brigade of the Royal Air Force, and Lieut.-Colonel Frederick C. Halahan, M.V.O., D.S.O., in command of the Air Forces under my command, for the co-operation of the 61st and 65th Wings, under Lieutenant-Colonels P. F. M. Fellowes, D.S.O., and James T. Cull, D.S.O., respectively,

throughout the preparation and execution of the operations. The 65th Wing was lent for the purpose by the Field-Marshal Commander-in-Chief British Armies in France. For several weeks the 61st Wing was engaged in frequent reconnaissances, and took a large number of photographs in different conditions of tide, from which photographs, plans, and models were constructed. On the first occasion of attempting the operation, the 65th Wing was already committed to their attack when I was compelled by shift of wind to withdraw the sea attack. The air attack was delivered with the greatest gallantry at a low altitude, and against a tremendous anti-aircraft defence. To the intense disappointment of the 65th Wing, mist and rain made it impossible to co-operate by repeating the aerial bombardment on the night of April 22nd-23rd, but the 61st Wing and aircraft from the Guston aerodrome at Dover escorted the main force across the North Sea."

"The greater part of the passage had to be carried out in broad daylight, with the consequent likelihood of discovery by enemy aircraft or submarine. This risk was largely countered by the escort of all the scouting aircraft under my command. On arrival at a certain position (C), it being then apparent that the conditions were favourable, and that there was every prospect of carrying through the enterprise up to programme time, a short pre-arranged wireless signal was made to the detached forces that the programme would be adhered to."

The rest of the operations at Zeebrugge are well known Owing to the fog, aircraft were unable to take an active part.

In regard to the attack on Ostend, Commodore Lynes, C.M.G., began his report as follows:—

"A brief preliminary report was phoned to Vice-Admiral, Dover Patrol, on April 23rd, since which photographs and air reconnaissances have established the facts (as reported) that—

(a) 'Sirius' and 'Brilliant' are not inside Ostend Harbour, but lie stranded about 2,400 yards to eastward of eastern pier.

(b) The Stroom Bank Buoy is not in its charted position, but is a little to eastward of the prolongation of eastern pier, approximately lat. 51 15 50 N., long. 2 53 20 E.

2. (b) accounts for (a); supposing, as is almost certain, that the buoy was in this position on the night of 22nd-23rd.

3. The location of buoys by aircraft is, of course, a very high art, and can only be done with any degree of accuracy with relation to closely surrounded land (or shoal) features.

Captain R. Graham, D.S.O., D.S.C., R.A.F., and Captain L. H. Slater, D.S.C., R.A.F., obtained the present position of Stroom Bank Buoy by coming down to 100 ft. and fixing the buoy with reference, for direction, to the line of eastern pier."

Here again, as at Zeebrugge, aircraft were prevented from assisting in the attack on St. George's Day by bad weather. The following references to aircraft appear in the report on the second attempt to block Ostend Harbour made on May 10th, 1918:—

"Aerial observation on May 9th showed that many torpedo and submarine craft were still shut up in Bruges, and proved that the effectiveness of the blocking of the Zeebrugge branch of the canal was maintained up to that date. Although the craft so shut up in Bruges have been unable to use the small waterways to Ostend, the latter port was still being used by enemy torpedo craft and submarines."

"The co-operation of the Air Force, under Brigadier-General Charles L. Lambe, C.M.G., D.S.O., R.A.F., was of great value during the operation. In spite of the fog the 214th Squadron (Commander Herbert G. Brackley, D.S.O., D.S.C.) continued to attack in accordance with the programme until after the completion of the operation."

"For days preceding the operation, rain, cloud, and mist had prevented more than the scantiest air reconnaissances, but towards sunset on the 9th—i.e., when the blockships were already steaming eastwards, an air reconnaissance announced that all the buoys off Ostend had apparently been removed. At considerable risk of having to land after dark, Squadron-Commander Ronald Graham, D.S.O., D.S.C., himself at once went out, returned safely, and confirmed the report."

"During the actual attack I felt that we could hope for no more air or monitor bombardments, and that thus deprived of their valuable support, the small craft in-shore would suffer in proportion, but fortunately this was not the case. The fog proves to have been merely a local patch, not extending to the monitors to the westward, and was also sufficiently low-lying to enable the airmen to continue their attacks between it and the true cloud system at some 10,000 ft. altitude.

"To realise these conditions, and the darkness due to absence of moon, and to know that the Royal Air Force carried out its whole programme is, in itself, a very high tribute to the efficiency of the air squadrons, who, under the orders of Brigadier-General Charles L. Lambe, C.M.G., D.S.O., took part in the operations. All our aeroplanes eventually returned to their aerodromes; some landed well to the westward, naturally under difficulties, one crashed so badly that the pilots were both severely injured."

THE MESOPOTAMIAN EXPEDITIONARY FORCE

A despatch, dated Oct. 1st, 1918, from Lieut.-General Sir W. B. Marshall, K.C.B., K.C.S.I., Commanding in Chief, Mesopotamian Expeditionary Force, was published in a Supplement to the "London Gazette," dated Feb. 20th, 1919. The following references were made therein to the part taken by the Royal Air Force in the operations between April 1st and Sept. 30th, 1918:—

"On the Persian border certain tribes, notably some sections of the Sinjabis, were inclined to be troublesome (another result of German intrigue and gold), and as this tribe has its habitat just to the north of the Qasr-i-Shirin-Kermanshah road it became necessary to give them a lesson. The Guran confederation (which includes the Kalkhanis) was reported on April 19th to be about to take action against the pro-enemy sections of the Sinjabis. I decided therefore to support these friendly tribesmen in their action and despatched a small column of all arms to co-operate. On April 25th a brief action took place with eminently satisfactory results. The Sinjabis were defeated and suffered heavy casualties (as well as losing large numbers of animals), and our aeroplanes turned their retreat into a rout"

"With the object of making the Persian line of communication more secure, I considered it advisable to drive the Turks out of the Kara Tepe—Kifri—Tuz Kermatli area and to hold both Kifri and Tuz for the future."

A detached force from a column under Major-General Sir W. de S. Cayley, K.C.M.G., C.B., was detailed to attack the Abu Gharaib position on or about April 26th, 1918.

The night of April 26th-27th was very stormy, and torrential rain fell, making the night march of the detached forces an exceedingly difficult and arduous one. However, in spite of inky darkness, boggy ground and flodded streams, they reached their objectives by daybreak on the 27th. The Abu Gharaib position had, however, been abandoned by the Turks, and its retreating garrison was discovered and bombed by our aeroplanes.

After this retirement it became necessary to make an attack against Tuz Kermatli, where the Turkish troops were making a stand. This attack was made on April 29th, 1918.

"The main attack, however, was made on the right bank against the Yanijah Buyuk position, and was carried out with great dash by the 38th Infantry Brigade, supported by artillery, machine-guns, and low-flying aeroplanes." This attack was entirely successful.

No further reference is made to the Royal Air Force until the events of late July are being described.

A detachment had been sent to Bisar in June that Turkish action against the line of communications in Persia might be kept under observation. "A road runs through this place to the Urmia district, where it was known that the Assyrians, Nestorians and Jelus had been successfully resisting the Turks during the earlier summer months. In July it was decided to get into communication with these tribes by aeroplane, and to send them by convoy assistance in the shape of ammunition, machine-guns, and money. This convoy reached Sain Kala on July 23rd, but the Assyrians were 10 days late in meeting it, and their eventual arrival coincided with the occupation of Urmia by the Turks, who drove all the Assyrians out, massacring many, and pursuing them along the road to Sain Kala until checked by our advanced troops."

The operations were, as the world knows, a complete success, and the Turks withdrew from the war in the late autumn of 1918.

In the appreciations at the end of the despatch the following reference is made to the Royal Air Force:—

"The hot weather in Mesopotamia of necessity limits the sphere of activity of the Royal Air Force. Notwithstanding this, many fine long-distance flights have been undertaken and valuable reconnaissances and much photographic work performed. Some idea may perhaps be gained of their wide range of action when I say that since the conclusion of the Kirkuk operations aeroplanes have been employed on various missions at places as widely separated as Samawa, on the Middle Euphrates, and Baku, in Trans-Caucasia. In fact, wherever troops have operated the pilots and observers of the Royal Air Force have invariably contributed in no small measure to their success, and their boldness and intrepidity are fully recognised by the Army."

COMMUNICATED TO THE PRESS.

War Office, Feb. 20th

The names of the undermentioned have been brought to the notice of the Secretary of State for War for valuable services rendered in connection with the anti-aircraft defences of the United Kingdom, and, where applicable, an entry will be made in the records of service of officers and other ranks:—

Bedford, Temp. Lt. H., R.N.V.R.; Bowman, Temp. Capt. (actg. Maj.) E. J. V., R.G.A.; Brown, Lt. E., R.E. (T.F.); Browning, Lt. (actg. Maj.) A. Q., R.G.A. (T.F.).

Causer, Temp. Lt. D. S., R.G.A.; Chambers, Lt. (actg. Capt.) G. K., R.G.A. (S.R.).

Davis, Lt. (actg. Maj.) A. J., R. Defence Corps; Dixon, Lt. W., R.E. (T.F.); Doody, Lt. C. W., R.E. (T.F.).

Farquharson, Lt. A. P., Sig. Serv., R.E. (T.F.); Fearon, Temp. L., R.N.V.R.; Fenwick, Capt. K. R. G., R.H. Gds.; Feron, Temp. Capt. R., R.G.A.; Ford, Lt. J. S., R.G.A (S.R.).

Grigsby, Lt. P. H., R.G.A. (S.R.); Grinling, Lt. (actg. Capt.) G., R. Defence Corps.

Hamilton, Lt. (actg. Capt.) D. E., R.F.A. (S.R.); Hardy, Lt. (actg. Maj.) A., R.G.A. (T.F.); Harris, Capt. (actg. Lt.-Col.) J., R.G.A.; Hedley, Maj. G., R.E. (T.F.).

Isherwood, Temp. Lt. A., R.F.A.

Jones, Lt. (actg. Capt.) C. H. M., R.G.A. (S.R.).

Kennedy, Lt. (actg. Capt.) W. S., R.F. (T.F.); King, Lt. W. S., R.G.A. (S.R.); Kitto, Lt. J. V., R.G.A. (S.R.).

Long, Lt. R. C., R.G.A. (S.R.).

Maclaran, Capt. (actg. Maj.) M. S., R.F.A. (T.F.); MacWilliam, Lt. (actg. Capt.) A. R., R.E. (T.F.); Mansfield, Lt. (actg. Capt.) N., R.E. (T.F.); Mather, Capt. (actg. Maj.) W. H., R.E. (T.F.); Matthews, Lt. A. K., R.A.; Mills, Lt. Comdr. G. E., R.N.V.R.; Mitchell, Lt. W. L., R.G.A. (S.R.); Mountain, Capt. K. A., A.M.I.E.E., R.E. (T.F.).

Orchard, Lt. (actg. Capt.) E. H., R.G.A. (S.R.).

Pollock, Temp. Capt. G. C., R.G.A.

Rankin, Lt. G. C., R.G.A. (S.R.); Rogers, Temp. Lt. A. E., R.G.A.; Rowsell, Lt. (actg. Capt.) T. A. H., R.G.A. (T.F.).

Scupham, Lt. R. W., R.E. (T.F.); Sewell, Lt. (actg. Capt.) A. P., R.G.A. (S.R.); Smith, Lt. R. G., R.E. (T.F.); Smith, Lt. R.M., R.G.A. (S.R.); Swallow, Lt. T. A., R.G.A. (T.F.).

Taylor, Lt. (actg. Capt.) B. U., R.F.A. (S.R.); Tidd, Temp. Capt. A. G., R.G.A.

Weir, Lt. C., R.F.A. (S.R.); Winter, Lt. (actg. Capt.) J. L., R.E. (T.F.); Woods, Lt. H. A., R.G.A. (S.R.); Wood-Smith, Lt. (temp. Capt.) R. F., R.E. (T.F.).

Alcock, 146593 Gnr. (actg. Cpl.) G. H., R.G.A.

Bailey, 244955 Spr. H. R., R.E.; Barnard, 466150 Spr. (actg. C.Q.M.S.) S. F., R.E.; Bass, 138801 Serjt. J., R.G.A.; Bayliss, 26231 Cpl. (actg. Serjt.) J., R.G.A.; Beavis, 22395 Gnr. (actg. Serjt.) C., R.G.A.; Bedford, 540941 Spr. (actg. Serjt.) H. E., R.E.; Bell, 376681 Gnr. (actg. Serjt.) G. W., R.G.A.; Berry, 562357 Spr. (Air Mech. S. Serjt.) F., R.E.; Best, 465474 Cpl. (actg. C.Q.M.S.) E. L., R.E.; Bills, A.A.2008 Ldg Seaman S. G., R.N.V.R.; Black, A.A.1950 P.O. R. G., R.N.V.R.; Bodger, 340490 Serjt. E. W., R.G.A.; Brown, 148494 Cpl. (actg. Serjt.) L. R., R.G.A.; Brown, 135839 Gnr. (actg. Cpl.) T. H., R.G.A.; Buckle, 518306 Sec. Cpl. (actg. Mech. S. Serjt.) C., R.E.

Campbell, 104532 Gnr. (actg. Bomdr.) J. G., R.G.A.; Casey, 276912 Serjt. J., R.G.A.; Chamberlain, 275706 Serjt J., R.G.A.; Channon, S.359599 Pte. (actg. Serjt.) F. T., R.A.S.C.; Clarke, 50293 C.Q.M.S. S., R. Defence Corps; Clarke, 474164 Cpl. W., R.E.; Clifford, 562792 Spr. (actg. Cpl.) C., R.E.; Cole, 95082 Gnr. (actg. Serjt.) J., R.G.A.; Cope, 116844 Gnr. (actg. Serjt.) F. J., R.G.A.; Cound, 58515 Cpl S., R.G.A.; Cowin, 319447 Cpl. (actg. Serjt.) C. D., R.G.A.; Craig, 86314 Gnr. A. S., R.G.A.; Crawley, 130489 Gnr. (actg. Serjt.) R. G., R.G.A.; Crowhurst, 128610 Bombr. (actg. Cpl.) A. W., R.G.A.; Culley, 119356 Gnr. (actg. Serjt.) W. C., R.G.A.; Curnock, 124849 Gnr. (actg. Cpl.) A. P., R.G.A.

de l'Hopital, A.A.1545 P.O. R., R.N.V.R.; Dent, 317257 Spr. J. W. K., R.E.; Dowse, 352435 Gnr. (actg. Serjt.) W. F., R.G.A.; Duncombe, 139306 Gnr. (actg. Cpl.) A. D., R.G.A.

Edge, 115003 Gnr. A. E., R.G.A.; Edwards, 90774 Gnr. E. W., R.G.A.; Eves, 472048 Spr. (actg. C.Q.M.S.) T., R.E.

Fitton, 124364 Gnr. (actg. Serjt.) H., R.G.A.; Fitzpatrick, 296295 Gnr. B. J., R.G.A.; Fraser, 562022 Serjt. (actg. C.Q.M.S.) A. R., R.E.; Fryer, 195920 Bombr. Arty. Clk. (actg. Cpl. Arty. Clk.) H. J. H., R.A.

Godfrey, 122550 Gnr. (actg. Serjt.) G. E., R.G.A.; Gray, 122297 Serjt. (actg. C.Q.M.S.) A. T., R.G.A.; Griffiths, 52691 Serjt. P., R. Defence Corps.

Haines, 19351 Gnr. (actg. Serjt.) J., R.G.A.; Harmsworth, 562498 Spr. (actg. Serjt.) H. G., R.E.; Harmer, 121673 Serjt. E., R.G.A.; Haylock, 113625 Gnr. (actg. Serjt.) W., R.G.A.; Hester, 202113 Serjt. A., R.G.A.; Hill, 518026 Serjt H. H., R.E.; Hillcoat, 376513 Bombr. (actg. Serjt.)

J. G., R.G.A.; Hodgkinson, 472016 Serjt. (actg. Mech. S. Serjt.) W. T., R.E.; Honner, 563700 Spr. (actg. Serjt.) W. R. E., R.E.; Hutton, 69050 Gnr. (actg. Cpl.) A., R.G.A.

Ireland, 466362 Spr. (actg. L.-Cpl.) H., R.E.; Isbister, A.A.2873 Able Seaman B., R.N.V.R.

Jones, 88832 Gnr. (actg. Serjt.) A. J., R.G.A.

Killip, 100038 Gnr. (actg. Serjt.) A. E., R.G.A.

Laurenson, 148167 Gnr (actg. Bty Q.M.S.) R. A., R.G.A.; Leonard, A.A.2399 Able Seaman E., R.N.V.R.; Lovett, 139578 Gnr. (actg. Cpl.) W. J., R.G.A.

Martin, 105190 Gnr. (actg. Serjt.) A. J., R.G.A.; Matthews, 138139 Gnr. (actg. Serjt.) J. R., R.G.A.; Medus, 562046 Serjt. (actg. C.Q.M.S.) W. J. J., M.M., R.E.; Mephius, 137414 Gnr. (actg. Serjt.) F., R.G.A.; Moscrip, 157971 Cpl. A. L., R.G.A.; Murray, 434615 Spr. (actg 2nd Cpl.) J., R.E.

Neale, 135925 Gnr. (actg. Cpl.) T. A., R.G.A.; New, A.A.1978 C.P.O. V. G., R.N.V.R.; Norman, 562409 Spr. (actg. Mech. S. Serjt.) H., R.E.

Patterson, 410600 S. Serjt. D., R.E.; Pawsey, 192508 Gnr. (actg. Cpl.) A., R.G.A.; Peat, 444002 C.Q.M.S. H., R.E.; Pepper, 148612 Serjt. (actg. C.Q.M.S.) F., R.G.A.

Quilter, 59958 1st Cl. Air Mech. W. W., R.A.F.

Randell, 563022 Mech. S. Serjt. G. W., R.E.; Rayner, 111060 Gnr. (actg. Corpl.) W. F., R.G.A.; Read, 128848 Gnr. (actg. Serjt.) A. J., R.G.A.; Reed, 193182 Serjt. A., R.G.A.; Ridgewell, 110177 Gnr. (actg. Serjt.) G. E., R.G.A.; Ridley, 144452 Gnr. (actg. Cpl.) E. D., R.G.A.; Robinson, 6147 Serjt. (actg. Mas. Gnr.) C. H., R.G.A.; Robinson, 151010 Gnr. (actg. Serjt.) J., R.G.A.; Rounding, 382275 Gnr. C. M., R.G.A.; Rudd, 277079 Serjt. R., R.G.A.; Rumbold, 285895 Cpl. G. T., R.G.A.

Shakespeare, 563557 Spr. (actg. 2nd Cpl.) F., R.E.; Shaw, 27435 Gnr. (actg. Serjt.) J., R.G.A.; Simpson, 406226 Spr. (actg. Cpl.) A., R.E.; Smeaton, 278074 C.Q.M.S. G., R.G.A.; Spence, 422619 Spr. (actg. C.Q.M.S.) R. C., R.E.; Stewart, 282115 Cpl. (actg. Serjt.) W., R.G.A.; Sullivan, 562339 Sert. E. H., R.E.; Swinyard, 128519 Serjt. G. E., R.G.A.

Tallent, 122185 Gnr. (actg. Serjt.) J., R.G.; Tapply, 562443 Cpl. (Air Mech. S. Serjt.) F. S., R.E.; Telfer, 173675 Serjt. (actg. Bty. Q.M.S.) W., R.G.A.; Tervet, 562947 Spr. (actg. Serjt.) W. C., R.E.

Waddington, 92821 Gnr. (actg. Serjt.) G. E., R.G.A.; Walker, 465566 Spr. (Air Mech. S. Serjt.) W. E., R.E.; Ward, 126476 Gnr. (actg. C.Q.M.S.) H. B., R.G.A.; Warner, 20618 Gnr. (actg. Serjt.) F., R.G.A.; White, 3071 Serjt. (actg. C.Q.M.S.) A., R.G.A.; Whittington, 138429 Cpl. (actg. Serjt.) E., R.G.A.; Wheeler, 137619 Gnr. (T. Serjt.) H. A., R.G.A.; Willis, Ch. 121892 C.P.O. T., R.N.; Woodward, 564331 2nd Cpl. J. W., R.E.

ATHLETICS IN THE R.A.F.

A special trophy has been given by Major Mosenthal which is to be presented to the Royal Air Force Association Football team which goes farthest in the Bulldog Cup competition.

Two Royal Air Force teams were still eligible to remain in the contest for the Bulldog Cup until Thursday, Feb. 20th, when the R.A.F. (Regent's Park) lost to the Scots Guards eleven at Stamford Bridge by three goals to one.

On Wednesday, Feb. 19th, the first R.A.F. International Association Football match ended in a win for the English team, the team from Scotland losing by ten goals to nil.

The team picked to represent the R.A.F. in the coming inter-Service Rugby Football matches had an entirely successful tour overseas, where they beat all the B.E.F. R.A.F. teams. They, moreover, considerably strengthened the team with new players picked from the B.E.F. teams.

THE VALUE OF OBSERVATION.

On Feb. 20th, at Windsor, Mr. A. L. Rawlings, a scientific assistant at an Admiralty observatory, stated, in the course of a lecture, that a scientific friend of his let himself be surprised while dining at the way his soup swirled about on his plate as he put his spoon into it. The result of that surprise and the experiments to which it led might very probably be a great saving in aeroplane flight and more security for aviators and passengers.

One has been surprised at the way in which the ground has swirled about after dining, but that interesting phenomena has never suggested a method of effecting a saving in aeroplane flight, so one's respect for the scientific gentleman is greatly increased.

AN R.A.F. CONCERT.

On Wednesday night, Feb. 19th, a concert was held at the Queen's Hall, when the members of the Royal Air Force gave a good musical performance. The civilian staff of the Air Ministry and members of the W.R.A.F. were also represented amongst the performers.

FLIGHT LIEUTENANT LAN DAVIES, R.N.

Flight Lieut. Cyril Frederick Lan Davies, R.N., of Pembridge Crescent, W., who died on Oct. 14th, 1915, in the Mediterranean, has left property of the value of £18,405. The testator gives £5,000 in trust for pensions to persons now or formerly in the employment of J. H. Dallmeyer, Ltd., Church End Works, Willesden, of which he was a director.

THE ATLANTIC FLIGHT.

Capt. Hugo Sundstedt, the Swedish pilot who made a flight from Buc, near Paris, to Stockholm (about 1,200 miles) in a Maurice Farman biplane in July, 1914, has announced his intention of competing for the "Daily Mail" prize of £10,000, mention of which was made in the last issue of THE AEROPLANE.

Capt. Sundstedt's expected flight has been financed by one Christopher Hannevig, a Norwegian. The flight will start from Newark Bay, New Jersey, if possible this month, with a first stop at St. John's, Newfoundland. From there it is hoped to fly the remaining distance to London without a stop. The total journey will be about 3,520 miles.

The machine which Capt. Sundstedt intends using is a seaplane driven by two six-cylinder Liberty engines developing about 440 h.p. The span of the upper plane is 100 ft., and the lower 71½ ft. The total lifting surface is 1,537 sq. ft., and the weight—presumably of the machine fully loaded—10,000 lbs.

The seaplane, in which Capt. Sunstedt intends to be accompanied by three passengers, has a large cabin with sufficient room for four people. The pontoons are to be filled with food.

It is officially announced that the United States Navy is arranging for certain naval pilots to make an early attempt to fly the Atlantic. The Navy Department has detailed Commander John G. Towers to take charge of "the development of plans and the assembly of material and personnel for the proposed trans-Atlantic flight."

It is understood, of course, that the U.S. Navy cannot be regarded as entering for the "Daily Mail" prize.

It is understood that the U.S. Military Authorities intend to enter a machine for an attempt to fly the Atlantic. Captain Roy Francis has been instructed to make all preparations.

The Berlin correspondent of the "Daily Mail" states that it was suggested in "Berliner Zeitung am Mittag" that the large German aeroplane which is lying in a shed at Doeberitz, should be modified for the purpose of attempting a trans-Atlantic flight.

The correspondent adds that he and a few others have seen the machine, which has a wing-span of 300 ft., but has not yet been tested.

According to a report received from Montreal, Major Morgan, of the Naval Branch of the R.A.F., is now at St. John's, Newfoundland, for the purpose of selecting a suitable site for the landing of a British Government seaplane, which will soon make an attempt to fly from Ireland to Newfoundland.

The plateau at Freshwater Bay, three miles from St. John's, will probably be the place selected.

THE CAPTURED BOMBING MACHINE.

The loss of the new Handley Page night-bombing machine which was captured by the Germans on its first flight to France, and from which they are alleged to have modelled the Gotha, is thus described by a member of the crew:—

"We left England at 11.30 a.m. on Jan. 1st, 1917. When over the Channel we ran into very foggy weather, and came down to a lower altitude to find the coast, but failed. The fog went right down to the sea.

"We rose clear of it at 5,000 ft., but ran into what was apparently a thunderstorm. This must have made our compass defective. We decided that we had better return to England, but the weather appeared to be growing worse, and we turned and made for France, steering a little west of south in hope of clearing the fog farther inland.

"When we knew we must be over land we came down to a low altitude to find a landing. Flying at about 150 ft., we noticed a church steeple, and made for it as representing some village, where we could get information as to our whereabouts, and landed in a field near by.

"Not a soul was to be seen. We waited for 10 minutes or so, but no one came, so the pilot and the observer set off walking and found some French children. They were unable then to ascertain the fact that the place, as we afterwards learned, was called Chalandry.

"While the party was distributed some German soldiers who had seen the machine arrive rushed out and captured the remainder before they had time to fire the machine or even to realise that they were in territory occupied by the enemy."

AN AERODROME FIRE.

It is understood that several aeroplanes were destroyed in a fire which broke out at Wigton aerodrome, near Huntingdon, on Feb. 23rd.

Telephone—Works: East 3832, 3833. Offices: 3474 Gerrard. Telegraphic Address—"Extouboul, London."

THE STANDARD Aircraft Manufacturing Co., Ltd.

CONTRACTORS TO H.M. ADMIRALTY AND AIR BOARD.

Head Office: SAVOY HOUSE, Corner of Savoy Street, STRAND, W.C.2.

Also at 28, BOW COMMON LANE, LONDON, E.3.

MR. GRAHAME-WHITE ON COMMERCIAL AERONAUTICS.

On Wednesday, Feb. 19th. Mr. Claude Grahame-White delivered a lecture on "Commercial and Pleasure Flying" before the Aeronautical Society, at the Central Hall, Westminster. The chair was taken by Major-General J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., the Under Secretary of State for the Air Ministry.

Mr. Claude Grahame-White, after a few commendatory remarks upon his own—amongst others'—zeal and application in the cause of aeronautics during the past twelve years, and a disquisition upon the temperamental advantages of the British race in regard to the development of flying, proceeded with the development of his theme.

As a first stage a number of very pretty pictures of the proposed Grahame-White passenger machine for the London-Paris service were shown, together with one of a small high-speed mail-carrier.

The passenger-carrying machine illustrated was a large twin-fuselage triplane with a central nacelle. Three engines of 600 h.p. are installed in the central nacelle, one driving a central pusher airscrew, and the others each driving a tractor airscrew on the wings through a shaft drive.

Each fuselage carries a saloon for twelve passengers, to which Mr. Grahame-White suggests an American bar will be attached, in anticipation of a demand for cocktails on the part of the morning passengers.

The question of operating air services in bad weather was next dealt with. This, quite properly, was narrowed down to combating fog. Mr. Grahame-White's solution of this difficulty is that of marking aerial routes by kite balloons above the fog belt, combined with the use of directional wireless. Landing in fog is to be accomplished by the aid of balloons marking the aerodrome, and of upwardly projecting searchlights marking the outlines of the aerodrome. It is in addition proposed to attach searchlights to the cables of the marking balloons. Mr. Grahame-White suggests that the actual guide to height above the ground would be the pilot's instruments. Whilst it is true that usually fog conditions occur under fairly steady barometric pressures, some more positive indication of height seems necessary.

Wind, rain, and snow were disposed of very shortly, and Mr. Grahame-White suggested that in really bad weather an occasional stoppage of the service would be no more important than are those which actually occur to the cross-Channel boat services.

Mr. Grahame-White laid great stress on the importance of the State providing the landing grounds necessary for commercial services.

Coming to what is undoubtedly the crux of the whole question, "Can an air service be made to pay?" it is very truly said that the cost of any air service is largely in the hands of those who use it, and that, if the volume of traffic is small and irregular, then fares and freights must necessarily remain high.

An estimate of the costs of a year's working of a Paris-London service, based on two trips each way each day, is given, and it is shown that, if the average load of the machines is 3/4ths of their full load capacity, and if £6 5s. per passenger and 5s. per lb. of parcels is charged for the single journey, the cost of all machines could be wiped out in one year and a profit of £50,000 made on that year's working. Mr. Grahame-White's actual figures are :—

CAPITAL ACCOUNT.

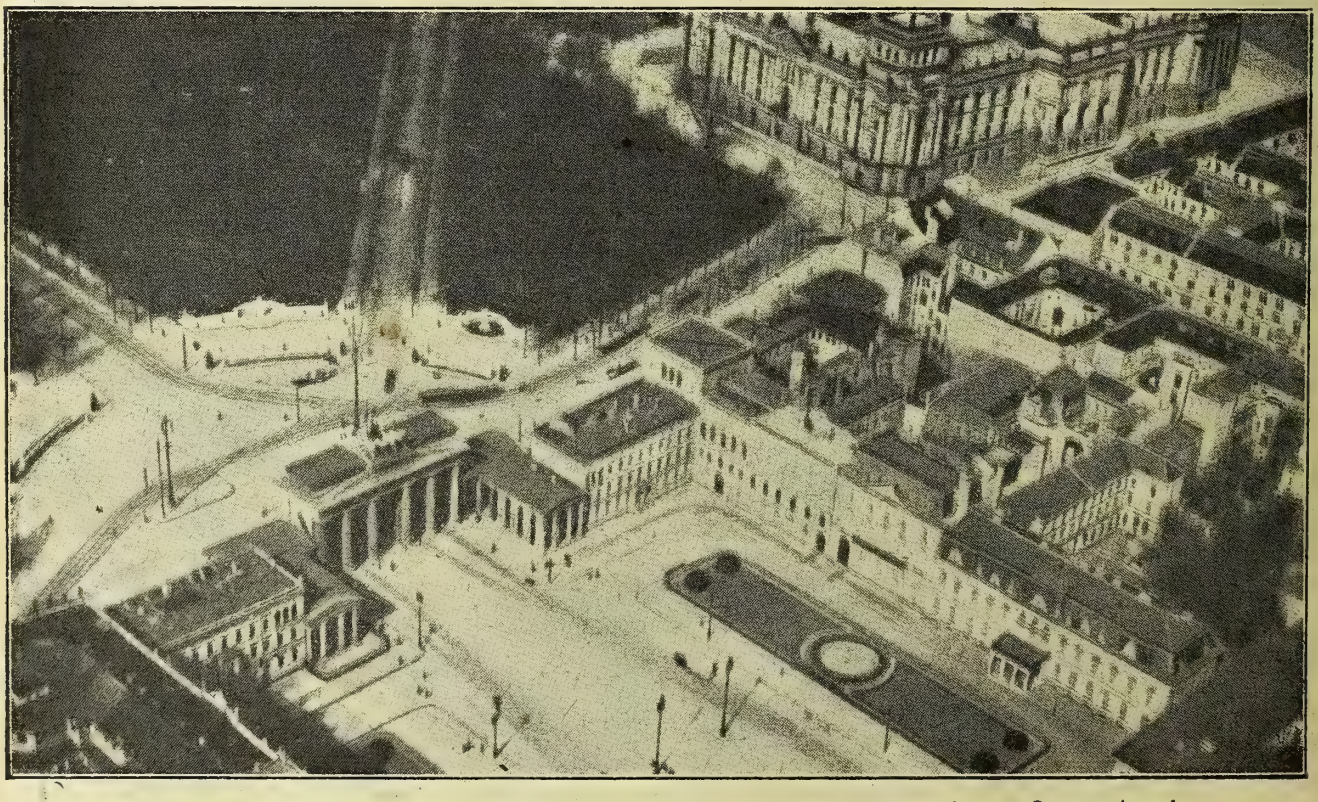
Capital	£200,000	Six aeroplanes at £20,000 each	£120,000
		Plant and machinery at terminal aerodrome (for maintenance and repairs and shed accommodation)	30,000
		Working capital	50,000
	£200,000		£200,000

PROFIT AND LOSS ACCOUNT.—FIRST YEAR.

Fuel	£50,000	Income based on three-quarters of "load capacity"—	
Wages (crew)	7,000		
Repairs	25,000		
Parcels delivery	6,000	18 passengers at a fare of £6 5s. (4 journeys per day)...	£164,250
Landing fees, etc. ...	5,000		
Insurance	10,000		
Advertising	5,000	375 lbs. express parcels (at 5s. per lb. (4 journeys per day)	136,875
Depreciation	120,000		
Management	23,125		
	£251,125		
Profit	50,000		
	£301,125		£301,125

Admittedly these figures are open to question in many ways. They are put forward purely as an estimate based on Mr. Grahame-White's personal opinion, and it was obvious that, in assuming a definite traffic, the whole question is begged.

Mr. Grahame-White states that in his opinion it is most desirable that during the next few months every effort be made to foster aerial touring and pleasure flying, and not to rush into



A TARGET MANQUE: The Pariser Platz and Brandenburger Tor, Berlin, as seen from a German Aeroplane.

the inauguration of daily commercial services until proper organisations have been prepared and perfected. This because such flying will be a preliminary to the growth of that feeling of confidence in the utility of the aeroplane as a method of transport which must precede the general use by the public of such regular services.

In this connection slides of a five-seated touring and pleasure machine and of a somewhat simplified four-seater intended for the pilot-owner were shown.

The lecture concluded with a warning against the undesirability of permitting hasty, ill-devised schemes of aerial transport to be put into operation, and a request for Government control which will prevent such occurrences, without such hampering restrictions as will handicap the British industry as compared with its foreign rivals.

Major-General Seely, moving a vote of thanks to Mr. Grahame-White, referred to the suggestion that it was the duty of the Government to see that aerial routes should be made ready for the air travel that was coming. As representing the Air Ministry, he accepted that as an obligation on the part of the Government. They were taking steps already, and he hoped that, as the result of an international agreement, they would before long have a common code of signals, would have aerodromes and landing-places at regular intervals, and would have the means of sending up illuminated signals in times of fog.

He trusted, also, that in the course of a few weeks we should come to an agreement with our Allies as to the precise form their activities should take. But, after all, the future of air travel depended upon private enterprise, stimulated, of course, by the Government. In connection with the Peace Conference aeroplane service between London and Paris, three hundred flights had been made, and only one person, a pilot, had been hurt, and he not seriously.

Mr. Grahame-White stated that Sir Alfred Butt had ordered a four-seater aeroplane, which he hoped would enable him to be present at a matinée at one of his London theatres and to attend a performance at a Paris theatre the same night.

COMMERCIAL AERONAUTICS.

Addressing the Australian and New Zealand Luncheon Club on Thursday, Feb. 20th, Major-General Sir F. H. Sykes, K.C.B., Controller-General of Civil Aviation, said that the Atlantic flight had great attractions, but of far greater and more solid importance from every point of view were the Cairo-Calcutta, Calcutta-Singapore, and Singapore-Australia routes.

"The Imperial aspects of commercial air power cannot be overrated, and its foundations must be well and truly laid. Do not let us waste our strength. It is evident that the mobility and increasing range of aircraft will alter the relative position of the constituent portions of the Empire in every respect.

"Geographical boundaries, neutral or buffer States, and the barriers of the sea will no longer constitute security, and it is essential that the separate portions of the Empire should so build up and weld together their commercial aerial organisations as to be in a position if danger arises not only to protect themselves, but to render mutual assistance."

Major-General Sykes suggested that "there are various alternative methods upon which to embark, such as having a small number of permanent service squadrons, which would, of course, be most efficient, but would be expensive and might never be required, or having a citizen Air Force controlled by a Government Department.

"There are several other methods, but whichever one is adopted it should be remembered that great importance attaches to questions of co-ordination and a degree of standardisation of the principal types of aircraft throughout the Empire."

After referring to the work that had been done already in mapping out the stages of the aerial route to Australia from Cairo to Karachi, Singapore, and the Sunda Islands, and the carefully-planned flights along the route as far as Karachi, Delhi and Calcutta, Major-General Sykes said that the experiences of the postal service which had now been in operation between Boulogne and Cologne for some weeks were valuable.

The postal authorities had found this service very helpful, and were pressing to have it extended to other routes. He hoped that it would shortly be linked up with the English side of the Channel, and it should then be possible under favourable circumstances to deliver mails in Boulogne within seven hours of their leaving London. The average time taken by train, boat, etc., was now five days.

A regular time-table was now being introduced, stages had been carefully mapped out, and wireless ground stations established. A system of captive balloons was being organised which would be marked according to the locality in order to guide pilots who were flying over the clouds. They would also signal the pilots whether it was possible to land under the clouds and would send ground reports as to the height of clouds and weather, which would be transmitted by the ground wireless stations to the squadron stations.

With regard to the general control of Civil aviation, Major-General Sykes said that "It is interesting to note that when I left Paris last week progress had already been made towards the settlement of an International Aerial Convention, the draft articles of which have been under discussion with representatives of the Dominions.

"After agreement with our Allies, the Convention will, I hope, be approved by the Peace Conference, the organisation of mail and trade routes, and services on international lines will then become possible, and a comprehensive system of aerial communication should be rapidly established."

Major-General Sir Newton Moore, M.P., who presided, recalled that when a deputation, nearly five years ago, waited on the then Secretary for War to urge the great part that aviation would play in the future, General Seely leaned back in his chair and impressively assured the deputation that "We have absolute supremacy in the air; we have some thirty aeroplanes." An official afterwards assured him (Sir Newton) that of that number there were not seven that could rise from the earth.

NEWCASTLE'S AIRCRAFT EXHIBITION.

The exhibition opened at Newcastle on February 12th by Brigadier-General Becke, C.M.G., D.S.O., is the most comprehensive display of aircraft in all its phases which has yet been shown to the public. General Becke, speaking at the opening ceremony, commented on the advisability of the municipality of Newcastle taking over the aerodrome from the Government in view of the fact that commercial aviation will be the coming thing.

The exhibition is being held on the Town Moor Aerodrome, known in war-time as the No. 9 Aircraft Acceptance Park. It is now transformed into a number of large showrooms, with a flying-ground attached. Herein are shown practically every type of British machine in use when the war finished, and many that are now obsolete but are still used, owing to their good qualities, as "joy-riding" or instructional machines.

A large number of enemy machines are on view, most of them in a condition which shows that they terminated their evil career by coming to a "sticky end."

Demonstrations are given of rigging, wing repairing and covering, and doping, which will prove of great interest to the uninitiated, who have perhaps hitherto only heard of "dope" as applied to cocaine or some other drug.

A de Havilland 6 machine, commonly known as a "Clutching Hand," is fitted up with all controls, so that visitors may get inside and "waggle the joystick" to their hearts' content, and, if they wish, may get themselves measured for their post-war machine.

Bookstalls, where literature dealing with the art of flying may be purchased, are close at hand.

In the engine section, practically every type of British and German engine is exhibited, and their points compared and explained by experts. Magnetos and carburetters of all types are also on view.

In the armament section, various types of bombs, weighing anything from a ton and a half to a few ounces, are shown. The effect of incendiary bombs is clearly demonstrated by models and photographs, and the inevitable expert is in attendance to explain knotty points.

The various types of bomb-sights, bomb-carriers, machine-guns and their synchronising gears are shown both "stripped" and mounted.

The fuselage of an Armstrong-Whitworth biplane is fitted up so that visitors may run the engine and fire the gun themselves, tracer bullets being used to show the path of the bullet as it goes through the airscrew.

Among other "indoor amusements" is a picture gallery containing many hitherto unpublished photographs of machines, and places "Somewhere in France," showing the effect of shell-fire as seen from the air.

There is also a kinema show, where many unique films, including the surrender of the German Fleet taken from the air, provide further sensations.

During fine weather much flying demonstration is done by a circus of "stunt" pilots, who prove conclusively that they would be the last people in the world with whom to go up if one were in need of a quiet joy-ride.

For those who feel that a view of the surrounding country would interest them there is a "Caquot" captive balloon, in which ascents can be made in company with a balloon pilot.

An anti-aircraft gun, complete with blank ammunition, serves as a reminder that once the Hun had an Air Force.

AN AMERICAN FLIGHT.

It is stated that Major Albert Smith made a flight from New York to San Diego, California, in less than 40 hours—a direct distance of about 2,400 miles.

It is not known how many stops were made. The time stated is presumably actually flying time.

CASUALTIES DURING ENEMY AIRCRAFT RAIDS.

The following figures issued officially by the Press Bureau are of historical interest. The casualties in each raid have been issued by the Home Office in full detail in the days following the attacks, but no detailed and complete list has been published before.

SECTION I.—AIRSHIP RAIDS. (January 19th, 1915, to April 13th, 1918.)

Date.	Locality.	Civilian Casualties.								Sailors and Soldiers	
		Killed.				Injured.					
		Men.	Women.	Children.	Total.	Men.	Women.	Children.	Total.	Killed.	Injured.
1915.											
January 19th-20th	Norfolk	2	2	..	4	9	4	2	15	..	1
April 14th-15th	Northumberland	..	..	..	..	..	1	1	2	..	..
April 15th-16th	Essex and Suffolk	..	..	..	..	..	..	..	..	..	..
April 29th-30th	Suffolk	..	..	..	..	..	..	..	..	..	..
May 9th-10th	Southend	..	1	..	1	1	..	..	1	..	1
May 16th-17th	Ramsgate	1	1	..	2	..	1	..	1	..	..
May 26th-27th	Southend	..	2	1	3	3	..	..	3	..	..
May 31st—June 1st	East London	1	2	4	7	13	13	7	33	..	2
June 4th-5th	Kent, Essex and East Riding	..	..	..	..	3	4	1	8	..	..
June 6th-7th	Hull, Grimsby and East Riding	5	13	6	24	18	13	7	38	..	2
June 15th-16th	Northumberland and Durham	18	..	..	18	72	..	..	72	..	..
August 9th-10th	Goole, East Riding, Suffolk and Dover	1	10	6	17	5	6	7	18	..	3
August 12th-13th	East Suffolk and Essex	4	2	..	6	5	10	9	24	..	..
August 17th-18th	Kent, Essex and London	7	2	1	10	16	20	12	48	..	..
September 7th-8th	East Suffolk and London	6	6	6	18	9	15	13	37	..	1
September 8th-9th	North Riding, Norfolk and London	15	3	6	24	50	32	10	92	2	2
September 11th-12th	Essex	..	..	..	..	..	..	..	..	..	..
September 12-13th	Essex and East Suffolk	..	..	..	..	..	..	..	..	..	..
September 13th-14th	East Suffolk	..	..	..	..	..	..	..	..	..	..
October 13th-14th	Norfolk, Suffolk, Home Counties and London	31	17	6	54	71	27	9	107	17	21
1916.											
January 31st—February 1st	West Suffolk and Midland Counties	29	26	15	70	43	50	19	112	..	1
March 5th-6th	Hull and East Riding, Lincolnshire, Leicester County, Rutland and Kent	9	4	5	18	22	22	8	92	..	..
March 31st—April 1st	Lincolnshire, Essex and Suffolk	6	7	4	17	2	3	4	9	31	55
April 1st-2nd	Durham County and North Riding*	13	7	2	22	67	43	18	128	..	2
April 2nd-3rd	East Suffolk, Northumberland, London and Scotland	10	..	3	13	6	13	5	24	..	.
April 3rd-4th	Norfolk	..	..	..	..	..	..	..	..	..	..
April 5th-6th	Yorkshire and County Durham	..	..	1	1	3	1	5	9	..	..
April 24th-25th	Norfolk, Lincolnshire, Cambridgeshire and Suffolk	..	1	..	1	1	..	..	1	..	..
April 25th-26th	East Suffolk, Essex, Kent and London	..	..	..	..	1	..	..	1	..	..
April 26th-27th	Kent	..	..	..	..	..	..	..	..	..	..
May 2nd-3rd	Yorkshire, Northumberland and Scotland	4	3	..	7	16	8	1	25	2	5
July 28th-29th	Lincolnshire and Norfolk	..	..	..	..	..	..	..	..	..	..
July 31st—August 1st	Norfolk, Suffolk, Cambridgeshire, Lincolnshire, Nottinghamshire and Kent	..	..	..	..	..	..	..	..	..	..
August 2nd-3rd	Norfolk, East Suffolk and Kent	..	..	..	..	..	..	..	..	..	..
August 8th-9th	Northumberland, Durham, East Riding, North Riding, Hull and Norfolk	2	4	4	10	5	5	5	15	..	1
August 23rd 24th	East Suffolk	..	..	..	..	..	..	..	..	..	..
August 24th-25th	East Suffolk, Essex, Kent and London	3	4	2	9	9	11	5	25	..	15
September 2nd-3rd	East Riding, Lincolnshire, Nottinghamshire, Norfolk, Suffolk, Cambridgeshire, Huntingdonshire, Essex, Hertfordshire, Bedfordshire, Kent and London	1	2	1	4	6	5	1	12	..	..
September 23rd-24th	Lincolnshire, Nottinghamshire, Norfolk, Kent and London	24	12	4	40	57	44	25	126	..	4
September 25th-26th	Lancashire, Yorkshire and Lincolnshire	14	17	12	43	7	13	11	31	..	..
October 1st-2nd	Lincolnshire, Norfolk, Cambridgeshire, Northamptonshire Hertfordshire and London	..	..	..	..	..	1	..	1	1	..
November 27th-28th	Durham, Yorkshire, Staffordshire and Cheshire	1	3	..	4	16	14	7	37	..	..
1917.											
March 16th-17th	Kent and Sussex	..	..	..	..	..	..	..	..	..	..
May 23rd-24th	Essex, Norfolk and Suffolk	1	..	..	1	..	..	..	..	..	..
June 16th-17th	Kent and Suffolk	2	1	..	3	5	7	2	14	..	2
August 21st-22nd	East Riding	..	..	..	..	1	..	..	1	..	..
September 24th-25th	Lincolnshire and Yorkshire	..	..	..	..	..	3	..	3	..	..
October 19th-20th	Midlands, Eastern Counties and London	3	12	16	31	24	17	11	52	5	3
1918.											
March 12th-13th	East Riding	..	1	..	1	..	..	..	..	..	..
March 13th-14th	Durham	2	2	4	8	11	19	9	39	..	..
April 12th-13th	Lincolnshire, Lancashire and Warwickshire	2	4	1	7	10	6	4	20	..	..
	Totals for Airship Raids	217	171	110	498	587	431	218	1,236	58	121

* The relative proportions of men, women and children injured in this raid are not known exactly: the best available estimate has been given.

SECTION 2.—AEROPLANE RAIDS. (December 24th, 1914, to June 17th, 1918.)

Date.	Locality.	Civilian Casualties. Killed. Men.	Women.	Children.	Total.	Injured. Men.	Women.	Children.	Total.	Sailors and Soldiers Killed.	Injured.
1914.											
December 24th	Dover	..	..	..	..	..	..	..	..	..	..
December 25th	Kent	..	..	..	..	..	..	..	..	..	..
1915.											
February 21st	Essex	..	..	..	..	..	..	..	..	..	..
April 16th	Kent	..	..	..	..	..	..	..	..	..	..
July 3rd	East Suffolk	..	..	..	..	..	..	..	..	..	..
September 13th	Margate	..	2	..	2	2	4	..	6	..	..
1916.											
January 22nd-23rd	Dover	1	..	..	1	2	1	3	6	..	..
January 23rd	Kent	..	..	..	..	..	..	..	..	..	..
February 9th	Kent	..	..	..	..	..	2	1	3	..	..
February 20th	Kent and East Suffolk	1	..	..	1	1	..	..	1	..	..
March 1st	Broadstairs and Margate	..	..	1	1	..	..	..	..	..	..
March 19th	Deal, Dover, Margate and Ramsgate	1	3	6	10	4	3	8	15	4	11
April 24th	Dover	..	..	..	..	..	..	..	..	..	..
May 3rd	Deal	..	..	..	..	3	1	..	4	..	..
May 19th-20th	Kent and Dover	..	..	..	..	..	1	..	1	1	1
July 9th	Kent (North Foreland)	..	..	..	..	..	..	..	..	..	..
July 9th-10th	Dover	..	..	..	..	..	..	..	..	..	..
August 12th	Dover	..	..	..	..	..	..	..	..	..	7
September 22nd	Kent and Dover	..	..	..	..	..	..	..	..	..	..
October 22nd	Sheerness	..	..	..	..	..	..	..	..	..	..
October 23rd	Margate	..	..	..	..	1	1	..	2	..	..
November 28th	London	..	..	..	..	4	6	..	10	..	..
1917.											
March 1st	Kent	..	..	..	..	..	1	5	6	..	..
March 16th	Kent and Margate	..	..	..	..	..	..	..	..	..	..
March 17th	Kent	..	..	..	..	..	..	..	..	..	..
April 5th	Kent and Ramsgate	..	..	..	..	..	..	..	..	..	..
May 6th-7th	London	1	..	..	1	1	1	..	2	..	..
May 25th	Kent and Folkestone	17	34	26	77	28	51	15	94	18	98
June 5th	Essex and Kent	3	..	..	3	3	4	1	8	10	26
June 13th	Margate, Essex and London	90	25	43	158	213	110	102	425	4	7
July 4th	Essex and Suffolk	3	..	..	3	1	..	..	1	14	29
July 7th	Margate and London	38	9	8	55	95	45	50	190	2	3
July 22nd	Essex and Suffolk	1	..	..	1	1	2	..	3	12	23
August 12th	Essex and Margate	10	13	9	32	13	19	12	44	..	2
August 22nd	Kent	6	1	1	8	4	2	7	13	4	12
September 2nd-3rd	Dover	..	..	..	..	..	4	2	6	1	..
September 3rd-4th	Kent	..	1	..	1	1	3	2	6	131	90
September 4th-5th	Home Counties and London	7	8	1	16	20	29	10	59	3	12
September 24th-25th	Kent, Essex and London	5	4	2	11	24	24	2	50	10	20
September 25th-26th	Kent and London	6	2	..	8	9	9	3	21	1	2
September 28th-29th	Home Counties	..	..	..	..	..	..	..	..	..	..
September 29th-30th	Kent and London	4	5	4	13	41	34	7	82	1	5
September 30th—October 1st	Kent, Essex and London	5	4	..	9	17	13	3	33	5	5
October 1st-2nd	Kent, Essex and London	7	4	..	11	18	19	4	41	..	..
October 29th-30th	Essex	..	..	..	..	..	..	..	..	..	..
October 31st	Kent and Dover	..	..	..	..	..	..	..	..	..	..
October 31st—November 1st	Kent, Essex and London	4	3	1	8	8	9	4	21	2	1
December 6th	Kent, Essex and London	1	5	1	7	13	8	6	27	1	1
December 18th	Kent, Essex and London	5	5	4	14	42	23	14	79	..	6
1918.											
January 28th-29th	Kent, Essex and London	22	26	17	65	79	50	31	160	2	9
January 29th-30th	Kent, Essex and London	2	3	5	10	7	2	1	10	..	..
February 16th-17th	Kent, Essex and London	1	5	3	9	3	..	3	6	3	..
February 17th-18th	Kent, Essex and London	16	4	..	20	17	9	..	26	1	6
February 18th-19th	Kent, Essex and London	..	..	..	..	..	..	..	..	..	..
March 7th-8th	Kent, Essex, Hertfordshire, Bedfordshire and London	8	9	4	21	9	28	2	39	2	..
May 19th-20th	Kent, Essex and London	17	20	6	43	57	67	26	150	6	27
June 17th	Kent	..	..	..	..	..	..	..	..	..	..
	Totals for Aeroplane Raids	282	195	142	619	741	585	324	1,650	238	400

SOME BOOKS TO READ.

THE SCIENCE OF AERIAL ACROBATICS.

Cecil London-Waller was the finest flower of our public school system. The refinement of his enunciation was marked, so much so as to suggest that he had not spent more than a term or two at the Hill, but he flaunted an indubitable Harrow scarf (carefully tied so as not to show the moth-holes), and could sing "Io triumphis stet domus" very prettily. He and I were unemployed, and practically unemployable. Now and then we would make desultory efforts to secure a job, but nothing much came of it. We were very young, and untrained, except in graces that had no market value. I remember that once Cecil ambled down with me to the dingy office of a dingy Syro-Phœnician who wanted a traveller to hawk picture-postcards. Cecil spellbound the ancient, while I waited in the corridor. After a lapse of time he emerged with a portfolio of cards, of which he was to dispose. We deposited this in Moorgate Street Station cloak-room, sure of a pound at the end of the week (this was a salary and commission job), and sallied out to see what London could do for us.

The morning we divided between the Law Courts (Divorce Division) and the Royal College of Surgeons. The evening went by merrily enough at the Tivoli. Having exhausted the possibilities of the town, we would roll home, to recommence on the morrow. The French, in their would-be English advertisements, call this "the nice life." It appealed to Cecil. But it bored me to tears.

One day we were pursuing our feckless way down Victoria Street when I caught sight of a poster in the Salvation Army emigration department, a bronzed farmer in a red shirt against a background of rolling wheat and Turneresque sunset. The inquirer was assured that he would look like this after a year in Canada. We went in to ask for particulars.

Afterwards the dramatic Cecil swore that he would accompany me to Canada, and wrest a fortune from that unsuspecting land. Before he had time to cool I rushed him into a temporary Christmas sorter's job at the post office. Thus we raised the fare, and within a month we sailed, Cecil protesting to the end, for he hankered after his fleshpots. The voyage was a nightmare of three weeks pitching and tossing, the food was offal, and so crowded was the ship with unhappy humanity that there were three sittings for each meal. We landed very washed out. I parted with Cecil at Montreal after a stand-up fight for which I had been spoiling for months, and which gave me a world of satisfaction. When we met two years later he had found his level, and was a low comedy acrobat on the music-halls in America.

There—I knew there was something that I wanted to write about! "Aerobatics," by Captain H. Barber, R.A.F. (the author of "The Aeroplane Speaks"), published by McBride, Nast and Company at half a guinea.

The book is a model of large-type lucidity. Its object is to explain the how and the why of trick flying; and it is obviously the fruit of an extensive practical experience. I have seen books on aviation in which chapters have been devoted to this branch of aeronautics, but they have tended to render confusion worse confounded in the mind of the reader. This is not the case in the work under review, where the writer has followed the principle of his first work to some extent, and inculcates his information in the form of dialogue between instructor and pupil. Not only has he foreseen all contingencies, but this treatment makes the book infinitely more readable.

This is his method, which I do not think could be bettered for the purpose:—

Instructor: "I am now going to give you the control of the rudder. If you press your left foot ever so little forward the machine will turn to the left. If you press with your right foot the machine will turn to the right. Have you got your feet on the rudder bar?"

Pupil: "Yes."

Instructor: "Notice that hill on the horizon. The nose of the machine is heading for it. Now press left foot forward. That's right. The nose has now moved to the left of the hill. Now press right foot gently and hold it there until we point to the hill again. That's right. Now centralise rudder bar and just ever so little momentary left rudder to counterbalance the momentum of the turn or we shall continue to turn to the right. That was not so bad, but you must *press more and gently*. . . ."

If, having memorised and understood these instructions, he translates them into action in the air, the pupil can hardly fail to become a pilot in short order. The writer has wisely taken as his motto, "Festina lente": he expounds the how and the wherefore of each portion of the manœuvre before passing on. He goes painstakingly into such recondite matters as the interchange of the functions of rudder and elevator on a sharp bank, in such fashion that he is sure of being comprehended. There has been no such manual of aviation written hitherto, chiefly, I suppose, because there has been no one at once sufficiently adept with pen and control lever to write it. The expert flier may be a sorry scribe enough, and much of what he does may well be intuitional. Here the analysis is minute and complete.

"Don't wobble the elevator like that. We're not going upstairs!" exclaims the author. That is much more likely to stick in the pupil's mind at a critical moment than a purely academical exposition of theory. This happy blend of slangy exhortation and *a priori* reasoning after the manner of the unlamented Euclid should save hours of time, and perhaps a pitiful, needless crash. An excellent scheme of practice for the embryo pilot is laid down, and a glossary is provided.

Loops, spins, rolls, the "falling leaf," the "cartwheel," all these and more the writer describes *en gros et en detail* with a meticulous care, his expositions being helped by a number of illustrations by Mr. Geoffrey Watson which are as distinct as a pen could make them, as well as being ingeniously worked out.

In fact, this is the key-note of the book: that it leaves nothing to chance or to surmise. Captain Barber is of the opinion that a pupil should master the manœuvres outlined within twenty or thirty hours of flying.

GERMAN AIRCRAFT. A REVIEW.

A thing which puzzles most of us, even the youngest, is the *raison d'etre* of evil, and its use in the world. For my part, I have never seen it better explained than in this passage, from the pen of Anatole France, which I will ask you to believe is more vivid in the original than I can hope to make it in a translation:—

"Yes, evil is immortal. The genie in which it was incarnated by old-time theology, Satan, will outlive the last man, and will remain alone, seated, his wings folded back, on the débris of extinst worlds. Not ours the right to desire the death of Satan. A high philosophy would not blench at the prospect of never-ending universal evil. It would recognise, on the contrary, that evil is necessary, and must endure; for, without it, man would be without aught to do in the world. He would be as if he were not. Life would be deprived of sense, and without meaning. Why? Because evil is the *raison d'être of* good, and good is in turn the *raison d'être* of man.

"If, by some impossibility—oh! fear nothing—if, by an impossible chance, evil disappeared, it would take with it all that gives life its price, it would despoil the earth of its grandeur and its glory. It would tear away from us the unquiet love of mothers and the piety of sons, alike it would ban science and study, and would extinguish the very light of the spirit. It would kill the honour of the world. We should see no more the blood of heroes, nor the tears of lovers, softer than their kisses."

For the rest, and it is well worth the reading, I must refer you to the first volume of "La Vie Litteraire." It has put me in the humour to read a book which deals with certain interesting instruments of the devil.

The book is called "Avions Allemands, Zeppelins et Moteurs," by Jean Lagorgette, published by Blondel la Rougery, 7, Rue St. Lazare, Paris, at 15 francs. It is packed with illustration and description, complied with a loving relish, of these machines, now powerless to harm as windlestraws.

They are arranged with singular clarity, by type and date of construction. The book is much more than an effort of collation, it enables the reader to follow methodically the course of the aerial effort of our adversaries. You can see how the Germans, enamoured at the outset of their Zeppelins, fell back on hard reality, and how they came to create a redoubtable aviation arm. You see how, and why, these types crystallised; what was tried, and what abandoned or adopted. It will convince you (if you needed conviction), that Apollyon was well armed, and knew his business.

Aviatik, L.V.G., Albatros, Fokker, Roland, Pfalz, two-seater, monoplace, Halberstadt or Ago, bi-motored Gotha, or Rumpler of the early days, each is listed here as methodically as any suburban dweller in the directory. The bi-fuselage Ago, "two-tails" of the long ago, with which the Fat Boys of the daily Press made our flesh creep, Zeppelins in all their details, armament, German and Austrian seaplanes, wing profiles and dizzying engine detail, the tale is complete. Much felicitation is due to the methodical and painstaking author, who was responsible for the issuance of official silhouettes of aeroplanes for the French Government, and who has done a considerable amount of research work along these lines for the Aero Club of France. It is very copiously illustrated by photographs and line drawings, and, as a work of reference, should appeal directly to all concerned with aviation.

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ON THE RE-MAKING OF THE R.A.F.

Some few weeks ago, soon after the surrender of the German Fleet at Scapa Flow, a story illustrative of the spirit of the British Navy came into circulation, largely through the efforts of one of the chief humorists of the Royal Aero Club who told it at dinner, and that story is the text of the sermon which follows it. The story runs thus :—

When the German warships came to anchor a party of British Naval officers boarded one of them and left a private of the Royal Marines as sentry at the top of the gangway while they went aft to interview the German officers. When they had gone a German sailor came up to the Marine, stuck his ugly face in front of him and said, "Yah! Lloyd George, *schweinhund!*" The Marine took no notice of him whatever, and the German went away.

A few minutes afterwards the German came back, again stuck himself in front of the Marine and said, "Yah! King George, *schweinhund!*" and spat over the side into the sea.

The Marine whipped round on him and said menacingly, "'Ere, you! You can say what you like about Lloyd George. 'E don't matter to *us*. You can say what you like about King George, because 'e's so far above you that it don't matter what you says about 'im. But *don't* you ruddy well spit in *our* Ocean!"

There you have the very proper feeling of the British Navy, extending as it does even to that down-trodden and put-upon Corps, His Majesty's Royal Regiment of Marines. It is the epitome of the *esprit de corps* of the King's sea-going Service.

When the Royal Air Force has developed a similar *esprit de corps*, and not till then, it will be worthy to take its place alongside the Senior Services. At present, though one admits its bravery and acknowledges that it fears neither God, Man, nor Devil, it is lacking in the three great sentiments which are essential to a great Service. It is without respect, reverence, and tradition. And, to instil those sentiments into the R.A.F., the whole Air Force will have to be re-made.

Neither the reform nor the re-organisation of the R.A.F. can make the Force what it ought to be. The whole job was bungled, horribly bungled, at the very beginning, and to make the present hermaphrodite, heterogeneous mixture into a service with proper *esprit de corps*, with respect for the King's uniform which it wears, with reverence for the authorities which it has to obey, and with a tradition which its youngest and most irresponsible member will be proud to follow, it is necessary to make the whole thing over again from the very start.

The Early R.N.A.S.

In the early days of the R.N.A.S., for all its piratical tendencies and its shockingly lax discipline—varied by fits of ferocity, after the Naval fashion—the Naval aviators and their men had a true *esprit de corps*, which was materially increased by the fact that they were despised and rejected by the Navy. This contempt in itself forced them into an attitude which can best be described as "We'll show 'em what we can do!" And the R.N.A.S. proceeded to show the Navy, with excellent effect.

While the Fleet was carefully dodging German submarines in the North Sea, an absurd little R.N.A.S. flotilla of pleasure-boats calmly went and bombed Cuxhavn and Wilhelmshavn on Christmas Day of 1914. Before the Fleet started wrapping itself round with torpedo nets, or hugging itself in Ægean harbours in 1915, a soggy old seaplane flew over Gallipoli and torpedoed a Turkish transport in the Marmora.

The Admiralty took excellent care that the R.N.A.S. did not again thus usurp the Navy's functions as the great power for offensive action from the sea, and it had not the sense to take the R.N.A.S. to its bosom and make it an integral part of the King's Navy, and so these early activities were never developed as they should have been. But they proved the fine offensive spirit of the R.N.A.S., and they showed what might have been developed from it.

In much the same way, when the ships of the Dover Patrol in 1915 and 1916 were playing tip-and-run along the Belgian coast, steaming in when it was dark or when there was a fog, firing a few shells, and then scuttling off before the Tirpitz Battery could get at them, the R.N.A.S. squadrons at Dunkerque, thanks to the energy and initiative of two or three very young squadron-commanders, in spite of the hindrances put in their way by all sorts of comic Senior Naval Officers, organised and carried on a series of regular bomb raids on the same targets with excellent effect and with surprisingly small losses.

Strange are the tales of those days. It is said that no raids were permitted to start without written permission from Dover, so that plans had to be made two days beforehand. If the weather changed for the worse and the raid did not start Dover demanded to know why. And, if good weather came unexpectedly, no raid could start, because written permission could not be got in time. Also it is said that the R.N.A.S. was forbidden to bomb certain coastal positions, because the Navy wanted them as targets for their guns. Yet in spite of, or perhaps because of, all hindrances the spirit of the R.N.A.S. was of the highest, and every one of the personnel took pride in its achievements. The R.N.A.S. wore its despised golden bird with the same spiritual pride as that with which the early Christians wore the badge of the Cross.

The Early R.F.C.

The early R.F.C. developed an *esprit de corps* of a somewhat different but an even more effective kind. The

historic First Five Squadrons were an integral part of the Old Army, and their traditions were handed down to the new squadrons as they were formed. After General Trenchard took command in the Field almost everything that could be done in the wrong way at home was done. The wrong men were put in charge of almost every department. The wrong machines and the wrong engines were ordered. R.F.C. affairs in England seemed to be chiefly influenced by the motor trade and the theatre trade—nobody with any respect for Art can dignify the theatre of to-day by calling it either a profession or an art; it is merely a trade.

Yet despite all these hindrances the spirit of the R.F.C. maintained the highest standard, thanks to the wonderful personal influence of General Trenchard, and the splendid work of his Brigade Commanders, officers who by their achievements throughout the war have fully justified the choice of their great chief. A notable improvement became evident in England when General J. M. Salmond took charge of the Training Brigade, which later became a Division. The spirit of the R.F.C. units in the East was fully maintained by General W. H. Salmond. And the whole equipment of the R.F.C. was brought to a high pitch of excellence by Sir William Weir by the end of 1917.

The Effect of the R.A.F.

Then came the fatal mistake. Pressure from a crowd of politicians who were entirely ignorant of the real feelings of the Flying Services forced Mr. Lloyd George—in his quest for popular acclaim—to form the Royal Air Force. The wrongest of possible wrong people—a successful business man—was made Secretary of State for the Air, and the natural result was chaos. This state of affairs was made worse by the retirement of General Trenchard, for if he had remained as Chief of the Air Staff, with an amenable Secretary of State to carry his schemes through Parliament, he would at any rate have made the Air Ministry a working mechanism of some sort.

As it was, after a period of eclipse, General Trenchard re-appeared in command of a small force of bombing machines in Eastern France, where, if the war had gone on for another twelve, or even six, months, he would certainly have built up a really considerable striking force. But, for practical purposes, his genius was wasted for the last nine months of the war. And it was wasted entirely through the imbecility of our politicians.

During 1918 affairs at home went from bad to worse. The spur of competition between the two Services was removed. There was no means of showing up the ghastly mistakes of our technical experts, though one did one's humble best in this paper to indicate gently that no criminal conspiracy organised for the defeat of this country could have achieved better results from the German point of view than did the futile efforts of our "experts" to exploit their own imaginary cleverness.

The mere fact that the Air Ministry became universally known as "The Bolo House," in memory of the French traitor Bolo Pasha who was shot for his defeatist conspiracies, proves how the active-service people viewed affairs at home. And, one can now say that if the war had gone on we should have found ourselves at this present date in March, 1919, practically without efficient and reliable engines to maintain the effectiveness of the R.A.F. in the Field. One hopes to discuss this question in considerably greater detail on another occasion.

A Great Achievement.

The one great achievement of 1918 was that of General J. M. Salmond and his Brigade Commanders, who, knowing full well, as almost everyone in France knew, that they were being utterly let down by the Supply people—*id est* the Ministry of Munitions *cum* Air Ministry—at home, nevertheless maintained to the fullest degree the high spirit of the Air Force in the Field.

The majority of our aviators at the end of the war were actually mounted on worse machines than those of the average German aviator. It is true that our best machines were better than the German best, but we never had anything like enough of them. And in many of our best aeroplanes the engines were utterly bad and unreliable, so that some squadrons stated that they lost more men through engine failure than through enemy action.

It is also true that the R.A.F. outnumbered the Germans, but mere numbers count for less in air war than perhaps in any other form of war. Efficiency and the offensive spirit counts most of all. And General Salmond maintained the spirit of his fighting men to the fullest degree.

Affairs at Home.

At home the state of affairs became absolutely lamentable during 1918. Officers and men of the R.N.A.S. and R.F.C. were deliberately taken from their old occupations and mixed up together, so as to form what the misguided brains of the Bolo House thought would be an homogeneous Air Force.

The result was rather less pleasing than that which would be achieved by mixing up all the food and drink of a set banquet and beating them up in a bucket with a wooden spoon. A haggis would appear an orderly repast compared with the mess which has been produced.

Seaplane stations were filled with aeroplane officers and men. Inland aerodromes were infested with seagoing folk. Everybody hated everybody else, and themselves, and their jobs, and their machines, and the new absurd routine, and the idiotically increased office work. But most of all they hated the Bolo House and all its works.

Discipline fell to pieces. The officers lost all respect for the people at Headquarters, and they lost respect for themselves, for they lost all pride in their profession. As a natural result the men lost respect for their officers. And, as a further natural result, a species of Bolshevism infected the whole Air Force at home. One could not expect law, order, and decency from the rank and file when it was obvious to the meanest intelligence among them that the old rigid discipline of the Navy, or the clean-cut regulations of the Army, to which they had become accustomed, had given place to a mass of contradictory orders and instructions which nobody understood and to which few paid any attention.

A Case in Point.

Take a case in point, namely a coast patrol station on the coast of Wales. For Administration and Discipline it comes under the R.A.F. Midland Area at Birmingham, or rather its fashionable suburb Leamington. For Operations it comes under the Naval Officer commanding at Queenstown in the County Cork, because it is concerned with Irish Channel patrols. It has landing stations or mooring stations on the Irish Coast, and when any of its personnel are at those stations they come under the G.O.C., R.A.F, Ireland, in Dublin, for Administration and Discipline. Its airships draw their pots and pans and petrol and brooms and bombs from the Admiralty and its seaplanes draw theirs from the Bolo House, or its annexe Bolshevik Mansions.

When its men are demobilised they may be handled by any one of three or four Army Commands or by the Navy. If they commit an offence when off their station they may likewise be handled by any one of half a dozen different authorities. The whole situation is pal-

pably absurd, and it is evident that it cannot continue in time of peace if the R.A.F. is to be a self-contained, self-respecting Force with proper *esprit de corps*.

Loss of Self-Respect.

Loss of self-respect is perhaps the most dire result of the misorganisation of the R.A.F., and it has become far worse since the premature end of the war put an end to that spirit of patriotism which, poor overworked thing, had to do duty for every other sentiment which makes for efficiency. Only a few weeks ago one advised young pilots in the Air Force to remain in the R.A.F. if they were able to do so, instead of throwing up their commissions and trying to find work in Civil Aviation. One did so in the certainty, not merely the hope, that in due course the R.A.F. would attain to a proper *esprit de corps* and would afford a career for an officer and gentleman.

It is the task of the present Air Council to remake the R.A.F. so that it shall provide such a career, and shall regain that self-respect which it has so lamentably lost. None is more capable of remaking the Air Force so that it will become worthy of the Senior Services than are General Trenchard as Chief of the Air Staff and General Salmond as General Officer Commanding in Chief the active-service units of the R.A.F. wherever they may be, but the task is no light one.

An Inside View.

The article to which reference has been made above has produced a letter which, unpleasant as it is, deserves to be quoted because it exposes some of the evils which must be abolished if the R.A.F. is to become what it should be. The writer says :—

"Being in close touch with hundreds of pilots, and hearing every day their ideas and plans for the future, I, with them, cannot help wondering what has made you advise anyone with any manly ambition in them to stay on in this Royal Air Farce.

"The despicable treatment of long-service pilots since 'All Fools' Day,' 1917, has made them—even if they did manage to put up with things till the Armistice—feel they most certainly won't continue to do so a moment longer than they can help.

"In such a Service hard work and merit brings little or no reward, as has been proved over and over again; but if you get thoroughly drunk in the mess every night and are ready to make a beast of yourself on every possible occasion, it means you are a 'right good fellow,' and your C.O. soon sees that your brass-hat reward comes along as a pat on the back.

"I do not speak of what I hear, but of what I've seen; and a Service which retains, promotes, and gives command to officers who are constantly in a state of intoxication needs some clean sweep to be made in it ere real men can find any pride in belonging to it.

"Guest nights and often other nights in numbers of R.A.F. messes meant little else but a drunken brawl, and furniture and crockery smashed beyond further use; and I've seen a colonel, C.O., under the table so drunk that he didn't realise that the *cadets* were soaking him from the soda syphons.

"This same colonel, like others, has been reported over and over again, but it rather brought promotion than censure. Influence is all one needs in a Service like this, where one can be any sort of a fool or cad as long as one crawls sufficiently to those seniors above one.

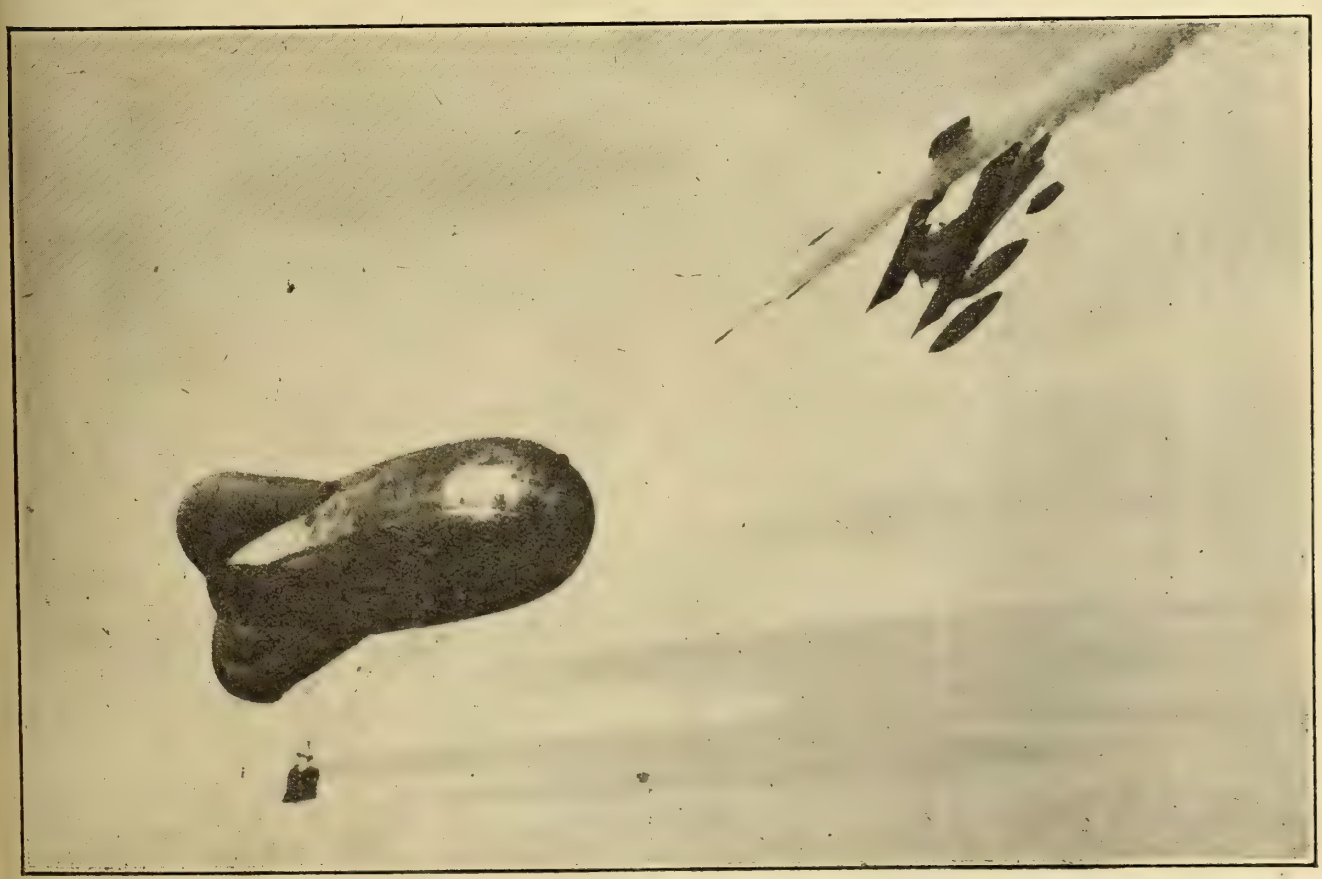
"Are you aware that among the first questions asked by the Selection Committee for the Permanent Air Force, is 'whether one has several hundreds of pounds private income?' Good pilots and long-service men are not wanted.

"Evidently the new Force is to adorn social functions and play polo—and perhaps now and again take its lady friends for a joy ride. The real men who have fought the Huns and made glorious the name of our aviators—to say nothing of the hard-worked instructors who have worked tirelessly to turn out good pilots—are forced by an unjust Air Ministry to seek employment elsewhere.

"I know hundreds of our pilots are going abroad, disgusted beyond words. Surely you cannot be aware of the existing state of things when you write as you do.

"To sink rank—when one has at last had promotion, deferred for over a year—to sink pay, and then be asked to spend hundreds of one's private income for the privilege (?) of belonging to the Royal Air Farce. . . ."

Making every allowance for a letter evidently written in a passion, the unhappy fact remains that much of that letter is true. And until it can be said that such



A BALLOON STRAFE: A Composite Photograph of a Schneider-Sopwith Seaplane attacking a Kite-Balloon with Rockets. The Photographs are not "faked," but the Balloon has been printed into the picture though photographed separately.

a letter is wholly a lie, the R.A.F. will not be what it should be.

The Loss of Good Officers.

Far too many of the best men in the R.A.F. are being allowed to leave it, and far too many of the worst men are being allowed to stay in it. One hears, for example, that one at least of the most efficient Brigade-Commanders, an officer who is at the same time liked and feared, is going back to the Army at considerable loss of pay and rank. One has seen a very distinguished R.A.F. officer with many well-earned decorations, the greatest of all being modestly tucked away under the lapel of his monkey-jacket, in the uniform of a Lieut.-Commander R.N. One knows of other officers with long service and war experience who are already out of the R.A.F. and in civilian occupations, though they would be of high value in re-making the Air Force.

It is true that the R.A.F. is well rid of some people who have wangled their way to promotion, but too many good men are leaving simply because they have lost all respect for the Service. As one of them put it, "There are too many Boy Scout Colonels in the Air Force."

This last objection will doubtless be remedied by the new rule which is popularly supposed to be coming into force that there shall be no Lieut.-Colonels under 30 years of age and no Majors under 25. The rule in itself is sound, so long as it is used intelligently.

The gallant young leader of fighting men is not likely to be the best possible administrator under the boring conditions of peace. In fact, the faculty for administration is seldom found along with a talent for flying and fighting. As the contributor of an article in this paper on the subject of R.A.F. Titles has said, the necessity for the formation of an Administrative Branch of the R.A.F. is the best possible proof of the unfitness of the fighting man for administration. And it is known that many of the best patrol leaders could not even run a flight of six machines successfully.

The Basis of Reform.

The basis of the re-making of the R.A.F. must be Competition. The present lamentable state of affairs is almost altogether due to the entire lack of competition. There is no incentive except a keen sense of duty or pure personal pride to induce an officer to make his flight or his squadron or his wing better than the next one. In the Field promotion was won by efficiency. At home it has been got far too much by intrigue or by favouritism to encourage hard work.

Even during the war those in authority at home never developed the competitive spirit as they might have done if they had formed the R.F.C. into English, Scottish, Irish, Welsh, and Canadian squadrons. If the militant side of the R.A.F. is to be efficient in peace-time this idea must be developed.

The Naval branch, the Army branch, and the Independent branch must be distinctly separated, so as to assure competition in efficiency between the three. Within each of these branches there must be other distinct divisions. Seaplane units must compete with flying-boat units, and with ship-plane units. In the Army branch fighting, reconnaissance, photographic squadrons must be put up against one another to see which can show the highest efficiency. And the Independent Force squadrons must likewise compete with one another.

A fighting competition with camera-guns between Navy, Army, and I.F. pilots would be worth watching, and so would a bombing competition with dummy bombs. But, apart from that, sheer smartness in the keeping of air stations and aerodromes, and smartness on parade, should be matters of rivalry.

Territorial Pride.

As it is obvious that the peace-time Air Force must be a very minute affair compared with the existing Force, it is evident that our only hope for the future is to maintain a very big reserve force, and it is earnestly to be hoped that such a force will be built up entirely on a territorial scheme.

Every schoolboy to-day is frantically keen on aeroplanes, so there will be no lack of volunteers. Those who are not fit to become pilots will join as mechanics in order to get into close touch with aeroplanes, and those who are fit to be pilots will be glad of the chance of flying at the Nation's expense. If Territorial Squadrons are formed competition for efficiency will reach a very high pitch.

One cannot, for example, imagine a Bradford squadron sitting down quietly under the reproach that their discipline, bearing on parade, workshops, engine tuning, aeroplane rigging, or flying was inferior to that of a Huddersfield squadron. And a Brigade competition between Manchester and Liverpool would very probably end in a healthy free fight after the parade had been dismissed.

In this way territorial, or local, patriotism can be made to produce a proper pride in each unit of the R.A.F. Reserve. And it should be extended to permanently embodied squadrons.

Squadron Pride.

Who knows among the general public which are the crack squadrons of the R.F.C.? One is certain that it would be the best thing in the world for the R.A.F. if the records of the squadrons were published, and if those squadrons were afterwards given a territorial designation. No. 60 Squadron, one believes, first became famous in the R.F.C. when young Mr. Ball, who later died gallantly as a Captain, was its star turn. Would it not be policy to make it the Nottingham Fighting Squadron R.A.F., or to recruit pilots and mechanics for it in the Nottingham district? No. 56 Squadron was that in which James McCudden made most of his reputation. Would it not be wise to make it the First Irish Fighting Squadron R.A.F., and to find its personnel in Ireland?

If one had the records of all the squadrons before one, it would probably be possible to give territorial allocations to all of them. A bombing squadron, for instance, which had been organised and led to success by a Scottish officer might be made a Scottish squadron. And, if no particular reason could be found for a territorial allocation, the squadrons could be linked to regimental districts in accordance with Army numbers. For example, the 42nd Squadron would recruit from the same area as the Black Watch, and might even be known as the Black Watch Squadron. And its officers would do infantry training with the regiment.

Unless something of this sort is done and unless competition between squadrons is encouraged, it will be impossible to generate in peace-time that *esprit de corps* which has been lost through such lamentable blundering during the last year of the war. The task is not easy, but it can be done, and one believes that General Trenchard is better fitted for the task than is anybody else, for the one good thing which the R.F.C. has never lost is its personal attachment for its chief.

If he is given a free hand by the Air Council to re-make the R.A.F. on his own lines, and if he goes round and talks to squadrons at home as he used to do in France, we shall have in a very short time that same enthusiasm, that same fear of failing to win the Chief's approval, and that same willingness on the part of every man to sacrifice himself for the Corps, which was such

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a remarkable feature of the old R.F.C. When everything else in an Army has failed its attachment to its leader has on occasion pulled it through. Everything in the Air Force at home has failed except its belief in General Trenchard. He has the opportunity of remaking the R.A.F. into a Force worthy of the King's Service, provided that he is not hampered by politicians, and all who have the future safety of the Empire at heart will wish him good fortune in his great task. And perhaps after the next war somebody will dig out the yarn which began this sermon and will hash it up into an aerial version, in which a British airman will say to a Russian airman, after the surrender of the Russian air fleet—"Don't you ruddy well dare to breathe in *our* air!" That, at any rate, should be the spirit of the R.A.F.—C. G. G.

THE EAST AFRICAN ZEPPELIN.

An officer who served in East Africa writes:—

I was very interested to read your article on the flight of a German Zep. to East Africa and back. This is the first time I have seen anything about this flight in print, although it was common knowledge in East Africa last year.

The flight took place in late October, 1917, and it was supposed to be for the purpose of picking up Von Lettow, the German commander, and taking him back to Germany. This seems reasonable, in view of the fact that his position at a place called "Massassi" was considered hopeless, but with his usual cunning he slipped away between the British and Belgian columns and carried on his clever game of "tip and run" for another year.

Some day, when the history of the German East campaign is written, Von Lettow will get credit for one of the cleverest retreats in history, a retreat covering thousands of miles of country, much of it previously unexplored, lasting over three years and holding at bay overwhelming superior forces.

However, that has nothing to do with the flight. What I wanted to say was that a great deal of credit is due to our Intelligence Department, as we were perfectly aware of our impending aerial visitor, and orders were issued to every post commandant and O.C. troops that no lights were to be shown or fires lit after sundown.

I was in charge of an M.T. workshop near —— at the time, and we had a very warm reception ready for the visitor, but he never turned up, and it was said that warning had been conveyed by wireless that Von Lettow had left Massassi, and, of course, it would have been hopeless to have looked for him in the thick bush which extends for hundreds of miles on each side.

An officer in the King's African Rifles afterwards told me that they had heard the Zep. coming over one night and had fired on it, but this may have only been the effect of too many "sundowners." He was stationed on the "Central Railway" at the time, which, of course, the airship would have to cross before reaching Massassi, which is down near the Portuguese border.

THE R.A.F. PEACE ESTABLISHMENT.

The Air Ministry has decided to retain about 6,000 officers in the Royal Air Force on its peace establishment. A much larger number is required, however, for the present on account of the responsibilities of the Army of Occupation, this requirement being satisfactorily met by the retention in the Service of the approximately 11,000 officers who have applied for permanent commissions. All others will be demobilised.

As soon as peace is signed a Selection Committee will determine which individual officers, up to the number required, will be retained.

THE TREATMENT OF CADETS.

One ventures to suggest to the Air Council that it might look more carefully into the way in which Flight Cadets are being treated by the Air Ministry. Almost every day one hears of cadets who are demobilised against their will, while, at the same time, men who want to be demobilised in order to return to their business cannot obtain their discharge.

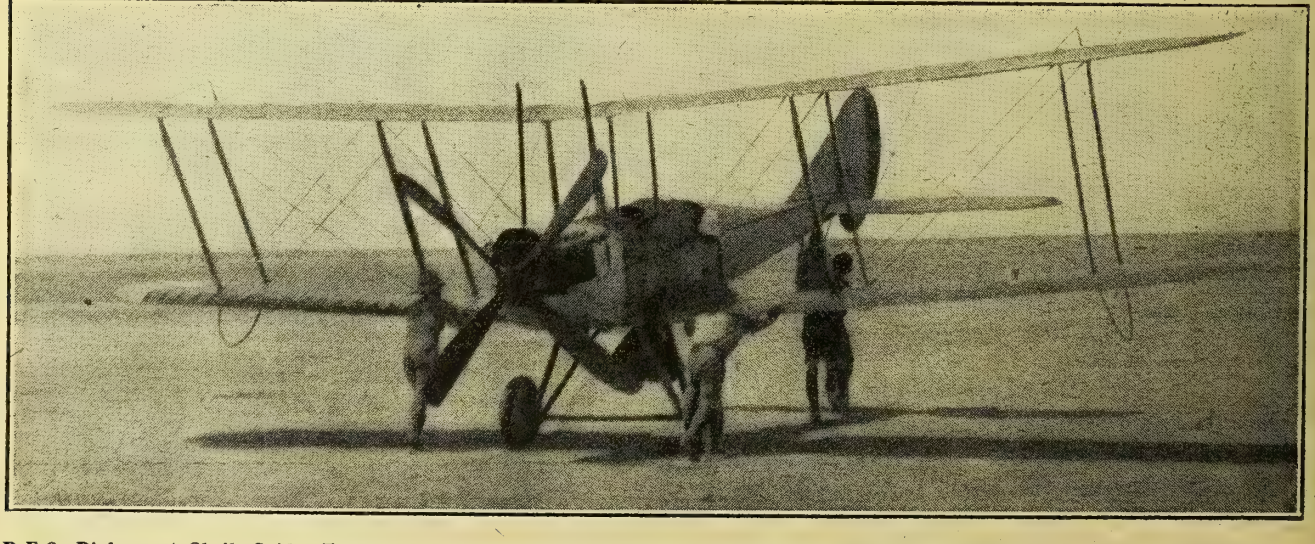
The Air Ministry would do well to remember that in a very great number of cases Flight Cadets are men who have been selected to become cadets, or hope-to-be officers, on account of their good service either in the Army or in the ranks of the R.A.F. They have been put to very considerable expense in buying their kit as cadets, and, in the majority of cases, are actually out of pocket as their sole reward for their previous services.

It is true that on demobilisation they draw kit allowance of £12 10s., and, theoretically, the said £12 10s. should cover the extra kit which they need over and above that of a private soldier or airman, but, as a matter of fact, they have generally spent considerably more than £12 10s. in order to bring their outfit up to the level of their fellows in the mess.

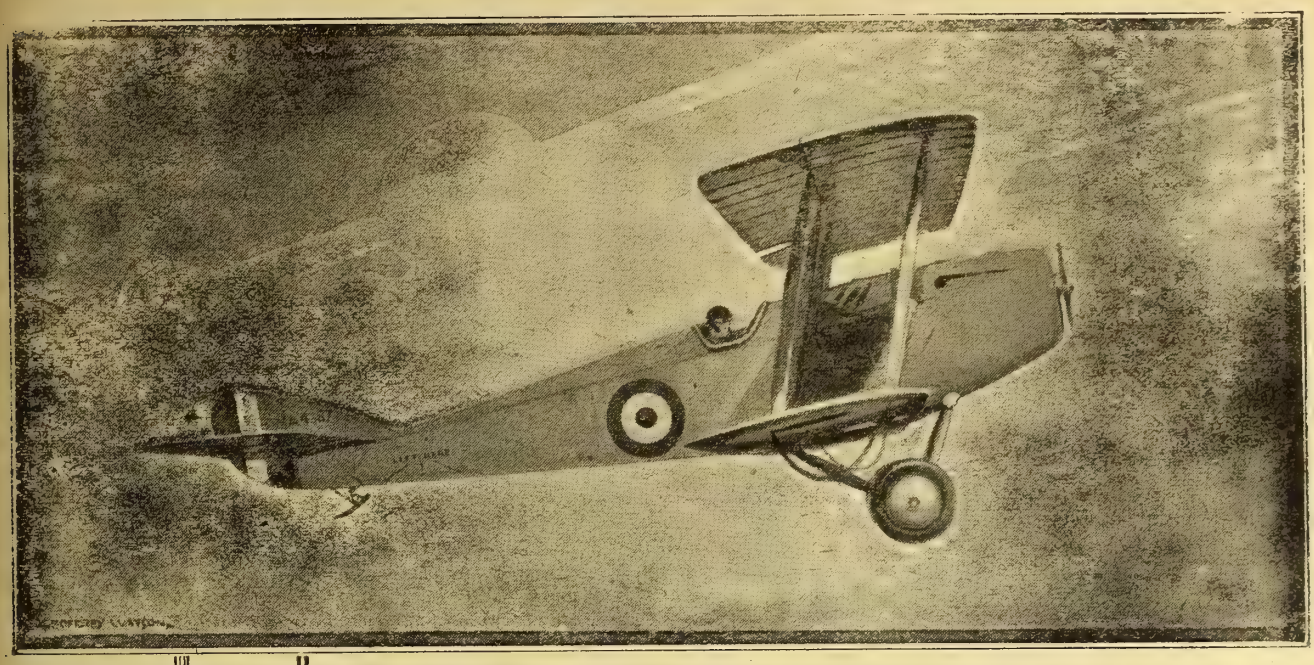
If the Air Ministry had insisted on cadets keeping their outfit inside the £12 10s. limit, there would be no grumbling on this score, but it seems that cadets have been rather encouraged than otherwise by the C.Os. to spend their own money in making themselves look smart, and the least the Air Ministry can do is to recompense for this officially encouraged outlay.

Furthermore, it seems extraordinarily foolish in the national interests to turn out of the Air Force a number of enthusiastic young men on whom a great deal of the country's money has already been spent in giving them a partial training as aviators. If they are dismissed now the whole of this money will be wasted, whereas if they were permitted to complete their flying training and become qualified aviators, we should then have a reserve of aviators if necessary, for when once a man has learnt to fly, he never forgets how it is done any more than he forgets how to skate or how to ride a bicycle.

One suggests that at a comparatively low cost all the cadets who have passed their ground training might very well be allowed to continue their training up to the point of qualifying for their wings, after which they could be relegated to the reserve of the R.A.F. At present, it seems that practically no flying is being done in the training squadrons, and, in consequence, nearly the whole home establishment of the R.A.F. is pure waste in that no useful work is being done now, and no work is being done which can be of use in the future.—C. G. G.

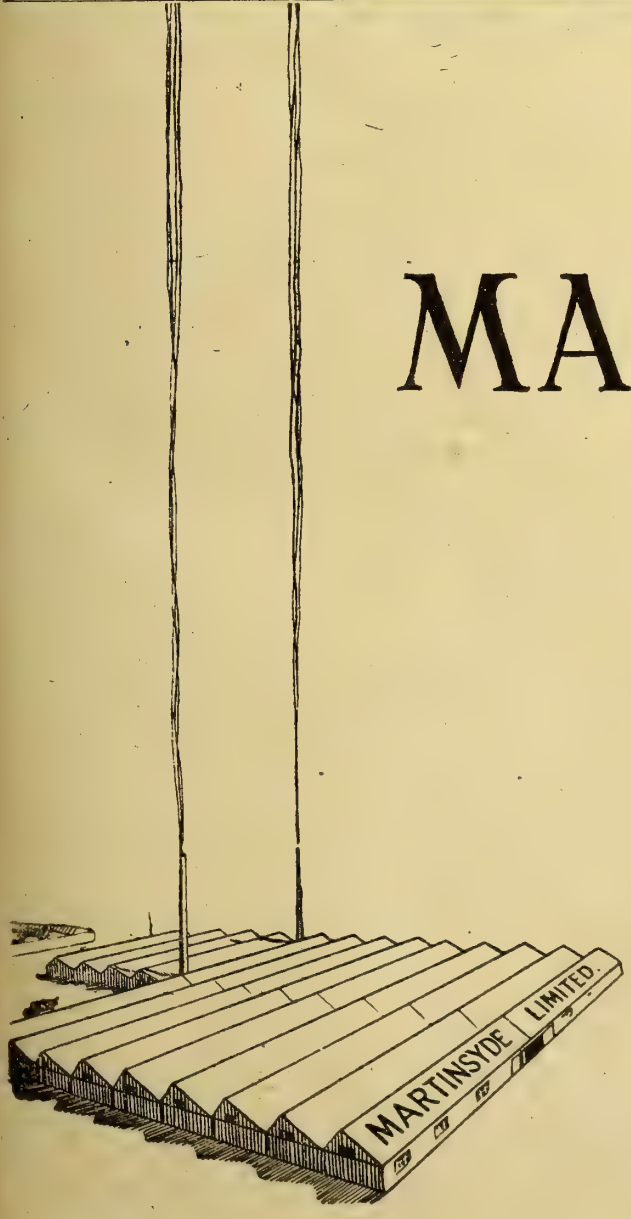


A B.E.2c Biplane at Sheik Said. The official description on the picture says that had King Solomon lived in the Twentieth Century he would have had to revise his opinion that there is nothing new under the sun. This picture seems to confirm his original opinion.





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THE ATLANTIC FLIGHT.

A British subject, resident in the U.S.A., who has been connected with aviation for many years past, writes emphasising the fact that the Americans are seriously contemplating an early trans-Atlantic flight.

He states that Mr. Rodman Wanamaker has formed the Trans-Oceanic Aeroplane Co. for the express purpose of making an early flight. It is expected that the company will enter a large Curtiss flying-boat, which is now being prepared at Miami, Florida. Mr. David McCulloch will act as pilot.

Besides these preparations, both the U.S Navy and Army Departments are expected to enter machines for an early attempt, the former probably being a "Felixstowe" type flying boat.

It has already been announced that the Air Ministry will make attempts to cross the Atlantic with a Handley Page biplane, a Porte flying boat, and a rigid airship, but, owing to the prevailing westerly winds, machines coming from America will have a better chance of success.

It appears that the majority of American aviators, whilst working hard to complete their own plans, do not believe that an American machine will be the first to fly the Atlantic. They openly express the belief that the first attempt, at least, will be made by the British Government with a rigid airship.

A new seaplane is being built at Philadelphia, the construction of which was ordered by the U.S. Naval Air Service. It has an upper plane with a span of 250 ft., and a lower plane 225 ft. in span. The chord is 12 ft. and gap 14 ft. The machine will be driven by five Liberty engines, each of 400 h.p., driving three tractor and two "pusher" airscrews.

This seaplane will be known as Model T, and is expected to be capable of carrying 75 passengers and sufficient fuel for a flight of 2,000 miles.

TWO PROPOSED FRENCH FLIGHTS.

Lieut. Fontan, accompanied by one mechanic, hopes, with the consent of the French Government, to leave Paris shortly for an attempt to make a flight to Dakar, in French Senegal, a distance of about 2,500 miles. If successful, Lieut. Fontan intends to change his engines at Dakar, and proceed to Pernambuco Brazil.

It is stated that Lieut. Coli and Lieut. Roget also intend shortly to attempt a flight from Paris to Dakar. Later they will attempt a trans-Atlantic flight from Pernambuco, Brazil, to Europe.

AEROPLANE PASSENGER CARRYING.

It is stated in the "Auto," Paris, that the French Association football team which is to play the Belgian eleven will be conveyed from Paris to Brussels in a Voisin aeroplane. Various officials will be conveyed in four other machines.

AN ACCIDENT.

An aeroplane recently fell into a street at Orford, Suffolk, the pilot, Captain McGibbon, and the passenger, an airman named Milligan, being injured. After breaking through some trees, the aeroplane ran fifty yards up the street smashing the windows in several houses and was completely wrecked.

AN R.A.F. OFFICER'S SUICIDE.

On Thursday evening, Feb. 27th, Major Edward Henry Chaney, O.B.E., R.A.F., was found shot dead in his flat at Talgarth Mansions, Baron's Court, and his mother was found suffering from wounds in the shoulder and the side. Mrs. Chaney was removed to the infirmary, where she is progressing satisfactorily.

AERIAL ADVERTISING.

It is understood that the Air Ministry intends to inaugurate a series of aeroplane flights to various parts of the world, with a view to demonstrating the capabilities of the British machines.

It is expected that the British Air Ministry will send two D.H.4 machines, one Bristol "fighter," and one V-type Handley-Page biplane, to Madrid, in order to demonstrate the quality of British aeroplanes.

The smaller machines will be flown from Biarritz to San Sebastian racecourse, where they will be exhibited, and the Handley Page biplane will be flown direct to Madrid.

ATHLETICS IN THE R.A.F.

On Thursday, Feb. 27th, the Royal Air Force Rugby team played the R.N.D. (Devonport) fifteen on the Richmond Athletic Ground. The R.A.F were only able to play about six of their best men, and after some tough play on the part of the R.N.D. team the game finished with the R.A.F. the losers by one dropped goal and two tries to nil.

The Association Football match between the R.A.F. and Mr. George Robey's team, which was played on Thursday, Feb. 27th, was only a moderate success, owing to the bad weather. Nevertheless, a display of good football was witnessed, and the match ended with the R.A.F. the winners by two goals to one.

The two teams will meet again on March 12th, so that the Chevrons Club, and the fund for R.A.F. Sports abroad, shall benefit to the desired extent.

On Thursday, Feb. 27th, the R.A.F. (Rochampton) beat the R.A.S.C. (Enfield) by five goals to nil, and, therefore, enter the semi-final for the Bulldog Cup, and take the special trophy presented by Major Mosenthal for the R.A.F. team going farthest in the contest.

On Saturday, March 1st, the first match in the inter-Service Rugby Tournament was played at Swansea. The R.A.F. team was beaten by the New Zealand fifteen by two goals and four tries (22 points) to one try (3 points).

On Thursday, Feb. 27th, Bombr. Wells was knocked out in the fifth round of a glove fight by J. Beckett, R.A.F.

There were over 60 entries for the Officers' Boxing Tournament held on two days in last week by the 9th Brigade of the R.A.F., when some good contests were witnessed.

THE W.R.A.F.

The Minister of Labour has been informed by the Air Minister that further recruits are needed for the Women's Royal Air Force in the following categories :—

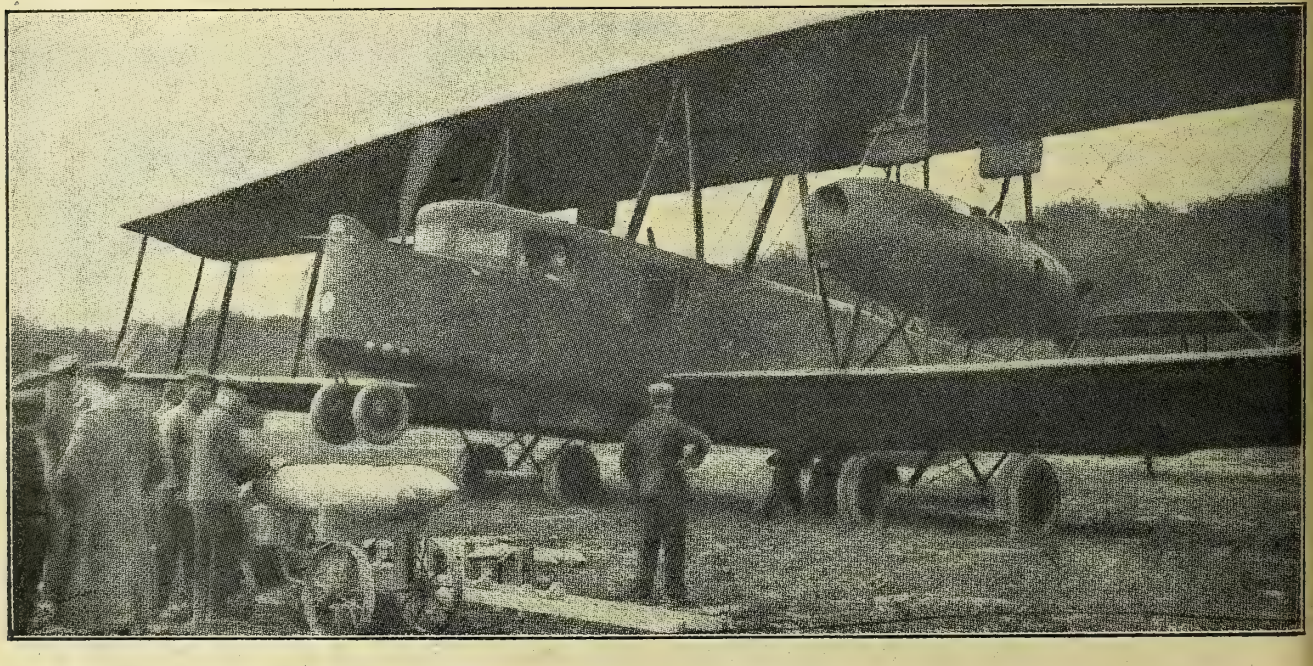
Clerical.—Shorthand Typists, Pay Clerks, Store Clerks, General Clerks.

Domestic.—Cooks, Mess Orderlies (Waitresses), Orderlies (1) Housemaids, ditto (2) General Domestics, Laundresses.

Motor Transport.—Motor Drivers, Motor Cyclists.

In the Motor Transport Section only thoroughly experienced applicants will be considered.

Applications for employment in the above categories will be received through the Employment Exchanges, where full particulars of the vacancies concerned and of the terms and conditions of service are available.



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PARIS NOTES.

In fitting modesty each nation is accustomed to decry the action of its administrators; thus, as far as aviation is concerned, the French are filled with admiration by the efforts of the British in general, and its Air Ministry in particular, whilst we, on the other hand, continue to cite examples of how matters aviatic are managed better in France—'twas so before the war, during the war, and shows no sign of abatement.

By common acceptance the Gotha is reckoned to have been modelled on the captured Handley Page. The unwitting repayment for the plagiarism in design is now beginning.

Following a decision of Colonel Dhé, two squadrons of Friedrichshafen Gothas are to be formed in order to help in the provisioning of the liberated provinces of the North. These old Boche machines are to be piloted by the erstwhile pilots of the Caudron R.xi (three-seater). The squadrons will be attached to the Group of Commandant Vuillemin, who has the matter under his control. It is estimated that each of these avions will transport two tons of goods.

Interesting news that is giving the Frenchmen of the Boulevard furiously to think and to chatter—and, incidentally, to wonder if all is as it should be at the head of affairs—is that Commandant Brocard, erstwhile "père des as," when in command of No. 3 Squadron, and since employed as chief of M. Dumesnil's Cabinet, has returned to the troops on the frontier, and that René Fonck has rejoined his Squadron, which is in the occupied territories. The latest rumour is that it was *not* a military order that prevented Fonck going to the States as head of the French Mission! Nevertheless, *on parle toujours du chicanerie en hautes places.*

News is to hand that at a banquet given in New York last week, by the American Aero Club, it was announced that a special Medal of Honour is to be struck and given to the following French aviators:—

Guynemer, Dorme, Sasnier, Chaput, Nungesser, Garros, Fonck, Heurteaux, Guerin, Boyau, Madon, Vuillemin, Pinsard, Demeulevre, Forest, Marchall, and Coiffard.

It is also to be presented to the following British aviators, or to their representatives, McCudden, Ball, Fullard, Bishop, and Mannock. [Why omit Barker and Collishaw?—Ed.]

Louis Bréguet has made a bet that in five years aeroplanes will be able to travel at 500 kms. per hour! For a year past, he has been experimenting with a turbine fitted to one of his machines, and although grave difficulties were experienced at first, it is now stated that they have been successively and successfully overcome. Lt. Caninet is at the moment only waiting favourable weather before attempting, on one of these machines, to make an attempt on the altitude record.

As president of "L'Union Interalliée," Vice-Admiral Fournier has just created a "Section Aéronautique Interalliée" with the intention of adding another link to the chain that binds the Allies. Major Sewell represents England on the Committee. Major Sewell, as a Captain, was liaison officer for the R.F.C. to the French, and, as such, was attached to Commandant Brocard's Headquarters during the first Somme offensive in 1916.

The objects of the Society are as follows:—

1 To develop and continue the inter-Allied friendships which were formed during the war.

2 To enable members to meet and know the most qualified constructors in Allied countries.

3 To contribute actively to the progress of Civil Aeronautics in France; to facilitate aeronautical relations between Allied countries, and to study the questions of international aerial navigation.

Subscriptions are: One year, 100 francs; six months, 50 francs; three months, 25 francs.

Information may be obtained from Captain de Subersac, Cercle Interalliée, 33, Faubourg Saint Honore, Paris.

Feeling in French aeronautical circles is rising high, because they feel that they are being outstripped in the race for supremacy by America and England, particularly the latter. Attention is drawn to the help given by the British Air Ministry in the way of sending machines on experimental flights to India, the Cape and Australia, and also in assisting English aviators to compete for the "Daily Mail" £10,000 prize. There is also a pretty general complaint here that French financiers refuse to support any post-war scheme at the moment, their excuse being that the State ought to take the initiative; in other words, they are willing to put their eggs in a basket that already contains some; until then——!

I am in a position to state that despite the lack of support by professional financiers several leading French firms have combined in a group, and have entered into relations with a powerful and financially stable group in England—the latter is not well known like the Airco or the Handley Page crowd, but its projects are many times nearer realisation, if only for the reason that they are not immediately so ambitious. At the moment, both sides are sitting on the fence—waiting for April 1st, or whatever other date is chosen by the powers that be to commence real commercial services. In 30 days I hope to be able to say *much* more.

Meanwhile, the latest news to hand is that the Swiss Government is in favour of an immediate aerial post. The first routes proposed are Geneva-Berne-Zurich, Geneva-Paris, and Zurich-Bâle. Two services will be run in each direction daily. Military type biplanes, 200 h.p., two-seaters will be used. A private company is also about to start a passenger service between Zurich and St. Moritz.—F. T. N.

ITALY.

From the Headquarters of the Aeronautical Corps there has been issued the following information as to the strength, etc., of the Service. After some lines of praise the report says that at the end of October, 1918, the Army Air Force consisted of 70 Squadriglia, with about 1,000 machines, of which 600 were in use daily. There were 7 airships of the M. and P. type, and 32 Balloon Sections. Also that during the war our Air Force brought down 643 machines—including kite balloons. Allied aviators on our Front—including the French seaplane people at Venice—brought down 400 besides the above figure. Our losses were 128 machines brought down by the enemy, and a total of 327 pilots out of action, that is, either dead, wounded or disappeared.

R.A.F. AERIAL MAIL SERVICES.

For some considerable time past local Military mail services in France have been successfully run by the R.A.F. Letters have been delivered regularly between Marquise and Valenciennes, Valenciennes and Namur, Valenciennes and Spa, and on other routes. During the period from December 17th to January 25th there were only five days on which no local services were run.

This scheme has now been superseded by a more elaborate one, embracing a long-distance service from Marquise (near Boulogne) right through to Cologne, as well as an extended series of local services.

The through service to Cologne, quite apart from mileage, presents peculiar difficulties which are not usually met with on the frontier routes. Between the flat country of North France and the valley of the Rhine there lies a range of hills rising in places to a height of 2,000 ft. Not only does this stretch of country contain very few places on which a forced landing can be made safely, but thick clouds and bad weather are invariably encountered in this district.

The Handley Page machines which were at first used on this route are now being replaced by D.H.9a machines, which have a greater speed.

A chain of wireless stations has been organised for the transmission of weather reports. In the event of a forced landing the pilot transmits his position to the nearest wireless station. The message is then passed on by wireless or telephone to the nearest R.A.F., or Army, unit, and transport is immediately sent to pick up the mails and to render assistance.

In the event of a pilot losing his way, arrangements are being made whereby he will be able to get into touch with a wireless-directional station, from where he will receive details as to his actual position. These stations will also direct pilots, in bad weather, to the nearest landing ground, and guide them during night-flying.

In connection with this service, the establishment of a chain of balloon sections has been arranged. Each section is to maintain a balloon in the air during daylight. Later on, these balloons will probably be fitted with signal lights, and will remain aloft at night also.

These balloons serve several purposes. In the first place, they will be sent up above the clouds in order to show the position of landing grounds. Each balloon will be marked with signs which indicate its exact locality, thus enabling the aeroplane pilot to check their bearings when weather is bad or clouds are low.

A second useful purpose is that the balloon observers will be able to ascertain the height and thickness of clouds, and the condition of the weather above the cloud layer.

As the intention is to maintain a night service on this route, a chain of lighthouses has also been provided.

Emergency landing grounds have been established at suitable points along the route, in addition to the regular terminals. Telephonic communication is available at the emergency landing-grounds, but, to meet the case of possible forced landings elsewhere, pigeons are carried on all the machines as an additional precaution by which the pilot can immediately notify his position.

When the scheme is fully developed, the weather reports will be passed to the machines by wireless, by ground signals and by balloon signals, so that the pilot will know at each stage of his journey the conditions of the weather ahead.

It must be understood that this service is experimental, and owing to the nature of the country described above, and the time of the year, in which, of course, the weather conditions are the worst possible, the trial is a very practical test, and should provide valuable experience in meeting the difficulties likely to be encountered in eventual regular civil post services.

During the week-end, an aerial postal service was established between England and France, mails for the Army of Occupation being conveyed from Hawkinge Aerodrome, near Folkestone, to the Maison Selle, in Northern France, a distance of 80 miles. D.H.9 machines were used, and twenty-three bags of mails were carried.

ROLLS-ROYCE



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AIRCRAFT IN PARLIAMENT.

THE HOUSE OF LORDS.

On February 27th Lord AMPTHILL asked the Government whether it was the fact (1) that Miss Violet Douglas Pennant was summarily dismissed from her post of Commandant as well as from the Women's Royal Air Force by Major-General Sir W. S. Brancker only a few days after Major-General Sir Godfrey Paine (the predecessor of the former in the office of Master-General of Personnel) had assured her, upon her tendering her resignation, that the Air Ministry had complete confidence in her and begged that she should not resign her appointment; (2) that the Prime Minister appointed Mr. Cecil Harmsworth to inquire into the matter; (3) that Mr. Cecil Harmsworth recommended that in justice to Miss Pennant a full judicial inquiry should be held; (4) that the Prime Minister promised that such an inquiry should be held; (5) that the inquiry had not yet been held, and that the Air Ministry declined to have it held.

The Marquess of LONDONDERRY said this lady had behind her a career in the public service to which he was glad to pay a tribute. She had served as a member of the London County Council and as a member of the Welsh Insurance Commission. His sole desire was to put the case before their Lordships and state the view of the Government in connection with it. His whole desire was to prove that the Air Ministry had not acted unjustly; had not besmirched the character of the lady in question by the action they took, and had in no sense injured the career of a lady who, they hoped, would be employed for the benefit of the country for many years to come.

There was a certain amount of misapprehension in the mind of the questioner. Miss Douglas Pennant was not a member of the Royal Air Force. She was lent to that Force by the Health Insurance Commission, but it was true that she was superseded. The House was well aware of all the difficulties which naturally surrounded a new undertaking. The Women's Royal Air Force was no exception to that rule. There were enormous difficulties to counteract, and the Government were well aware that Miss Douglas Pennant had done her utmost to overcome those difficulties, but Lord Weir, the late Secretary for the Air Ministry, he regretted to say, was convinced that she was unable to overcome those difficulties. The Women's Royal Air Force had been in existence for some time, and for a part of that time under the jurisdiction of Miss Douglas Pennant.

The Secretary of State satisfied himself that there was considerable disorganisation, and that the Women's Royal Air Force was not of such a character as to justify that state of affairs continuing. A certain period of time was allowed to elapse and then the Secretary of State wrote a leter to Miss Douglas Pennant and, in a word, superseded her. There has been no bitterness or misunderstanding. So far as his memory served, the letter stated that there had been no organisation—there had been chaos—disorganisation was the word used—and for the reason that Miss Pennant did not seem able to co-operate with those other organisations which came naturally into close contact with the Women's Royal Air Force. Therefore, in the interest of the Service which he represented, he deemed it best that she should be replaced.

Lord AMPTHILL: What was the date of that letter? Was it subsequent or previous to dismissal by Major-General Brancker?

Lord LONDONDERRY: The date is September 6th, 1918.

Lord AMPTHILL: Some time after the summary dismissal?

Lord LONDONDERRY: Miss Douglas Pennant was superseded by the Secretary of State and not by Major-General Brancker. The head of the Department accepted every possible advice on the subject. On his own volition and responsibility he carried out the details of administration.

Lord AMPTHILL: I know that. Was she dismissed or not? (Cries of "Order.")

Lord LONDONDERRY said it was the wish of the Government that he should say that Miss Douglas Pennant was not treated with the consideration to which she was entitled, and if Lord Weir were there he would be the first to admit that and to offer her whatever apology lay in his power. The second question was in connection with Mr. Cecil Harmsworth, who was now Under Secretary for Foreign Affairs, but was formerly a member of the Prime Minister's Secretariat. In that capacity he was asked to investigate the case. He had seen Mr. Harmsworth, who told him that he had an interview with Miss Pennant.

In the course of that interview Miss Pennant alleged that certain influence had been brought to bear. In fact she said that she was more or less the victim of conspiracy. Mr. Harmsworth felt that that was not a matter on which he could adjudicate, and that if her statements were true the matter should be considered by some competent authority which the Prime Minister might think right to select. That, so far as he understood it, was all that Mr. Harmsworth did in the matter.

With regard to the statement that the Prime Minister promised that an inquiry should be held, he could not obtain any corroboration. Supersession was always a matter which caused a large amount of disappointment; destruction in hopes in some cases and destruction, perhaps, of life-long ambition. In the last four years there had been many cases of supersession, not only in the highest ranks in the Army, but also in every walk of public life. In his own experience in France he knew of many officers who were removed from their posts, not because they were incompetent or hopelessly inefficient, but because they did not fulfil all those requirements which were necessary for the efficient carrying out of the work which fell upon them.

If there was any doubt that one individual was not altogether the best man to have under his jurisdiction the lives of the soldiers in France he was put on one side at once, and yet there was no ground for inquiry. He held that the question before the House was not one for an inquiry. He held that Miss Pennant had not been the victim of malice and conspiracy.

Earl STANHOPE (U.) said that the Minister had written to Miss Pennant stating that her work had been extremely efficient. He thought that the letter referred to should be produced. Miss Pennant was entitled to know why she had been dismissed. Her case was not an isolated one.

Lord WITTENHAM asked whether it was on the instructions of his chief that Sir W. Brancker told Miss Violet Douglas Pennant that her services would not be required? Was it the case that she was told that the Air Ministry had complete confidence in her? It did not strike one as happy that the moment that Sir W. Brancker came on the scene, and had hardly got into the details of office, he then and there arrived at a diametrically opposite opinion from Sir Godfrey Paine.

Lord AMPTHILL said that if it was the object of the noble Marquess to allay annoyance on this matter he had not succeeded. In no case had he had a straight answer to his questions. The noble Marquess, of course, was the mouthpiece of the Department and the Government, and he had his sympathy for having to pronounce an answer which was so evasive and incorrect. The first point in which he was incorrect was in saying that Miss Violet Douglas Pennant was superseded. She was not superseded. She was dismissed in an abrupt, arbitrary, and insulting manner. The letter from Lord Weir was written some time after and not before. Every public servant had the right to know the cause of his dismissal from the service. That was all that Miss Violet Douglas Pennant asked for. She asked it not for herself, but because this was a test case.

If they had come to the point where any public servant might be dismissed by any Jack-in-office, with no right to have an explanation, they had come to a state of things which had never existed in this country before. The Prime Minister's promise was that an inquiry should be held. This had not yet been kept. That was intolerable. Now they came to a new suggestion, which might be exceedingly clever, but it was not fair. It was not playing the game. This lady asked for an inquiry. They were told she could not have it if she did not bring some charge of corruption or something of that kind. That was not fair or just. The case for an inquiry had been established.

Various people had disagreed as to the cause of the dismissal. Sir W. Brancker told her she was dismissed not because she was inefficient but because she was unpopular. That was the reason given. Lord Weir said it was not because she was unpopular but because she could not get on with certain women's organisations. No proof had been produced of friction with women's organisations. Then Major-General Seely gave the reason on the ground of Miss Violet Douglas Pennant's inefficiency; the very thing that had been denied. They had these three reasons given. Surely, they had a right to get to the bottom of this matter.

The Marquess of SALISBURY remarked that, the question having been raised, it would be wiser to make a clean breast in the matter.

The Marquess of LONDONDERRY said the noble Marquess seemed to think that there was something the Government wished to conceal. There was nothing of the kind. He thought that he had made it clear to their Lordships that the Secretary of State considered that the organisation of the Women's Royal Air Force was not in the satisfactory condition he had decided it should be. He had evidence brought before him that the control was not satisfactory. He was satisfied and the Government were satisfied now that the Force had improved. The Government could not grant an inquiry as to the reasons. They did not think it was in the interest of the public service.

The motion for papers was negatived without a division.

THE HOUSE OF COMMONS.

The following written answers were given on February 24th:—

BRITISH CASUALTIES (TOTALS).

Mr. LAMBERT asked the Prime Minister if he will state the casualties suffered by the United Kingdom and the British Empire, respectively, by acts of war, specifying the numbers of killed and wounded on the presumption that the untraced missing must be counted amongst the killed?

Mr. BONAR LAW: The number of casualties in the Royal Navy resulting from acts of war, from the outbreak of war, revised to date is as follows:—

Killed.		Wounded.		Untraced.	Missing.
Officers.	Men.	Officers.	Men.	Officers.	Men.
2,061	20,197	813	4,081	15	6

The above figures do not include the casualties of the Royal Naval Division, but include those of the Royal Naval Air Service to April 1st, 1918, the date of its transfer to the Royal Air Force.

ROYAL AIR FORCE CADETS (EGYPT).

Major Earl WINTERTON asked the Secretary of State for War if he is aware that Air Force cadets in Egypt who are surplus to needs have been told that they are to revert to their original Army rank; and if he is aware that great hardship in particular is caused to those former cadets who are returning to the United Kingdom and are not allowed to take with them the additional kit which they were compelled to buy as cadets?

Major-Gen. SEELY. Instructions have been issued that flight cadets are not to be reduced in rank on the grounds stated in the question, and that any who have been so reduced are to be re-appointed as from the date of reduction. I am making inquiries in regard to the second part of the question, and will communicate the result to my noble friend.

The following oral answer was given on February 25th:—

AIR FORCE AND ARMY (DISTINCTION).

Mr. WATERSON asked whether a man is regarded as fit for demobilisation providing his papers were through satisfactorily by January 15th, 1919; if so, whether he is aware that the same man is still being retained under an order issued on February 7th, 1919; if he will investigate the case, and, if correct, guarantee this man immediate release from the Army; and whether he is aware of the discontent prevalent owing to a distinction being drawn between the Air Force and the Army by the application of Army Order No. 14, of last January?

Mr. CHURCHILL: It is not quite clear to what class of man the hon. Member is referring in the first part of his question. Unless the man has been certified by the Ministry of Labour as a civil demobiliser or pivotal man and registered as such by the War Office before February 1st, 1919, his demobilisation would depend on his being eligible under the recent Army Orders making provision for the Armies of Occupation. As the hon. Member had not given particulars of the soldier referred to, it is impossible to investigate the case. The Army Order mentioned in the last part of the question does not apply to the Royal Air Force, members of which are subject to Air Force Regulations.

Mr. WATERSON: Will the right hon. Gentleman take this case into immediate and earnest consideration if I send him all the particulars, and can he state the reason why the Air Force Regulations are so vastly different to the Army Regulations?

Mr. CHURCHILL: I shall be much obliged if the hon. Member will send me particulars of the case and I will have them looked into. Every effort is being made to make the Air Force Regulations to march in step with the War Office Regulations with regard to demobilisation. Certain diversities of practice had grown up before the two offices were made into one, and it is not possible to sweep away all the arrangements made under these diverse practices.

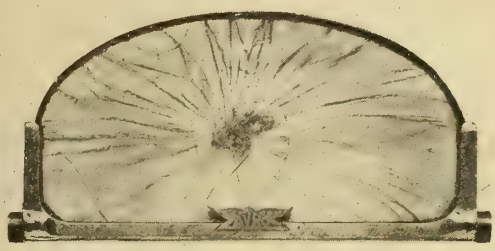
ROYAL AIR FORCE.—MACHINES BURNT.

The following written answer was given on February 25th:—

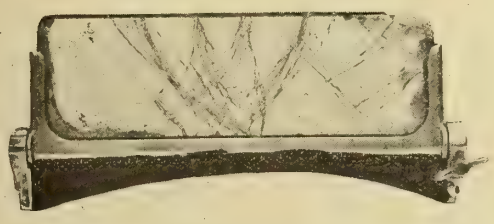
Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry how many machines have since the Armistice been burnt in France; whether, in order to accomplish this, they were soaked with the best aviation spirit; and whether there was no possibility of selling any of them?

Major-Gen. SEELY: Twelve machines of obsolete type were burnt in France after the removal of the engines and instruments. They had been damaged in landing at places where there were no facilities for reducing them to produce, nor means for transporting them elsewhere, nor was there any possibility of selling them. I have no information as to the use of petrol to assist in burning them.

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MACHINES DISMANTLED OR DESTROYED.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry how many machines have been dismantled and reduced to the condition of scrap in England since the Armistice; and whether he has received any and, if so, what offers for purchase of such machines; and (2) how many aeroplanes were on charge in November 11th, 1918, and how many have since been destroyed.

Major-General SEELY: The number of aeroplanes on charge at November 11th was 20,850. The number of seaplanes 1,248. Since then, and up to the date of the last Return, 2,142 obsolete machines have been reduced to produce, and in addition 1,823 machines of standard types which have been damaged and were not repaired have also been reduced. These figures include 2,460 which were reduced to produce in England. The disposal of aircraft surplus to requirements is undertaken by the Ministry of Munitions, and my hon. friend will perhaps address to that Department any questions relating to offers of purchase.

DEMOBILISATION GRATUITY.

Lt.-Col. BURGOYNE asked the Under Secretary of State to the Air Ministry whether he is aware that in the case of officers who have served both in the Royal Naval Air Service and in the Royal Air Force Messrs. Cox and Company are crediting officers now demobilised with a gratuity based upon the length of service in the last force alone; and whether it is a fact that gratuities to demobilised officers should extend over the whole period that they have served in a commissioned rank whatever the arm in which they have served, so long as they come within the designations of the Army Order covering gratuities?

Major-Gen. SEELY: The recent Admiralty Order granting gratuities on demobilisation to temporary naval officers is being applied to Royal Naval Air Service officers transferred to the Air Force. An Air Ministry Order on the subject will shortly be issued, and officers already demobilised will have any balance of gratuity credited to them.

CADETS IN EGYPT.

Earl WINTERTON asked the Secretary of State for War if he is aware that Air Force cadets in Egypt who are surplus to needs have been told that they are to revert to their original Army rank; and if he is aware that great hardship in particular is caused to those former cadets who are returning to the United Kingdom and are not allowed to take with them the additional kit which they were compelled to buy as cadets?

Major-Gen. SEELY: Instructions have been issued that flight cadets are not to be reduced in rank on the grounds stated in the question, and that any who have been so reduced are to be reappointed as from the date of reduction. I am making inquiries in regard to the second part of the question, and will communicate the result to my noble friend.

* * *

On Feb. 27th the following Bill was presented:—Naval, Military, and Air Force Service Bill—"to make provision for the maintenance of such Forces of the Crown as may be required to meet exigencies arising during the year after the termination of the present war, and with respect to the conditions of service of such forces, and for the purposes connected therewith," presented by Mr. Churchill; to be read a second time upon Monday next, and to be printed. [Bill 12.]

The following written answers were given:—

DEMOBILISATION.—MEN OVER 41.

Capt. Viscount WOLMER asked the Secretary of State for War whether he is aware of the number of men over 41 years of age detained at Blandford Camp in idleness, while many younger men are being demobilised; and whether he will give instructions that these older men should be demobilised as soon as possible.

Major-Gen. SEELY: There are 122 men over 41 years of age at Blandford. The majority of them are engaged on work in which they have special experience, and which is essential to the demobilisation of others. Airmen reach Blandford every day from all parts of the world for demobilisation, and those over 41 years of age are being released as quickly as possible. Four hundred and forty-nine such men have already been demobilised from Blandford.

ROYAL AIR FORCE.—REQUEST FOR LEAVE.

Mr. ALFRED SHORT asked the Secretary of State for War whether men serving in the Royal Air Force in connection with the seaplane base, Malta, who have been on the island for about two and a half years without any home leave, made a request towards the end of last year for leave and permission to finish the time intervening for demobilisation at a home station; whether he is aware that the request was made through the proper channels to the major and to the commanding officer for permission to put the case before the group officer; whether he was aware that the question was dismissed as frivolous, and a warning given that a similar request would result in the senior hand being arrested and court-martialled, whether this sort of treatment of men for taking legitimate constitutional action has his approval; and whether, in view of the report that there are three times the number of men at Malta to do less than half the work there was in war-time, steps can be taken to grant home leave?

Major-Gen. SEELY: An application, as indicated in the first part of the question, was made at the end of last year through the proper channels, and, so far as reliefs were available for carrying on the necessary work of the station, the men concerned have been sent home for demobilisation. I am informed that there is no truth whatever in the statement that the request for drafting to the home establishment was dismissed as frivolous. I would add that the present strength of the unit in question is less than 30 per cent. of its establishment.

Mr. SPEAKER reported the Royal Assent to—

Air Navigation Act, 1919.

THE CASE OF MISS VIOLET DOUGLAS-PENNANT.

In an interview with a correspondent of "The Morning Post" on Friday, Feb. 28th, Miss Douglas-Pennant made a statement to the following effect:—

Miss Douglas-Pennant will accept Mr. Churchill's offer in order to lead up to the full inquiry into her case, which was promised. She has evidence of both "malice" and "intrigue." She presumes that Mr. Winston Churchill must be getting worried, because he sent her a message, which arrived during the debate, through Lord Henry Bentinck and other M.Ps., to the effect that if she could provide proof in support of her charges, he would grant an inquiry.

There are several misstatements in Lord Londonderry's history of the case. He said that Lord Weir had written superseding Miss Douglas-Pennant, and the reason that the customary month's notice was not given was because it was war-time. Lord Ampthill asked for the production of this letter because she had never received it.

Miss Pennant said she was not superseded, but was dismissed on the spot. Right up to the last minute she was told that the Air Ministry were satisfied, and she was not to be allowed to resign under any circumstances. She wanted to resign as a protest against intrigue and inefficiency.

Sir Owen Thomas, by asking a question in Parliament, elicited the fact from the Air Ministry that the R.A.F. had its own regulations, and was not governed by the King's regulations.

[Sir Owen Thomas evidently did not realise that each Service has its own King's Regulations, i.e., King's Regulations and Admiralty Instructions, King's Regulations for the Army and King's Regulations for the Royal Air Force. Obviously, the Royal Air Force is not bound by King's Regulations for the Army to any greater degree than is the Board of Education by Foreign Office Regulations.—Ed.] According to R.A.F. Regulations an officer can be instantly dismissed if guilty of misconduct. In all other cases, a month's notice in writing must be given. Misconduct was not alleged against Miss Douglas-Pennant, which General Seely had admitted. Sir Owen Thomas has put down a question, to which no reply has yet been received, inquiring how an official can be dismissed against whom there is no charge of misconduct and no adverse report.

Lord Londonderry brought forward the point that Lord Weir had satisfied himself that there was a large amount of disorganisation in the W.R.A.F., and, therefore, superseded Miss Douglas-Pennant. In the only letter she received from Lord Weir, he did mention disorganisation. He regretted that she felt that she had been treated with injustice, but said that he had definitely come to the conclusion that she could not be successful in solving the difficulties which confronted her, and in particular in obtaining the sympathy and co-operation of the other women's organisations.

Mr. Cecil Harmsworth, who conducted the preliminary investigation into the case of Miss Douglas-Pennant, strongly urged the Prime Minister to order a complete inquiry. Letters passed showing that steps were taken in this direction. A question was put in the House of Commons asking that the Harmsworth report should be made public, but Major Baird, on behalf of the Air Ministry, replied in the negative. The Prime Minister's Secretary told Miss Douglas-Pennant when she asked why the report was withheld, that a further inquiry was going to be instituted, and it was, therefore, inadvisable to publish the first report. This inquiry, however, has never been held.

Miss Douglas-Pennant said:—

"In the letter of which I have already spoken Lord Weir wrote:—

'There is nothing at all reflecting in any way on your capacity or efficiency, but you appeared to be confronted with a combination of circumstances which would take too long to clear away. In the whole of the circumstances I feel that no good would result to anyone by the institution of an inquiry, and, subject to what the Prime Minister may decide, I beg you not to press me to a refusal.'

"Evidently he had been told that an inquiry was to be held. Later came Lord Weir's resignation, and on the very day it was announced in the papers the Prime Minister wrote, ignoring all that had gone before, that he saw no reason for interfering in the case, as Lord Weir considered there was no ground for an inquiry into my having been superseded. That was the first time the word 'superseded' was used."

Miss Douglas-Pennant concluded with the mention of an interesting conversation which took place during the time Mr. Cecil Harmsworth had matters in hand:—" 'What,' he asked me, one day, 'would you consider some sort of reparation for what has happened?' I replied that 'I am not out for reparation. I am not a medal-hunter. The only reparation I want and that I intend to get is to go back to that Force and get it onto the right lines for the sake of the women. Though my whole time now is absolutely hell, I would face it again rather than let those women be left in the conditions inwhich I found them.' "

A CAMBRIDGE CHAIR OF AERONAUTICAL ENGINEERING.

The following paragraph has appeared in the daily Press:—

Cambridge University has received an offer of £20,000 of 5 per cent. war stock from Mr. Emile Mond, of Hyde Park Square, for the endowment of a Professorship of Aeronautical Engineering, as a memorial to his son, Lieut. Francis Mond, R.F.A. and R.A.F., who was killed in action whilst flying on the Western front on May 15th last.

The Chair is to be designated the Francis Mond Professorship of Aeronautical Engineering.

The Council of the Senate recommend that the offer be gratefully accepted. The proposal is viewed with favour by the Air Ministry.

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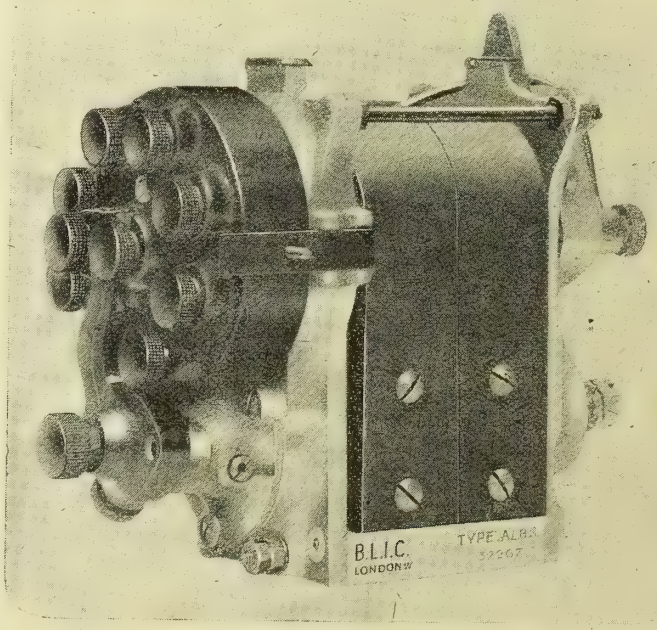
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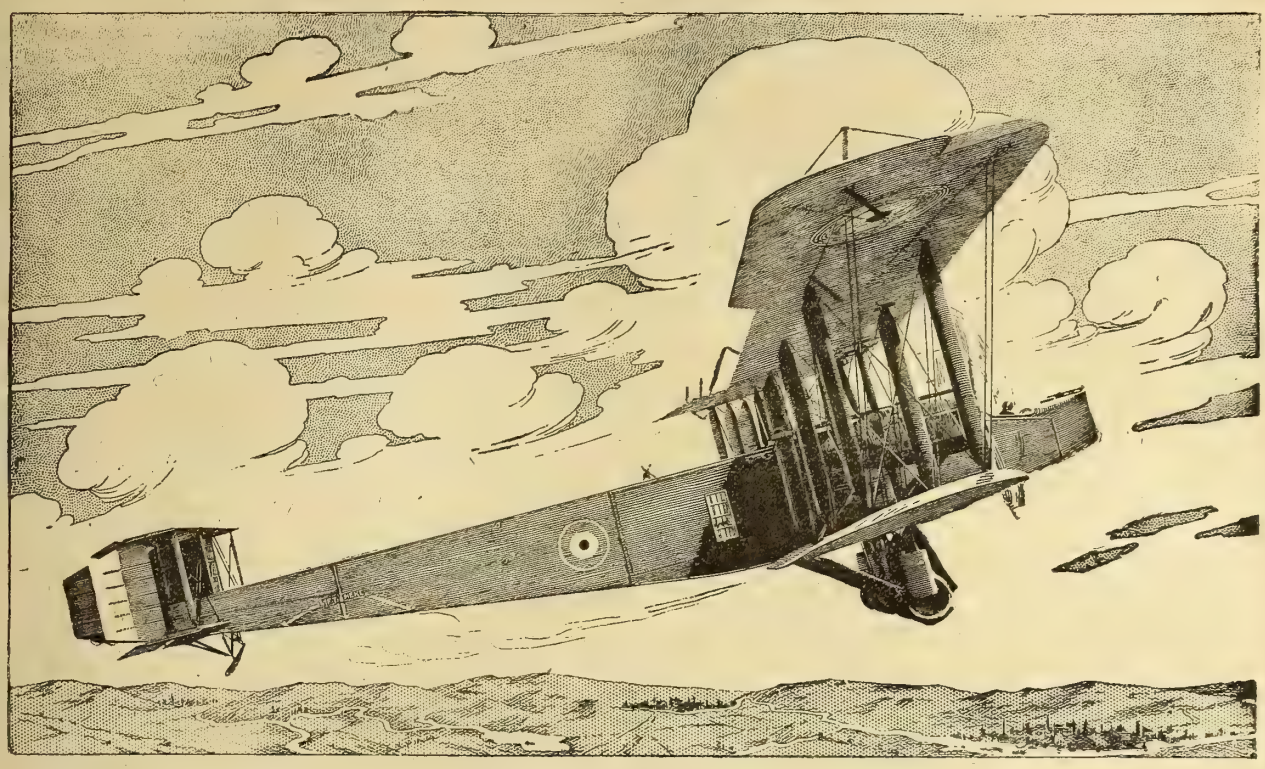
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THE WEEKLY COMMENTARY.

In this week's issue Captain Sayers analyses the performances of a series of machines designed for the same total loaded weight, but with wing loadings varying between 4½ and 15 lbs. per sq. ft., and indicates some of the advantages which can be obtained if loadings at the upper end of this scale can safely be adopted.

An article by "C. W. P." upon the "Trend of Naval Aircraft Design" deals with the future development of seaplanes, and argues in favour of the twin-float type for all large seaplane types. "C. W. P.'s" conclusions are worthy of attention—though one cannot at all agree with them.

The contrary case is put at some length in a reply entitled "Seaplanes and the Future."

A contributor under the pseudonym of "Duo" discusses the problem of increasing engine output by an increase in mean effective pressure, without increasing the engine speed of rotation. This is a question whereon there appears to be a very considerable divergence of opinion.

An extremely important letter from Mr. G. H. Mansfield relating to the recent article on the disposal of Air Force surplus stores appears on page 990.

THE DESIGN OF AIRCRAFT FOR COMMERCIAL PURPOSES.—IV.

By Capt. W. H. Sayers, R.A.F.

The development of aerofoils suitable for heavy loadings has been the subject of a considerable amount of experimental work during the last four and a half years. Very promising results have been obtained, and have been neglected almost entirely. At the date of writing these results have not been published. It is therefore a little difficult to discuss, as fully as is desirable, the possibilities which already exist. Nevertheless, a fair amount can be done to indicate what is possible.

A series of designs has been worked out for machines each weighing, when fully loaded, 1.5 tons (3,360 lbs.), with loadings of 4.5, 6, 7.5, 10, and 15 lbs. per sq. ft. All the figures relating to these designs are of the preliminary estimate type, and would undoubtedly be modified if the designs were completed as to detail for actual production. They are, however, strictly comparable one with the other, and are believed to be well within the limits of possible production to-day.

All five machines have an aspect ratio of approximately 6, a gap-chord ratio of 1, and are without stagger. The wing dimensions of the machines are as follows :—

Machine No.	Loading.	Area.	Span.	Chord.
	lbs. sq. ft.	sq. ft.	ft. ins.	ft. ins.
1	4½	747	49 0	8 0
2	6	560	42 0	6 10
3	7½	448	38 0	6 2
4	10	336	32 6	5 4
5	15	224	27 0	4 4

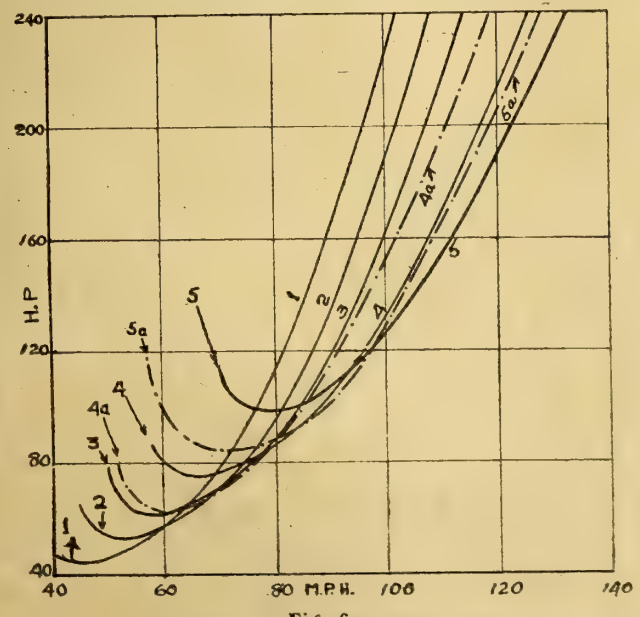


Fig. 6.

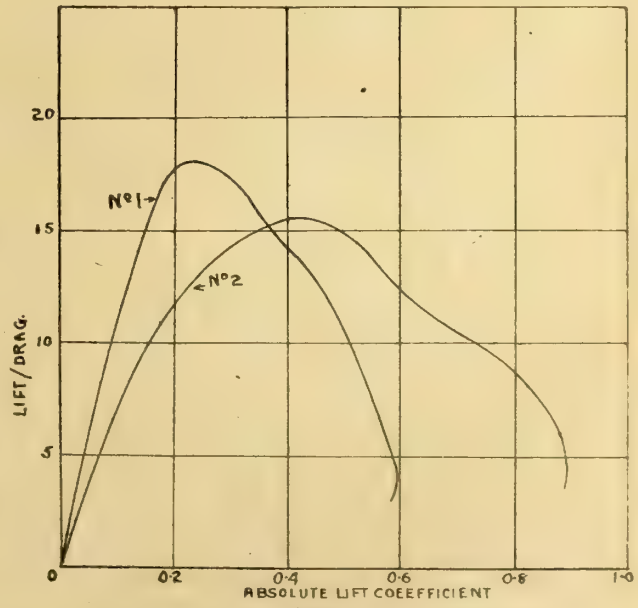


Fig. 7.

General arrangement drawings of the five machines are given—all to the same scale—on Fig. 5.

If each of these machines is fitted with a wing section of a type similar to those which have been generally employed on successful war machines during the last four years, the possessing aerodynamic properties which as are shown in curve No. 1 (Fig. 7), then the speed and resistance horse-power of these machines will be as shown in the full line curves of Fig. 6. The curves are numbered to correspond with the machine numbers in the tables.

Equipped with engines of 200 h.p. and 250 h.p., and allowing airscrew efficiencies of 80 per cent. at top speed and 60 per cent. at climbing speeds, the performance of each machine will be as shown in table No. 1.

No.	Loading.	Landing Speed.	200 H.P.			250 H.P.		
			Top Speed.	Climb at Sea Level	Ceiling.	Top Speed.	Climb at Sea Level	Ceiling.
	lbs. sq. ft.	M.P.H.	M.P.H.	ft. per min	Feet.	M.P.H.	ft. per min	Feet.
1	4.5	39	90	780	20,000	97	1090	23,000
2	6.0	44	95	670	17,000	102	980	20,000
3	7.5	50	99	580	14,000	107	880	18,000
4	10.0	58	105	470	10 000	117	780	15,000
5	15.0	70	112	200	5,000	122	510	9,000

These figures show that at loadings of 10 and 15 lbs. per sq. ft. the landing speeds are too high for safety in commercial work, and that on the lower horse-power the climb and the ceiling of machine No. 5 are both lower than is desirable, particularly as the climbing speed is high, and therefore the machine has a fine angle of maximum ascent, and will not easily clear obstacles around a landing ground.

In Fig. 7 a curve marked No. 2 gives the aerodynamic characteristics of a high lift wing. This curve is based on figures deduced from test results of certain full-size machines. Its accuracy is therefore open to some question, but it is not open to question on the point of its applicability to full scale work.

If a wing with these characteristics is fitted to the 10 and 15 lbs. per sq. ft. machines, the speeds and resistance horse-powers of these two machines are as shown by the two curves in broken lines marked 4a and 5a on Fig. 6. The corresponding performances are shown in table No. 2.

No.	Loading	Landing Speed.	200 H.P.			250 H.P.		
			Top Speed.	Climb, Sea Level	Ceiling.	Top Speed.	Climb, Sea Level	Ceiling.
	lbs. sq. ft.	M.P.H.	M.P.H.	ft. min.	ft.	M.P H.	ft. min.	ft.
4a	10.0	46	102	580	14,000	112	880	17,000
5a	15.0	55	109	420	8,000	118	620	12,000

The landing speed of even the 15 lbs. per sq. ft. machine is thus brought to a reasonable figure, at the cost of a small loss in top speed, and with a considerable gain in climbing rate and ceiling. Fig 8 shows

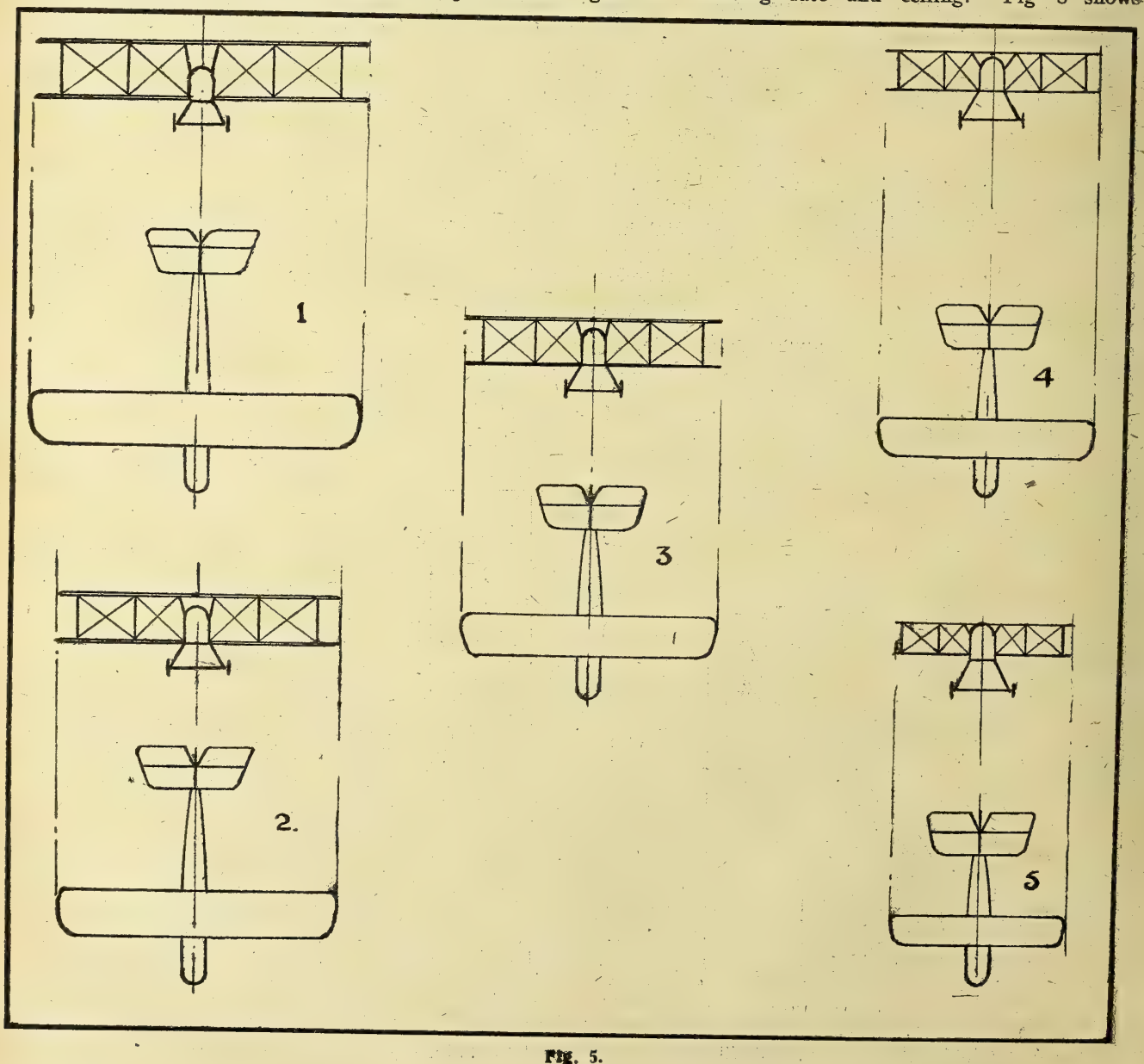


Fig. 5.


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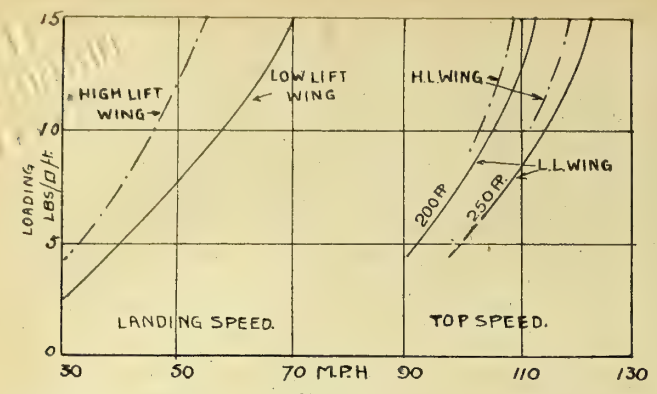


Fig. 8.

graphically the change in speed range with increased loading, and the effect of using a high lift wing.

The weight of the various machines, empty and without engines, has been estimated at the following :—

No.	Loading.	Bare Weight.
	lbs. sq. ft.	lbs.
1	4.5	1345
2	6.0	1185
3	7.5	1115
4 & 4a	10.0	990
5 & 5a	15.0	900

A water-cooled engine of 200 h.p. will weigh, dry, about 500 lbs. Water and radiator should not greatly exceed 100 lbs. The consumption of petrol at full power should be about 105 lbs., and of oil about 5 lbs. per hour. Tanks will weigh roughly 15 lbs. for each hour of full power fuel—i.e., a total weight of 125 lbs. per hour for fuel.

Thus to the bare weight of the aeroplane must be added 600 lbs. plus 125 for each hour of flight for which the machine is equipped.

For 250 h.p. the weights will become 750 lbs. plus 187 lbs. per hour of fuel.

One pilot at 180 lbs. is taken as the crew of each.

The weight characteristics of these machines with 200 h.p. engines are thus as shown in the table No. 3.

No.	Loading.	Weight without fuel or cargo.	Disposable load.	Total Weight.	Hours Fuel Max	Top Speed.	Range at Top Speed.
	lbs. sq. ft.	lbs.					miles.
1	4.5	2125	1235	3360	9.9	90	890
2	6.0	1965	1395	3360	11.3	95	1060
3	7.5	1895	1465	3360	11.7	99	1160
4a	10.0	1770	1590	3360	12.7	102	1300
5a	15.0	1680	1680	1360	1.5	109	1470

Actually the ranges given are incorrect, since as the fuel is consumed the loading changes and the machine may be throttled down largely, or may increase its height, and thus reduce petrol consumption.

The effect will be similar throughout, however, and the results are accurate as comparisons.

(To be continued.)

THE TREND OF NAVAL AIRCAFT DESIGN.

By C. W. P.

There seem to be three distinct schools of thought at the present day as to the direction of progress in Naval aircraft design. The majority, it is believed, are in favour of the large flying-boat. Then there are those who believe in an aeroplane fitted with two light floats; and still another party, headed by very important men, who insist that a Naval aeroplane should be simply an aeroplane pure and simple, wherever it is to be used. It should be fitted with wheels to allow it to start from and land on either the ground or the deck of a ship. It should be fitted with flotation bags in the fuselage, planes, etc., for use in emergency. Which of these schools will prevail in the future is a very interesting subject for discussion, and some of the arguments put forward by each will be considered in this article.

The word seaplane is a general term for Naval aeroplanes. Whether this includes any aeroplane which likes to stray away from land is not agreed. It includes the flying-boat and aeroplane fitted with floats whose headquarters is no more on the sea than that of the aeroplane. Certainly they can never remain far away from land altogether. The question is, which type of aeroplane is to be used for crossing from one piece of land to another? After all, a flying conveyance is supposed to convey persons or things from one place to another, presumably starting and finishing on land. Presuming that yachting is ruled out, the boat or float parts boil down to mere life-saving devices, not one whit less than the air bags fitted to the aeroplane! If one's petrol gives out, the flying-boat is no better off than the aeroplane floating on its bags: except perhaps for comfort.

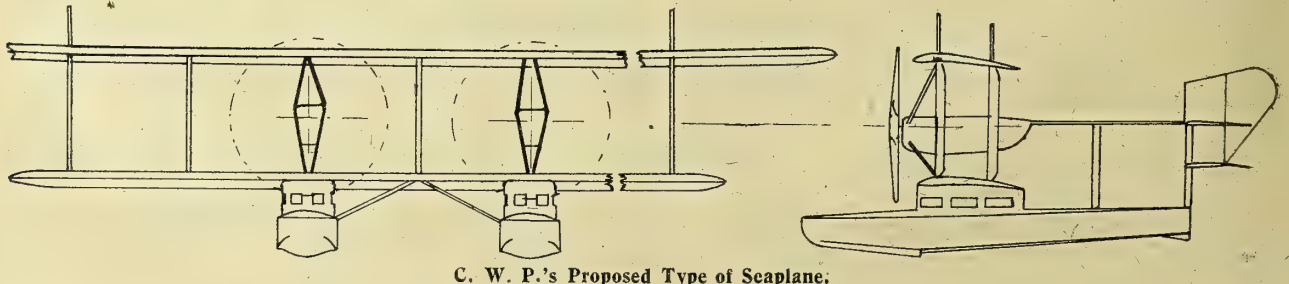
Flying-boats.

The flying-boat is, of course, a beautiful thing, and may, therefore, be a joy for ever: no doubt we shall be able to gaze at it, and even go upstairs into its inside at some future aero show, but who is going to pay for it? That it is a very costly affair compared with the other types of seaplane is admitted generally. Whether it has ousted the other type of floating aeroplane, and is the type to follow blindly in the future, is open to doubt. It has its advantages, and by far the larger number of votes would go to it in debate.

As it was originally built, the single-engine flying-boat of moderate size is a very good proposition. It must be remembered that this type of seaplane came as a natural trend of design from the early attempts to obviate the troubles of the first type of aeroplane with floats. Trouble was experienced with the spray thrown up by the floats causing damage to the airscrew, when floats of any decent form were used. Again, it was an attempt to make a seaplane float reasonably safe when at rest, instead of being supported by three points—i.e., the two forward floats and the tail float. It was in some measure a side track leading only a short distance. However, as dimensions get larger, with the need for more than one engine, the return to two floats is advisable for many reasons, if it is decided that a seaplane must be capable of rising from water. In the near future, the airship is going to be a serious competitor with the seaplane for trans-oceanic work. It is a well-known fact that while the curve of the ratio of structural weight to total weight steepens in the case of "heavier than air" craft, it slopes off in the case of the "lighter than air" ship. It is possible that this will sound the death-knell of the large seaplane, excepting perhaps the "joy-flip" New Brighton types!

Now, the advantages of the twin-float system, provided it is of the right type, for large seaplanes are as follows. The cost of the floats can be very much less than that of a flying-boat hull; they can be designed for simplicity and ease of production by using surfaces curved in one plane only. Thus ply-wood may be used with advantage.

With regard to the old argument that the flying-boat hull serves as a sort of "portmanteau" combining the purpose of empennage-carrier and floats, it may be pointed out that the twin-float type can be designed to take the empennage in a better manner, and give better support for engines, than the



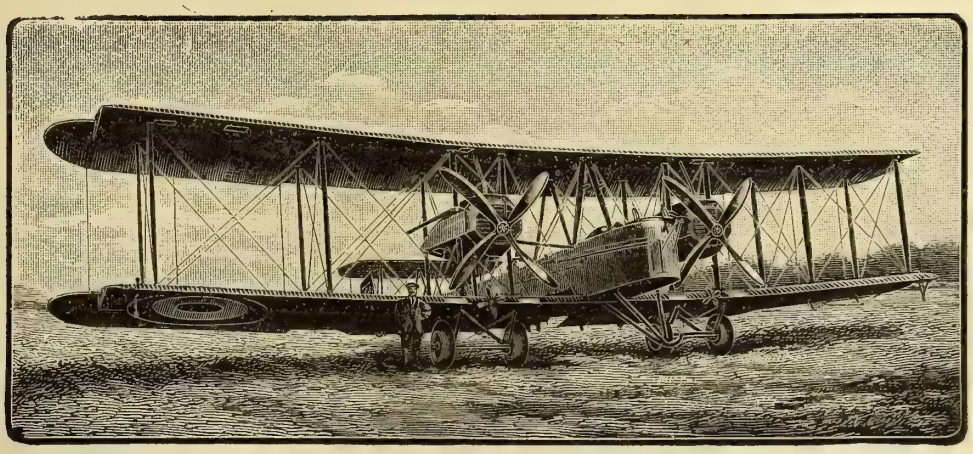
C. W. P.'s Proposed Type of Seaplane.

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flying-boat type if more than one engine is to be fitted. Perhaps for Military use a seaplane of the flying-boat type is better for reason of armament positions. It is assumed in this article that the war is over, so this matter will not be argued.

It is claimed that a twin-float seaplane is ideal from several points of view, if it be of the long-float " even keel " type.

This type was most successful in the Howard Wright " Wight " seaplane, and it has been used very largely by the Germans, but when two engines are used it is far better than the flying-boat. The engines can be placed directly over the floats, well clear of spray. The maximum stress in the structure will be reduced by spreading the weights (a very important point for large machines, where the saving of weight is so important).

There is another point in favour of this type. Suppose, for instance, a float were damaged in a pancake landing, a not infrequent occurrence, especially on very calm water. The writing-off of a float would be a small matter compared to that of a boat hull.

It is maintained that the flying-boat is being over-developed, since the original cause for this departure no longer exists. Of course, it is not suggested that designers should go right back to the *boat* shape floats. This type is certainly dead—a more clumsy affair could hardly be imagined. It is believed that an experiment has been made to ascertain the length of time taken to batter one of these seaplanes to pieces when anchored. The fuselage finally broke in twain, after a few hours' tossing about with the main floats half-submerged and the tail float sitting on the water. Pilots have been found out in the North Sea on machines of this type suffering more from sea-sickness than from hunge rand thirst.

As regards stability, when at rest on water, the flying-boat is also second to the bi-float seaplane. In fact, the lateral stability with wing-tip floats out of water is negative, thus causing it to lie over either on one or the other wing-tip float; whereas the bi-float machine has ample reserve of lateral stability. It is a simple matter to work out the metacentric height for the two types, details of the calculations for which will be given in a later article.

A sketch is given of a proposed twin-engine seaplane. The actual shape of the floats is not of very great importance so long as they are not flat-bottomed. Considerations of manufacture hold an important part in their design. For seaplanes of very low loading per horse-power it is considered that hardly any hydroplaning effort is required in order to get off the water, as the flying speed is reached often before the hump in the hydroplane resistance curve. In this case it would be better to have floats with less dynamical resistance to propulsion than the hydroplane type, and it is suggested that plain stream-line forms would be quite good, and cheap to make. Although this type was tested in the early days and found useless, there is no reason to suppose that they would be unsuccessful in the light of modern knowledge, and with the high-engine powers now available. It is suggested that tests should be made at the National Physical Laboratory. Of course, a machine of this type might suddenly develop submarine tendencies if landed too steeply. With regard to the aeroplane itself, due regard should be given to lateral control, which might be on the heavy side owing to increasing the radius of gyration by spreading the weights, and some type of power aileron control might be required. The pilot could be given a place in a small nacelle between the engines on the level of the top plane, while passengers or cargo could be stowed away equally distributed between the two floats. A sketch of the proposed arrangement for the ideal type of machine is given, both for two engines and four. The principle of mounting one engine behind the foremost is not the most efficient arrangement, since the two engines have to be run at certain definite speeds in order to get the correct effect with the combined propellers. Thus it is not possible to cut out the foremost engine without making the rear engine useless, owing to the pitch of its propeller having to be specially designed for the slip-stream caused by the front propeller.

If more than two engines are necessary the better plan is to distribute them laterally.

SEAPLANES—AND THE FUTURE.—A REPLY TO "THE TREND OF NAVAL AIRCRAFT DESIGN."

As regards the "Trend of Naval Aircraft Design," the author's arguments are worthy of consideration; but one cannot agree with them.

There is little doubt that very much harm has been done to the development of naval aircraft by the abandonment of float seaplane development, and concentration upon large flying-boats and machines with emergency flotation gear.

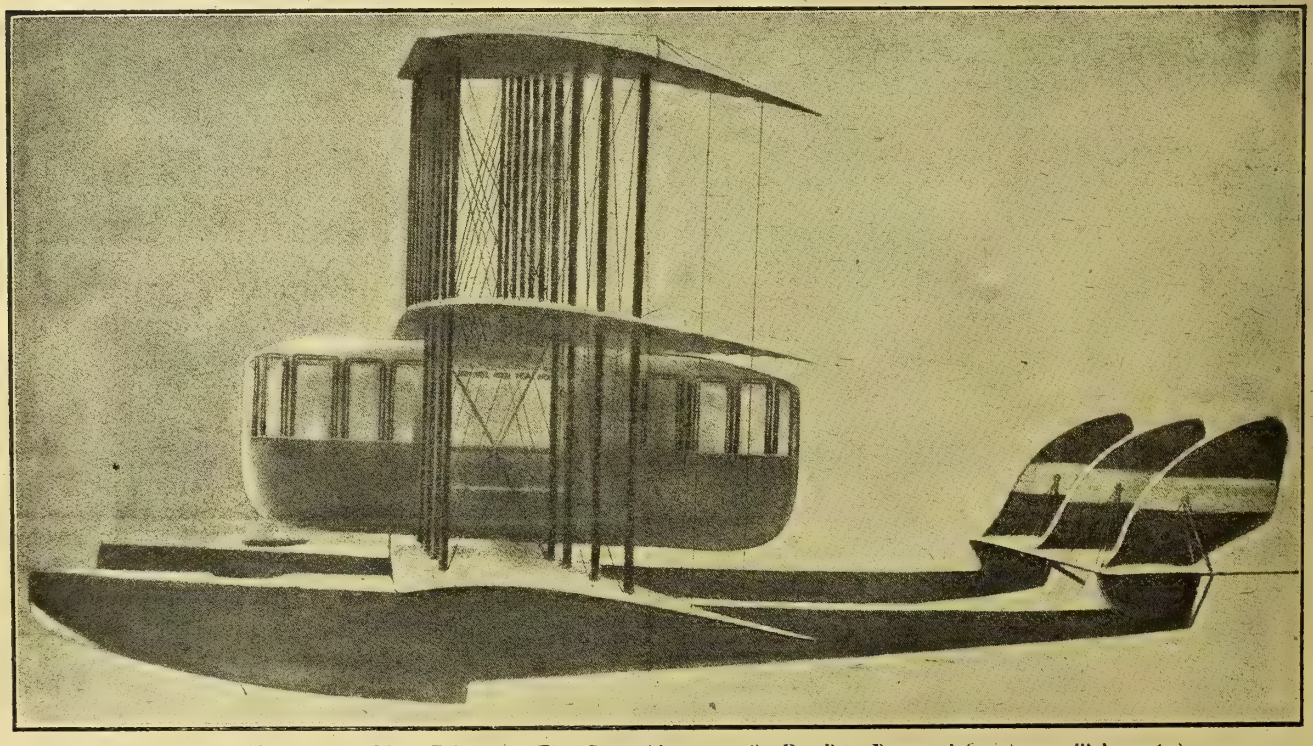
But with his general conclusion that the flying-boat is satisfactory for, and should be confined to, the smaller and single-engined types, whilst large machines should be built as twin-float machines, one must disagree entirely.

In the first place no small flying-boat—and very few large ones—have yet been built wherein the pilot is not either drenched or, if protected from water, blinded when taking off in any approach to a seaway.

Further, the problem of obtaining directional stability while afloat is difficult to solve in small boats, with the result that the greater number of such boats are extremely unhandy " taxying," especially in an effort to turn from down wind to up wind.

With multiple-engined boats this difficulty is much less important, as engine steering can be used at low speeds.

With small twin-float machines the pilot can be put out of



A Model of a Ricci Triplane. The Resemblance to C. W. P.'s Proposed Seaplane will be noted


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reach of any large masses of spray, can be given a decent view when afloat, and there is no difficulty—by a combination of suitable bow forms to the floats and the use of the for'rard cross-bar between floats—in protecting the airscrew against spray. In a light machine there is little difficulty in making a chassis which will stand quite rough water, and it is fairly simple—if a tail float is fitted—to provide for directional stability when afloat.

Some Practical Difficulties.

With regard to the twin-engined float seaplane fitted with a separate chassis beneath each motor—advocated by "C. W. P."—machines of this type are understood to have given great trouble in practice because torsional stresses are transmitted through the section of the wings between the two chassis when afloat in a seaway; and at least one otherwise very satisfactory machine was abandoned as a seaplane because it was found impracticable to provide against such stresses except at a prohibitive weight.

The structural saving in weight possible when flying conditions alone are considered is likely to disappear when floating or hydroplaning loads are investigated.

The twin-float type without tail float has one disadvantage—in common with, though in less degree than, the flying-boat. Owing to its relatively small longitudinal righting moment, it can and does pitch through a fairly large angle under small disturbing forces, which leads to "porpoising." On very large machines "porpoising" is a relatively slow motion, though it often leads to bad landings and damaged hull bottoms; but large flying-boats have inevitably an enormous margin of buoyancy, and such damage need rarely lead to the loss of the machine.

In small seaplanes "porpoising" is a very rapid and disconcerting movement—very difficult to check and much more likely to lead to a total wreck.

That the three-point suspension arrangement imposes large loads upon the fuselage is obvious, but for small machines it is not difficult to provide for these.

In the large boat it becomes possible to put the pilot high enough to be clear of water—if it is necessary he may even be placed on the top plane at a relatively small increase of weight and resistance. Torsional stress in the wing structure is avoided, and there is no heavily-loaded chassis to collapse in a seaway. A very large surplus buoyancy is provided almost automatically; and provided the machine is so large that members designed to stand working conditions are not so fragile that they have to be enlarged to meet accidental handling loads, etc., the weight and resistance of the hull will be less than those of the floats, chassis, and tail carrier of the float machine.

Roughly, this point will be reached in any machine whose total flying weight exceeds three tons.

Hence one would conclude—in opposition to "C. W. P."—that the float machine must look for its future to the smaller class of seaplane, and that the boat is the only practicable type of seaplane in really large sizes.

The Uses of Seaplanes.

Of the aeroplane fitted with flotation gear, one would hazard a guess that eventually all land-to-land work, where oversea transit is merely part of a stage and the normal landing stations are on solid earth, will be carried out by such machines, the flotation gear being, as "C. W. P." puts it, merely a life-saving arrangement.

But there will remain many routes upon which seaplanes suited for normal alighting upon and taking off from water will be employed. If the map of the Pacific between Singapore and Australia be examined, it will be seen that the maximum distance between island and island is comparatively small. But from what one is able to gather, very few of the islands are likely to provide good landing-grounds, without expensive preparation. But most of them could provide a fuel depot and some area of protected water where a seaplane might alight.

Similarly on the route from Europe to South America—which is likely in the future to deal with a very large mail traffic—the whole of the western coast of Spain and Portugal is so mountainous as to afford little opportunity of landing-grounds, but Vigo, Leixoes (Oporto), and Lisbon provide excellent seaplane harbours ready-made. Between Lisbon and South America there is likely to be serious difficulty in finding space for aerodromes upon the Azores or any of the other islands upon the way; but there would be little difficulty in keeping a depot hulk at anchor at such places. Such a depot equipped with a few fast launches would serve all the needs of a seaplane mail service at a much lower total cost than that of preparing an aerodrome. Such a station has the additional advantage that the depot may be moved if the original position is found unsatisfactory, whereas a prepared aerodrome cannot be lifted and replaced in a new situation.

THE MYSTERIES OF OXY-ACETYLENE WELDING.

She was my first four-wheeler. Her name was "Sabella," but, as a matter of fact, it should have been Messalina, or something of the kind, for she was certainly of the race of Satan. It was that vanity of which the preacher speaks that made me buy her, so that I might say carelessly, "My car!" I noticed that Major McCudden, in his recent book, spoke of having owned one of these mechanical horrors (now happily defunct). He says that she was "not easy to start," and he and a friend used frequently to push the thing, when it would go, as often as not leaving them to pant down the road after it. I recognise that trait, but there are many others, of which he does not speak.

This lean, tandem-seated craft always looked as if she had been designed by a cat's-cradle expert. The tremendous vibration of the badly balanced engine in the over-light wood frame secured the passenger in the front against the possibility of monotony, and there was also a steady stream of petrol from the vent-hole in the tank over the engine. The copper piping was always breaking, soap and insulating tape were vital accessories. She started by means of a bit of strap wound round a pulley, but you might often jerk at this for hours. Theoretically of infinitely variable speed, she really had but one gait, which was 30 miles an hour, neck or nothing, through traffic and all. She had no clutch, you see, and you simply daren't stop, because you would never get going again, unless somebody pushed.

She went for hills like a cat at a wall, and either rushed them easily or sat down in the middle with both cylinders incandescent. The very narrow tread made her very tricky on grease. The wire cable steering used to fray through at short intervals; once, at the bottom of Titsey Hill, I found one strand left. We drove home thoughtfully. Familiar chauffeurs used to ask if I had made her myself. I had, nearly. Sometimes she had a good day, and would fly as if hag-ridden. Then she would have an access of temperament, a crisis of nerves, and weep expensive petrol all over the road.

One day she was extra sullen, near home, and had to be pushed back to the shed. I chartered a small boy, who had been collecting free fertiliser for the garden. He looked from "Sabella" to his wheeled sugar-box with a calculating eye, wondering whether she was worth leaving his cargo for. Fourpence decided him, and we reached home in what was getting to be our habitual manner. Then she broke an exhaust valve, and flicked it through the cylinder head. About that time we decided to start her up at the top of a hill, and let her career to the bottom, subsequently collecting the insurance. But, as one who knew her said, we were sure to find her smiling at the bottom, intact. They welded her cylinder, and I sold her to a sporting collegian, who said he "wanted something that could shift." He got it.

That reminds me, there is a book on oxy-acetylene welding on the desk here, appealing to be reviewed. It is one of Messrs. Cassell's "Work Handbooks," priced at eighteenpence. This work of welding by fusion has made such phenomenal progress during recent years, and has proved so successful that it is recognised as an important branch of modern engineering. Steel plate as thick as one and three-quarter inches can now be joined by this means, and it has even been found practicable to add metal to take the place of that worn away by erosion. In artistic iron-work it has largely taken the place of riveting and brazing, and its manifold uses in connection with motor and aero-engine repair work are known.

The apparatus used—blow-pipe, generator, valves and gauges, high-pressure systems, etc.—are adequately dealt with in this little volume; and detailed instructions are given as to the procedure to be adopted in welding sheet iron, wrought iron, mild steel plate, iron and steel castings, malleable iron castings, copper and aluminium. Tips to prevent undue expansion or distortion of the material treated, advice as to fluxes and the correct size of blow-pipe tip, temperature and preparation, also homogeneity are included; and there is also a singularly complete chapter on oxy-acetylene cutting; a method comparatively recently introduced by means of which holes can be fused not only in wrought iron and steel plates, but any conceivable kind of cutting operation can be expeditiously performed on wrought iron and steel structures, such as armour plating and locomotive frames.

This should be a very useful little manual to those who wish for a primer of the art.—R. H. B.

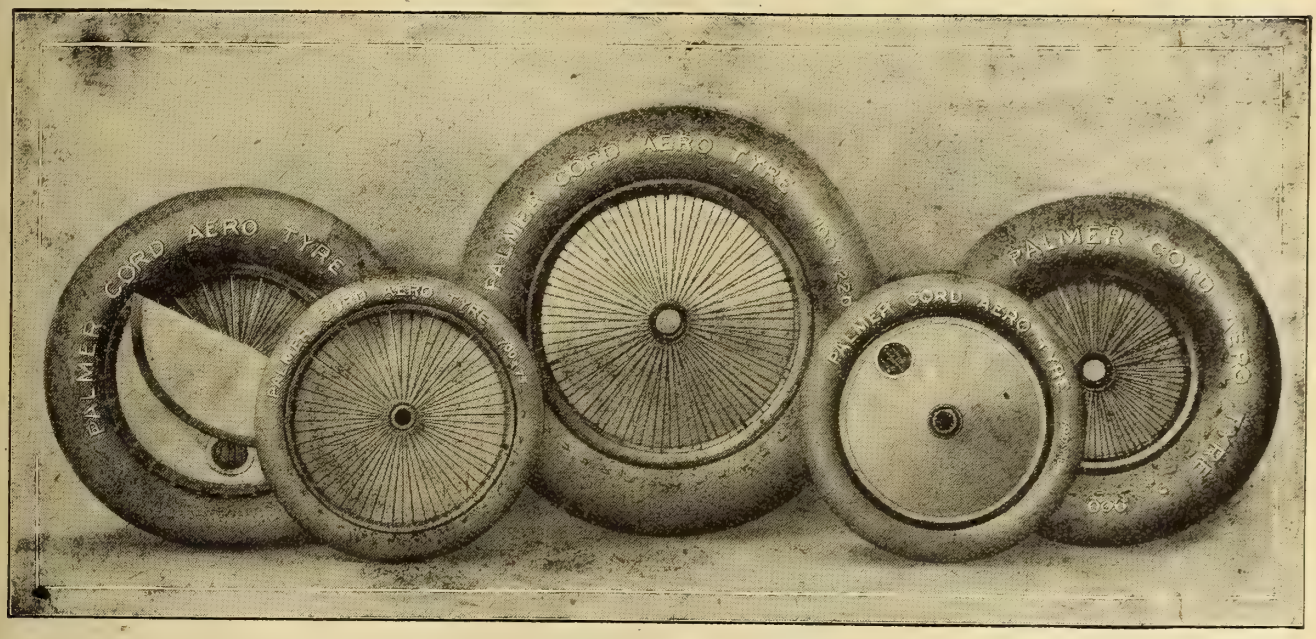
THE PEACE CONFERENCE AEROPLANES.

For a time a saying existed, "What have you done in the great war?" and it seems possible that a similar challenge may arise—namely, "What are you doing in preparing for peace?" It is interesting, therefore, to note that Adam, Grimaldi and Co., Ltd., who from the earliest days of the war have been solely engaged upon aircraft construction, have made many of the component parts of the de Havilland tractor biplanes—such as have been specially fitted up as aerial limousines for the conveyance of officials connected with the Peace Conference, the units made by the firm including petrol and oil tank, undercarriage and wheels, control mechanism and tail plane, and elevating gear.

It is also noteworthy that the activities of Adam, Grimaldi and Co., Ltd., will in future be directed to the production of the 12 h.p. Albert car, designed by the firm's own staff, and is expected to create a new standard among cars of its class.

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300×60	16	111.12	25.4	Central	700×100	33	150.	38.09	Central	800×150	†41	185.	55.	Central
,,	17	72.39	12.7	Central	,,	77	178.	44.45	132/46	,,	82	185.	55.	135 50
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,,	101	178.	31.75	132 46	,,	77	178.	44.45	132/46	,,	202	185.	60.32	Central
					,,	92	185.	55.	135/50	,,	208	185.	60.32	125 60
600×75	21	160.	28.	Central	,,	95	185.	55	Central					
,,	34	150.	31.75	104 46	,,	96	178.	55.	132/46					
,,	111	150.	38.09	104 46	,,	99	178.	38.89	132/46	1100×220	134	220.	66.67	Central
					,,	112	150.	40.	Central					
700×75	78	178.	44.45	132/46						1250×250	136	250.	80.	Central
,,	79	178.	44.45	Central	800×150	†36	185.	55.	135/50					
,,	100	178.	38.09	132/46	,,	†40	185.	60.32	135 50	1500×300	115	304.8	101.6	Central
,,	101	178.	31.75	132/46						,,	126	304.8	152.4	Central

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POWER AND SPEED.

[In the following article a contributor maintains that the power of an internal combustion engine of given dimensions may be materially increased without any increase in the speed of rotation. His argument is published without admitting complete agreement with it and the other side of the case will be published should any reader care to present it.]

* * * * * *

Although aero-engines have been so much in the public eye there are still many points in their construction and working on which people who consider themselves well-informed differ very considerably. For instance, on the authority of the Rolls-Royce Co., I recently made a statement in semi-technical company that nearly caused my immediate demise. It was to the effect that the power of an engine might be materially increased without any increase in bore and stroke and *without any increase in speed.*

The Argument.

It was the last bit that did the trick. No doubt was expressed as to the possibility of increasing the power output of an engine by alterations in design or changes in material, but it was maintained very vigorously that before such changes could cause an increase in power they must involve an increase in speed and, indeed, that the increase in power when it came would really be due solely to the increase in speed. The argument was logically handled and I was even conceded that, if the alterations in design were effected but the speed kept down by artificial means—such as an increase in load—then any material improvement in power output would be impossible.

Practically, the argument could be reduced to the statement that no petrol engine would take a bigger load than that for which it was originally intended, unless it were run at a higher speed.

What seemed to me a conclusive proof that this argument would not hold water was an example drawn from two motor-cycles or cars ascending the same hill. Imagine two motor-cycles—the example is rather simpler than in the case of a car, but there is no essential difference—with the same gear ratios and engines of the same size approaching a hill together and at the same speed. By all logical deductions from this reasoning they ought to change down at the same moment, or, if the hill can be climbed without any change of gear, they ought to breast it together. But will they? They might. Far more probably they will not.

If you are going to suggest that one machine might have been better driven than the other, you would have some sort of a case, but in order to remove the personal element and other extraneous considerations let us make the two drivers approach the hill at full throttle. As it is purely a test climb and no kudos is to result let there be an agreement that the drivers will do nothing but steer their mounts. If there are any two makes of engine that will take the machine and rider up the hill at exactly the same speed—well, I'd like to see them. Until I have had the opportunity of personal evidence I'll never believe the thing possible, except as a result of purely accidental coincidence.

The Facts.

The Rolls-Royce figures were put forward to show what progress has been made in recent years in aero-engine design. Here they are; the first set referring to the Falcon engine and the second to the Eagle:—

In April, 1916, 205 h.p. were obtained at 1800 r.p.m.
In May, 1916, 228 h.p. at the same speed.
In April, 1917, 262 h.p. at the same speed
And in July, 1918, the output was 285 h.p., though this latter increase was accompanied by an addition of 200 to the r.p.m. which thus stood at 2000 r.p.m.

Is it reasonable to claim that this last increase in speed was alone responsible for the increase in power?

The second set of figures are even more convincing, because there is here no increase in speed at all.

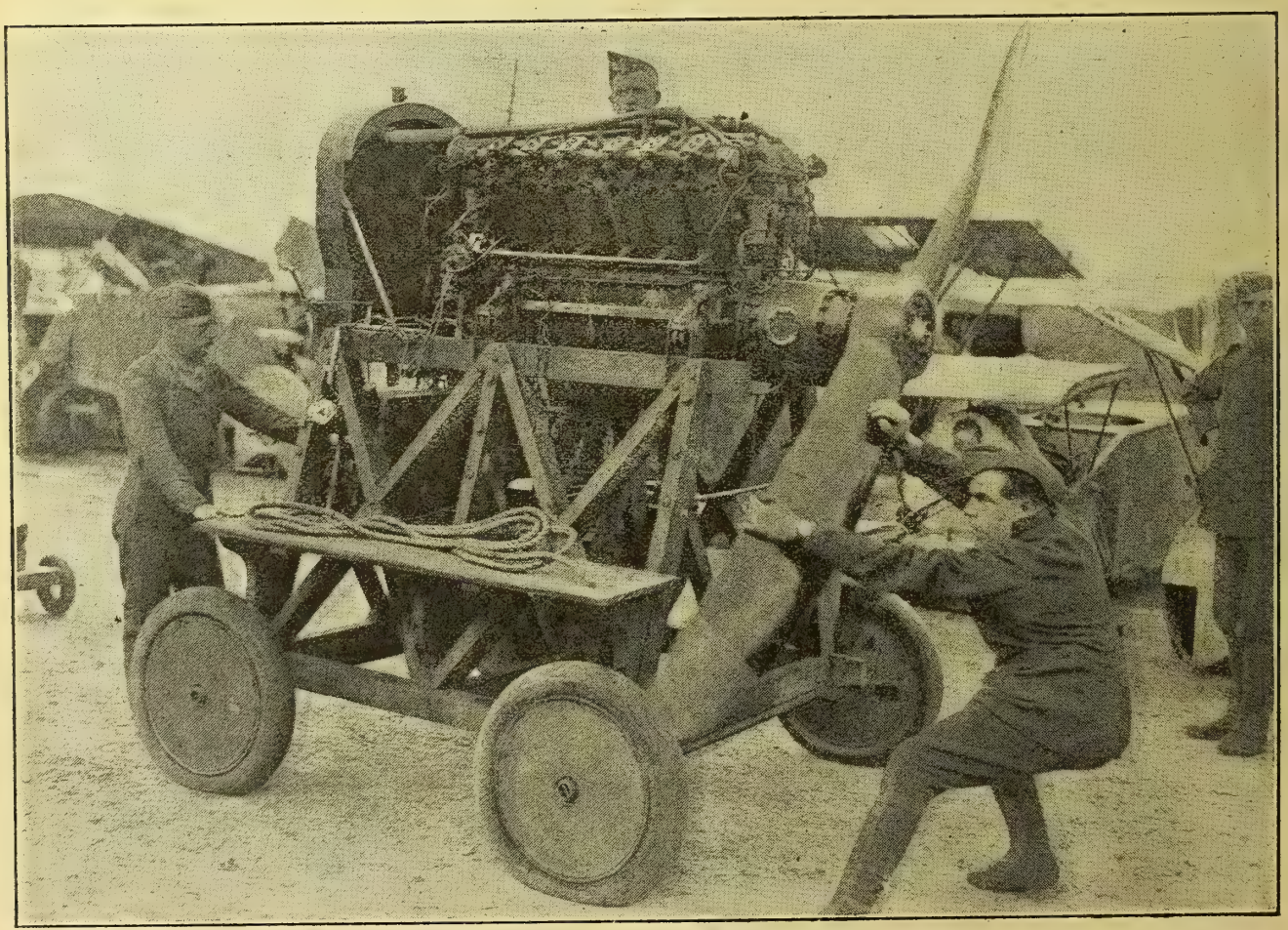
In March, 1916, the Eagle gave 266 h.p. at 1800 r.p.m.
,, December ,, ,, 322 ,, ,,
,, February, 1918 ,, 360 ,, ,,

Since then there has, I believe, been yet a further improvement, still with no increase in speed. How is it done?

The Explanation.

The secret of the whole thing is the raising of the mean effective pressure of the engine and *keeping down the speed* by an increase in load. If the speed be allowed to increase, the result is a fall in the value of the m.e.p. and defeat of the main end in view. Of course, there is a tendency for the speed to increase if the load remains constant, but the point of the discussion was that, if the speed be not allowed to increase, there can be no improvement in power output. In other words, the only way in which the efficiency of an engine can be improved is by increasing its speed!

There are few power curves that do not show a falling off after a certain point has been reached on the revolution curve, but this ought not to be so, for increase in revs. must mean increase in power! Obviously the argument falls to pieces somewhere. Can we find where?



AT AN AEROPLANE SUPPLY DEPOT IN FRANCE.—A Testing-Trolley with a Rolls-Royce Engine. It is to be hoped that the Trolley was securely roped to something astern before the Engine was actually started.

In designing an engine to give highest efficiency, what are the most important points to be borne in mind? First comes volumetric efficiency—you cannot get much out of your engine if you do not get much into it, and so you want valves and valve ports that will admit the largest possible charge in a given time. Then come scavenging efficiency. You cannot get hefty fresh charges in if you have not cleared out as effectively as possible the remnants of the exploded charge. Suction turbulence dominates the first of these two considerations and depends on its satisfactory performance, and suction turbulence in itself accounts for a lot. And, above all, comes mechanical efficiency. Is there one of these that does not become more and more difficult with increases in engine speed? The better each of them is, the better the m.e.p. of the engine.

Here then is a direct gain as a result of keeping down engine speed.

Heat losses to the cylinder walls are important and will probably tend to decrease as the speed increases, but they depend chiefly on the shape of the combustion head and on the ratio of its (internal) area to the volume of the combustion space itself. Reduction of the ratio means a gain in efficiency but not necessarily in speed.

Cam design, valve area and lift, and the shape of the cylinder head all affect engine efficiency and power output, but so long as they are modified without any modification of the compression ratio the power may be considerably increased without increase in revs. As soon as compression is raised, increase in engine speed must nearly always follow—if it does not, then pre-ignition troubles almost certainly will.

Independent Confirmations.

If our discussion had not taken place before Mr. Pomeroy gave his paper I could have clinched the whole matter by quoting his arguments and resting on his authority. The paper I refer to was that read by the famous Vauxhall expert on "The Influence of Valve Area, Revolution Speed and Combustion Chamber Design upon Horse Power and Thermal Efficiency," to the Institute of Automobile Engineers.

The address embodied the results of researches conducted on two engines similar in size but differing in valve arrangement—the one having side by side valves and the other overhead. Experiments were conducted to ascertain the effects of this difference on fuel consumption, thermal efficiency and power output, amongst other things, but we are here interested only in the power output aspect of the case. Much food for thought is contained in Mr. Pomeroy's "Table vi."

This shows the m.e.p. and compression pressures in the two engines when running at the same speeds. At 1,600 r.p.m. the side by side valve engine gave 83 lbs. per sq. in. as the m.e.p. and 99 lbs. per sq. in. as the compression pressure, while in the overhead valve engine the corresponding figures were 96 and 104. With both engines this speed was the best; further increase in speed meant decrease in the figures.

In the opinion of the lecturer this difference in the figures may in large measure be due to the difference in the shape of the combustion head of the two engines, and the lecturer ought to know. Is it not reasonable to argue that further improvement in the shape of the combustion head would mean still higher m.e.p, or power output? Whether it is reasonable or not, the change has been made in experimental aero-engines and results have more than justified the step. So that those to whom the eating of the pudding is everything may order their coffee and liqueurs and light up for a peaceful rest. To the others Mr. Pomeroy has a little more to say.

Inlet gas velocity is a function of piston speed—to a point. Suction turbulence is a function of inlet gas velocity—also to a point. And that point is everything, for experiments have proved that when it is reached, increase in r.p.m. does not mean any further useful increase in inlet gas velocity, increase in which does not mean an indefinite increase in suction turbulence—a fact that was pointed out by Dr. Dugald Clerk when he first called attention to the importance of suction turbulence some four years ago. Consequently, if power *can* be increased without rise in r.p.m. it is a double gain that it should be, which it is. As Mr. Pomeroy said, "It would seem that in considering turbulence, inlet gas velocity must be considered in relation to revolution speed or piston speed, and that there is a certain minimum relation between the two which produces the necessary turbulence for approximately complete combustion at all speeds." While a further conclusion was that "Sufficient turbulence is developed to produce approximately complete and rapid combustion at quite low gas velocities."

Superficially all this may be regarded as rather beside the mark and its connection with the point originally at issue may not be apparent. Actually the connection is vital, as a little thought will make clear. The full significance of the shape of the combustion chamber is a new point to many and they will do well to think on it carefully.

Of course, the question might be raised, how is it that, if increase in speed is not essential to increase in power, aero-engines have increased in normal r.p.m. almost continuously during the last few years? Increase in speed has admittedly in many cases meant increase in power: in some it has not. My point is that increase in power has not involved an essential increase in speed, which is a rather different proposition.—Duo.

USEFUL AND ORNAMENTAL.

A catalogue of aircraft fittings which has come from the Birmingham Guild, Ltd., of Great Charles Street, Birmingham, illustrates through the medium of high-class printing some interesting examples of high-class workmanship in metal.

The extremely artistic fashion in which this catalogue has been produced, and the name of the firm which has produced it, send one's thoughts back to the old days of trade guilds when master and man worked side by side for the joy of working, and took more pride in their workmanship than in anything else on this earth. Although the Birmingham Guild employs the most up-to-date labour-saving appliances, it is evident that the spirit of ancient craftsmanship has not departed from those who direct its operations.

From 1914 to the present date the Birmingham Guild, Ltd., has organised and employed all its activities for the intensive production of aircraft components in steel and non-ferrous metals, covering a very wide range of parts, and including such diverse units as exhaust manifolds and fittings, induction pipes, water-cooling jackets and other engine accessories in stamped and pressed sheet steel; petrol and oil tanks, cowling, and a large variety of wiring plates, strut sockets, welded tubular stay work, tail planes, elevators, fins, and in fact metal parts covering the whole range of aircraft construction, including all-steel interplane struts.

The Birmingham Guild, Ltd., has more particularly specialised on the production of metal components of a nature necessitating heavy pressings and intricate assembly, for large flying boats, and metal fuselage parts for large bombing machines.

The firm has carried out a considerable amount of experimental work in this connection, and now offers the accumulated knowledge and experience it has gained to builders of large flying boats and land machines, as well as the services of its very efficient and complete plant and staff of highly skilled workers. The Guild also is prepared to undertake motor-car fittings and pressings, more especially, with regard to stamped and pierced steel work, oil, and petrol tanks, and sheet metal work generally.

As can be gathered from the catalogue, the Guild has undertaken a number of the most difficult metal-working jobs in connection with aircraft construction, which many other firms would decline to do, but it is evident that the execution of difficult work is welcomed by the Birmingham Guild. Among the most interesting products of the firm is an all-steel streamline strut, for which a provisional patent has been obtained. This strut compares favourably in weight and strength with spruce struts of the best workmanship and material.

The management of the Birmingham Guild will be pleased to send a catalogue of aircraft fittings to any responsible inquirer.

A POSSIBLE TRANS-ATLANTIC AEROPLANE.

It is understood that the John Dawson Co., Ltd., of Newcastle-on-Tyne, has entered a four-engined aeroplane for the "Daily Mail" Trans-Atlantic Competition.

The machine has been designed by Mr. C. J. H. M. Kennedy, who will be well remembered by the older readers of The Aeroplane as a Scotsman who did a considerable amount of pioneer work in Russia in connection with the Sikorsky aeroplanes, which before the outbreak of war held many records for weight-lifting, being, as a matter of fact, the only four-engined aeroplanes of the time.

During the early days of the war Mr. Kennedy came to England and commenced the construction of a large aeroplane on Sikorsky lines at the Gramophone Works at Hayes, a machine which, however, never quite reached the flying stage. The new machine is said to have a span of 108 ft. and a length of 54 ft. 6 ins., and a speed of 120-130 miles an hour is intended.

The machine will be fitted with four Napier "Lion" engines, which will be arranged in pairs in tandem on either side of the fuselage, each pair driving a tractor airscrew. During the attempt on the Atlantic flight, the machine will carry two pilots, a mechanic, and a passenger, and care has been taken to render the accommodation as comfortable as possible, the interior of the machine being heated by the exhaust system.

As a matter of fact, two machines are in course of construction, and it is hoped to make attempts simultaneously from Ireland and from Newfoundland.

At the estimated speed it is expected that the journey could be completed in 15 hours, but provision will be made for petrol capacity sufficient for a flight exceeding 20 hours.

BRITISH ENTERPRISE.

Sir,—I have read, with interest, your recent article, "An Opening for Enterprise," in connection with the disposal of surplus aeroplanes, aero engines, spares, etc., and I find that the consideration of this matter opens up a very considerable field for enterprise.

You have outlined certain ways in which these surplus stocks can be dealt with, and it is pleasing to note that the Authorities are making repairs, etc., in order to improve the value of otherwise deficient craft.

It is now nearing four months since the signing of the Armistice, but it is regrettable that there is very little sign of any energetic steps being taken to deal with these surplus stocks. As a dealer in anything concerned with Aircraft, you may easily conclude that I have received large numbers of lists of surplus stocks from Aircraft Factories; I have been approached by the Air Ministry as to purchasing surplus stores, but, in this case, I am still waiting for the lists of stocks, as, without these, I cannot even consider making an offer for any parts at all, let alone for the "whole contents" of any store or stores.

We have these lists of the Aircraft Manufacturers, in each case running into quite a dozen folios, and embracing thousands of grosses of material, but, until there is some defined method of procedure disclosed with regard to Air Ministry stocks, I cannot do anything with my customers' stocks, and for the following reason:—I might declare certain prices I am prepared to pay, but a little while afterwards the Air Ministry might announce their intention of selling thousands of grosses of the self-same article at 50 per cent. less—so, the Air Ministry and the Aircraft Manufacturers are meanwhile sitting on the stocks, or shovelling them away to make room, in the latter case, for peace programme stocks, and perhaps writing the aircraft stocks off, out of Excess Profits.

The foregoing perhaps sounds like "Sour Grapes," coming, as it does, from "Ascol House," who have always been hounded out by the Supply Department of the Air Board because they were "Useless" Factors. Be that as it may; the war is over, and every dog can bark now.

However, my point is, that if in your suggestion there is an opening here for enterprise, that enterprise should come from, or be exacted by, the largest holders of stocks, viz., the Air Ministry. They can collect the details of the Manufacturers' Stocks, list them, and thus compile a large stock list, which also should include their own stocks, and this is the basis for utilising this opportunity for "enterprise," which they could easily carry out with the Office Accommodation, Staff, and every facility for organisation at their disposal, but, providing the Air Ministry could be induced to do this, and if the S.B.A.C. would move in the matter, which they appear to be unwilling to do, there are the details for disposing of these stocks, and I will outline the headings of the possibilities in this "enterprise" which are almost obvious:—

(1) Organised Propaganda as to the possible utility of stocks in various industries using metal parts—(furniture, piano, agricultural machinery, shipbuilding, motors, toy-making, and dozens of others).

(2) Reducing prices to a level to meet the present-day markets for the above industries, and publicly declaring such prices.

The chief of these two headings is propaganda; in this it is simply a question of working out the possibilties of using the stocks, whether they be aeroplanes, engines, or parts, but, it must be borne in mind that such work *must* be done by men with some knowledge of the industries to be approached.

One of the chief essentials of salesmanship is the ability to tell the would-be purchaser why he wants the goods—you cannot go to a man and say, "You want that engine or part because I say so," but if by reasoned advertisement you *show* him how he can use the goods, every business man with his eye to improvements in manufacture to cutting his costs, will listen, and, therefore, propaganda by the men who understand the wants of their would-be purchasers are the men to be employed by the Air Ministry on this disposal of surplus stocks.

With the organisation we have at our disposal, and the experience of the Industry, you may say, "Why don't *you* do it?" My answer is simple; I haven't the premises or staff necessary, apart from which, the Air Ministry hold, I am sure, quite 95 per cent. of the stocks in this country.

It is nought to me whether anything is done or not—the stock can be sold for fourpence the lot; but, knowing the value of it, and appreciating very much your allusion to "An Opening for Enterprise," I hope, for the sake of the British taxpayer, of whom I am one, that some effort will be made to dispose of these stocks by the Supply Department, or some other Department, at something like their real value.

(Signed) G. H. Mansfield.
(Managing Director, "Ascol" House.)

FUTURE ACTIVITIES OF THE GRAHAME-WHITE CO.

The Grahame-White Co., Ltd., has now organised a very complete and well-equipped motor-car repair department at its extensive factory at Hendon, providing accommodation for over 500 cars.

This department is under the direct supervision of Mr. H. P. G. Brakenridge, late of Messrs. Barker & Co., and already the department is in full operation, some 100 cars at the present time being renovated.

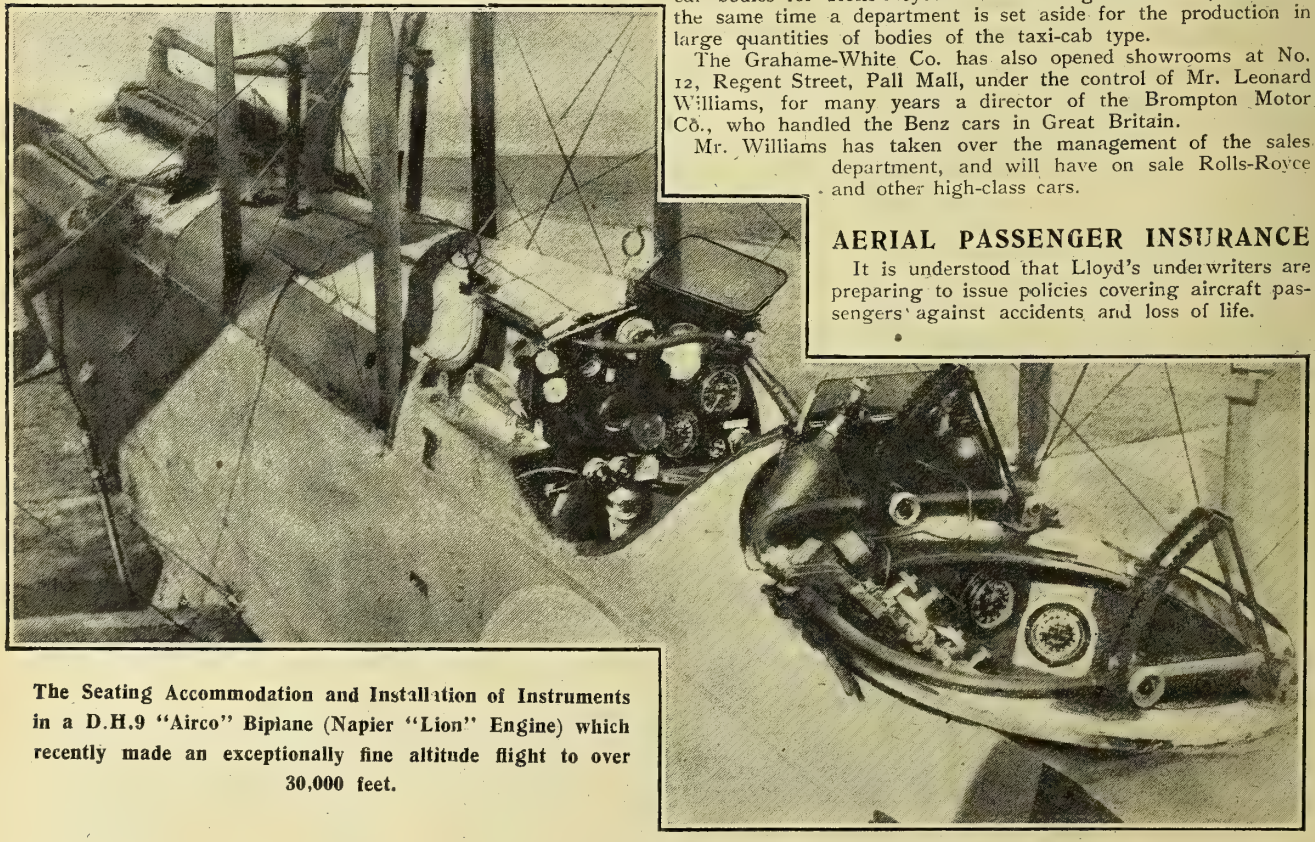
The company has also started a high-class coach-building department, where the firm is designing and constructing motor-car bodies for Rolls-Royce and other high-class cars, while at the same time a department is set aside for the production in large quantities of bodies of the taxi-cab type.

The Grahame-White Co. has also opened showrooms at No. 12, Regent Street, Pall Mall, under the control of Mr. Leonard Williams, for many years a director of the Brompton Motor Co., who handled the Benz cars in Great Britain.

Mr. Williams has taken over the management of the sales department, and will have on sale Rolls-Royce and other high-class cars.

AERIAL PASSENGER INSURANCE

It is understood that Lloyd's underwriters are preparing to issue policies covering aircraft passengers against accidents and loss of life.



The Seating Accommodation and Installation of Instruments in a D.H.9 "Airco" Biplane (Napier "Lion" Engine) which recently made an exceptionally fine altitude flight to over 30,000 feet.



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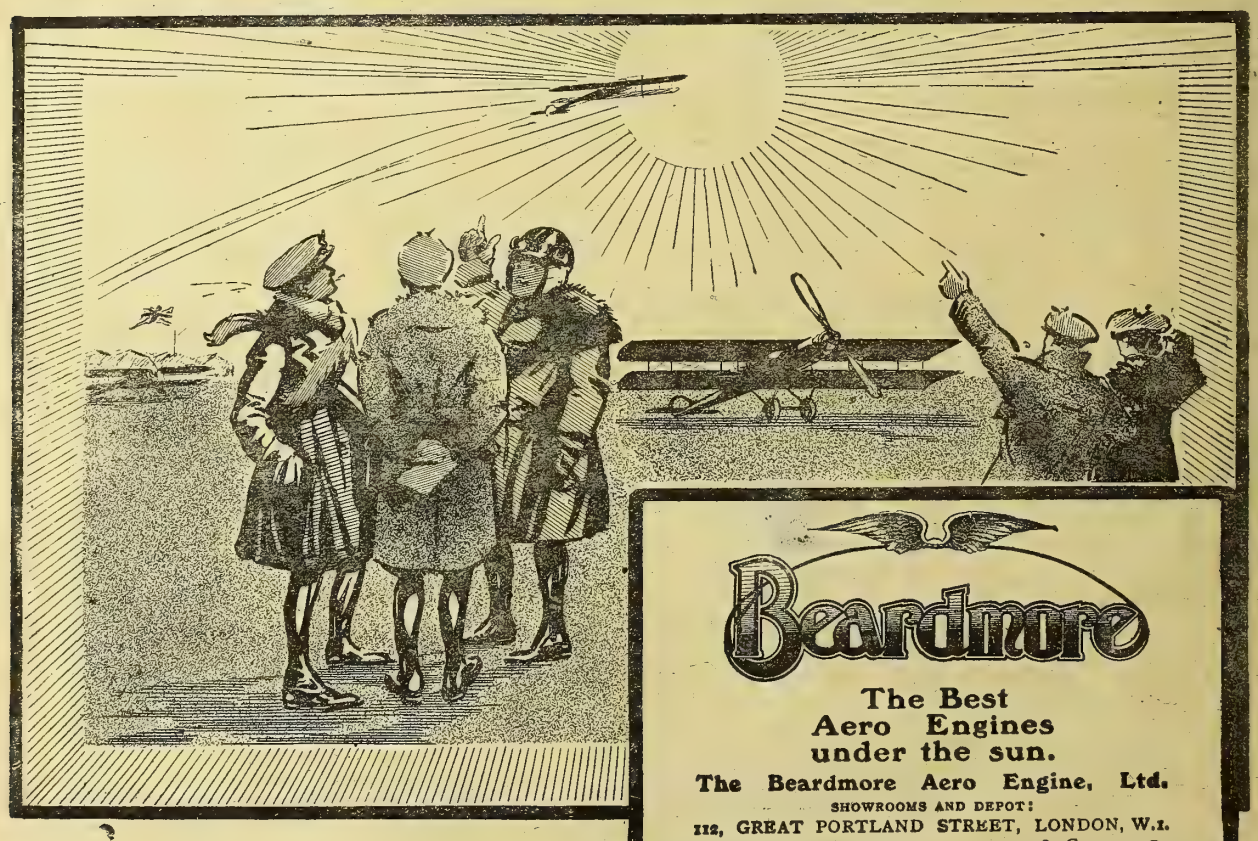


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C D C.

PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the current Official Patents Records :—

Patents Applications.

Baker, F. Parachutes. No. 4262. Feb. 20th.
Bellamy, V. A. F. Appliance for automatically controlling trim of airships moored to mast. No. 3994. Feb. 18th.
Blackburn Aeroplane and Motor Co. Means for carrying mails, merchandise, etc., on aircraft. No. 4457. Feb. 22nd.
Burnham, H. Appliances for mooring and anchoring aircraft. No. 4292. Feb. 20th.
Davis, C. Aerial artillery. No. 3938. Feb. 17th.
Harvey, P. H. R. Aeronautical observation and indication of position. No. 4190. Feb 20th.
Munslow, H. Aeroplanes. No. 4273. Feb 20th.
Pavely, D A. Combined strut and clip for model aeroplanes, etc. No. 4327. Feb. 21st.
Pepper, W. A. R. Means for automatically maintaining aeroplane on a level keel. No. 3908 Feb. 17th.
Pepper, W. A. R. Means for automatically keeping aircraft and ships on a given course. No. 3909. Feb. 17th.
Richards. T. E. Structures for housing airships, etc. No. 4295. Feb. 20th.
Saunders, S. E. Aeroplanes, etc. No. 4280. Feb. 20th.
Stabilimenti Biak. Axle for aeroplane carriages. No. 4050. Feb. 18th.
Stabilimenti Biak. Sectional bars for aircraft construction, etc. No. 4051. Feb. 18th.
Stout, W. B. Aeroplanes. No. 3890. Feb. 17th.
Stout, W. B. Aeroplanes. No. 3891. Feb. 17th.
Stout, W. B. Aeroplanes. No. 3892. Feb. 17th.
Thompson, W. A. Indicator for positional angle of aircraft. No. 4422. Feb. 21st.
Willington, A. Means of controlling, stopping and manœuvring aircraft, watercraft, etc. No. 4002. Feb. 18th.
Wimperis, H. E. Apparatus for aerial navigation and bomb-dropping. No. 4165. Feb. 19th

Complete Specifications Accepted, prints of which can be obtained on and after March 13th, 1919.

123,174. Feb. 18th, 1918. Dunlop Rubber Co., and Paull, W. H. Undercarriages for aircraft.
113,965. Dec. 6th, 1915. Curtiss Motor Co. Hydro-aerial machines.
123,278. Aug. 22nd, 1918. Shaw, W. R. D. Aeroplanes.

Abridgments of Recently Published Specifications.

FIG.1. FIG.7.

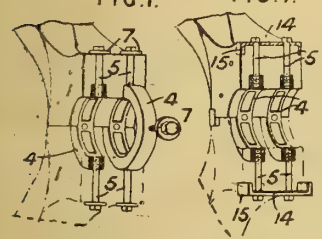


FIG.4.



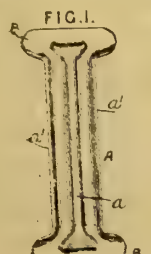
119,487. Screw propellers. Roe, A. V., Avro Aerodrome, Hamble, near Southampton.

In multiple-blade propellers for aircraft in which several blades with segmentally shaped roots are clamped together, the clamping-bolts are arranged radially instead of transversely. In the application to four-bladed propellers, as shown in Figs. 1 and 2, the boss comprises four quadrants 1, and annular recesses formed in the assembled quadrants receive metal rings 4 into which the securing bolts 5 are screwed. These bolts have large washers 7 under their heads and are prevented from becoming loose by plates 9, Fig. 4, fitted with serrated apertures 10 screwed to the boss. The axis of the bolts 5 preferably lie in the planes of division between the boss segments. In the application to two-bladed propellers, the washers 7 are replaced by hollow metal cups countersunk into the boss. For more than two blades, a washer-plate 14, Fig. 7, overlaps the edges of both adjacent boss segments and has inturned flanges 15 which engage corresponding recesses in the faces of the segments.

FIG 2



FIG.1.

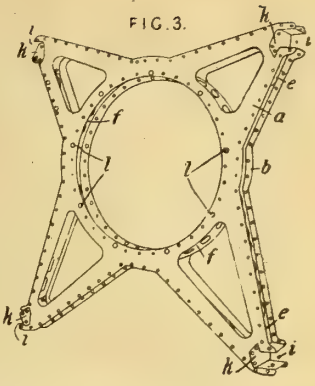


121,552. Structural or built-up girders. Vickers, Ltd., Vickers House, Broadway Westminster, and McKechnie, Sir J., Naval Construction Works, Barrow-in-Furness, and Wallis, B. N., 3, Kentsford Terrace, Kents Bank, Grange-over-Sands, both in Lancashire.

A bracing A for light structural or built-up girders, such as are used in aircraft, is stamped or cut and moulded from wood, in a die or press, forming a channel or rib a and turning up the edges a^1. The bracing is secured at the ends B by gluing, or by rivets. A single thickness may be used, but plywood, glued together in layers before, during, or after cutting and moulding is preferred. For cross-bracing, additional flat lugs are formed at or about the middle.

121,463. Aeronautics. Soc. des Moteurs Salmson (Système Canton-Unne), 74, Rue St. Lazare, Paris. Nov. 27th, 1918, No. 19579. Convention date, Dec. 11th, 1917. Not yet accepted. Abridged as open to inspection under Sect. 91 of the Act.

FIG.3.

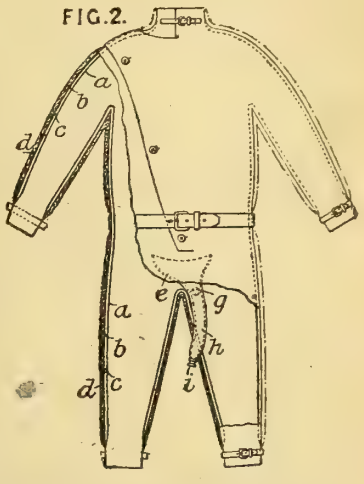


Propelling.—A frame for supporting an engine in an aeroplane fuselage comprises two plates a, b cut to the shape shown and connected together by peripheral channel-bars e, f. Recesses i are provided to receive the longerons, and the ensecured by bolts passing through holes l around the central opening.

Cars and cabins.—Lugs k may be provided for attachment of the fuselage stay-wires.

121,657. Garments for airmen. Davis, R. H., 187, Westminster Bridge Road, Westminster.

FIG.2.



To keep an airman warm, to sustain him should he fall into the sea, and to enable him to urinate, a garment is made of inner and outer impervious skins a, b, the space c thus formed being filled with hot air or the wearer's breath. Outside the outer skin is a layer of kapok or other buoyant material d. Attached to a belt beneath the garment is a waterproof bag or receptacle e, the lower end of which is provided with a non-return valve g. A continuation of the bag forms a tube h which passes to the outside of the dress and may end with a plug or cap i.

121,838. Wearing-apparel. Jakeman, R. G., 6, Kirkdale Road, Leytonstone, London.

A complete garment, a gas mask, or a garment to enclose a portion only of the body, suitable for use by aviators and others, is closed air-and-water-tight at the openings provided for putting-on and taking-off the article. One side of the opening of the rubber or like garment A, Fig. 2, is provided with a

FIG.2.

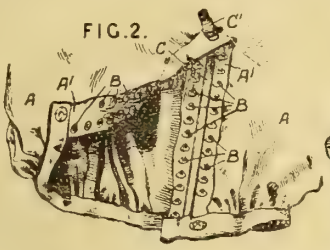
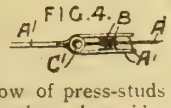


FIG 1



FIG.4.



double row of press-studs B, between which is an inflatable tube C, while the other side A^1 of the opening is provided with a double row of sockets B. After the fastenings have been engaged, the tube is inflated through a valve C^1. In a modification, one side A of the garment is provided with studs B, Fig. 4, arranged back to back, and with a soft-rubber packing-strip or a non-inflatable tube C^1, while the other side A^1 has a double border each part of which carries a row of sockets. Gloves or boots may be connected to a main garment by similar means. Gas masks, which may be used alone, are provided with mica eye openings D, and with a mouthpiece E connected to a respirator associated if desired with an oxygen container; or an absorbent anti-poisonous pad may be provided. In some cases the mouthpieces or respirators and the members of the mask or headpiece designed to accommodate the ears may be made detachable.

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THE AIRCRAFT TRADER

MARKET TOPICS.

Prices are for Quantities on Usual Terms.

COPPER.—This market, in common with other metals, continues to show increasing signs of weakness, and, owing to the continual decline in values, a very marked feeling of uncertainty still exists among consumers. There are indications that large quantities of Copper are required, but it is hardly likely that buyers will come into the market until prices stabilise.

There is at present no indication of a termination of this condition of instability, and the recent announcement of a reduction in the Government price only increased the weakness of the market.

The American producers have curtailed production very drastically, and although it is stated that it has had a good effect on the market generally, stocks continue to accumulate, and this is one of the main influences responsible for the present weakness both here and in U.S.A.

Comparative Prices.

	£	s.	d.	
Standard. To-day, Feb 27th	74	0	0	per ton.
Last week	74	10	0	,,
Last month	84	10	0	,,
Lowest price, 1918.....	100	0	0	,,
Highest ,, 1918	122	0	0	,,

TIN.—There has been a little activity in this market; at the same time, it is in a very sensitive condition, and there has, in consequence, been some very quick fluctuations. There is a strong feeling that prices are still too high, and buyers will not be induced to buy heavily until some settled feeling prevails. In some quarters it is felt that the price ruling at present must be considered reasonable; this is not sufficient to induce heavy buying, and there are certain features which are still undermining the consumers' confidence.

Information was received last week to the effect that the F.M.S. Government had ceased to purchase the output of the mines in the States. On receipt of this news prices immediately collapsed. It now transpires that the Government have for some reason decided to continue purchasing the ores on a basis of £202 c.i.f.; another feature which is affecting the market adversely is the stocks held in Batavia and U.S.A., and, although it is reported that the American stocks are being absorbed, other reports indicate that consumers have not ceased criticising the management of the Tin control there, and, in the meantime, are buying hand-to-mouth.

Generally speaking, the present condition of the market is against active buying, and it is essential that great caution is exercised.

Comparative Prices.

	£	s.	d.	
To-day, Feb. 27th	223	0	0	per ton.
Last week	206	10	0	,,
Last month	248	0	0	,,
Lowest price, 1918	240	0	0	,,
Highest ,, 1918	399	0	0	,,

LEAD.—This market is in a state of stagnation, hardly any business whatever being transacted; the general impression is that the present prices are too high, and no business is likely until there has been an appreciable reduction. The present average price is £27, and it is reported that offers have been received from America at lower prices.

STEEL.—This market is being affected considerably by the present labour unrest, and business is very slow. Apparently makers are reluctant to quote firm prices, and stipulate that prices are conditional upon the price ruling at the time of delivery. The whole position is very uncertain, and buyers continue to purchase just enough to keep themselves going. There is very little demand for High Speed Steel, and the Government have not yet stated what they intend doing with the huge stocks which they hold.

TIMBER.—As far as Aircraft Timber is concerned, the position is unchanged. Supplies must still be obtained through the Air Ministry with the exception of Mahogany and Walnut, and the demand is very small. Supplies of Mahogany and Walnut can now be purchased direct from the merchants without reference to the Air Ministry. The market is, therefore, very unsettled, and it is more than likely that there will be a further weakening in values. The only Timber which can be considered reasonable in price is English Ash, and as there is likely to be a shortage of well-seasoned Wood for some time, there does not appear to be any reason why some active buying should not be seen.

MR. MANSFIELD'S FUTURE ACTIVITIES.

No more faithful believer in the future of the Aircraft Industry could be found than Mr. George H. Mansfield, the managing director of the Motor and Aircraft Supplies Co., Ltd., who has played a very important part in the manufacture and distribution of standard parts for aeroplanes, and even in the establishment of the actual principle of standardisation in aircraft production.

Nevertheless, he realises very fully that it will be some time before the peace-time Aircraft Industry reaches a stage when it can be quite self-supporting, and that those who wish to continue in the aircraft business will do well for a time to cater simultaneously for the Aircraft Industry and for a business for which there already exists an active market.

One of the most obvious fields for activity for those concerned with aeronautical engineering is the motor-car industry, not that the Aircraft Industry is in any way part of the motor industry, but because they are parallel industries which absorb similar kinds of material and labour.

Therefore, the Aircraft Supplies Co., Ltd., which will in future be known as the Motor and Aircraft Supplies Co., Ltd., will, while maintaining the custom of the Aircraft Industry, supply also the motor industry.

This arrangement will be very convenient, because the motor-car is inevitably identified in an ancillary capacity with the aeroplane, inasmuch as the motor-car serves as a tender to the aeroplane.

Mr. Mansfield has secured a number of important agencies, including the products of Simms' Motor Units, Ltd., such as the famous Simms' magnetos, sparking plugs, electric horns, and vulcanising outfits, and motor business will be done on behalf of Mr. Mansfield by his numerous provincial representatives in England, Scotland, and Ireland.

It is the ambition of Mr. Mansfield to establish a reputation among motor manufacturers similar to that which he enjoys among aeroplane manufacturers, namely, as the proprietor of a great central buying house for accessories for the manufacturer and trader, who will have the advantage of getting everything which he does not make himself from one source, instead of from a score, an arrangement which in the long run is bound to save time and money.

The operations of Ascol House will in future, therefore, be watched with interest both by those concerned with the manufacture of aeroplanes and of motor-cars. The former may, however, rest assured that Mr. Mansfield will not allow his newly acquired interest in the motor industry to obscure the claims of the Aircraft Industry, and as new requirements and developments arise in connection with aviation he will be to the fore in supplying raw material and component parts.

AN "M-L." DINNER.

The first annual dinner of the works and sales staffs of the "M-L." Magneto Syndicate, Ltd., took place at the Craven Arms, Coventry, recently, under the Chairmanship of Mr. Charles A. Lister, J.P., C.B.E., the chairman of directors. All the other directors—Messrs. G. Lister, D. K. Morris, E. W. Richmond, and E. A. Watson—were also present, and the company numbered nearly 50.

The musical programme was good, the speeches few but greatly to the point, and general satisfaction was expressed at the success which had attended the use of "M-L." magnetos for war purposes, and the demand which has already arisen for them from the motor and motor-cycle trades.

It was stated during the evening that the output had increased from something less than eight per week in October, 1914, to about 800 per week in October, 1918, and that there had been a consistent improvement all through in quality and efficiency.



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COMMERCIAL AERONAUTICS

ACCIDENTS AND THE LAW.

By "Medway.".

From the Parliamentary report in the "Times" of February 18th I take the following :—

"Major-General Seely said he had been asked in effect if a man was to be entitled to break his own neck. Undoubtedly he was. The risk to those below was similar to the risk of people being run over by motor-cars. . . .

"Mr. Joynson-Hicks asked what would be the position in regard to liability for accidents. Supposing he were killed by an aeroplane, would his executors have to prove that the airman was negligent, or would compensation be paid for the mere fact of being killed?

"Major-General Seely said he had put the question to the Attorney-General, who could not answer it. He himself thought probably negligence would have to be proved in the case of the air, as in the case of the land, but he did not know. He did not think the Bill would alter the position in that respect."

This is all very comforting. It is nice to know that the Bill will not alter the position, and at the same to know that the law as represented by the Attorney-General has no idea what the present position is. Evidently the law can now settle down to study the question and can decide pretty well anything it pleases. This decision, whatever it may turn out to be, will not be affected by the new Act. So now we know exactly where we are! General Seely is certain that a man is entitled to break his own neck. At the same time, if a man deliberately attempts to do so and fails, he is promptly run in and punished, not for the failure but for the attempt.

Then again we have to inquire whether, if a man sets out to break his own neck, he has a right to do it in such a way as to make it quite probable that he will break other people's at the same time. Looking at the thing with a satisfactory absence of legal knowledge, I cannot see that the risk of those below is really similar to the risk of people being run over by motor-cars. I am not a bit sure how the law stands : probably nobody is. It is clear enough, of course, that if a pedestrian is run over by a motor-car and no negligence can be proved against the driver the thing is merely an accident, for which the driver is not necessarily fully liable. These accidents, however, generally occur in public places. Probably the law is just the same if a motor-car, descending into the area of a house, penetrates the kitchen and pins the cook against the gas-stove.

At the same time, as an ordinary individual, I cannot help feeling that I should have less resentment against a man who kills me in the street than against a man who comes into my house to do it. The latter process seems to involve an element of objectionable familiarity.

I remember the case of a dog, owned by a friend of mine, which made a speciality of killing cats. Nobody really took the thing seriously until this dog chased a cat into its owner's drawing-room, made a successful kill under the sofa, and then bit the cat's owner for interfering. This incident caused quite a considerable amount of unpleasantness, and my friend gave the dog away in exchange for a comfortable home, whether for himself or for the dog I am not sure.

Now, I feel that this is rather a parallel case. I expect to have to dodge motor-cars in the street, but I do not expect a motor-car to chase me up my front steps, follow me through the house, and kill me in the back garden.

Moreover, perhaps illogically, I feel that, while it would be objectionable to be murdered on the ground floor, the person who murdered me in bed would be still more open to unfavourable comment. The fact that the gentleman in question was engaged in an endeavour to break his own neck at the time would not to my mind make much difference.

Consequently, anxious as I am to see commercial aeronautics developed, and willing as I am to admit that the more or less reckless pioneer can help the process a great deal, I cannot help thinking that the common man will feel that if an aeroplane kills him when he is on his own private land it is up to the aeroplane owner or his executors to pay the piper. It would be practically impossible to prove negligence, because the odds are that everyone who was present at the time when the negligence occurred would be dead five minutes later.

Evidently all this kind of thing will have to be covered by some form of insurance. Machines used in commercial service will be regularly inspected and certificated. Commercial pilots will be fully trained before being granted licences. I am not quite sure that we can safely leave it to people's common sense when it comes to the private individual of an experimental turn of mind.

Possibly the law should be different in respect of accidents caused by certificated machines working in commercial service and accidents caused by uncertificated machines owned by individuals. The risk to the average member of the public through the running of properly inspected aerial services would be very small—probably so small that Insurance Companies would accept them without any increase in premium.

If, however, we have a lot of people stunting on experimental machines wherever they choose, the case may be different. Somebody would have to effect an insurance, and I suggest that the aeroplane owner would be the right man to do it, and that the insurance would have to be based on the acceptance of liability for all damage resulting from accidents, whether negligence were proved or not.

Of course, experimental work is very necessary, and deserves encouragement. We do not want to discourage it by making it unduly expensive. Also, we recognise that the experimenter risks his own life more than the lives of other people. Perhaps some official insurance scheme could be arranged at rates which would take into account the value of experimental work.

The thing would not be a commercial proposition, and would in all probabilities run at a loss. The nation as a whole would pay the loss in order to get the value resulting from aerial experiment. Surely this would be simpler than any legal arrangements which rendered it necessary for every house and landowner to take out special policies to cover him against damage due to aeroplanes falling about onto his property.

ON THE REGISTRY OF AIRSHIPS.

By "Austerlitz."

It may seem strange, not to say wholly untimely, that any patriotic person should feel inclined to sit down and apparently waste just after the end of the World War any amount of perfectly good paper and fountain pen ink on a subject seemingly so little related to the job of military aeronautics as the trifling item of airship registry. And possibly the reader will apply to this endeavour that delightful phrase: "insistence upon untimely definitions."

However that may be there really is quite a palpable concatenazione—as an Italian would say—between this subject and that of gaining after the war, and perhaps in expectation of the next war, intelligent public support for the adequate development of military and civil aeronautics. Intelligent public support implies principally clear comprehension of the subject's present status and future needs; but clear comprehension is rather difficult when the subject is *camouflé* with an array of data which are as cryptic as they are imposing to the uninitiated.

And here one may be permitted to interject a *triste* anecdote which is, alas! absolutely authentic.

Some twenty years ago the French Parliament was about to authorise a naval building programme. There were two contending Bills: one, championed by the Naval Staff, called for the construction of a goodly number of ships of the line, with the necessary adjuncts, such as cruisers, torpedo boats, etc. This was in accordance with the staid old naval policy whereby fighting fleets have been built up in the past—and still appear to be, the U-boats notwithstanding.

The other Bill, fathered by the so-called "young school," was of a revolutionary nature. No more battleships were to be laid down. Instead the French Navy was to rely upon cruiser warfare, and build a host of commerce destroyers, torpedo boats, and submarines. The latter two were picturesquely termed "naval dust."

As the French public and Press had at the time a rather perfunctory knowledge of naval needs, the impenitent politicians were fully able to display their talents, and the majority party eventually came to the startling conclusion that ships of the line were reactionary vessels, while cruisers and torpedo boats were democratic ships.

What followed is easy to imagine. By vote of the Parliament the naval dust was thrown into the eyes of France, with the result that within ten years the French Navy had dropped from second to fourth place, while Germany, who had in the meanwhile spent an equal number of millions in building battleships, became second naval power. The lesson of this story seems to one quite obvious.

Now, in the matter of airships, it is difficult to foretell, or even foresee, what their development in the near future may hold in store. They may eventually die out, like the diplodocus, at least as far as their military, or rather naval, usefulness goes. And they may very well not choose to do so.

It is stupendous, when one comes to think what the discovery of a buoyant non-inflammable gas must mean for the future of the airship. Deprive the aeroplane of the possibility of sending down the Zeppelin in flames, and your whole nicely thought-out scheme of aerial warfare gets a rude jolt.

With the danger of being burnt in mid air gone, a large, rigid airship may actually become the premier battlecraft of the air, for the great buoyancy would enable it to mount a number of automatic, or semi-automatic, guns which should make it highly unprofitable for aeroplanes to come to close quarters with the aerial leviathan.

The above may read as pure speculation; but as a matter of fact we are now well past the necessity for discovering a light, non-inflammable gas, for this actually exists, although it is found only in a very few places. All that is needed is to find a process whereby it may be produced on a commercial basis. This gas—which is called Helium—has substantially the same lifting force as hydrogen.

Some of these days a wholly unknown chemist, hailing from an obscure place on the banks of the Fleet, or the Chattahoochee River, may come forth with a formula that will put this gas on the production basis—and lo! a few things may be changed in aerial warfare.

In view of this possibility it would seem as if the all-too fatuous dismissal of the airship as an old tub were slightly *déplacé*. So much for the possibilities of the future *Schlachtluftschiff*—of which many a Hun may be dreaming now.

In the meantime the intelligent reader might find it worth his while to make a closer acquaintance with the subject of airships. In this line of endeavour he is unfortunately hampered a good deal by the remarkable paucity of the English airship literature, and, what is even worse, by the obscure way in which airships are listed in such reference books as exist on the subject.

The system of registry presently *en vogue* is based on the volume of the airship; that is, the Continental nations express it in cubic metres, while the Anglo-Saxon peoples indicate it in cubic feet. As 1 cu. m. is equal to 35.3 cu. ft., it follows that a French airship of 10,000 cu. m. volume becomes in English units one of 350,000 cu. ft.—provided the unwary translator has not attempted to convert cubic metres into cubic feet by multiplying the former with the English equivalents of the linear metric dimensions.

Now, assuming that the volume is correctly converted into English units, the reader finds himself confronted with a large figure which does not convey any precise meaning to him. For, unless he knows the normal lifting force of a cubic foot of hydrogen, he will be unable to gather the total lift of the airship in question, although this is really the most important of aircraft characteristics.

A distinguished Italian airship constructor directly attributed the lack of interest, the English Press and public have displayed in the past towards the subject of airships, to the "awesome figures" in which the dimensions of these craft were expressed. This gentleman was none other than Captain Crocco, R. Italian Engineers, the creator of Italy's P. and M. class airships, and he suggested—it was in 1913—that instead of listing airships under volume they be registered under tonnage.

This proposition strikes one as being eminently sensible, firstly, because "tonnage" conveys to everyone—through the naval analogy—some sort of weight carried, and, secondly, because the metric ton (2,200 lbs.) is approximately equal to the long ton (2,240 lbs.), so that for purposes of quick comparison a *terrain d'entente* is found for the hostile metric and English units.

It would then only remain to define the meaning of "airship tonnage." At first sight, it would seem as if this term should express the weight of the displaced volume of air (1.293 kg. per cu. m., at sea level and 0 deg. centigrade), because this is of uniform value all over the world, whereas the lifting force of hydrogen depends on its degree of purity, and this greatly varies according to the process of manufacture.

If there existed such a thing as a vacuum airship (vide Francesco da Lana's "Aerial Ship") the air displacement would express the total lifting power available. As, however, in the existing airships the weight of the hydrogen contained in the hull must be subtracted from the weight of the displaced volume of air to obtain the total lift, registry by air displacement would only serve to complicate matters. It follows that in order to facilitate comprehension of the subject airship tonnage should express lift, and not displacement.

If one adopts, for purposes of registry, a conventional hydrogen-lift value, say 1.150 kg. per cubic metre, at sea level, and 0 deg. centigrade (as furnished by hydrogen of average purity), then a 10,000 cu. m. airship of seven tons dead-weight will be of 11½ G.L.T. (gross lift tons), and of 4½ N.L.T. (net lift tons).

The advantages of such a system of registry for comparison of performances, etc., are so obvious as to render unnecessary any further dissertation, though this very obviousness may well cause it to be never adopted.

ITALIAN MOVEMENTS.

A mission for promoting better trading relations in Argentina has left Italy for that country, and accompanies several aeroplanes and a small Naval submarine-hunting airship. The former machines include an S.V.A. hydro-aeroplane, a small C.A, something from the Farman peoples' Italian representatives—the Savoia firm of Milan—and other craft, and the airship, one imagines, is a Usuelli product. The well-known pilots composing the mission are all men in the Services, so one scarcely knows whether to call the visit a commercial one, though one hopes that much trade may directly or indirectly be the result of the trip.

A WORKS' PARTY.

On a recent Wednesday, the staff and employees of Arnott and Harrison held a successful social entertainment.

The proceedings were commenced with tea, which was served at the Pavilion Hotel, Wormwood Scrubs. The subsequent concert was received with considerable favour throughout, and some amusement was caused by the whistling competition, for which Mrs. Arnott presented prizes.

The entertainment was concluded by a dance.

RESCINDED RESTRICTIONS.

The Minister of Munitions gives notice that, following on the withdrawal on Jan. 31st of certain subsidies on steel, the drawbacks payable to the Government in respect of exports of steel have been reduced as from Feb. 1st. Particulars of the reduced rates of drawbacks may be obtained on application to the Ministry of Munitions Steel Department (Room 104), Hotel Victoria, W.C.2.

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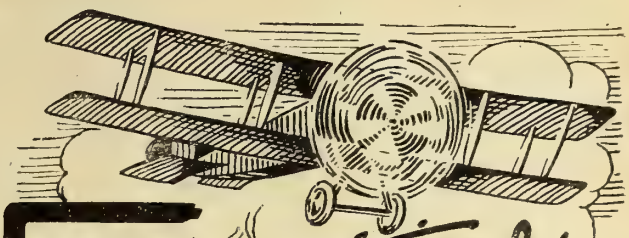
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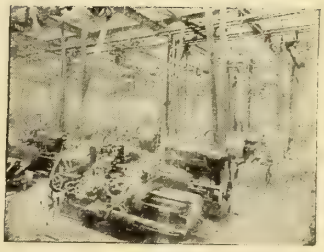
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UNITED KINGDOM.

In the course of a discussion on the future of Commercial Aeronautics at the Aldwych Club on Tuesday, Feb. 18th, Colonel W. A. Bristow, R.A.F., said that as soon as the necessary regulations were ready they would be published in the "London Gazette," and flying would begin about April 1st.

According to statements in the daily Press a seaplane passenger service will be established at Bexhill, this summer. The Gosport Aviation Co. have been granted a site on the foreshore suitable for use as a landing stage.

Presumably this statement is based upon the supposition that passenger flying will be legal by next summer.

It is understood that the Blackburn Aeroplane and Motor Co., Ltd., of Leeds, has completed preparations for inaugurating a series of aeroplane services between Leeds, Liverpool, and Belfast; Leeds and Hull, and Amsterdam, Rotterdam, and Antwerp; and from Hull to Christiania, Stockholm, and Copenhagen.

Besides which this company has received orders from Yorkshire business men for private machines capable of making a flight to Petrograd, Marseilles, Turin or Naples.

Presumably the Blackburn Aeroplane Co. is now waiting for the Air Ministry to legalise private flying before beginning the services. It is expected that the twin-engined "Kangaroo" machine will be the type used.

FRANCE.

The people connected with aviation in France are rather disappointed at the attitude of the British Government in refusing to allow civilian passenger flights from France to England. Owing to this refusal the French people are starting an aerial service between France and Belgium, which has been sanctioned by the Belgian Government.

It is expected that a provisional service with ten aeroplanes, each capable of carrying twelve passengers, will be ready this month. The fare for the journey between Paris and Brussels will be 300 francs (£12), and includes life insurance for £4,000.

This organisation will be taken over subsequently by a French society, and the service will be extended to Amsterdam, Antwerp, Lille, Bordeaux, and Nice.

ITALY.

One records with pleasure the fact that Signor W. Baldi, the moving spirit of "Diana," a paper which occupies in Italy a high position similar to that held by the "Field" in this country, has been rewarded for his services during the war with the rank of Cavaliere of the Royal Order of the Crown of Italy. Cavaliere Baldi has made a feature of dealing with aeronautical matters in his excellent paper, and one feels sure that in forthcoming years, when sporting and civilian flying becomes the vogue, that paper will be a very valuable asset to Italian aviation.

A Conference on things aerial in three sections, two of local interest chiefly, and the other of international dignity, is to be held in Rome in the first half of the year. The President and Committee have been selected.

The Flying Meeting, with headquarters at Naples, is fixed for the last week of September and first of October.—T. S. H.

CANADA

Preparations are being made by influential people in Canada for the encouragement and regulation of aerial transport, and an official body, known as the National Aeronautical Advisory Committee of Canada, has been organised to act in an advisory capacity in the consideration and solution of the many national problems which will arise.

The members of the committee represent scientific, trade and sporting interests, and the Government is likely to obtain valuable assistance from the fund of information available to the different members.

Among the many questions to be settled are: future Naval and Military plans, the civil use of aircraft, the establishment of safety provisions matters affecting aerial law, the possibilities of the aerial post, matters affecting labour, insurance, utilisation and education of personnel, material, production of aircraft, trade development, applied science, co-ordination with similar bodies abroad and the formation of industrial links.

One trusts that the National Aeronautical Advisory Committee of Canada will enter more fully into matters of detail concerning aeronautics in the future than has been attempted in this country by the Civil Aerial Transport Committee.

SCANDINAVIA.

It is stated in Christiana that in all probability the ban on civilian flying will be removed very shortly, as the Aerial Traffic Bill will soon pass into law. The prohibition may be cancelled simultaneously in the three Scandinavian countries.

A SEVERANCE OF INTERESTS.

Sr. Gino Virgilio, the well-known Italian pilot, who has done so much good work in this country in training aviators for the Flying Services, intimates that he is no longer connected with the Virgilio Aircraft Company, Ltd. Sr. Virgilio is still in England and his next ventures in connection with aircraft will be duly notified in this paper.

SELFRIDGE'S AND AERIAL TRAVEL.

During the present week the fuselage of a Handley-Page aeroplane will be on view at Selfridge's in Oxford Street. It is stated that the machine, when completed, will carry twenty people on trans-Continental journies. The daily Press appears to be greatly interested in the seating accommodation, and the upholstering of the interior of the fuselage.

The machine exhibited is the standard o-400 type two-engined Handley Page (usually with Rolls-Royce engines), much used over the enemy lines and the Rhine towns.

In its "transport" form the fore and rear cockpits, usually occupied by gunners, mechanics and observers, and the centre section in which bombs were carried, have been turned into a passengers' saloon. The compartment extends for about one-third the length of the fuselage, and is 6 ft. 6 ins. from floor to ceiling. Armchairs are provided for 17 passengers. These are placed along each side of the fuselage, facing forward, with an unobstructed view through Triplex glass windows along the sides. This saloon is entered from below through two trap-doors in the floor, which give access to the gangway between the seats. There is an additional seat for an outside passenger in the bow-gunner's cock-pit in front of the pilot. The main compartment is fitted with electric lamps of the candle pattern and gilded mirrors.

Lord Morris, of Newfoundland, who opened the show, said that no one could estimate what would be the future of aviation. It was only some 35 years ago since the first petrol engine was used. Handley Page machines had in the last month carried over 700 passengers to France, and the company had a programme of great activity, with ramifications extending to the United States, Canada, Europe, Africa, and India.

At a luncheon at Prince's Restaurant, Mr. A. Best, of Selfridge's, proposed the toast of Mr. Handley Page. He said he saw no reason why commercial aeroplanes should not be used by business houses, and Selfridge's, as soon as possible, would use them in every conceivable way they could be used. He could imagine their buyers flying to get ahead of other buyers of carpets at Smyrna. [Would not this be trading with the enemy? Why not fly to Axminster or Wilton instead?—Ed.]

Mr. Handley Page, in his reply, said that they were starting an entirely new company, the Handley Page Air Transport Company, which would be at the disposal of anybody, with machines to fly people between this country and the Continent, and from there through its allied companies as far as it was possible for an aeroplane at present to reach. Their machines had already reached down beyond the centre of Africa, and to Delhi and Calcutta.

This transport company was going to do the work with their own machines, and they would carry passengers and freight at a price which would pay anybody to utilise the service. The only way in which they could do this would be by having an enormous volume of goods and large numbers of passengers with a small running cost. Their policy would be to run aerial motor lorries and not aerial racing cars.

With regard to present methods of carriage, they would not be competing with anyone, but adding to the facilities already existing. They would relieve the railways of fast traffic, which in the past had been their bugbear.

The service would begin as soon as the Air Convention was signed. Their arrangements were made: machines and pilots were ready to fly people to the farthest parts of the Empire. In order to carry the scheme into effect, several gentlemen had placed their services at his disposal. Mr. E. J. Bray, until recently general European agent of the National Railways of Mexico, would be their first aerial traffic manager. On the flying side he would have the assistance of several officers who had played a distinguished part in the Air Force in the war.

AN ENTERPRISING PRINTING FIRM.

It is announced that Captain C. Thompson Walker, R.A.F., has joined the staff of Sir Joseph Causton and Sons, Ltd., of 9, Eastcheap, as technical expert in their newly formed Aircraft Advertising Department.

Captain Walker has spent three years in the R.A.F. as a technical officer, and has served both at home and abroad. He is, therefore, well able to advise on all matters concerned with aircraft, particularly as he has had valuable experience in writing for the Press, being the author of the various articles signed "Penguin" which have appeared recently in several of the leading journals. Aircraft firms interested in any form of publicity whatever will do well to consult Captain Walker on the matter.

Sir J. Causton and Sons, Ltd., have had very many years' experience in the art of successful publicity, and they can cover every branch of the work from trade marks to posters. All the firm's work maintains the high standard for which it is noted. A staff of skilled artists and writers is maintained, and under the expert guidance of Captain Walker any work entrusted to the firm will be executed in a way representative of the very highest form of the printer's art.

Sea and Land TRANSPORT

Representatives of Foreign Governments, Commercial and Transport firms at home and abroad, and others interested in Commercial Aviation, are invited to make inquiries with regard to the latest types of

Blackburn AIRCRAFT

THE BLACKBURN AEROPLANE AND MOTOR CO., LTD.,
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Please send free Booklet and particulars of your system to name and address as attached bearing.
As. 2

MOTORS AT OLYMPIA.

The following matter has been received for publication :—

In connection with the November Motor Show at Olympia, the S.M.M. and T. has decided that whilst the Exhibition will be fully International, no goods of enemy origin will be allowed to be shown. This decision is comprehensive, and means not only that no German or Austrian cars will be allowed to be exhibited, but that no tyres, parts, accessories, or fittings of any kind from enemy countries will be permitted.

Good progress is being made with the scheme of uniform stands for this Exhibition. The scheme applies not only to the Car Stands, but also to the Stands for other exhibits, including a facia scheme for the Gallery Stands.

Even in the present stage of reconstruction of the Industry, the space available at Olympia will be insufficient for all the members desiring to exhibit, and arrangements have already been made to meet the requirements for Exhibition space certain to be caused by the extension of the Industry next year.

These arrangements refer, of course, only to the Touring Car Exhibition. Aircraft, Commercial Motor Vehicles, and Motor Boats will be catered for by separate Exhibitions, arrangements for which are in progress.

Agricultural Motors will be shown in connection with the Tractor Trials being organised by the Society on land near Lincoln for the early part of September next.

(Signed) Charles D. Clayton, (Press Manager).

[One gathers that the Aircraft Exhibition to which reference is made, will be a joint affair of the S.B.A.C. and S.M.M. and T.]

AN A.G.S. MANUFACTURERS' ASSOCIATION.

A most successful meeting of manufacturers of A.G.S. parts was held at the Cannon Street Hotel on Friday, February 28th. It was decided to form an Association to protect the members, and settle questions with the Government.

After hearing the views of the gentlemen present, a resolution was adopted that the first thing to do was to form a strong representative committee, and the following were elected :—

Mr. S. L. Forbes (A.G.S. Manufacturing Co., Ltd.).
Mr. Arthur Green (Coventry Repetition Co., Ltd.).
Mr. Edward Joseph (Ozonair, Ltd.).
Mr. Sam. G. Mason (Sam. G. Mason, Ltd.).
Mr. A. R. Owen (Rubery, Owen and Co., Ltd.).
Mr. J. M. Pirie (Edgware Eng. and Aircraft Co., Ltd.)
Mr. Grey McCann is acting as secretary.

The feeling of the meeting was that such an Association would be not only of a great help to the members, but also of considerable assistance to the Government, it being felt that it would make working much smoother if the authorities knew they had an Association to which to turn.

THE PILOT'S REGISTER.

From time to time readers will have noticed advertisements in The Aeroplane concerning the Aerial Register and Gazette, and as there may be many officers of the Air Force who have not yet realised its existence, and the circumstances which have brought it into being, this note is written to throw more light upon the matter, before the disbandment or demobilisation of the Air Force has been set to work at full speed.

The Aerial Register and Gazette is not an official publication; it is privately compiled by Captain A. J. Swinton, late R.E., an officer who has been a frequent contributor to these columns on commercial aeronautical matters, and who has specialised in this subject for some time past.

Its aims are several, but the chief of them is to collect as much information as possible concerning commercial flying employment all over the world, and to put it in the hands of those who have subscribed to the Register. It also aims at forming the nucleus of a society for the maintenance and furtherance of the flying fraternity as professional men.

This book cannot fail to be a very powerful advertisement for commercial flying, as it will be printed in four languages, and circulated in 20 or 30 different countries. This will, in itself, give a certain amount of advertisement to those whose names are in it, and will bring them into touch with all possible employers, who, desiring aerial personnel, will look for them in the book, and will then communicate with them.

The record of each registrant's qualifications will show at a glance what he has done, and what his experience is, and, for the convenience of employers, these qualifications will be cross-indexed also in four languages, so that any employer wishing to obtain the services of, let us say, a man who has a knowledge of the Yang-tse-Kiang or the Argentine can find him in two minutes.

Captain Swinton has been engaged on an enormous amount of propaganda work in the furthering of commercial flying, and as a result he decided some time ago to publish this Register.

The office of the Register is not in any sense an employment agency, and no deduction or commission is payable by those who may happen to find employment through its columns.

The expense of the production is met by a subscription, from each person registered, of two guineas for the present edition. The first impression is in the hands of the printers, and may be expected very shortly. Owing to the large influx of names the Editor has found it necessary to start on a second impression, which will follow the first at a short interval.

Those who contemplate earning their living in the air will do well to write to the Editor of the Aerial Register for the necessary forms and conditions of registration, as it seems that this publication is the nucleus of something which will eventually be a world-wide organisation working for the benefit of its subscribers.

Captain Swinton has had the foresight to see that flying in the more important sense will not be centred in this country, but that it will be in the distant parts of the world where communications are more or less non-existent, hence his propagandist work abroad. As yet there has been no effort to push the interests of the British flying-man, but it is now being done by the Register.

A BRITISH GIANT.

The large triplane built by Mr. W. G. Tarrant, of Byfleet, and Capt. P. T. Rawlings, D.S.C., will be ready shortly for its trial flight. This machine is fitted with six Napier "Lion" engines, giving a total of approximately 3,000 h.p.

It is stated that methods have been employed in the construction of the machine which have only previously been practicable in the building of small machines. Also, that the triplane was originally designed to carry 10,000 lbs. of bombs, for non-stop flights of 1,000 miles.

Two pilots will be carried, and the controls will be actuated by a power plant, as manual control would impose too great a strain on the pilots. This method of control is presumably after the style of steamship steering methods, which have been employed, in a modified form, on some of the large flying boats.

MR. GORDON ENGLAND, CONSULTANT.

All old-timers in the Aircraft Industry will be interested to hear that Mr. E. C. Gordon England has now established himself as an Aeronautical Engineer at St. George's House, 193, Regent Street, London, W.1.

Mr. England intends to cover a wide field of activity, and his very extensive experience as an aircraft designer, as a practical pilot, and as a works manager, entitle his opinion on any matter to be treated with respect.

He is allying himself with certain recognised specialists in different branches of aeronautics, so that any opinion which he may give may not merely be his own personal opinion, but may have the support of other men who are equally well qualified to judge on whatever matter may arise. The scope of his proposed activities may best be judged by setting forth an account of the work which he is prepared to do.

For example, he is prepared to advise foreign Governments on the laying out of aerodromes and air stations and on the establishment of aerial postal services. Foreign Governments intending to order British aeroplanes will find that Mr. England is ready to carry out all their negotiations for them, and to advise them on the placing of orders. Not being interested in any way in any one manufacturing firm, he is able to give unbiased advice in this respect, and, in the event of orders being placed through him, he is prepared to act for such foreign Governments in the same capacity as that in which the Aeronautical Inspection Department acts on behalf of the British Government. While machines are being manufactured he is also prepared to oversee the Acceptance Tests of the machines when completed and to arrange for their safe shipment to their destination.

Mr. England's reputation in this country is sufficient guarantee that any work of such a nature undertaken by him will be carried out in an absolutely honest and conscientious manner, and it will be evident to any foreign Government which may contemplate negotiating with him that his success as a Consulting Engineer must depend absolutely on his giving the best possible service to those who consult him.

As regards companies or private persons, Mr. England is prepared to advise on the designs of machines and to investigate proposals for the establishment of flying services. He is equally prepared to report to intending investors in aeronautical ventures as to the prospects of any scheme which may be put up to them for consideration. Also he will advise purchasers of machines for their own private use as to the type best suited for their particular purpose, and, if desired, he will in this class of business also act in the capacity of an Aeronautical Inspection Department and Acceptance Department.

His chief object in all these operations will be to see that those employing him in a consulting capacity receive the best possible value for the money which they are proposing to expend on aeronautical apparatus or on aeronautical ventures of any kind.

Mr. England is one who has risked his life for years as a pioneer of British Aeronautics, and he has always held the highest possible reputation for honesty and capability and for a very keen critical faculty, therefore his proposals are entitled to the careful consideration of all who wish for sound advice before risking themselves or their money in aeronautical ventures.

AIRCRAFT FINANCE

THE IDEA OF AN AERONAUTIC TRUST.

Combination, says the proverb, is strength: an American aphorism born of accumulated experience warns one "not to trust in Trusts." These contradictory truths are an appropriate prelude to a discussion of the idea, now slowly germinating, of some sort of a trust in aeronautics, a consolidation of interests, brain power, practice and experience in the Aircraft Industry. Believers in the idea of such a trust can easily produce strong and apparently well-reasoned arguments in favour of its early consummation. The opposition is not without equally convincing proof of its own case, financial and otherwise.

Financial Jugglery.

It is a fact that physicial or other deficiencies have been often responsible for the birth of industrial trusts: the necessity for their creation is frequently an avowal of financial or economic weakness. It is hoped by means of fusion or amalgamation to provide mutual support for several undertakings of doubtful stability in the belief that the advantages of one may compensate for, if not entirely eliminate, the physical or financial infirmities of the others. Consolidations of this sort do not result in any solidarity whatever: frequently the faults become more glaring. It would be better to be truthful and describe such so-called consolidation as manipulations or jugglery, which is a term not liked in honest financial circles.

The Aircraft Industry, now in such an economically pliable condition, would seem to lend itself easily to manipulative surgery of this particular kind of finance. Even if the ethics and intentions of the surgeon were as free from suspicion as Cæsar's wife, the operation would not be likely to benefit the industry. Assuming that the primary object of the manipulation was to make money for himself and his own clique, and make it as quickly as possible, regardless of consequences, the results would be serious. Incidentally, financiers, not being in business for the good of their health, it is a thousand to one that this would happen.

A Club-Footed Colossus?

Anyway, what would be the benefit from a trust? A vigorous development programme rendered practicable by the concentration of power sounds a promising advantage, but somehow trusts do not always show vigorous development: on the contrary, the feeling of independence engendered by their size exerts a restrictive influence on initiative, if it does not actually produce inefficiency. Moreover, although possessing an exceptional power over the trade, they are frequently incapable of according any correspondingly large financial results. This is not always due to excessive capitalisation, which was the curse of all trusts and many public companies in relation to the pre-war profit-earning standard: very often the fault is physical.

Financial Success Doubtful.

It is very questionable whether an aeronautic trust would prove a financial success: certainly the investor who sank his money in such a venture would be accepting more than an ordinary and reasonable risk as industrial securities go. Supposing it was intended to provide the nucleus for this trust out of a few of the essentially aircraft ventures already in existence, it would be a bold demand on the credulity of the public, seeing that such ventures, no matter how they have fared during the exceptional period of the war which gave them birth, have yet to demonstrate their real capabilities under less favourable conditions, financial and physical. It may not be an easy task even if the possibility of foreign competition should be removed by prudential aid and preferential legislation.

Menace of Excessive Capitalisation.

There are competent observers who maintain that there is already too much deadweight of "water" about the capitalisation of aircraft construction companies. The sooner they are dewatered and carry only a reasonable burden of capital the better will it be. But it is one of the principal vices of a trust to have an excess of capital. It cannot be expected that the rearrangement of the capitals, incidental to the absorption of the components of the trust, will involve any reduction, but rather an increase, in order to make the scheme appear sufficiently attractive for acceptance. The result would be a burdensome capitalisation, menacing the success of the venture right at the outset.

By reason of the greater power, it might be contended that a trust would be better able to develop aircraft: it would be in a position to assert its rights more vigorously and with better chances of success: the State might be more amenable to the claims of aircraft and legislate accordingly if the case was watched by the representatives of a trust. In such arguments there is a lot taken for granted which is really not sound logic. The State would not be dictated to by a trust: it would listen more feelingly to the claims of individuals who associated voluntarily in pressing any demands. The financial prospects of an aircraft trust do not seem promising at all. There will be profitable employment for individual companies, capably and soundly managed, displaying initiative and keenness in keeping ahead of the constantly changing phases of the scientific evolution of aeronautics. Such companies will be able to secure the needful financing on reasonable terms because they will show results. Freedom of individual action seems to be the soundest policy for aircraft.

CURRENT TOPICS.

Labour Uncertainties Cause Stagnation.

The Stock Exchange remains torpid, and until there is some definite change in the labour situation it is useless to expect altered conditions. Even oil shares are sluggish, and were it not for the resuscitation of the shares of questionable mining concerns, shares that have rested for years in well-merited oblivion, the House would be about as tame as cold mutton fat. Aircraft and kindred securities have excited less interest, the rumours of impending amalgamations among some of the big armament concerns are gradually dying a natural death without any fuss of contradictions or denials. The story about White and Poppe and Dennis Brothers joining forces, however, is still confidently believed in some quarters.

Anticipating the Whitehead Results.

It will not be long before the results of the Whitehead Aircraft Company will be published. These are awaited with more than ordinary interest. No one can wonder at that. Estimates vary considerably as to the profits that will be shown. A profit of £62,000 is talked about. Whether this amount has been struck after providing adequately for depreciation, liabilities for war taxation, and the like incidentals does not transpire. The capitalisation is a bit involved, there being 7 per cent. cumulative and participating preference shares of £1 each, 10 per cent. cumulative and participating £1 preference shares, and a lot of 1s. deferred shares. One is disinclined to speculate what the assumed profit represents in relation to the various classes of shares. Wait and see; then there will not be any erroneous conclusions.

Frederick Sage and Aircraft.

At the shareholders' meeting of Frederick Sage and Co. the chairman stated that "owing to the foresight and energy of our management, the war period, which might easily have involved us in disaster, has been not only safely weathered, but has proved an advantage, for we are now better organised and able to cope with large contracts than we were five years ago, while our financial position leaves nothing to be desired. To meet the rush of war work several factories, chiefly in Peterborough, were rented. These temporary shops are being vacated, and we are concentrating our manufacture in our freehold premises.

Numbers Stated.

"The making of aircraft continues, and we are retaining expert managers, designers, and mechanics for this important class of work. I may mention that the first seaplane made by the company increased the height record from about 2,000 ft. to well over 10,000 ft. We have turned out over 300 aeroplanes, 80 large seaplanes, and over 90 cars for airships, also innumerable spare parts, propellers, etc. Our own design of seaplane was adopted as the standard seaplane training machines for 1919. We anticipate that the experience and high degree of efficiency we have attained during the war will allow us to compete for the construction of aircraft for home and foreign Governments and for civilian uses.

"With regard to what I may describe as our normal business, our position is satisfactory. The difficulties before us lie not in the obtaining of orders, but rather in finding the material to meet the requirements of our customers and the skilled mechanics to execute the work with rapidity."

Austin Motor Co. Issue.

The allotment letters in reference to the Austin Motor Co.'s issue of 1,000,000 "B" preference shares have been posted.

S. Smith and Sons' Financial Needs.

Presiding at the shareholders' meeting held for the purpose of increasing the capital from £300,000 to £500,000 in £1 shares, the chairman remarked that "in the opinion of the board, we have now reached the point where any future finance—which, owing to the further extension of the business, may become necessary—may with advantage be done by Preference shares, mortgages, or loans, so as to obtain further capital on a cheaper basis, and in consequence increase the dividend-earning capacity of the ordinary shares. You will remember that we are pledged not to create and issue any securities ranking in priority to your shares unless you have been consulted; and I need hardly assure you that the board will take no such step without calling the necessary meeting to obtain your sanction to any such course.

Increased Demand for the Products.

"Present indications give strong evidence that there is an increased demand for the company's products all over the world, and that there is sufficient work in sight to keep fully occupied the company's large factory at Cricklewood for some long time to come. There is, however, one marked difference in dealing with many thousands of customers compared with having as your chief customer the Government. It is easier to finance a large turnover in the latter case than in the former. Larger stocks have now to be carried, particularly owing to the growth of the export trade—more notably in Australia, New Zealand, South Africa, and the United States.

Subsidiaries being Formed.

"In order to still further increase the business abroad, subsidiary companies are in process of formation in France, Denmark, Italy, and elsewhere. It might interest you to know that the turnover at our branches during the past 12 months has equalled the total turnover of our entire business, home and export, for the year 1913-1914. Whilst we have always sought in laying out our factory for Government requirements to provide for the future, yet considerable expenditure is now necessary for balancing machinery, if we are to produce on the most economic lines. We are of opinion that the prospective demands for the company's products all over the world warrant the assumption that our maximum turnover during the war will be maintained after a brief interval—an interval which is commonly called the transition or reconstruction period."

BOWDEN FINANCE.

It is announced that the capital of the Bowden Brake Co., Ltd., has been increased to £75,000, and in response to the offer to the shareholders to take up new shares applications were received largely in excess of the shares available.

NEW COMPANIES.

North of England Motor and Aircraft Industries, Ltd.—Registered Feb. 21st. Capital £25,000 in £1 shares. Promoters of shows, exhibitions, meetings, competitions, races and the like, providers of exhibitions, halls and grounds, race courses, aerodromes and sports grounds in Manchester and elsewhere, club proprietors, motor vehicle and aeroplane manufacturers and proprietors, carriers, etc. First directors:— J. Newton, Hale Lodge, Cheshire, motor engineer; J. W. Haworth, South Lawn, Rhyl, motor engineer; T. Garner, Whalley Road, Whalley Range, Manchester, motor factor; R. Woodhead, 91, Lord Street, Southport; R. Winn, Woodhouse Lane, Leeds, motor engineer; J. G. Reece, 12, Croxteth Road, Liverpool, motor engineer; and S. Borris, 39, Moorland Road, Didsbury, Manchester, engineer. Registered office: 238, Deansgate, Manchester.

Zephyr Carburetters, Ltd.—Private company. Registered Feb. 22nd. Capital £2,000 in £1 shares. Manufacturers of, and dealers in carburetters, automobile, aero, agricultural, marine, and other engines, etc. The subscribers (each with one share) are:—T. C. Capson, 46, Northumberland Road, Coventry, engineer; C. Cameron, 7, Cromwell Road, Rugby, accountants' clerk. Table "A" mainly applies. Registered office:—Rowena Works, Holyhead Road, Coventry.

MORTGAGES, CHARGES AND SATISFACTIONS.

Glendower Aircraft Co., Ltd.—Land registry charge on freehold land in North Sheen, dated Jan. 29th, 1919, to secure all moneys due or to become due from company to National Provincial Bank of England.

Norman Thompson Flight Co., Ltd.—Particulars of £60,000 debentures, created Feb. 19th, 1919, £40,000 being issued on same date, charged on the company's undertaking and property, present and future, including uncalled capital.

Hampshire Woodcrafts, Ltd.—Particulars of £1,250 Debentures created Dec. 30th, 1918, and all issued Jan. 30th, 1919, charged on the company's undertaking and property, present and future, including uncalled capital (if any).

John Dawson and Co. (Newcastle-on-Tyne), Ltd.—Mortgage on freehold property at Wallsend, dated Feb. 17th, 1919, to secure all moneys becoming due from company to L.J.C. and Mid. Bank.

RECEIVERSHIPS, APPOINTMENTS OR RELEASE.

Hendon Engineering Co., Ltd.—A notice of the appointment of C. J. March, of 23, Queen Victoria Street, E.C., on Feb. 10th, 1919, as receiver of the property charged by certain debts for £600.

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in all its Branches.
BRAY, GIBB & CO., LTD.,
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NAVAL & MILITARY ·AERONAUTICS·



FROM THE "LONDON GAZETTE."

AIR MINISTRY, Feb. 25th.

R.A.F.—The following temp. appts. are made at the Air Ministry :—Staff Officer, 2nd Cl.—(Air).—Capt. (Hon. Maj.) W. Pennefather, and to be actg. Maj. whilst so empld, Feb. 1st.

Staff Officers, 3rd Cl.—And to be actg. Capts. whilst so empld. :—Lt A. J. Clark, Jan. 6th; Sec. Lt. A. D. Watts, Feb. 7th

The following temp. appts. are made :—Staff Officers, 2nd Cl.—Maj. W. H. Yeatman-Biggs, Aug. 13th, 1918.

Staff Officer, 3rd Cl.—Lt. (actg. Capt.) P. H. Barr, and to retain his actg. rank whilst so empld., vice Capt. A. H. King, Feb. 12th.

FLYING BRANCH.—Maj. A. W. Tedder to be actg. Lt.-Col. whilst empld. as Lt.-Col. (A.), July 23rd, 1918.

Capt. (actg. Maj.) O. Stewart, M.C., A.F.C., retains the actg rank of Maj. whilst empld. as Maj. (A.), from (T.), June 18th, 1918.

Capt. J. W. Somers to be Capt. (A.), from (Ad.), Feb. 4th

The following are granted temp. commns. as Sec. Lts. (A.) :—E. Exton (Sec. Lt., Middx. R., T.F.), June 30th, 1918; J. C. Ambler (Lt., Lanc. Fus., T.F.), and to be hon. Lt., Sept. 1st, 1918.

Prob. Flight Officer E. F. Green (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (A.), Nov. 16th, 1918 (substituted for notification in "Gazette" Dec. 10th, 1918).

Sec. Lt. M. Furtney (late Gen. List, R.F.C., on Prob.) is confirmed in his rank as Sec. Lt. (A.), June 13th, 1918.

Sec. Lt. A. Sommerfelt (late Gen List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Obsr. Officer), May 20th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. E. A. MacDonald (Lt., Can. For. Corps), Lt. (Hon. Capt.) N. W. Taylor (Capt., Can. A.S.C.), Dec. 7th, 1918; Lt. J. H. Reid (Lt., Quebec R.), Dec. 12th, 1918; Lt. (actg. Capt.) W. A. Landry (Lt., temp. Capt., Can. F.A.), Dec. 21st, 1918; Lt. (Hon. Maj.) D. A. MacRae (Maj., Alb. R.), Jan. 11th; Sec. Lt. (Hon. Lt.) G. H. Rogers (Lt., E. Ont. R.) (substituted for notification in "Gazette" of Feb. 11th); Sec. Lt. H. G. Smith (Lt., Nova Scotia R.), Jan. 13th; Lt. J. S. Balfour (Lt., E. Ont. R.), Jan. 18th; Lt. J. M. Stubbs (Lt., Hussars), Jan. 25th; Sec. Lt. (Hon. Lt.) L. R. James (Lt., Brit. Col. R.), Jan. 28th; Sec. Lt. V. G. Hodges (Sec. Lt., S. Wales Bord., T.F.), Feb. 7th; Lt. A. R. Harrison (Lt., W. Yorks R.), T.F., Feb. 8th.

The following are transfd. to the unempld. list :—Lt. W. D. Vernon, Jan. 13th; Capt. D. B. M. Hume, Lt. (Hon. Capt.) C. H. M. Willson, Jan. 15th; Sec. Lt. H. M. Stringer, Jan. 16th; Lt. A. S. Wellby, Jan. 17th; Sec. Lt. Conrad Volk, Lt. F. P. Williams, Jan. 18th; Lt. L. Lievers, Lt. J. C. D. Whelan, Jan. 21st; Sec. Lt. J. H. Bolam (Northd. Fus.), Lt. P. L. Ward (R.F.A.), Jan. 22nd; Lt. E. W. Lindeberg, Jan. 23rd; Sec. Lt. J. S. Machin, Sec. Lt. R. C. Stephens, Sec. Lt. R. E. Skinner, Jan. 24th; Sec. Lt. E. P. Senior, Sec. Lt. (Hon. Lt.) W. R. Steed, Jan. 25th; Sec. Lt. H. Fox, Lt. D. C. Hopewell, Lt. A. Hodgkins, Capt. W. V. Simons, Sec. Lt. J. D. Williams, Jan. 26th; Lt. A. B. Craddock (Arg. and Suthd. Highrs., T.F.); Sec. Lt. J. A. Horner, Sec. Lt. J. A. E. Steel, Jan. 27th; Lt. B. N. Garrett, Lt. E. Lee, Jan. 28th; Sec. Lt. H. Oates, Sec. Lt. (Hon. Lt.) A. D. Young, Jan. 29th; Lt. A. B. Hill, Lt. J. A. Yarrow, Jan. 30th; Lt. D. Cushing, Sec. Lt. A. M. Daniels, Sec. Lt. A. Gladwin (York and Lanc. R.), Maj. K. K. Horn, M.C., Sec. Lt. E. H. Leather, Lt. F. Lupton, M.C. (Sea Highrs., Spec. Rec.), Sec. Lt. E. A. Welsford, Jan. 31st; Sec. Lt. D. D. Ashley, Lt. P. A. A. Boss, Sec. Lt. F. Brownlee (Lt., R.W. Kent. R.), Sec. Lt. G. McGregor Chalmers, Lt. P. T. Holligan, D.F.C., Lt. (actg. Capt.) H. Liver, Lt. J. Lowe, Sec. Lt. J. W. Sandham, Sec. Lt. (Hon. Lt.) J. G. Towers, Feb 1st; Sec. Lt. C. F. Brown (D.L.I.), Sec. Lt. H. Lapish, Lt. E. A. C. Lawson (Capt., R.F.A., T.F.), Lt. J. A. Strugnell, Feb. 2nd; Sec. Lt. W. E. Cook, Capt. A. G. Waller, Lt. G. K. Walker, Feb. 3rd; Lt. R. G. C. Adams, Lt. H. W. Connell, Sec. Lt. C. W. Grant, Sec. Lt. A. R. Levey, Feb. 4th; Lt. J. Adamson, Sec. Lt. C. G. Bateson, Sec. Lt. E. C. Bethell, Sec. Lt. G. C. S. Bowring, Lt. F. Catterall (Lanc. Fus., T.F.), Sec. Lt. H. J. Collar, Lt. F. Fowler, Sec. Lt. W. Greenwood, Lt. (actg. Capt.) W. H. Hewson, Lt. J. Hirst, A.F.C., Lt. A. Hollis (Lt., Hamps. R., T.F.), Sec. Lt. N. A. Horlock, Sec. Lt. A. L. Jordan, Lt. D. Kingsley, Capt. J. L. Leith, M.C. (Lt., Hamps. R.), Sec. Lt. J. B. Smith, Sec. Lt. W. F. Smith, Lt. F. J. Walsh, Lt. E. H. Williams, Feb. 5th; Sec. Lt. T. C. Greeley, Sec. Lt. E. C. James, Lt. F. Matthews, Feb. 6th; Sec. Lt. A. A. T. Favard, Lt. W. C. M. Harbottle, Sec. Lt. (Hon. Lt.) C. R. Leeke (Lt., R.H. and R.F.A., T.F.), Lt. G. D. Smith, Lt. W. P. T. Watts, Feb. 7th; Sec. Lt. A. W. Amies, Sec. Lt. (Hon Lt.) L. O. Atkins (E. Surr. R.), Lt. (actg Capt.) C. Bowman, D.F.C., Lt. F. J. L. Bishop, Sec. Lt. A. L. Cormie, Sec. Lt. W. H. Drew, Lt. J. P. Everett, Lt. H. H. Gillingham, Sec. Lt. E. L. Hallett (K. Suss. R., T.F.), Sec. Lt. W. H. Hutt, Lt. K. P. Hunt, Lt. J. C. Keyser (Lt., Middx. R.), Lt. W. B. Lane, Sec. Lt. M. J. F. Underwood, Sec. Lt. H. E. Yates, Feb. 8th; Lt. H. C. Adams, Sec. Lt. L. H. Fray, Sec. Lt. D. G. Paterson, Sec. Lt. S. A. Scriven, Sec. Lt. L. Townsend (Northd. Fus.), Feb. 9th; Sec. Lt. A. Bell, Sec. Lt. B. C. Fairchild, Sec. Lt. M. G. Hill (Sec. Lt., Lond. R.), Sec. Lt. (Hon. Lt.) L. C. Pierce (R.H. and R.F.A.), Feb. 10th; Lt. H. Arnold, Sec. Lt. (Hon. Lt.) T. S. Bustard (R.A.M.C.), Sec. Lt. J. C. Carson, Sec. Lt. J. Erskine, Capt. W. R. B. Gifford, Lt. A. S. Harris-Heffer, Lt. (actg. Capt.) H. W. Lee, Sec. Lt. A. L. Lightowler, Lt. E. L. Lister, Sec. Lt. W. Lowry, Lt. J. McLee, Sec. Lt. R. Maynard, Lt. (actg. Capt.) T. P. Middleton, Sec. Lt. H. M. Mortiboy, Sec. Lt. H. F. Waldock, Sec. Lt. S. Warburton, Feb. 11th; Sec. Lt. J. R. W. Adamson, Capt. (actg. Maj.) F. A. Bates, M.C. (Denbigh Yeo.), Lt. A. J. E. Behm (Lond. R., T.F.), Lt. E. H. Chater, Lt. E. S. Clark, Sec. Lt. L. S. Greenaway, Sec. Lt. J. S. Heggie, Lt. (actg. Capt.) R. S. S. Ingram, Lt. A. O Matt, Sec. Lt. A. G. V. Reeves, Sec. Lt. (Hon. Capt.) J. Schofield, M.C. (Essex R., T.F.), Sec. Lt. J. Witton, Feb. 12th; Capt. G. Alchin (R.F.A., S.R.), Lt. R. I. Metcalfe, Feb. 13th; Lt. H. A. Airey, Lt. J. W. Boumphrey (Ches. Yeo., T.F.), Lt. F. Edsted, Lt. C. O. Meeke, Lt. W. Robson, Sec. Lt. P. Webster, Lt. (actg. Capt.) J. A. S. Wright, Feb. 14th; Sec. Lt. F. R. Pemberton, Feb. 15th; Sec. Lt. H. E. Higginson, Feb. 16th; Sec. Lt. H. E. Archdekin, Sec. Lt. K. W. Crosby, Sec. Lt. W. D. Hayter, Sec. Lt. J. E. S. Lytell, Feb. 23rd; Sec. Lt. G. Woolf, Feb. 24th; Lt. S. J. Hawthorn (Lt., N. Staffs. R., T.F.), Feb. 25th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—H. B. Browne (contracted on active service), W. W. Brymer (R.G.A., T.F.) (contracted on active service), J. H. Harkin, F. Rennison (contracted on active service), H. E. Startin (contracted on active service), Feb. 26th.

Sec. Lt. F. Seddon relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Feb. 26th.

Sec. Lt. C. O. Carson resigns his commn. in order to resume his medical studies, and is permitted to retain his rank, Feb. 26th.

Sec. Lt. W. G. White is antedated in his appt. as Sec. Lt. (A.), July 31st, 1918.

Sec. Lt. T. H. Barry is antedated in his appt. as Sec. Lt. (Obsr. Officer), April 4th, 1918.

The initials of Lt. (actg. Capt.) F. D. Grant are as now described, and not as stated in "Gazette" Dec. 6th, 1918.

The notification in "Gazette" June 11th, 1918, concerning B. C. Dupont is cancelled.

The notification in "Gazette" May 3rd, 1918, concerning Sec. Lt. R. Joyce Woods is cancelled.

The notification in "Gazette" June 28th, 1918, concerning Sec. Lt. L. L. Saunders is cancelled.

The notification in "Gazette" May 28th, 1918, concerning Sec. Lt. D. B. Sinclair is cancelled.

ADMINISTRATIVE BRANCH.—Capt. A. J. Brown, M.C., to be Capt. from (A.), Nov. 28th, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. :—R. N. Giles, P. J. Murphy, Oct. 1st, 1918; J. W. Winter, Nov. 11th, 1918; (Hon. Capt.) G. Chetwynd-Stapylton, Dec. 1st, 1918.

J. A. McLaren, M.C. (Lt., L'pool R.) is granted a temp. commn. as Lt., and to be actg. Capt. whilst empld. as Capt., Oct. 25th, 1918.

Capt. J. F. Hay to be graded for purposes of pay as Lt. whilst empld. as Lt. from (S.), Jan. 8th.

Lts. (A.) to be Lts. :—D. H. Rudd, Oct. 21st, 1918; W. Dobeson, Oct. 27th, 1918; B. H. Caswell, Nov. 2nd, 1918; G. J. Ogg, Dec. 4th, 1918; D. H. Lees, Dec. 5th, 1918; C. E. Bacon, Dec. 19th, 1918; P. S. L. Lee, Dec. 20th, 1918; G. N. Silvester, Jan. 14th; A. E. N. Jansen, Feb. 1st; G. R. Priestley, Feb. 11th.

Lt. F. L. Clark to be Lt., from (A. and S.), Nov. 29th, 1918.

Lts. (O.) to be Lts. :—N. V. Harle, J. S. Stevenson, Nov. 27th, 1918; A. V. Matt, Dec. 19th, 1918; N. I. Brockbank, D.F.C., Jan. 18th.

Sec. Lts. to be Sec. Lts., from (A.) :—J. E. G. Rochemont, A. H. Bradley, Nov. 22nd, 1918; A. K. Whiteman, C. H. S. Pain, Dec. 3rd, 1918; A. B. D. McConnell, Jan. 3rd; E. T. Wales, Jan. 23rd.

Sec. Lt. H. Newsham to be Sec. Lt., from (A. and S.), Dec. 12th, 1918.

Sec. Lts. to be Sec. Lts., from (O.) :—J. M. Holling, J. MacD. MacKinnon, Nov. 14th, 1918; F. W. P. Clark, Nov. 19th, 1918; C. C. Dance, Dec. 2nd, 1918; W. H. Bentley, Dec. 5th, 1918; J. E. West, Dec 10th, 1918; R. P. H. West, Dec. 20th, 1918; C. H. Cutting, Jan. 7th; E. H. Leavers, Jan. 20th; S. St. C. Stone, Jan. 27th.

Sec. Lt. A. E. P. Smith (late Gen. List R.F.C., on prob.) is confirmed in his rank as Sec. Lt., April 1st, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. J. V. Hoskins (R. Welsh Fus., T.F.), Jan. 4th; Maj.-Gen. F. C. Heath-Caldwell, C.B., Feb. 1st.

The following are transfd. to unempld. list :—Sec. Lt. G. Allison-Beer, Sec. Lt. J. Harvey, Lt. (Hon. Capt.) G. H. Simpson, Jan. 24th; Capt. E. H. Bellew (substituted for notification in "Gazette" Jan. 31st; Sec. Lt. W. E. Gemmell, Jan. 25th; Sec. Lt. J. M. Adams (Gord. Highrs., T.F.), Lt. T. S. Stewart, Jan. 26th; Sec. Lt. H. E. Sugden, Jan. 28th; Maj. W. C. Campbell, D.S.O., M.C., Sec. Lt. J. R. Senior, Jan. 29th; Sec. Lt. W. P. Hotson, Sec. Lt. F. A. McK. Slocombe, Jan. 30th; Sec. Lt. E. C. Chapman, Jan. 31st; Sec. Lt. F. Chapman, Sec. Lt. E. W. Dunning, Sec. Lt. W. R. E. Hartfall, Feb. 1st; Sec. Lt. H. Hinchcliffe, Sec. Lt. A. G. J. Littlewood, Feb. 2nd; Sec. Lt. J. Cartwright, Capt. E. Johnson (W. Yorks R.), Feb. 4th; Lt. (actg. Capt.) A. J. Spelling, Feb. 6th; Lt. T. J. H. Fryer, M.C., Feb. 7th; Sec. Lt. S. F. J. Fells, Lt. C. E. Smith, Feb. 8th; Sec. Lt. (actg. Lt.) W. A. Carroll, Sec. Lt. J. Hartley, Capt. (actg. Maj.) E. G. A. Lefrère, Feb. 9th; Sec. Lt. S. J. Fortescue, Feb. 10th; Sec. Lt. W. L. Angell, Sec. Lt. J. A. Downes, Sec. Lt. W. E. Laing, Feb. 11th; Lt. (actg. Capt.) W. Bowring (Lt., Sco. Rif., Feb 12th; Lt. H. T. L. Brittain, Sec. Lt. A. E. Leggatt, Feb. 14th; Sec. Lt. E. Telfer, Feb. 15th; Sec. Lt. (actg. Capt.) H. W. Burleigh, Feb. 19th.

Sec. Lt. D. H. C. Newth is removed from the R.A.F., Jan. 30th.

Capt. A. G. A. Hodges relinquishes his commn. on account of ill-health, Feb. 26th.

Lt. W. J. Terry relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Feb. 26th.

Lt. (Hon. Capt.) W. P. Spooner (Essex R.) relinquishes his commn. on account of ill-health, Feb. 26th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—S. R. S. Burnett, E. E. Watson, Feb. 26th.

The notification in "Gazette" Oct. 4th, 1918, concerning Lt. (actg. Capt.) A. S. Thompson, is cancelled.

The notification in "Gazette" Jan. 21st, concerning Lt. C. B. Godfrey, is cancelled

Technical Branch.—Capt. F. R. Freeman to be Capt. (Gr. A.), from (Ad.), Oct. 21st, 1918.

Lts. to be actg. Capts. while empld. as Capts. (Gr. B.):—G. J. Engwell, Aug. 1st, 1918; A. H. Dye, T. B. Whitcomb, Sept. 27th, 1918; C. H. Boyle, Nov. 10th, 1918; G. G. Kitson, Nov. 26th, 1918.

Sec. Lt. (actg. Lt.) W. W. Hammond to be actg. Capt. while empld. as Capt. (Gr. B.), Jan. 30th.

Sec. Lt. (Hon. Lt.) A. E. Thorne to be actg. Capt. (Gr. B) while specially empld., Jan. 1st.

Lt. F. T. Wheatley to be graded for purposes of pay as Lt. while empld. as Lt. (Gr. B), Nov. 13th, 1918.

Lts. to be Lts. (Gr. B):—F. W. Webster, from (A) Sept. 16th, 1918; S. Buckenham, from (K.B.) Nov. 4th, 1918; N. Couve, from (O.) Nov. 21st, 1918 (substituted for notification in "Gazette" Dec. 24th, 1918).

Sec. Lts. (actg. Capts.) to be Lts., and retain their actg. rank:—R. W. Davies C. Curwen, C. C. Bracebridge, April 2nd, 1918; O. F. Cooke-Yarborough, Oct. 17th, 1918.

Sec. Lt. (actg. Lt.) H. H. Maudsley to be Lt., with pay and allowances of that rank, Oct. 5th, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. (Gr. B):—R. Fell, July 1st, 1918; F. W. Wheeler, Aug. 1st, 1918; C. G. A. Poole, from (Ad.), Sept. 1st, 1918; N. F. Burch, Oct. 8th, 1918; F. M. Burr, Oct. 23rd, 1918; J. O. Cooper (Hon. Lt.) W. F. J. Matthews, Nov. 1st, 1918; A. L. Flaws, E. J. Wilkins, Nov. 10th, 1918; J. P. Standfast, Dec. 1st, 1918.

Sec. Lts. to be Sec. Lts. (Gr. A), from (Ad.):—A. Higham, C. H. Parker, Jan. 24th; H. B. Hinde, Feb. 1st.

Sec. Lt. S. T. Fowler to be Sec. Lt. (Gr. A), from (Gr. B), Feb. 14th.

Sec. Lts. to be Sec. Lts. (Gr. B), from (Ad.):—P. H. C. Martin, Sept. 12th, 1918; Hon. Lt. G. T. Cain, Feb. 10th (and to be Hon. Lt.).

D. J. Walker is granted a temp. commn. as Sec. Lt. (Gr. A), April 8th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Maj. F. R. G. Turner (Eng. Lt.-Comdr., R.N.), Dec. 18th, 1918; Capt. J. W. Yuile (Capt., Can. R. Highrs.), Jan. 20th.

The following are transfd. to unempld. list:—Lt. C. C. Barrett, Jan. 14th; Capt. S. P. Purkiss-Ginn, Jan. 22nd; Sec. Lt. (actg. Lt.) G. R. Kull, Jan. 24th; Sec. Lt. T. Bell, Jan. 26th; Sec. Lt. (actg. Lt.) J. Breckman, Jan. 28th; Sec. Lt. (actg. Lt.) A. G. Cardwell, Jan. 29th; Capt. J. H. Crutch, Jan. 31st; Capt. H. Girdlestone, Capt. J. B. Homer, Lt. T. Lightbody, Capt. W. J. Sinclair, Feb. 1st; Sec. Lt. (actg. Lt.) R. L. Cobb, Maj. H. F. Fisher, Feb. 4th; Sec. Lt. A. T. B. Kell, Feb. 6th; Sec. Lt. A. B. Evans, Sec. Lt. F. W. Stiles, Feb. 7th; Lt. S. G. Allen, Capt. (actg. Maj.) W. J. C. Brown, Lt. G. B. Fielding, Sec. Lt. P. H. Hall, Capt. H. E. Jarman, Sec. Lt. J. A. Squire, Feb. 8th; Capt. E. D. L. Davies, Sec. Lt. L. J. Ford, Feb. 9th; Sec. Lt. (actg. Lt.) F. A. Beale, Sec. Lt. A. Broadley, Feb. 10th; Lt. C. S. Collingwood, Capt. T. De L. Poer Beresford, Capt. F. W. Elstub, Capt. D. McN. Greig, Feb. 11th; Capt. G. H. Childs, Capt. (actg. Maj.) F. G. Wilson, Feb. 12th; Capt. B. J. Nicholson, Feb. 13th; Lt. E. E. G. B. Lennard, Feb. 14th; Sec. Lt. (Hon. Capt.) H. T. Musker, Feb. 15th.

Capt. H. Clayton-Wright relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Feb. 26th.

Sec. Lt. (actg. Lt.) G. Dickson relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Lt., Feb. 26th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—C. H. Mackinnon, P. W. Paddon, Feb. 26th.

The notifications in "Gazette" Jan. 3rd concerning the following Sec. Lts. are cancelled:—R. W. Davies, C. Curwen, C. C. Bracebridge, O. F. Cooke-Yarborough, H. H. Maudsley.

Memoranda.—Capt. E. B. Mills to be actg. Maj. while holding a special appt. at the Ministry of Munitions, Jan. 22nd.

Sec. Lts. to be actg. Capts. without the pay and allowances of that rank:—(Actg. Lt.) W. A. Winter, H. H. Williams, Dec. 6th, 1918.

The following Capts. are confirmed in the rank of Capt.:—G. W. R. Fane, D.S.C., G. E. Williamson, A. H. Pearce, D.F.C., A. T. Wheatley, D.S.C., D.F.C., J. F. Horsey, G. D. Kirkpatrick, C. R. Morrish, D.S.C., H. V. Worrall, D.S.C., R. S. de Q. Quincy, T. R. H. Duff, R. McN. Keirstead, D.S.C., J. Hodson, F. E. Rogers, J. A. Carr, D.S.C., F. D. H. Brenner, I. H. W. Barnato, V. H. Ramsden, J. E. A. Hoare, J. E. Brewin, E. G. Cleverley, G. B. Carr, N. Wallis, J. W. Walton, G. F. Browne, W. P. D. C. Scott, T. C. Lloyd.

Lts. to be Hon. Capts.:—A. J. Barber, H. F. P. Morris, H. H. Spencer, July 21st, 1918; P. Vallette.

E. Clarke (late Sec. Lt., R.A.F.) is granted the hon. rank of Lt., May 29th, 1918.

The following are transfd. to unempld. list from (S.O.):—Lt. (actg. Capt.) C. J. S. Holden, Jan. 23rd; Capt. M. W. Bovill, Jan. 25th; Capt. (actg. Lt.-Col.) F. S. Isaac, Feb. 5th; Capt. (actg. Maj.) N. Martin, Feb. 7th; Capt. (actg. Maj.) J. M. Nicolle, Feb. 8th; Maj. C. Death, Sec. Lt. (actg. Capt.) A. B. Staples, Feb. 9th, Capt. (actg. Maj.) C. C. Boyd-Rochfort, Lt. (actg. Maj.) J. S. Ruttle, Feb. 12th; Capt. H. McClelland, D.S.C., Feb. 16th.

Lt. N. H. Underwood (Lein. R.) relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Feb. 26th.

War Office, Feb. 26th.

Regular Forces.—Establishments.—R.F.C.—Mil. Wing.—Instrs. in Gunnery (graded as Equipment Officers, 1st Cl.). From Asst. Instrs. in Gunnery (graded as Equipment Officers, 2nd Cl.):—Temp. Capt. (without the pay or allowances of that rank) G. M. Garro-Jones, Gen. List, and to be temp. Capt. (with pay and allowances of that rank) whilst so empld., Dec. 18th, 1917.

Lt. L. H. Scott, M.C., 8th Middx. R., T.F., and to be temp. Capt. whilst so empld., Jan. 1st, 1918.

Air Ministry, Feb. 28th.

R.A.F.—The following temp. appts. are made:—Staff Officers, 3rd Cl.—And to be actg. Capts. whilst so empld, if not already holding that rank:—(P.) Sec. Lt. E. A. Cogswell, Aug. 13th, 1918; Lt. (actg. Capt.) H. C. Pyper, Feb. 1st.

The notifications in "Gazette," Sept. 3rd, 1918, and Oct. 8th, 1918, concerning Maj. E. Childers, D.S.C., are cancelled.

Staff Officer, 4th Cl. (2nd Gr.).—The date of appt. of Sec. Lt. (actg. Lt.) E. O. Johnson is June 26th, 1918, and not as stated in "Gazette," Jan. 14th.

Flying Branch.—Capt., to be actg. Majs. whilst empld. as Majs. (A):—F. D. Stevens, July 21st, 1918; A. Bell-Irving, M.C., Aug. 1st, 1918; D. C. Miller, Aug. 16th, 1918; G. J. Maxwell, M.C., D.F.C., Aug. 18th, 1918; J. G. Selby, M.C.; D. Stuart, Sept. 1st, 1918; A. Duguid; H. R. Harker, M.C.; L. H. T. Sloan, Oct. 1st, 1918; R. H. Hood, Nov. 1st, 1918.

Capt. W. J. Calderwood to be actg. Maj. whilst empld. as Maj. (K.B.), Jan. 1st.

Capt. (actg. Maj.) W. A. Hannay relinquishes the actg. rank of Maj. on ceasing to be specially empld., Feb. 19th.

Capt. H. M. Ferreira to be Capt. (A), from (S.O.), Dec. 13th, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (A):—J. R. Fullarton, Sept. 1st, 1918; W. W. Fielding, Sept. 5th, 1918; A. H. Beach, Oct. 21st, 1918; H. H. Shorter, Nov. 1st, 1918; F. C. Pockney (from T.), Dec. 1st, 1918 (substituted for notification in "Gazette," Feb. 4th).

Lts. to be Lts. (A.), from Obsr. Offrs.:—(Hon. Capt.) L. W. Schneider, Feb. 9th; (Actg. Capt.) C. T. Anderson, Feb. 11th (and to retain his actg. rank); H. H. Jones, H. J. Weaver, Feb. 14th.

Sec. Lt. (Hon. Lt.) D. F. Anderson to be Lt., April 2nd, 1918.

Sec. Lt. H. C. Maller to be Sec. Lt. (A.), from Obsr. Offr., Feb. 8th.

Flt. Cdt. 137879 E. R. S. Phillips is granted a temp. commn. as Sec. Lt. (A.), Aug. 29th, 1918.

The following are granted temp. commns. as Sec. Lts. (Obsr. Offrs.):—R. J. H. Ganson (Sec. Lt., Gord. Highrs., T.F.), May 22nd, 1918; T. F. Blight (Lt. Manitoba R., C.E.F.), June 6th, 1918 (and to be Hon. Lt.).

Flt. Cdt. C. Potter is granted temp. commn. as Sec. Lt. (O.), Nov. 3rd, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. C. V. J. Borton (Lt., Norf. R.), June 20th, 1918; Sec. Lt. G. R. Smith (Lt., Can. M.G.C.), Dec. 12th, 1918; Lt. W. A. Winter (Lt., Can. Eng.), Dec. 30th, 1918; Lt. C. R. Cuthbert, M.C. (Lt., R.F.A.), Feb. 11th; Sec. Lt. (Hon. Lt.) C. G. Johnson (Lt., Can. Rly. Troops), Feb. 14th.

The following are transferred to unempld. list:—Sec. Lt. (Hon. Capt.) C. P. Tindal-Atkinson, Jan. 2nd; Lt. G. B. Ash, Jan. 10th; Lt. P. W. Birkbeck, Jan. 11th; Lt. D. A. Strutt, Jan. 14th; Sec. Lt. W. R. Richardson, Sec. Lt. F. C. L. Young, Jan. 15th; Sec. Lt. W. T. C. Blake (3rd Glouc. R.), Capt. A. W. Farquhar, Jan. 17th; Capt. G. K. Cooper, Sec. Lt. D. M. Tomlinson, Jan. 18th; Sec. Lt. H. Thomas, Jan. 20th; Sec. Lt. K. J. G. Bellamy, Sec. Lt. H. Cameron, Maj. (actg. Lt.-Col.) E. W. Powell, Jan. 22nd; Lt. A. L. Rimer, Jan. 24th; Sec. Lt. T. C. Lennox, Lt. R. G. Mitchell, Lt. M. F. R. Plowman, Lt. H. R. H. Ward, Jan. 25th; Capt. L. A. T. Pritchard, Sec. Lt. W. Whatmore, Jan. 26th; Lt. A. W. Higson, Lt. D. J. Hughes, D.F.C., Sec. Lt. (Hon. Lt.) J. J. Saunders (Lt., R.G.A., T.F.), Capt. C. H. Waring (Hussars, Spec. Res.), Sec. Lt. W. S. Woolfe (R. Berks R.), Jan. 28th; Lt. J. E. G. Mosby, D.S.O. (R.G.A.), Jan. 29th; Lt. A. P. Kelly, M.C., Jan. 30th; Sec. Lt. R. W. Fryson, Sec. Lt. C. J. Locke, Lt. (actg. Capt.) R. O. Williams, Jan. 31st; Lt. A. H. Burton, Sec. Lt. (actg. Capt.) S. G. Williams, Sec. Lt. G. G. Wood, Feb. 1st; Lt. (actg. Capt.) G. R. Beck (Lond. R., T.F.), Lt. J. F. A. Bull, Sec. Lt. P. Hindle, Capt. J. D. Latta, M.C., Sec. Lt. E. J. Wills, Sec. Lt. R. S. T. Wood, Feb. 2nd;; Lt. R. A. Greenwell (R.F.A., T.F.), Sec. Lt. S. G. Gordon, Sec. Lt. G. Westcott, Feb. 3rd; Lt. (actg. Capt.) J. W. Baker, M.C., Lt. J. H. Gotch, Lt. W. A. John, Lt. L. G. Smith, Lt. A. H. Woodward, Feb. 4th; Capt. A. Binnie, M.C., Capt. N. W. G. Blackburn, Sec. Lt. (Hon. Lt.) R. E. Baty, M.C., Sec. Lt. R. Y. Eccles, Lt. R. V. Facey, Lt. F. W. Field, Sec. Lt. F. W. G. Goodwin, Capt. D. F. Upjohn, Sec. Lt. P. W. Watson, Feb. 5th; Sec. Lt. H. C. Alden, Lt. E. E. Ashton, Sec. Lt. F. B. Barlow, Sec. Lt. C. H. Bingham, Lt. M. H. Drake, Sec. Lt. B. H. Fitter, Sec. Lt. F. J. Hardy, Sec. Lt. J. Horrocks, Sec. Lt. M. K. Work, Feb. 6th; Sec. Lt. J. M. Ballard (R.F.A., S.R.), Sec. Lt. H. Chapman, Capt. A. Dennis (Suff. R.), Capt. R. W. Frazier, Feb. 7th; Sec. Lt. A. C. Beever, Lt. A. W. Wood, Feb. 8th; Lt. (actg. Capt.) W. C. Carter, Feb. 9th; Lt. W. J. P. Dicks, Lt. F. Hodgson (North. Fus., T.F.), Capt. E. Y. Hughes (Lt. R.F.A., T.F.), Lt. W. T. Waldir, Feb. 10th; Sec. Lt. C. W. S. James, Capt. H. W. Kendall, A.F.C., Sec. Lt. A. E. Needham, Lt. E. C. Williams, Feb. 11th; Sec. Lt. F. A. Hickson, Lt. J. A. Hoogterp, Sec. Lt. S. C. Lambert, Lt. G. E. Playford, Lt. W. G. Westcott, Feb. 12th; Capt. F. Cleary, A.F.C., Sec. Lt. T. Dootson, Sec. Lt. W. D. Hartland, Sec. Lt. A. Outhwaite, Sec. Lt. E. Vickers, Feb. 13th; Lt. (actg. Capt.) C. W. Hawker, M.C. (Lt., R.F.A., Spec. R.), Capt. J. M. Turner, Feb. 14th; Sec. Lt. F. Abrahams, Lt. R. J. Donaldson, Sec. Lt. M. P. Fraser (substituted for notification in the "Gazette" of Jan. 24th), Sec. Lt. H. L. Howell, Lt. G. F. C. Hopewell, Feb. 15th; Lt. D. C. Doyle, Sec. Lt. B. D. Passow, Lt. M. H. Picot, M.C., Feb. 16th; Sec. Lt. A. T. Harris, Lt. T. L. W. Stallibrass, Lt. E. G. L. Ward, Feb. 17th; Lt. H. V. Caunt, Lt. J. MacNaught, Sec. Lt. S. W. H. Reynolds, Sec. Lt. L. H. Starkey, Sec. Lt. F. Wheatcroft, Capt. H. E. Went, Feb. 18th; Sec. Lt. (Hon. Lt.) K. Jones (Capt., Berks R., T.F.), Lt. (actg. Capt.) F. A. Martin, Sec. Lt. R. M. Morris, Sec. Lt. C. H. Watson, Lt. H. H. Wright, Feb. 19th; Lt. E. G. L. Brown (Lt., R.G.A., T.F.), Lt. E. A. Cooke, Lt. J. M. Dillon, Lt. E. E. Unmack, Feb. 20th; Sec. Lt. W. G. Black, Sec. Lt. W. E. Brown, Sec. Lt. F. M. Buchanan, Sec. Lt. F. Campbell, Sec. Lt. B. L. Cook, Lt. A. W. Fraser, Sec. Lt. A. K. McGill, Feb. 23rd.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—C. W. Berry (contracted on active service), R. N. Bullock (S. Staffs. R.) (contracted on active service), T. R. Hepple, F. I. Jacks, R. Main (caused by wounds), K. D. McLeod, S. H. Pilling, March 1st.

The following Lts. relinquish their commns. on account of ill-health:—R. S. Macfarlane (contracted on active service), (actg. Capt.) J. Mundie (Gord. Highrs., T.F.), March 1st.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—A. Lister (contracted on active service), A. L. Murray, March 1st.

Sec. Lt. L. C. Cox is antedated in his appt. as Sec. Lt. (A.), July 25th, 1918.

Sec. Lt. H. V. Fellows is antedated in his appt. as Sec. Lt. (A. and S.), April 11th, 1918.

The notification in "Gazette," Jan. 14th, concerning Sec. Lt. D. G. J. Odlum is cancelled.

Administrative Branch.—W. H. Taylor (Lt., actg. Maj., R.F.A., T.F.) is granted a temp. commn. as Lt. (seny. April 1st, 1918), and to be actg. Maj. while empld. as Maj., Oct. 1st, 1918.

The following are granted temp. commns. as Lts., and to be actg. Capts. while empld. as Capts.:—A. L. Morris (Lt., R. Fus.), April 1st, 1918; S. E. Tidy (temp. Lt., actg. Capt., A.C.C.), Aug. 5th, 1918, seny. April 1st, 1918.

To be actg. Capts. while empld. as Capts.:—Lt. H. H. Giles, Oct. 26th, 1918; Sec. Lt. (Hon. Lt.) E. M. Wood, from (T.), Feb. 15th.

Capts. (A'sh.) to be graded for pay as Lts. while empld. as Lts.:—H. E. C. Plowden, Jan. 18th; A. Sparrow, A.F.C., Jan. 30th.

Lts. (A.) to be Lts.:—D. French, Oct. 5th, 1918; L. K. Devitt, Oct. 31st, 1918; J. H. Hardman, S. L. Hooper, Nov. 5th, 1918; H. G. Bradshaw, 1918; J. M. Rennie, Nov. 11th, 1918; O. C. George, W. D. Nov. 7th, 1918; J. M. McKinnon, Nov. 14th, 1918; A. C. Kiddell, Nov. 16th, 1918; G. D. Robin, Dec. 6th, 1918; I. C. Sanderson, Dec. 7th, 1918; W. G. Barlow, Dec. 12th, 1918; R. Milner, Dec. 18th, 1918; J. Handley, Dec. 26th, 1918; B. W. Blayney, Dec. 30th, 1918; D. Menzies, Jan. 2nd; C. Miller, Jan. 3rd; C. M. Shilcock, Jan. 7th; H. Rowbotham, Jan. 8th; C. P. Robertson, Jan. 10th; A. J. Kilpatrick, Jan. 13th; S. W. Graham, Feb. 1st; C. Evans, M. Helliwell, Feb. 13th.

Lt. J. Drew to be Lt., from (K.B.), Oct. 21st, 1918.

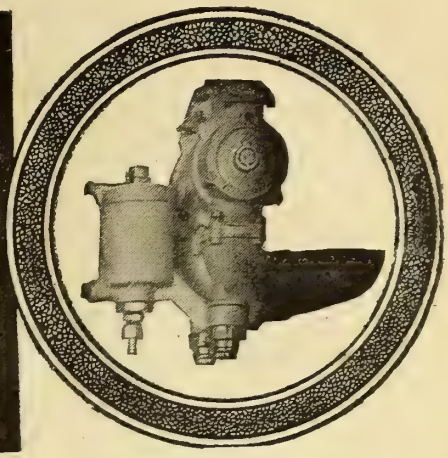
Lts. (O.) to be Lts.:—R. W. Briggs, Nov. 18th, 1918; (Hon. Capt.) J. E. Johnston, Dec. 25th, 1918; F. Wilkinson, Jan. 8th; G. T. Stoneham, Feb. 4th.

Sec. Lts. to be actg. Lts. whilst empld. as Lts.:—S. M. Stringfield, Sept. 30th, 1918; J. R. McDonald, F. A. Osborn, Dec. 1st, 1918; (Hon. Capt.) D. M. Berry, from (A.), Dec. 2nd, 1918; A. E. F. McCreary, Jan. 1st.

Sec. Lt. J. S. Card to be actg. Lt. whilst specially empld., Oct. 10th, 1918.

Sec. Lts. to be Sec. Lts. from (A.):—J. W. Pope, Sept. 7th, 1918

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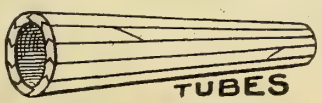
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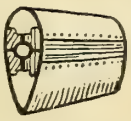


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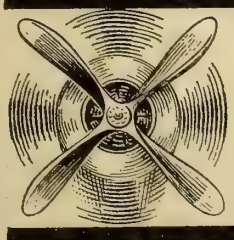
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(substituted for notification in "Gazette," Feb. 4th); A. T. William, Oct. 10th, 1918; (Hon. Maj.) G. A. E. Chapman, Oct. 15th, 1918 (and to be Hon. Maj.); H. Rawsthorne, Nov. 27th, 1918; W. T. Leonard, Nov. 29th, 1918; A. W. Elliott, Dec. 2nd, 1918; N. H. Midgley, Dec. 16th, 1918; (Hon. Lt.) A. K. Boning (and to be Hon. Lt.), V. S. Stevens, Jan. 20th; A. W. Hardwich, Jan. 22nd; M. R. De Miege, Feb. 12th; W. R. Souter, Feb. 13th.

Sec. Lts. to be Sec. Lts., from (A. and S.):—S. Graves, Oct. 23rd, 1918; M. Marks, Nov. 16th, 1918; S. C. Leith, Dec. 16th, 1918; C. Norton, Dec. 31st, 1918.

Sec. Lts. to be Sec. Lts. from (O.):—L. C. Baker, Nov. 6th, 1918; L. E. Glover, Dec. 2nd, 1918; N. Riddell, Jan. 4th (and to be Hon. Lt.); S. A. Church, J. P. Elliott, Jan. 24th; N. Johnson, Feb. 11th.

Sec. Lt. L. M. Britten to be Sec. Lt., from (T.), Feb. 11th.

Sec. Lt. (actg. Capt.) G. H. Blake, D.C.M., relinquishes the actg. rank of Capt., Feb. 8th (substituted for notification in "Gazette," Feb. 18th).

Lt. C. H. Bidmead relinquishes his commn. on ceasing to be empld., Feb. 14th.

The following are transferred to unempld. list:—Sec. Lt. (actg. Lt.) T. P. Pritchard, Jan. 10th; Capt. R. Tyler, Jan. 15th; Lt. W. Stannard, Jan. 17th; Sec. Lt. J. W. Beeson, Jan. 23rd; Sec. Lt. T. Cooper, Jan. 24th; Sec. Lt. J. K. Henderson, Jan. 26th; Sec. Lt. W. H. Stow, Jan. 28th; Lt. W. N. Cuthbert; Lt. (actg. Capt.) C. F. Powell, Jan. 30th; Capt. (actg. Maj.) R. A. Buckmaster, Jan. 31st; Capt. H. J. Eardley, Lt. S. Orchard, Feb. 1st; Sec. Lt. W. C. G. Stokes, Feb. 4th; Lt. (Hon. Capt.) T. Griffiths; Sec. Lt. A. L. Hopson, Feb. 5th; Sec. Lt. R. V. Dickins, Lt. C. S. Wells, Feb. 7th; Capt. W. L. Burt, Sec. Lt. H. A. Lambert, Feb. 8th; Lt. C. R. Eck, Feb. 11th; Lt. A. F. Basset, Sec. Lt. J. C. Kyd, Sec. Lt. J. K. Owen, Feb. 12th; Lt. (Hon. Capt.) R. J. S. Lund, Feb. 14th; Sec. Lt. B. A. Bent, Feb. 15th; Sec. Lt. L. J. R. Berting, Lt. A. Heath, Sec. Lt. C. W. Wheeler, Feb. 19th; Capt. O. L. P. Crowden resigns his commn., March 1st.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—H. J. Childs, S. G. Hawkey, R. C. Jennings, A. B. Peters, March 1st.

The name of Sec. Lt. O. J. Dean is as now described, and not Dear, as in "Gazette," Jan. 7th.

Technical Branch.—Lt. (actg. Capt.) D. E. Barnett to be actg. Maj. while empld. as Maj. (Grade B), Oct. 1st, 1918.

Capt. Yates to be graded for pay as Capt. while empld. as Capt. (Grade A) (from K.B.), Oct. 10th.

Lt. H. A. Samson to be actg. Capt. while empld. as Capt. (Grade A), Nov. 12th, 1918.

Lt. A. Ross (No. 14071) to be actg. Capt. while empld. as Capt. (Grade B), Oct. 1st, 1918.

Sec. Lt. (actg. Lt.) F. A. Dickinson to be actg. Capt. while empld as Capt. (Grade B), Nov. 1st, 1918.

Lts. (A.) to be Lts. (Gr. A):—J. Toogood, Sept. 7th, 1918 (substituted for notification in "Gazette," Oct. 18th, 1918); H. Forrest, Dec. 5th, 1918; W. A. Harvey, Jan. 3rd.

Lts (Ad.) to be Lts. (Gr. B):—E. A. Bastow, Sept. 1st, 1918; H. C. Reade, Dec. 23rd, 1918.

Sec. Lt. P. G. Pickwell to be Lt., Aug. 15th, 1918 (substituted for notification in "Gazette," Jan. 3rd).

Sec. Lt. C. H. V. Hayman to be actg. Lt. while empld. as Lt. (Gr. A), Oct. 2nd, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. (Gr. B):—(Hon. Lt.) E. L. Pollard, M.C., May 22nd, 1918; C. B. Stamp, June 22nd, 1918; T. Hodgson, July 27th, 1918; C. Brewe, W. J. Shilcott, Aug. 27th, 1918; W. Haddon, Sept. 17th, 1918.

Sec. Lts. to be actg. Lts. (from Ad.):—A. E. S. Baker (Gr. A), Nov. 1st, 1918; E. W. Reynolds (Gr. A), Jan. 15th; I. M. Gee (Gr. B), Feb. 3rd.

Sec. Lt. A. Elson is confirmed in his rank as Sec. Lt., April 1st, 1918.

The following are transferred to unempld. list:—Lt. B. S. S. Rockey, Jan. 7th; Capt. C. C. Clarke, Sec. Lt. H. G. Cogle, Sec. Lt. F. W. Waller, Jan. 18th; Lt. (actg. Capt.) T. Moore, Jan. 21st; Capt. B. B. J. A. O'Donnell, M.C., Jan. 25th; Lt. (Hon. Capt.) R. H. Sievewright, Jan. 26th; Lt. L. F. Williams, Jan. 27th; Lt. G. F. Harmer, Sec. Lt. C. H. Martin, Jan. 29th; Sec. Lt. C. B. Stamp, Lt. H. Straker, Jan. 31st; Sec. Lt. E. C. Harris, Lt. H. Monro, Capt. S. Morris, Sec. Lt. F. G. Rison, Feb. 1st; Sec. Lt. P. C. Le G. Starkie, Feb. 4th; Capt. G. K. Greig, Sec. Lt. A. C. Steel, Feb. 5th; Lt. (actg. Maj.) T. Knowles, Feb. 6th; Sec. Lt. A. C. Geen, Feb. 7th; Sec. Lt. G. Barnes, Sec. Lt. D. W. Godden, Sec. Lt. (Hon. Lt.) A. A. Punt, Feb. 8th; Sec. Lt. H. A. Creswell, Lt. H. A. Evans, Sec. Lt. (Hon. Lt.) A. C. Jenkins, Lt. J. G. Spiers, Feb. 9th; Sec. Lt. P. L. Smith, Feb. 10th; Capt. W. R. Abbott, Sec. Lt. S. G. Hurley, Feb. 11th; Lt. R. F. D. Hocker, Feb. 13th; Sec. Lt. L. A. Briggs, Sec. Lt. E. H. Flook, Feb. 14th; Capt. E. B. Falkner, Feb. 15th; Sec. Lt. (Hon. Capt.) N. S. Sennett, Sec. Lt. R. E. Townshend, Feb. 16th; Lt. F. D. Crane, Feb. 17th; Lt. (actg. Capt.) O. F. Cooke-Yarborough, Feb. 18th; Sec. Lt. S. H. Morgan, Lt. (actg. Capt.) G. V. Stringer, M.C., Feb. 19th.

Capt. O. S. Mosley-Leigh relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Mar. 1st.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank.—C. R. Becke, E. C. Thompson, Mar. 1st.

Sec. Lt. (Hon. Lt.) F. M. V. Earle relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Sec. Lt., Mar. 1st.

Sec. Lt. A. Scott relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Mar. 1st.

The date of appt. of Capt. (actg. Maj.) W. A. B. Laing is Nov. 6th, 1918, and not as stated in "Gazette," Dec. 31st, 1918.

The notification in "Gazette," Dec. 24th, 1918, concerning Lt. T. J. Owen is cancelled.

The notification in "Gazette," Jan. 21st, concerning Sec. Lt. (actg. Lt.) H. F. Weet is cancelled.

The name of Sec. Lt. F. A. Matthews is as now described, and not as in "Gazette," Oct. 15th, 1918.

The date of appt. of H. V. Lawley as Sec. Lt. is Oct. 14th, 1918, and not as stated in "Gazette," Dec. 13th, 1918.

Medical Branch.—W. F. Jones (temp. Surg., Lt., R.N.) is granted a temp. commn. as Capt., Oct. 1st, 1918, seny. April 1st, 1918.

R. S. Topham (temp. Capt., R.A.M.C.) is granted a temp. commn. as Capt., Oct 1st, 1918, seny. April 23rd, 1918.

Women's Royal Air Force.

The following temp. appts., Women's Royal Air Force, are made at the Air Ministry:—To be Comdt:—Mrs. H. C. I. Gwynne-Vaughan, C.B.E. (Q.M.A.A.C.), Sept. 11th, 1918, seny. June 1st, 1918.

To be Asst. Comdts., 1st Cl.:—Mrs. W. M. Powell (Q.M.A.A.C.), Oct. 21st, 1918, seny. April 1st, 1918; Mrs. L. M. K. Pratt-Barlow, M.B.E. (Q.M.A.A.C.), Oct. 19th, 1918, seny. June 16th, 1918; Miss E. M. Hamilton, M.B.E., Aug. 5th, 1918.

To be Asst. Comdt., 1st Cl., while specially empld.:—Admnr. W. E. S. Mount-Batten, M.B.E., M.M., Dec. 15th, 1918.

To be Dep. Asst. Comdt. while specially empld.:—Admnr. M. A. Atkin, Nov. 19th, 1918.

The following temp. appts., Women's Royal Air Force, are made:—

To be Asst. Comdt., 2nd Cl.:—Miss E. O'Sullivan, May 17th, 1918.

To be Dep. Asst. Comdt.:—Mrs. B. D. Beckett (W.R.N.S.), July 22nd, 1918.

To be Asst. Comdts., 2nd Cl., while specially empld.:—Admnr. M. Edwards, Oct. 24th, 1918; Admnr. M. Moss, Oct. 26th, 1918; Admnr. O. Earlam, Oct. 27th, 1918, Admnr. C. Noel, Oct. 31st, 1918; Admnr. C. S. French, Nov. 19th, 1918; Admnr. K. L. Curlett, Dec. 10th, 1918.

To be Dep. Asst. Comdts., with grade of Admnr. while specially empld., if not already holding that grade:—Admnr. V. D. Nodin, Oct. 14th, 1918; Dep. Admnr. V. C. Goodison, Oct. 15th, 1918, Dep. Admnr. O. E. Tibbits, Oct. 24th, 1918; Admnr. V. Thurstan, Nov. 12th, 1918; Dep. Admnr. A. M. Stewart, Nov. 23rd, 1918; Admnr. A. T. Cooper, Dec. 10th, 1918; Dep. Admnr. C. Campbell, Admnr. F. M. Newton, Dec. 11th, 1918; Dep. Admnr. M. A. Thomson, Dec. 21st, 1918, Asst. Admnr. M. A. Scholefield, Dec. 23rd, 1918; Asst. Admnr. F. F. Pelly, Dec. 30th, 1918; Dep. Admnr. P. E. Stapleton-Cotton, Jan. 16th, 1918; Admnr. E. Thomson, Jan. 27th; Admnr. E. M. Glidewell, Feb. 2nd.

Administrative Branch.—The following principals and Unit Admnrs. to be Admnrs. with seny. from April 1st, 1918:—Mrs. G. B. Carruthers (W.R.N.S.), Miss A. J. Cummins (Q.M.A.A.C.), Miss H. H. Montifiore (Q.M.A.A.C.), Mrs. M. F. S. Newton (Q.M.A.A.C.), Mrs. L. M. Parker (Q.M.A.A.C.), April 1st, 1918; Miss S. A. Grady (Q.M.A.A.C.), April 4th, 1918; Mrs. G. E. Middleton-Kitto (Q.M.A.A.C.), Miss R. V. Spinks (Q.M.A.A.C.), Miss E. Thomson (Q.M.A.A.C.), Miss F. E. Woodroffe (Q.M.A.A.C.), May 1st, 1918; Mrs. E. D. Hamilton-Hall (Q.M.A.A.C.), June 1st, 1918; Mrs. E. B. Turtle (Q.M.A.A.C.), June 24th, 1918; Miss O. Earlam (Q.M.A.A.C.), July 1st, 1918; Miss C. Noel (W.R.N.S.), Oct. 31st, 1918; Mrs. M. Moss (W.R.N.S.), Mrs. C. S. French (W.R.N.S.), Nov. 6th, 1918.

To be Admnrs.:—Mrs. A. T. Cooper, May 27th, 1918; Mrs. M. Edwards, June 10th, 1918; Baroness E. B. T'Serclaes, July 29th, 1918.

The following Dep. Admnrs. to be Dep. Admnrs., with seny. from April 1st, 1918:—Mrs. L. B. Anderson (M. A.A.C.), Miss M. Hamilton (Q.M.A.A.C.), Mrs. D. Holmes-Scott (Q.M.A.A.C.), Mrs. E. M. Hollis (Q.M.A.A.C.), Miss E. L. Lees (Q.M.A.A.C.), Miss J. McOlivin (Q.M.A.A.C.), Miss J. M. Taylor (Q.M.A.A.C.), April 1st, 1918; Mrs. B. M. Meadows (Q.M.A.A.C.), April 6th, 1918; Miss C. M. Davidson (Q.M.A.A.C.), April 11th, 1918; Mrs. L. B. Humphries (Q.M.A.A.C.), April 23rd, 1918; Miss B. Brentnall (Q.M.A.A.C.), Miss F. M. Girdler (Q.M.A.A.C.), Miss N. M. Isaac (Q.M.A.A.C.), Miss C. J. Macgregor (Q.M.A.A.C.), Miss K. M. McDermott (Q.M.A.A.C.), Miss J. E. Oswald (Q.M.A.A.C.), Miss W. A. Stapley (Q.M.A.A.C.), May 1st, 1918, Miss S. L. Foy (Q.M.A.A.C.), June 1st, 1918; Miss J. Alexander (Q.M.A.A.C.), Miss O. Cowie (Q.M.A.A.C.), July 1st, 1918; Miss A. N. Maltby (Q.M.A.A.C.), Aug. 1st, 1918; Miss A. E. Towyn-Jones (Q.M.A.A.C.), Aug. 13th, 1918; Miss A. M. Stewart (Q.M.A.A.C.), Aug. 17th, 1918.

To be Dep. Admnrs.:—Miss D. E. B. Livesay, Mrs. O. E. Tibbets, April 1st, 1918; Mrs. M. K. Unwin, April 25th, 1918; Mrs. F. Day, Mrs. G. Lawrence, Mrs. E. S. Stephens, Miss I. Story, May 2nd, 1918.

The following Officer candidates to be Dep. Admnrs.:—Mrs. J. B. Bowner, Mrs. C. Campbell, Mrs. V. C. Goodison, Mrs. A. Hughes-Gibb, Mrs. H. Simeon, May 6th, 1918; Miss H. K. Pymar, May 8th, 1918; Miss E. J. Edwards, Miss K. Daniel, Mrs. N. E. Moore-Anderson, Mrs. J. C. Paterson, May 27th, 1918; Mrs. H. A. Soper, June 10th, 1918; Mrs. M. A. Atkin, June 11th, 1918; Mrs. M. A. Delmé-Radcliffe, Mrs. M. Gerard, Miss J. S. F. Hickie, Miss E. Simey, June 24th, 1918; Miss V. Macdonnel, July 8th, 1918; Miss V. C. Guy, July 22nd, 1918, Miss M. L. C. Gooden-Chisholm, Aug. 5th, 1918.

The following Asst. Admnrs. to be Asst. Admnrs., seny. April 1st, 1918:—Miss E. V. M. Anderson (Q.M.A.A.C.), Miss V. Armstrong (Q.M.A.A.C.), Miss F. E. Ball (Q.M.A.A.C.), Miss U. Campbell (Q.M.A.A.C.), Miss M. K. Fraser (Q.M.A.A.C.), Miss E. M. Glenny (Q.M.A.A.C.), Miss E. M. Glidewell (Q.M.A.A.C.), Miss A. Jones (Q.M.A.A.C.), Miss M. Kinross (Q.M.A.A.C.), Miss M. M. Morgan (Q.M.A.A.C.), Miss N. C. Pasmore (Q.M.A.A.C.), Miss H. N. Reid (Q.M.A.A.C.), Miss E. M. Sinclair (Q.M.A.A.C.), Miss P. A. Taylor (Q.M.A.A.C.), Mrs. B. E. Thompson (Q.M.A.A.C.), Miss M. N. Thornton (Q.M.A.A.C.), Miss R. M. Wardell (Q.M.A.A.C.), Mrs. L. K. White (Q.M.A.A.C.), April 1st, 1918; Miss M. S. Huckett (Q.M.A.A.C.), April 6th, 1918, Miss M. L. Astorri (Q.M.A.A.C.), April 13th, 1918; Miss I. M. Erlebach (Q.M.A.A.C.), April 20th, 1918, Miss C. M. Sanders (Q.M.A.A.C.), April 21st, 1918; Miss K. Pearce (Q.M.A.A.C.), April 23rd, 1918; Mrs. A. C. Farrant (Q.M.A.A.C.), May 1st, 1918; Mrs. G. Pertwee (Q.M.A.A.C.), June 1st, 1918; Miss D. M. M. Allen (Q.M.A.A.C.), June 10th, 1918; Miss K. E. Main (Q.M.A.A.C.), July 1st, 1918; Miss B. Carr-Owen (Q.M.A.A.C.), July 20th, 1918; Mrs. H. G. Race (Q.M.A.A.C.), Aug. 11th, 1918.

To be Asst. Admnrs.:—Miss G. M. Glubb, April 1st, 1918; Miss E. M. P. Grubb, April 20th, 1918; Mrs. C. Balthasar-Gething, Mrs. M. M. Pope, Miss V. F. Yeoman, May 2nd, 1918; Miss V. D. Nodin, Nov. 14th, 1918; Miss W. E. S. Mount-Batten, M.B.E., M.M., Nov. 25th, 1918.

The following Officer candidates to be Asst. Admnrs.:—Miss H. J. L. Fletcher, Miss B. M. Gilbert, Miss L. M. Goddard, Miss G. L. Howard-White, Miss E. Ingram, Miss F. A. Laskie, Miss P. O. Legard, Miss D. Millington, Miss L. C. Nutt, Miss M. F. E. Scott, Miss E. A. Somerset, Miss A. F. Valentine, Miss W. C. Woodstock, May 6th, 1918; Miss E. M. Andrews, Miss M. S. Boal, Miss R. E. Booker, Miss K. M. Brook, Miss O. Cayley, Miss K. L. Curlett, Miss D. L. Field, Miss M. C. Green, Miss M. A. J. Howard, Miss F. G. Hunter, Mrs. A. F. Parsons, Miss J. Retallack, Miss M. A. Thomson, Miss I. M. Waistell, May 27th, 1918; Miss D. L. Reed, June 6th, 1918; Miss J. K. Cairns, Miss M. E. Clarke, Miss D. I. E. Comber, Miss V. Dening, Mrs. G. Dickinson, Miss E. N. Forshaw, Miss G. C. Gibson, Miss M. C. Grantham, Mrs. N. G. King, Miss G. M. Master, Miss N. Maunsell, Miss P. E. Stapleton-Cotton, Miss M. Wall, June 10th, 1918; Miss A. E. M. Brook-Taylor, Miss J. V. Campbell, Miss A. D. Chapman, Miss I. A. Coombs, Miss N. M. Foxall, Miss V. E. M. Gallagher, Miss A. G. Jones, Miss M. M. Kerr, Miss B. Nicholls, Miss M. A. Payne, Miss E. M. Phillips, Miss K. Ross-Hume, Miss B. M. Slipper, Miss M. Wade, June 24th, 1918; Miss V. V. Babbage, Miss A. L. Chauncey, Miss M. G. A. Cherry, Miss I. O. Crofton, Miss E. I. David, Miss F. A. S. Holbrow, Miss D. Humphrey-Smith, Miss G. Lawis, Miss R. Lawton, Miss M. D. R. Leys, Mrs. A. M. McGrath, Miss J. K. Mountford-Smith, Miss F. K. Rolland, Miss C. M. Scott-Holmes, Miss E. J. Simpson, Miss A. Taylor, Miss E. M. Walker, Miss M. C. Wharry, Miss M. C. Whidbourne, Miss D. Yates, July 8th, 1918; Miss P. Baker, Mrs. A. E. Balfour, Miss G. M. F. Bradley, Miss D. M. J. Cochrane-Foster, Mrs. M. L. L. Cook, Miss A. L. Cooper, Miss A. L. Crockett, Miss E. Cumming, Miss M. L. Cumming, Miss M. David, Miss A. M. Davis, Miss D. E. Eardley-Wilmot, Mrs. N. Freeland, Mrs. M. Halcrew, Miss M. Harris, Miss K. G. Mirchell, Mrs. E. B. Mullen, Miss J. M. Musgrave, Miss D. G. Negus, Miss M. D. Newton, Miss M. W. Poingdestre, Miss J. O. Ramsbottom, July 27th, 1918; Mrs. E. B. Fosbrooke, Aug. 5th, 1918; Miss J. I. G. Aitken, Miss J. St. C. Balls, Miss M. Birtles, Miss P. Brander, Miss

A. J. Brodie, Miss C. Brothers, Miss D F. Bulteel, Miss E. A. Burbidge, Miss A. M. Cadogan, Miss G. F. Cassidy, Miss D. Chapman, Miss I. M. C. Clare, Miss A. Cobbolds, Miss H. M. Culley, Miss E. Curry, Mrs. A. H. Dashper, Miss D. M. H. de Grave, Miss H. M. de Lacey-Bacon, Miss R. O. Dixon, Miss M. Drury, Miss G. M. Ennis, Miss M. Farmer, Miss K R. Fear, Miss D. M. Fenn, Miss H. D. Forman, Miss J. N. Fowler, Miss E. Gane, Miss E. A. Gardner, Miss E. E. Gemmell, Miss A. M. Gilchrist, Miss M. M. Gow, Miss M. H. Grant, Miss G. Green, Miss E. G. Hamer, Miss M. W. Hamilton, Miss K. Hargreaves, Miss D. M. Hawkins, Miss E. J. Henderson, Mrs. M. Hessler, Mrs. M. E Hill, Miss H. Hoey, Miss M. Holt, Miss C. Horsey, Miss H. G. Jack, Miss A. C. Jones, Miss M. V. Jones, Miss K. M. Jowett, Miss M. M. King, Miss B L. Larson, Miss I. M. Lea, Miss N. Lee, Miss A. G. Leeson, Miss E. Lovat-Fraser, Miss S. W. Lucas, Miss F. Mackay, Miss L. M. Mackay, Miss H. M. Mackay, Miss A. M. MacIntosh, Miss E. A. Mallabone, Miss J. Manford-Morton, Miss E. F Matthews, Miss H. L. McClory, Miss C. T. Milward, Miss N. Bonner-Morgan, Miss A. G. Moran, Miss E. M. Morrison, Miss L. Moss, Miss D. C. Muir, Miss V. M. Orrock, Mrs. A. O'Donoghue, Miss M. Panniers, Mrs A. Marshall, Miss N. C. Pemberton, Mrs. E. G. Penman, Miss M H. Randall, Miss M. Scholes, Miss E. J. Scott, Miss L. F. J. Selwyn, Miss H. M. Seton-Kerr, Miss H. H. M. Shepstone, Miss E. M. Smith, Miss M. Smith, Miss M. S. Stevenson, Miss G. Tighe, Mrs. P. M. C. Tyacke, Miss G. A. Vernon, Mrs. M. C. Ward, Miss N M Watt, Miss A. D. Webster, Miss F. H M. Whitefield, Miss A. M. Williams, Miss E. M. Williams, Miss K. J. Wright, Miss K. M. Wynn-Wernick, Miss D. L. Young, Aug. 6th, 1918; Mrs. N. Allen, Mrs. C. T. Bayley, Miss G. Bell-Cox, Mrs. M. R. Benet Miss E. C. Brown, Miss I. Carss, Miss E. A. Cooke, Miss B. D. F. Couper, Miss F. M. Cullen, Miss M. S. Cunninghame, Miss E. A. Douglas, Miss O. P. Downs, Miss F. E Dunn, Miss M. S. Fawcett, Mrs. E. V. Fisher-Fordham, Mrs. W. M. Forgan, Miss M. B. Frame, Miss F. L. Gauntlett, Miss I O S. Goddard, Miss G. M. Grahame, Miss M. E Hamilton, Mrs. E. C B. Herbert-Hall, Miss K. K. H. Hood, Miss B. M. Howard, Miss D. E. Hume, Miss K. McKnox, Miss E. L. Knowles, Mrs. E. W. Lloyd-Evans, Mrs. J Longhurst, Miss I. W McIntosh, Miss P. Manning, Miss K. A. Devereax-Moore, Miss R. M. Newling, Mrs. M. L. Niven, Miss C. M. O. Hill, Miss L. Oxenham, Mrs. F. F. Pelly, Miss M. Peppercorn, Miss J. Phillips, Miss A G. Pitty, Miss E. M. Powell, Miss E. M. Renny-Tailyour, Miss D. Robinson, Mrs. M. Savage, Miss M. H. Silcock, Miss B. A Turton, Miss F. D. Turton, Miss G. M. Upham, Miss E. Watt, Miss O. B. Wilson, Miss J. L. Wilkinson, Miss P. E. Wilkinson, Miss V. St. L. Winter, Miss L. M. Wood, Aug. 27th, 1918; Miss M M. Allen, Miss J. R. Anderson, Miss S. K. Anderson, Miss M. M. Anderton, Miss I. Black, Miss M. C. Blackwell, Mrs. S. C. Brunton, Miss L. M Burnnand, Mrs. L. Burns, Miss S. Bussell, Miss G. E. Butler, Miss K. F. Butler, Mrs. J. Christmas, Miss M. M. Collins, Mrs. M. Cookson, Miss D. Copland, Mrs. W. M. Corbett, Mrs. W. M. Coyle, Miss M. D. S. Dance, Miss D. Durnford, Miss A. J. Edmunds, Mrs. C E. I. Edwards, Miss M. N. Findlay, Miss E. L. Fisher, Mrs. E. H. Foster, Miss J. G. Foy, Mrs. E. M. Fuller, Miss R. H. Gibson, Miss M. M. Griffin, Miss L. M. Gore-Hart, Miss D Hodgson, Miss E. M. Hunter, Miss E. B. Imeson, Miss E. F. Ivatt, Miss G. T. Jackson, Miss G. M. Johnson, Miss M. E. Johnston, Miss M. B. Kenwrick, Miss B. M. Kingdon, Miss J. K. Little, Miss E. MacDonald, Miss M. E. F. Machin, Miss C. S. McIntyre, Miss H. McKowen, the Hon. Mrs. E. Methuen, Miss F. E. P. Moody, Miss E. I. Morris, Miss M. S. Norfor, Miss H. L. Parker, Miss J. C. Price, Mrs. J. Proger, Mrs. G. L. Purves, Miss D G. Radcliffe, Mrs. M. H. Russell, Miss M A Scholefield, Mrs. M. B. Sersale, Mrs. F. Sheridan, Miss L. Shortridge, Miss E. T. Smith, Miss F. H. Spinney, Mrs. M. Stephenson, Mrs. J. I Stubbs, Mrs. L Swaffield, Miss I. Thexton, Miss M. A. Thompson, Miss M. B. Thomson, Miss V. Thurston, Mrs. C. A. G. Townshend, Miss E. M. Trethowen, Miss W. M. Tyler, Miss N. Williams, Mrs. O. Wyatt-Pratt, Oct. 1st, 1918; Miss A. Anderson, Miss B G. Anson, Miss R. L. Blott, Miss F. Buckley, Miss H. Butcher, Miss C. M. Calderon, Miss D. V. Carter, Mrs. V. E. Carter, Mrs. A. F. Cecil-Jones, Miss H. L. Chaffers, Miss M. Chessum, Miss M. Condon, Miss D. E. Cooper, Miss M. K. Cottle, Miss M. V. Cox, Mrs. G. J. Coyne, Miss I. Creighton, Miss J. M. Curror, Miss K. Daubeney, Miss D. Davis, Miss D. M. Durno, Miss E. C. Edwards, Miss M. R. Ferguson, Miss C. M. Findlay, Miss M. H. Fisher, Miss E. Fletcher, Mrs. E. L. Fooks, Miss A. E. Fraser, Miss D. N. Gerrie, Miss K. Gilmour, Mrs. J. W. Grant, Miss M. Halliwell-Carew, Miss M. K. Headlam, Miss M. E. Higginbottom, Miss M. A. Houghton, Miss D. G. James, Miss I. Y. Jennings, Miss E. C. Kenion, Miss A R Kiln. Miss B. E. Leefe, Miss R. Mahoney, Miss M. Moriarty, Mrs. K. Musgrave, Miss M. McCarthy, Miss M. G. McIlwaine, Miss A. McNaughton, Mrs. E. Pasley, Miss C H. Peake, Miss M. Pearce, Mrs. F. K. Pearson, Miss T G. Piper, Miss E. M. Rabone, Miss M. C. Rees, Miss V. B C. F. Rhys-David, Miss E. V. Robinson, Miss A. A. Screech, Miss C. H. Service, Mrs. M. Shields, Miss D. Solly, Mrs. E. Stephens, Mrs. M. A. Tate, Mrs. H. Tom, Miss M. G. Vaughan, Oct. 28th, 1918; Miss D. B. Fletcher, Miss E. E. Sharp, Miss E. A. A. Summerhayes, Nov. 2nd, 1918; Miss M. M. Radcliffe, Dec. 2nd, 1918; Miss N. Campbell, Dec. 8th, 1918; Miss L. A. Goodwin, Dec. 30th, 1918.

To be Dep. Adminrs.:—Asst. Adminr. N. C. Pasmore, April 1st, 1918; Asst. Adminr. E M Glidewell, Asst Adminr. M. M. Morgan, May 1st, 1918; Asst. Adminr. K. Pearson, May 25th, 1918; Asst. Adminr. H. M. Reid, June 1st, 1918; Asst. Adminr. J. M. Taylor, June 24th, 1918; Asst. Adminr. M. N. Thornton, July 22nd, 1918; Asst. Adminr. G. Pertwee, July 26th, 1918; Asst. Adminr U. Campbell, Aug. 1st, 1918; Asst. Adminr E A. Somerset, Asst. Adminr M. Kinross, Sept. 1st, 1918; Asst. Adminr. M. K. Fraser, Sept. 10th, 1918; Asst. Adminr. C. B. Balthasar-Gething, Sept. 14th, 1918, Asst. Adminr. A. Jones, Sept. 20th, 1918; Asst. Adminr. K. L. Curlett, Asst. Adminr. P. A. Taylor, Asst. Adminr. I. M. Waistell, Asst. Adminr. M Wall, Asst. Adminr. L. K. White, Oct. 1st, 1918; Asst Adminr. E G. Penman, Oct. 2nd, 1918; Asst. Adminr. V. D. Nodin, Oct. 14th, 1918; Asst. Adminr.. M. F. E. Scott, Oct. 15th, 1918, Asst. Adminr. D. C Muir, Asst. Adminr. D. M. Fenn, Oct. 18th, 1918. Asst. Adminr. B M. Meadows, Oct. 19th, 1918; Asst. Adminr. C. T. Bayley, Asst. Adminr. W. C. Woodstock, Asst Adminr. E. J. Scott, Oct. 21st, 1918; Asst Adminr A. L. Chauncey, Asst Adminr. P. E. Stapleton-Cotton, Oct. 24th, 1918; Asst. Adminr. E. V. M. Anderson, Asst. Adminr. M H. Grant, Asst. Adminr. A. Marshall, Asst. Adminr. H. G. Race, Nov. 1st, 1918; Asst. Adminr. N. G. King, Nov. 4th, 1918; Asst. Adminr. V. Armstrong, Nov. 5th, 1918; Asst Adminr. M. S. Huckett, Nov. 8th, 1918; Asst Adminr. R. E. Booker, Asst. Adminr. R. M. Wardell, Nov. 13th, 1918; Asst. Adminr. O. Cayley, Nov. 14th, 1918; Asst. Adminr. F. G Hunter, Nov. 17th, 1918, Asst. Adminr. M. David, Nov. 19th, 1918; Asst. Adminr. F. Sheridan, Nov. 23rd, 1918; Asst. Adminr. W E S. Mount-Batten, M.B.E., M.M., Nov 25th, 1918; Asst. Adminr. E. V. F. Fordham, Nov. 29th, 1918; Asst Adminr. A. J. Brodie, Asst. Adminr. E. B. Fosbrooke, Asst. Adminr. E. E. Gemmell, Asst. Adminr. G. M. Glubb, Asst. Adminr. M. D. R. Leys, Asst. Adminr. D. L. Reed, Asst. Adminr. E. R. Sinclair, Asst. Adminr. M. A. Thomson, Dec. 1st, 1918; Asst. Adminr M. Stephenson, Dec. 3rd, 1918; Asst. Adminr R O. Dixon, Dec. 10th, 1918; Asst. Adminr. J. K. Cairns, Dec. 11th, 1918; Asst. Adminr. G. Dickinson, Asst. Adminr. H. G. Jack, Asst. Adminr. M. M King, Dec. 12th, 1918; Asst. Adminr. B. D. F. Cooper, Dec. 14th, 1918; Asst. Adminr M. A. Thompson, Dec. 15th, 1918; Asst. Adminr. M. L. I. Cook, Asst. Adminr. D. M. de Grave, Dec. 17th, 1918; Asst. Adminr. A. E. M. Brook-Taylor, Asst. Adminr. V. Gallagher, Dec. 18th, 1918; Asst. Adminr. K. Daubeney, Asst. Adminr. C. M. Scott-Holms, Dec. 19th, 1918; Asst. Adminr. E. I. David, Asst. Adminr. C. T. Milward, Dec. 20th, 1918; Asst. Adminr. F. D. Turton, Dec. 28th, 1918; Asst. Adminr. M. M. Gow, Dec. 30th, 1918; Asst. Adminr. B. Nicholls, Dec. 31st, 1918; Asst. Adminr. D. Millington, Jan 4th; Asst. Adminr. F Gauntlett, Jan. 13th; Asst. Adminr. L. M. Mackay, Jan. 14th; Asst. Adminr. M. Halcrew, Jan. 17th; Asst. Adminr. M. Drury, Jan. 22nd; Asst. Adminr. D. Yates, Feb. 1st.

To be Adminrs.:—Dep. Adminr M. M. Morgan, Dep. Adminr. E. Thomson, May 1st, 1918; Dep. Admiur. N C. Pasmore, June 1st, 1918, Dep. Adminr. E. L. Lees, July 1st, 1918; Dep. Adminr. M. Atkin, Aug 26th, 1918; Dep Adminr. M. K. Fraser, Sept. 10th, 1918; Dep. Adminr. L. B. Humphries, Dep. Adminr H. Simeon, Sept 14th, 1918; Dep Adminr. E. M. Glidewell, Sept. 24th, 1918, Dep. Adminr. L. B. Anderson, Dep. Adminr. U. Campbell, Dep. Adminr. P. A. Taylor, Dep. Adminr. L. K. White, Oct. 1st, 1918; Dep. Adminr. V. D. Nodin, Oct. 14th, 1918; Dep. Adminr. V. C Goodison, Oct. 15th, 1918; Dep. Adminr. K. L. Curlett, Dep. Adminr. O E Tibbits, Oct. 24th, 1918; Dep. Adminr. A. N. Maltby, Nov. 1st, 1918; Dep. Adminr. J. C. Paterson, Nov. 4th, 1918; Dep Adminr. M. N. Thornton, Nov. 13th, 1918; Dep. Adminr. F. G. Hunter, Nov. 17th, 1918; Dep. Adminr. W. E. S. Mount-Batten, M.B.E., M.M., Nov. 25th, 1918; Dep. Adminr. J. E. Oswald, Dec 1st, 1918; Dep. Adminr. A. L. Chauncey, Dec. 3th, 1918; Dep. Adminr. M. A. Thompson, Dec. 15th, 1918; Dep. Adminr. K. Pearce, Dec. 19th, 1918; Dep. Adminr. C. T. Baylay, Jan. 27th.

To be Adminrs. whilst specially empld.:—Dep. Adminr. D. M. Fenn, Dep. Adminr. D. C. Muir, Jan. 18th

To be Dep Adminr. whilst specially empld.:—Asst. Adminr. L. A. Goodwin, Dec. 30th, 1918.

The following Officers relinquish their appts. on account of ill-health:—Asst. Adminr. N. Freeland, Dec. 1st, 1918; Dep. Adminr. C. M. Davidson, Dec. 2nd, 1918; Dep. Adminr. M L. C. Gooden-Chisholm, Asst. Adminr. D. Chapman, Jan. 17th; Dep. Adminr. A. E. Towyn-Taylor, Jan. 22nd

The following Officers relinquish their appts at their own request:—Adminr. F. Woodroffe, Asst. Adminr. M. L. Keeler, Dec. 1st, 1918; Adminr. V. D. Nodin, Dec. 31st, 1918; Asst. Adminr. M. R. Benet, Jan. 6th; Asst. Adminr. M. C. Ward, Jan. 8th; Asst Adminr. M. M. Seton-Kerr, Jan. 16th; Asst. Adminr. S. C. Brunton, Jan. 17th; Asst. Adminr. M. M. M. Kerr, Jan. 18th; Asst. Adminr. L. F. J. Selwyn, Jan. 21st; Asst. Adminr. J. M. Stewart (*née* Musgrave), Jan. 22nd; Dep. Adminr. H. A. Soper, Jan. 27th; Dep. Adminr. M. A. Delme-Radcliffe, Asst. Adminr. E. A. Douglas, Dep. Adminr. E. Simey, Adminr. E. B. de T'Serclaes, Jan. 31st.

Memoranda.—Officers of the Regular Army, Special Reserve, and Territorial Force, who have held temporary commissions in the Royal Air Force either by virtue of notification in "Gazette," April 2nd, 1918, or otherwise, and who have subsequently relinquished or otherwise voluntarily terminated their commissions in the Regular Army, Special Reserve, or Territorial Force, and whose temporary commissions in the Royal Air Force were thereby determined, are granted temporary commissions in the Royal Air Force from the date of the termination of their commissions in the Regular Army, Special Reserve, or Territorial Force, with such rank, appointment, and precedence in the Royal Air Force as they held therein immediately prior to such relinquishment or termination as aforesaid. Lt. P. G Pickwell to be actg. Capt. while holding a special appt. at the Ministry of Munitions, Aug. 1st, 1918; Sec. Lt. R. D. Forrester relinquishes his commn. on ceasing to be empld., Sept. 18th, 1918.

The following are transferred to unempld. list, from (S.O.):—Capt. L. S. B. Hull, Jan. 15th (substituted for notification in "Gazette," Jan. 24th, concerning Capt. L. S. Benson); Lt. (actg. Capt.) R. H. Spencer, Jan. 23rd; Sec. Lt. (actg. Lt.) W B. Simpson, Jan. 26th; Lt. (actg. Capt.) R. MacFarlane, Jan. 29th; Maj. (actg. Lt.-Col.) G. D Fidgeon, Feb. 4th; Sec. Lt. (actg. Lt.) A. Davies, Feb. 11th; Maj. J. C Savage, Feb. 18th.

FROM THE COURT CIRCULAR.

Buckingham Palace, Feb. 25th.

The following lady, among others, was introduced into the presence of His Majesty, when the King invested her with the Insignia of a Commander of the Most Excellent Order of the British Empire:—

The Countess of Drogheda.

Buckingham Palace, Feb. 26th.

The following officer was introduced into the presence of the King, when His Majesty conferred upon him the Bar to the Military Cross:—

Capt. Edmund Cornish, Aust. F C

Buckingham Palace, March 1st.

The King held an Investiture in the Ball Room of the Palace at 11 o'clock this morning

His Majesty decorated the following with the Victoria Cross:—

Major William Barker, Royal Air Force (also received the Distinguished Service Order and Bar and the Military Cross and Two Bars).

On the morning of October 27th, 1918, this officer observed an enemy two-seater over the Forêt de Mormal. He attacked this machine, and after a short burst it broke up in the air. At the same time a Fokker biplane attacked him, and he was wounded in the right thigh, but managed, despite this, to shoot down the enemy aeroplane in flames. He then found himself in the middle of a large formation of Fokkers, who attacked him from all directions, and was again severely wounded in the left thigh, but succeeded in driving down two of the enemy in a spin. He lost consciousness after this, and his machine fell out of control. On recovery he found himself being again attacked heavily by a large formation, and singling out one machine he deliberately charged and drove it down in flames. During this fight his left elbow was shattered and he again fainted, and on regaining consciousness he found himself still being attacked, but, notwithstanding that he was now severely wounded in both legs and his left arm shattered, he dived on the nearest machine and shot it down in flames. Being greatly exhausted, he dived out of the fight to regain our lines, but was met by another formation which attacked and endeavoured to cut him off, but after a hard fight he succeeded in breaking up this formation and reached our lines, where he crashed on landing. This combat, in which Major Barker destroyed four enemy machines (three of them in flames), brought his total successes up to fifty enemy machines destroyed, and is a notable example of the exceptional bravery and disregard of danger which this very gallant officer has always displayed throughout his distinguished career.

Captain Ferdinand West, Royal Air Force (also received the Military Cross).

Captain West, while engaging hostile troops at a low altitude far over the enemy lines, was attacked by seven aircraft. Early in the engagement one of his legs was partially severed by an explosive bullet, and fell powerless into the controls, rendering the machine for a time unmanageable. Lifting his disabled leg he regained control of the machine, and, although wounded in the other leg, he, with surpassing bravery and devotion to duty, manœuvred his machine so skilfully that his observer was enabled to get several good bursts into the enemy machines, which drove them away. Captain West then, with rare courage and determination, desperately wounded as he was, brought his machine over our lines and landed safely. Exhausted by his exertions he fainted, but on regaining consciousness insisted on writing his report.

The following officers were severally introduced into the presence of the King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

The Most Honourable Order of the Bath (Military Division).—Knight Commander (Received the honour of knighthood): Major-Gen. Frederick Sykes, R.A.F.

Companion: Brig.-Gen. John Hearson, R.A.F.

The Distinguished Service Order.—Major Trafford Leigh-Mallory, R.A.F.

The King then conferred decorations as follows:—

The Distinguished Service Cross and Bar.—Captain Henry Worrall, R.A.F.

The Distinguished Service Cross.—Capt. Francis Halsted, R.A.F.; Lieut. Frederick Russell, R.A.F.

The Military Cross.—Capt. Geoffrey Hughes, R.A.F.; Capt. John Summers, R.A.F.; Capt. Thomas Twist, R.A.F.; Lieut. Oliver Adams, R.A.F.; Lieut. James Haslam, R.A., attd. R.A.F.; Lieut. Alan Lomax, R.A.F.; Lieut. John Luke, West Yorkshire Regt., attd. R.A.F.; Lieut. Charles Sundy, R.A.F.; Lieut. Arthur Wilson, West Yorkshire Regt., attd. R.A.F.

ADMIRALTY APPOINTMENT.

The following promotion has been made:—

March 1st.—Promotion.—Lt. C. L. Courtney, D.S.O., to rank of Lt.-Comdr., seny. Feb. 28th.

THE CASUALTY LIST.

MILITARY.

Reported March 1st.

The following officers, who were prisoners of war in Germany, have been released, and have arrived in England:—

Frost, Lt. J., R.F.C.; Gaye, Capt. A. D., R.F.C.; Smith, Lt. F. L., R.F.C.; Thomas, Capt. C. I. S., R.F.C.

Reported March 4th.

Australian Force.—Killed.—Howard, Lt. F., Aust. Fl. Corps.
McKeown, Lt. J. A. H., Aust. Fl. Corps.

Casualties among Wt.Os., N.C.Os., and Men. The Dates are those of the Official List.

Previously Missing, now reported Died as Prisoners of War in Turkish Hands.

Feb. 20th.—R.F.C.—Draper 5809 1st Cl. Air Mech. F. G. Dartford.

AIR FORCE.

Reported Feb. 26th.

Killed.—Hammond, Sec. Lt. H. C.;
Hewett, Lt. L. S.
Yokom, Sec. Lt. C. F.
Died of Injuries.—McLeod, Sec. Lt. G. E.
Died.—Birch, Lt. E. C.
Lawson, Capt. H.

Reported March 1st.

Killed.—Brodie, Lt. E. B.
Davies, Sec. Lt. E. G., D.F.C.
Frost, Sec. Lt. D. G.
Died of Injuries.—Carlton-Smith, Sec. Lt. B.
Died.—Clifford, Lt. C. H.
Halcombe, Maj. N. M.

Reported March 3rd.

Killed.—Bannister, Capt. E. G.
Fast, Sec. Lt. J. B.
McGee, Lt. E. J.
Died.—Illingworth, Lt. F. W.
Repatriated.—Aked, Lt. H. L. C.; Eberli, Capt. F. H.; Hibbard, Capt. S. R.; Strover, Capt. E. J.; Talbot, Sec. Lt. F. W.; Sugden-Wilson, Capt. W. H.
Correction.—Repatriated.—Crichton, Sec. Lt. A. C., should read Crichton, Sec. Lt. C. A.

Casualties and Repatriations among Airmen. The Dates are those of the Official List.

Killed.

Feb. 28th.—Carlyle 200515 Cpl. W. F. (Kingsclere); Linton 26059 Serjt.-Pilot E. S. (Dumfrieshire, Scotland).

Died of Injuries.

Feb. 28th.—Smith 112544 AC/2 F. H. (Kettering); Wardell 120601 AC/2 A. (Northampton).

Died.

Feb. 28th.—Carlyon 88150 AC/2 E. H. (Birmingham); Clark 8324 AC/2 G. (Fareham); Ellis 57239 AC/1 W. (Ailsworth), Hughes 65047 AC/1 R. F. (East Dulwich); Oates 144954 AC/2 J. (Birmingham); Reeve 104935 AC/2 H. G. (Marylebone); Stacey 7605 Serjt. H. W. (Herne Hill); Wilson 87743 Flt. Serjt. W. (Andover).

Repatriated.

Feb. 28th.—Bray 408202 3rd Air Mech. A. E. (Walton-on-Thames); Dodd 221759 1st Pte. H. M. (Stoke-on-Trent); Greenway 65771 Serjt.-Mech. J. (Whitefield); Hines P/554918 Cadet C. F. (Walthamstow); Holman 45286 3rd Air Mech. W. (London); Johns 10213 2nd Air Mech. F. (Bringsty, Worcester); Pearson 111982 2nd Pte. E. (Swinton); Reeves 145890 2nd Pte. J. (Hanley); Styles 147168 AC/2 H. (Southfields, S.W.); Wright 209197 Cpl.-Mech. F. A. (Exeter).

PERSONAL NOTICES

NAVAL.

Deaths.

SPENCER.—Flight Sub-Lieut. Thomas Spencer, R.N.A.S., elder son of the late Seymour Spencer, of Birks, Bellingham, was born in 1894, and was educated at Stonyhurst. When war broke out he joined the R.N.A.S., going to Netheravon Flying School and then on to Isle of Grain Air Station for a short time. He was appointed to H.M.S. "Empress," and left that ship in a 100 h.p. "Short" seaplane, engine 817, to join in the air raid over Zeebrugge, and never returned. The coast was patrolled all night and next day in hope of rescue or wreckage being found. It is now understood that his engine was blown out by a bomb refusing to be released, and it is presumed he was shot down while trying to make a forced landing.

THURSTAN.—Captain Benzil Robert Thurstan, R.N.A.S., attd. R.A.F., Cranwell Air Station, died on Feb. 24th, at the 4th Northern General Hospital, Lincoln, of pneumonia, following influenza.

Marriage.

MAITLAND-HERIOT—EGERTON-SAVORY.—On Feb. 27th, at the Brompton Oratory, by the Revd. Father Bernard Vaughan, S.J., Capt. C. Adrian Maitland-Heriot, D.S.C., R.A.F., second son of Mr. and the late Mrs. Fredk. Maitland-Heriot, of Buenos Aires, was married to Dorothy, daughter of Mr. and the late Mrs. Egerton-Savory, of Eastbourne.

MILITARY.

Deaths.

BARON.—Capt. Harold Hartley Baron, R.A.F., whose death occurred on Feb. 7th from disease contracted during the German South-West African campaign, was the second son of Mr. and Mrs. John Baron. He was educated at Tonbridge School and Downton Agricultural College, and was fruit farming in Rhodesia when war was declared. He joined the 1st Rhodesian Regt. on Aug. 4th, 1914. At the termination of the German South-West African campaign he came home to take up flying, obtained his "wings" in December, 1915, and proceeded to France in June, 1916, where he was promoted captain and flight commander in March, 1917, and did most valuable artillery work in France and Flanders for over a year. For some time he was on the Italian front, since when he had been instructing.

FRASER.—Alan Herbert Fraser, late 1st Air Mech., No. 2 Squadron, 1st Wing, R.F.C., died on Feb. 24th, from pneumonia following influenza. He was 30 years of age.

HARKER.—Capt. Howard Redmayne Harker, M.C., R.A.F., died on Feb. 27th, of pneumonia, in the Officers' Military Hospital, Tidworth. He was 27 years of age.

JOHN.—Capt. Francis Ernest John, R.A.F., Croix de Guerre (late of Middlesex Yeomanry), died on Feb. 26th, at 52, Fairhayel Gardens, South Hampstead, of pneumonia following influenza.

LYON—Lieut. J. Lyon, M.M., R.A.F., a Canadian, was drowned on Feb. 28th in an attempt to fly from Chester to Ireland. His machine fell into the sea near the Kish lighthouse, between Kingston and Howth, County Dublin. Mr. Lyon was in company with five other machines, but although two of them followed his aeroplane down to the water no trace of it could be seen.

SYKES.—Lieut. Jack A. Sykes, Gordon Highlanders, attd. R.A.F., who was reported "missing," then prisoner of war, is now known to have been killed in an aerial combat on Oct. 4th, 1918. He was the youngest son of the late J. D. Sykes, of Woking, and Messrs. Few and Co., London. He was educated at Holt, Norfolk, and Haileybury College. He trained in the O.T.C., and obtained his commission on Dec. 28th, 1915. He went out to France in September, 1916, and was very severely wounded in both knees in March, 1917. After being discharged from hospital he underwent a course of training in the Tank Corps, afterwards rejoining his regiment, the Gordon Highlanders. Owing to his wounds, which made him incapable of marching, he transferred to the R.A.F., obtaining his wings in July, 1918. He went out to France again in August, 1918. He was 19 years of age.

Engagements.

BRAITHWAITE—SEARS.—The engagement is announced between Capt. Geoffrey Gawen Braithwaite, the Queen's R. W. S. Regt. and R.A.F., son of Mr. and Mrs. Cecil Braithwaite, of Bridley Manor, Worplesdon, and Dorothy Mary, daughter of the Rev. and Mrs. F. W. Sears, of the Rectory, Minchinhampton, Glos.

WINKWORTH-LODGE.—The engagement is announced of Lieut. Henry Winkworth, Queen's Bays and R.A.F., elder son of Stephen D. Winkworth, 13, Craven Hill Gardens, W., and Walton-on-the-Hill, Surrey, and Margot, only daughter of Robert Donald, Heath Lodge, Walton-on-the-Hill.

Marriage.

BOYD-HARVEY—FRASER.—On Feb. 20th, at St. Peter's Church, Budleigh Salterton, Lieut. J. J. Boyd-Harvey, Welsh Horse and R.A.F., eldest son of the late Mr. and Mrs. Boyd-Harvey, Tondu House, Bridgend, was married to Katherine, daughter of the late Mr. and Mrs. Carlile Fraser, Budleigh Salterton, by the Rev. T. A. Edmonds.

* * *

Information is earnestly desired from repatriated R.A.F. officers and others who may have knowledge of the burial place of Capt. Laurence Minot, M.C., R.F.C. (late 57th Squadron, R.F.C.). officially presumed to have been killed on July 28th, 1917, in action over Meulebeke, near Courtrai. He was flying with Lieut. S. E. Leete, also presumed killed on D.H.4. A7540.—Please write to J. E. Minot, 30, Beulah Hill, Upper Norwood, S.E.19.

* * *

Information is required by Mrs. Thorburn, of 46, Strathearn Road, Edinburgh, N.B., of Capt. James Thorburn, (Forth) R.G.A., attached R.F.C., who was reported missing on Feb. 11th, 1917.

AIR FORCE.

Deaths.

CARLETON SMITH.—Lieut. B. Carleton Smith, R.A.F., who died on Feb. 6th as the result of an accident whilst flying a Gotha at Cologne, was the only son of the late McDougal Carleton Smith, Cheadle, Cheshire, and Mrs. Carleton Smith, Brampton, Ashton-on-Clun, Shropshire. He was 19 years of age.

CONRON.—Lieut. Hatton Charles Conron, R.A.F., who was officially reported missing on May 18th, is now presumed to have been killed. He was the eldest son of the late Hatton Ronayne Conron, of Mayfield, Sussex.

HACKLETT.—On Feb. 26th Lieut. Leslie A. Hacklett, R.A.F., was killed at Hounslow while flying, and his observer, Mr. Stanley Graham, of Brook Green, W., seriously injured. Mr. Hacklett, who was 22 years of age, was engaged in carrying dispatches to and from the Peace Conference in Paris, and was just passing over Hounslow when the accident occurred, having decided to return to Hendon owing to unfavourable weather. The machine was a De Havilland.

HAMMOND.—Lieut. Vernon John Hammond, R.A.F., who died on Feb. 23rd at The Firs, Gidea Park, of pneumonia, following influenza, was the second and only surviving son of John George Hammond. He was 27 years of age.

HANCOCK.—On March 1st Lieut. Hancock, R.A.F., was killed at Richmond. He was flying in company with several other machines when his aeroplane nose-dived and turned upside-down. He appeared to lose control of the machine, which spun to the ground. At 1,000 feet the pilot is stated by the onlookers to have fallen out. The aeroplane fell into the river.

JENKINS.—Lieut.-Col. Basil Oliver Jenkins, C.B.E., R.A.F., who died of pneumonia on Feb. 7th at Bonn, was the son of Mr. and Mrs. O. W. Jenkins, Redland Green, Bristol. He was 30 years of age.

KEMP.—Lieut. S. A. Kemp, R.A.F., who died on Feb. 21st, following an attack of influenza, at No. 20 General Hospital, Chamiers, France, was the eldest surviving son of Mr. and Mrs. Kemp, Belper, Marchmont Road, Wallington. He was 19 years of age.

MARCIONNI.—Sec. Lieut. C. C. L. Marcionni, R.A.F., who died on Feb. 26th at 17, Cecil Road, Muswell Hill, after a short illness, was the only son of Charles and Mary Marcionni. He was 18 years of age.

Births.

HASLAM.—On Feb. 26th, at Cranham, Ashtead, Surrey, to the wife of Lieut. W. A. Haslam, R.A.F., of a son.

JOYCE.—On Feb. 21st, at 44, Shaftesbury Road, Southsea, the wife of Lieut. G. W. Joyce, R.A.F., of a son.

SOUTHWELL.—On Feb. 22nd, at 23, Woronzow Road, N.W.8, the wife of Major R. V. Southwell, R.A.F.—a daughter.

* * *

Sec. Lieut. L. Grahame Stern, of the 99th Squadron, R.A.F., was reported missing on Sept. 26th, 1918, after a fight over Metz, has been since reported killed. This is the only news received through the German Red Cross. Any information from returned prisoners or Army of Occupation would be gratefully received by Mrs. Stern, Barty, Bearsted, Kent.

CONGRATULATIONS.

KEMP.—On Feb. 18th, at Minor Canon Row, Rochester, to the wife of Ronald C. Kemp—a son.

A PARACHUTE DROP.

According to the "Daily Chronicle" of March 3rd, Miss Sylvia Boyden, is the first woman to jump from a balloon with a parachute. The parachute used was a Calthrop "Guardian Angel." One recalls parachute descents by women many times in the past 20 years.

REQUIRING ATTENTION.

One fully recognises the great difficulties which beset those who have been charged with the task of demobilising the surplus personnel, and disposing of the surplus matériel, of the Royal Air Force.

It seems, however, that certain of these difficulties should not be impossible of solution, if only a number of capable officials with sufficient power could be ear-marked and made available to cope with emergencies as they arise.

The disposal of demobilised personnel has on occasion been handled in a manner which caused much heartburning among the victims, and indicates that the machinery is not working as smoothly as it might do.

For instance, some queer things have happened in disbanding the personnel of squadrons. On one occasion it is said that some old hands received sudden orders on a Saturday to leave the aerodrome, near London, where they were stationed, to proceed to a certain town in the Midlands, where they were to report late that night. When they arrived, they were told that the Area Office was closed for the week-end, and that they were to report on the Monday forenoon. They took rooms in an hotel, and reported once more on Monday morning. After waiting for some hours, they were briefly interviewed by a staff officer, who gave them orders to report to a group on the other side of the country. They reached a junction half-way on their journey, and then found that there was no connection to their destination; so they had to put up for another night.

They arrived at the Group the following evening, and were given orders to report to a wing some distance away. Arriving at the town late at night, they once more took rooms at an hotel, and upon reporting were sent to a training depot station a few miles away.

It therefore took them from Saturday mid-day to Wednesday mid-day to travel from one aerodrome to another, which happened to be about 1½ hours' journey by train. Personal expenses cost these officers over £10 a head, and they could only claim travelling allowances to the extent of £3.

Apparently, also, it was necessary to close down a large station, where some 300 cadets were in being. It is alleged that the station was simply shut down like a shop, and no arrangements were made for the accommodation elsewhere of the cadets, who were simply told to go to London, without any further instructions. Naturally, most of them had no money worth speaking about, and no home in London, and the only thing they could do was to go down to the Air Ministry and hang about until somebody could be found to deal with their case.

It would probably also save the Air Ministry a great deal of time, and members of the Royal Air Force of all ranks much worry, if a concise statement were printed, outlining the allowances, pensions, wound-gratuities, and other payments due to all ranks upon demobilisation and re-engagement. Such a document should be as simple as possible, and should not be plastered over with reference numbers of regulations not appearing in it.

It should, if possible, contain a list of concrete cases showing what is due to officers and men under ordinary circumstances—that is to say, the publication should show approximately what is due to an officer, N.C.O., or man, of one, two, three, four, or five years' service, according to whether such service has been exclusively in connection with flying, or partially in connection with some other arm.

It would manifestly be impossible to provide for every combination of circumstances, but it should be comparatively simple to give a number of representative cases which would give a man an approximate idea as to his position.

Another problem which seems capable of better solution is that of disposing of condemned aeroplanes. All the Air Force squadrons are now being equipped with newly delivered aeroplanes, and the difficulty arises as to the disposal of the machines which are being replaced.

At certain of the Training Division stations, flight-cadets are employed in their spare time in "dismantling"—or one could more correctly say breaking up—the condemned machines, which are mostly B.Es. and small Armstrong-Whitworths.

In most instances these machines, although out of date, are perfectly good aeroplanes, but breaking up is the only method which has been adopted to reduce the space necessary for storage. No great care is used in dismantling the machines. If difficulty is experienced in removing nuts and stays, sledge-hammers and crow-bars are used to break up the planes, tails, and fuselages, and in most cases the wreckage is simply put in a heap and burnt.

Many officers of the Royal Air Force would gladly have purchased some of these excellent machines for future private flying, and the money derived from the sale might have done something to pay a trifling proportion of the cost of equipping the Air Force. The Governments of minor foreign States also would have been very glad to buy such machines for training purposes.

It would seem well if the whole question of R.A.F. salvage were treated a little more seriously than is apparently the case, at present, by those not immediately concerned with the Production department.—W. L. W.

AERONAUTICS AND THE LAW.

BY "THE LINCOLN IMP."

TRESPASSERS BEWARE!

In the quaint language of law the purchaser of a piece of land buys also "the column of air superincumbent on the close." Or if you prefer it in Latin, "*cujus est solum ejus est usque ad cœlum et ad inferos.*" That is to say, the landowner's rights are bounded only by heaven above and hell beneath.

The whirligig of time has transformed this doctrine of *usque ad cœlum* from an archaic theory to a modern problem of great importance.

Principle seems to require that if the air is "mine" I shall be permitted to keep trespassers out. Which means that permission must be sought and obtained from each owner of the soil to fly over his cabbage patch. Which is manifestly absurd.

Contrariwise, if state ownership of the soil does not extend *ad cœlum*, how, once peace is declared, can we prevent any roving Hun, come to photograph our defences, from polluting the skies over our land?

Hence it comes about that two types of legislation are needed, viz. :—(a) An international convention, which shall emphatically affirm the sovereignty of the State in the air *usque ad cœlum*, and (b) national legislation, which shall deprive the individual owner of land of his alleged private ownership of the air. It is with the latter alone that we are now going to deal.

Apart from special legislation, the apparent right of a landowner would be to bring an action of trespass whenever aircraft invaded his domain, whether as mere birds of passage or as groundlings on his soil. But he would be ill-advised to take these proceedings if he had suffered no loss from the visit. For an unsympathetic jury might award him ½d. damages, while costs, considerably in excess of that coin, might have to come out of his own pocket.

The proposed special legislation will follow this analogy and make damage "the gist of the action." The landowner, that is to say, is to be deprived of his supposed right to bring an action for trespass by aircraft unless the aerial invasion of his premises has caused him actual damage. But in return for the barren right of exclusion taken from him he is to be given, in effect, the benefit of a compulsory insurance of his property against loss occasioned by the invading craft at the expense of its proprietors. And the insurance is to cover damage done in flight, landing or taking off, or by the dropping of pilot, passenger, or other object overboard. So trespassers **beware!**

When—having forced landed on the floor of your neighbour's greenhouse at the expense of the glass roof and prize orchids (to say nothing of the bus and your own peace of body and mind)—you plead an entire absence of malice, and unavoidable accident, it will nothing avail. So beware how you trespass!

For—and it will be well for all those interested in aviation to grasp the significance of this—the intention is to make the owners of aircraft insure the rest of the world against all damage which private aircraft may do.

An obligation of this character is a somewhat heavy burden, and a trifle exceptional, but by no means unique. The ordinary principle of liability, where damage has been done, is that the doer or "*tort feasor*" is responsible for the natural consequences of his negligent acts or those of his servants or agents, but not for the consequences of an act of God or of some complete stranger, nor for the absence of exceptional wisdom, forethought or skill. By this rule our friend on the floor of the greenhouse would not be responsible for the damage done if brought there by collision with a falling star or small-shot from a sportsman with a gun, or through an accident which only a superman could have foreseen, or a "stunt" pilot avoided.

But a stricter principle than usual is applied in a number of cases of which the leading case of Rylands v. Fletcher is an example. There, water was stored in a reservoir, and, bursting its way through unsuspected shafts, flooded the plaintiff's mine.

The House of Lords laid down this rule :—"If a person brings on his land anything which, if it should escape, may cause damage to his neighbours, he does so at his peril. If it does escape and cause damage he is responsible, however careful he may have been and whatever precautions he may have taken to prevent the damage." The law is the same whether "beasts or water or filth or stenches" do the damage; to which "fire" and "stored energy" may be added; whether in the form of an explosive or of electricity or the kinetic variety used in the propulsion of aircraft.

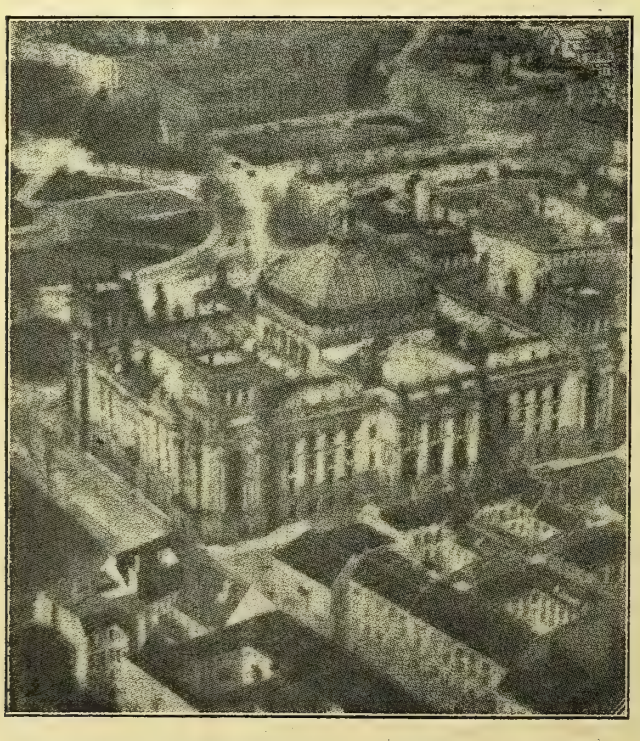
In Rylands v. Fletcher it was said "He can excuse himself by showing that the escape of water from control" was owing to the plaintiff's default; or perhaps that the escape was the consequence of *vis major* or the "act of God."

In the proposed aerial legislation it is not very clear how these two grounds of excuse are to be dealt with, but it is strictly laid down that the obligation on the aviator in an action of trespass is to be absolute, negligence not being a necessary element in his liability and "unavoidable accident" no excuse.

"Inevitable accident" "*vis major*" and "act of God" have all become technical terms in law and are the subject of multitudinous decisions which will have to be consulted when the inevitable aerial accidents begin to stir the Courts.

So trespassers beware, and do not neglect to insure.

["The Lincoln Imp" will be pleased to reply to or enter into agreement with any person or persons who may be disposed to communicate with him on legal questions.— Ed. The Aeroplane.]



The Reichstag Building in Berlin as seen from a German Aeroplane.

AERIAL NAVIGATION.

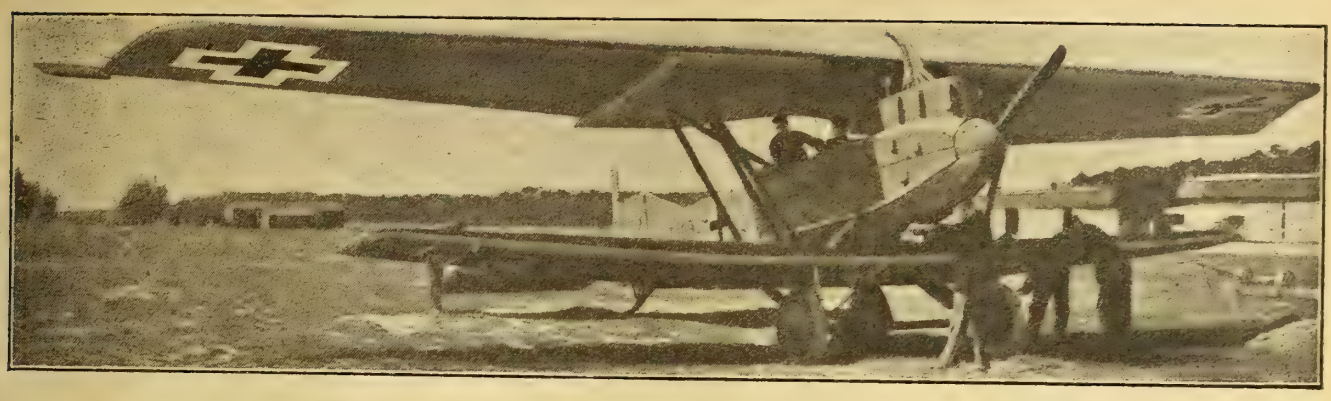
Dr. H. D. Hazeltine, formerly of Harvard, Reader in English Law at the University of Cambridge, read a paper on "Sovereignty and World's Air Laws" at a meeting of the British Academy held on Jan. 29th. Sir F. C. Kenyon, president, was in the chair. Dr. Hazeltine said :—

The solution of many of the technical problems connected with communication through space by means of wireless telegraphy and telephony and aircraft raises many questions in national, Imperial, and international aerial law. The question of immediate importance is the establishment of international aerial navigation upon a legal basis. The juridical basis upon which the world's aerial laws will rest is the doctrine of the State's sovereignty in all its air spaces. The history of territorial and maritime sovereignty illumines this doctrine of aerial sovereignty. Maritime sovereignty survives to-day only in the case of territorial waters.

State sovereignty over territory and sea involved sovereignty over the zone of air space immediately above them; and States have always viewed themselves as sovereign in the entire air space above their territories and territorial waters *usque ad cœlum*. This principle of aerial sovereignty has been vigorously defended during the war by both belligerent and neutral States.

As a result of this historical development the world's air spaces may be divided into two classes. There are, first, the air spaces above the high seas, which are as free and open to the aerial navigation of all nations as the high seas are free and open to the maritime navigation of all States. Secondly, there are the air spaces above the territories and territorial waters of sovereign States, which to-day are closed to foreign aircraft. Before there can be international flight of a civil and commercial character it will be necessary to obtain the consent of sovereign States. The law of aerial navigation will thus be based upon international conventions and the municipal legislation of the various States of the world.

In framing the fundamental principles to be embodied in an international convention, maritime laws will serve as a useful guide. On the analogy of the distinction between public and private ships it would seem desirable to draw a sharp line of separation as between public and private aircraft. Public aircraft will be those engaged in the service of the State, for military, police, or other public purposes, and commanded by duly commissioned officials. Again, as in the case of ships, aircraft must be invested with nationality, which would give the right to fly the flag of the national State and to receive its diplomatic protection. All public aircraft will, of course, possess the nationality of their flag. Two criteria of the nationality of private aircraft have been suggested.



A CONTOUR FIGHTER: Three-quarter Front View of a Junker All-metal Biplane.

One of these is that the nationality shall be that of the owner. The second is the domicile of the owner within the State conferring nationality. Under this test nationality would be conferred on the aircraft of domiciled aliens. The international aerial convention drafted by the Paris Conference of 1910 makes registration depend entirely upon the nationality of aircraft. But nationality and registration are two distinct principles. Inasmuch as the chief purpose of registration is the safety of aerial navigation and of the public, aircraft owned by domiciled aliens should be registered. This registration ought not to confer nationality.

In addition to providing for the distinction between public and private aircraft and their nationality and registration, the international convention ought also to contain rules in regard to the granting of certificates of navigability and licences to pilots and mechanics. Furthermore, it must determine the nature of the right of foreign aircraft in territorial air space, the rules to be observed upon entering and during flight within such air space, and the regulation to be followed concerning customs and landings.

LAWS FOR FREE NAVIGATION.

Although the high seas are open to the free navigation of all nations, and are not within State sovereignty, there has been established a certain legal order upon the high seas which prevents them from being lawless regions. In a similar way the air spaces above them will be subjected to the rule of law. Thus, aircraft possessing a State's nationality will be subject to the laws of such State while flying over the high seas. Aerial piracy, should it ever exist, will be punished with the same severity as is maritime piracy.

In drawing up rules for the regulation of international flight within territorial air spaces, one of the most difficult problems will be to determine the nature of the right to be accorded to foreign aircraft. A study of the rights of foreign watercraft in the waters under the sovereignty of States will be suggestive. But the analogy of the right of innocent passage through territorial waters seems to be, therefore, an unsafe one to follow. In the present stage of aeronautical development it is far wiser to accord to foreign aircraft a more limited right—namely, a permission or licence to fly, revocable for grave cause, such as intentional entry of prohibited zones. The conventionary grant of a licence will further international flight and at the same time protect the interests of each sovereign State. The licence to fly will include the right to land at such places as may be designated by each territorial State.

In all civilised countries much valuable work has been done towards the drafting of international conventions and municipal legislation in regard to aerial navigation. In this country the Civil Aerial Transport Committee has studied the problems with great care and published reports of value. Especially important is the view expressed by the Committee that the doctrine of aerial sovereignty is essential to the welfare and defence of the United Kingdom and the Empire. The future aerial convention between Great Britain and her Allies will probably follow the main lines of the draft convention of the Paris Conference of 1910, as amended and amplified by the suggestions of the Civil Aerial Transport Committee and similar bodies in other countries.

SEA PATROLS.

The following communication has been received by the Editor:

Sir,—Your delicious editorial, headed "The British Navy and Aviation," has done much to lighten the gloom of a protracted armistice. But why so much pity for the R.N.A.S. merchant, "miles out to sea on a Clutching Hand"? The majority of the Clutching Hand patrols are done by R.F.C. pilots, who have crocked up after too long a spell of France, or who have been turned down in the early stages as unlikely to make anything but a Clutching Hand pilot. The former class possess an expert knowledge of Art Obs or fighting, or some other useless accomplishment, but neither class has any knowledge of shipping and coastal patrol work.

Incidentally, the man who flies the 70 h.p. Renault Clutching Hand reckons himself darned lucky to be behind such a good engine. Another type of engine, extensively used in the Clutching Hand for sea patrols, must have cost the country a lot of money to pay for uniforms spoiled by sea water.

Yours faithfully, R.F.C. (S.R.).

THE GUILD OF ST. MICHAEL.

Sir,—Thank you for the limelight of Jan. 22nd. Will you kindly give the "Guild of St. Michael for Aviators" another dose of it by inserting this letter?

The Guild is going strong. Peace has not demobilised St. Michael; he is still ready to fight for his clients against dangers, spiritual and bodily. Though the roar of war-planes has died down, the hum of civil and commercial flying will soon sound all over the civilised world, and pilots and passengers need the protection of the Patron of Fliers.

All Catholics whose business is flying, or connected with flying, will be welcomed as Members of the Guild, and all other Catholics as Associates. I will gladly send them full particulars of the Guild, which was instituted by the Cardinal Archbishop of Westminster, and now numbers many hundreds of Members and Associates.

Thanking you for valuable publicity,

Yours sincerely,

(Signed) A. N. MORGAN, Director of the Guild,
St. Michael's Presbytery, Ashford, Middlesex.

AN ITALIAN GIANT.

According to statements made in Turin, Sig. Giovanni Caproni has practically completed a new triplane driven by Liberty engines developing 21,000 h.p. It is designed to carry 25 passengers, two pilots, and two observers.

It is intended to model the interior of the machine after the style of a limousine, with upholstered and glass-enclosed passenger compartments.—J. S. U.



Front View of the Junker All-metal Contour Fighter.

NEW TITLES IN THE R.A.F.

Destructive criticism is comparatively easy, it is much more difficult to give really sound constructive advice and there are very many difficulties to be faced in this question of new ranks in the Royal Air Force. The more one thinks it over, the more numerous they appear.

To begin with, there is the almost universal desire to treat the subject facetiously; unfortunately, this spirit is manifest in the Force itself, and herein is one of the initial and greatest difficulties. This probably arises from the fact that almost all the present officers are temporary, and that it is uncertain whether they can regard the R.A.F. as their profession, or merely as a transitory occupation.

It cannot be expected that with an uncertain future before them they will give that loyalty to the Force which one finds in regular officers of the Navy and Army. Neither has opportunity allowed it to be instilled in them, as in the Senior Services, nor have they the aid of ancient traditions. They, therefore, approach the whole subject with a much greater tendency to criticism and levity.

Again, the titles in use in the Navy and Army have grown, they have not been suddenly created to order. No Commission has sat down and said, "We will be Admirals of the Fleet. Below we shall be Admirals, Vice-Admirals, Rear-Admirals, and so on, even to Midshipmen." Also the Army's titles, such as Marshal and Captain, we owe to the Ancients for their inception, and as such, of course, they are purely military, presumably having their origin in inter-tribal strife.

It is inevitable that in searching history for guidance military nomenclature should be unavoidable.

In the fixing of R.A.F. titles it is necessary to avoid hurting the susceptibilities of officers in the other Services, such was the case when the Squadron and Flight Commanders of the R.N.A.S. dropped the prefix, intentionally or otherwise, thereby ranking themselves with the greatly senior officer of the Navy.

In the present hermaphrodite R.A.F. there are Majors, lots of them. Now, nobody who knows, imagines, for one moment, that such officers are in any way comparable, as a class, with the Army officer of that rank. Of course, there are exceptions, but they are few and far between, and it is from the majority that it is necessary to judge. Therefore, it is undesirable that the new titles should be of such a nature as to lead to the supposition that those who bear them correspond to officers bearing similar titles in the other fighting Services.

That public opinion matters is not open to argument. It does not. Yet, with this heterogeneous Force it is probable that such titles as suggest duties in the air (there is still a certain glamour about it) will be more favourably regarded than such ranks as were used by the Romans.

Take, for instance, "Centurion." To the educated it explains itself, but I cannot conceive that it would be popular in the R.A.F. with that Force as at present constituted, though that doesn't really matter either. It is the Force of the future that matters, and the titles used therein must be a source of pride to those who bear them.

Within the Service itself, too, there is antagonism between the Flying and the Administrative and Technical sides, apart from the differences between Pilots and Observers, though this will undoubtedly die out.

In connection with this, I suggest that the addition after the rank of a designative initial letter might be used, as is the practice in the Navy, to signify the specialist branches. For example, Master-Pilot (O) or (T) as the case might be. And, again, as in the Navy, the specialist initial would be dropped on promotion to the more exalted ranks. This presupposes that all branches will take their wings prior to specialising, and why shouldn't it be so? A sailor has to go to sea—usually.

One thing, too, is certain, namely, that the fact of an officer being a good pilot should under no circumstances qualify him for advancement unless he has administrative ability. Such ability should be one of the qualifications for an officer. Curiously enough, I believe it to be most lacking among those who fly best. That it is lacking is evident from the fact that the formation of an Administrative Branch became necessary.

As I say, the subject bristles with difficulties. Coined words are abhorrent, lack the dignity which should go with rank. In purloining words there is the association of the existing use to be overcome before they become familiar to the mind and tongue.

In view of these and other difficulties the following suggestions are made with the greatest diffidence. They are prompted only by a desire to help where the majority seem only too ready to scoff or aim at the Gilbertian; a tendency that has been too pronounced already in connection with the R.A.F.; indeed, it was an inheritance from the R.N.A.S. and R.F.C.

It is unfortunate for this subject that it should be so easy to be flippant. I hope that the following suggestions will be taken in the spirit in which they are given.

H.M. the King to be Commandant-in-Chief, Royal Air Force.
General to be Commandant.
Lieut-General to be Second Commandant.
Major-General to be Deputy Commandant.
Colonel to be Group Commandant.
Lieut.-Colonel to be Wing Commander.
Major to be Squadron Master.
Captain to be Flight Leader.
Lieutenant to be Master Pilot.
Sec. Lieutenant to be Ensign.
Warrant Officer to remain as W.O.
The designatory initials as follows:—
E Engineer. T Technical. O Observer. A Aeroplane Pilot S Seaplane. D Dirigible.

These would be discarded on promotion to the rank of Group Commandant. Medical Officers and Quartermasters I suggest should remain as they are, as also the Non-Commissioned Officers and Men. The word Airman has officially come to stay, I presume.

I have purposely left out any suggestion for a rank corresponding to Brigadier-General, as it is, in fact, an appointment and not a rank. Also, I do not believe that anything corresponding to it necessary in the R.A.F.

I have also left out the Administrative Branch, as I believe this quality to be essential in all Officers and a part of their training.

It is true that the Ranks suggested above have no great originality, nor do I desire it, as I believe that therein lies one of the gravest dangers in the innovation. But, surely, it is time someone took the subject seriously, if only to avoid leaving a free hand to Officialdom. Remember what happened in the case of the uniform.

The following suggestions have been put forward for the naming of Air Force ranks, by another contributor, accompanied by their corresponding Naval and Military titles. They illustrate excellently the horrors which may be perpetrated in an effort to invent new words:—

Navy	Army	Aery
Naval	Military	Aerol
Sailor	Soldier	Aerman
W.R.N.S.	W.A.A.C.	Aerette
Admiral	General	Archærol
Vice-Admiral	Lieut.-General	Supærol
Rear-Admiral	Major-General	Depærol
Commodore	Brigadier-General	Primærol
Captain	Colonel	Corselier
Commander	Lieut.-Colonel	Viciel
Lieut.-Commander	Major	Senior
Lieutenant	Captain	Cardem
Sub-Lieutenant	Lieutenant	Aerolieut
Midshipman	Sec. Lieutenant	Oliner
Warrant Officer	Serjt.-Major	Arch-Cornet
C.P.O.	Serjeant	Cornet

COMMISSIONS IN THE R.A.F.

The following letter has been received.—

Sir,—Can your paper help to redress a grievance which is, I think you will agree, well founded?

About 70 W.Os., N.C.Os. and men were selected for commissions as Technical Officers and sent on Oct. 25th to undergo the Course of Instruction at Henley.

All were men of good service in the R.N.A.S. and R.F.C. and worked with a will (only 21 failing in the stores examination).

The Armistice was signed on Nov. 11th, but we were told to "carry on," and we passed the final examination in rigging, aero-engines, M.T. work on Dec. 16th, 1918.

We were sent on 12 days' leave, and on our return were told to report to our units in our old ranks, without another word.

The passing of the examination in itself entitled us to our commissions, but the unfairness is increased by the fact that there were 100 or more officers down on the same course, who by some "unknown means" got commissions straight from civilian life without going through the ranks as we had, although it is supposed to be a hard and fast rule to do so.

These men retained their commissions whilst we were turned down.

The Army is granting commissions to their Cadets, the Air Force throws them aside.

We all incurred considerable expense for lodgings (those provided were impossible for study, etc.), uniform, books, etc., and all is thrown away.

All we ask is that we be treated as the Army Cadets and given honorary commissions on demobilising, or placed on the Reserve.

We could not expect a country so rich as ours to pay our expenses, which we incurred for the benefit of the Air Force.

We do ask, however, for— JUSTICE.

ANOTHER CASTROL ACHIEVEMENT.

It is of interest to note that Wakefield Castrol "R" Oil was used during the patrol over the North Sea of 101 hours, recently accomplished by a British non-rigid airship.

A LITTLE FORMATION.

"It's a lot finer this morning," said the C.O. "You'd better chase all your fellows up into the air, I think. There's a bit of wind, of course, but still . . ."

"There is a bit," I admitted, grudgingly. And retrieved my hat which the playful young gale, then raging, had just whisked into a puddle.

"Formation flying—that's about the best thing," suggested the Major, and disappeared into his sanctum.

I returned to my own office and pondered over the matter awhile. Then I seized pen and paper and chuckled hugely to myself at the surprise in store for my unsuspecting pilots.

I headed it with a curt intimation of the fact that the following officers would take part in a formation at 11 o'clock. Underneath I put an artistic little sketch showing the different positions that each machine would occupy behind me. This work of art, executed in inks of various hues, I signed majestically; and pinned it in triumph to the notice board.

Things developed rapidly after this. One by one the bright young aviators in the Flight trotted in and caught sight of the fateful edict. Each examined it critically, strolled to the window in a casual sort of way to note the wind, and then came to the desk for a little chat with me.

When the last one had departed my ideas on many subjects were entirely different.

Up to then, curiously enough, I had the distinct impression that there were six flying officers in the Flight who might be relied upon to take the air at a moment's notice. Quite incorrect; it appeared that this was the composition of the Flight.

Lieut. A——, my second in command. Also officer in charge of demobilisation, and anything else which would give him a reasonable excuse for not flying. "'Course, if I had more time, old man. . ."

Lieut. B——. Missing. This officer was dispatched a bare month ago to his native heath beyond the Tweed to collect a machine allotted to the squadron. Once we heard that he was on his way—but the rumour was contradicted a week later.

Lieut. C—— "was just coming in to ask if I could have the morning off, please. Must get my hair cut, and——"

Lieut. D——. With remarkable intuition, this gentleman had, some minutes previously, instructed his mechanic to remove and overhaul the magneto and the best part of his carburetter of his machine.

Lieut. E——. Besides being a pilot, for some obscure reason he is also in charge of the Clothing Stores. And he very much regretted that a most important blanket inspection would prevent *him*. . . .

Lieut. F——. Evidently one look at the weather had been enough for him, as he had already returned to his wife and family.

My beautiful notice lay before me on the desk once again, and with halting fingers I scratched out, one by one, the names of those whom I had fondly hoped would follow me at 11 o'clock.

With aching head bowed in my arms; I pictured miserably the awful spectacle which that hour would bring forth. Instead of seven machines circling the 'drome in perfect formation, one poor wretch alone would stagger off the ground and creep round and round, a forlorn formation of one!

In the midst of my misery I touched a copy of the day's Routine Orders and looked down it mechanically. One item caught my eye.

"A Court of Inquiry will assemble . . . in the Equipment Office . . . President——."

I glanced hastily at my watch, then grabbed my hat and made a bolt for the door. I was ten minutes late already.—R. G. H.

A BRIEF SUMMARY OF AMERICAN OPINONS ON CIVIL AVIATION.

I do not think that it is out of place to give a summary of the opinions of several representative Americans as expressed on the subject of the future of civil flying.

It must be remembered, however, that these opinions have been gathered from printed articles, so that they are in a measure second-hand. I will do my best to see that no false impressions creep in amongst them, but, like many other things, expressions of opinion have a way of altering when passed on by other people. Of course, we begin with Mr. Orville Wright.

From his paternal position in regard to aviation he should be very much more interesting than he proves to be in his article on the subject, and he gives me the feeling that he hasn't let himself go. This is because he confines himself so much to the questions of the necessity for slow landing speeds and reliability in engines. This he apparently considers as vital to save the expense of a quantity of large aerodromes and to put flying on a commercial basis. He summarises in some degree his opinions by saying that "The Airplane has already been made abundantly safe for flight. The problem before the engineer today is that of providing for safe landing." Nobody can for a moment doubt that Mr. Wright is a firm believer in the future of flying, and this also is evident in his article, as is only to be expected, but really the pith of what he has written is in the statement quoted above.

The other opinions are interesting if only from the point of view of the diversity of people by whom they are expressed. They include manufacturers and such men as Senator Charles J. Thomas, the Chairman of the Senate Committee on Coast Defences. Mr. Otto Praeger, Second Assistant Postmaster-General, and Commandant E. P. Bartholf, of the U.S. Coast Guard; I do not know if he holds any other rank, or even if I have called him by his correct title. Also Colonel Jesse G. Vincent, A.S. (P.).

One of the most striking facts is the use of the flying machine to save life and property at sea. Included in these duties is searching for derelicts, and the employment of the machine for the assistance and benefit of water-borne commerce. Such a use is not merely contemplated, but would have been in actual operation had not the entry of the United States of America into the war intervened. This we have on the authority of the Coast Guard Commandant.

Another point that is brought to light is geographical. The United States have the disadvantage of being a large country, which, though well served by railways, has considerable areas still dependent on the motor-car and horse for communications.

It should also be noted that the trend of the railroads is east to west, which is only natural, as the national objective is invariably to carry produce and merchandise to the seaboard, and also the necessity for linking up the Atlantic and Pacific Ports.

The railway policies were laid down before the operation of the Panama Canal had to be seriously considered. All this may seem irrelevant, but it is only to point out that with this east to west arrangement predominating in the existing traffic streams there is an opening left for the aeroplane to operate across them, so to speak, north and south. In the west, too, where there are large areas not served by the railroads, the companies may find it to advantage to operate their own aeroplanes in conjunction with their train services. I have said that this great area of country poorly railwayed is a disadvantage, but should the foregoing suggestion be found to pay, it would prove an extensive market and may put the U.S.A. manufacturer in a stronger position than our own in the near future.

As is general in England, there is unanimity in opinion amongst these gentlemen as to the necessity for low landing speeds. On the question of the use of war machines in commerce there is difference of opinion; thus Mr. W. T. Thomas says "present types of aircraft can be employed to a very large extent, especially such machines as the Handley Page and De Havilland [note the types], the former for transport of express or light packages, the latter for extremely rapid transport of passengers and mail. These machines, of course, are necessarily not as efficient as machines designed expressly for such purposes." Against this take Colonel J. G. Vincent: "I am very much afraid that the future of aeronautics is going to be jeopardised by a wholesale attempt to use the war machines, which are now available, for air transport work. These machines have been built strictly for fighting and bombing purposes, and, while some of the larger day and night bombers can be adapted to certain kinds of commercial use, they will never be ideal; or, in other words, the best of these machines will fall far short of what could be accomplished by designing machines, especially for commercial purposes."

Nearly everyone is very much in favour of the maintenance by the U.S. Government of a central experimental depot for the advancement of aeronautics to be available for the use of the Military, Naval and Civil Authorities, and the Industry at large.

The idea behind this appears to be that it is a method of securing superiority over other countries, more or less, at Government expense. Subsidies are also regarded as necessary by the majority. Senator Day, however, is sufficiently optimistic to state that "the importance and development of the Aircraft Industry make it competent to take care of itself." No one touches the export question, though we have rather got accustomed to regarding the States as the home of the arch-dumper.

Of course, with different countries one gets different local problems; competitions, however, are not mentioned. The greatest omission, and one made by all these gentlemen, including Mr. Orville Wright himself, is the possibilities of the airship. All express their unbounded faith in the future of the aeroplane, but of the airship not a word. Perhaps a Zeppelin raid or two over New York might have had the effect of bringing this form of flying more to notice.

I am indebted to an American paper, "Aviation," for my information as to the views expressed.

SOME BOOKS TO READ.

AERIAL IMPRESSIONS.

Flying Colours. By R. H. M. S. Saundby, with a prefatory note by Major-General E. B. Ashmore, C.B., C.M.G., M.V.O. (The Aeroplane and General Publishing Co., Ltd. Large paper edition, £2 2s. net. Art paper edition, 15s. net.)

The present war has been curiously unproductive in pictorial art executed by officers and other ranks serving in the field. The galleries and the picture papers have, it is true, been deluged by countless pictures made by artists who have been permitted to wear khaki while engaged officially in registering impressions of the warlike life. A few soldiers of the type of Captain Bairnsfather have, after a certain period in the field, made comparatively large sums of money by illustrating the humorous side of warfare in popular newsprints, but there are but few cases of sketches or paintings made by soldiers actively engaged throughout the war in offensive operations against the enemy. The book at present under review is in the latter class. Captain Saundby has, since the war began, been on service abroad or at home in either the Army or the Royal Air Force. His art has throughout been secondary in his interest to the greater art of war.

The professional artist cannot see war as it is seen by the soldier who is at the same time an amateur in art. The meaning of things is not for him unless indeed he cares to go through the same experiences as are common in the daily life of a soldier. There is in Captain Saundby's sketches a clarity of vision and an attention to detail such as is absent in the quieter art of the studio. An aeroplane seen from the ground under conditions in which there is no risk to him who watches leaves a general impression in which few details impress themselves really vividly on the mind. A pilot engaged in action with an enemy aeroplane, on the contrary, sees with an almost uncanny accuracy every section of the enemy machine. And he does not lose the vision. In his dreams, if his earthly life is enthusiastic but unwise, and in his waking memory, the picture lives unaltered for ever. The conscious nearness to a possible death is probably responsible for the increased power of observation.

The sketches are based largely, one would gather, on the experience of the artist and of officers of the squadrons to which he has been posted from time to time. Each is faced with a brief description written by Captain Saundby.

Most of the phases of aerial action over land are illustrated from the simple aerial tourney to the "dog fight," which is as dangerous to friend as to foe. The Caquot balloon serenely floating in green complacency over the Ypres Salient has its page of honour. A Zeppelin, "L48," for the destruction of which Captain Saundby himself was mainly responsible, has two pages to itself towards the end of the book.

A picture possessing great charm is that entitled, "The Aerodrome: The Last Home." Millet would have liked it. The sense of repose, the relief at the completion of the day's work is subtly shown in line and colour.

Captain Saundby has the power of showing movement in colour. His aeroplanes fly across his pages, and are not merely inanimate figures placed for verisimilitude in a mass of cloud, or in clear air above a terrain lined with trenches that the reader may know a war was in being.

The book is a true record of the impressions of a fighting pilot, and it is not possible to give higher praise.

A VARIETY ENTERTAINMENT.

[" Further Indiscretions." By " A Woman of No Importance." 15s.]

Presumably there are some people connected with aeronautics who understand that a liberal education by way of fine, confused reading is very often considerably better than a properly ordered scientifically administered education. In a general way a knowledge of people is of greater value in life than a knowledge of things. One can always hire a scientist, or an engineer, or an expert on any one subject for a few shillings a week, but one cannot hire a knowledge of humanity at any price; it is a thing to be acquired.

On the strength of these remarks one commends to the readers of this paper a book which has recently arrived in this office and is entitled " Further Indiscretions. By a Woman of No Importance." So far as aviation and aviators are concerned, the only excuse for this brief review is the fact that the authoress has devoted several pages to a wonderfully knowledgeable little sketch of the late Douglas Graham Gilmour, who was killed in February, 1912.

The younger generation of aviators, which comprises probably 99 per cent. of the total number, never knew " D. G.," as we all called him. He was one of the maddest, and at the same time one of the sanest, of that band of lovable lunatics which included all the real pioneers of aviation in this country. " A Woman of No Importance " deals almost entirely with the sane side of him, chiefly in recalling his prophecies as to the future of aviation and as to the coming of the War. At the same time she does not by any means neglect the mad side of him. The sketch is accompanied by an excellent portrait.

The bulk of the book is made up of similar and one believes equally brilliant character sketches of all sorts and kinds of people whom the authoress has met; for example, Mrs. Langtry — now Lady de Bathe; the famous Marquis of Hastings; the late Sir Augustus Harris, of Drury Lane; the sporting Marquess of Queensberry; Corney Grain, the entertainer, and all kinds of celebrities, together with events which happened to them.

Though all these persons and things happened in what is a bygone age to the aviation people of to-day, a knowledge of them is essential to the education of anybody who wishes to pose as a man of the world, and what is really considerably more inducive to the reading of the book is the fact that the stories are extraordinarily funny and let one right in behind the scenes.

THE BULWARKS OF BRITAIN.

Had " The Curtain of Steel " (by the author of " In the Northern Mists." Hodder and Stoughton, 6s.) been written just a little later, it would have been a better book. For it could have included that tremendous *dénouement* in the cold waters of the North Sea, when or men, more depressed than exultant, watched the enemy's beaten ships come in.

With an easy vigour the author has described those first days when the order from the Admiralty came, brief, swift, and secret, " so secret that even now, a long time after, I do not know whether it came in the form of a wireless message in cypher, or as a single code word transmitted by letter and intimating that a certain envelope was to be opened, or whether some special messenger came speeding down by the express, with the destinies of nations tucked away in his pocket next to his cigar case."

At any rate, we have the sense of following the narrator to the place " where the great ships go down," and his illuminative method is of service to such as I, who have much in common with the Chinaman who described a four-funnelled cruiser as " one large piecee war-junk, two piecee bamboo, four piecee puff-puff, inside walkee no can see! "

When the author is describing the thing seen, he is vivid, and he holds you; but he is not quite so happy in the fictional insets which hold the thing together. The reader can be left to imagine how the men in the wardroom felt when the signalman brought in a chit that read simply: " Commence hostilities against Germany." The four words need no embroidering of sentiment or facetiæ to drive them home. They suffice.

Indeed, the book is replete with interesting matter (hardly pertaining to aviation), but most of it has been treated before, and perhaps by pens less euphuistic. Maybe I have been spoiled, but the book seems to exhale a high moral tone which, if not antipathetic to the salt savour of the sea, is at least discordant. The humour, well . . .

On the whole, Clarke Russell, with a dash of " Chips."

A STUDY IN PERSONALITY.

Those interested in the personal element of mankind will find almost illimitable material in the living and the dead who have played a part in the war.

Two of the outstanding personalities concerned with aerial warfare were undoubtedly the late Major J. T. B. McCudden, V.C., D.S.O., M.C., M.M., R.A.F., and the late Captain Baron Manfred von Richthofen. Fortunately, for posterity, each of these extremely gallant aviators had written a biography of his flying career shortly before his death, and these two works, namely, "Five Years in the R.F.C." and "The Red Air Fighter" have been printed, the latter translated from the German. The text, as written by the respective authors, reveals their thoughts as living men; men who were glad to have lived and proud of the manner in which their lives had been employed.

A comparison of the two books affords a highly interesting study in psychology. Their gallant authors undoubtedly represented the embodiment of all that is best in the British and German temperaments, although it is extraordinarily difficult to determine where the essentially British temperament ends and where the German temperament begins. At any rate, in these books can be found much material for study in the methods, thoughts and inspirations of pilots who are also patriots.

It may not commonly be known that only once, apparently, did McCudden and von Richthofen meet in the air, and those who admire the dramatic would probably wish that these champions could have fought decisively in single combat. As Fate willed it, McCudden was destined to die undefeated, while it was von Richthofen's fortune to meet his end in a general *mêlée*. It must not, however, be forgotten that von Richthofen in his day brought down the late Major Lanoe Hawker, V.C., D.S.O., who, at the time, was undoubtedly the premier British fighting pilot.

These two books are published by the Aeroplane and General Publishing Co., Ltd., Union Bank Chambers, Carey Street, W.C.2, and may be had post free for 11s. inclusive.

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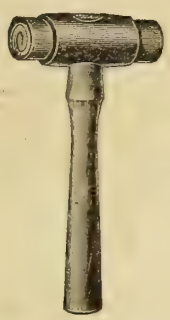
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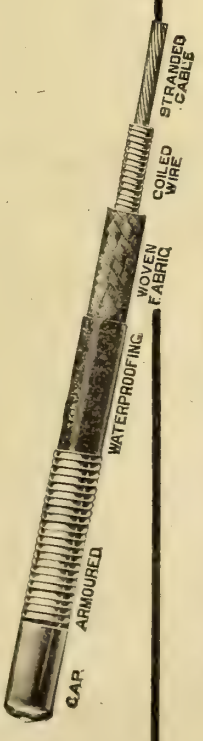
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CAVALRY OF THE AIR.

It is a thousand pities that people with polytechnic minds will not recognise and accept their limitations. "Flight Commander," who has written a book called "Cavalry of the Air" (Simpkin, Marshall, 6s.) reminds one of Kipling's Mariners, who "thumbed upon their harps, and they thumbed unhandily!" He may be a good man in his "office," and doubtless is; but as a writer he is the apotheosis of the infelicitious.

He starts with a cheap little jibe at the journalist's trade, but those who "once have dealt in the widest game that all of a man can play" will bear me out, when I say that this writer has dragged into his tiresome chronicle every hackneyed brace of words that has ever run tandem since the time of Beowulf. "Propitious circumstances," "belligerent intention," "martial ardour," "abortive attempt," "linguistic performance," he does not seem to have overlooked one. Moreover, the spelling and the grammar are all his own. (What was that satirical inspiration old Samuel Butler evoked:—

"Which made them, tho' it were in spight
Of Nature and their Stars, to write!")

His humour is the kind inseparable from a vicarage lawn and muffin teas. "My mind drifted forth (like that of a certain distinguished Chancellor) into a state of communion with our persecutor Fritz below."

Where, seemingly, it remained!

There are leagues of this sort of thing: ". . . when a violent acceleration of our engine suddenly called me from extraneous matters to more urgent practical issues." "Our airmen . . . were mostly men of proven skill, picked for their prowess and dexterity in the air." It is this smug, pedagogic attitude that has given us on the Continent the reputation of being a nation of Philistines. It would seem that this writer can touch nothing without vulgarising it.

Mr. Geoffrey Watson has drawn some nice, tidy aeroplanes to go with the text.

The best definition of the book is one drawn from its pages—"flat and featureless." By reason of his trade a reviewer becomes a man of a sorrowful habit of mind, but nothing has ever made me look quite so chap-fallen as these sprightly little sallies that "Flight Commander" decks with exclamation signs, so that you shall know them.

Yet there is one great good in this work. If, for hour after weary hour in the night-time, sleep stands far off from you, turn—shunning the aspirin bottle—to page 118, "Psychology of the Airman," and read:—

"Flying—especially flying in France—abounds in what the novelist would call 'psychological moments.'

"There are moments of paralysing uncertainty when for a few seconds life and death hang in the balance, and one's mind seems almost to pierce the veil of eternity, and moments of the keenest exhilaration when the machine becomes as a living thing, responding to the controls like a well-trained charger.

"I have often wondered—as I expect have many people in pre-war days—in what condition of mind a man, outside a novel, faces an emergency which provides the two melodramatic alternatives of probable death or dishonour.

"It has always seemed to me that it would be very difficult to emulate the self-possessed demeanour of Martin Harvey in 'The Only Way,' and make a graceful exit from the world, murmuring: 'This is a far, far better thing than I have ever done.'"

So following for two hundred and seventy pages. But long before the end is reached there will rise, befitting tribute to the talent of the author, your reverberant snores!—R. H. B.

"OVER, 'OVER THERE.'"

I have always loved the great satirist, Anatole France, because he provokes in his reader, not laughter, "but an ironic, lingering, vinegary smile." The same may be said of George Meredith, but he, great craftsman as he was, is not for all times and all seasons. Not many of us can find the hours that must be devoted to a real appreciation of "The Egoist." Machiavelli has it, he speaks of an Italian tyrant who had one of his ministers sawn in halves, alive, in the market-place, and then goes on: "But to return to more important things . . ." You will find it in Swift, Voltaire, in the book of Ecclesiastes—irony and pity which despises man, yet loves him. . . .

All these are great, yet for my quiet hours I prefer the great Frenchman who lives and writes to-day. As a reviewer he is both sympathetic and kindly when he deals with good work, or even good attempts, but to that which is slovenly or bad of intention he is terrible. Be pleased to listen to this, which I have just reached off the shelf at my elbow. The amiable title is "Hors de la Litterature," and the review deals with a book by M. Georges Ohnet, the Charles Garvice of France.

"The title of this book is a philosophy in itself. '*Will*,' how that speaks to heart and spirit! '*Will*,' by Georges Ohnet! How one feels the man of principle, who has never doubted. 'Will,' by Georges Ohnet, 73rd edition! What proof of the power of will! Locke did not believe that the will was free. But his 'Essay on the Human Understanding' never reached 73 editions in a single morning. Here, then, we have Locke gloriously refuted. There is no illusion about will, for M. Georges Ohnet has willed to have 73 editions, and he has had them. Truth to tell, the more I read the title, the more interest I find in it. It is, past all contradiction, the finest page that we have had from the pen of M. Georges Ohnet."

Let me quote a line here and there:—"I will say, in the peace of my soul and the serenity of my conscience, . . . that this book lies far below the worst . . ."; "there is not a page, not a line, not a word, which has not shocked, offended, saddened me. I could have wept over it in company with all the Muses."

Anatole France quotes a few selected passages, torn from the carcass of the book. He deals faithfully with them. But I wonder what he would have made of "Over, 'Over There,'" by "Wing Adjutant" (Cassell and Co., Ltd., 3s. 6d. net.).

It is bald, it is trite, it infects its reader with a humorous despair. To deal with it is as unexciting a task as criticising a glass of water. Nearly all its sins are of omission, and to me it seems without form and void. (That is why I have been so unconscionably long in coming to it!) I tire of its heroes, with their gritting teeth. I dare not quote from it, you would cancel your subscription. All the gold that the writer touches becomes clay, and how shall I describe the inane? How deal with a style modelled seemingly on Mrs. Markham? These "titanic combats" that read so drearily, these tedious pilots "wreaking their anger," that phrase "drew first blood," that grows so maddening by reiteration as one listlessly turns page after page. Can I go further with this apotheosis of the newspaper *cliché*? I cannot do it, nor will I. The book is null.

OVER THE GERMAN LINES.

We must consider the war as blameworthy for income-tax at five shillings in the pound, bacon that resembles imperfectly tanned hide, compulsory margarine, and—saddest phenomenon of all—books by would-be Homers and Froissarts who have not the trick of it.

Many a gallant officer whose hand is light and caressing on the controls is a perfect brute when it comes to guiding a J nib. Little squibs which showed to advantage in that paper of which Lord Salisbury said that it was "written by office-boys for office-boys" look lean and nude when they are fattened like Strasbourg geese and made into a book. And you are sure to make your reviewer very unhappy if you quote that tattered tag about "airy navies grappling in the central blue" on page two.

Yes, you are perfectly right—I *have* just recovered from influenza, and the things you say about my poor liver may have some justification in fact. But, all the same, this book of "Wings," which is called "Over the German Lines," and which Messrs. Hodder and Stoughton are selling at six shillings, is not a good book. Comparisons are odorous, and perhaps ungracious, but I cannot forget that the same publishers gave us Major Bishop's "Winged Warfare" and "Spin's" enticing little "Short Flights," both of which were jolly books, and *real*.

"Over the German Lines" is not real. You somehow get the impression that the writer would have smothered a yawn at the spectacle of Creation, and set the event down in telegraphese. His volume is as deficient in the power of evoking images as war-time alcohol. It reads like a collaboration on the part of Alfred Lester and Harry Tate.

My despair deepens as I thumb it over trying to find something to quote at you. Here, this is not so bad, this description of the squadron that had to move its quarters hurriedly. Two pilots had laden their machine with bundles of soiled linen, etc., and the official stove-pipe, reduced to sections. While they were flitting across to the new home, they fell in with an inquisitive Hun, whose sixth sense told him that they were heavily laden, and not looking for any fights in that hour. Their gun, with the perversity of the breed, jammed.

"Tubbs, after struggling vainly with his weapon for some minutes, resolved on a daring experiment. Picking up the longest piece of stove-pipe from the floor where it had been laid, he rested one end on the edge of his cockpit, jamming it against the gun-mounting to prevent it from being blown overboard. With his other hand he drew the loaded Verey pistol from the rack, and placed the muzzle inside the end of the pipe. Then the next time the Huns closed in to attack, he pointed his improvised gun in their direction and pulled the trigger.

"The result exceeded his wildest hopes. The pipe belched forth fire and smoke, and the flaming light sped past the German machine only a couple of feet above the pilot's head, startling that individual so much that he quite forgot to fire his machine-gun, and hurriedly swerved away again. Tubbs immediately reloaded the pistol, and waited to see what would happen next, but the Huns had had enough, and whirling round they made off eastwards, full of eagerness to reach their aerodrome and report how they had been attacked by a new British machine carrying a six-inch gun which fired blazing phosphorus shells!"—R. H. B.

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ON HUSTLING HISTORY.

It seems that the "Times" newspaper, and its brand-new editor, whether inspired by the Viscount Northcliffe or not, feel a trifle peevish with Mr. Churchill, and his understudy Major-General Seely, and the Controller of Civil Aviation—Major-General Sir Frederick Sykes—and the Air Ministry at large and in detail, because flying within the British Isles has not yet been made free for all. Naturally one is entirely in accord with that august journal in its enthusiasm for aviation—or would it prefer that one should call it airmanship?—but one cannot help feeling that its agitation about this particular phase of aeronautics is either ill-informed or ill-timed or both at once.

Some few days ago the "Times" spread itself to the extent of a whole column of "leader," and a goodly chunk of a special article, as it were in a sonata and a rhapsody (or perhaps one should rather liken them to Mr. Joseph Holbrooke's symphonic variations on "Three Blind Mice"), on variations of a theme based on the phrase, "Nothing has happened in three weeks."

As for instance: "It is three weeks now since the public suddenly heard that General Sykes had been appointed Controller of Civil Aviation. . . . Since then there has been a singular absence of information about the development of the new Department."

And: "But there are ominous signs of delay and confusion and parcimony—signs which are not limited to the absence of any information since General Sykes was appointed three weeks ago."

And: "It is three weeks since General Sykes was appointed Controller of Civilian Aviation, but nothing has been made public as to the organisation of his Department, as to the selection of his staff, as to the funds which he is to have at command, or as to the powers which he is to exercise. The question is one of Government policy, and it should not be allowed to remain vague any longer."

The "Three Weeks" Method.

Now, General Sykes may not be the Ideal Controller of Civil Aviation. On the other hand he may be so. One holds no special brief for General Sykes. One takes him purely on his Service record as an officer of proved foresight and of ability to lay out schemes of organisation. But one must say that at the moment one cannot think of anybody better qualified for the job of putting Civil Aviation—or the greater matter of Civil Aeronautics as a whole—on a sound working footing.

Therefore one is justified in arguing that he and his new Department should at least have a fair run for their money. Only a fool starts a horse by digging in his spurs and hitting the animal over the head, or starts a car by racing his engine and banging in his clutch on top gear. There is an old nigger proverb which says, "Softly, softly, catchee monkey." And the slow beginner is very often the fastest finisher.

And, anyhow, why all this excitement over a matter of three weeks? One would think that the nice new editor of the "Times" expected General Sykes to conduct his *affaire* with Civil Aviation in the manner of the couple whose operations in the same period of time at Lucerne have been so graphically described by Madam Elinor Glyn. Rapidity of movement has its advantages at times, but one suggests that the wooing of Civil Aviation is a delicate business and should not be pursued after the manner prescribed in a Bolshevik manifesto if anything of use to posterity is to be produced.

So much ado about nothing gives one to think that the energetic new editor of the "Times" may be akin to that discomfortable person, the young man in a hurry. And one ventures to suggest to him that in order to edit the "Times" with success it is not necessary to model one's methods on those of that entertaining work, "Hustled History." One sympathises with him to an extent, in that one has oneself felt on occasion inclined to say with him and Hamlet (one hopes it was Hamlet):

"The Times is out of joint, oh! cursed spite
That ever I was born to set it right"

—or words to that effect.

But one admits that three weeks is an inadequate period in which to put in joint either the Times or Civil Aviation.

More Haste, Less Speed.

Apart from the fact that even under ideal circumstances it would be manifestly impossible to organise a Department, to select a competent staff, to arrange for funds from an unsympathetic Treasury, to decide upon what powers are to be exercised, and to run and tell the Press all about it, in three weeks, it is well to remember that General Sykes has been obliged by his duties to pay various visits to Paris in connection with the Peace Conference and/or the International Aeronautic Convention. Also it is well to remember that the precise functions of the Controller of Civil Aviation cannot well be settled without close co-operation and constant consultation with the Chief of the Air Staff.

Unhappily, the C.A.S., Major-General Sir Hugh Trenchard, has been for some time seriously ill with influenza complicated by bronchitis, to which he has been predisposed by over-work. One hears that General Trenchard is now past the crisis of his illness, and all will hope whole-heartedly that he may be spared for many years to carry through his great task of re-making the R.A.F. so that it may become worthy of the Senior Services, for on the *moral* of the R.A.F. during the next few years depends the future of the British Empire.

General Trenchard's task is, if possible, more arduous than that which he accomplished so successfully when in 1914 he built the R.F.C. out of a number of empty sheds and three or four officers who were unfit for active service, and when in 1915-16 he re-vitalised a Flying

Corps which was becoming dangerously demoralised, and ultimately acquired the command of the air. But none who know him doubt his success in his new task any more than they doubted his ability to succeed in his former tasks.

But, until Sir Hugh is able to attend to his duties again, it is manifestly impossible for the Air Council to decide the precise line of demarcation between his department and that of the Controller of Civil Aviation, quite apart from the fact that the Council would be astonishingly foolish to make any really important decisions without using General Trenchard's intuitive genius for finding the right course. What can three weeks, or three months, matter when questions involving the whole history of British Aeronautics for all eternity are at stake? Any attempt to hustle history at the moment would be a fatal mistake.

Now is the time when we can afford to take Quintus Fabius Cunctator as our model rather than the pushful new editor or Mrs. Glyn's heroine. It is a time when one can, for once in a way, agree with Mr. Asquith, and wait and see.

Out of Evil Cometh Good.

As a matter of history (of the unhustled order) it is a mighty good thing that civilian flying has been restricted for so long. It would perhaps have been more satisfactory if the Regulations which are to govern commercial aviation had been settled and published a month or two ago, for the Aircraft Industry would then have known better where it stood and what was expected of it. Then the Industry could have made its plans for the future with greater certainty, and that very shy bird the international financier would have been more amenable to capture.

But even that has not really mattered, for the aircraft companies which are well managed and are based on sound foundations have apparently secured all the capital they need from capitalists who are seriously interested in aeronautics and are not merely coming in as a market gamble. And the delay in issuing the regulations has not held up design nor construction, for all managers of aircraft firms know perfectly well that Mr. Churchill, General Seely (despite all his faults and defects), and General Sykes are enthusiastic believers in Civil Aeronautics, and are not in the least likely to introduce any regulations which will really hamper progress, and are, on the other hand, very likely to cancel any hindering regulations which may be introduced by their subordinates.

Consequently all aircraft constructors worthy of the name have been busy for months designing and building aeroplanes for civilian flying or altering war machines to suit commercial purposes, and organising their transport services. Only those of little faith have delayed their plans because of uncertainty about the Air Ministry's actions. What the Aircraft Industry itself thinks about the future may be gathered from the series of interviews with leading aircraft constructors which begins in this issue of The Aeroplane, in the "Commercial Aeronautics" section, under the heading "Post-Bellum Policies."

Great Expectations.

Consider for a moment the dire results which would have ensued if flying had been made free on, say, the first of January this year. The Great British Public, ever ready to grasp a general idea, but mentally incapable of understanding basic principles, would have expected Commercial Aeronautics to have burst forth parthenogenetically from the brain of the Aircraft Industry, even as Minerva sprang fully armed from the brain of Jupiter. And the probability is that Commercial Aeronautics, after this harlequin act, would have sat down hard with a nasty bump.

The British Public would have expected to read in the news-sheets of the second day of January that the London-Paris air lines had made so and so many successful journeys with such and such distinguished or notorious passengers, on what the Fleet Street hacks would inevitably have called "Emancipation Day," and would have expected to see in their illustrated papers smudgeographs of "Stage Stars in Sidcot Suits," "Duchesses in Dunhill's Dungarees," "Countesses in Conduit Capok Culottes," "Baronesses in Burberry's Bracelockens," and so forth, in that style and precedence—judging by mild efforts of a similar nature in the past.

The British Public would have expected to hear that a batch of Harrod's and/or Selfridge's commercial travellers had started for India with samples of all the goods which we hope to manufacture in this country when we know whether there is going to be a Universal Strike of British Work-dodgers or not.

The British Public would have expected to hear that Lord Killemorl had started at once for a big-game hunt in Central Africa on a quadruple-engined Handley Page, armed with pom-poms for the benefit of the remaining elephant herds and recalcitrant niggers, and that the Five-engined Fairey had started from Bristol for Boston,



A Three-quarter Front View of the Bristol "Braemar" Triplane Bomber (Four Engines, 1,600 h.p). The full Specification of this Machine will be found on P. 1102.

laden with Review-artistes emulous to enter the States by President Wilson's newly discovered port for New York.

The British Public would have expected lots of funny things like that, and great would have been the disappointment, for one finds on reference to one's diary that the first of January was a wet, cold, miserable day on which flying was impossible. And that description holds good for about 90 per cent. of the days of this year, up to the present date.

The British Public would not have been to blame for these great expectations, for the ordinary newspaper reader has absorbed his or her idea of civil aviation from the speeches and lectures of Lord Weir, General Sykes, Mr. Holt Thomas, Mr. Handley Page, Mr. Stuart Hirst, Mr. Grahame-White, Mr. Whitehead, and others, and from the prophetic writings of a host of people, among whom one pleads guilty to belonging. The disappointment would have arisen from the fact that, though we have all been prophesying things which are patently obvious to all of us who are on the inside of things, the British Public expects our prophecies to be fulfilled immediately if not before, and has no idea of the vast amount of detail work to be done before commercial aeronautics or civil aviation can become a going concern.

Saving the Face of Aeronautics.

Swords cannot be beaten into plough-shares in five minutes—especially when there is a coal-strike in the offing and we are bidden to economise fuel. Nor can existing aircraft of war be altered in quantities at short notice into a form suitable for round-the-world mail carrying or even for the humble joy-ride. It took some few weeks for everyone to recover from the shock of the Armistice. Certainly its sudden outbreak caused more nervous breakdowns than did the coming of war. And consequently it is only during the past few weeks that work has really begun on building commercial aeroplanes, or "peace-planes" as the alliterative and cacophonous journalist is bound to call them.

To tell the truth, hardly anybody, if anybody, is actually ready to start civil aerial transport on a big scale, even if flying were free for all to-day, and so the delay in removing the embargo on civilian flying has in fact saved the face of British Aeronautics by preventing the British public from being convinced that, despite all the talk and writing, the aeroplane is a thoroughly unpractical vehicle. Such would certainly have been the result if any attempt had been made to do any considerable flying during the past two months with such machines as have been available.

Now, however, there is a sporting chance that for the next six or seven months the majority of days may be fit for flying. Also there are many excellent machines either ready or nearly ready for civilian flying. Consequently, whenever permission is given to all and sundry to fly—under proper regulations—in the British Isles, there is every reason to hope that the public will not be disappointed, and will be convinced of the usefulness of the aeroplane.

All Things Work Together for Good.

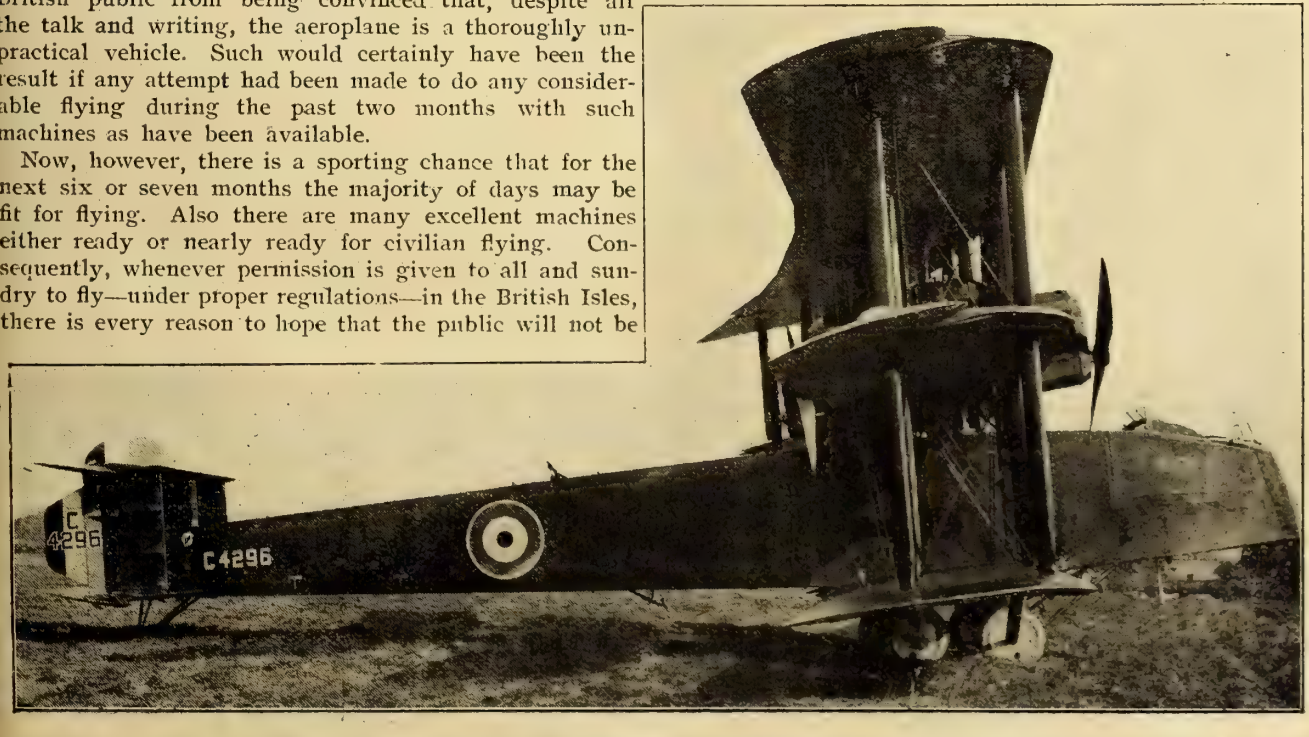
One emphasises the importance of convincing the British Public because on Public Opinion depend the actions of the Government, and the success of the Air Council in overcoming the miserliness of the Treasury. And on those depend the future of British Aeronautics and of the British Empire.

We have in this country the worst climate in the world for flying. Which is why we have produced the best pilots and the best aeroplanes. (This argument was, one believes, first put forward by General Sykes—then a Major—some time in 1911 or 1912.)

If flying had by now been permissible all over the world, the Aircraft Industry's emissaries might have been doing much flying in the Colonies and in the Over-Seas Dominions during the past two or three months. But that would not have amused, interested, or convinced the British Public. As it is, the Aircraft Industry can blame the Government for the delay which has in fact saved its face, and it can produce the "Times" variations on the "Three Weeks" theme in proof thereof. Which will, of course, convince a Public which has been miseducated into believing the War Office—and hence the Air Ministry—*capable de tout,* when in fact the War Office and its excellent system saved the British Empire, despite the efforts of a series of "Business Governments" to lose the war.

Meantime the abominable weather has prevented those who fly, or who want to fly, from worrying at all whether they were allowed to fly or not. And a good many pilots who were becoming bored with flying are now recovering their keenness. Which is all to the good.

And thus one finds that, in accord with the creed of Buddha, "All things work together for good." Our rotten weather, our equivalent Government, our laws of permission or prohibition, our newspaper agitations guided or misguided, our newspaper editors new or old, even comic hustled history and wild agitations which have gone off at half-cock, all work together for good. But if one continues in this strain one will acquire the reputation of being an incurable optimist. And that would never do.—C. G. G.



Side View of the Bristol "Braemar" Triplane Bomber (Four Engines 1,600 h.p.)

THE WORLD OF AERONAUTICS.

News of the Week from All Quarters.

A ROYAL FLIGHT.

On Monday, March 3rd, H.M. Albert, King of the Belgians, travelled from Brussels to Aix-la-Chapelle by aeroplane. After visiting the Army Headquarters, His Majesty returned to Brussels.

GENERAL TRENCHARD'S ILLNESS.

Everybody concerned with aviation will regret to learn that Major-Gen. Sir Hugh Trenchard, K.C.B., has been seriously ill with influenza for the past fortnight. It is a great relief to hear that he is now past the critical stage, and is progressing satisfactorily towards recovery.

CIVIL AVIATION CONTROL.

The Air Ministry has issued the following:—

The statement which has recently appeared in the Press as to a difference between the Air Ministry and the Ministry of Communications with reference to the control of civil aviation is without foundation. Under the terms of the Air Navigation Act, 1919 (IX George V, C. 3), the purposes of the Air Council have been extended to all matters connected with air navigation.

AN AMERICAN FLIGHT.

It is reported that on March 7th Major Fleet and Captain White, both of the U.S. Air Service, flew an aeroplane with a 400-h.p. Liberty engine from Dayton, Ohio, to Mineola, N.Y., a distance of 664 miles, in 4 hours, 33 minutes. One stop was made at Newburg, N.Y., for minor repairs. Bad weather was encountered during the flight.

THE FLIGHT TO INDIA.

The Handley Page biplane which left Ipswich on Dec 13th, 1918, for India, left Karachi on Jan. 22nd, en route for Delhi. Major Tweedie, R.A.F., and Captain Halley, R.A.F., are in charge. It is expected that General McEwan will rejoin the machine at Nasirabad.

THE CASE OF MR. JOHN POMEROY.

At the London Sessions on Thursday, March 6th, a verdict of not guilty was returned in the case of John Pomeroy, who was charged with receiving a motor-car belonging to the U.S.A. Government, which was stolen by American soldiers and found on his premises at Stamford Brook.

THE PEACE CONFERENCE.

It is understood that the terms of surrender to be offered to Germany will be exceedingly severe so far as the military side is concerned. As these proposals are to deprive Germany of her army, it is only to be expected that the terms for the German Air Service will be every bit as severe.

The daily newsheets have been enlarging upon this subject, and their views are given for what they are worth. It appears that these terms will have the effect of completely abolishing German military aviation for the time being; that is to say, until the signing of peace Germany is to be allowed to keep a small Naval force, whose principal occupation is to be the discovery and destruction of submarine-mines.

SIR F. H. SYKES IN PARIS.

Gen. Sir F. H. Sykes was in Paris on Monday to discuss with representatives of various nationalities the terms of the Air Convention, which has been drafted by the British Aerial Advisory Commission, and has been submitted to the Peace Conference.

AMERICA'S FUTURE IN THE AIR.

According to an American wireless report, both Gen. L. E. O. Charlton and Gen. Guy Livingston advocate the formation of an aerial League of Nations. Gen. Charlton, who was recently appointed Air Attaché at Washington, is reported to have said:—

"It is the intention of the British Government to co-operate with those identified with aviation in the United States to the fullest possible extent. I have been appointed to this new post by the British Government not only in a military capacity, but in a commercial capacity as well. Co-operation should be the keynote of all aviation development. In the immediate future the greatest development will be in the line of commercial endeavour."

The same message gives Gen. Livingston's views as follows:

"I would not attempt to predict whether the first machine to cross the Atlantic would be an aeroplane or an airship, but there are in existence specimens of both types which, with necessary luck, could make the passage. Personally, I do not think it matters whether the first machine to cross is American, British, French, or Italian. But I think we should all lay our cards on the table, and say to each other, 'What we have here is what we know. Let us get together and share the advantages of our knowledge.'"

Neither of the above views appears to have any close connection with an aerial League of Nations.

AN AERODROME FIRE.

On March 9th a fire broke out at the Tern Hill Aerodrome, Market Drayton. A hangar, four Handley Page aeroplanes, and several Avro machines, and a quantity of stores, were destroyed. The damage is estimated at £40,000. The cause of the fire was the igniting of a slow combustion office stove

TROUBLE IN BERLIN.

According to Mr. H. J. Greenwall, of the "Daily Express," who is at present in Berlin, during the recent fighting in that city some aviators took part. On March 8th Berlin was bombed by these aviators, whose objective was apparently the underground stations which are the Spartacist headquarters. Apparently a good deal of damage was done. The anti-aircraft defences of the Sparticists were brought into action, but it is not certain whether any aeroplanes were brought down. The aeroplanes were also engaged in machine-gunning parties of Sparticists in the streets.

THE SIEMENS-SCHUCKERT GIANT.

The Deutsche Tageszeitung describes in a recent issue the Siemens-Schuckert aeroplane, which has just been completed after two years' work. It was built at the firm's works at Berlin, and is to be used for passenger and commercial traffic. The machine is stated to be driven by six motors of 300 h.p. each, the diameter of the airscrew measures 16½ ft., and the span is said to be 158 ft.

A BIG VENTURE.

One hears from common talk—though not from any official source—that a new Sopwith machine, specially built with an "Eagle" Rolls-Royce engine and enormous tank capacity and designed for covering very great distances at high speed, has been constructed, tested, packed up and dispatched to some unknown destination abroad. One also hears that Mr. Harry Hawker, the firm's famous pilot, has been training for long distances, and has made flights of 10 hours' duration or thereabouts during the last few months.

The firm has made no announcement as to its intentions, but rumour has it that Mr. Hawker is to make an attempt on the trans-Atlantic flight on the afore-mentioned machine at the earliest possible suitable moment.

ATHLETICS IN THE R.A.F.

On Wednesday, March 5th, the Oxford University Fifteen were beaten by the R.A.F. team at Oxford by one try (3 points) to nil.

An Association Football Match was played on Thursday, March 6th, between the South-Western and the South-Eastern Areas' teams of the R.A.F. The game ended in a win for the former team by 7 goals to 2.

One of the inter-Service Rugby Football Matches was played at Twickenham on Saturday, March 8th, when the R.A.F. team met the South African Fifteen. A good game was witnessed, in which both teams played well. The game finished with the South African Fifteen the winners by one goal, one dropped goal and one try (12 points) to nil, but the R.A.F. did not deserve to be defeated pointless.

AERIAL POLICE.

It is stated in the "Daily Mail" that the post of "Chief Constable" and other ranks in the new British Aerial Police will shortly be open to young flying men with Military experience.

The "Force," which will work in close conjunction with the existing Customs and Police Services, will be directed by Major-General Sir F. H. Sykes, the Controller of Civil Aviation, and will be divided into two branches—a number of pursuit scouts and a larger body of aerodrome police. A distinctive uniform will be worn.

The police will be stationed at various points around the coast to be known as "arrival stations" at which all machines coming from overseas will be compelled to land. It will be the duty of the ground branch of the Air Police to examine the machines for contraband, concealed cameras, and arms, and to ascertain from the pilot, whose papers will be examined, the course which he intends to follow in the British Isles.

Prohibited areas, such as powder factories, arsenals, dockyards, and the like, will be pointed out to him, and aerodromes notified in advance of the registration mark of his machine.

The chief duty of the pursuit scouts will be the heading off of negligent aviators from prohibited areas. An orange or other small object dropped from an aeroplane through the roof of a powder-mill is considered by experts to be sufficient to cause an explosion, and regulations in this respect are likely to be very drastic.

The scouts, in all probability, will be armed with machine-guns, from which tracer bullets will be fired as a warning or to shoot down air pirates, as no other means of dealing with fugitive law-breakers in the air at present suggests itself.

Many ground and other signals are at present being devised by a special branch of the Air Ministry.

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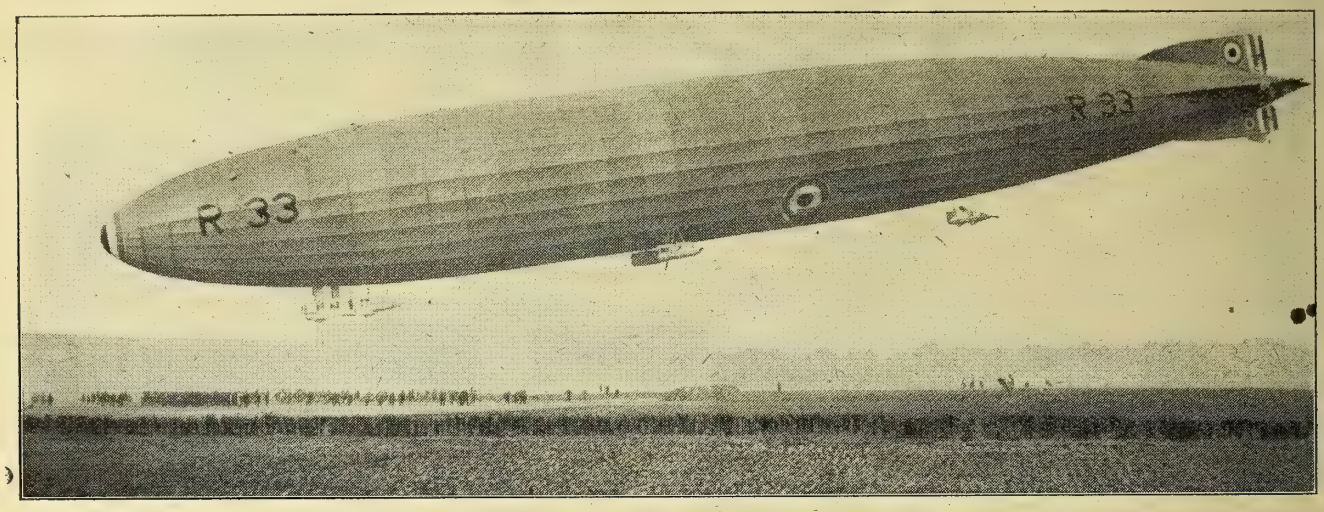
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THE WORLD OF AERONAUTICS.—(*cont.*)

A BRITISH RIGID AIRSHIP.

On Thursday, March 6th, R.33—a large rigid airship—made a trial flight lasting for three hours. The test was supposed to be a six hour flight, but a sudden change in the weather necessitated the shortening of the programme. The airship was in charge of Lieut.-Col. Hicks, R.A.F. (Commander R.N.), trial pilot, and Major Thomas, R.A.F., the captain of the ship, Capt. Leathem, R.A.F., first officer, and Lieut. James, R.A.F., chief engineer.



R.33.—The New Naval Rigid Airship built by Armstrong-Whitworth, Ltd.

R.33 was built by Armstrong-Whitworth, Ltd., in a large hall at Barlow, about five miles from Selby, Yorks. She is 670 ft. in length, and 79 ft. in greatest diameter. The hull is constructed of duralumin girders covered with fabric, and contains 19 ballonets.

The general outline of R.33 somewhat follows the Schütte-Lanz airships. The nose is round and somewhat tapered, and the stern tapers to a sharp point. Altogether the hull is of good stream-line shape, and shows a great improvement on the earlier rigid airship—R.23.

Four gondolas are suspended from the hull; the navigation gondola is placed well forward, the two "touring" gondolas or "power-eggs" amidships, and one gondola aft. The forward and midship gondolas each contain one 250 h.p. Sunbeam "Maori" engine, and the aft gondola has two engines coupled driving one large airscrew.

R.33 carries a crew of 23 men, and is said to have a cruising radius of 4,800 miles at 60 m.p.h. Provision has been made for the comfort of the crew, who will, in all probabilities, be able to cook certain foods whilst the airship is in flight. Parachutes are also fitted.

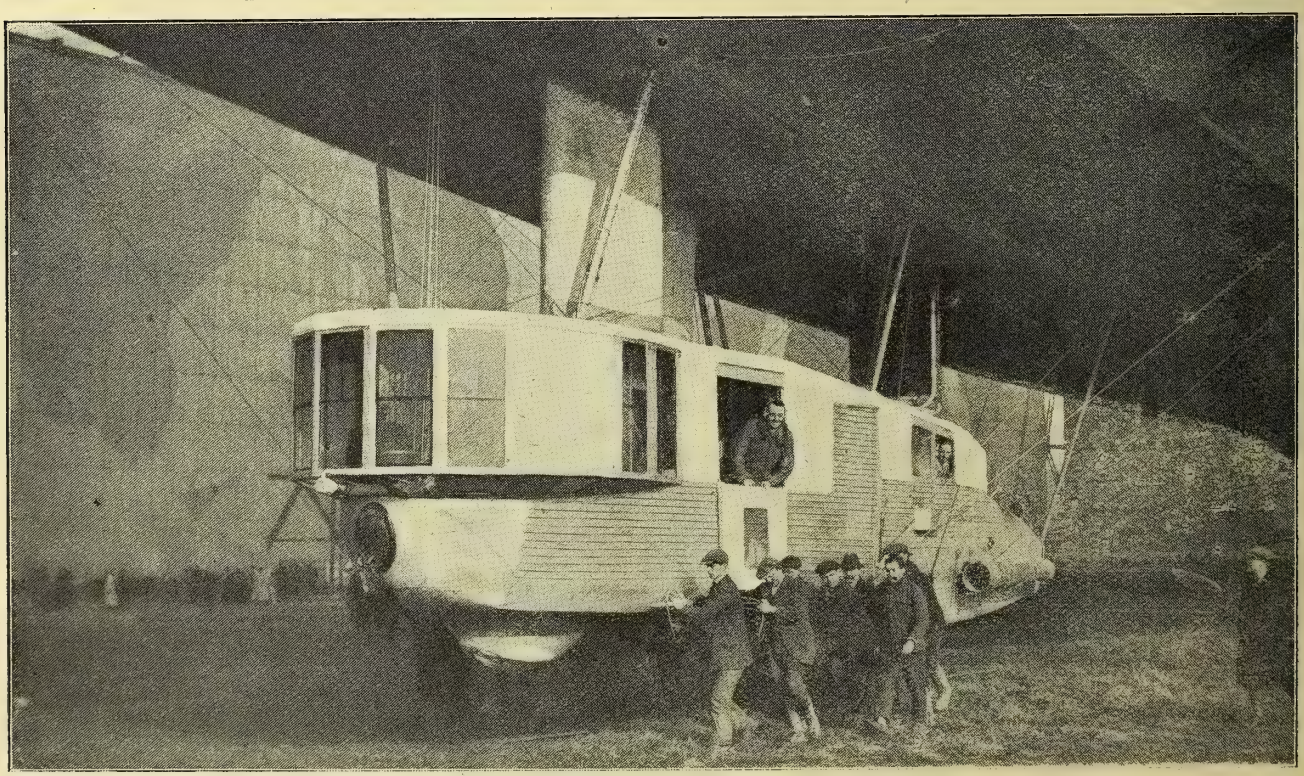
A FRENCH FLIGHT.

Lieut. Lemaitre, a French aviator, made a flight from Toulouse to Casablanca, Morocco, a distance of 1,180 miles, in 11 hours, presumably actual flying time. He made one stop at Malaga. It is understood that he will proceed to Dakar, French West Africa.

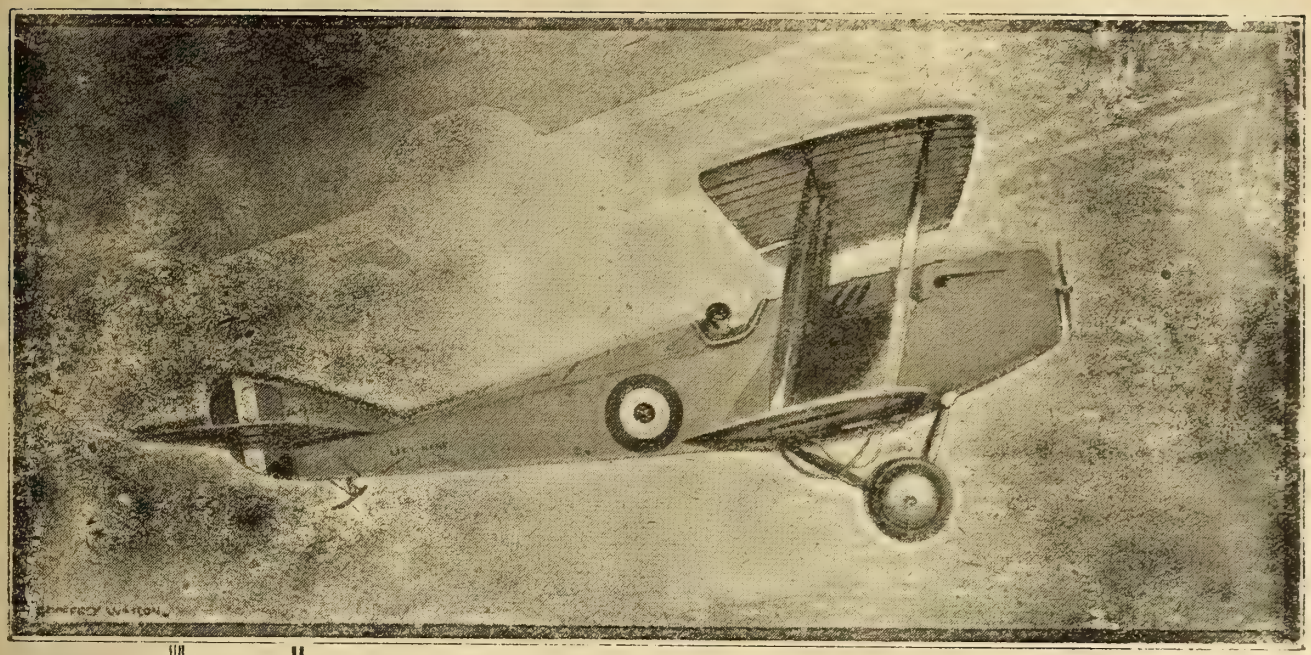
AERIAL SURVEYING.

Major Court Treatt, who is in charge of the Southern Survey of the Cairo to Cape Town aerial route, recently stated in the course of an interview that all the sites for landing-grounds from Abercorn southwards are now being surveyed preparatory to the erection of aerodromes. In the meantime, supplies of petrol, oil, distilled water, and other necessaries have been got together at Pretoria for distribution. Aerodromes will be established about every 300 or 400 miles along the route.

Major Emmett, a South African officer, is in charge of the survey of the region from Victoria Nyanza to Abercorn. He arrived at Mombasa in January to take up his duties.

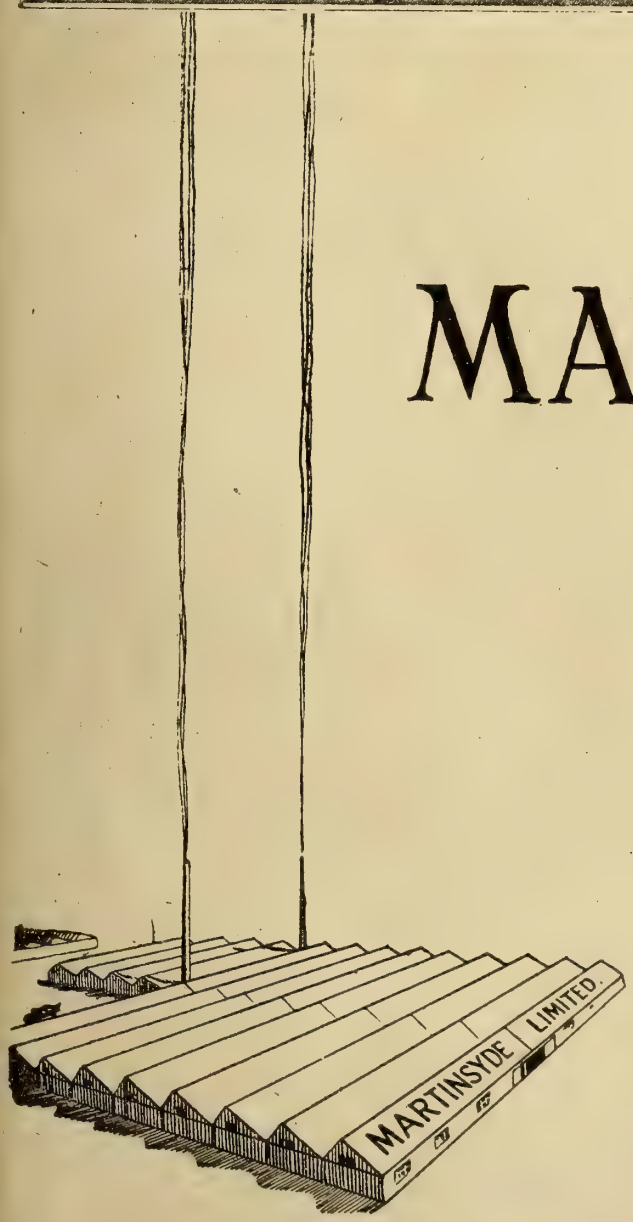


The Forward or Main Car of R.33. The speed of the Ship at present is said to be nearer 50 than 60 miles an hour, and Engines of higher power are contemplated.





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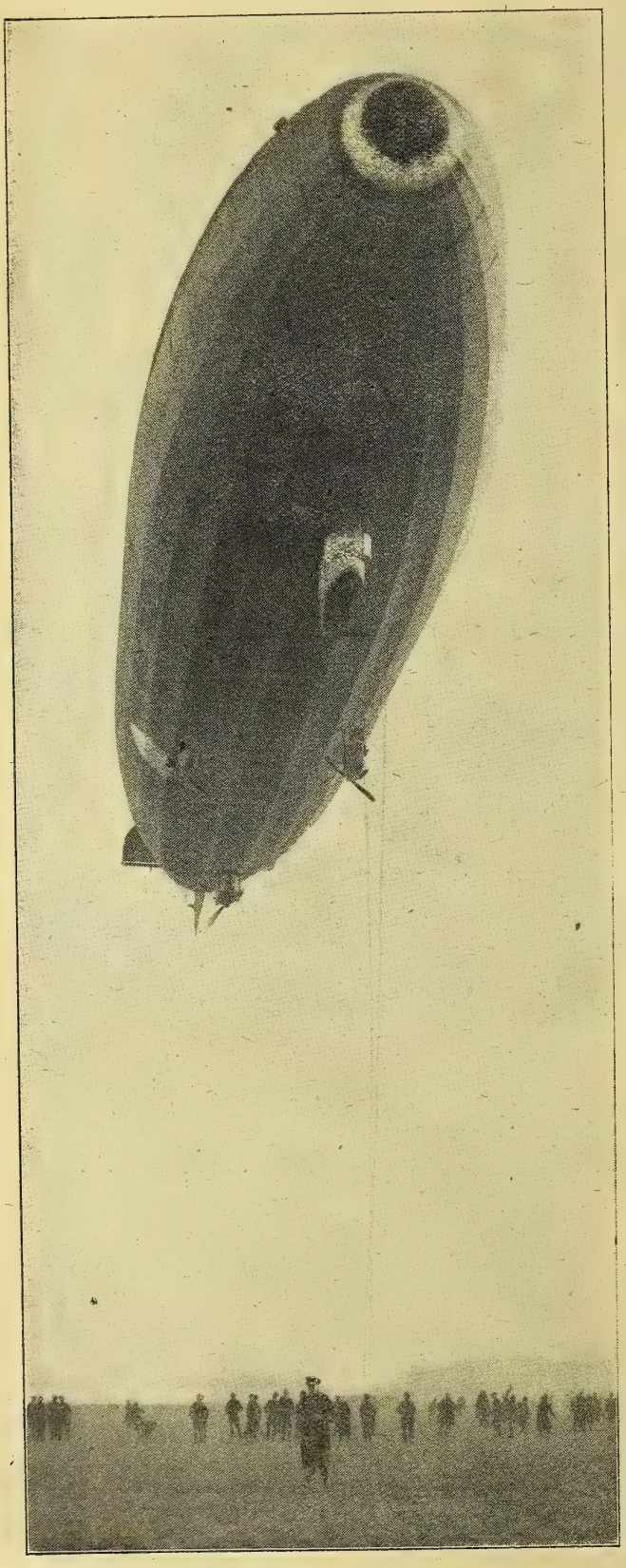


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THE WORLD OF AERONAUTICS.—(*cont.*)

WHY?

Passengers by rail who pass Hendon Aerodrome frequently have noticed a number of Handley Page machines staked out in the aerodrome for several months past. As the positions of these machines do not vary day by day it is assumed that they are merely standing there and not being used. The total value of the machines must run into some hundreds of thousands of pounds, and it would, therefore, be interesting to the British taxpayer to know why they have been left out in the appalling weather of the past weeks and months.



Front View from Below of R.33.

If the equipment department of the R.A.F. is carrying out "weathering" tests, it seems rather an expensive way of doing it, as, presumably, such tests could be carried out on two machines just as well as on 20.

If, on the other hand, the machines are not wanted for use, but are merely being accepted in fulfilment of a contract, it strikes one that it would be cheaper in the end to pay the manufacturers for the machines and to pay the workmen for doing the work, so as, at any rate, to save the material of which the machines are built, than merely to let them stand in the open until they rot, and then burn them.

If, however, it is intended to use the machines ultimately, they should certainly not be left out in the open to become warped and dangerous to fly.

One quite appreciates the fact that all storage room belonging to the R.A.F. is packed up with machines, but surely it must be possible to find a building somewhere in which these, and subsequent machines, could be stored until required, or until room is made for them somewhere else by the reduction to produce of older machines. There would, for example, be room at the north end of the Crystal Palace for at least a hundred such machines if taken apart and packed in the smallest possible space.

At any rate, the present method of disposal seems to indicate blatant incapacity in some department or another at the Air Ministry.

THE ATLANTIC FLIGHT.

Signor Caproni, who is now in Paris, has expressed the view that a trans-Atlantic flight will be made this year. He does not intend, however, to enter a Caproni machine for an attempt until next year.

ESPRIT DE CORPS IN THE R.A.F.

Sir,—I have been a constant reader of The Aeroplane for many years, and I am keenly interested in the development of the Royal Air Force. Although we all regretted the passing of the R.F.C. and the R.N.A.S., we now have the Royal Air Force, which inherits the traditions of both these Services.

In your leading article last week, I think you under-estimated the esprit de corps of the R.F.C. and the R.N.A.S. One cannot read a book like McCudden's "Five Years with the R.F.C." without admitting that for esprit de corps the R.F.C. in the Field was second to no branch of His Majesty's Forces. The King's Services, as they stand to-day, are, of course, not up to the desirable standard in spirit, discipline, or behaviour. What is wrong with the Royal Air Force to-day? It is simply this:

The Force is a new one; and its parent Services, the R.F.C. and R.N.A.S., were not old; it has expanded so rapidly that its personnel is but poorly trained at best. Training has been pushed on so fast that the inevitable has happened. A man can be taught to fight and fly before he can be taught to be an officer.

Officers of very little experience become in a few months Captains, and, in a year or two, Majors. They often make dreadful failures of their commands; but it is not always their own fault, for they have no experience.

How can they handle men, or behave with the dignity befitting their rank, who a few months before, maybe, were at school?

The Regimental subaltern, in peace time, goes through a very sound training of many years before he gets his company. In the Royal Air Force, an officer has no unit. He passes rapidly from one Squadron to another, and there is no counterpart of the "Senior Subaltern" to keep him from straying from the right point of view.

In the Royal Air Force the Staff is composed largely of turned-down pilots. What do they know of Staff work? Next to nothing. And so we get the Air Force Staff, which has deserved, I must admit, much of the criticism which it has endured.

All this is caused by the strain thrown upon the organisation of a Force which has expanded from 1,000 officers to 30,000 officers in four years, and has suffered nearly 30,000 officer casualties.

In the post-bellum R.A.F. things must be very different. Out of more than 30,000 officers the Air Ministry has to select, at most, five or six thousand. They are, I know, taking the utmost care to select the right sort. I do not think that the insuperable difficulties which you fear will have to be surmounted before the Royal Air Force will be the splendid Service it must undoubtedly be, will ever arise.

I well know, Sir, your bias, if I may say so, against the Royal Air Force. But I would appeal to you, Sir, not to forget the R.F.C. and R.N.A.S., but to use the influence of your widely read paper to support the R.A.F. whole-heartedly. It would be a great calamity, in my humble opinion, if the R.A.F. were to be split up into Naval and Military Sections again.

The prospects of the R.A.F. are very bright indeed at this moment. Let us support the R.A.F., and, so far from forgetting the R.F.C. and R.N.A.S., let us draw from their magnificent history inspiration and energy and courage to make the Royal Air Force the finest and most respected of the King's Services.

In conclusion, I hope we shall hear no more of the "Royal Air Farce!" No officer who loves or respects his Service could write the words. Signed) "Soldier."


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THE WORLD OF AERONAUTICS.—(*cont.*)

R.A.F. OFFICERS AT THE DANISH AERO CLUB.

On a recent occasion, by courtesy of the Admiral Commanding the British Fleet then at Copenhagen, Capt. X——, R.A.F., of H.M.S. "——," and Lieut. Y——, R.A.F., were able to read to the Danish Aero Club two interesting papers describing their experiences and those of their companions in the war.

Capt. X——, who has done four years of active service, gave an account of his experiences in the Palestine theatre of war, at the beginning of which the not very effective aircraft available, the performance of which was affected detrimentally by the heat, gave the British aviators a pretty hard time. During this period the Germans seemed to use this area as a testing ground for their new types of machines until such time as better British machines arrived and changed the position of affairs.

Capt. X—— described a flight up a gusty valley at an altitude of 2,400 feet, beyond which he was unable to climb, as the surrounding mountains were 3,000 feet high, and as the valley was too narrow to permit the aeroplane to turn, prospects looked very black, especially when he arrived at the head of the valley and found that it had no opening. Fortunately the aeroplane was caught by a violent upper gust which spun the machine round on its axis, an incident which, to borrow one's Danish correspondent's expression, "Capt. X—— considered a world's record of kindness."

Capt. X—— also mentioned the torpedo-carrying aeroplane which was first brought into operation in the war by the British Navy in 1915, and described the first occasion of its use during the Dardanelles Expedition. Owing to the engine running badly, the pilot had to alight in the Marmora when he sighted a Turkish transport steamer towing another vessel. The British aviator managed to turn the seaplane round to face the transport and let go the torpedo while sitting on the water, and, relieved of its weight, he was able to get into the air once more, and saw the sinking steamer dragging down the vessel which it was towing.

Mr. Y—— confined himself to relating the personal experiences of himself and friends. With reference to the experiments which were carried out towards the end of the year, with what he described as a low percentage of success, in landing scout aeroplanes on the decks of ships, he expressed an opinion that the scout machines lost on duty in the North Sea (the number he is said to have mentioned being 2,000) would have been turned to better account in France.

Mr. Y—— related an amusing story of a British seaplane pilot who sighted a submarine, promptly dropped a bomb, and noticed oil on the water which provided evidence of his success. His report of having destroyed an enemy submarine was in due time rewarded by the D.S.O. About a week after this event a British submarine returned to its base in "a miserable state," and the time and place of its adventures agreed peculiarly with the report of the British pilot. This incident, besides offering a practical demonstration of the difficulties found in distinguishing friendly and enemy submarines, is an illustration of the old proverb that a man is his own kinsman's worst enemy.

The papers received the hearty appreciation of the audience, which included H.R.H. Prince Axel of Denmark, who is a certified pilot and a submarine commander.

PARIS NOTES.

A Conservatoire of Aviation.

The proposal for a Conservatoire of Aviation emanates from the State Aeronautical Department, and it is not a mere idea in the abstract. It is only waiting the official approbation from the competent authorities. It is proposed to erect the Conservatoire near an aerodrome, which is described as the cradle of French Aviation—Issy, I should think. The main hall is to shelter the remains of all historic machines.

French School of Aerial Navigation.

The school for Aerial Navigation will be the creation of the French Aeronautical League, and was unanimously decided upon as a result of Capt. Colis' recent address describing how he and Roget flew the Mediterranean, under adverse climatic conditions. The school will be open to all civilian pilots, and courses will be commenced immediately.

A Salon of Military Aviation.

The Salon of Military Aviation will not take place till next July. It will form a complete history of French aeronautical advance during the war.

Aeroplane Ambulances.

Another new word has been coined, and mayhap time and circumstance may bring it to the English language. It is "Aerochir," and implies an aeroplane fitted up with all surgical impedimenta—operating table, instruments, dressings, anæsthetics, etc. The machine has been constructed by Voisin frères, but the surgical installation is the work of Messrs. Neminowsky and Tilmant. The first trial was carried out by Frantz, who, leaving Villacoublay, appeared over Issy les Moulineaux at 3.15 spiralled down, and landed the two inventors, and in a few minutes everything was ready for an operation—had there been one to perform.

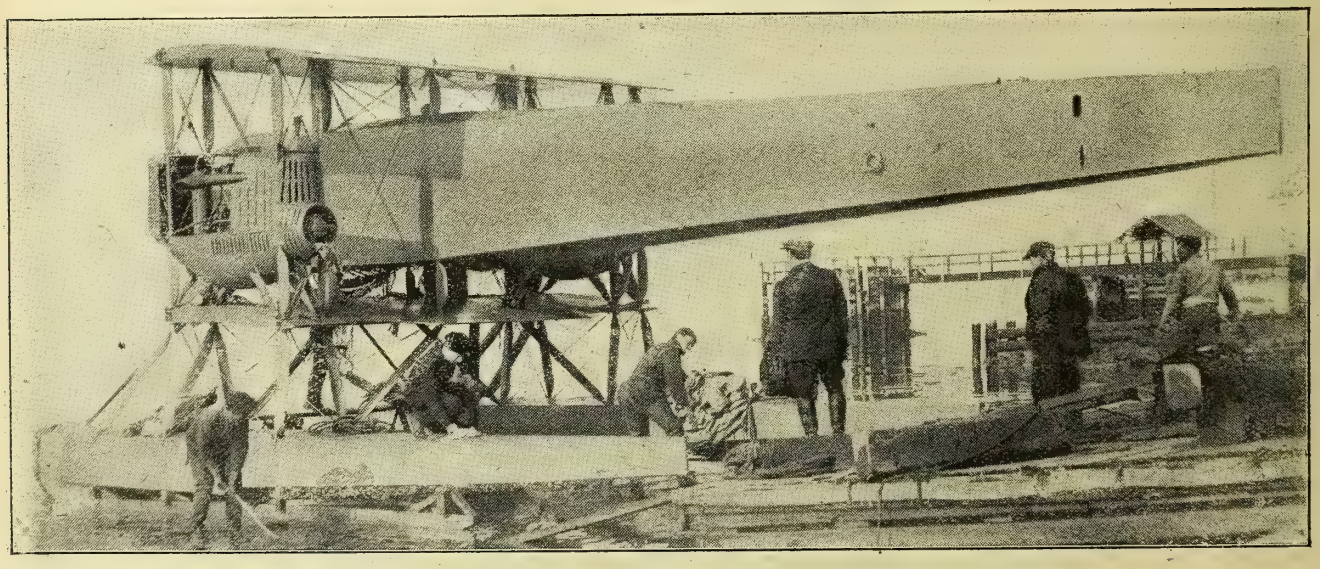
Saved the Life of Vedrines.

The mention of medical men is opportune in that it gives one appositeness in recording the death of Dr. Chaput. Dr. Chaput never recovered from the tragic loss of his son—an aviator—whom he nursed unsuccessfully when he was wounded in 1916 at Verdun. Dr. Chaput has a still greater claim on the gratitude of aeronautical readers, because he it was who saved the life of Vèdrines when he was so seriously injured in the year before the war. Jules Vèdrines must have an extraordinary constitution, but even that could not have saved him without extraordinary skill displayed by Dr. Chaput.

Journalistic Enterprise.

Journalistic enterprise in the realms of aviation is well to the fore just now. First there is a new review called "La Poste Aèrienne," which is to be illustrated. Its offices are 34, Rue Saint-Marc, Paris II. Price 75 cents per copy. Second, one has to record the most wonderful galaxy of talent collected by Henri Desgrange, the indefatigable editor of "Auto." He is determined that all subjects in his paper shall be written by men well qualified in its particular branch; thus the following have turned journalists for the purpose:—

Frantz, military, pilot (ace).
Chaulin-Servinière, pilot and member of Chamber of Deputies.
Clément Ader, first man to fly.
Soreau, president of Aviation Commission to the Aero Club.
Nungesser (ace), most wounded man.
Réné Fonck, ace of aces.
Henri Farman, pilot, constructor.
Caproni, Italian aeroplane constructor.



The large Seaplane built by the Witteman Lewis Aircraft Co. It is to be piloted by Capt. Hugo Sunstedt, the Swedish Aviator, and has been entered for the £10,000 Trans-Atlantic Prize.

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THE WORLD OF AERONAUTICS.—(*cont.*)

André Moreau, inventor of automatic pendulum stability for aeroplanes.

An Aviators' League.

Last week I mentioned that an Aviators' League had been formed here. Well, they have held their first meeting at which 500 (!) members were present—the total membership so far is over 900. Nungesser was elected President.

French Aero Club Dinner.

Everybody who is anybody in French Aviation was present at the monthly dinner given by the French Aero Club at the Hotel du Palais d'Orsay. Gold medals were presented to Commandant Watteau, Lieut. Dagneaux and Sous-Lieut. Marinovitch, and the proceedings terminated with a cinematograph show.

The Turbine Bréguet.

Last week I mentioned that M. Bréguet had been experimenting with a machine fitted with a turbine which would enable it to fly at 500 kms. per hour. I have now more information on the subject. The turbine is actually the work of M. Rateau, who was recently made a member of the Academy of Sciences. M. Rateau hit upon the ingenious idea of fixing to the exhaust a turbine, which, driven by the exhaust gases, rotates at the rate of 30,000 revs. per minute. This, in turn, operates a small centrifugal fan, which compresses the air at the feed inlet of the motor. If we ever do fly at 500 kms. per hour, the journey from London to Algiers will be done in six hours, London to Constantinople in nine hours, and London to Cairo in 12 hours.

Attempt to Make Paris-Rome Record.

Vèdrines was present at the trials of the Voisin "Aerochir," and looking fairly fit after the 'flu (they call it "grippe" here). He is to attempt a record Paris to Rome and return very shortly. A twin engine machine will be used. Nungesser is at the Cote d'Azur trying a new type of hydroplane.

More Spads.

This week 270 Spad machines are to be delivered to the Army from three different factories "L'Auto" pertinently inquires, "Whether it is permitted to ask what is to be done with them, whether they will be hangared under Bessoneaux that leak and let in heavenly water, such heavenly water falling on the wings, etc., and such wings, etc., rotting away" Which reminds me that the French Transport Parks are in about the same state as our own at Kempton, with the exception of the one at Versailles, which is dry in parts, and whence an average of one lorry or car per day is lost! ! !

Goods and Mails by Aeroplane.

During February there were 14 flying days, and, on these days, 15 tons of goods, in addition to mails, were carried to the liberated provinces.

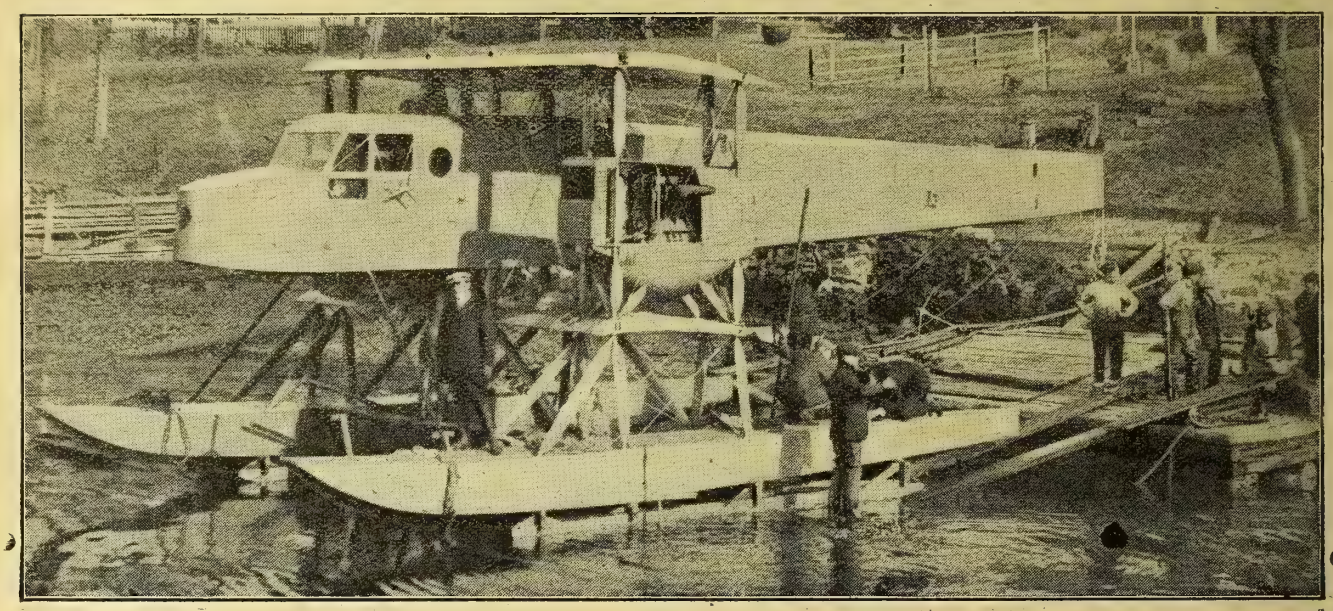
One has still plenty to say apropos commercial and aerial postal services; for example, the Paris-Bordeaux route which was given out officially as commencing on March 1st did not commence, because the machines were not to hand! The history is this—a Squadron was asked for, fifteen days ahead, by the Air Ministry here from the Aeronautical Section of the Army, but no reply has yet been received.

Aerial Posts.

A private company, the Société Latecoëre, have been made concessionaire for an aerial post from Toulouse to Rabat in Morocco *via* Spain. The mail will further be transported to Casablanca, Fez, and Marrakesh by squadrons already stationed in Morocco. Four machines left Toulouse, and stops were made at Barcelona, Alicante and Malaga by agreement with the Spanish authorities. The first machine, containing Lieuts. Loucate and Massuny, hit a wall in landing at Alicante; the latter sustained slight injuries.

The French in America.

The French Aeronautical Mission to the U.S.A., which was to have acted in two parts, has been fused into one. Exhibition will be given at New York, Washington, Pittsburg, Baltimore San Francisco, Los Angelos, Philadelphia, New Orleans, and Boston. A stay of a week will be made at each town.



Another View of the Seaplane built by Witteman Lewis Aircraft Co. When rigged it will have a Span of 100 feet and total length of 72 feet. It will carry three passengers besides the pilot. The speed is hoped to be 80 miles per hour.

ITALIAN NOTES.

A medical conference dealing with the effects of flying and general aerial travelling on the human organism was recently held at Rome. As the men of science did not have a very good Press, little was heard of the interesting departure. Allied scientific men were present, among whom one notes four English names, and some U.S.A. people are mentioned.

The Forlanini 6, which was ready in time to get into the war zone and be useful there by carting about high explosives, flew the other week at Milan with 46 people on board. The O.C., Major Gallotti, is reported as having told the journalists that this number could have been increased to 60 if the car could have contained them all.

A Naples firm had asked the Government to permit them to start building a 2,000 h.p. and a 5,000 h.p. seaplane. Under the changed circumstances of the trade at present one does not know how long we may have to wait before they are got through.

Considerable and very useless talk has been taking place in and out of Parliament and Press as to the supposed intention of the then Under-Secretary for Aviation to concentrate on 600 C.A.s and get 450 of them up at the front before any other orders were given. One understands that this laudable desire was present and would have been a *fait accompli* but for the unfavourable report of a technical committee on the machine's *warlike* efficiency. The whole matter seems to turn on this epithet.—T. S. Harvey.

THE LATE MR. JOSEPH CHRISTAENS.

It is with great regret one learns of the death, at the age of 36, of Mr. Joseph Christaens, the pioneer Belgian aviator and motor-racer. He was the first man to fly in Russia, India, and South Africa, besides several other countries. His first appearance as an aviator in Britain was made at the Bournemouth Aviation Meeting of 1910, when he was so unfortunate as to land on some unsuitable ground, as a result of which he sustained injuries.

As a racing motorist he figured prominently on the Continent, as well as at Brooklands and in America, being in the Belgian teams in the leading events. He won the Coupe de Liederkerke in 1909. He was an early believer in the six-cylinder motor-car engine, even for competition work, and he established several world's records in America with Sunbeam cars

He was a native of Brussels, and had seen service with the Belgian armoured cars. Having been captured by the Germans he made his escape from Germany in 1915.

During the latter part of the war he was in charge of experimental work at the Sunbeam Company's factory at Wolverhampton.



THE ADVENTURES OF "CYRIL" IN THE AVIATION WORLD

No10 At the Sports

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On March 4th the following written answer was given :—

DISMANTLED AEROPLANES.

Mr. JOYNSON-HICKS asked the Parliamentary Secretary to the Ministry of Munitions whether any D.H.6 aeroplanes have been dismantled; what is the value of the produce of such dismantled machines; and whether he has received any offer for the purchase of such machines at a higher price than the scrap value?

Mr. KELLAWAY: In reply to the first part of the question, so far as the Ministry of Munitions is concerned, no D.H. 6 aeroplanes handed over to the Ministry for disposal have been dismantled; the second part of the question does not therefore arise. In reply to the last part of the question, a verbal offer for the purchase of such machines has been made at a price which is not considered high enough and has been declined.

* * *

The following oral answer was given on March 5th :—

MILITARY SERVICE—ROYAL AIR FORCE (W. G. JONES).

Mr. HAYDN JONES asked the Secretary of State for War whether his attention had been called to the case of William G. Jones, 194020, Royal Air Force, who, on joining on June 7th, 1918, was classified A1, and on being demobilised on Jan. 28th was placed in Grade 1 after the following record: July 17th, placed in a draft for France, but found unfit for service overseas owing to D.A.H. and nervous debility; sent to Uxbridge for a course of aerial gunnery, found unfit, excused drills and marches, and declared unfit for all military duty; Sept. 30th sent to the Royal Herbert Hospital, Woolwich, and marked for immediate discharge; Oct. 12th, transferred to 1st Eastern General Hospital, Cambridge, where he was examined by a specialist, and his discharge papers prepared; Oct. 22nd, sent to Voluntary Aid Detachment Hospital, Wisbech, to be examined by a medical board; Nov. 4th, sent home without examination; Nov. 22st, recalled for examination, but informed on arrival that as one of his papers was missing he could not be examined; Nov. 23rd, sent home; Jan. 13th, recalled to Cambridge for re-examination, but sent to East Preston Hospital without being examined; Jan. 20th, examined by two officers, who declared the soldier's nerves to be bad; sent to Chester War Hospital, where he was placed in Grade 1 and demobilised on Jan. 28th; whether he is aware that the soldier was not allowed his ordinary pay while at home; and whether, in view of this record, he will cause the soldier to be re-examined by a medical board in order that he may be placed in his proper category?

Mr. PRATT (Lord of the Treasury): I am causing a full inquiry to be made into this case and will acquaint my hon. friend with the results at an early date.

ROYAL AIR FORCE—(HARRY BELL).

Mr. CAIRNS asked the Pensions Minister if he is aware that Harry Bell, Wing H.Q., France, and is at present servant to a colonel, applied to have the allowance made to his mother, and that 3s. 6d. only has been paid; whether he is aware that Harry Bell's brother, Robert Bell, who went through an operation and came home in April, 1918, sent the ring-paper straight back, and that nothing more has been heard since; and whether he will have enquiries made into the case.

Major-Gen. SEELY: In the absence of Service number it is impossible to identify the airman referred to. If the hon. Member will be good enough to supply me with this information, the case will be investigated and the result communicated to him.

ROYAL AIR FORCE—OFFICERS' GRATUITY.

Lieut.-Col. Sir F. HALL asked the Under-Secretary of State to the Air Ministry whether flying officers with four years' service are to receive £150 gratuity for each year; whether technical officers are to receive the same amount; and, if not, will he give particulars of the difference between the gratuities to be granted to these two classes of officers, stating at the same time what would be the amount of gratuity to be given to technical officers with the rank of captain with four years' service, and how much would be granted to flying officers of the same rank with a similar length of service?

Major-Gen. SEELY: Flying officers who were granted commissions in the Special Reserve of the Royal Flying Corps (and certain officers who entered the Royal Air Force on special engagements) are entitled to gratuities of £150 for each completed year of service subject to certain conditions. Officers who entered the Special Reserve Royal Flying Corps, as technical officers (originally termed equipment officers) are not entitled to this gratuity, but receive instead a gratuity of 124 days' pay for the first year of service and 62 days' pay for each subsequent year or part of a year. The gratuity issuable to a technical officer of the rank of captain, with between four and five years' service, varies from £316 to £372. That issuable to a flying officer of the same rank and service varies from £353 to £372, if he was not on a Special Reserve engagement, and is £600 if he was on such an engagement.

TORPEDO-CARRYING AIRCRAFT.

Lieut.-Col. MALONE asked the Under-Secretary of State to the Air Ministry whether proposals have been put before the Peace Conference for the total prohibition of torpedo-carrying aircraft?

Major-Gen. SEELY: The answer is in the negative.

Lieut.-Col. MALONE asked the Under-Secretary of State to the Air Ministry whether he has had an opportunity of investigating the history of the development of torpedo-carrying aircraft; and whether he will consider the appointment of a Commission to investigate why this weapon, which might have been a deciding factor in the war, was not further developed, and to apportion the blame accordingly?

Mr. PRATT: The Under-Secretary of State to the Air Ministry is away ill, and he hopes that the hon. and gallant Member will agree to postpone his question for a week, as it is one that requires personal consideration.

TECHNICAL PAY.

Sir F. HALL asked the Under-Secretary of State to the Air Ministry whether he is aware that an announcement was made before April 1st last that technical officers in the Royal Air Force would be granted technical pay and that this pay was to be according to some system of grading; if he will state what such system was and the rates of pay that were to be granted; whether he was aware that, after the announcement was made, without any further intimation, the original system was abandoned as impracticable and that in September last it was announced that there would be an alteration in the rates of technical pay; and if he will state what alterations were then proposed; whether any technical pay has actually been given and, if so, will he state the number of officers to whom it has been granted and upon what basis; and if steps will forthwith be taken to give this pay as originally announced, making it retrospective as and from the date of such announcement, in order that officers who may have been duly qualified, although they may have left the Service, shall obtain the additional pay it was intended that they should receive?

Major-Gen. SEELY: The original Regulations for the pay of the technical branch of the Royal Air Force provided a basic rate of pay, according to rank, with the addition of technical pay of either 2s., 4s., 6s. or 8s. a day, varying according to (*a*) rank and (*b*) the nature of the technical duties carried out by individual officers. It was found impracticable to grade officers individually for these rates of technical pay, and it was decided in September last to make the rate of technical pay dependent solely on rank. At the same time the different classes of technical duties carrying the right to technical pay were defined. The classification of officers according to these duties is being carried out and will shortly be completed. In the meantime technical pay at the original minimum rate for each rank has been issued, and any balance will be credited to officers as soon as the work of classifying them has been completed.

NATIONAL AIRCRAFT FACTORIES.

Mr. ROSE asked the Parliamentary Secretary to the Ministry of Munitions whether he will issue a statement relative to aircraft stations and establishments for the production of aircraft and aircraft requisites and accessories; how many of such establishments have been completely finished and in use; how many have been abandoned before completion; and what has been approximately the cost of completed establishments and those abandoned?

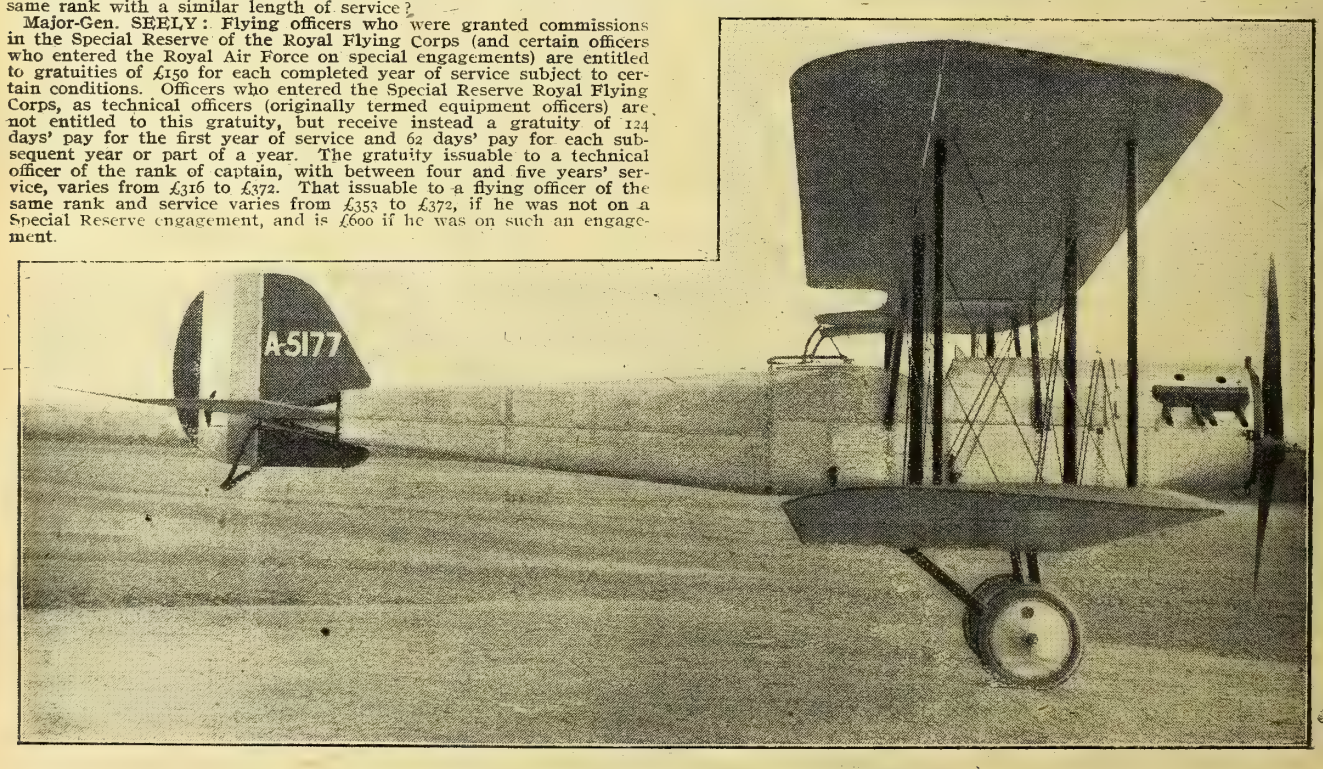
Mr HOPE: It is not quite clear what particular classes of establishments my hon. friend refers to, but I will have prepared and circulated with the Official Report a statement on national aircraft factories erected or purchased by the Ministry of Munitions

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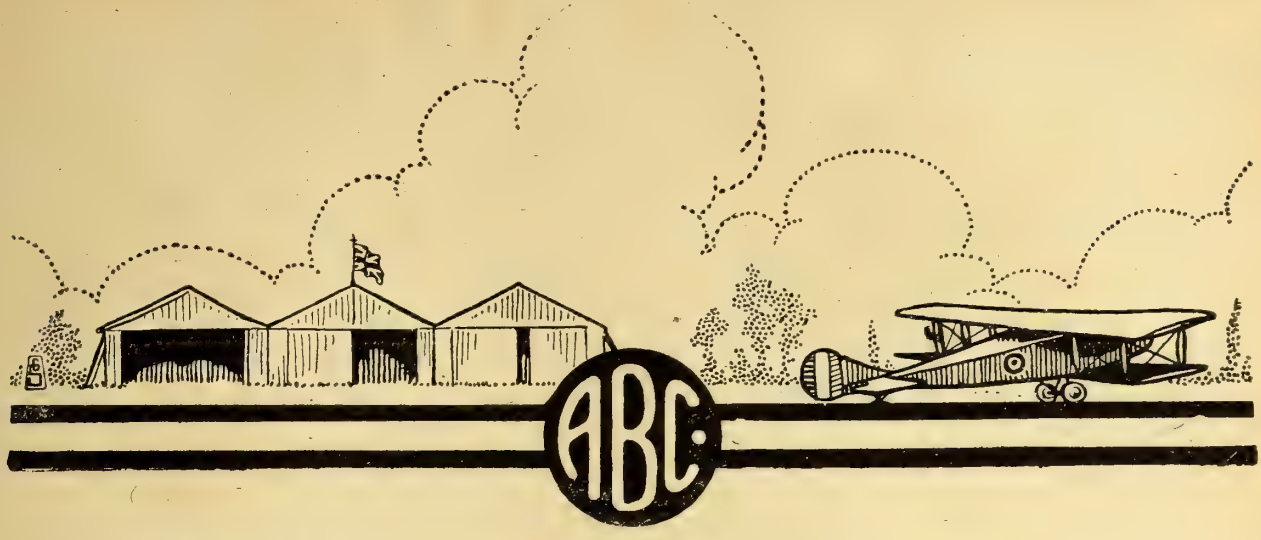
The following oral answers were given on March 3rd :—

ROYAL NAVY PENSIONS, LIEUTENANT COMMANDERS.

Sir CLEMENT KINLOCH-COOKE asked the First Lord of the Admiralty why officers of the Royal Naval Volunteer Reserve promoted for action in the face of the enemy to the rank of lieutenant-commander do not receive the pay of that rank, but remain so far as pay



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is concerned in the same position as if no promotion had been given; and will he consider the possibility of giving to officers so promoted the pay of their new rank?

Dr. MACNAMARA: Men who rendered whole-time service in the Royal Naval Anti-Aircraft Corps are eligible for the Naval War Gratuity. Those who served for half-time only are debarred unless they subsequently served in the Army or Navy, in which case they would be eligible for a gratuity assessed on the whole of their war service. As regards the last part of the question, the regulations under which medals will be issued have not yet been framed.

Sir C. KINLOCH-COOKE: Is it the case that lieutenants who are awarded promotion have the privilege of paying for their stripes and nothing else?

ANTI-AIRCRAFT CORPS (LONDON DEFENCE).

Mr. LORT-WILLIAMS asked the First Lord of the Admiralty whether men who have served in the Royal Naval Anti-Aircraft (London Defence) are entitled to the service gratuity; and whether it is proposed to issue to them the war medal or some special medal for their services under fire?

Dr. MACNAMARA: Pensions and retired pay are awarded and remain payable in respect of services in His Majesty's Naval or Marine Force, subject to such conditions and provisions as are from time to time directed by Order in Council. Service pensions may most certainly be regarded as earned, but I am advised that they have never been regarded as deferred pay.

During his speech on the Army Estimates, Mr. Churchill made the following remarks, which are of interest:—

"How is our future military defence of the British Empire to be brought at every point into harmonious relation with the Royal Navy so that the greatest economy may be combined with the highest development not only of amphibious, but of aerial power? In this connection, it is quite clear that we require to develop a new class of officers who will make all war their province and not merely sea war, or land war, or air war, or any other kind of departmental war. This opens up an extremely interesting avenue of inquiries which are now being pursued by the professional heads of the three great Services—the First Sea Lord, the Chief of the Imperial General Staff, and the Chief of the Air Staff—into the systems of higher staff training and general war training which are required for the fighting services of the Crown. By proceeding along these paths, we may in the course of years evolve a class of officers of high standing, drawn from every branch of the Service, and from every part of the Empire, armed with a body of doctrine, the result of searching and scientific thought, who will be able to advise the Cabinet and Prime Minister of the future from the point of view of war as a whole, from the point of view of Imperial defence in its integrity and in its universality."

* * *

The following written answers were given on March 6th:—

WOMEN'S ROYAL AIR FORCE.

Mr. TURTON asked the Secretary of State for War if he will state approximately when demobilisation will take place of the Women's Royal Air Force; and when Form Z 527b will be issued?

Major-Gen. SEELY: Demobilisation in the Women's Royal Air Force has commenced, and Form Z 527b, to which I understand the hon. Member to refer, has been issued.

AIR SERVICES.

Mr. GILBERT asked the Postmaster-General whether any aerial post services have yet been started in this country; if not, whether it is intended that any such services shall be established at an early date; whether he will state if any experimental services have taken place either in this country or in connection with the postal services to Ireland and the Continent; and, in view of the establishment of such services in other countries, if he can make any statement on the subject?

Mr. ILLINGWORTH: No regular air post services have been established in this country, and I am not in a position to say when the establishment of any such service will become possible. There has been no recent experiment in air mail conveyance within the British Islands. I understand that an experimental service for Army mails only was begun a few days ago between Folkestone and Cologne, with intermediate points in Belgium.

TORPEDO-CARRYING AIRCRAFT.

The following comments have been received on the questions asked and the answers received by Lieut.-Col. Malone, M.P., on March 5th:—

The question raised by Colonel Malone in the House on Mar. 5th deals with a matter which is as important as that of the world-famed Tanks. It is difficult to over-estimate the value or effect of this weapon if the authorities had given it more support.

Behind the clash of arms on land there always remained the power of the British and German Navies, and if either of those two forces had been destroyed the war would have collapsed.

What would not have been the effect had we possessed during the Battle of Jutland one or two seaplane-carrying ships with a few score torpedo-carrying aircraft? They might have dealt to the German Fleet a blow which it would not have survived.

Throughout the whole war this Service might have been harassing the German Fleet, not only at Jutland, but whilst they were securely moored in their harbours. It was this potential factor which was indicated by Mr. Winston Churchill when he suggested the possibility of the swarm of hornets driving out the rats, but Mr. Churchill was not in power at the critical period when the work should have been done.

Not only in home waters could torpedo-carrying aircraft have been of value. During the Dardanelles campaign practically one-third of the enemy transport to the Peninsula was brought by water across the Marmora. Such craft working across the lines of Bulair might have broken the Turkish lines of communication.

But the chance was lost, and, owing to the indifference and apathy of those in whose hands our aerial destiny rested, a factor which might have curtailed the duration of the war, saving the lives of perhaps thousands of men and millions of money, slipped out of our grasp. Can we not take steps to see that such incompetence does not recur or that at least our Peace Destinies do not rest in the same hands?

PARACHUTES IN PEACE TIME.

It is evident that the need for parachutes in the Air Force is just as great in peace time as it is in war. Aeroplanes are liable to catch fire in the air, and if a machine does catch fire in the air, it is evident that unless it is quite close to the ground, so that the pilot can land before the fire reaches him, there is no hope of escape except by parachute. Therefore, until such time as some of our scientific people at the Air Ministry have sufficient initiative to cut loose from the petrol superstition and undertake seriously the production of a heavy oil engine, the use of parachutes should be compulsory in all machines.

It will be noted that in the case of the officer who fell into Richmond Park quite recently, the Air Ministry "experts" judged that he jumped from his machine on purpose, because it had caught fire. Here specifically is a case where life would certainly have been saved by a parachute.

Another case of which one has heard recently is that of Mr. Berkeley, R.A.F., who was killed on Jan. 30th at Northolt. In this case Mr. Berkeley was piloting a machine which collided with another at a height of about 1,500 feet. One of the wings of Mr. Berkeley's machine was smashed against the undercarriage of the other pilot's machine, which was also smashed.

Mr. Berkeley's machine spun to the ground and he was killed, the pupil who was with him fortunately escaping serious injuries. The other pilot succeeded in landing successfully.

One is strongly of opinion that, if, as should have been the case, the two-seater had been equipped either with two separate parachutes, or with one parachute capable of bearing two persons, Mr. Berkeley would have been saved. Also one seems justified in arguing that if the other machine had also been equipped with a parachute, the pilot should have left it to its fate and have descended by parachute rather than risk breaking his neck by landing a machine without an undercarriage

To send an aeroplane into the air without a parachute is rather less sensible than putting to sea in a boat without a life-buoy.

CADETS AND THE AIR MINISTRY.

The following letter has been received:—

Sir,—I hope your article on the treatment of Flight Cadets will come before the notice of the proper authorities, and that you will follow up this subject. Many Flight Cadets, including myself, have many grounds for complaint, and hope these will be remedied in the near future. What have we done to receive such treatment, and who is responsible for it?

Flight Cadets, in the first place, were specially selected and recommended for transfer from their units. They are well educated and thorough sportsmen, and all have passed their ground courses satisfactorily, or else they would have been made N.C.O. pilots.

Many, of course, wish to return to their pre-war employment, and have already, in most cases, been demobilised. But there are a number who wish to qualify for their wings, and are willing to volunteer for overseas.

Thousands of pounds have already been spent on them, and they are partly through their flying course. I myself have graduated "A," and only need a few hours' flying to finish "B." These cadets have been demobilised against their will, no explanation being given for this action. The cadets mentioned joined the Army straight from school in most cases, and have had their future hindered, and are now, through age and for several other reasons, unable to follow a profession, but are enthusiastic followers of flying.

A lot of unrest has been caused amongst the mechanics, who think that flight cadets have been "favoured" in being demobilised, whereas precisely the opposite is the case.

I venture to suggest that those cadets who are now at home doing nothing (and, much against their will, have to be kept by their parents, and have no immediate prospects) be allowed to return and finish their flying and qualify for their wings, as suggested in your article.

Only a few mechanics would be required, as the cadets are not afraid of work, and, being enthusiastic, have followed closely the construction and maintenance of the aeroplanes and engines used in their squadrons. If they are not allowed to return, find them suitable employment, and do not let them be thrown onto the world unprepared at a few hours' notice. This is the thanks they have so far received for services rendered.

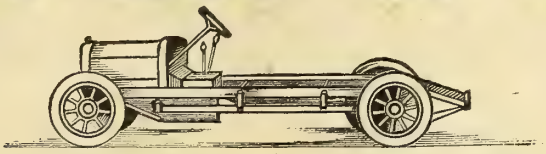
If they are not wanted and are rejected in this disgraceful manner, let them have their passports. Many have found friends amongst the personnel of the American Flying Corps, who have been stationed in this country, and would only be too pleased to get away if they are to be treated no better by an ungrateful Government. America would readily accept this type of young British Manhood under her flag.

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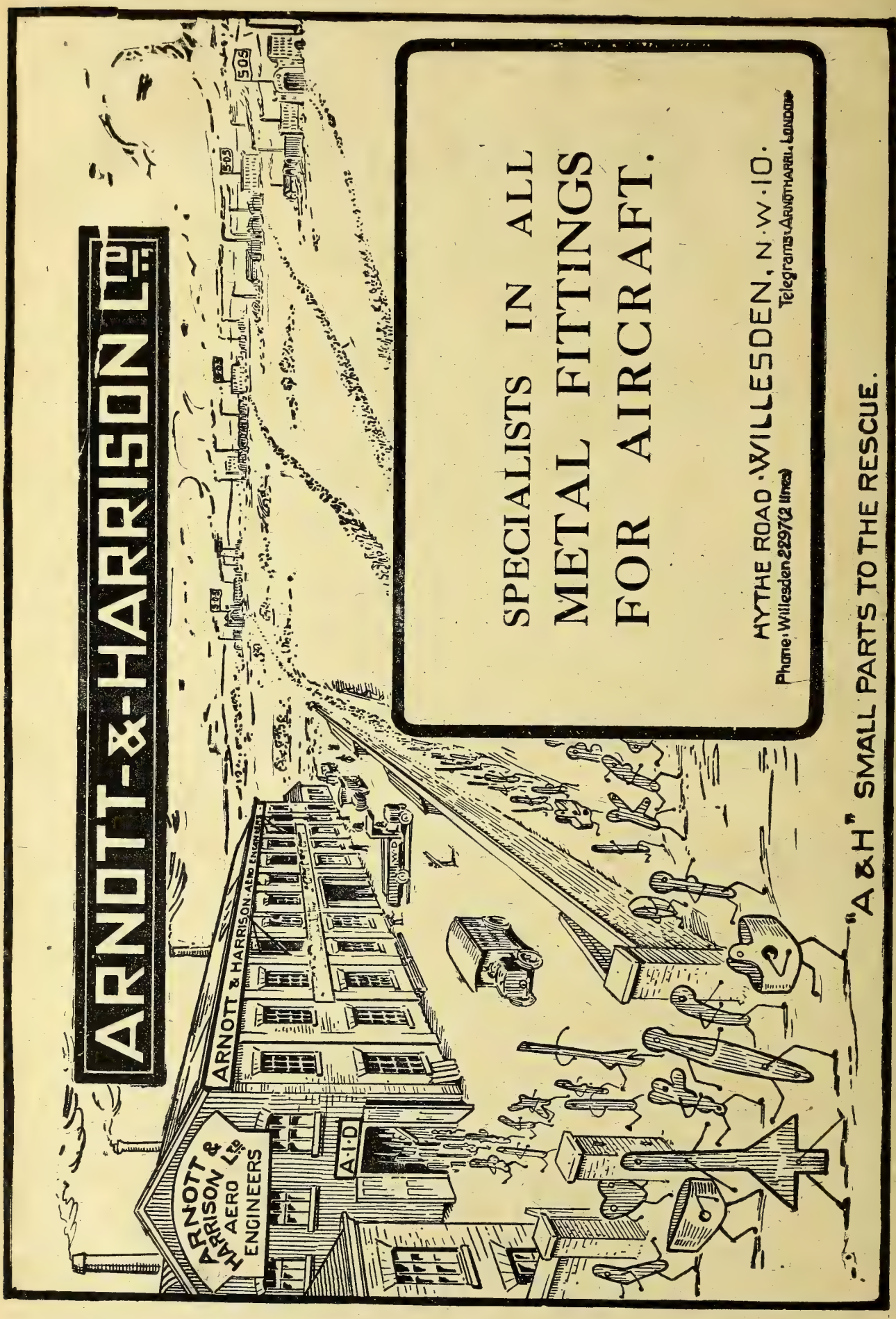
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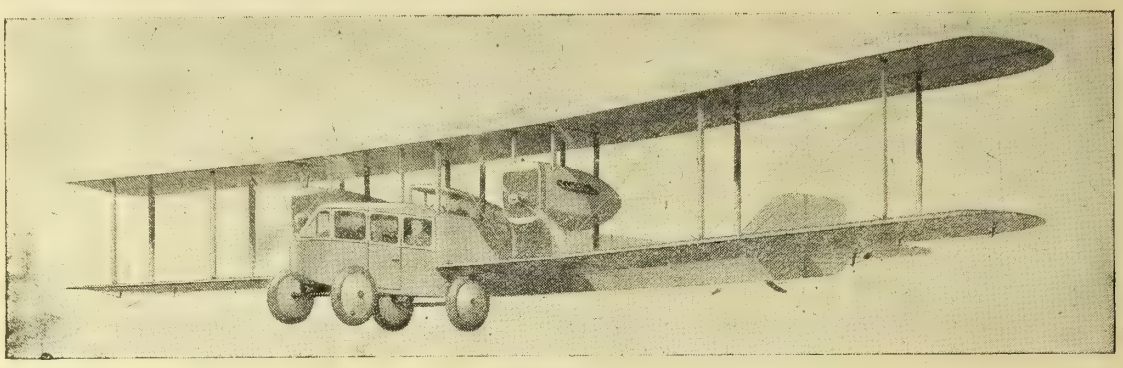
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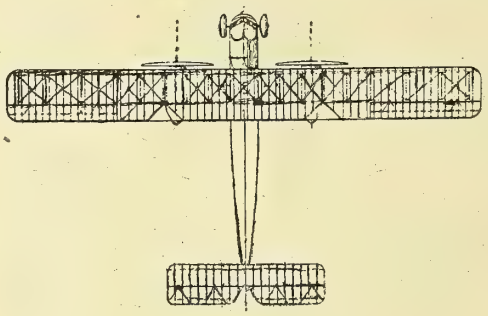
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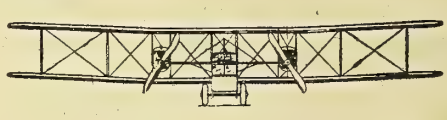
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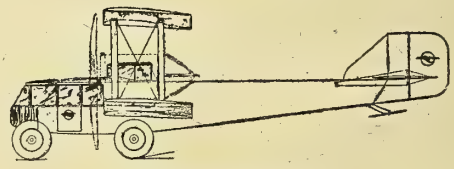
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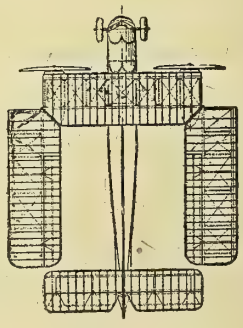


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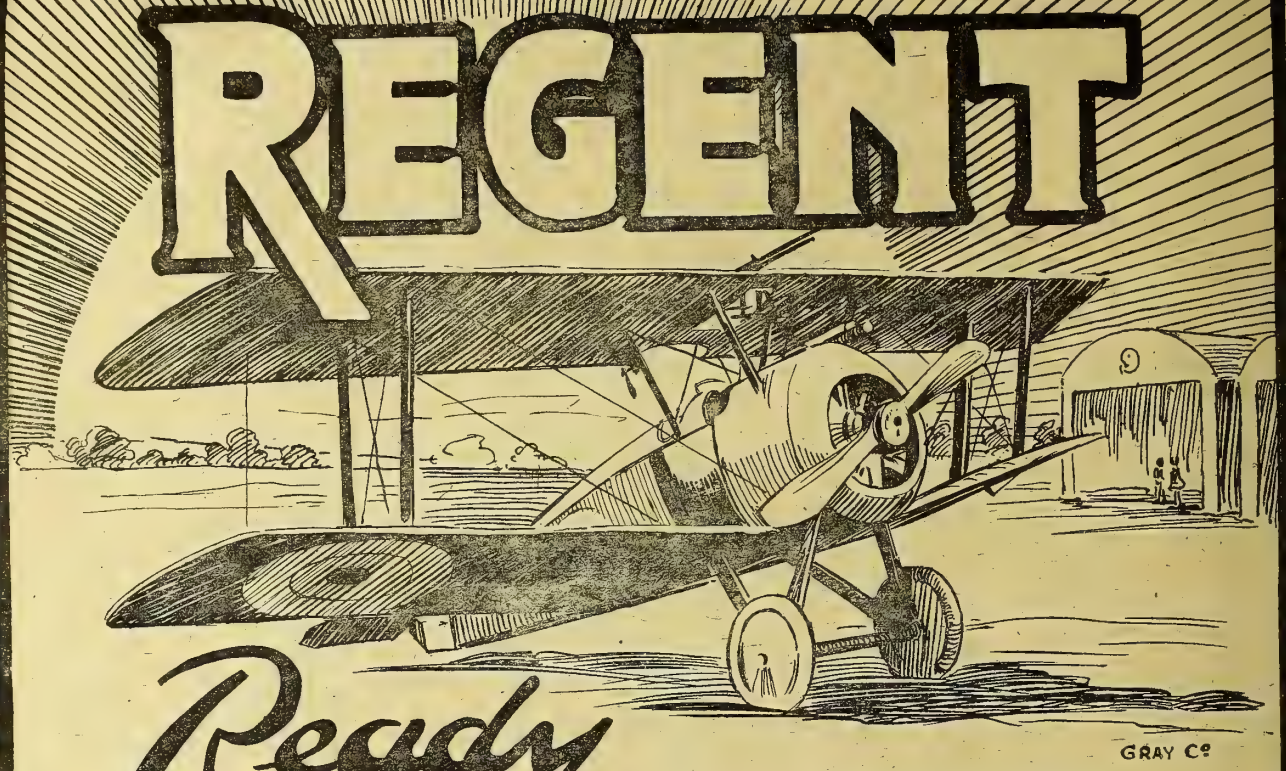
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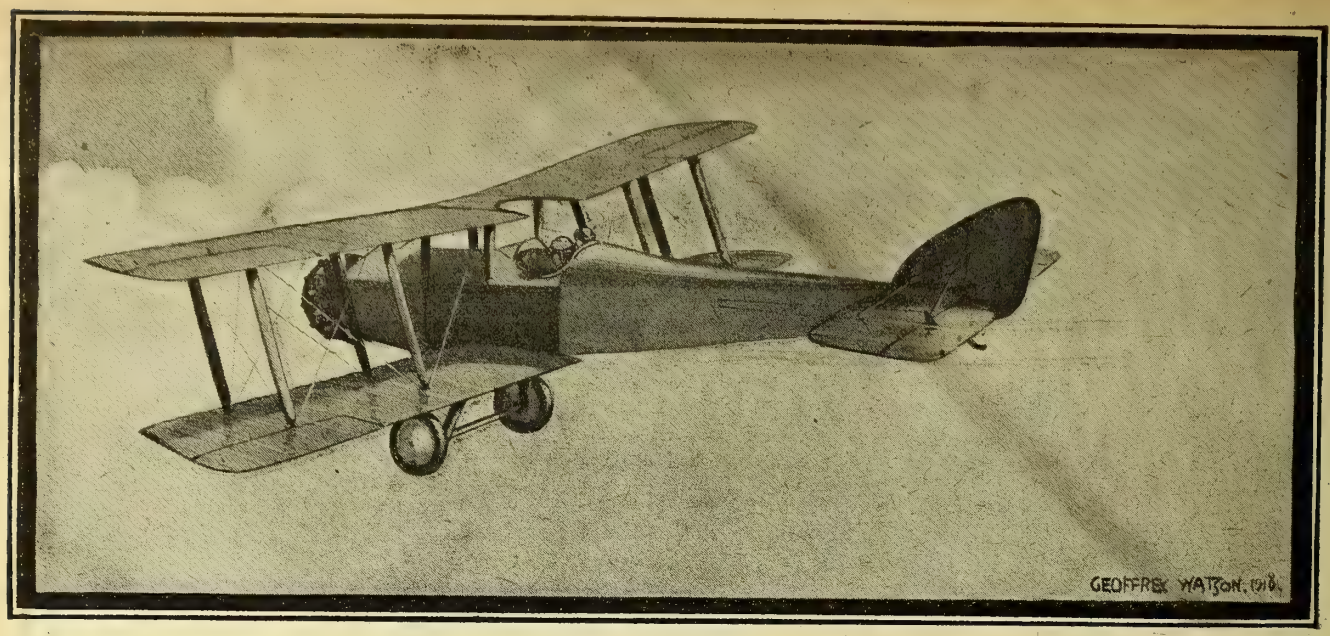
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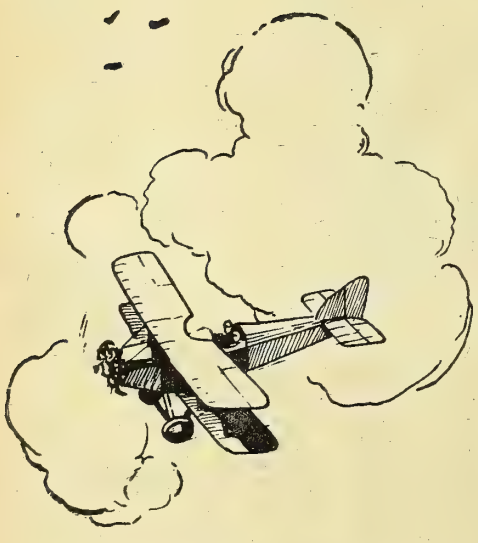
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THE WEEKLY COMMENTARY.

The load and fuel capacities and the variations in the possible ton-mileage with varying proportions of fuel and cargo of the five hypothetical machines described last week are discussed in this week's instalment of Capt. Sayers' article. In addition, estimates of the comparative prime costs of these machines are made.

In this connection special stress should be laid on the caution which was given in an earlier instalment, that all cost estimates made in these articles are to be regarded as only rough approximations. It is obvious that in the present state of the industry no estimate of the cost of production of a machine is of more than temporary value.

An article upon electric welding and its application to the manufacture of aircraft will be found in this issue. The author was intimately connected with the Aircraft Industry from 1910 to 1917, and from then till the signing of the Armistice was occupied with the substitution of electric welding for the oxy-acetylene and oxy-hydrogen processes on Admiralty work. He is therefore competent to speak upon the question from all points of view. In view of the great reliability and uniformity of the joints which can be produced, particularly by the resistance method, electric welding should be investigated by all aircraft manufacturers.

THE DESIGN OF AIRCRAFT FOR COMMERCIAL PURPOSES.—V.

By Capt. W. H. Sayers, R.A.F.

An aeroplane loaded with nothing but fuel is of no value for commercial purposes, but from the figure for the top speed range, when the load is all fuel, and the maximum disposable total load one can easily arrive at the top speed range with any given cargo load, or the possible cargo for any given range. Thus in Fig. 9, lower half, along the base is a scale of miles range, whilst loads are scaled vertically. From a point on the base corresponding to the range of each machine, when fully loaded with fuel only, a straight line is drawn to the point on the vertical scale which corresponds with the maximum cargo when no fuel at all is carried, the range then being zero. Then if at any point on each of these lines perpendiculars are dropped onto the base and onto the vertical scale, a possible cargo and range combination for that machine can be read off. At any such point on these lines the product of range and cargo weight, divided by 2,240, gives the full speed cargo ton mileage which the machine is capable of under these conditions of loading. This figure is a maximum for any machine when the weight of cargo is equal to the weight of fuel. These values of possible ton-mileage for each of the five hypothetical machines discussed in the last instalment are plotted against range in miles in the upper part of Fig. 9. Both of these curves give a definite measure of one of the most important commercial qualities of the machines. It is, however, to be noted that all these figures are based on low altitude (sea level) flying, and that they will not hold at altitudes.

Without very full details of the engine characteristics and its behaviour at heights it is impossible to make very accurate predictions of the effect of flying high, but fairly close approximations can easily be made.

Such an approximation has been made in Fig. 10, and it is found that the first four machines maintain their order of speed up to about 12,000 ft., where there is very little to choose, all having dropped to about 86 m.p.h. at that height. Machine No. 5a, loaded to 15 lbs. per sq. ft., drops its speed much more rapidly, but should maintain its superiority up to about 8,000 feet. At this height the speeds for the various machines will be as follows :—No. 1 (4.5 lbs. sq. ft.) 88 m.p.h., No. 2 (6.0 lbs.

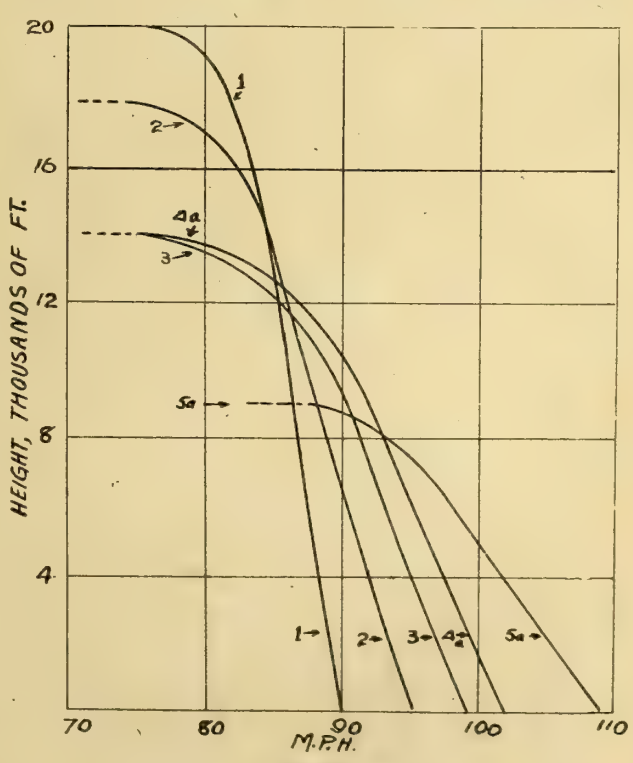


Fig. 10.

[Note.—In the issue of March 5th, p. 966, col. 2, line 10, the weight of fuel per hour for a 250-h.p. engine was printed as 187 lbs. This figure should be 157 lbs.—Ed.]

sq. ft.) 89 m.p.h., No. 3 (7.5 lbs. sq. ft.) 91 m.p.h., No. 4a (10 lbs. sq. ft.) 93 m.p.h., and No. 5a (15 lbs. sq. ft.) also 93 m.p.h.

It is obvious, therefore, that up to 8,000 ft. the 15 lbs. per sq. ft. machine maintains the advantage due to its greater load capacity.

Equally obviously no machine is of any use for a height exceeding its own ceiling, but there does not seem to be any great need for a ceiling exceeding 9,000 ft. for any ordinary commercial purposes, and up to this point the machines retain the same order of usefulness, in terms of ton-mile capacity, but with the speed superiority of the more heavily loaded machines gradually disappearing.

If for any purpose a higher ceiling than that obtained with 200 h.p. on machine No. 5a is required, a ceiling of 12,000 ft. may be obtained by fitting an engine developing 250 h.p. This involves an addition to the empty weight of 150 lbs. and an extra weight of 32 lbs. of fuel per hour. Allowing for the increased speed of the machine so engined, this reduces the maximum range at sea level, with no available cargo capacity, to 1,286 miles, and the maximum cargo, with no fuel, to 1,498 lbs., and gives the machine so fitted a maximum cargo ton-mileage of 215 for a load of 750 lbs. carried 643 miles. It thus becomes very closely as useful and efficient as machine No. 4a, but with a considerably higher speed of transport.

Reverting to the question of fuel and cargo capacity, and the effect of variation of their relative proportions upon the effective capacity of the machine, if the figures for load and ton-mileage at any definite range of action are taken for any machine from Fig. 9, the fuel consumed per ton-mile at each range of action is easily obtained by dividing the ton-mileage at that range by the total fuel needed for that range. If this is done, it will be found that the fuel consumed per ton-mile decreases steadily as the range is decreased.

It is therefore obvious that, as far as fuel costs are to be considered, long stages are disadvantageous for commercial work. Obviously it is impossible to reduce the length of stages on any given journey indefinitely, since the time wasted in refilling tanks at each stop will retard the service, but it is important correctly to proportion the length of stage to the characteristics of the machine if economy of operation is important.

It is of great importance to arrange that all stages which are to be flown by the same machine on any journey should be as nearly as possible the same length, otherwise the effective load capacity of the machine is

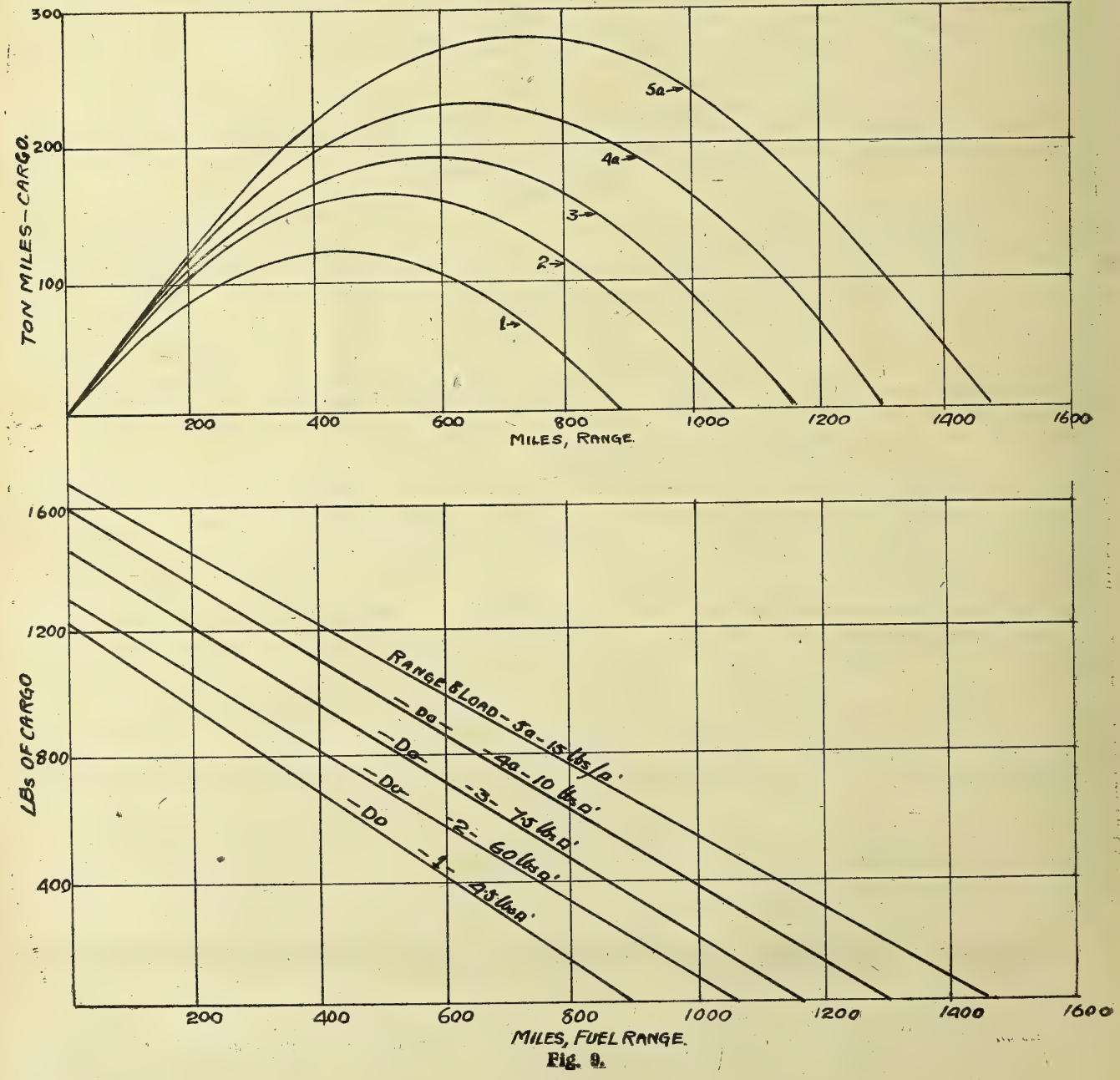


Fig. 9.

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limited to that which it can carry over the longest stage, and it is therefore not able to carry its full load when on the shorter stages.

Considering now the prime cost of the various types, all five machines would be of similar materials and workmanship to reach the figures for weight which have been given. It may therefore be assumed fairly safely that the cost of the aeroplanes themselves is directly proportional to the bare weights of the machines, without engines. What that cost should be it is difficult to estimate at the present moment.

In pre-war times, when aircraft were built singly, with the aid of a saw, a plane, one or two hammers, and a pair of bench shears, aeroplanes were usually found to cost roughly £1 per lb. weight. Under present conditions, allowing for the extra costs of materials and wages, and setting off against this the existence of proper manufacturing facilities, this cost should not be exceeded.

The cost of engines is equally doubtful just now, but it seems reasonable to assume that aero engines will be purchasable for from £3 to £5 per h.p.

The higher figure will be taken, as giving the smallest importance to the saving in aeroplane cost which results from heavy loading.

Taking these very rough approximations, therefore, one has the following figures for the relative costs of the five hypothetical machines, with 200 h.p. engines :—

No.	Loading.	Cost of Aeroplane.	Cost of Engine.	Total.
1	4.5 lbs. sq. ft.	£1,345	£1,000	£2,345
2	6.0 ,,	1,185	1,000	2,185
3	7.5 ,,	1,115	1,000	2,115
4a	10.0 ,,	990	1,000	1,990
5a	15.0 ,,	900	1,000	1,900

Taking the maximum useful life of machines at three years, the capital expended on machines must bear a depreciation charge of 33⅓ per cent., whilst other charges, such as insurance against accident, fire, etc., will certainly not amount to less than 10 per cent.—say a total of 45 per cent.

The annual capital costs of the various types may therefore be taken as—

No. 1	£1,055
2	983
3	951
4a	895
5a	855

ELECTRIC WELDING FOR AIRCRAFT CONSTRUCTION.

By H. B. SAYERS.

The term "electric welding" covers two distinct systems of welding by means of the electric current :—

(1) Resistance Welding, in which resistance offered to the passage of a heavy current between or through the parts to be welded, causes their temperature to rise to welding point, and :—

(2) Arc Welding, in which the heat of an electric arc formed between a suitable pencil, or electrode, and the material welded, is used to obtain fusion.

Very great advances have been made with the arc welding process during the last two years, even to the extent of building welded ships without rivets. Most of these improvements have become possible because the use of improved flux-covered electrodes has made the welding of very large masses possible without any necessity for pre-heating, and welding can be now carried out with great directional control, even to the extent of welding directly overhead. Neither of these advantages, however, apply to articles of small size made of thin material. In fact, for this type of work the intense heat of the arc is a serious disadvantage and requires very skilled and rapid operation to prevent burning or overheating of the metal. Despite its advantages in speed and strength of joint over oxy-acetylene welding, the application of arc welding to aero fittings will be delayed until designers, recognising its advantages, will design their fittings to suit.

In only one case known to the writer has arc welding been used for aero work, except experimentally. Certain American firms used the process for welding on the water jackets of Liberty engines.

Recent developments of the Metal Arc process, by which high tensile and special alloy steels can be deposited, will, however, appeal to all users of internal combustion engines, in that it is now possible to repair and reinforce articles of special steel, such as crankshafts, camshafts, worn cams, etc. Such practices applied to aero engines will most certainly be regarded with scorn. Nevertheless, with the extended private ownership of aircraft it is bound to receive at least a fair trial.

The same system will appeal to works managers and tool-room foremen as a method of reinforcing and repairing tools and as an economical method of making them by depositing special steel tips on to mild steel shanks.

The Resistance method of welding is a process which is particularly applicable to small articles of thin material, and provides an almost ideal method of welding.

It has already been explained that in this process the heating of the metal is obtained by its resistance to the passage of a heavy electrical current through it.

The method of operation in its simplest form is best shown by a diagram (Fig. 1).

The two articles to be welded are held in suitable chucks or clamps B.B^1. These chucks form the terminals of the secondary winding of an alternating current transformer of the necessary ratio to give a heavy current at comparatively low voltage. (A voltage necessary to overcome the initial resistance of the joint before welding starts is all that is required.)

One chuck (B^1) is arranged with suitable guides or rails allowing adjustment of the distance between chucks by means of the lever C. In operation, the work is held in correct alignment in the chucks, the faces to be welded are brought into close contact with the other and current is switched on. The highest point of resistance at the circuit is at the joint, and heat is rapidly generated there. Simultaneously with switching on the current, pressure is

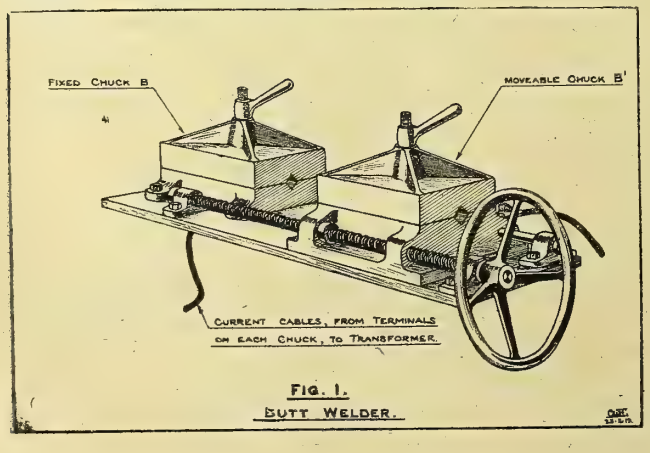


FIG. 1.
BUTT WELDER.

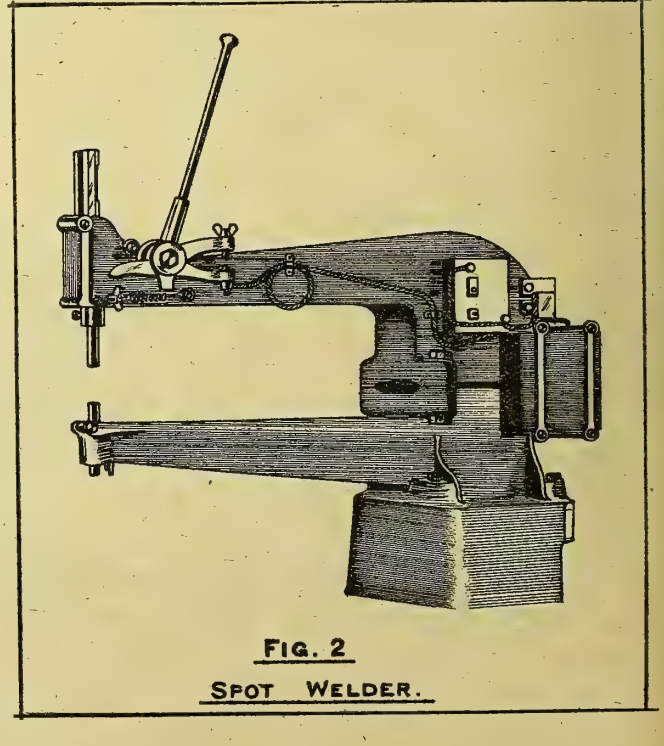


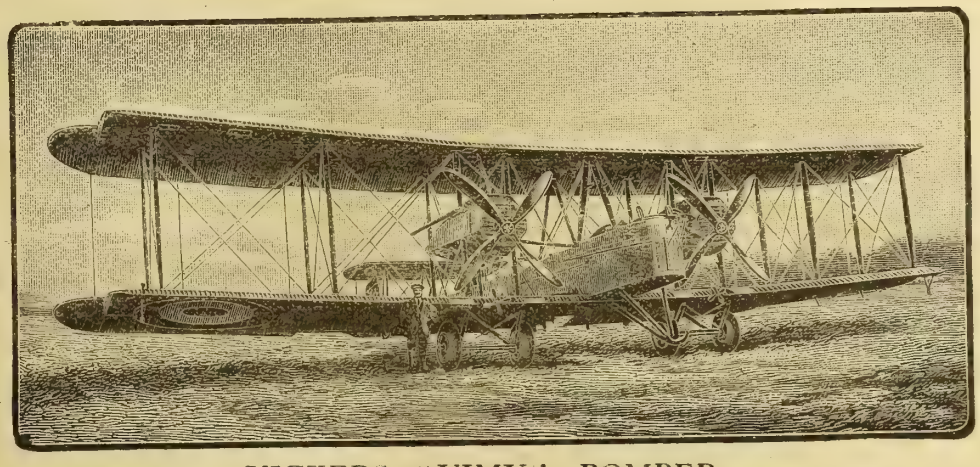
FIG. 2
SPOT WELDER.

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applied by the lever. The attainment of correct welding temperature is at once apparent by the plastic flow and a slight extrusion of the metal at the joint. At this point current is switched off and the welded article removed.

This process possesses a combination of advantages which no other method of welding can claim, in that :—

1. Since heat is generated internally, and not applied externally, loss by dissipation is almost negligible, and even heating of the junction is assured. The visible heat condition of the joint is an absolute assurance of the same condition prevailing throughout.

2. There is absolute control over the temperature (both by adjustment of current and by variation of time) which reduces the risk of overheating or burning of the metal.

3. The fact that the faces of the joint are in close contact before and during heating eliminates the possibility of oxidisation by contact with the air. If the faces are properly cleaned before welding, there will be no oxide or slag included in the weld.

4. It is only necessary to heat the metal to a plastic state, pressure completing the weld. Alteration of chemical composition and physical structure of the metal is therefore reduced to a minimum.

These advantages cannot fail to appeal to the aeronautical engineer, especially when it is realised that, with the exception of cast iron, the process is applicable to practically every metal and alloy used in the engineering industry, including aluminium. The difficulties of satisfactory welding of the latter metal are well known and are practically all due to the formation of an oxide film on the surface caused by contract with the air at high temperatures and by the necessity of overheating the metal to obtain proper flow and fusion. With resistance welding, air is excluded from the joint and the metal is raised only to the temperature at which it becomes plastic.

Although the process of resistance welding as described has a very wide application in the butt welding of tubes, rods and other sections of sufficient rigidity and convenient size and shape to be held in chucks and clamps, an adaption of the machine for spot or seam welding is better suited to the lap welding of thin plates and sheets, which work forms a large proportion of aircraft welding work.

In this machine (Fig. 2) the clamps or chucks are replaced by copper or bronze pencils or electrodes, usually mounted vertically for convenience in operation. These electrodes are carried at the ends of arms enabling welds to be made, if necessary, up to 2 or 3 ft. from the outer edge of the plate. As in the resistance welder, the arms or one electrode is designed to move, vertically in this case. Lapped or superimposed plates to be welded are placed between the electrodes and gripped by them in the correct position. The current is switched on, and passing by the shortest route from electrode to electrode, causes local heating of the metal through which it passes, especially at the point of highest resistance, i.e., the surfaces of the plates in contact. Pressure is then applied by suitable means and the weld is completed. The weld being invisible, considerable doubt is sometimes expressed as to its existence. This doubt can be expelled by any sort of mechanical test on the article welded, when it will be found to be more than equal both in tensile and shear to any autogenous weld of the same area or to a standard rivet joint.

The electrodes can be made detachable and variable in size and shape to suit any particular job.

Here, then, is a process particularly suitable to the numerous examples of aircraft fittings where steel plates or stampings are lapped or superimposed and require joining. The area of the weld can be made considerably greater than any lip welding along the edges and without the addition of any weight of added metal.

In joining a seam by spot process, the welds are simply repeated with suitable spacing, or if a continuous water or airtight joint is required, each weld can be made slightly to overlap the previous one. A better method for this type of work is the seam or line

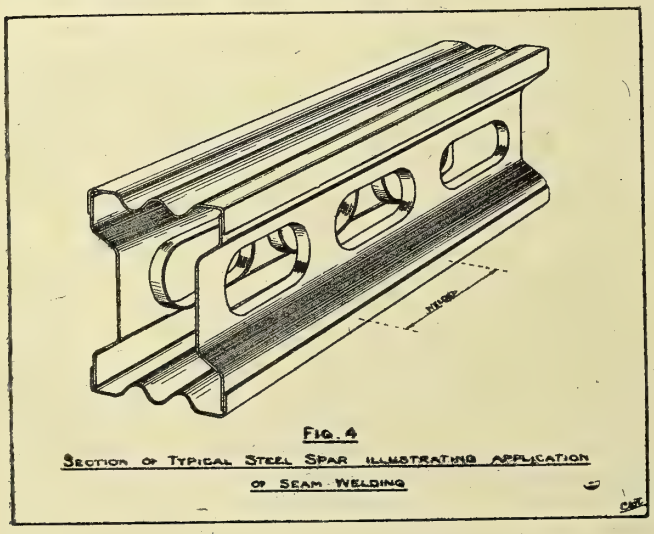


Fig. 4

Section of Typical Steel Spar illustrating application of Seam Welding

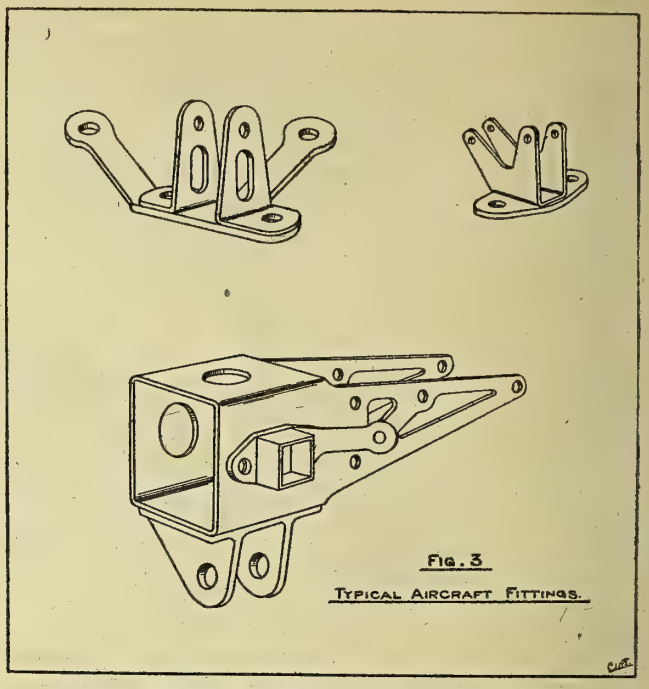


Fig. 3

Typical Aircraft Fittings.

Types of Fittings amenable to Resistance Welding.

weld in which the electrodes of the spot welder are replaced by rollers, through which the work is drawn at the correct speed and pressure between the rollers, current being applied continuously. It is usual to rotate the roller electrodes mechanically, and the machine then becomes self-feeding.

This method is particularly suitable for the construction of thin steel or aluminium tanks, avoiding all the trouble of riveting, soldering or autogenous welding.

For aeronautical work it can be easily adapted to the making of steel spars, struts or fittings of the "bloater" type, where hollow stamped plates require uniting round the edges.

Not least amongst the advantages of the resistance welding process are those of compactness of plant and fool-proofness. The machines now being put on the market resemble automatic machines in their rapidity and accuracy. The transformers for supplying the heavy currents required and the mechanical means of applying pressure form an integral part of the machine. The movement of the chucks or electrodes is interlocked with the supply switch, and once the charge hand has adjusted the pressure, current and time period to suit the job, the operator, who need not be skilled in any way, holds or places the work in position (assisted if necessary by jigs) operates a lever or switch and the welding is carried out automatically and with the same individual accuracy as nut or screw making in an automatic machine.

Rapidity of action is also a great feature. Spot welds up to $\frac{3}{4}$ sq. in. area in steel plate from 1/64 in. to $\frac{3}{4}$ in. thick take from 0.5 to 3 seconds per weld using from 1 to 12 units of energy per 1,000 welds, and these times can be improved at the sacrifice of a little electrical efficiency.

The average time and cost of welding $\frac{1}{8}$ in. sheet steel (two plates) worked out at 1.5 seconds per weld at a cost for energy of 1s. 4d. per 1,000 welds.

In seam welding with roller electrodes the speed with thin metal (16G) is about 20 ft. per minute, decreasing to about 4 ft. per minute with 3/16 in. plate.

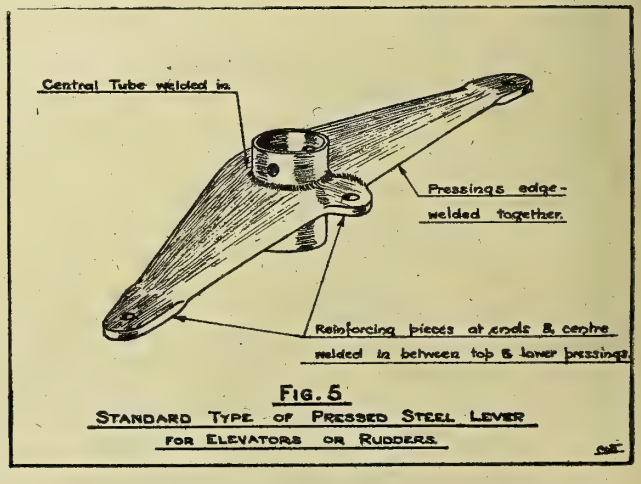
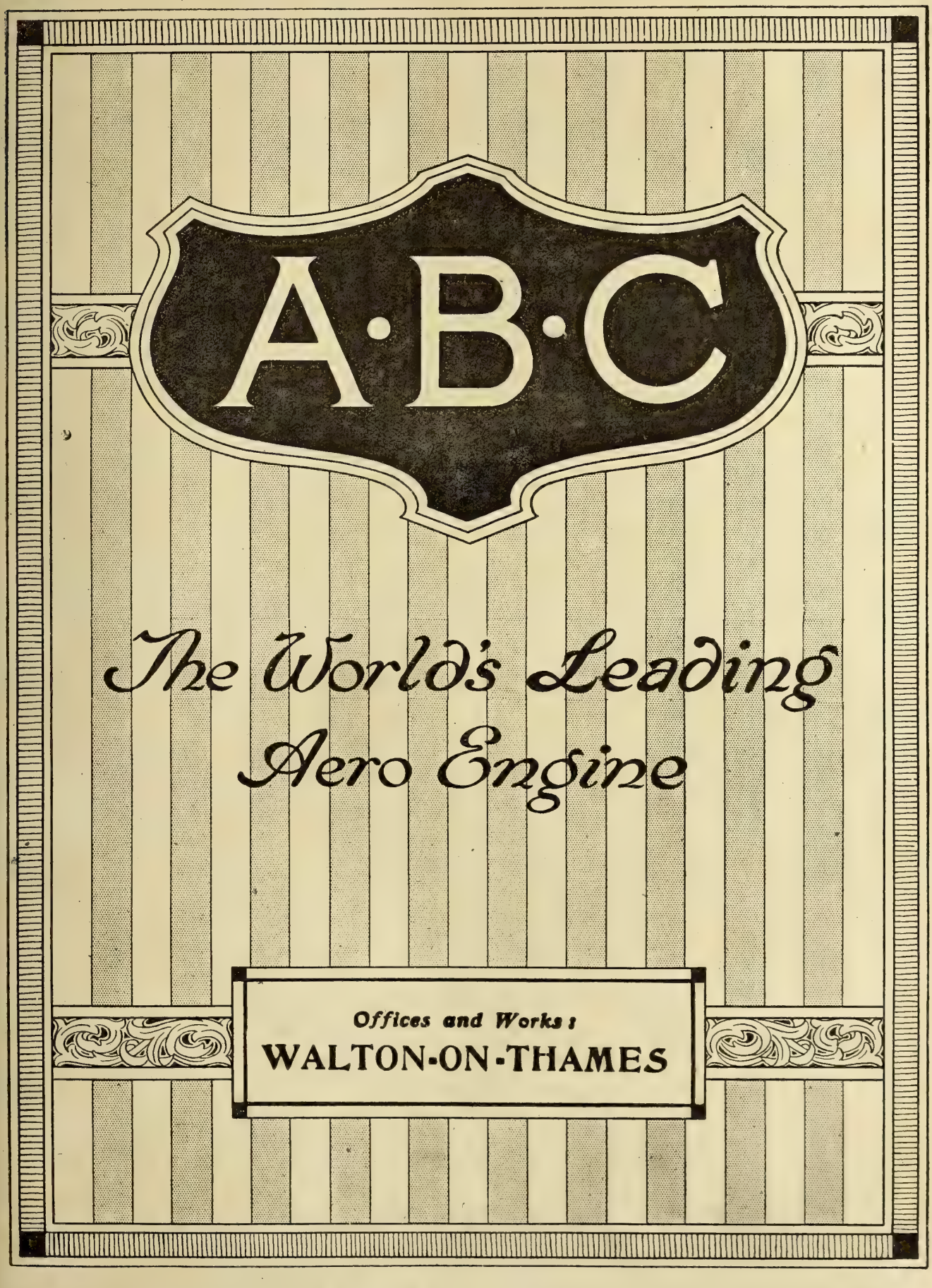


Fig. 5

Standard Type of Pressed Steel Lever for Elevators or Rudders.


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FACTORS OF SAFETY.

The following letter has been received:—

Sir,—Mention is made of the reduction of factors of safety in large aeroplanes in the instructive article "The Design of Aircraft for Commercial Purposes."

This is a subject that interests me particularly, as it has sometimes been amusing to watch the elaborate stress calculations that are taken to determine the size of a particular part of an aeroplane, after which performance the stress merchant calmly takes a factor of, say, 5, 6 or 7. Should this not be better named a factor of ignorance?

In regard to reducing the factor of safety in the big machine, although acrobatics will not be attempted, such as looping, etc., I do not see that the factor can be lowered, even for ordinary flying stresses. There is always the possibility of getting the machine into dangerous attitudes by accident.

Now as to values of factors in general, I once heard a good explanation of the term. Suppose, for instance, one designed a plank to bridge a stream. If the plank were made according to formula with factor of safety = 1, the bridge would be just strong enough to take the weight without stressing the material beyond the elastic limit—in other words, it would deflect to the maximum amount. If 2 were the factor, the deflection would be less, and if 3 or more perhaps the deflection would be more or less reasonable or unnoticeable: one could stand on the plank without getting a "vertical breeze." Apply this reasoning to aircraft. If one could determine the reasonable factor of safety for each part of an aeroplane (and it might be different for a strut and a beam or cantilever) by experiment, not theory, one could possibly be able to reduce the factors and so reduce weights of structure. These factors, once determined, would be the same for machines of any size, however large, and they would be true safety factors. In shipbuilding very large factors are used in order to resist vibration and to increase durability, and as weight is not of vital importance the question of reduction of factors of safety has not been gone into, but in aircraft design it should be possible to reduce factors.

The determination of the correct factor of safety for a certain part is as important as the actual stress calculation, if not more so, since its effect is more drastic.

C. W. P.

Whilst I must agree generally with "C. W. P.'s" remarks on factors of safety, I think that he is a little pessimistic in regard to the undesirability of reducing the factors with increase in the size of machines. Whilst it is quite true that large machines may reach abnormal attitudes—i.e., a large machine is quite as capable of diving at its limiting speed as is a small one—and that they should be made strong enough to stand the resulting loads, large machines can be made so that it shall be impossible to throw them into abnormal attitudes with the violence which is possible in the case of, say, a small fighter. On this account alone it seems permissible to allow for smaller loadings in the large machines.

This argument involves at once "C. W. P.'s" remarks on the use of the term "factor of safety"—since he may argue that this difference should be allowed in the stress determination and not in the factor of safety. The suggestion that "factor of ignorance" is a more accurate description has, of course, something in its favour—but I do not think the displacement of the standard term is warranted. Invariably in calculating any structure certain assumptions are made as to the value of the load to which it must stand up. Very rarely are these assumptions made with any pretence that they accurately represent the actual working conditions—simply because in the majority of cases the actual working conditions are too complex for calculating purposes. The load so assumed is multiplied by some factor—based on experience—to secure safety under the working conditions. The factor is a factor for safety. It always includes a factor to cover ignorance—but it also includes factors to cover known divergencies from the assumed loading, and it seems to me that "factor of safety" is at least as legitimate an expression as are 99 per cent. of all British technical phrases.

With the essence of "C. W. P.'s" argument—that the reduction of that part of the "factor of safety" which is purely a "factor of ignorance" is an aim of immense importance—I am in the most complete agreement.

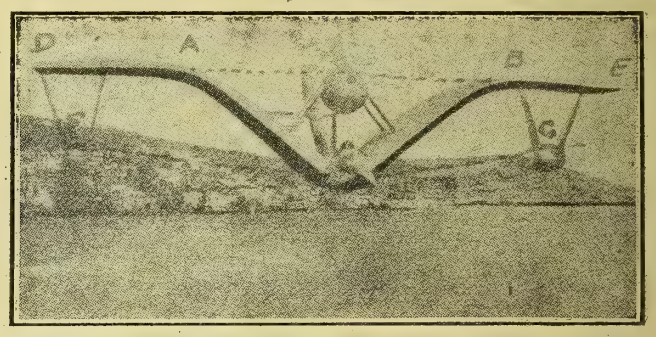
W. H. Sayers.

THE RICCI "SEAGULL."

A letter has been received from a correspondent, who speaks with authority upon the subject of flying-boats, reproving The Aeroplane for having treated the illustrations of the Ricci "Seagull," which appeared in the issue of Jan. 12th, "*au serieux*," and expresses surprise that the design should have been considered as of "considerable interest."

This correspondent states that whilst nothing is impossible it often looks so, and to his mind the Ricci model looks quite impossible, and that apart from the fact that its "*ensemble*" is very pleasant to look at he sees nothing of interest in the model.

In the first place he inquires how this "gull" is to be prevented



from turning turtle when at rest on the water without wing tip floats. If such floats are fitted how are they arranged unless as drawn in on the accompanying figure? Secondly, he inquires as to the unnecessary loss of carrying surface in the parts marked A to B, A to C and C to B, and states that from A to B and A to C no load, or very little, is carried, and suggests that only the wing tips carry load, and that he does not believe they could do so.

Finally, he inquires what advantage such a machine would possess over the biplane which would be formed by joining C to F and G, and A to B, together with a few struts. This would become a healthy biplane, with reliable wing bracing, wing tip floats, a much larger surface, and probably a smaller weight. Whereas the structural difficulties of the "Seagull" would be very great and complicated—if not "*chimérique*."

With the criticism as to the absence of wing tip floats one agrees heartily—though it had been overlooked—and there is no doubt that it would be difficult to fit these without destroying the delightful cleanness of outline of this model.

As to the uselessness of the inclined part of the wing as carrying surface one must disagree—it is at least as useful as the same effective span of horizontal wing, and probably rather more so. That is to say that this machine should be practically as good as a "parasol" monoplane, produced by joining A to B and replacing the inclined part of the wing by suitable struts.

The Aeroplane's comment that the design is interesting, and may have advantages for very high speed work, is not to be interpreted as an expression of faith in this particular design—but it is generally an expression of the belief that an idea so apparently mad has probably a fair number of advantages.



The All-metal Bristol—(200 h.p. Hispano-Suiza Engine). Familiarly known as "Tin Lizzie."

PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the current Official Patents Records :—

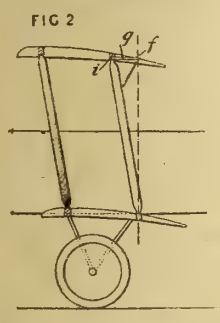
Patents Applications.

Alphaero Engines, Ltd. Internal combustion engines. No 5029. Feb. 28th.
Bolas, H. Ailerons, elevators, or rudders of aircraft. No. 4601. Feb. 24th.
Bolas, H. Means for looking inspection doors of aeroplane cowling. No. 4602. Feb. 24th.
Brady, L. I. Blades of airscrews. No. 4777. Feb. 26th.
Burnley, C. P. Apparatus for indicating ground speed of aircraft. No. 5125. March 1st.
Dykes, T. Clinometer for aircraft. No. 4507. Feb. 24th.
Emby, D. H. Metal cross members, ribs, etc., for aviation. No. 5132. March 1st.
Fielding, G. B. Parachutes. No. 5169. March 1st.
Fisher, J. E. Aircraft. No. 4819. Feb. 26th.
Hookham, G. Propeller for aeroplanes. No. 4994. Feb. 28th.
Jarman, C. R. Air brake for aircraft. No. 4640. Feb. 25th.
Porter, J. R. Aeronautical machines. No. 4923. Feb. 27th.
Smith, W. S. Gyroscopic turn-indicators for aircraft. No. 5144. March 1st.
Stringer, G. W. Aeroplane level. No. 4804. Feb. 26th.
Zang, M. Parachute devices for use with aeroplanes. No. 4974. Feb. 27th.

Complete Specifications Accepted, prints of which can be obtained on and after March 20th, 1919

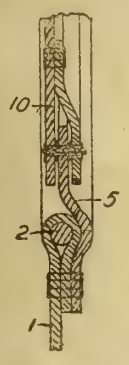
123,368. Feb. 15th, 1919. Charles, A. Means for stretching and securing fabric on a support.
123,374. Feb. 16th, 1919. Saunders, S. E. Hollow wooden struts, spars and the like.

Abridgments of Recently Published Specifications.



15,014. Aeroplanes. Sage & Co., F., —and England, E. C. G., 58, Gray's Inn Road, London.

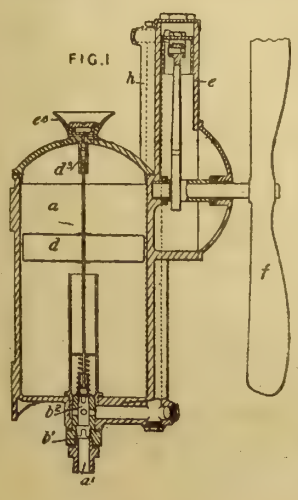
Planes, arrangement and disposition of.—Aeroplanes of the kind having staggered planes have the wing portions mounted so that they may be folded or turned back along the fuselage without being materially inclined to the longitudinal axis of the fuselage As shown in Fig. 2, the hinges *f* of one of the planes are arranged in or on brackets *g* projecting laterally from the wing girders *i* so as to bring the axes of those hinges vertically in line with the corresponding axes of the other plane relatively to the longitudinal axis of the machine.



16,821. Aeronautics. Page, F. H., 110, Cricklewood Lane, London.

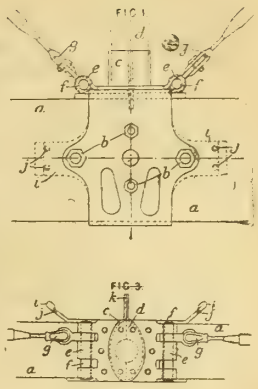
Planes, construction of; cars.—To obtain easy access to portions of an aeroplane or the like, parts of the fabric are cut away and the edges of the fabric stitched around or secured to a rigid ring of predetermined size, the hole thus formed being normally covered by a detachable flap. As shown, the edges of the fabric are sewn around a metallic ring 2 and the detachable flap 10 is laced to a strip of canvas 5 sewn on the fabric 1. This arrangement may be used on the main planes or on the fuselage.

121,300. Raising liquids. Sage & Co., F., and England, E. C. G., 58, Gray's Inn Road, London.



Apparatus for raising liquid comprises a pump *e* which produces a pulsation in a column of air in the pipe *h* and causes liquid to rise up the pipe a^1 and pass through the valves b^1, b^2 into the chamber *a*. On reaching a certain level, the liquid, through a float *d*, lifts the valve b^2 and tends to stop the supply of liquid : but if this level is exceeded, the float closes an air valve d^5 and produces an air-cushion in the chamber *a*. The chamber may be primed through a tunnel e^6. The apparatus is designed to supply liquid fuel, water or lubricating-oil to the engines of aircraft, etc. The pump may be driven by a wind-motor *f* or by the engine; it may be of any type.

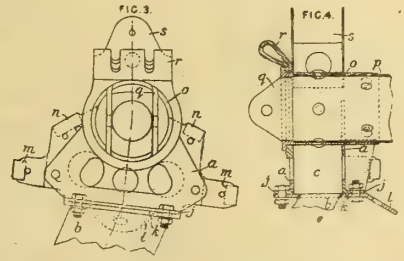
121,465. Aeronautics. Soc. des Moteurs Salmson (Système Canton-Unné), 74, Rue St. Lazare, Paris.

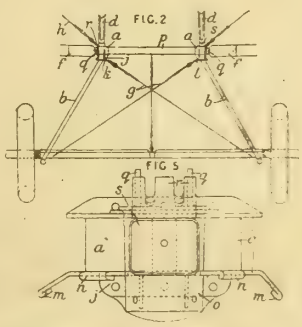


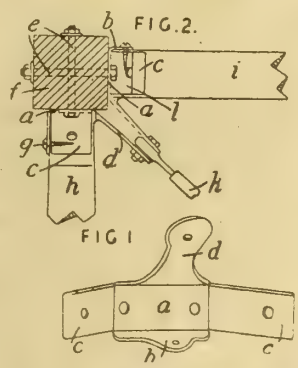
Framework.—A metal fitting for connecting together the wing spars and interplane struts of aeroplanes comprises a member through which the spar *a* passes and to which it is secured by bolts *b*, the strut *d* being received in a socket *c*. The pins *f* of the stay-wires *g* are received by lugs *e* formed by a metal plate, folded and welded as shown. Other wiring lugs *i* are formed of metal plates bent over at their outer edges and provided with holes *j* adjacent these edges. Further, the socket *c* is extended at *k* for the attachment of other stay-wires.

121,466. Aeronautics. Soc. des Moteurs Salmson (Système Canton-Unné), 74, Rue St. Lazare, Paris

Framework.—A metal junction-piece for connecting fuselage longerons and cross-struts, cabin stanchions, wing spars, and undercarriage struts of aeroplanes comprises a three-sided box-shaped portion *a* mounted astride and bolted to the longeron *c* formed with flanged lower edges *j* for the attachment of flanges *k* on the undercarriage struts *b* and with a socket *s* for the attachment of the cabin stanchions *d*, and fitted with a socket member *o* welded in position and adapted to receive the fuselage cross-strut *p*, the wing spars *f* being attached to lugs *q* on the socket *o*. The interbracing-wires *h* are attached to lugs *r* formed by a folded plate welded in position, and the undercarriage bracing *g* is attached to lugs *l* provided on the flanges *k*. Other wiring lugs with bent-over edges are shown at *m*, *n*.

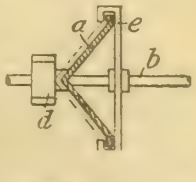






121,468. Aeronautics. Soc. des Moteurs Salmson (Système Canton-Unné), 74, Rue St. Lazare, Paris.

Framework.—A metal fitting for connecting longitudinals to uprights and cross-members of aeroplane framework comprises a metal plate bent to the form shown, so as to provide a part *a* connected by bolts *e* to the longitudinal *f*, a part *b* attached by screws *g* to the upright *h* or cross-member *i*, and inclined lugs, *c*, *d* for attachment of bracing-wires. The lugs *d* of two adjacent fittings may be connected to the same bracing-wire *k*. The upright and cross-member are formed at their ends with slots to fit over the heads of the bolts *e* for preventing slipping. The outer edges of the lugs may be folded over on themselves as indicated at *l*.



120,849. Screw propellers. Grandjean, H. A., 32, Rue de la Folie Regnault, Paris.

In order to produce a vacuum in front of the screw propellers of aircraft, ships, and air and marine torpedoes, each propeller is given a reciprocating movement in addition to the rotary movement by means of a cam or ramped disc *a* supported by the block *d* and bearing against a cross-head *e* fixed to the propeller shaft *b*. Ball bearings are fitted between the cam and the cross-head.

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THE AIRCRAFT TRADER

MARKET TOPICS.

Prices are for Quantities on Usual Terms.

March 6th.

COPPER.—The price of Copper is now reaching a more reasonable level, and it is not expected that a further appreciable decline will take place at present, and although the price of electrolytic Copper had not been proportionately reduced with Standard Copper, reductions have recently been made which make the price more reasonable. There must, however, be a levelling up in other materials, such as Copper Sheets, Tubes, Brass tubes, Rods, etc., before there will be a revival of business. Although prices are becoming fairly reasonable, the large stocks of Copper and the huge quantities of Scrap Copper and Brass are still affecting the market, and consumers appear to be reluctant at purchasing very far ahead.

The Labour position is also seriously retarding the prospects of any improvement in buying, and the present dullness is likely to continue unless a quick transformation takes place, and this does not at present seem possible.

Comparative Prices.

	£	s.	d.	
To-day, March 5th	74	10	0	per ton,
Last week	74	10	0	,,
Average price, 1918	115	10	0	,,

TIN.—There have been rapid fluctuations in the price of Tin during the past week, and the activity reported in this market is subsiding.

It is stated that large quantities of Tin are on the water, and although stocks here are not large, buyers have lost their eagerness, and the general impression is that the price should come down to about £200 before there will be any heavy purchases made. The attitude of the F.M.S. Government appears to be rather obscure, and it would be interesting to know what they intend doing with the Tin they are accumulating, and for which they are now paying £203 c.i.f. It is rumoured that they recently refused to sell under £240 c.i.f.

The position in U.S.A. appears to be a little more favourable, and the Government have apparently decided to maintain the price until their holdings have been disposed of, as the latest report states that approximately 25 per cent. to 33 1/3 per cent. of the quantities has been supplied to consumers.

Comparative Prices.

	£	s.	d.	
To-day, March 5th	226	10	0	per ton.
Last week	210	15	0	,,
Average price, 1918	329	10	0	,,

LEAD.—This market is much healthier, the recent reduction in price having had a good effect. Although it was reported that America had offered Lead at below £20, there does not appear to have been any recent offers at this figure, and it is quite probable that American buyers are absorbing the U.S. production, which has been considerably reduced. The stocks held by the Government here are fairly large, and although it is expected that the quantity held will be easily absorbed when the housing schemes get going, the fact remains that there are large stocks in existence which are available, and there is a reluctance in some quarters to buy until it is definitely known what will become of them.

The most recent price quoted was £28 to £23 10s. net.

STEEL.—Although Steel manufacturers appear to be fairly busy, Labour unrest, possible coal strikes or increased cost of coal, and increased American competition are influences which are certainly affecting the position, and manufacturers are at present feeling very uncomfortable. The High Speed Steel market is in a state of stagnation; huge stocks are held all over the country, and it transpires that U.S.A. is in the same position. There is very little demand for Aircraft Steels, and the stocks held by the Ministry are still very large.

There has recently been an advance in Mild Steel billets, blooms, slabs, etc., to £12 5s. 0d. per ton. Small angles, tees and flats, extra list E. (re-rollers) £17 5s. 0d. per ton. Small rounds, squares and hexagons, extra list G. (re-rollers) £17 5s. 0d. per ton. The Steel Makers' price for small angles, rounds, etc., remains unaltered at £16 10s. 0d. per ton.

TIMBER.—There is very little change in the market; if anything the position becomes worse. There is hardly any demand, stocks are very large, and prices continue to decline, with sellers keen to dispose of their stocks but finding it difficult to secure buyers.

Large Government stocks have recently been disposed of at public sales, and the prices obtained indicate the weak condition of the market.

AN S.B.A.C. BANQUET.

The Society of British Aircraft Constructors is giving a banquet for the Aircraft Industry on March 20th, at the Savoy Hotel. It is hoped that all members of the Society will attend. The Right Hon. Winston S. Churchill, M.P., Major-General Seely and the Lord Weir have accepted invitations for the occasion.

AN AIRCRAFT DANCE.

On Saturday, March 1st, the London Aircraft Company held their second anniversary dance at the Finsbury Town Hall. Prizes were awarded for the best home-made, and the best hired, fancy costumes, and, altogether, the evening was a great success.

A NEW GAS FURNACE.

A series of demonstrations of a new type of gas furnace for the heat treatment of metals, etc., have been given at the Manchester Corporation Gas Department's exhibition at 15, Whitworth Street West, Manchester.

This furnace, known as the "Revergen" furnace, is manufactured by the Davis Furnace Company, of Luton. It is in principle a reversing regenerative gas furnace, wherein the air intake and the flue gas outlet are periodically reversed. The hot flue gasses are cooled to a very low temperature—(200 degs. C., about) in a specially arranged chamber, which on the reversal of the air flow heats the incoming air to a high temperature—and enables a very great gas economy to be obtained.

Amongst other exhibits of the Davis Furnace Co. at this exhibition are a Laboratory Crucible for the rapid melting of non-ferrous metals, and a "Pit" type crucible furnace for foundry work.

The demonstrations will be continued until March 14th.

Further details of the "Revergen" furnace—more particularly of its results in operation—will be given at an early date.—J. G. B.

SCIENTIFIC MANAGEMENT.

An outstanding feature of the Industrial Conference held on the 27th ult. is the demand of Labour for shorter hours and higher wages. Lord Leverhulme and other broad-minded employers believe that this can be done without lessening output.

Appeals are made to the working men to abandon the ca-canny attitude and other means of restricting output, and it is pointed out to them that the average output per man in America is three times that of a man in England working under similar conditions. But the working man is not to blame for this. We must have in all industries greater efficiency based not so much on individual effort as on Scientific Management.

America and other countries have led the way in this respect and the astonishing results obtained by English firms who have adopted these methods should be more widely known. It is a mistake to suppose that it is applicable only to engineering trades. It would be difficult to find any industry whose efficiency would not be improved by adopting scientific management.

The Industrial Reconstruction Council, 2 and 4, Tudor Street, has taken up the matter, and at a public meeting held at the Institute of Journalists on Thursday, Feb. 27th, elected a sub-committee to arrange a series of fortnightly conferences which would deal with this subject in all its bearings. Further particulars may be obtained from the Organising Secretary, I.R.C., 2 and 4, Tudor Street, E.C.4.

A TRADE MOVE.

Mr. Penfold, the oldest member of the staff of Morgan and Co., Ltd., after a service of considerably over 40 years, has severed his connection with the firm which he so long faithfully served. His connection with the firm dates from May 4th, 1874, when he started with the late Mr. W. King in the New Road, Linslade, afterwards going to the new works situated in its present position, and in 1890 going to the London factory and showrooms, where he was works manager for so long a period. He resigned his position to take up the entire management of Messrs. Gordon Watney and Co., Ltd., of Weybridge, where he will be pleased to welcome old friends and clients.

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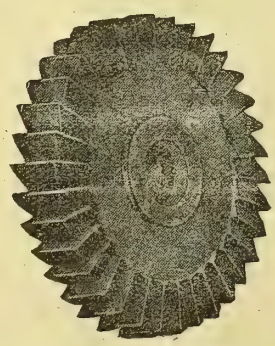
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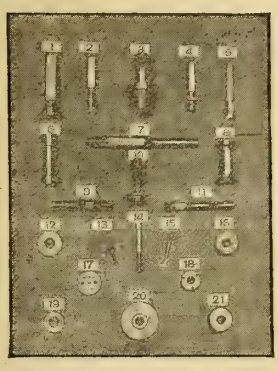
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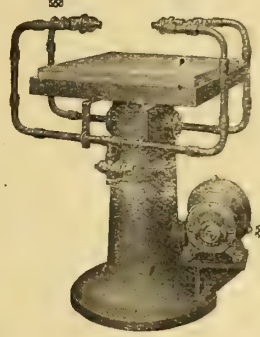
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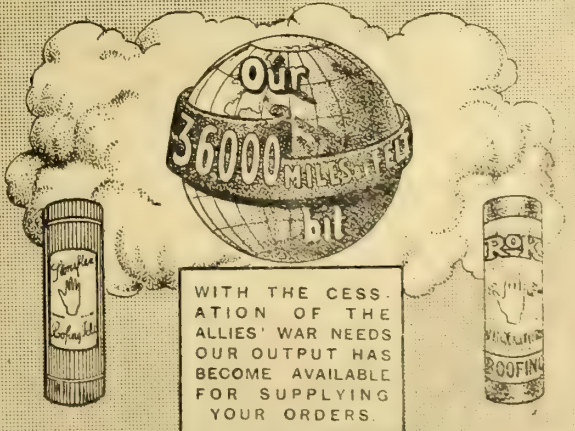
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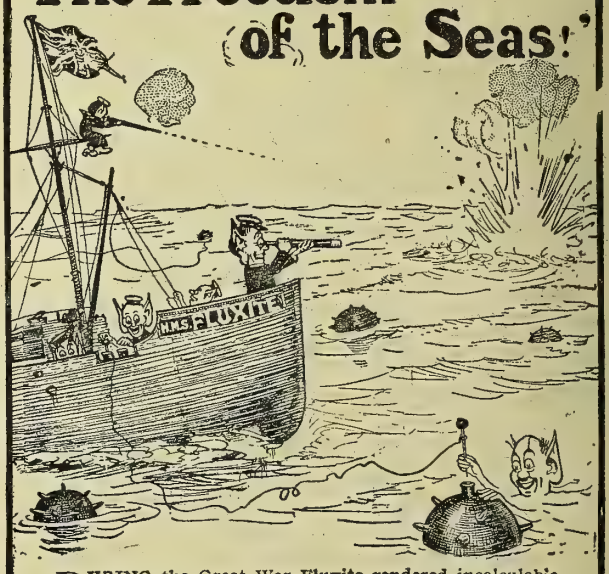
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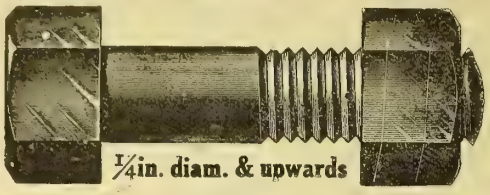
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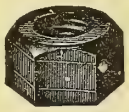
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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

NORTH SEA AEROPLANE SERVICES.

It is to be sincerely hoped that practical and prompt action will follow upon the proposals made by Mr. Stuart A. Hirst, the chairman of the Blackburn Aeroplane Company, before the Hull Chamber of Commerce and Shipping. When we recognise that Mr. Hirst has necessarily deep personal interests to serve, his great restraint in the manner of putting forward his case is particularly notable and praiseworthy. There was no attempt to rush the business men of Hull into some wild fantastic proposition or to encourage highly speculative ventures resulting rather from enthusiasm than from analysis. Furthermore, the relative capabilities of the aeroplane and the airship were stated with unusual fairness.

Naturally enough, on such an occasion Mr. Hirst pointed out the benefits that might be expected to accrue to the Hull district from the adoption of a long-sighted policy in respect of aerial transport. It does not in the least follow that what have been our great shipping ports will necessarily be also the main points of departure for our commercial aeroplanes flying overseas. In the case of direct aerial communications between this country and the north of Europe, there are many arguments in favour of what is mainly a sea route.

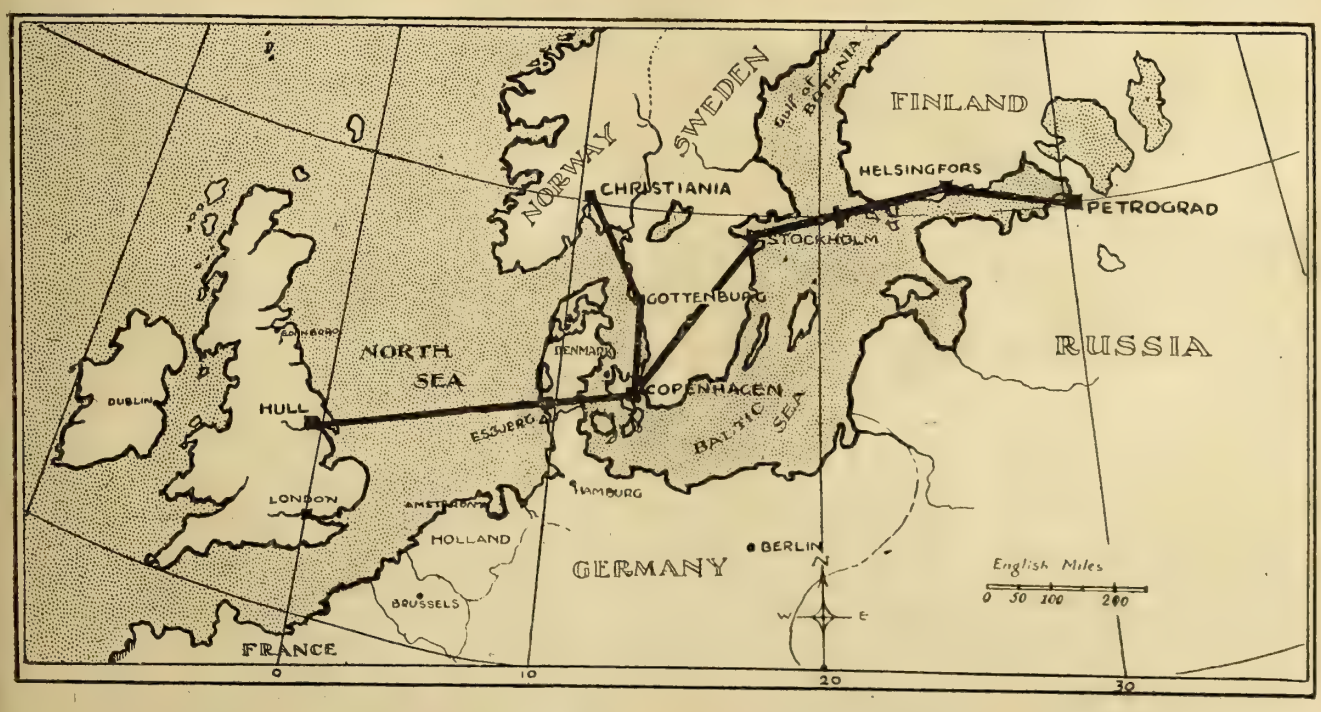
The Choice of a Route.

The choice of this route, for which Hull might well form the point of departure, would involve the use of flying boats. But even so, it is by no means a foregone conclusion that the port for the aerial flight will be at Hull, or will even be upon our coast-line at all. One of the main advantages of the aerial method is, of course, its speed, and this must be measured from the original point of departure to the final destination. Assuming that the bulk of the traffic would be from industrial centres in this country to business centres in Scandinavia, Holland, and elsewhere, a question will immediately arise as to whether goods, mails, or passengers will first be conveyed to the coast by railway before starting the aerial journey, or whether the aerial journey shall start from the inland industrial centre itself. If sufficient advantages could be proved in favour of the latter course, the difficulties of providing an inland port for flying boats could be eliminated.

Thus, it is clear that if Hull or any other seaport wishes to become also an aerial port of first importance, there is no time to be lost. An established seaport has advantages over most other places as regards its communication, connecting it with considerable industrial areas. Its arrangements for receiving and distributing traffic are already comprehensive. Hull is already the third seaport of the United Kingdom. It is well situated to become at least equally and perhaps even more important as the jumping-off ground for our aerial connections with Europe. On this point we may well quote Mr. Hirst:

"For the manufacturing centres of England, Hull is our best outlet to the Continent. The fine, wide, sheltered estuary of the Humber affords almost unlimited anchorage for the great commercial flying boat that will be used almost exclusively over the North Sea for the future. I have always taken the view that the war in relation to aviation has merely been an incident or a propelling force in the development of aviation to a commercially practical point, and the company with which I am connected have formulated their whole policy with the idea of being in the front rank in regard to post-war schemes.

"The future North Sea Air Service will be greatly assisted by the important works which we have already established at Brough, and I look forward to the day



when little Brough will be helping Hull to keep abreast of the times by becoming the landing and departing station for the great air traffic that will ply between here and the Continent.

"The distance between Hull and the principal Scandinavian and Dutch ports is roughly four hundred miles. It must undoubtedly be a great commercial advantage to reduce the time occupied in transport between Hull and these places from forty hours to four. It will be an incalculable advantage to the manufacturer, as well as an opportunity for a profitable parcels and passenger service."

Flying Boat versus Airship.

The Blackburn Aeroplane Company is greatly interested in the design and construction of flying boats, and has great confidence in a type, at present under consideration, which will provide accommodation for anything up to eight tons of merchandise. Alternatively, this type will be able to carry at least thirty passengers. The largest flying boats at present used by the R.A.F. have a disposable lift of nearly four tons, and can carry about twenty passengers.

With a service in being on the proposed lines, the commercial men of Hull will be able to attend to the morning's business in their own offices, cross to Bremen, Copenhagen, or Amsterdam, transact their business abroad, and be back at home in time for dinner in the evening. There is nothing in the least extravagant in this statement, but Mr. Hirst almost goes out of his way to avoid exaggeration. He points out what a big difference there is between the making of an aerial journey and the regular conduct of a scheduled aerial service.

"We must frankly recognise that many things are still impossible in actual flying. Aerial navigation is not yet an exact science, and meteorology also calls for deeper study by pilots. It is foolish, for example, to expect immediately the announcement of a service leaving Hull sharply at 10 o'clock in the morning and expect this service to run at once with the reliability and regularity of a railway express train.

"An unscheduled air service over the North Sea can be initiated right away with the assistance of some of the smaller Naval airships, the S.S. type measuring 145 feet in length, rendered redundant by the cessation of hostilities. The S.S. airships stand in original cost at only £8,000 apiece, and could doubtless be turned over to a private commercial concern at a very low price if the details of the transport scheme were submitted to the Air Ministry and approved.

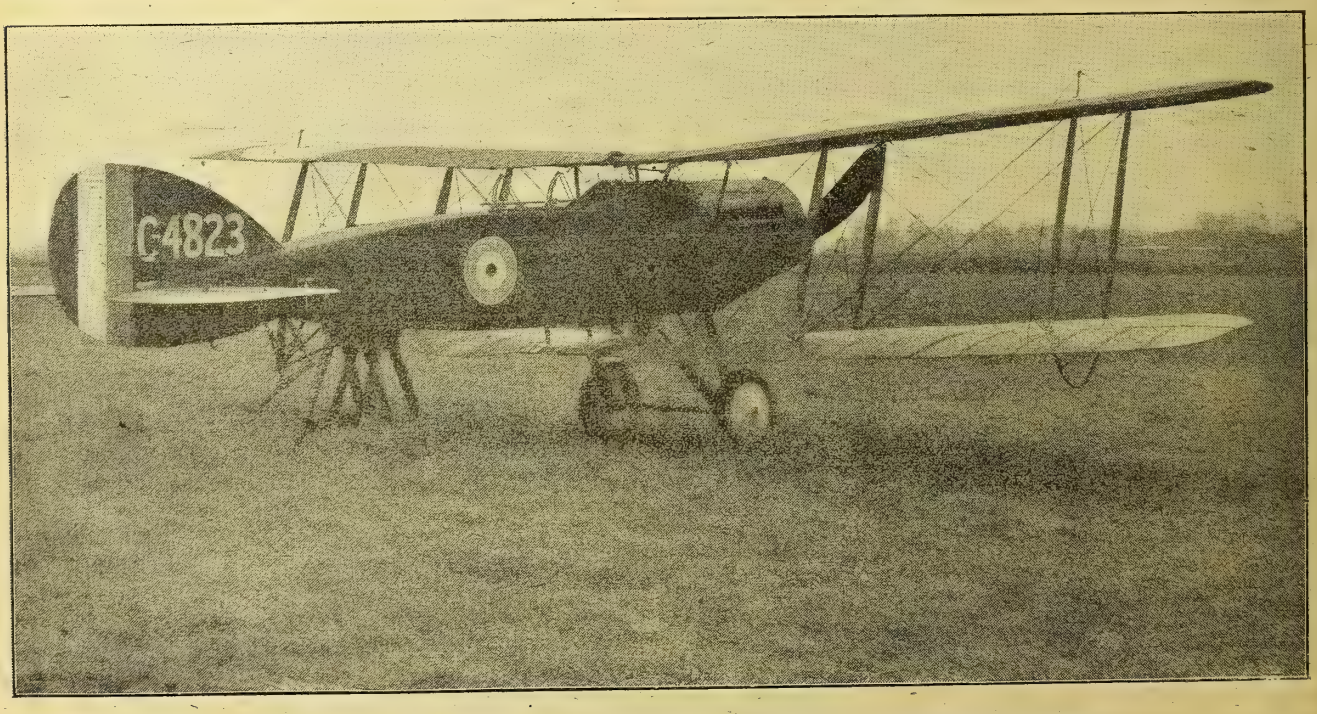
"One of the latest little S.S. airships only requires a crew of two, and could carry 700 lbs. of mail each trip. They are at present fitted with five seats, so there would be room for three passengers each time if you wished to go over to Scandinavia and see your customer personally. The cost would be small, and the service could be made to pay if the letters were franked at 4d. per ounce. There is an enormous amount of correspondence, as well as a heavy dispatch of parcels, between Hull and the Scandinavian countries. The present average time of three days for the delivery of mails across the North Sea would, by the new form of transit, be reduced to within 24 hours. That is to say, by airship or aeroplane, mail posted here would be assured delivery the same day in Esbjerg, Copenhagen, Gottenberg, or even to Christiania or Stockholm."

Upon such modest beginnings Mr. Hirst hopes with good reason to see aerial routes across the North Sea established, both airships and aeroplanes being employed. The services, he believes, will acquire immense importance from the standpoint of their earning capacity to the enterprising carriers, and from the standpoint of the boon they will confer on the commercial communities of Hull and even of the West Riding and Lancashire.

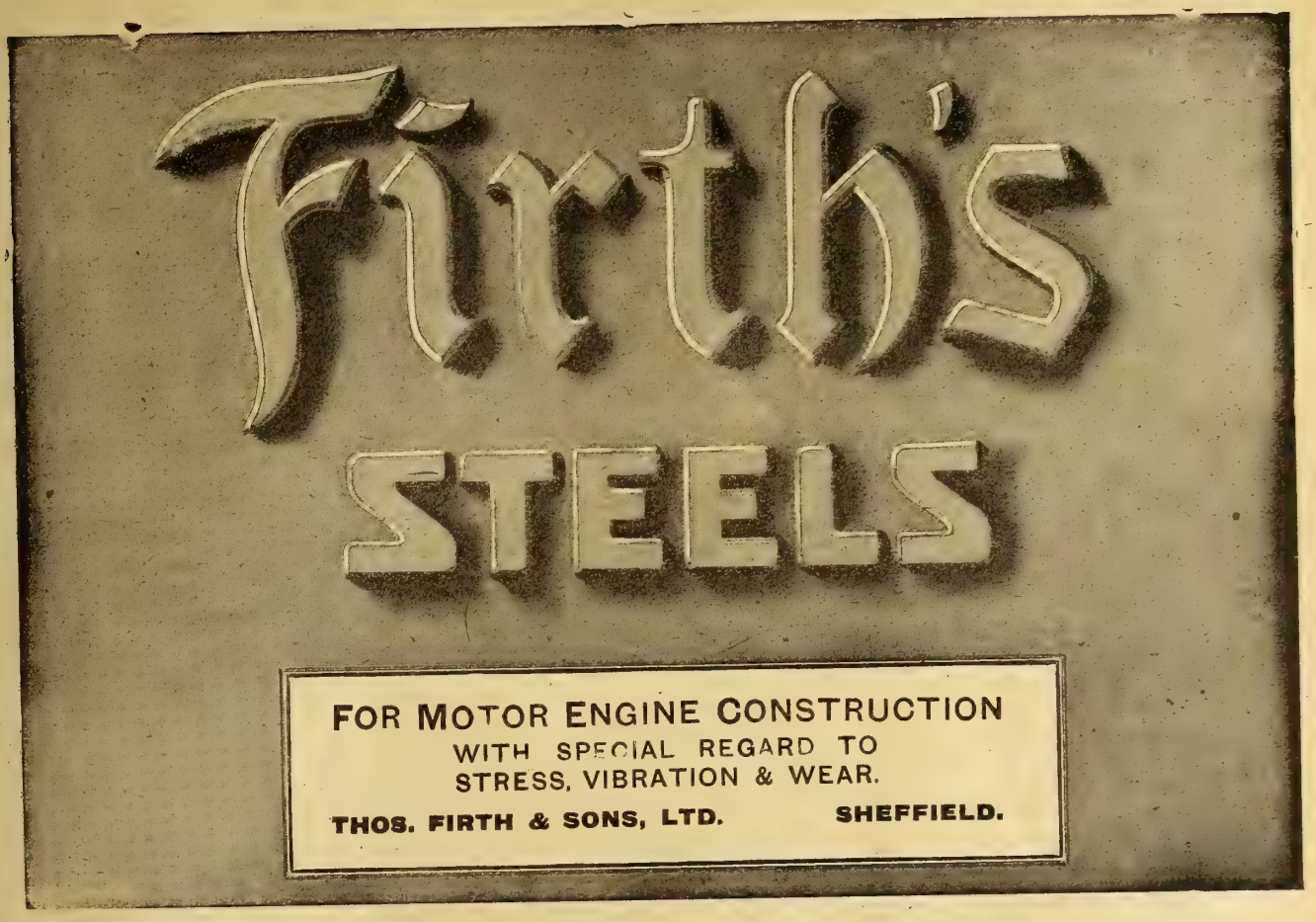
In the early stages, however, the services will not run to time-table. This will come later when the pilots have studied the peculiarities of the aerial navigation of the North Sea and overcome difficulties connected with fogs and other weather conditions. Moreover, in the initial stage, definite data as to the cost of running will be compiled. Finally, we shall have our scheduled services running to time-table, their reliability and safety having been proved in advance.

Competition.

Mr. Hirst rightly urges upon the business community of Hull the necessity for prompt action. The Cunard Line are deeply interested in the bigger questions of aerial transport, and, with their experience of Government subsidies, will naturally know the right way to set to work. Harland and Wolff, of Belfast, are inti-



Three-quarter Rear View of the Bristol Fighter (200 h.p. Hispano-Suiza Engine).



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mately concerned with aircraft work. If Hull wishes to take a premier position, it must neglect no opportunity. By being first in the field it may well become the first air port of England not only in time but in importance. Its geographical situation is peculiarly fortunate for the class of air service that is likely to mature earliest of all. If the business men of Hull take the initiative, they may reasonably expect the Government to assist any scheme of a commercial character.

Aerial services will not compete with sea transport in the carriage of comparatively bulky and cheap goods, but no one can say how far they will go in the direction of competing not only in the conveyance of mails and passengers but in the transport of portable or perishable goods of some value.

As a carrier of goods the future of the aeroplane and airship lies largely in the fact that the market value of many things is dependent upon the time of their arrival at the market. Thus, in many cases aerial transport may, upon a sound commercial basis, actually prove more profitable than other methods which will remain "cheaper."

The point is that cheapness and economy are not identical. An article which is of considerable value when in good condition may be worth nothing a day or two later when its condition has become bad. It may be too late to-morrow to negotiate a valuable piece of business that can be done to-day. If in our calculations we assess time at its fair value, it may presently become possible to substantiate the contention that, for many classes of work, aerial transport will prove to be the most economical method in the long run.

POST-BELLUM POLICIES.

By the Special Commissioner of "The Aeroplane."

I.—MR. F. HANDLEY PAGE, C.B.E.

So much in the way of forecast and speculation on the future of flying has lately appeared in the newspapers, some sense but a very great deal more nonsense, with great danger of misleading the public, that The Aeroplane has decided to discover from a representative group of aeroplane manufacturers what their post-bellum programmes are to be, and their views and aims for future machines. Naturally, the latter are reflected in the former, and in the instances about to be discussed are interesting as showing the two opposite schools of thought into which it is possible roughly to divide opinion: these being those who believe in the large multi-engined commercial vehicle built for carrying cargo or numerous passengers, and the believers in the smaller machine designed to deal with mails or a few passengers or for use as the privately owned limousine. Perhaps if I classify them as the omnibus and the ordinary motor-car it makes my meaning clearer.

It is hoped that this collection of opinions will give the reader a reasonable opportunity of drawing a moderately accurate conclusion as to the types of the future machines, these opinions coming, as they do, from people whose ideas carry weight.

Without wishing in any way even to appear to disparage Mr. Handley Page the fact that his views on the subject are taken first is a chance happening, due to his goodness in seeing me on a Sunday. Further, I am not contemplating any definite order in the selection of the manufacturers, so let us to Mr. Page.

He tells me that he intends to develop the two types made by his firm and at present in existence. They are the two and four-engine machines, officially designated the O400 and V1500 respectively. He proposes to convert them from war to commercial conveyances, altering them more with a view to economy in running expenses than to high speed. This he is very willing to sacrifice in order to obtain some substantial reduction in the former.

Here, let it be said, that he considers that pilots should be well paid, their remuneration representing, as it does, such a very small portion of the running charges. When it is remembered that there are overhead and insurance charges to be added, the pilotage, at say, £1,000 a year, remains a small proportion of the expenses, all of which points to his being correct, unless, of course, the supply exceeds the demand.

High ratio of pay should result in a high standard of pilot. This high standard, Mr. Handley Page believes, will be maintained for some time to come, though he says that he thinks the pilot of the future will be, as he expresses it, of "non-commissioned rank."

Present conditions, however, are abnormal, there being so many exceptionally well-trained and experienced pilots in process of release from war service that it is more than likely that the quantity will be in excess of requirements, with the consequence that low pay may be expected until things shake down and the confidence of the public warrants the building of more machines.

On this question of confidence, Mr. Handley Page throws an interesting light, as he tells me that he has large peace orders ahead, and his figures indicate that his orders are from more than one firm. It seems, then, safe to assume that quite a number of the monied and non-flying men-in-the-street believe that their fellows will adopt this form of travel.

For this purpose it is hardly necessary to point out that Mr. Handley Page's two existing types can be very easily adapted by making alterations in the position and shapes of the fuel tanks to enable them to be placed under the passengers' seats, making windows along the sides of the fuselage, and so on; thereby converting the machines into veritable aerial omnibuses.

He drew a graphic picture to illustrate his meaning in economical load lifted per horse-power, saying that his ideal for the future is a "little tiny engine with rows and rows of passengers sitting behind it."

I suppose it is fairly well known that the present 4-engined or V1500 type Handley Page biplane has already flown over London with over 6,000 lbs. weight of passengers. As this was a war machine it can be easily seen that by removing war fittings an ample margin is left for really comfortable accommodation.

Finally, Mr. Handley Page does not believe in a successful future for the manufacturer of the small privately owned machine, and does not appear in any way to fear the competition of the lighter-than-air machine.



The Fuselage of the Handley Page "Pullman" in Oxford Street.

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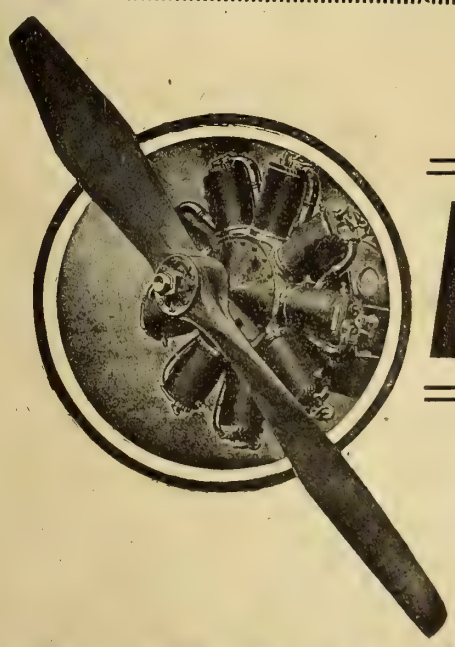
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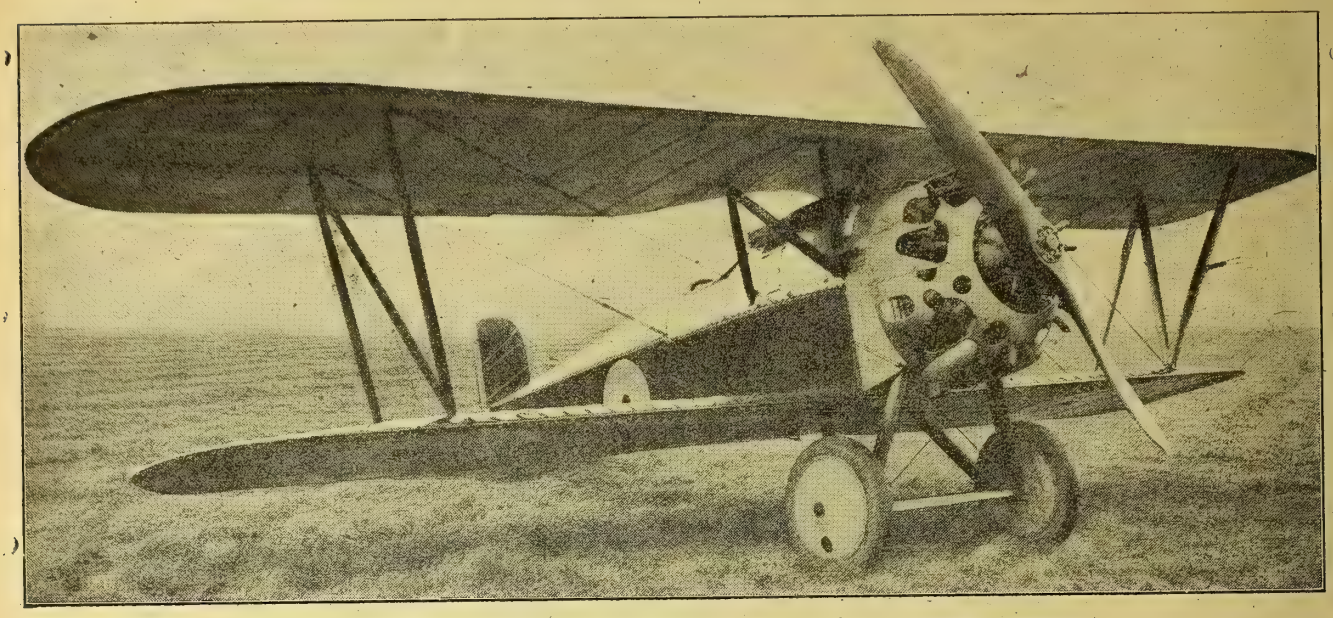
AERO ENGINES

THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS SBAC

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POST-BELLUM PREPARATIONS AT BRISTOL.



Three-quarter Front View of the Bristol Scout F.1 (315 h.p. Mercury Engine).

Some time in February, 1911, if one recollects the date aright, the British and Colonial Aeroplane Company, then a very new and venturesome concern—in fact the only existing aircraft business which owned what could properly be called a factory—invited a number of members of the Press to Bristol to see their factory, and afterwards transported them by car to Salisbury Plain, where an exhibition of flying was given by the firm's pilots.

The proceedings were extremely enjoyable, and the moving spirit in everything was the late Sir George White, whom one may venture to describe as a worthy successor to the great merchant venturers of Bristol of the past. Sir George was ably assisted on that occasion by his son, Mr. Stanley White, and his nephews, Mr. Sydney Smith, and Mr. H. White Smith, and one of the demonstration pilots was another nephew—Mr. Herbert Thomas, at that time, one believes, the youngest pilot in England, if not in the world.

Eight Years Later.

Almost exactly eight years later, on Wednesday, March 5th, to wit, the British and Colonial Aeroplane Company again entertained a number of members of the Press. This time the object was to impress on the community at large, by way of newspapers of all sorts, the possibilities of commercial aeronautics, just as eight years before the firm had endeavoured to impress on the British people the possibilities of military aeronautics.

On this second occasion the firm was preaching to the converted, but none the less the converts were duly impressed by what they saw and, one hopes, were strongly confirmed in their faith.

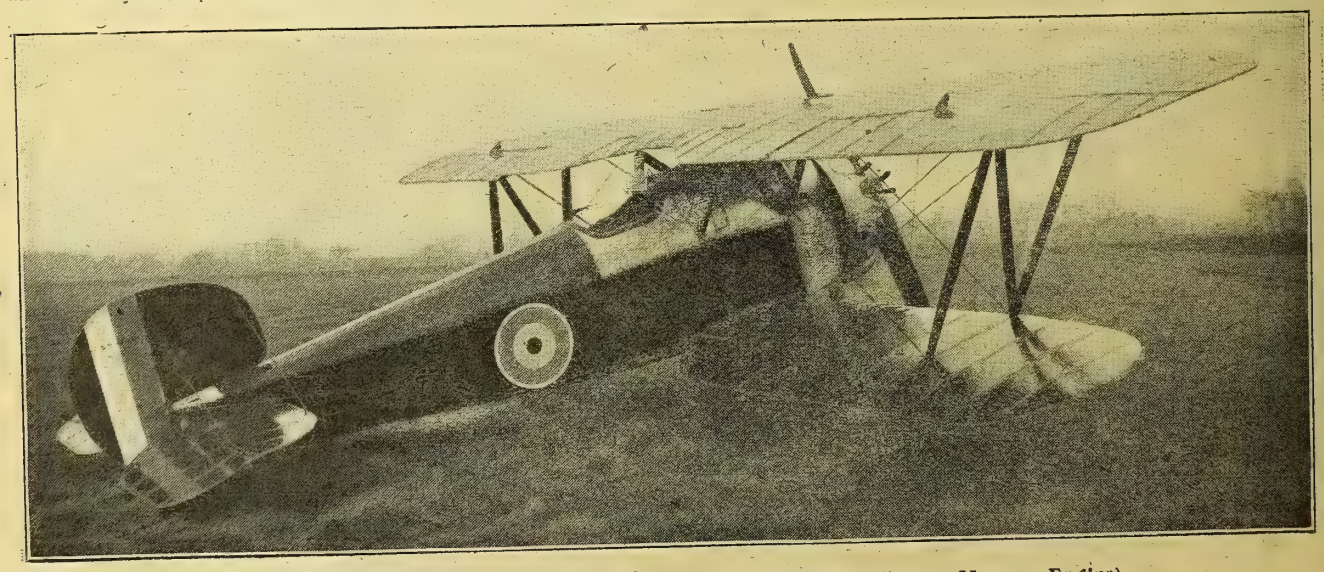
In the intervening years Aviation has suffered the loss of Sir George White, and one wishes that he could have lived to see his early faith in aviation justified. His son, Sir Stanley White, was unfortunately laid up with influenza and was unable to be present at the gathering, as was his brother, Mr. Samuel White: and the Mr. Sydney Smith of 1911 is now a full Colonel, R.A.F., holding an important command in Scotland, so he was also absent. However, the proceedings were ably and most hospitably conducted by Mr. H. White Smith, the secretary and director of the Bristol company, who is perhaps even better known as the chairman of the Society of British Aircraft Constructors.

The visitors were met at Bristol by Mr. Herbert Thomas, now works manager of the firm, and incidentally one of the best works managers in the aircraft industry. Pressure of work and also a serious accident which occurred to him in the works some years ago have prevented him from continuing his career as a pilot, but one was glad to notice that his skill in conducting an automobile still justifies one in regarding him as a lineal descendant of the late lamented Nimshi.

Bristol War Work.

Before proceeding to the works the visitors were entertained to lunch at the Grand Hotel, and after lunch Mr. White Smith, proposing the toast of the Press, referred to the previous visit of 1911. He recalled the late Sir George White's pride in the development of the Bristol aeroplanes, and said that the firm could dwell with satisfaction on their early work, such as their missions to foreign countries to introduce British aeroplanes, and the schools run by the firm, at which most of the distinguished officers of the R.A.F. had been trained. During the war the firm could not disclose their developments, but now it is possible to do so.

The war found Bristol not unprepared. The firm had already good works under Mr. Herbert Thomas and an excellent designing staff under that brilliant designer, Captain F. S. Barnwell. When pressure of war work began, the Bristol Tramway



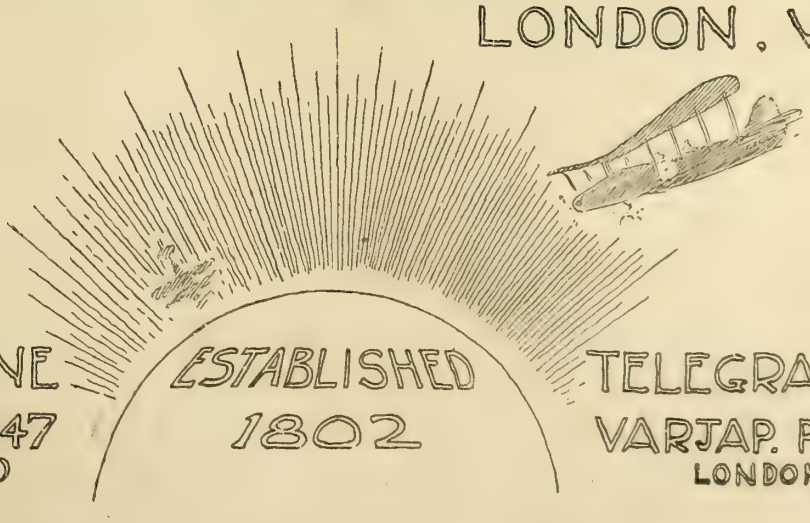
Three-quarter Rear View of the Bristol Scout F.1 (315 h.p. Cosmos-Mercury Engine).

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and Carriage Company assisted by devoting their large shops to turning out parts of aircraft.

The firm started the war with the Bristol "Bullet"—one of the first successful fighting machines of the war, and nearly a thousand of these machines saw service. They also made B.E.2c's and 2e's, and he could claim that when pilots were offered B.E.'s of various makes, they always asked for a Bristol-built machine.

In 1916 they were asked to produce a fighting machine, and Captain Barnwell proceeded to design a two-seater entirely for fighting. The result was the most satisfactory fighting machine of the war. Later on the same machine was slightly modified and built with smaller engines for reconnaissance work.

The firm had since produced their monoplane, the "F" type scout (which was a variation of the "Bullet"), an all-metal biplane and a big triplane bomber. This last machine, which had four engines, totalling between them sixteen to seventeen hundred h.p., had a speed of 125 m.p.h., and would carry a ton of bombs, together with three guns for self-defence. It had turned out to be a brilliant success, but the Armistice prevented it from being used in the war.

Bristol Peace Work.

This triplane was now being modified for peace developments. It would carry fourteen passengers in a Pullman saloon.

The firm's policy in peace aviation was to maintain their reputation for the highest standard of workmanship, and they would also to do their best to further the developments of military machines.

Referring to the future of aviation, Mr. White Smith said that a good deal of present talk was nonsense. It was necessary for the aircraft industry to be prudent and they would have to develop commercial machines steadily, as they had developed military machines, to make them a real success.

Before commercial machines could get to work vast organisation was necessary on the ground. Aerodromes would have to be organised, wireless stations set up, meteorological information arranged, lighthouses and so forth would have to be built. The S.B.A.C. was already negotiating with the Air Ministry, who were doing their best to meet the views of the Industry. It was better to get their regulations right before starting work. He believed that the future of aeronautics depended largely on the co-operation between the Press and the Aircraft Industry.

The present writer was called upon to reply to the toast, and assured those present that wherever they went they would never see better work done than in the Bristol factory.

Major C. C. Turner, R.A.F., the well-known writer on Aeronautics in the "Observer" and the "Daily Telegraph," proposed the health of the Chairman, and recalled the magnificent work which the firm had done for British Aeronautics in the past.

The New Bristols.

Thereafter the visitors were conveyed to the firm's test aerodrome at Filton, a short distance from the works. Here one was first introduced, by Mr. Thomas, to the Bristol all-metal machine, familiarly known as "Tin Lizzie," which one gathers was designed to be used in tropical climates for the impression and suppression of obnoxious niggers. The machine is built entirely of metal with the exception of the wing fabric. The fuselage is built on a most ingenious system of corrugated aluminium covered with aluminium sheeting, and it impresses one as being an extremely smart and workmanlike job.

The Big Triplane.

Thence one was conducted over the big triplane, which has been named "Braemar," presumably on the supposition that it will some day be the altitudinous residence of the King of the Air, the original "Braemar" being the King's residence in the Scottish Highlands. The machine would have to be described in detail in order to do it justice, but its appearance may be judged by the accompanying photographs and its general dimensions, may be gathered from the table which appears on this page.

This table gives in detail the specification of the existing standard type Bristol aeroplanes.

Contrary to general theory, this triplane has a very high performance, such as could hardly be bettered by a biplane of the same surface, and it has naturally the advantage of being a thoroughly sound engineering structure in which the compression strains on the spars and the tension strains on the lift wires are considerably better than they would be if the machine had been built as a biplane. Both the general lay-out and the detail design reflect great credit on the producers, and one gathers that much of the credit for the machine is due to Mr. W. T. Reid, one of the firm's brilliant designing staff.

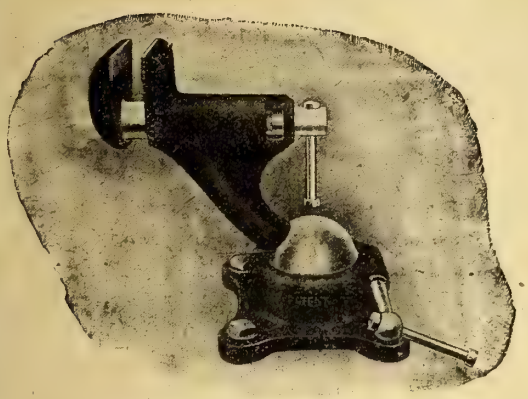
Captain Ewing, R.A.F., who has taken the machine through its preliminary trials, assures one that it handles as easily in the air as any machine of ordinary size, and apparently it has no vices to detract from its many virtues. One also gathers that its climb of 5,000 feet in six minutes is an estimated full load climb which has been very handsomely beaten in practice with three-quarter load, which load included full petrol tanks. Altogether the machine strikes one as being quite one of the best of the world's giant aeroplanes.

TYPE.	PURPOSE.	ENGINE.	Weight of Aeroplane Empty (lbs.)	Petrol Capacity (Galls.)	Oil Capacity (Galls.)	Water Capacity (Galls.)	Working Crew (lbs.)	Maximum Additional Load (lbs.)	Total Loaded Weight (lbs.)	Total Wing Area	Wing Loading lbs.	Loading per B.H.P. (lbs.)	AIRSCREW: No. of Blades	AIRSCREW: Dia.	AIRSCREW: Mean Face Pitch	MAXIMUM R.P.M.: Eng.	MAXIMUM R.P.M.: Air Screw	Extreme Span of Wings	Maximum Chord of Wings	Vertical Gap between Wing Chords	Overall Length of Aeroplane	Maximum Height of Aeroplane Level	Area of Fixed Tail Surface	Area of Elevators	Area of Fixed Rear Fin Surface	Area of Rudder	Area of Ailerons	SPEED (M.P.H.): Near Ground	SPEED (M.P.H.): At 6,000 ft.	SPEED (M.P.H.): At 10,000 ft.	TIME, IN MINS., OF CLIMB TO: 6,000 ft.	TIME, IN MINS., OF CLIMB TO: 10,000 ft.	TIME, IN MINS., OF CLIMB TO: 15,000 ft.	Lowest Possible Landing Speed (M.P.H.) Full L.
SCOUT D (BIPLANE)	SINGLE SEATER FIGHTING AND RECONNAISSANCE	'80 HP' LE RHONE	760	27	5½	—	Pilot (180)	60	1250	200	6.25	14.7	2	8'-2½"	7'-10½"	1300	1300	TOP 24'-7" Bottom 24'-7"	TOP 4'-6" Bottom 4'-6"	4'-3"	20'-8"	8'-8"	23	15	—	7		100	94	86	6.5	18.5	—	44
SCOUT F (BIPLANE)	Do. Do.	'200 HP' SUNBEAM 'ARAB'	1300	32	5	7	"	270	2100	280	8.08	10.0	2	9'-3"	9'-0"	2100	1155	TOP 29'-6" Bottom 26'-2"	TOP 5'-7" Bottom 4'-11"	5'-1"	20'-10"	8'-4"	15	14.5	4.1	6.3		138	135	128	3.7	6.5	9.0	49
MONOPLANE	SINGLE SEATER FIGHTER	'110 HP' LE RHONE	850	20	5	—	"	80	1800	145	8.97	10.8	2	8'-6"	8'-11"	1850	1350	30'-6"	6'-11"	—	20'-4"	8'-6"	20	15	10.7	4.5		130	127	117	3.5	9.0	19.0	49
FIGHTER F2B (BIPLANE)	TWO SEATER FIGHTING AND RECONNAISSANCE	ROLLS-ROYCE 'FALCON III.' (284 at 2000)	1750	45	4	6	Pilot (180) Observer (180)	270	2800	405	10.93	10.6	2	9'-9"	9'-4"	2200	1220	TOP 39'-3" Bottom 39'-3"	TOP 5'-6" Bottom 5'-6"	5'-5"	25'-9"	10'-1"	23.2	23.2	10.7	7.2		125	122	113	5.0	11.5	21.5	48
'ALL METAL' F.2A (BIPLANE)	Do. Do.	HISPANO-SUIZA 'VIPER' (170 at 1700)	1700	50	5	7	Pilot (180) Observer (180)	270	2810	458	6.18	16.5	2	8'-10"	5'-7"	1700	1700	TOP 42'-3" Bottom 42'-3"	TOP 8'-0" Bottom 6'-0"	5'-11"	27'-0"	10'-3"	27.8	30.0	7.8	8.25		110	106	98	8.0	20.0	—	47
BOMBER 'BRAEMAR' (Mk. 2) (TRIPLANE)	HIGH SPEED BOMBER OR PASSENGER CARRIER	FOUR 'LIBERTY' (1640 h.p. Total)	10650	450	40	80	Two Pilots (360)	1680	16500	1905	8.65	10.0	3	(Front 2) 10'-2" (Rear 2) 9'-4"	(Front 2) 7'-5" (Rear 2) 7'-5"	1750 1750	1750 1750	TOP 81'-6" Bottom 78'-8"	TOP 8'-6" Centre 8'-0" Bottom 8'-6"	7'-3½" 4'-3½"	54'-8"	20'-6"	TOP 45 5 Bottom 49.5	TOP 45 5 Bottom 45.0	49.5	95.0	23.9	132	118	13.0	—	55

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—*an Economy.*

An interesting announcement by the Anglo-American Oil Co., Ltd.

BENZOL cannot supersede Petrol, nor even equal it as a Motor fuel, any more than coke can have the burning qualities of coal, but a judicious combination of Benzol and Petrol has great possibilities as an economiser.

An interesting experiment which has proved highly satisfactory and eminently successful in practical use is embodied in the following—

MAKE A MIXTURE THUS—

ANGLO'S BENZOL (1 tin), PETROL (4 tins).

This is practical Economy, Benzol being Tax Free and cheaper than Petrol.

NOTE.—The Anglo-American Oil Company's reliable quality Benzol can now be obtained at the principal garages and dealers throughout the Country and no restrictions whatever attend its use.

The Addition of Anglo's Benzol Makes All the Difference.

Motorists will readily appreciate the fact that in the mixture described above, there is no comparison with the well-known pre-war brands of motor spirit—

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The Benzol-Petrol Mixture, however, provides a very good substitute until such time as existing stocks of War Brands are exhausted.

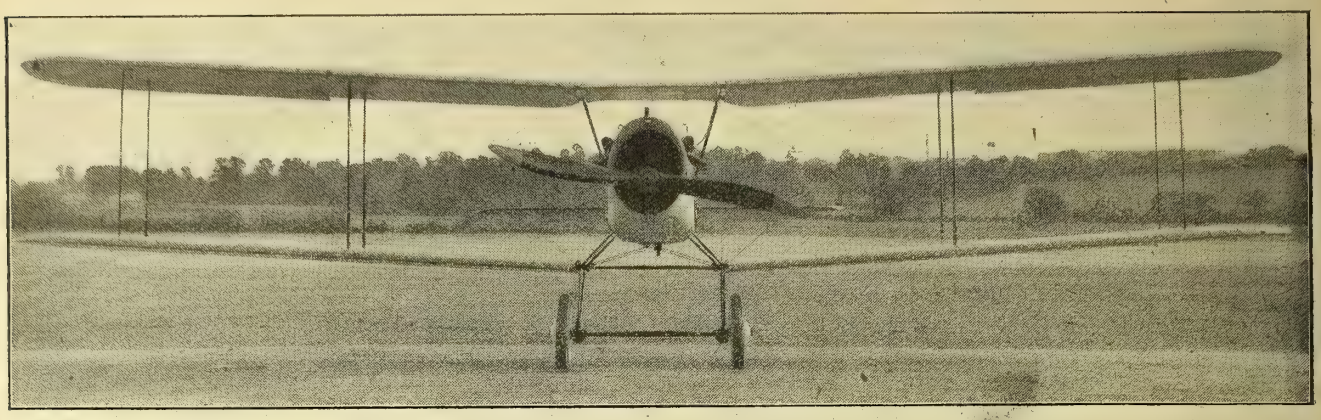
Motorists wishing further information should write—

The Manager

PRATT'S PETROL SERVICE DEPARTMENT

ANGLO-AMERICAN OIL CO., LTD.

36, Queen Anne's Gate, LONDON, S.W. 1.



The Front View of the Bristol All-metal Biplane (170 h.p. Hispano-Suiza).

SOME OTHER NOVELTIES.

An extremely interesting machine, which one saw in an unfinished condition, is a two-seater, of which the fuselage is built entirely of wood without any wire bracing or metal fittings. It is intended to carry two persons seated close together in the cockpit instead of being spread out into separate compartments as in most two-seaters, and it also provides ample accommodation for luggage, hence it might be known either as the "Week-ender" or "The Match Box."

Another very handsome machine in an unfinished state is a modified Bristol Fighter, designed to use a Cosmos "Jupiter" engine. The whole lay-out of the machine impresses one very favourably indeed. It is known as the Bristol "Badger."

THE NEW WORKS.

After inspecting these various machines one was taken to the works, which, instead of the one shop of 1911, now consists of a series of enormous and beautifully equipped workshops covering altogether nine acres.

It would be impossible in the space available in these days to describe the works in detail, as will be easily appreciated when one states that every part of the Bristol aeroplanes is made in the works with the exception of the engines. This manufacture of detail extends even to the firm's making its own Scarff gun-rings, a fitting which in almost all other cases is an Air Ministry issue.

The works are splendidly arranged, so that every part progresses steadily towards the erecting shop, and never has to pass back through the shops. One was particularly struck by the healthy and contented aspect of all the workers, the majority of whom seemed to be women. When one has seen also the extraordinary trouble taken by the firm for the comfort of their employees, one appreciates the reason for this aspect, and one is not surprised to hear that throughout the War there has only been one strike at the Bristol works: and that was not a works' strike at all, but was caused by all the firm's woodworkers being called out by their Union on account of a strike which did not affect them in any way.

The feeding arrangements for the employees are astonishingly good. The food itself would be a treat to the average visitor to a London hotel, and the prices charged to the employees are absurdly low, as will be realised when one states that a thoroughly adequate and well-cooked dinner can be bought for 10½d.

The firm at its own expense provides the employees with a free cinematograph show during the meal hours, when all the most popular films are shown. Altogether, one was forced to the conclusion that it is very much better to be an employee of a big and prosperous firm than to be an independent struggler for the ha'pence necessary for one's living, always providing, of course, that the employing firm can be assured of a continuity of business.

In the case of the Bristol Company, one feels sure that whatever can be done to secure business will be done. The directors of the company, Mr. Samuel White, J.P., chairman; Sir G. Stanley White, Bart., managing director; H. White Smith, C.B.E., secretary; and Mr. H. J. Thomas, works manager, are, each in his own sphere, thoroughly competent to watch the firm's interests, and though one has not heard so much about what the Bristol Company is going to do as one has about very many other firms, one feels sure that when Commercial Aeronautics comes into being the Bristol Company will be in the first flight.—C. G. G.

CIVIL AERIAL TRANSPORT.

UNITED KINGDOM

The Blackburn Aeroplane and Motor Co. has announced its proposed intention of running regular aeroplane services from Brough Aerodrome, Hull, to Withernsea, Hornsea, Bridlington, Filey, Scarborough, Saltburn, and possibly Whitley Bay. The twin-engined "Kangaroo" will be the type of machine used.

Dover Town Council has received application from another four aviation companies, asking for facilities for giving passenger flights, including a service to and from London and pleasure tours. The Town Clerk has replied to the effect that the Corporation will render all possible assistance, but the companies must select their own sites for hangars, etc.

With reference to the statement made by Mr. Handley Page at a luncheon at Prince's Restaurant that Mr. E. J. Bray had been appointed the first aerial traffic manager this gentleman announces that he still holds the position of General European Agent of the National Railways of Mexico.

GERMANY.

It is stated in the Berlin daily Press that an aeroplane service was established between Berlin and Hamburg on March 1st. It is intended to make two flights daily in both directions. On the first journey the machine only carried newspapers, but in future letters will be carried.

It is further stated that a daily aerial postal service has been established between Berlin and Frankfurt-on-Main.

ITALY.

An aerial mail and passenger service was inaugurated on Sunday, March 2nd, between Padua and Vienna. Caproni machines are being used, and two of these will leave each town every three days.

The first flight on this service was made in four hours and a quarter, a distance of 304 miles being covered. The machines were then piloted by Italian Military aviators, and, presumably, they will continue to be employed on this service.

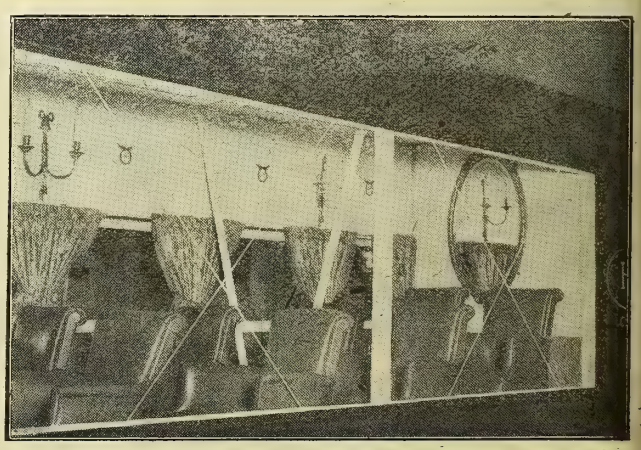
SCANDINAVIA.

A company has been formed in Sweden under the title of the Swedish Air Traffic Co., Ltd., which has been financed by the principal banks of Stockholm for the purpose of establishing aerial traffic lines between Petrograd and London, via Stockholm, and Stockholm and Finland.

HOLLAND.

With a view to establishing an aerial mail and passenger service in conjunction with Great Britain, five Commissioners, who were sent by the Dutch Government, have arrived in England.

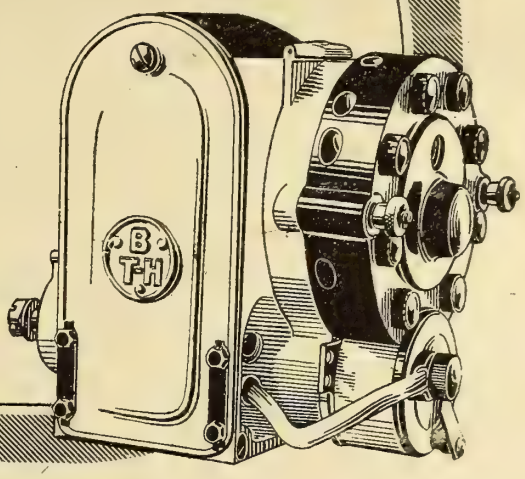
The Commission has been in existence for three months, and has made a great deal of progress in preparing for Commercial Aeronautics in Holland. Several aerodromes are in the course of construction, including one situated near Amsterdam, which covers 250 acres.



The Passenger Saloon of the Handley Page Biplane on view at Selfridge's, Oxford Street, W.

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Representatives of Foreign Governments, Commercial and Transport firms at home and abroad, and others interested in Commercial Aviation, are invited to make inquiries with regard to the latest types of

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100	Renault	80 h.p.	New
50	,,	80 ,,	Overhauled—made serviceable
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100	Renault	80 ,,	New — suitable for D.H. 6 machines

Tenders for all or any quantity will be considered.

NEW AEROPLANES MINUS ENGINES.

50 New Avro 2-Seater Aeroplanes with Instruments, minus Engines.

100 D.H. 6 Aeroplanes with Instruments, minus Engines

AIR SPEED INDICATOR RED TUBING.

130,000 feet Air Speed Indicator Red Rubber Tubing 3/16". In lengths of 50 feet.

METRIC BOLTS & NUTS, BRIGHT STEEL.

HEXAGON.

142,000 Metric Bolts and Nuts. Sizes 4 by 20 to 10 by 25 m/m.

Tenders are invited for above up to 24th March, 1919. Forms and any further particulars may be obtained from the—

Aircraft Disposal Department,
YORK HOUSE, KINGSWAY, W.C.

AIRCRAFT FINANCE

LLOYD'S GREAT AVIATION SCHEME.—INSURANCE ASSOCIATION.

Lloyd's having elaborated the idea of aircraft insurance, a practicable scheme has now crystallised. It would not be difficult to exaggerate the significance of this event; likewise it would be just as easy to minimise its importance. Let it be clearly understood that no business can possibly be exploited on sound lines and in the hope of permanency without the stabilising influence of insurance.

The agency of insurance is such an important factor, indeed, that without its beneficent influence progress would be slower, if not actually checked. This is particularly so in the case of a young industry like aeronautics; to be unable to cover on reasonable and standardised terms the ordinary risks and perils attaching to an ordinary commercial venture is a physical disability calculated to stultify a natural growth.

Importance of First Magnitude.

Therefore the advent of Lloyd's in the field of aviation with a serious regard to the practical, workable, scientific scheme, mathematically precise so far as existing data will allow, is indeed a hopeful augury. Admittedly, aircraft risks have been *coverable on terms* these past seven years or so. But there has been no specialisation in this class of business, no keen desire to enter into this new phase of commercial activity.

Without specialisation—and this is the era of specialisation—there is not that scientific application of knowledge, of facts, and of principles which enables an industry to discover its economic limitations as well as its economic possibilities.

Future Assured.

Having had only a comparatively small experience of aircraft business, Lloyd's has awakened to its immense possibilities, and, frankly admitting that aviation insurance is *destined to become a very prominent feature* of commercial activity in the not distant future, "The Aviation Insurance Association" has been formed to specialise and develop the business. The magnitude and financial strength of this new venture are its advantages, because aviation, being only in an experimental stage, there is an immense amount of spade-work to be done, the business to be systematised, a lot of data collected, and facts collated, so that mathematical precision can be reached.

Mathematical Precision Will Be Attained.

To expect all this work to be done in the ordinary course of events, haphazard, without any scientific application or specialisation and individual effort, would be absurd. Equally absurd would it be to hope for financial success either on the part of the insurer or the insured without the provision of an exceptional amount of financial backing.

It is the aggregation of financial power represented by the new Aviation Insurance Association which augurs so hopefully in relation to the development and progress of commercial aeronautics. The first year or two may or may not be financially successful to the new association; as likely as not they will be unsuccessful, because it will be a period of experimentation.

Perfection will be attained as a result of actual experience, as distinct from hypothetical calculations; aircraft coincidently will develop, and the factor of insurance will be worked out to mathematical precision.

Survey System in Elaboration.

Already the system of survey is being enlarged and elaborated by the constant enrolment of experts on similar lines to Lloyd's shipping survey system. The question of a Lloyd's Register of Aircraft is not such a simple proposition as with shipping, but the qualifying and classification of a commercial aircraft pilot offers very few obstacles beyond those inseparable from carrying out a new and commonplace idea.

Details of the New Association.

The Aviation Insurance Association consists of underwriting members of Lloyd's, the Eagle, Star, and British Dominions Insurance Co., Ltd., and the Excess Insurance Co., Ltd. The business will be controlled by a committee of five, consisting of Messrs. W. C. Campbell, J. E. Duder, and George Simmons, all of Lloyd's; Sir Edward M. Mountain, chairman of the Eagle, Star, and British Dominions Insurance Co., Ltd; and Mr. Cuthbert E. Heath, of Lloyd's, and chairman of the Excess Insurance Co., Ltd.

The committee have appointed as manager and underwriter Capt. Horatio Barber, A.F.R.Ae.S., F.R.G.S. (late R.A.F.), and offices have been opened at No. 1, Royal Exchange Avenue, E.C. The formation of the association, says the official announcement, is the result of an increasing demand for aviation insurance, and underwriters consider that this will be best served by a strong association having the *reserve necessary to create an expert and world-wide organisation.*

No effort will be spared in producing forms of policies and rates of premiums to meet trade and other requirements. A preliminary prospectus and proposal forms for the various risks undertaken can be obtained on application to the offices mentioned above.

Scientifically Calculated Premiums.

It seems almost superfluous to enlarge on the question of premiums charged, yet it is necessary to emphasise that these must obviously vary in accordance with the risk covered, the machine employed, with its age, type, and structure, together with the record and qualifications of the pilot, the route or service undertaken, and whether by day or by night, or both, the duration of the policy, and the thousand and one considerations that enter into an ordinary everyday bargain. Policies are offered to cover accidental damage under all circumstances to aircraft of all descriptions, including fire, burglary, and theft, accidental damage to cargo, accidental damage from aircraft, personal accident to male pilots of aircraft, to crew and passengers, and Third Party Risks of all descriptions.

Submitting Proposals.

The scheme is very comprehensive; in fact, it embraces all risks as a scheme with any promise of success ought to do. Possibly the number of questions asked in the

AIRCRAFT FINANCE (*cont.*)

proposal forms will appear, to the unsophisticated, as being too numerous, if not beyond reason.

In the circumstances they are absolutely necessary, and, being very easy to answer, should encourage rather than deter applications for insurance. Such procedure is inseparable in the initial elaboration of a new scheme. They are, indeed, just ordinary commonplace but necessary questions which, when the answers are collected, will enable the underwriter to quote the minimum price for covering the risk involved. It stands to reason that in default of such knowledge as is thus provided by the insured for the guidance of the underwriter the latter would simply calculate the maximum risk and quote the maximum premium with a little extra for the unknown quantity.

CURRENT TOPICS.

The Price of S. Smith and Sons' New Shares.

The new shares of S. Smith and Sons, Motor Accessories, are now being issued. They number 150,000 and are being offered to existing shareholders at 23s. 6d. in the proportion of one new for every two shares held. A little selling of the old for the purpose of taking up some of the new shares and thus reducing the cost of the investment has caused a slight fall in the price of the existing shares.

Wait and See Stock Markets.

Collectively the Stock Markets remain in a state of stagnation, with a tone rather disturbed by apprehension concerning the Labour prospects. Naturally, the statements concerning the position of the coal-mining industry have not provided any stimulus towards fresh initiative. Even oil shares are slack, and a much-talked-of revival in rubber shares proved but a flash in the pan. Never before was the wisdom of the aphorism "Wait and see" more apposite.

French Items.

The French Gnôme and Le Rhône Company's shareholders, at an extraordinary general meeting, have repealed the resolutions carried in April, 1917, authorising the division of the reserves, the increase in the capital, and modifications relating to the position of the founders' share capital. The intention was to divide 22,125,000 francs of the special reserve and apply the proceeds towards the increase in the capital.

The Motobloc profits for last year were 626,705 francs, of which 439,620 francs will be utilised for amortisation, 80,000 francs for war tax, and, after providing for the reserve, the balance will be carried forward. No dividends will be paid, whereas 20 francs on the ordinary and 35.66 francs on the founders' shares were distributed in respect of 1917. Owing to inability to arrive at a settlement with the Government, only provisional accounts are submitted.

COWPER-COLES AIRCRAFT SHARES.

In the King's Bench Division, before Mr. Justice A. T. Lawrence, the case of Birkett v. S. Cowper-Coles was heard.

The plaintiff in this case was Mr. C. A. Birkett, a corporal in the Royal Marine Labour Corps, and Mr. S. Cowper-Coles, the defendant, was described as an inventor. The plaintiff claimed specific performance of an agreement, partly verbal and partly in writing, which was made between the parties in September, 1917. The defendant agreed that if the plaintiff would take shares in his (the defendant's) company—the Cowper-Coles Aircraft Company—of which the defendant was a director, he (the defendant) would take back any shares which the plaintiff was allotted in the company at par should the plaintiff be called up for military service. The plaintiff applied for 1,000 shares of £1 each in the company, and they were allotted to him. He was called up for military service and he applied to the defendant to carry out his agreement, but the defendant refused to do so and he had not executed a transfer of the shares.

The defendant pleaded that the plaintiff had never offered him a transfer of the shares to be executed, and that it was the duty of the plaintiff to do so before he could charge the defendant with breach of his contract. He also pleaded that the plaintiff represented that he (the plaintiff) would obtain a "protection certificate" against military service, although the plaintiff had no ground for alleging that he would be entitled to such a certificate.

Mr. Holman Gregory, K.C., and Mr. W. T. Snell (for Mr. J. D. Casswell, serving with His Majesty's forces) appeared for the plaintiff; and Mr. Harold Solomon Simmons for the defendant.

Mr. Justice A. T. Lawrence said that the defendant had raised the point that it was the duty of the vendor of the shares, the plaintiff, to prepare the transfer and present it to him for execution, and that as the plaintiff had not done so he was therefore not entitled to bring this action. Mr. Holman Gregory, for the plaintiff, had contended that the obligation was on the purchaser of shares to prepare a transfer. This appeared to be the general rule as to shares, just as it was that on the purchase of real property the purchaser must prepare a deed, and offer it for execution by the vendor. There would be judgment for the plaintiff; £1,000 to be paid over by the defendant on the presentation by the plaintiff of a transfer of the shares. Leave to appeal was granted, the money to be paid into Court within 14 days.

THE NATIONAL AIRCRAFT MANUFACTURING CO.

A meeting of the creditors interested in the National Aircraft Manufacturing Company, Ltd., was held on the 20th ult.

The chair was occupied by Mr. E. H. Hawkins, who stated that the company had gone into voluntary liquidation, and he had been appointed to act as the liquidator. On Jan. 22nd last the company called an informal meeting of the principal creditors to consider a proposal that was made by Mr. Norman, the managing director of the concern. The creditors then decided that a committee of the principal creditors should be elected to consider the matter. That committee consisted of the representatives of Aero Parts Manufacturing Company, creditors for £670; Aero Coverings, Ltd., £730; and Mr. Barr, a creditor for £650. A meting of the committee was held, and he was called in as an independent accountant to investigate the matter. He looked into the affairs of the company and found that an execution had been levied by the Hackney Aircraft Company for £75, and the bailiff was actually in possession. Legal proceedings had been instituted by other creditors, and the General Aeroplane Sundries Company were entitled to sign judgment, while the landlord (Mr. Norman) was a creditor for arrears of rent amounting to £200.

Liquidation Suggested.

The committee decided that the only thing possible was for the company to go into liquidation, especially as the remittances from the Ministry of Munitions were not likely to come in for some time, while the wages were about £140 a week. The company appeared to be insolvent, and the committee requested that the shareholders should put the company into voluntary liquidation and appoint him (Mr. Hawkins) to act as the liquidator. That was done, but the second judgment had levied execution and the landlord had also distrained. He applied to the Court for the execution creditors to be restrained from proceeding, but Mr. Justice Astbury considered that the creditors were in a secured position and recommended him to come to terms with them. The only thing to do was to pay the two execution creditors out in full, and that had been done. On behalf of the landlord, and the liquidator, the stock, etc., of the company was sold the previous day, and it realised good prices. A sum of £1,300 was realised, and, after allowing for the claims of the preference creditors, there would remain about £900 for the creditors, subject to the costs of the sale. At a meeting of the principal creditors the stock was set down at £3,560, but it included spare parts which had been taken at full cost prices. The company had a claim against the Ministry of Munitions, and probably about £250 would be received from that source. A contract was entered into between the Ministry of Munitions and the company last June by which the latter were to supply parts to the value of £17,000. The company was registered in October, 1917, and during the first year's trading it sustained a net loss of £1,282. If the concern had gone into liquidation then, the creditors would have been in a much better position. At that date the company owed the Ministry of Munitions about £3,000, and the result of the trading since had been to wipe out the debt. Mr. Hawkins further stated that in May of last year the company paid a dividend of 5 per cent. to the preference shareholders and 7½ per cent. to the ordinary shareholders. In view of the fact that no profits were made, the shareholders would have to pay those dividends back to the company. A sum of £102 had been paid in excess profits duty, and he was also claiming the return of that money.

The Dissolution.

The company took over an existing business, the vendor being Mr. Norman. The company had 8,000 ordinary shares of 5s. each and 850 preference shares of £1 each. Mr. Norman was entitled to a salary of £800, which was subsequently increased to £1,000 per annum, and a bonus of 1 per cent. on the output.

Mr. Norman said that the actual tangible assets transferred by him to the company exceeded the liabilities which the company undertook to discharge by over £1,000.

After some discussion a resolution was passed confirming the voluntary liquidation, with Mr. Hawkins as liquidator.

MORTGAGES, CHARGES, AND SATISFACTIONS.

Air Transport, Ltd.—Particulars of £1,000 debentures (with 5 per cent. premium), created Feb. 13th, 1919, of which £800 was issued on Feb. 26th, charged on the company's general property.

Norman Thompson Flight Co., Ltd.—Second mortgage debenture and trust deed dated Feb. 10th, 1919, to secure £55,000 and such further sum as shall be sufficient to cover the amount due from the company to its unsecured creditors, charged on (a) the company's undertaking and property, present and future, including uncalled capital, subject to prior charges, and (b) freehold and leasehold property, Sussex. Holder: E. H. Hawkins.

AERONAUTICS AND THE LAW.

"GOSHAWKS."—A COMPLETE REFUTATION OF THE "USQUE AD CŒLUM" DOCTRINE.

By "The Lincoln Imp."

Infinitely quaint is the abbreviated language of the early reporters in the black letter law reports known as the Year Books. In his "First Book of Jurisprudence," Sir Frederick Pollock gives several specimens of this odd forerunner of Esperanto and describes it, in its ultimate degenerate state, as "an ignominious jumble of corrupt French eked out with Latin and English." In 1688 a felon, Carnes, on conviction "ject un Brickbat a le dit Justice que narrowly mist and pur ceo immediately fuit Indictment drawn per Noy envers le prisoner, and son dexter manus ampute and fix al Gibbet sur que luy mesme immediatement hange in presence de Court."

Which said by way of preamble, "revenons à nos moutons"—or rather our goshawks, for they were the beginning of the trouble.

But first, I suppose, I must explain what all this has to do with the Law of the air. Well it happened in this wise :—

While the Air Navigation Bill was being read a second time, "Mr. Denniss pointed out that the 'usque ad coelum' doctrine does not apply in its inverted sense to ownership below ground—as applied to oil, for example—and he doubted its validity in law." There is some misunderstanding on the part of Mr. Denniss, for the maxim is completed by the words "usque ad inferos" or "et ad medium terrae," and does apply to ownership below ground. But when Mr. Denniss "doubted its validity in law" he raised a more debateable point.

The tag "cujus est solum ejus est usque ad coelum" will be found quoted in Broom's Legal Maxims and many another legal text book as a settled maxim of English law. But in Sir Frederick Pollock's words, "one of the commonest mistakes for beginners and laymen is to take a maxim for an authentic and complete expression of the law and go about to deduce consequences from its words as if it were a modern statute," and he quotes Lord Esher as saying, "They are almost invariably misleading." Whence, then, does the maxim come, and what makes it law?

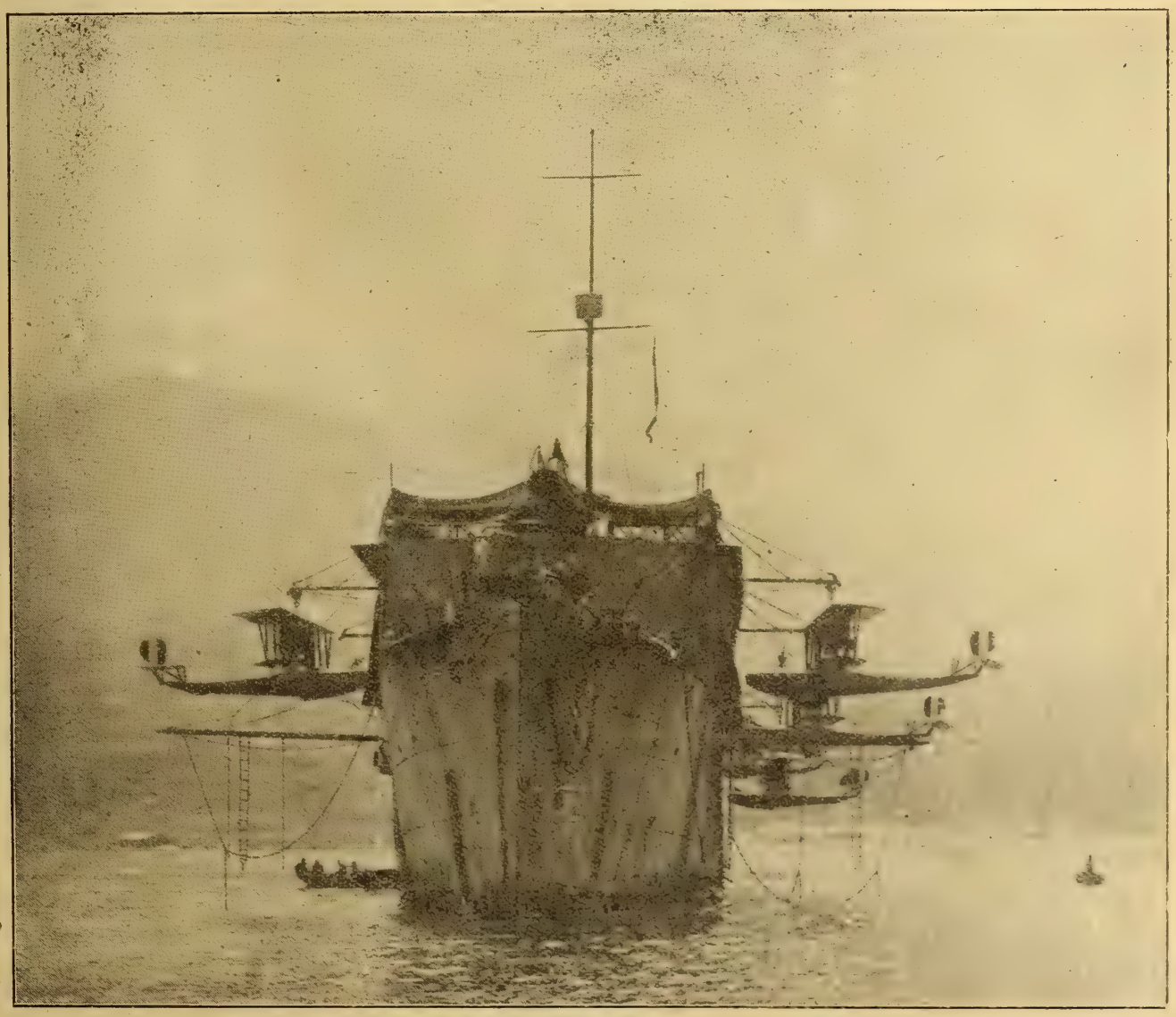
Tracked down to its source, the tag first emerges in "Co. Litt. 4a," i.e., that book of authority, "Coke upon Littleton." What then are the precise magic words in which the prophetic Lord Coke is said to have damned the freedom of aviation?

"'Land,' Terra, in the legall signification comprehendeth any ground, soil or earth whatsoever: as, meadowes, pastures, woods, moores, waters, marshes, furses and heath . . . . . this element of the earth is preferred before the other elements: first and principally because it is the habitation and resting place of man; for man cannot rest in any of the other elements, neither in the water, ayre or fire. For as the heavens are the habitation of Almightie God, so the earth hath He appointed as the suburbs of Heaven to be the habitation of man; 'Coelum coeli Domino terram autem dedit filiis hominum': All the whole heavens are the Lord's, the earth hath He given to the children of men. Also the waters that yeeld fish are not by that name demandable in a *precipe* [writ]; but the land whereupon the water floweth or standeth is demandable; as for example 'viginti acras terrae aquâ coopertas' [20 acres of land covered with water] and lastly, the earth hath in law a great extent upwards, not only of water, as hath been said, but of ayre and all other things for 'cujus est solum ejus est usque ad coelum' as is holden 14 H.8 fo. 12: 22 H.6. 59: 10 E.4. 14, Registrum origin, and in other bookes."

Now "Coke upon Littleton" is as nearly the lawyer's Bible as any text book ever was or ever will be. But no text book *is* the law, however well or authoritatively it may express it. It requires a statute or a decided case to make any proposition "the law." And Coke cites as authority for his tag the three cases in which he says it was "holden" as mentioned above.

The first of the three cases is reported in the quaint and abbreviated language of the Year Books on folio 59 of the Book for the 22nd year of King Henry the Sixth.

It begins "Un br. de Trns fuit port quare clausum fregit &



An Italian Seaplane-carrier, with her Squadrilla of Flying-Boats.

vi juvenes: Goshawks en lour nide estants prist & empt." Which being interpreted means: "A writ of trespass was brought 'quare clausum fregit' [for breaking into the plaintiff's close] and 6 young Goshawks sitting on their nest . . taking and carrying away."

The case ends, "le br. est bo. Qd' concess p. Cur," i.e., "the writ is good as is allowed by the Court."

In the whole of the case there is no mention of the "usque ad coelum" doctrine, the arguments all turning on whether the silly young Goshawks were tame or wild and whether they should have been priced or not in the writ. But, of course, the case does decide that the plaintiff, the landowner, was the owner also of these young Goshawks a-sitting on the nest. That is all.

Coke's next case in 10 Ed. IV 14 gives no support to this maxim at all. The question was whether or no muniments of title could be stolen. But someone referred casually to the price of young Goshawks. That was all.

Coke's third and last case is 14 H. VIII fo. 12, and more to the point and very amusing. I will give a rough translation of part of the report:—

"In trespass brought by the Bishop of London against one, N., for breaking into his close and taking 'herons and shovelers,' N. says that the 'locus in quo' contains 20 acres of land which the Bishop leased to him for a term of years and the herons sat on their nests and he took them. And the Bishop says that the place is a park leased to N., except 'le bois et sourbois' [wood and underwood] and the herons and shovelers sat on their nests in the said trees and he took them. Fitzherbert argues for the plaintiff that by the exception from the lease of the trees everything in the circuit of the trees 'jusque al' firmament' [usque ad coelum] is excepted and therefore the lessee is not entitled to take the herons. Newport, for N., argues that the lessee has all the profits of the land which the lessor has not excepted, such as the acorns of the trees: and the lessor did not except these birds and so cannot take them. Brook, Justice, al' contrary. Everything known under the designation 'bois et sousbois' is expected and nothing else. . . . . the lessee will have the grass under the trees for that is not called 'bois,' and the lessor will have the ground in which the tree grows for the tree is in the earth and in the air (par la terre et par l'air) and so all the earth in which it grows in depth and all the air which nourishes it in height [note the precise limitation so different from the 'jusque al' firmament' put forward in argument] belongs to him to whom the tree belongs and all the profits which come from the tree. For if I give you an acre of land you will have all the profits:—as, mines of metal or 'coales' or 'quarre' and all things that are contained in that earth. The proper words of gift are '20 acres of wood' but in that case if the trees grow a long distance apart from one another so that it is not properly described by the designation 'a wood' then the exception is void and the lessee can take the birds he can find nesting on 'the trees' which are not 'a wood' [surely a delightful illustration of not being able to see the wood for the trees!]. But admitting that it is a wood then the Bishop will have them . . . . for they are on his trees . . . as if I except a tree and a Goshawk makes his nest on it or bees are in the tree it is not lawful for anyone else to take them. So here." And it was adjudged that the Bishop recover.

I have quoted this case so fully to show how short it really falls of establishing the maxim Coke asserts to have been "holden" in it. A maxim which is supposed to be undoubted law and to impose such a restriction on modern flying that a 20th century legislature is debating its solemn statutory appeal. And all this pother caused by six young Goshawks and a few herons and shovelers a-sitting on their nests.

"Conceding illegitimacy of origin," someone may argue, "still the tag has since been admitted into good society and treated as legitimate by the judges who have constantly allowed it to govern their decisions in subsequent cases." Has it?

It was Lord Ellenborough first, in 1815, who gave the maxim aeronautical significance in "Pickering v. Rudd" (4 Camp. 219), an action for trespass by an overhanging board. "Nay," said he, "if this board be a trespass it would follow that an aeronaut is liable to an act of trespass 'quare clausum fregit' at the suit of the occupier of every field over which his balloon passes in the course of his voyage. I am by no means prepared to say that firing 'in vacuo,' no part of the contents touching it, amounts to a 'clausum fregit.' I do not think it is a trespass to interfere with the column of air superincumbent on the close." True, commenting on these remarks, another judge said that they seemed to him excellent good sense but dubious law ("Kenyon v. Hart," 6 B. and S. 249 at p. 252), but he gave no decision to the contrary.

The hypothetical case of trespass by bullets came for actual decision before Lord Brampton (then Mr. Justice Hawkins, of 'Enery 'Awkins fame). Bullets aimed at the target on a 1,000 yards' range, the height of whose trajectory was there about 75 feet, crossed over a field of the plaintiff. No actual injury had been occasioned to the plaintiff personally or to his land, and no bullet was proved to have fallen on it; but the learned judge held that though not a trespass in the strict technical sense of the term the firing was not unattended with risk and would cause a not unreasonable alarm, thus rendering the occupation of the field less enjoyable than the plaintiff was entitled to have it, and he granted an injunction to prevent the future use of the range in such manner as to cause bullets fired along it to traverse the land of the plaintiff. ("Clifton v. Bury," 4 Times L.R. 8.) A very useful precedent, this, for stopping persistent low-flying to the annoyance of neighbours, but emphatically not an authority for the "usque ad coelum" doctrine.

But what about the following?: "I should be extremely loth both myself to suggest or to acquiesce in any suggestion that an owner of land had not the right to object to anybody putting anything over his land at any height in the sky. It seems to me that it is not necessary to decide upon what exact legal fiction or on the existence of what legal theory one is to justify the principle which I think is embodied in the law, as far as I have been able to see, that a man who has land has everything above it, or is entitled at all events to object to anything else being put above it." What about that?

Well, it is a statement of opinion or "obiter dictum," and not a statement of law; for the actual decision was that a telegraph wire over a street was *not* a trespass against the public authority in whom the property in the street was vested. ("Wandsworth Board of Works v. United Telephone Company," 13 Q.B.D. 915.)

"We think," say the C.A.T. Committee in their final report, "that the deprivation of the landowner of what is almost certainly an existing right of property should be compensated by what will be in effect an insurance of himself and his property against such damage." But should not this asserted right of property be established "beyond a peradventure" before being compensated for at the expense of the aircraft industry?

[" The Lincoln Imp " will be pleased to reply to or enter into agreement with any person or persons who may be disposed to communicate with him on legal questions.—Ed., The Aeroplane.]

THE LIABILITY OF CARRIERS.

Sir,—The debate on the third reading of the Aerial Navigation Bill recently before Parliament raises many points of interest with regard to the future developments of Civil and Commercial Aviation. Members interested in the subject showed a proper and befitting concern that a young Industry and a new opening of commercial adventure should not be too greatly hampered and restricted in the experimental stages. And in expressing this view they earned the gratitude and voiced the will of a great body of the thinking and discerning public. Civil Aviation is bound to make rapid progress if left at liberty to develop its own individuality commercially.

It may not, however, be amiss if those into whose hands its enterprising will in the early stages fall, should remember that public confidence is essential to success, and that to popularise flying, public conveyance by aircraft of passengers either for pleasure or business must be rendered reasonably safe and secure.

Public companies and private owners plying for hire will accept full responsibilities, and upon their prudence and care in the early stages of this enterprise will it depend whether the confidence of the public is secured or not.

To leave the private owner as an individual free and unrestricted in the use of his aircraft for his own private use or pleasure, may, so far as he is prepared to accept the risks and to pay should his experiments cause loss and injury to others, be wise. But to remove from all inspection or regulation all sorts and conditions of aircraft because they are of an experimental character may be a little dangerous, and not unlikely to arouse among the public some degree of nervousness and apprehension.

To-day the general principles in force under the Aerial Navigation Acts, 1911, and 1913, are wholly opposed to such an amount of liberty in actual flying. For the purpose of the safety and defence of the realm the navigation of aircraft of every class and description is prohibited over the whole area of the United Kingdom except in respect of naval and military craft, or craft flying within a 3-miles area of any recognised aerodrome.

Public companies or private owners plying for hire, unless specially authorised and licensed, would find little scope under such a regulation to enterprise the carriage of goods and conveyance of passengers. But should the granting of such licences become common it may not be uninteresting to ask what is the legal liability of the carrier with reference to the airworthiness of their craft towards those whom they convey or for whom they carry goods. What standard of security as regards construction and equipment must they offer and provide? What liability do they incur by failure to comply with such standard?

Carriers by air of passengers and carriers by air of goods would not necessarily be subject to the same legal liabilities in respect of the airworthiness of their craft.

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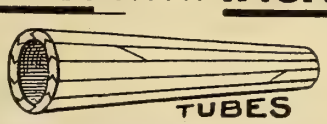
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The Law of England has from the earliest times established a broad distinction between the common carrier of goods and of passengers. So far, then, as the carriers of goods by air fall within the category of common carriers the law charges them to carry the goods entrusted to them safely, against all events, the act of God, the King's Enemies and inherent vice alone excepted. No special warrants of airworthiness or land worthiness is required to be imported into such a contract, for if the goods are safely carried and delivered, it does not matter by analogy to land carriage whether the aircraft was airworthy or not.

The common carrier is an insurer of the safety of the goods he undertakes to carry, and is liable if injury or loss befalls them, whether the craft or vehicle in which he carries them is airworthy or landworthy, or seaworthy or nor, and it is not, therefore, necessary to import into the contract any special warranty of air or land worthiness.

But with regard to the carriage or conveyance of passengers the position is different. The common carrier warrants the safety of his goods, but he does not warrant the safety of his passengers. As to them his undertaking is to provide for their safe conveyance so far as human care and foresight can. And this entails upon him the obligation to use due and reasonable care, and to employ all proper materials and appliances to that end, and if he fails to discharge this obligation he is liable to his passengers for any accident that may happen by the way. As was once said: "He is bound to take reasonable care to use the best precautions in known practical use for securing the safety of his passengers." Any falling short from this standard contributes negligence, and would render the air carrier of passengers for hire, liable for the consequences.

The old carrier by road or land did not warrant that his carriage in which his passengers travelled was of perfect road worthiness, or absolutely free from defects likely to cause peril or danger; but he was, none the less, responsible and liable for all defects of his vehicle which were visible and ascertainable at the time of construction, as well as for such as might exist afterwards, and could be discovered by proper and careful examination, and the same principles would apply to the carrier by air.

A stronger analogy may seem to exist between the navigation of the air and the navigation of the sea; but the liability of carriers by sea in respect of seaworthiness of their ship is strictly akin to that of carriers by land in respect of their vehicle.

The sea carrier of goods is bound like the common carrier by land to carry the goods safely, and is responsible for all losses, however caused, whether by unseaworthiness or otherwise: and as regards passengers the sea carrier is under no liability to give an absolute warranty of seaworthiness of his ship. But, at the same time, he may be criminally liable under the provisions of the Merchant Shipping Act, 1894, in certain events if he sends a ship to sea in such an unseaworthy condition as is likely to endanger the lives of persons on board.

Airworthiness must, however, it is thought, be held to be seaworthiness, to imply such a condition or state of fitness as to construction, repairs, equipments, crew, and all other respects as would fit the craft to encounter all the ordinary perils of the voyage which she undertakes to perform—having regard to the degree of scientific knowledge and invention which has, at any given time, been reached and practised.

Public carriers of passengers by air must, therefore, use due care to comply with these requirements of the law for their own protection, as well as that of their passengers, in order to secure the steady development of commercial adventures of this nature. This requires a high degree of care and a duty of exercising all vigilance to see that whatever is necessary to the safety of their passengers in conveyances is in a fit and proper order and condition. Whether it is better to leave the discharge of these duties to the diligence of the individual, or to control them by a system of inspection and licensing seems open to discussion.

(Signed) H. Porchmore.

44 H.D. SQUADRON.

Officers of No. 44 Home Defence Squadron, who met at dinner on March 24th, 1918, are asked to turn up at 6.30 p.m. on Monday, March 24th, at the Piccadilly Hotel to meet for dinner as arranged last year.

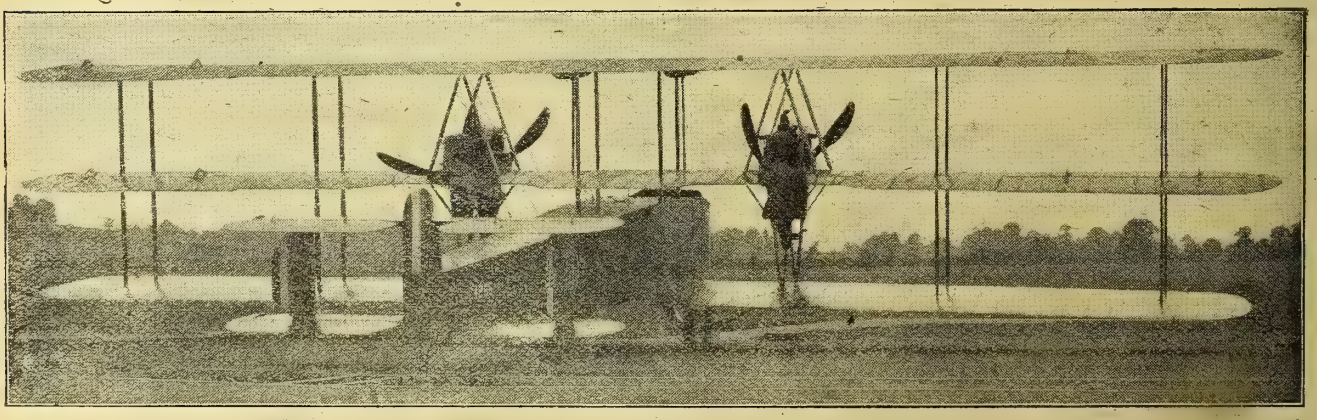
Captain R. G. H. Adams, R.A.F., who is organising the dinner, is adopting this method of attracting the attention of officers of the Squadron, as they are now so scattered that it is impossible to communicate with each of them personally.

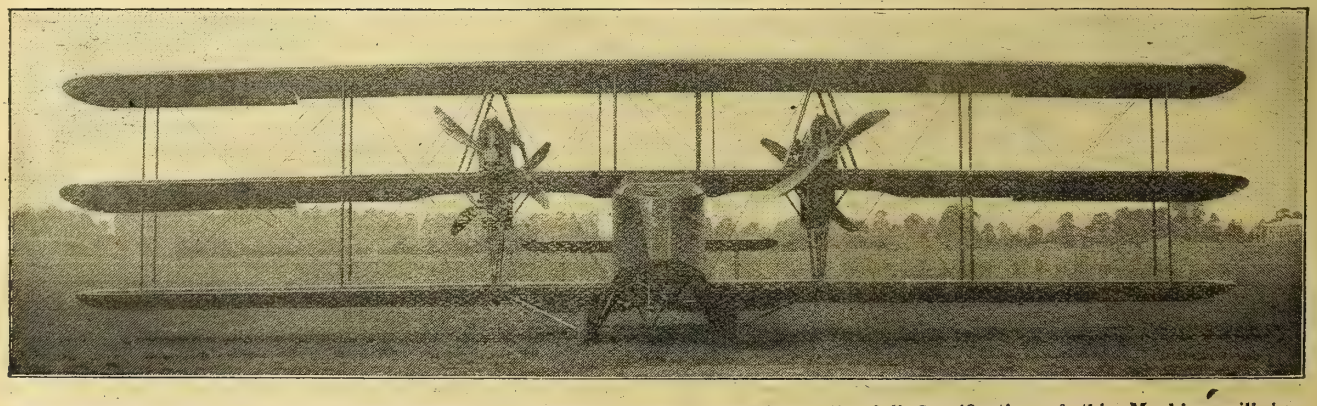
It is hoped that all ex-officers of 44 Squadron who are able to attend will do so. Those who wish to signify beforehand their intention of being present are asked to write to Captain Adams, at 41 T. D. Station, London Colney, St. Albans.

NEW BOOKS.

The Aeroplane and General Publishing Co., Ltd., have in hand for immediate publication "The Design and Construction of Aero Engines," by C. Sylvester, A.M.I.E.E., at 6s. net, a work at once popular and technical, which is badly wanted, and "The Revelations of Roy" (With apologies to Artemas), price 1s. net.

Roy is an air mechanic who tells his story and expresses his views in the true Artemas vein. The little book will add to the gaiety of aerodromes and induce lively speculation at the Bolo House as to the authorship. Both books may be ordered now, either through the booksellers, or direct from the publishers at 61, Carey Street, W.C.2.





Rear and Front Views of the Bristol "Braemar" Triplane Bomber (1,600 h.p.), the full Specification of this Machine will be found on P. 1102.

EXPERTS DIFFER.

Poor old Badger is really an excellent fellow, but he labours under the oddest delusions.

He will have it that he is an authority on the theoretical side. And we have pointed out to him time and again, sometimes brutally, sometimes tenderly, that many a brave heart beating beneath a pair of gold "wings" knows nothing whatever of the dim mysteries of the Theory of Flight.

But no. Badger is the expert. We can't see it.

He came charging into the Mess the other day exuding theories from every pore. We caught the look in his eye and feared for the worst.

"Old Simpson's really very childish," he remarked, impatiently. "You can't convince him of anything. I've just been trying."

"Badger," we urged, persuasively, "what about giving us a little tune on the piano?"

The irritated one passed over the suggestion with hauteur.

"Simpson annoys me intensely!" he said, heatedly. "Just because he's flown a 'Camel' once he thinks he's a sort of young god! He will have it that on a vertical left-hand turn you don't put on full right rudder and pull the stick back . . . ha, ha . . . too absurd."

"Yes," I said, thoughtfully. "That's right. Full left rudder to keep the nose down . . . and stick a bit forward . . . as far as I remember. . . ."

An enraged Badger confronted me.

"Don't *you* be ridiculous, too," he beseeched me. "It's too obvious. Even you, with your limited intelligence, must know that when a machine gets over 45 degs., the rudder becomes the elevator and the elevator the rudder. Therefore," he concluded, triumphantly, "by all the laws of Flight you must put on full opposite rudder and bring the stick back." He sat back contentedly.

"Not on a 'Camel'" we said, sagely. "Structural differences! And gyroscopical effects!"

Badger pulled up with an effort; after all, he must make allowance for our puny brains.

"My dear, good man," he sighed, patiently, "just because its got full dihedral on the bottom planes and none on the top planes, I don't see that . . . after all, what is it, anyway, the ratio of lift and drift, so that. . . ."

"And engine torque," we supplemented.

"Torque!" he sneered. "Don't be so dam' silly. The prop goes round anti-clockwise, doesn't it? Well, then . . . ." He rang the bell and waited for the Mess orderly. "Go to my room," he ordered the man, "and on the table you'll find a book of logarthim tables, a trigonometry book, and a book on calculus. *Bring them all here*!"

The next ten minutes are mercifully a vague recollection to me. We knew little enough about trigonometry and calculus, certainly, but Badger knew far less. We wallowed in a sea of co-tangents and other atrocities until we shrieked for mercy, and Badger stopped for breath.

"You've never flown a 'Camel'," objected a mild-looking youth in the corner.

"No," flashed Badger, powerfully. "But I will to-morrow. And I'll do a *left*-hand climbing turn off the ground with full right rud——" he trailed off, as he caught his long-suffering Flight Commander's eye.

"My lad," drawled that worthy, decisively. "I refuse to have your death on my conscience. You'll fly dead straight to 15,000 feet, and then do your crazy stunts!"

We felt that the time for action had arrived. Perhaps a bet would shut him up.

"I'll tell you what," I suggested. "We'll submit it to a real authority on the subject and abide by his answer. I'll bet you, you're wrong—ten bob on it?"

"Bet!" shouted Badger, excitedly. "Why, I'll give you ten to one! Anybody else want to make me a present of ten shillings?"

"Yes," we said, rapidly. "There's a Steve here . . . you and . . . six of us! That's three pounds to thirty."

"Three pounds," chuckled Badger. "It's a gift."

"Thirty pounds," we retorted glibly. "Mr. Cox *will* be annoyed. You'll have to sell your motor-bike to get the money!"

The upshot was that Badger wrote a letter to one of the lecturers at the School of Aeronautics under our guidance, and the letter was posted.

After that he rarely came into the Mess without telling us, gleefully, what he was going to do with his three pounds.

A week later Badger got three letters. He read the first two casually, and then opened the third. He read it, looked very perplexed—then re-read it. And seemed most upset.

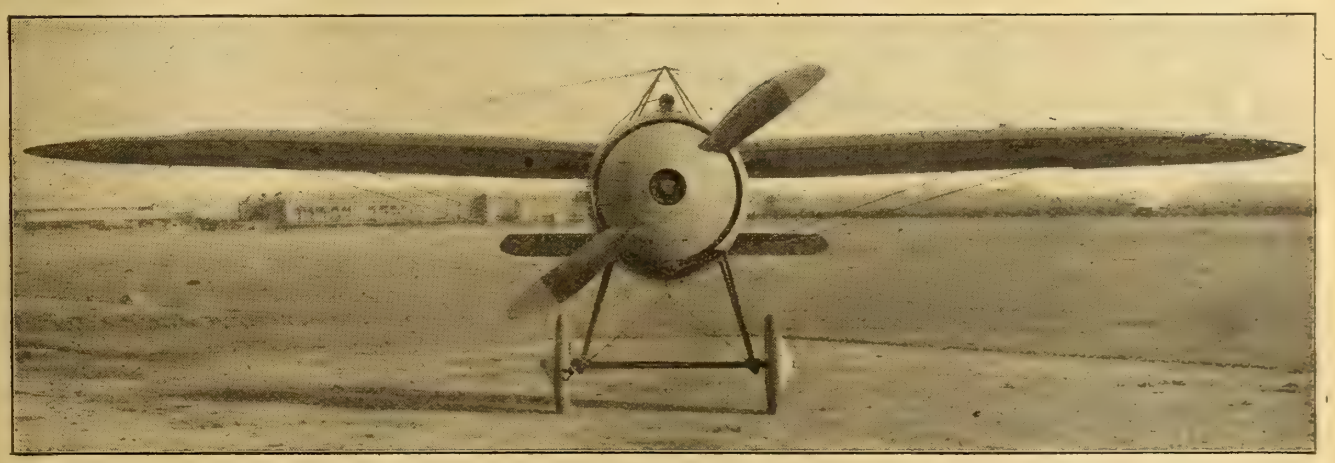
He pondered deeply, then crossed to the fireplace and threw it on the flames, carelessly.

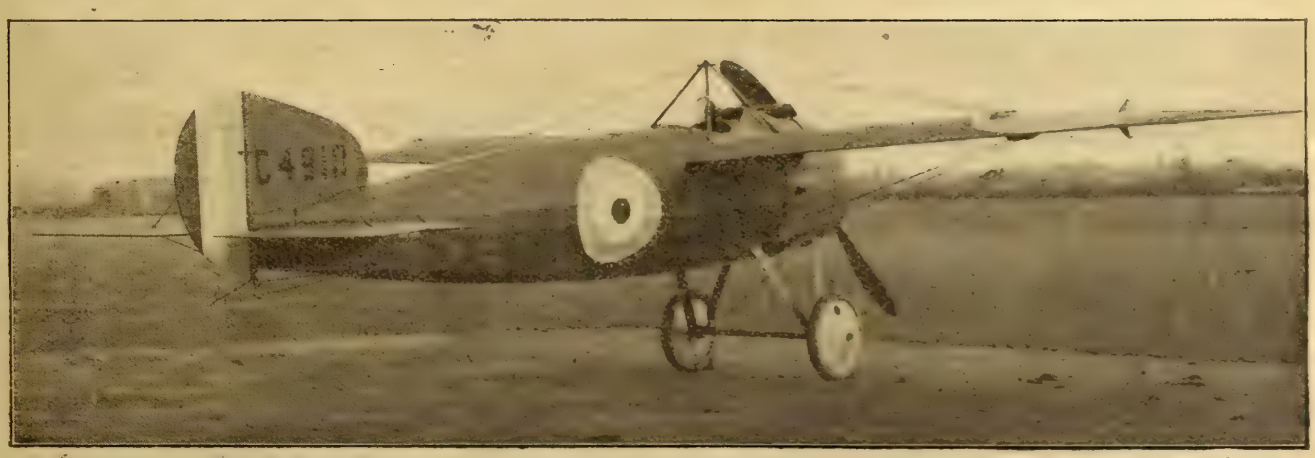
"Letter from Old Bill," he lied, bravely. "He sends you all his love."

But he had to sell his motor-bike.

He doesn't bet now.

R. G. H.





Front and Three-quarter Rear View of the Bristol Monoplane (110 h.p. Le Rhône).

SOME BOOKS TO READ.

AIRMEN O' WAR.

For a change from the workaday world—

"Where hastening creatures pass intent
On their level way,
Threading like ants that can never relent
And have nothing to say."

I can certainly recommend this new book of Boyd Cable's "Airmen o' War," though I *do* wish he would not call them that, it embitters my editor's naturally sweet disposition. If the articles of which this book is composed had been written for the "Church Times" or the "Feathered World," the term might stand, but flaunted in reviews of the staid sort—leering at you from bookstalls—it provokes language unknown to philologists. I say it very loud and clear, Mister Cable, an "airman" is one of those depressed-looking beings that carry deboshed petrol cans about, whistling curious dirges between their teeth the while. Something in armoured boots for preference, and *not* a Poilu of the Blue!

Mr. Cable is a practised writer, and jumps *in medias res* at the outset, but he is "sly, Sir, devilish sly." An uneasy feeling steals over you as you read, looming larger, until you realise that for full five pages the story has been marking time, and the last three hundred words have been nothing but paper-thin description. Or, when he waxes dramatic, a familiar spirit will whisper to you: "Rather glib, isn't it?" As the book is intended for the great public, and not for specialists (vide the titles, "The Little Butcher," "Thrills," "Like Gentlemen," etc.), it would not be kind to harp on the occasional mishandling of technical minutiæ.

Remembering Stevenson's adjuration: "Death to the optic nerve!" I wonder if it was necessary that these pages should have been so thickly spangled with adjectives; the writer has a naturally vivid style, and a sense of episode that would seem to render him independent, if he chose, of what I might describe as "dazzle-writing."

Despite all this, despite the fact that the narration jolts, loafs, and then scurries on anew, the book is much more enjoyable than some of the bread-and-milk chronicles which I have been reading lately. A good devil is better than a half-risen saint, and I would sooner read about Spotty, who, "training his gun full in the centre of the quivering light rays that marked the circle of her whirling propeller, poured burst after burst straight at the jerking flashes of the machine-gun that blazed along her propeller . . . until, he felt an agonising jar on his ankle," than be doped into a sombre quiescence by some Y.M.C.A. Xenophon who managed to get at an inkpot when nobody was looking.

I am not sure that the best tale of the lot is not that little argument, "Air Activity," in which the author forswears the "blood, beer and bones" method entirely, and—ceasing to pursue effect—attains it.

"I know that most pilots will be glad to have even this one little bit of the limelight turned on a class of men who deserve a good deal more than they get," says he. He tells us how "Two days before the Push began the mechanics put in a hard working-day of 15 hours out of the 24; the day before the Push they started at 6 a.m. and finished at 1 a.m. next morning—and with the first patrols due to start out at dawn. But they finished with every machine trued to a hairline . . . with engines running as sweet as oil, and giving their limit of revolutions without a hint of trouble, with every single item about them overhauled, examined, adjusted and tested as exhaustively and completely as if a life hung on the holding of every bolt, brace, and screw, the smooth, clean working of every plug, piston and tappet—as, indeed, a life would hang that day."

Flight after flight came back shot to pieces—"at ten-thirty the mess rooms were clear, and the lights out. But in the hangars, the armoury, the carpentry and machine shops, the electrics were at full blaze, the mechanics were hustling and bustling for dear life. It grew colder as the night wore on, and by midnight men who had been working in shirt-sleeves began to put on their jackets. By 2 a.m. they were shivering as they worked, especially those blue-lipped and stiff-fingered ones who had to stand still over a lathe or sit crouched, stitching and fumbling with numb fingers at fabric and tape and string . . . that night they had no sleep at all, had to drive their work to the limit of their speed to get the machines ready for the pilots to take off in the morning."

Man after man was shot down in the air, "but managed to glide back to our side of the lines, crash his machine, crawl out of the splintered wreckage, and make his way back to the Squadron by devious routes . . . for four days this sort of thing continued, and in that time the mechanics averaged twenty and a-half hours' driving hard work a day, the shop electrics were never out, the lorry shop lathe, with relays running it, never ceased to turn; the men ate their food at the benches as they worked, threw themselves down in corners of the hangars and under the benches, and snatched odd hours of sleep between a Flight going out and another coming in."

At last bad weather came, "they reeled and stumbled to their beds, and slept their fill, which was somewhere about the round of the clock."

So it was nice of the pilot to go to them first with the news of his award, "a Military Cross for our Flight," and thank them. —R. H. B.

GUYNEMER: A Review.

When a novelist and historian of distinction, steeped in mythological lore, sets about chronicling the life and deeds of such an one as Georges Guynemer, we may expect a book that will be out of the common run. Nor will the reader of "Guynemer: Knight of the Air," by Henry Bordeaux (Chatto & Windus, 6s. net), be disappointed.

A pedant might score cheaply by drawing attention to minor errors in technicalities, but the author has expressly stated in the prologue that "here will be found neither technical details nor the competence of the specialist." When the book is so near akin to literature, it would be boorish, I think, to quarrel with trifles. (At the same time I do not think the publishers are justified in terming Kipling's courteous letter of acknowledgment, quoted at the beginning, a "preface.") The translation is sensitive and admirable.

Feeble in frame, but stout of spirit, Guynemer, through his father, badgered the authorities until they overlooked his many rejections, and set him to work as a mechanic in the aviation corps. "Bon chien chasse de bonne race"—that the work was ignoble never seemed to occur to the slight lad. He was near his beloved machines, he was helping, that was enough. He was the Cinderella of the camp—they called him in kindly jest "la p'tite fille." Came, not a coach-and-six, but a three-cylinder Blériot. "I don't think I have achieved a reputation for prudence," he wrote, after his first flight. He got his diploma, and wrote to his sister, Odette, this hymn of joy; not long, but unique in his correspondence: "Uninterrupted descent, volplaning, for 800 metres. Superb view (sunset). . . ." In all his two hundred odd letters to his family, this is the only landscape!

He worked frenetically, but always with method. His machines obsessed him, it is "ma coucou" this, "ma coucou" that, without ending. He seems more like a character by Rostand than a man who lived but a little while ago; for joyous panache—listen to this: They are being furiously bombarded from the ground, and Guynemer dips methodically to get his coveted photographs. The Observer: "I have finished; we can go back." The Pilot: "Lieutenant, do me the favour of photographing for me the projectiles falling around us." It is the voice of d'Artagnan on the bastion of La Rochelle.

He never forgot the home folk, and always flew a new machine over his house in Compiégne, to "consecrate it." Yet he was not overly considerate of the nerves of young girls; here is a sample of his correspondence to his sister: "I got him. Result: One ball in the ear, and another through the middle of the chest. You can imagine whether the fall of the machine was instantaneous or not. There was nothing left of the pilot but one chin, one ear, one mouth, a torso, and material enough to constitute two arms. As to the coucou (burned) there was nothing left but the motor and a few bits of iron. The passenger was emptied out during the fall."

At this time the Germans were dropping messages in our lines: "Useless to fight each other; there are risks enough without that." And Guynemer, home on leave, had sworn his sister Yvonne to tell him each morning that the sky broke clear, when he would drive to Vauciennes, ascend, hunt the enemy, and return to Compiégne for luncheon. His youth denied him the Knighthood of the Legion of Honour, this young Spartan, but "none the less," said he, "I am not too young to be hit by the enemy's shells!" He treasured tokens of his enemies, and Achilles before the trophies of Hector was not more arrogant. It was not sport with him, this fighting, it was *la ravanche*, and on-lookers have testified that always, before he went up, his face was written with passion. Such clear-headed concentrated ferocity could not but bring its reward. What the man did we all know; but how and why he did it, and what manner of man he was, it is these things that make the book interesting.

In his flight notebooks this sentence keeps recurring, like a dog showing its teeth: "I attack . . . I attack . . . I attack. . . ." At long intervals appears the phrase, as if ashamed, "I am attacked." And he was but a boy, hardly out of Stanislaus.

Honours crowded thickly upon him, his invincibility became legendary. . . . Yet he felt the end coming. "My fate is sealed, I cannot escape it. *Hodie mihi, cras tibi.* . . ." Guynemer the elder urged him to stop when he had bagged his fifty. "Father, war is war," said he. "One must either go on or go under." And then: "Captain Guynemer found missing after an engagement with a biplane above Poelcapelle." That, and a tablet in the Panthéon.—R. H. B.

[Books mentioned in these reviews may be obtained, if desired, from The Aeroplane and General Publishing Co., Ltd., 61, Carey Street, W.C.2.]



NAVAL & MILITARY AERONAUTICS



GEOFFREY WATSON

FROM THE "LONDON GAZETTE."

ADMIRALTY, FEB. 28th.

Lt. to be Lt. Comdr.—C. L. Courtney, D.S.O., Feb. 28th.

AIR MINISTRY, MARCH 4th.

The following temp. appt. is made at the Air Ministry :—Staff Officer, 2nd Cl. (P.).—Capt. G. C. Gold, and to be actg. Maj. whilst so empld., Feb. 11th.

The following temp. appts. are made :—Staff Officer, 2nd Cl. (P.).—Capt. P. P. C. Penberthy, and to be actg. Maj. whilst so empld., Feb. 13th.

Staff Officer, 3rd Cl. (P.).—Sec. Lt. A. Jukes, and to be actg. Capt. whilst so empld., Feb. 13th.

FLYING BRANCH.—Maj. (actg. Lt.-Col.) M. G. B. Copeman to be Maj. (A.), from S.O., and relinquishes the actg. rank of Lt.-Col., Feb. 24th.

Capt. L. N. Glaisby, D.S.C., to be graded for pay as Capt. whilst empld. as Capt. (A.), Aug. 1st, 1918.

Capts. to be graded for pay as Capts. whilst empld. as Capts. (O.).—L. V. Pearkes, J. L. Kerry, D.S.C., July 1st, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (A.).—(Hon. Capt.) R. H. Hawkins, July 15th, 1918; S. G. Knock, A. M. West, Sept. 1st, 1918; E. H. M. Fetch, Sept. 28th, 1918; H. H. Cotton (Quebec R.), D. Langlands, Oct. 1st, 1918, W. Windrum, Oct. 14th, 1918; (Hon. Capt.) H. A. Courtenay, Nov. 3rd, 1918; A. A. Duffus, Dec. 1st, 1918.

Lt. S. D. Culley, D.S.O., to be actg. Capt. whilst empld. as Capt. (A. and S.), Nov. 1st, 1918.

Sec. Lt. G. J. Gawthorne, D.S.M., to be actg. Lt. (K.B.) whilst empld. as Balloon Comdr., June 30th, 1918

The following relinquish their comms. on ceasing to be empld..—Sec. Lt. H. J. Copp, Sept 21st, 1915; Sec. Lt. E. H. Searle (and is permitted to retain his rank), Dec. 14th, 1918 (substituted for notification in "Gazette," Dec. 13th, 1918, concerning Sec. Lt. E. H. Searle); Lt. S. F. Ireland (Lt., Derby Yeo.), Jan. 10th; Lt. A. R. Taylor (Lt., Middx. R.), Jan. 11th; Sec. Lt. F. J. Cotsell (Lond. R., T.F.), Jan. 22nd; Sec. Lt. (Hon. Lt.) G. H. Hunt (Lt., Sask. R.), Jan. 28th; Lt. C. Burgener (Lt., E. Ont. R.), Jan. 30th; Sec. Lt. (Hon. Lt.) F. B. Walls (Lt. C. Ont. R.), Feb. 10th; Sec. Lt. A. Lewin (Sec. Lt., R.W. Kent R.), Feb. 13th; Sec. Lt. A. C. Rees, Feb. 18th; Lt. F. M. Sellars (Lt., R. Newfoundland R.), Feb. 26th.

The following are transferred to the unempld. list :—Sec. Lt. G. B. Allen, Jan. 5th; Lt. J. B. Anderson, M.C., Jan. 12th; Sec. Lt. J. A. W. Jarvis, Jan. 13th; Capt. H. H. Watkins, Sec. Lt. D. K. Watt, Jan. 14th; Sec. Lt. B. G. J. Wood, Jan. 17th; Lt. (actg. Capt.) S. J. Vine, Jan. 18th; Lt. H. Rudd, Jan. 20th; Lt. W. M. M. Elvery, Sec. Lt. S. Lee, Jan. 21st; Lt. D. W. T. Fox, Lt. R. McL. Knox, Jan. 22nd; Sec. Lt. C. Crewe, Capt. (actg. Maj.) C. O. Fairbairn (N. Lancs. R.), Lt. H. R. Herne, D.F.C., Capt. (actg. Maj.) S. Whitechurch, Jan 23rd; Lt. E. W. Desbarats, Lt. H. A. Grover, Sec. Lt. W. Hopkins, Sec. Lt. T. Shortland-Jones, Jan. 24th; Lt. C. M. Hyslop, Sec. Lt. H. Rapier, Sec. Lt. G. Richardson, Lt. B. R. Redman, Jan. 25th; Lt. W. B. Woodland, Jan. 27th; Lt. J. H. Jenkinson, Lt. J. A. Smale, Sec. Lt. (actg. Capt.) A. H. Warriner, Jan. 28th; Capt. C. L. Bailey, Sec. Lt. R. Clark, Sec. Lt. C. D. Reid, Lt. H. Whitehead, Jan. 29th; Lt. W. H. Daish (Lond. R.), Capt. W. R. M. Hill, Jan. 30th; Sec. Lt. J. H. Gidman, Sec. Lt. (Hon. Capt.) R. F. Lee, Maj. J. B. Vernon, Feb. 1st; Lt. R. G. Davison, Capt. J. R. Fasson, Sec. Lt. T. Fletcher, Lt. J. L. Horne, A.F.C., Sec. Lt. J. B. Spence, Sec. Lt. T. Whittles, Feb. 2nd; Sec. Lt. R. W. Barten, Capt. W. B. Farrington, D.S.O. (Notts and Derby R.), Sec. Lt. J. B. Roberts, Feb. 3rd; Sec. Lt. (Hon. Lt.) G. Boyce, Sec. Lt. W. H. Hellier, Feb. 5th; Lt. J. K. Fisher, Sec. Lt. R. F. Hunter, Sec. Lt. J. Ure, Feb. 6th; Sec. Lt. K. L. Birtwistle, Sec. Lt. E. R. Davis, Sec. Lt. L. G. W. Howles, Sec. Lt. S. Hamilton, Feb. 7th; Lt. J. H. T. Davies, Sec. Lt. R. M. Helm, Capt. F. G. Horstmann, D.S.C., Sec. Lt. G. H. W. Legge, Feb. 8th; Sec. Lt. E. Brogan, Lt. J. Heys, Sec. Lt. A. D. Hegan, Lt. H. S. H. Read, Feb. 9th; Sec. Lt. A. C. Breingan, Sec. Lt. E. W. Dewell, Sec. Lt. A. C. Grave, Sec. Lt. E. W. Hargreaves, Lt. G. R. Haigh, Feb. 10th; Sec. Lt. (Hon. Lt.) H. Bardsley, Lt. B. A. Elliman, Sec. Lt. H. W. Evans, Sec. Lt. D. Fraser, Lt. E. W. Geere, Lt. H. S. Gros, Lt. R. W. Gosse (Northamp. R.), Lt. C. Jowsey, Capt. L. V. Kahn, Lt. E. H. Wells, Lt. G. H. Wiggins, Feb. 12th; Sec. Lt. R. H. Bailey, Lt. T. S. Brazendale, Lt. A. Chapman, Sec. Lt. L. S. Dare, Sec. Lt. W. Drage, Sec. Lt. (Hon. Lt.) J. J. St. J. W. Devey, Sec. Lt. F. W. Foster, Capt. A. R. L. Goodson, Lt. A. J. Golding, Lt. L. H. Kearne, Sec. Lt. D. L. N. Growns, Lt. A. H. Webber, Lt. L. Whistler, Feb. 12th; Lt. (actg. Capt.) W. Bruce, A.F.C., Sec. Lt. A. R. Cotton, Sec. Lt. H. C. Dakin, Lt. G. S. Dalgleish, Sec. Lt. J. C. Fairfax, Sec. Lt. R. G. Gibbs, Lt. J. L. K. Gifford, Sec. Lt. W. S. Greenwood, Sec. Lt. A. M. Haybittle, Sec. Lt. B. W. Joyce, Sec. Lt. F. C. Weatherley, Feb. 13th; Lt. H. Barningham, Sec. Lt. F. Birkett, Lt. J. E. Burke (R.G.A., Spec. Res.), Sec. Lt. H. G. Chapman, Sec. Lt. L. B. Clarke, Sec. Lt. K. C. W. Craig, Sec. Lt. P. F. A. Curtis, Capt. J. C. B. Firth, M.C., Sec. Lt. W. S. Dailey, Capt. J. G. Hudson, Maj. R. J. Hudson, M.C. (R. Fus., S. Res), Lt. A. F. Smith, Sec. Lt. H. A. Welch, Sec. Lt. G. V. Yorke, Feb. 14th; Capt. H. Barker, Lt. W. K. Bradley, Lt. H. S. Boulding, Sec. Lt. J. G. Dunlop, Lt. A. F. Forsyth, Sec. Lt. C. F. Geyton, Lt. G. Gibbons (Lond. R.); Lt. J. E. N. Godrich, Lt. C. W. D. Holmes, Sec. Lt. H. Howarth, Lt. J. Haygarth, Lt. R. K. Harrison, Sec. Lt. F. L. Innes, Sec. Lt. G. W. Webster, Feb. 15th; Sec. Lt. J. C. Castle, Sec. Lt. H. J. Crisp, Capt. H. Rampling, Feb. 16th; Lt. J. W. Blagg, Lt. A. T. Burgess, Sec. Lt. A. E. Cohen, Capt. A. J. Enstone, Lt. G. H. Fender (R.W. Kent R.), Sec. Lt. J. B. Holbrok, Sec. Lt. H. S. Slinger, Feb. 17th; Sec. Lt. S. H. Apling, Lt. W. F. T. Coutts, Sec. Lt. K. J. Cadwallader, Sec. Lt. C. F. Coates, Sec. Lt. N. V. Gay, Capt. H. N. Warburton, Sec. Lt. S. T. Westcott, Feb. 18th; Lt. P. Allsopp (W. Riding R., T.F.), Sec. Lt. J. Biggam, Lt. J. S. Bowker (Man. R., T.F.), Sec. Lt. F. H. Cowley, Sec. Lt. A. R. Courtis, Lt. M. S. Faraday (R.F.A.), Lt. P. L. J. Gardner, Sec. Lt. J. W. Craig, Capt. H. D. Cutler, Lt. J. S. Hogg, Lt. H. J. S. Quarterman, Sec. Lt. F. P. Wheeler, Feb. 19th; Sec. Lt. S. W. Hollingworth, Sec. Lt. F. D. Smith, Sec. Lt. R. F. Tunaley, Sec. Lt. H. H. Watts, Feb. 20th; Sec. Lt. W. Ashford, Lt. S. H. B. Elums, Sec. Lt. W. E. Hole, Feb. 21st; Sec. Lt. R. C. Collinswood, Feb. 22nd; Sec. Lt. J. E. Barry, Sec. Lt. Z. J. Bissonnette, Sec. Lt. J. A. Burgess, Sec. Lt. S. R. Housen, Sec. Lt. J. O. Huddart, Feb. 23rd; Sec. Lt. D. W. Gracey, Feb. 28th; Lt. S. W. Dronsfield, March 3rd, Sec. Lt. E. W. Cockroft, March 5th.

The following Lts. relinquish their commns on account of ill-health, and are permitted to retain their rank :—F. E. Bambridge (caused by wounds), G. Beveridge (contracted on active service), D. G. Brown (contracted on active service), C. F. Eckel, M. C. Kinney (contracted on active service), F. J. K. Mason, March 5th

The following Sec. Lts. relinquish their commns on account of ill-health, and are permitted to retain their rank :—S. W. Atkinson, J. Potter (contracted on active service), W. F. M. Wise (contracted on active service), March 5th.

The Christian names of Flt. Cadet Stanley Ward Ward are as now described, and not as stated in "Gazette,"' Feb. 14th.

The surname of Sec. Lt. S. A. W. Setchell is as now described, and not as stated in "Gazette," Sept. 24th, 1918.

The initials and surname of Sec. Lt. J. E. Mutty are as now described, and not as stated in "Gazette," Feb. 4th.

The number of Flt. Cdt. H. Lyne is 551032, and not 851032, as stated in "Gazette," Dec. 10th, 1918.

The notification in "Gazette," Jan. 31st concerning Lt. J. A. Johnson, M.M. (Manitoba R.), is cancelled.

ADMINISTRATIVE BRANCH.—Maj. I. A. S. Cooke, O.B.E., to be Maj., from (S.O.), Feb. 26th.

Lts. to be actg. Capts. while empld. as Capts. :—(Hon. Capt.) F. W. Napper, Aug. 1st, 1918; A. F. Tabraham, Aug. 28th, 1918; R. C. Byass, P. C. Coote, A. J. Croft, M.C., E. Emley, Sept 1st, 1918; G. H. Hill, Sept. 17th, 1918; W. N. Cuthbert, Nov. 1st, 1918; E. S. C. Brooks, Feb. 1st, 1918.

Sec. Lts. to be actg. Capts. while empld. as Capts :—(Actg. Lt.) W. W. Shuker, Aug. 1st, 1918; (Hon. Lt.) (actg. Lt.) H. L. Marston, Sept. 26th, 1918; F. D. Owen, Oct. 1st, 1918; W. F. M. Hopkins, Nov. 1st, 1918; J. Bushell, from (T.), Dec. 1st, 1918.

Lts. (A.) to be Lts. :—K. B. Preston, Aug. 9th, 1918; (Hon. Capt.) H. L. Symons (Can. Engrs.), Sept. 12th, 1918; R. W. P. Goodwin, Nov. 20th, 1918; W. R. Heaton, Dec. 2nd, 1918; S. N. Jones (actg. Capt.) J. V. Turner, and relinquishes actg. rank of Capt., Dec. 12th, 1918; E. C. Hoar, Dec. 21st, 1918; S. Blair, Jan. 9th; D. K. Rankin, Jan. 23rd; D. H. Bevan, Jan. 27th.

Lt. S. de Frictas to be Lt. from (K.B.), July 8th, 1918.

Lts. (O.) to be Lts. :—R. Fitton, M.C., Nov. 12th, 1918; W. A. Knight, Jan. 31d; W. J. Harvey, M.C., Jan. 10th; G. E. Maxwell Feb. 3rd.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. :—(Hon. Lt.) J. Cobley, Sept. 1st, 1918; L. A. T. Power, from (T.), Oct. 1st, 1918; W. H. Short, from (T.), Nov. 1st, 1918; L. Smith, from (O.), Feb. 21st.

Sec. Lts. to be Sec. Lts., from (A.) :—J. A. Tomson, Oct. 7th, 1918; A. F. Webster, Oct. 24th, 1918; W. M. M. McNeill-Hamilton, Nov. 15th, 1918; M. D. Hart, Nov 20th, 1918; W. C. Marshall, Jan. 13th; H. J. Smith, Feb. 4th.

Sec. Lts. to be Sec. Lts., from (A. and S.) :—W. O. Jones, Nov. 5th, 1918; F. L. Catterall, Dec. 31st, 1918.

Sec. Lts. to be Sec. Lts. from (O.) :—A. Whichelow, Dec. 2nd, 1918; P. H. Montgomery, Dec. 3rd, 1918; W. J. Bradshaw, Hon. Lt. C. M. McGorrery (and to be Hon. Lt.), Dec 5th, 1918; H. Hood, Dec. 13th, 1918; H. G. Biltcliffe, Dec. 16th, 1918; F. D. McClinton, Dec 19th, 1918; G. D. Knighton, Jan. 1st; H. E. Hinchliffe, Jan. 11th; I. MacL. Moffatt, Jan. 20th; R. E. Clark, Jan. 24th; V. C. Turner, Jan 29th; Hon Lt. W. A. B. Eastwood, Jan. 31st, and to be Hon. Lt.

The following are transferred to unempld. list :—Lt. J. Arch, Jan. 11th; Capt. V. G. Davies, Jan. 19th; Sec. Lt. G. Dignam, Jan. 21st; Lt. (actg. Capt.) C. E. Collins, Jan. 23rd; Lt. F. A. Rhodes, Jan 24th; Sec. Lt. J. Whittaker, Jan. 26th; Lt. (actg. Maj.) J. G. Lumsden, Jan. 28th; Sec. Lt. J. W. Corble, Jan. 29th; Maj. (Hon. Lt.-Col.) Hon. V. A. F. V. Russell, Jan. 30th; Sec. Lt. G. E. Rollason, Sec. Lt. M. P. Stoneham, Sec. Lt. A. E. Steel, Feb. 2nd; Lt. J. S. Rissen, Sec. Lt. L. Wardle-Donald, Feb. 5th; Sec. Lt. J. F. George, D.S.M., Feb 6th; Sec. Lt. J. W. S. Appleton, Feb. 8th; Sec. Lt. R. Breese, Feb. 10th; Lt. (actg. Capt.) E. E. Hardie, Sec. Lt. A. K. Kennedy, Feb. 11th; Sec. Lt. I. Edelman, Sec. Lt. H. Forbes, Feb. 12th; Sec. Lt. A. N. Dale, Feb. 13th; Lt. J. E. F. Dell, Lt. G. Dodds, Feb. 15th; Sec. Lt. F. O. Finn, Feb. 16th; Capt. C. J. Griffiths, March 5th.

Sec. Lt. (Hon. Capt. M. E. Leeb relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt., March 5th.

The following Lts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank :—R. D. K. Taylor, C. L. White, March 5th

The following Sec. Lts. relinquish their commns on account of ill-health, and are permitted to retain their rank :—H. Andrew, F. W. Birkenshaw, L. H. Meyer, R. P. Squire, G. R. Shibley (contracted on active service), T. Wheeler (contracted on active service), March 5th.

The initials of Lt. (actg. Capt.) H. N. Giles are as now described, and not as stated in "Gazette," Feb. 25th

TECHNICAL BRANCH.—C. H. R. E. Raven (Lt., R.E., T.F.) is granted a temp. commn. as Capt. (Grade B), April 1st, 1918.

Lts. to be actg. Capts whilst empld. as Capts. (Grade A) :—A. Fincher-Brookes, A. G. Harrison, A. H. Rayner, Nov. 1st, 1918.

Lts. to be actg. Capts. whilst empld. as Capts (Grade B) :—W. H. M. Groom, June 6th, 1918; P. H. Shone (but without pay and allces.), Sept. 1st, 1918; A. E. Cambridge, from (O.), Sept. 12th, 1918; H. Smith, Oct. 1st, 1918.

Sec. Lts. to be actg. Capts. whilst empld. as Capts (Grade A) :—H. Satterford, May 6th, 1918; (actg. Lt.) E. F. Sutton, July 20th, 1918; (Hon. Lt.) J. H. Ward, Dec. 1st, 1918; E. T. W. Nockold, Jan. 1st.

Sec. Lts. to be actg. Capts. whilst empld. as Capts. (Grade B) :—(Hon. Lt.) B. L. Bromley, Nov. 1st, 1918; (actg. Lt. G. Baker (from Ad.), Dec. 1st, 1918.

Sec. Lts. to be actg. Capts (with pay and allces. of Lts.) whilst empld. as Capts. (Grade B) :—(Hon. Lt.) R. C. Broughton, (Hon. Lt.) A. N. Pictor, (Hon. Lt.) P. H. West, Sept. 1st, 1918; (actg. Lt.) A. W. Summers, Dec. 1st, 1918.

Lts. to be Lts. (Grade B) :—(Hon. Capt.) D. D. Drury, from (A.), Aug. 3rd, 1918; J. C. McKeever (C. Ont. R.), from (Ad.), Nov. 20th, 1918.

Lt. J. W. Parkinson to be graded for pay as Lt. whilst empld. as Lt. (Grade B), Oct. 1st, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Grade A) :—J. Y. Watson, Sept. 1st, 1918; H. Williams, Oct. 1st, 1918; P. D. Wilson, Oct. 21st, 1918; W. R. Day, Nov. 1st, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Grade B) :—E. A. Moran-Smith, May 22nd, 1918; H. Stafford, Aug. 1st, 1918; A. E. Williams, Aug. 14th, 1918; R. J. D. Killick, A. P. Woollett, Sept, 1st, 1918; W. C. Burns, H. J. Grant from (O.), J. A. Joyce, Oct. 1st, 1918; F. S. Stokes, Nov. 1st, 1918; S. J. Edwards, L. Evans, J. Rolls, I. Samber, Dec. 1st, 1918; H. A. Lyford, Jan. 1st.

Sec. Lts. to be Sec. Lts. (Grade A), from (Ad.) :—W. A. Murphy, April 1st, 1918; E. G. Harris, Jan. 16th

Sec. Lts. to be Sec. Lts (Grade B), from (Ad.) :—J. Ireland-Low, Jan. 11th; H. P. Johnson, G. Thomas, Feb. 17th; J. K. Thomson, F. W. Corbett, D. W. Genge, Feb. 18th.

E. P. Ryan (Hon. Lt. and Q.M., Lancs. Fus.) is granted a temp. commn. as Sec. Lt. (Grade B), Aug. 16th, 1918, seny. from April 1st, 1918.

The following are transfd. to unempld. list :—Sec. Lt. A. E. Richardson, Jan. 22nd; Lt. R. F. Sinclair, Jan. 26th; Capt. A. R. Dresser, Jan. 29th; Lt. (actg. Capt.) P. C. Routley, Sec. Lt. J. J. Speer, Jan. 31st; Lt. H. D. Roe, Sec. Lt. W. G. Rogers, Capt. G. A. Scutt, Feb. 1st; Lt. R. D. Ronald, Feb. 3rd; Lt. (actg. Capt.) D. Clark, Capt. J. H. P. Daman, Capt. W. S. Hedley, Feb. 4th; Sec. Lt. H. A. S. Fitch, Capt. D. Hodgson, Feb. 6th; Lt. T. H. Gladstone, Sec. Lt. H. A. Sugden, Feb. 9th; Sec. Lt. H. D. McL. Hayward, Capt. W. H. M. Knox, Feb. 11th; Sec. Lt. O. C. Bown, Lt. H. Haddon, Feb. 12th; Sec. Lt. R. D. Fleet, Feb. 13th; Capt. I. N. Dracopoli, Sec. Lt. B. F. Harrison, Feb. 14th; Lt. V. V. Cadman, Lt. G. R. Cobb, Sec. Lt. G. Colbert, Capt. H. E. O. Ellis, Capt. E. W. Walford, Feb. 15th; Capt. E. H. Cook, Feb. 17th; Sec. Lt. (Hon. Lt.) R. C. Broughton, Feb. 18th; Capt. A. G. Saxty, Sec. Lt. W. S. Stelies, Feb. 19th; Capt. W. H. Fenteman-Coates, Feb. 21st.

Lt.-Col. W. E. Jones relinquishes his commn. on account of ill-health, March 5th.

Sec. Lt. S. Barrow relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 5th.

The initials of Sec. Lt. (actg. Capt.) H. P. G. Leigh are as now described, and not as in "Gazette," Feb. 11th.

The notifications in "Gazette," June 4th, 1918, and Nov. 22nd, 1918, concerning Sec. Lt. (Hon. Lt.) (actg. Lt.) H. H. Mitchell are cancelled.

The notification in "Gazette," June 25th, 1918, concerning Sec. Lt. (actg. Lt.) W. G. Horton is cancelled.

Medical Branch.—Capt. R. D. Goldie (Capt., R.A.M.C., Spec. Res.) relinquishes his commn. on ceasing to be empld., Oct. 1st, 1918.

Memoranda.—Maj. M. O. Darby to be actg. Lt.-Col. while holding a special appt. at the Ministry of Munitions, Jan 21st.

Lts. to be actg. Capts. (without the pay and allces of that rank) while specially empld.—F. T. McElwee, R. J. Sladden, March 4th.

The following are transfd. to unempld. list from (S.O.) :—Capt. S. J. Herr, Feb. 5th; Lt. (actg. Capt.) T. Jones, Feb. 13th; Sec. Lt. (actg. Capt.) H. B. Langton, Feb. 18th.

Air Ministry, March 7th.

R.A.F.—The following temp. appts. are made at the Air Ministry :—

Staff Officers, 2nd Cl. (P.) Capt. (Actg. Maj.) A. J. W. Burmby, and to retain actg. rank while so empld., Jan. 31st; (T.) Maj. (actg. Lt.-Col.) A. Ap Ellis, and to relinquish the actg. rank of Lt.-Col., Feb. 19th.

Staff Officers, 3rd Cl.—(P.) Sec. Lt. E. E. Page, and to be actg. Capt. while so empld., Dec. 31st, 1918.

The following temp. appts. are made :—Staff Officer, 1st Cl. (Air).—Lt.-Col. W. F. MacNeece, D.S.O., D.F.C., Jan. 16th.

Staff Officer, 3rd Class (O.).—Sec. Lt. A. M. Goddard, and to be actg. Capt. while so empld., Feb. 5th.

Air Attaché.—Col. (actg. Brig.-Gen.) L. E. O. Charlton, C.B., C.M.G., D.S.O., and to retain temporarily the actg. rank of Brig.-Gen., Feb. 19th.

Flying Branch.—Lts. to be actg. Capts. while empld. as Capts. (A.) :—A. S. Keep, M.C., Dec 30th, 1918; L. L. Lindsay, from (S.O.), Feb. 1st.

Sec. Lts. to be Lts. :—J. P. Y. Dickey, A. K. Charlesworth, H. Dear, F. Dixon, F. Abrahams, L. E. O. Lounds, H. W. Heslop, J. D. Paterson, L. Mitchell, M.C., April 2nd, 1918; J. H. Shaw, April 6th, 1918; F. L. Bamper, April 15th, 1918; K. E. Wright, April 16th, 1918; H. E. A. Reynolds, S. N. Hill, April 21st, 1918; T. Brandon, M.C., April 26th, 1918; I. R. L. Ross, D.F.C., May 1st, 1918; D. M. John, May 2nd, 1918; O. C. Dawson, May 4th, 1918; R. N. Essell, May 8th, 1918; J. S. Nicoll, May 13th, 1918; G. R. Thornley, (Hon. Capt.) C. E. Haworth, and to retain his hon. rank, May 22nd, 1918; H. T. Hesketh, May 23rd, 1918; S. Jackson, M.C., May 25th, 1918; A. Briercliffe, May 30th, 1918; C. H. F. Nesbit, June 6th, 1918; A. Bentley, June 7th, 1918; S. Dumbell, June 11th, 1918; V. A. Peers, June 25th, 1918; E. L. Ward, M.C., June 28th, 1918; (Hon. Capt.) A. F. B. Broadhurst, and to retain his hon. rank, June 30th, 1918; A. C. Orchin, July 1st, 1918; A. G. McGowan, July 7th, 1918; F. Fletcher, July 9th, 1918; P. M. Lindesay, A. D. Drew, T. G. Murray, July 11th, 1918; R. P. H. West, July 25th, 1918; J. L. Booth, A. C. D. Anderson, July 31st, 1918, G. A. Randolph, Aug. 1st, 1918; E. F. Murphy, Aug. 3rd, 1918; J. G. Prestwick, Aug 12th, 1918; F. H. Glover, Aug. 19th, 1918; J. J. T. Rose, (Hon. Capt.) F. R. Ashmead, and to retain his hon. rank, Aug. 21st, 1918; L. C. Pierce, Aug. 25th, 1918; C. Berkeley, Aug. 26th, 1918; A. P. Godfrey, Aug. 27th, 1918; M. G. Penny, C. P. M. B. Caillard, Aug. 28th, 1918; M. W. Nolan, Aug. 29th, 1918; J. Whitehead, A. G. Foster-Sutton, B. E. Essex, Sept. 1st, 1918; S. P. J. Yeats, Sept. 2nd, 1918; R. L. Hall, Sept. 12th, 1918; J. J. Saunders, Sept. 13th, 1918; (Hon. Capt.) H. P. Valintine, and to retain his hon. rank, Sept. 19th, 1918; E. G. Tyler, Sept. 27th, 1918; R. W. Ellis, E. R. Airey, C. C. Reynolds, M.M., R. Wannell, C. H. G. Sanders, Sept. 28th, 1918; G. Adamson, Oct. 3rd, 1918; W. G. Humphries, M.C., Oct. 15th, 1918; W. J. P. Dicks, A. S. Moynihan, Oct. 14th, 1918; W. F. Nicholay, D.C.M., Oct. 15th, 1918; W. R. Vane, Oct. 17th, 1918; J. Cave, Oct. 18th, 1918; A. Niven, J. Stephenson, Oct. 20th, 1918; C. P. Bayne, Oct. 23rd, 1918; C. G. Bateson, Oct. 25th, 1918; L. Allden, Oct. 26th, 1918; C. J. Ralph, R. Tully, Oct. 27th, 1918; E. C. H. Jones, Oct. 28th, 1918; S. Horscroft, M.C., Oct. 29th, 1918; H. R. Owen, Nov. 1st, 1918; C. H. Porter, Nov. 2nd, 1918; I. P. Anderson, Nov. 7th, 1918; E. J. Suter, Nov. 8th, 1918; D. G. Medus, Nov. 9th, 1918; M. T. Stanley, E. E. Richardson, M.M., A. H. Day, R. G. Harris, I. H. Turkington, A. W. B. Singer, Nov. 30th, 1918; J. W. Smith, Dec. 1st, 1918; A. West, Dec. 4th, 1918; J. A. Tomlinson, Dec. 21st, 1918; C. G. Strange, Dec. 26th, 1918; H. Stanners, M.M., T. T. Wishart, W. W. Naylor, Dec. 27th, 1918; W. Cameron, G. C. Cooper, A. Murray, H. J. Rayment, J. B. V. Clements, D.F.C., D. A. Gordan, Jan. 1st; A. V. Speight, Jan. 5th; F. E. Spain, C. A. Holt, E. C. Hill-Clarke, Jan. 14th; D. F. Brooks, Jan. 29th; W. T. C. Blake, W. P. James, Feb 1st; J. F. Giomre, T. D. Sykes, Feb. 2nd; B. O. Davis, E. T. Hunt, Feb. 4th; J. A. Massey, Feb. 15th; G. A. Drewitt, J. C. Joynt, E. A. Sewell, B. E. Randall, A. W. Birch, Feb. 16th; G. C. Hope, Feb. 20th; A. Holdsworth, Feb. 21st; J. Martin, Feb. 25th; J. C. Langford, Feb. 26th; L. S. Duffill, C. W. Phillips, Feb. 28th; R. W. Mitchell, March 1st.

Prob. Flt. Officer H. Isherwood (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (A.), Oct. 23rd, 1918.

C. F. L. Chester (Lt., R.W. Kent R.) is granted a temp. commn. as Sec. Lt. (A.), Oct. 29th, 1918, and to be Hon. Lt. (substituted for notification in "Gazette," Feb. 18th.

R. Boumphrey (Capt., Lan. Hus., T.F.) is granted a temp. commn. as Sec. Lt. (A.), and to be Hon. Capt., Nov. 19th, 1918 (substituted for notification in "Gazette," Dec. 17th, 1918.

B. A. Foord, M.C., (Lt., Lond. R., T.F.) is granted a temp. commn. as Sec. Lt. (O.), Oct. 25th, 1918, and to be Hon. Lt.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts. (K.B.) :—C. A. White, H. H. Howells, Aug. 8th, 1918.

Sec. Lt. L. C. Cody to be Sec. Lt. (K.B.), from (Ad.), Oct. 19th, 1918 (substituted for notification in "Gazette," Jan. 31st).

Sec. Lt. H. Stirrup (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Obsr. Officer), April 1st, 1918.

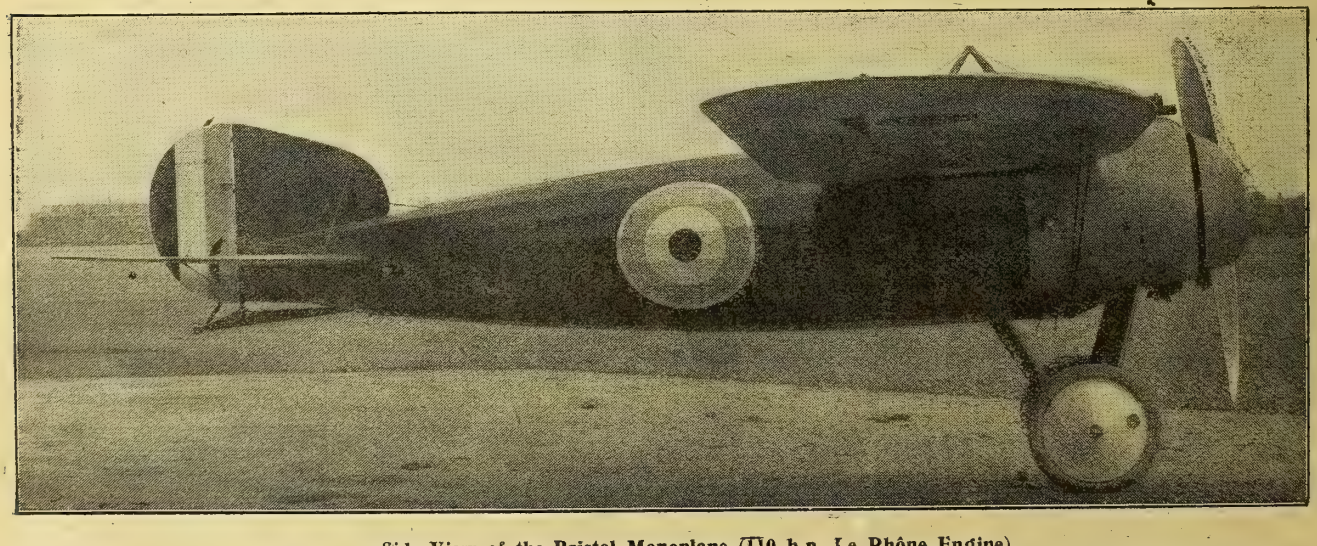
Sec. Lt. A. E. Evans (late R.F.C., Gen. List) is confirmed in his rank as Sec. Lt. (Obsr. Officer), April 5th, 1918 (substituted for notification in "Gazette," Feb. 14th.

W. S. Peel, M.C. (Lt., Linc. R., Spec Res.) is granted a temp. commn. as Sec. Lt. (Obsr. Officer), June 1st, 1918, and to be Hon. Lt.

Flt. Comdt. 177148 W. McK. Auld is granted a temp. commn. as Sec. Lt. (Obsr. Officer), Nov. 5th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. (Hon. Lt.) G. S. Routhier, M.M. (Lt., W. Ont. R.), Jan. 9th; Sec. Lt. (Hon. Lt.) A. S. Robertson (Lt. N. Bruns R.), Jan. 13th (substituted for notification in "Gazette," Feb. 7th; Lt. S. L. Shannon (Lt., Sask. R.), Jan. 15th; Lt. G. S. Dee (T. Lt., R.Dub. Fus.), Feb. 10th; Lt. A. D. Ferguson (Lt., H.L.I.), Feb. 12th.

The following are transfd. to unempld. list :—Sec. Lt. C. E. Winter, Jan. 7th; Lt. F. H. Barlow (R. Lancs. R.), Jan. 9th; Sec. Lt. W. G. P. Dyson, Jan. 12th; Capt. H. S. Ward, Jan. 15th; Sec. Lt. T. W. Brodie Jan. 18th; Lt. J. S. Hopper, Lt. P. Smallwood, Jan. 19th; Lt. E. O. W. Hall, Sec. Lt. J. Wilkinson, Jan. 22nd; Sec. Lt. H. Cavill, Sec. Lt. J. F.



Side View of the Bristol Monoplane (110 h.p. Le Rhône Engine).

Wardle, Capt. C. G. E. Yarde, Jan. 23rd; Lt. C. H Howell, Jan. 25th; Sec. Lt. A. P. Williams, Jan. 26th; Sec. Lt H. Town, Jan 27th; Sec. Lt. T. I. Irving, Sec. Lt. M A. Toomey, Jan 28th; Sec. Lt J. Thibaudeau, Sec Lt. A. E. Tough, Jan. 29th; Sec. Lt. N. W. Churchill, Sec. Lt. W. G. Davis, Jan. 30th; Lt. G. H. Fozzard, Jan. 31st; Sec. Lt. W. A. Erskine, Sec. Lt. J. P. Fullarton, Sec. Lt J. S. G. Holmes, Sec. Lt. W. P. Jolly, Lt. T. M. Winch, Feb. 1st; Lt. T. B. Dickson, Sec. Lt. V. J Fontannaz, Lt. M. R. Stack, Feb. 2nd; Lt. R. E. Conder, Lt. E. A. Thain, Feb. 4th; Sec. Lt. B. W Berrington, Sec. Lt. A. Brown, Lt. C. L. Willcox, Lt. (Hon. Capt.) P. K. C. Wright, Feb. 5th; Sec. Lt. R. E. S. Gibson, Lt. E. Leighton, Feb. 6th; Sec. Lt. T. E. W. Browne, Sec. Lt. A. Haines, Capt. A. B. Holcroft, Feb. 7th; Lt. F. C. Giles, Capt. S. Kemball, Feb. 8th; Sec. Lt. M R. Jacobs, Lt. (Hon. Capt.) R. B. Lockhart, Lt. J. Cushny, Feb. 9th; Sec. Lt. H E. Ford, Sec. Lt. H. J. Fuller, Lt. F. B. Huson, Sec. Lt. R. O. Vasey, Feb. 11th; Sec. Lt. E. W. Handley, Lt. R. W. W. Hardie. Lt. R. A Hodgson, Sec. Lt. A. C. Irwin, Sec. Lt. C. E. Taylor, Lt. W. R. Walker, Lt. T. M. Willett, Feb. 12th; Lt. R. B. R. Ashworth, Sec. Lt. (Hon. Lt.) A. Hanson, Sec. Lt. L. W. Kersley, Sec. Lt. (Hon. Lt.) D. C. Lockwood (Notts and Derby T.F.), Lt. (actg. Capt.) T. K. Twist, M.C., Feb. 13th; Lt. E. F. D. Acland, Sec. Lt. V. T. H. Ffrench, Sec Lt. J. E. Hughes, Feb. 14th; Lt. A. L. Allan, Sec Lt. A J. Aspinall, Lt. A. B. Blanksby, Lt. C. N. Burns, Lt. H. B. Enderby, Sec. Lt. E. A. Freitag, Sec. Lt. C. Fortune, Capt. C. C. Gover, Lt. S. A. Gilray, Lt. (actg. Capt.) J. Hodgson, D.F.C., Lt. (actg. Capt.) J. Hutchings, Sec. Lt. R. B. Kennedy, Feb. 15th; Sec. Lt. C. G. D. Airey, Sec. Lt. E. P. Caton, Sec. Lt. M W. Dunn, Sec. Lt. P. E. Groom, Maj. P. G Horswell, Feb. 16th; Sec. Lt. R. V. Dowding, Sec. Lt. L. W. Gare, Feb. 17th; Lt. H. F. Andrew, Lt. V. D. Grant, Lt. E. S. Jacobs, Lt. F. C. Zink, Feb. 18th; Lt. C. A. Bainbridge, Lt. M. H. Bailey, Sec. Lt. A. W. Beaven, Sec. Lt. C. V Brearley, Sec. Lt. J. W. Devlin, Lt. C. G. Fraser, Sec Lt. A. Harman, Capt. A. W. C. Holcombe, Sec. Lt. I. C M Hatfield, Sec. Lt. J. Tullock, Lt. C. C. T. Turner, Feb. 19th; Lt. F. V. Banton, Lt. F. C. D Bridle, Lt. B. D. Bennett, Sec. Lt. R. M. Campbell, Sec. Lt. E Darby, Lt. S. F. Garrett, Sec. Lt. L G. Gillam, Sec. Lt. G. W. Lambert, Sec. Lt. O T. Lashmore, Capt. C. F. T Walker, Feb. 20th; Sec. Lt. A. A. Bartram, Lt. J. D. Currie (H.L.I.), Lt. P Dendy (Norf. R.), Sec. Lt. J. W. S. Gibbs, Sec. Lt. I. Livingston, Capt. A. C. Workman, Feb. 21st; Capt. E. W. Goldsworthy (City of Lon. Yeo.), Lt. P. D. MacA. Lingeman, Sec. Lt. W. L. Stebbens, Lt. H. L. Webster, Feb. 22nd; Sec. Lt. J. N. Boanson, Sec. Lt. P. H. Take, Feb 23rd; Lt. C. J. Agelasto, Sec. Lt. E. J. Bowen, Feb. 24th; Sec. Lt. N. H. Allen, Lt. H W. Sangway, Lt. A. C. Sharman (E. Surr. R., T.F.), Feb. 25th; Sec. Lt. C. L. Arnold, Sec. Lt. S. R. Byrne, Feb. 28th; Sec. Lt. C. H. Browne, March 3rd.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—

L. A W. Clift, March 6th (substituted for notification in "Gazette" of Dec. 6th, 1918); K. R. Anderson (L'pool R.), B. F. Braithwaite (caused by wounds), H. V. Ellis, L. G. Fauvel (contracted on active service), March 8th.

Sec. Lt. H. H. Towne is antedated in his appt. as Sec. Lt. (A.) Aug. 9th, 1918

Sec. Lt. W. R. Allison is antedated in his appt. as Sec. Lt. (A. and S.), May 10th.

Sec. Lt. J. L. G. Fasham is antedated in his appointment as Sec. Lt. (K. B.), May 25th, 1918.

The initials of Lt. (actg. Capt.) D. W. Grinnell-Milne are as now described, and not as in "Gazette," Nov. 1st, 1918.

The surname of Lt. W. W. Smyth is as now described, and not as in "Gazette" Feb. 14th.

The surname of Sec. Lt. W. Campbell is as now described, and not as in "Gazette"s, Jan. 24th and Feb. 14th.

The surname of Flt. Cadet R. Hofmeyr is as now described, and not as in "Gazette," Nov. 12th, 1918.

The notification in "Gazette," Sept. 6th, 1918, concerning Sec. Lt. (Hon. Lt.) J. Jackson is cancelled.

The notification in "Gazette," Jan. 17th, concerning Sec. Lt. A. L. Stephens is cancelled.

ADMINISTRATIVE BRANCH.—Maj. N. S. Douglas to be Maj. (from A. and S.), Dec. 30th, 1918.

C. H. Brodie (temp. Capt., R.E.) is granted a temp. commn. as Capt., Aug. 26th, 1918 with seny. from April 1st 1918

To be actg. Capts whilst empld. as Capts :—Lt. J. S. Bowler, Sept. 1st, 1918; Sec. Lt. (Hon. Maj.) S. A. Snatt, Oct. 24th, 1918.

Lt. R. Blackwood is granted the actg. rank of Capt. (without pay and allces. of that rank), Oct. 19th, 1918.

Capt. A. W. Kay to be graded for purposes of pay as Lt. whilst empld as Lt., from (A.), Jan. 29th.

Lts. (A.) to be Lts. :—A. T. Laing, July 22nd, 1918; D. H. Robinson, D.F.C., Oct. 30th, 1918; (actg. Capt.) J. G. Burchett, M.C., Nov. 25th 1918 and relinquishes the actg. rank of Capt.; (Hon. Capt.) (actg. Capt). O. C. W. Johnsen, Dec. 3rd, 1918, and relinquishes the actg. rank of Capt.; J. Ross, Dec. 6th, 1918; R. K Fletcher, Dec. 20th, 1918; J. I. Ellis, Jan 4th; A. R. Porter, Jan. 8th; M E. Gadd, H. R. Little, Jan 9th; L. G. Kesterton, Jan. 10th; D. E. Morrison Jan. 14th; T. P. Keady, Jan. 17th; F. E. Des Brisay, Jan. 21st; W. G. Latham, Jan. 22nd; W. J. Wyatt, Jan. 30th; D. G. Lewis Feb. 4th.

Lt. A V. Evans to be Lt., from (A. and S.), Dec 30th, 1918.

Sec. Lts. to be Lts. :—L. Cable, (actg. Capt.) J. G. Beckham, and to retain his actg. rank, C. A. Le Strange, C. C. Duffield, April 2nd, 1918; H. A. Young, April 6th, 1918; W. Spink E. R. Cox, April 25th, 1918; J. W. Sawyer, G. P. Browne, April 26th 1918; D T. McGuire, May 22nd, 1918; B. A R. Shore, May 23rd, 1918; J. H. Bryen, June 4th, 1918; H. Salmon, June 11th, 1918; O. Lawrence, June 19th, 1918; T. H. Jones, July 6th, 1918; T. J. Hudson July 19th, 1918; N. L. Kelly, July 25th, 1918; E. C. Chapman July 26th, 1918; R. R Byrne, Aug. 3rd, 1918; H. M. Eldridge, M.C., Aug. 11th, 1918; G. Wilson, Aug. 23rd, 1918; J. Rymer, H. V. Hall, Aug. 27th, 1918; E O. Byam, Sept. 3rd, 1918; E. P. Spriggs Sept. 9th, 1918; T. H. Holmes, Sept. 20th, 1918; F. J. E. Brake, Oct. 8th, 1918; L. W. Park Oct 11th, 1918; S. Saunders, Oct. 23rd, 1918; P. T. Bond, Nov. 13th, 1918; R. S. Swanton, Nov. 19th, 1918; H. E. Evennett, Dec. 2nd, 1918; E. A. Malcolm, Dec. 3rd, 1918; F. Bagot, J. Woolfenden, Jan. 1st; E. R Harris, Jan 5th; V. C. Roxmouth Jan. 29th; E. W. Pringle, Feb. 16th; A. E. Houghton, Feb. 25th.

Sec. Lt. C. E. Beeson to be actg. Lt. while empld. as Lt., Nov. 1st, 1918.

Sec. Lts. to be Sec. Lts., from (A.) :—W. J. Bedworth, Sept. 10th, 1918 (substituted for notification in "Gazette," Feb 4th); H. Alcock, Dec. 3rd, 1918; H. Dove, Jan. 13th; R. S Maitland, Jan. 21st.

Sec. Lts. to be Sec. Lts., from (A and S.) :—(Hon. Lt.) E. L. Ridley, Dec. 18th, 1918, and to be Hon Lt.; S. H. Hughes, Feb. 3rd.

Sec Lts. to be Sec. Lts., from (O.) :—E. W. Reynolds, Sept 1st, 1918; E. A. Dew, D.F.C., Nov. 14th, 1918; (Hon. Lt.) A. V. Collins, Dec. 2nd, 1918, and to be Hon. Lt.; M. P. Dalrymple, Dec. 5th, 1918; (Hon. Lt.) G. M. Knox, Dec. 14th, 1918, and to be Hon. Lt.; J. L. Rhys, Jan. 2nd; A. G. Squire, Jan. 6th; G. Williams, Jan. 29th; C. J. Swalridge, Feb. 3rd.

Sec. Lt. A. E. Marks (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., April 1st, 1918

The following Lts relinquish their commns. on ceasing to be empld. :—W. P. Trotter (Lt., R. Fus.), Nov. 15th, 1918; J. A. B. Thompson (Lt., Essex R.), Feb. 11th; G. A. Ripley (Lt., Dragoons, Spec. Res.), Feb. 18th.

The following are transferred to unempld. list :—Sec. Lt. E. A. Taylor, Jan. 10th; Sec. Lt. A. W. M. Bryant, Jan. 18th; Lt. C. Bell, Lt. W. E. W. Cushing, Jan. 21st; Sec. Lt. F H. Favell, Jan. 23rd; Sec. Lt F. N. Trier, Jan. 26th; Capt. C. W. Curd, Jan. 27th; Sec. Lt. A Beattie, Sec. Lt. G. E. Harvey, Sec. Lt. J. W Tough, Jan. 28th; Lt J. Brodie, Lt. P C. Coote, Capt. A. Farquhar Sec. Lt. L. O. Ludgate, Jan. 31st; Sec. Lt. W. J. C. Finlayson, Feb 2nd; Lt (actg. Capt.) W. Topham, Feb. 5th; Lt. F. Crossley, Lt. E. L. Heyworth, Sec. Lt. R. Twitchell, Feb. 7th; Sec. Lt. E H. W. Darley, Feb. 8th; Sec. Lt. K. C. Long, Lt. (actg. Capt.) S. Taylor, Feb. 12th; Lt. E. M. Gardiner, Feb. 14th; Sec. Lt. F. C. Howe, Feb. 15th; Sec. Lt. (actg. Lt.) F. J. Brooks, Sec. Lt. C. G. Gowing, Feb. 17th; Sec. Lt. H. T. Backhouse, Feb. 18th; Lt. J. H. Holland, Sec Lt. H. G. Lynn, Feb. 19th; Capt. W. F. Egerton, Feb. 20th; Sec. Lt. W S Leeming, Feb. 22nd; Lt (actg. Capt.) C. H. Cornelius, Feb. 23rd, Sec. Lt. A. C. Cunison, Feb. 24th; Capt. H. V. Rabagliatti, Feb. 26th; Sec. Lt. W. J. Tuck, March 1st.

Capt. L. E. Eeman relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 8th.

Lt. (Hon. Capt.) H. S. Sellicks relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt., March 8th.

Sec. Lt. (actg. Lt.) G. E. Tune relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., March 8th.

Sec. Lt. (Hon. Lt.) (actg. Lt.) L. Butterfield relinquishes his commn. on account of ill-health caused by wounds, March 8th.

The initials of Lt. (actg. Capt.) L. C. Russell are as now described, and not as in "Gazette," Feb. 14th.

The notification in "Gazette," Jan. 10th, concerning Lt. N. M. Smith is cancelled.

TECHNICAL BRANCH.—Lt.-Col. (actg. Col.) M. Spicer to be Lt.-Col. from (S.O.), and relinquishes actg. rank of Col., Feb. 17th.

Lts. to be actg. Capts. whilst empld. as Capts. (Gr. A) :—F. S. Barton, A. G. D. West, Jan. 1st.

Sec. Lts. to be actg. Capts. whilst empld as Capts. (Gr. A) :—S. R. Chapman, (Hon. Lt.) R. I. Wells, Jan. 1st.

Sec. Lt. (Hon. Lt.) (actg. Lt.) J. Drew to be actg. Capt. whilst empld. as Capt. (Gr. B), Feb. 8th.

Lt. W. R. Maunder to be graded for pay as Lt. whilst empld. as Lt. (Gr. A), Jan. 1st.

Sec. Lts. to be Lts. :—Sec. Lt. (actg. Capt.) H. M. Ayres, and to retain his actg. rank; Sec. Lt. (Hon. Lt.) (actg. Capt.) N. W. Wale, and to retain his actg. rank; Sec. Lt. (Hon. Lt.) (actg. Capt.) D. M. Mackie, and to retain his actg. rank, April 2nd, 1918; Sec. Lt. (actg. Lt.) D. J. Parry, Aug. 16th, 1918; Sec. Lt. (actg. Lt.) D. Mitchell, Sept. 3rd, 1918; Sec Lt. (actg. Capt.) G. Adams, and to retain his actg. rank, Nov. 6th, 1918; Sec. Lt. (actg Capt.) L. E. Carter, and to retain his actg. rank, Nov. 30th, 1918; Sec. Lt. (actg. Lt.) S. H. Reynolds, Jan. 1st.

Sec. Lts. to be Lts. (without pay and allces. of that rank) :—A. W. R. Trusler, J. E. Good. V. P. Spurway, H. A. P. Bale, F. Alexander, F. H. Jones, D. S. Parsons, M. A. Doyle, W. F. Simpson, Sec. Lt. (Hon. Capt.) H. W. Clarke, and to retain his hon. rank, J. H. Ward, G. R. Simms, J. H. M. Stevenson, A D. Robertson, C. A. H. Mason, F. E. Smyth, E. W. S. Jacobi, (Hon. Capt.) W. H. Stronge, and to retain his hon. rank, J. Rimmer, T. B. Jones, (Hon. Capt.) F. Campbell, and to retain his hon. rank, C. D. Neale, A. Dobner, A. Bushfield, E. W. Mann, April 2nd, 1918; C. L. Gandy, April 4th, 1918. A. R. Mitchell, F. G. Buck, April 5th, 1918; T. C. Holleyman, June 1st, 1918; J. Y. Watson, A. D. Birkhead, B. E. Harris, June 8th, 1918; C. D. De Pinner, June 29th, 1918; H. G. Cook, D.S.M., July 18th, 1918; J. O. Clover, Aug. 2nd, 1918; H. Linfield, Aug. 11th, 1918; C. J. Couchman, Aug. 16th, 1918, P. L. Smith, Aug. 27th, 1918; A. H. Hughs, Sept. 1st, 1918; F. A. Worlidge, Sept. 9th, 1918; F. A. Ormerod, Sept. 28th, 1918; W. Randell, Sept. 29th, 1918; A. H. Desforges, Oct. 5th, 1918; H. S. Graves, Oct. 26th, 1918; A. H. Pull, Nov. 8th, 1918; W. F Wood, Nov. 9th, 1918; J. V. Yates, Nov. 17th, 1918; W. J. Rice, Dec. 1st, 1918; C. F. Soans, Dec. 20th, 1918; P. E. Dorte, A. W. Cordrey, T. S. Nash, Dec. 30th, 1918; C P. W. Jolliffe, H. S. G. Jamieson, P. J. McChesney, Jan. 1st; H. L. Doherty, Jan. 5th; A. Gough, D W. Harvey, Jan. 16th; W. H. Spargo, Jan. 21st; T. I. Grimes, Jan. 27th; W. W. Bull, Feb. 4th; H. G Baker, Feb. 7th; O. Fielding-Clark, F. Clarke, Feb. 13th; M. H. Armstrong, Feb. 15th; D. A. Campbell, Feb. 20th; J. W McKee, Feb. 22nd; A. Honey, A. Heywood, J. E. Adcock, F. G. Murray, S. G. Hurley, T. M. F. Tamblyn-Watts, G. H. Rice, C R. Evans, Feb. 24th; R. R. Crosby, Feb. 27th; S. T. Kemp, Feb. 28th.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Gr. A) :—R. T. B. Wynn, June 1st, 1918; A. Marr, S. G. Newport, Jan. 1st.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Gr. B) :—J. W. Davis, W. H. Fearnside, Sept. 1st

Sec. Lt. P. Christopherson to be Sec Lt. (Gr. B), from (Ad.), Feb. 21st.

Sec. Lt. W. S. Hay (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Gr. A), Sept. 1st, 1918.

The following Cadets are granted temp. commns. as Sec. Lts. (Gr. B) :—32678 P. Collins, Aug. 27th, 1918 (substituted for notification in "Gazette," Dec. 17th, 1918); 1893 A. L. Parry, Oct. 24th, 1918 (substituted for notification in "Gazette," Feb. 21st).

The following are transferred to unempld. list :—Capt. H. Burgess, Jan. 18th; Sec. Lt. N. B. Brown, Lt. A. J. Evans, Jan. 21st; Capt H. B. R. Rowell, Jan 24th; Sec. Lt. A M. Watters, Jan. 28th; Sec. Lt. B. Thelenberg, Jan. 31st; Sec. Lt. (actg. Capt.) C. H. Quelch, Feb. 1st; Capt A. B. Spencer, Feb. 3rd; Sec. Lt. W. H. Johnson, Sec. Lt. R. D. Thompson, Feb. 7th; Sec. Lt. A. H. M. Jacoby, Feb. 11th; Lt. G. G. Kitson, Feb. 15th, Sec. Lt. G. W. Barber, Capt. L. Davies, Capt. S. T. Fripp, Feb. 18th; Sec. Lt. J. G. Beevers, Sec. Lt. L. C. G. Gemson, Sec. Lt. (Hon. Lt.) V. L. Henwood, Lt. C. V. Thornton, Feb 19th; Lt. (actg. Capt.) C. E Welsh, Feb. 20th; Capt. R. P. Castle, Lt. G. N. Cockerell, Lt. A. E. Read, Feb. 21st; Sec. Lt. W. E. Garden, Sec. Lt H W. Halifax, Feb. 22nd; Sec. Lt. A. S. Crosby, Capt. G. I. N. Deane, Lt. R. Rochford, Feb. 23rd; Capt. H. F. Alton, Feb. 25th.

Lt. J. H. Grills relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 8th

The initials of Lt. (actg. Capt.) F. M. Howard are as now described, and not as in "Gazette," Feb. 14th.

MEDICAL BRANCH.—Lt. O. Hilton is transferred to unempld. list, Feb. 10th

DENTAL BRANCH.—Capt. G. Dawson is transferred to unempld. list, Feb. 8th.

MEMORANDA.—Capt. L. Crooks to be actg Maj. whilst holding a special appt. at the Ministry of Munitions, Jan. 21st.

Sec. Lts. to be Lts.:—(Actg. Capt.) J. W. Jones, and to retain his actg. rank, April 2nd, 1918; (actg. Capt.) D. C. Sutherland, and to retain his actg. rank, May 5th, 1918; (actg. Capt.) B. B. Johnson, and to retain his actg. rank, Aug. 9th, 1918; (actg. Capt.) A. Holmes, and to retain his actg. rank, Sept. 5th, 1918; A. C. O. Ellis, Dec. 1st, 1918; (actg. Capt.) C. A. Perry, and to retain his actg. rank, Dec. 11th, 1918; (actg. Capt.) W. Lienard, M.B.E., and to retain his actg. rank, Feb. 24th, 1918.

Col R. W. Glennie, C.M.G. (Capt., R.N.), relinquishes his commn. on ceasing to be empld., Jan. 15th.

The following are transferred to unempld. list, from (S.O.):—Sec. Lt. (actg. Lt.) H. F. Robertson, Jan. 16th; Maj. C. E. Gardner, Feb. 3rd; Capt. (actg. Maj.) W. W. Higgin, Feb. 4th; Capt. (actg. Maj.) T. P. Scaright, Feb. 5th; Maj. (actg. Lt.-Col.) D. H. Cameron, O.B.E., Feb 11th; Capt. A. W. Dods, Feb. 14th; Capt. (actg. Maj.) E. H. C. Bald, M.C., Feb. 17th; Sec. Lt. (actg. Capt.) B. B. Johnston, Feb. 22nd.

FROM THE COURT CIRCULAR.

Buckingham Palace, March 8th.

The following officers were severally introduced into the presence of the King, when his Majesty invested them with the Insignia of the respective Divisions of the Orders into which they had been admitted:—

The Most Honourable Order of the Bath (Military Division).—Knight Commander.—Received the honour of Knighthood.—Maj.-Gen. John Salmond, R.A.F.

The Most Honourable Order of the Bath (Military Division) and the Distinguished Service Order.—Companion.—Maj.-Gen. William Salmond, R.A.F.

The Most Distinguished Order of Saint Michael and Saint George and the Distinguished Service Order.—Companion.—Brig.-Gen. Duncan Le Geyt Pitcher, R.A.F.

The Most Distinguished Order of Saint Michael and Saint George.—Companions.—Brig.-Gen. Eugene Gerrard, R.A.F.; Col. Bertie Armstrong, R.A.F.; Lt.-Col. John Porte, R.A.F.; and Lt.-Col. Percival Wise, R.A.F.

The Distinguished Service Order and Bar.—Maj. Albert Carter, R.A.F.

The Most Excellent Order of the British Empire.—Member.—Lt. Samuel Ellis, R.A.F.

The King then conferred decorations as follows:—

The Distinguished Service Cross and Bar.—Capt. Wilfred Dunn, R.A.F.

The Distinguished Service Cross.—Capt. John Alcock, R.A.F.

The Military Cross.—Maj. Victor Beaufort, R.A.F.; Lt. Colin Girvan, R.A.F.; Lt. Ruthven Macfarlane, R.F.A., attd. R.A.F.

ADMIRALTY APPOINTMENTS.

The following appointment has been made:—

March 10th.—Commrs.—E. W. Isaacson to "Furious," March 8th.

THE CASUALTY LIST.

MILITARY.

Reported March 6th.

Australian Imperial Force.—Died.—Cowan, Lt. G. H., Aust. F.C.

Casualties among W.Os., N.C.Os. and Men. The Dates are those of the Official List.

Australian Imperial Force.

Died.

Feb. 26th.—F.C.—Buland, 353 H. L.; Filmer, 3148 E.T.
Feb. 27th.—F.C.—Taylor, 3484 G. L.

AIR FORCE.

Reported March 7th.

Killed.—Green, Sec. Lt. S.
Payne, Capt. L. A., M.C.
Died.—Jenkins, Lt.-Col. B. O., C.B.E.
Moore, Sec. Lt. W. H.
Stanley, Capt. R. B.
Sydes, Lt. W. J. A.
Underhill, Sec. Lt. R. J.
Waterhouse, Lt. J.
Repatriated.—Brown, Lt. W. A. S.
Cooper, Capt. E. J.
Fosse, Lt. E. L.
Snook, Capt. C. W.

Reported March 8th.

Killed.—Coffing, Sec. Lt. G. L.
Jefcoate, Capt. F.
Died.—Brown, Lt. J. H.
Foster, Lt. W. A.
Haggerston, Major T.
Michaelson, Lt. R. G.
Osborn, Ses. Lt. J. E.
Wallis, Sec. Lt. F.

Reported March 10th.

Killed.—Preece, Lt. C. E.
Drowned.—Smith, Lt. W.
Died.—Bankes, Sec. Lt. P. A., M.C.
Christie, Lt. D. M.
Fullerton, Sec. Lt. R. R.
Holder, Lt. E.
Kemp, Lt. S. A.
McLeod, Lt. G. D.

Casualties among Airmen. The Dates are those of the Official List.

Killed.

March 6th.—Bennett, 265235 2nd Actg. Clk. S. (Birmingham).
March 7th.—Cragie, 37404 L./Actg. Clk. B. D. (Newcastle).

Died.

March 6th.—Chamberlain, 135657 2nd Actg. Clk. W. (Wednesbury); Clarke, 219639 Cpl. J. C. (Brentf'd); Crook, 6129 Cpl. Cpl. M. (Sund'land); Davies, 130133 2nd Actg. Clk. T. (Mid'bro); Goldwin, 50770 1st Actg. Clk. T. A. (Tottenham); Goodwright, 187526 1st Actg. Clk. A. G. (Andover); Gregson, 293148 2nd Actg. Clk. H. (Gargrave); Hine, 138070 1st. Actg. Clk. F. (Cardiff); Holles, 280436 2nd Actg. Clk. J. J. (Paddington); Jackson, 6665 L.A.C. T. D. (Dover); Leonard, 63072 L.A.C. C. (Hemsworth); Lewis, 40379 2nd Actg. Clk. J. (Swansea); Lubinsky, 33555 1st Actg. Clk. J. (Mile End, E.); Moore, 219435 L.A.C. E. F. (Portsmouth); O'Flynn, 110604 Serjt. P. J. (Newton Forbes); Watson, 404007 1st A.M. E. (Harrow-on-the-Hill).

Mar. 7th.—Barber, 219786 2nd Actg. Clk. J. (Crick); Bateman, 303627 2nd Actg. Clk. J. (Reddish); Billing, 232 1st Serj.-Maj. B. (Bury St. Edm'ds)' Broom, 84693 1st Actg. Clk. L. S. (Lyme Regis), Collard, 80556 L./Actg. Clk. E. J. (Cardiff); Dunn, 93909 1st Actg. Clk. W. J. (Port Sunlight, Birkenhead); Edwards, 114607 2nd Actg. Clk. T. A. J. (Coventry); Grennan, 407077 2nd Actg. Clk. M. (Stalybridge); Harris, 406565 2nd Actg. Clk. J. J. (Liverpool); Manton, 56229 1st Actg. Clk. A. E. (Birmingham); Munro, 106521 2nd Actg. Clk. A. (Hebburn-on-Tyne); Nickless, 47849 1st Actg. Clk. J. (Reading); Robertson, 101860 L./Actg. Clk. D. M. (Dundee); Rodger, 20588 Serjt. J. (Duns); Vaughan, 20294 L./Actg. Clk. L. (Milford Haven); Woolgar, 213872 Cpl. L. D. (Wandsworth).

PERSONAL NOTICES.

NAVAL.

Engagement.

BITTLES—BATHURST.—An engagement has been announced between Capt. G. H. Bittles, R.A.F. (late Flt. Lt., R.N.A.S.), only son of the late Major G. H. Bittles, Indian Army, and of Coleraine, Co. Derry, Ireland, and Nora Elsie Bathurst, only daughter of Mrs. K. M. Bathurst, of 9, Matheson Road, West Kensington, W.

Birth.

COURTNEY.—On March 5th, at Clanage, Bishop's Teignton, the wife of Lt.-Col. I. T. Courtney, R.M.L.I. and R.A.F.—a daughter.

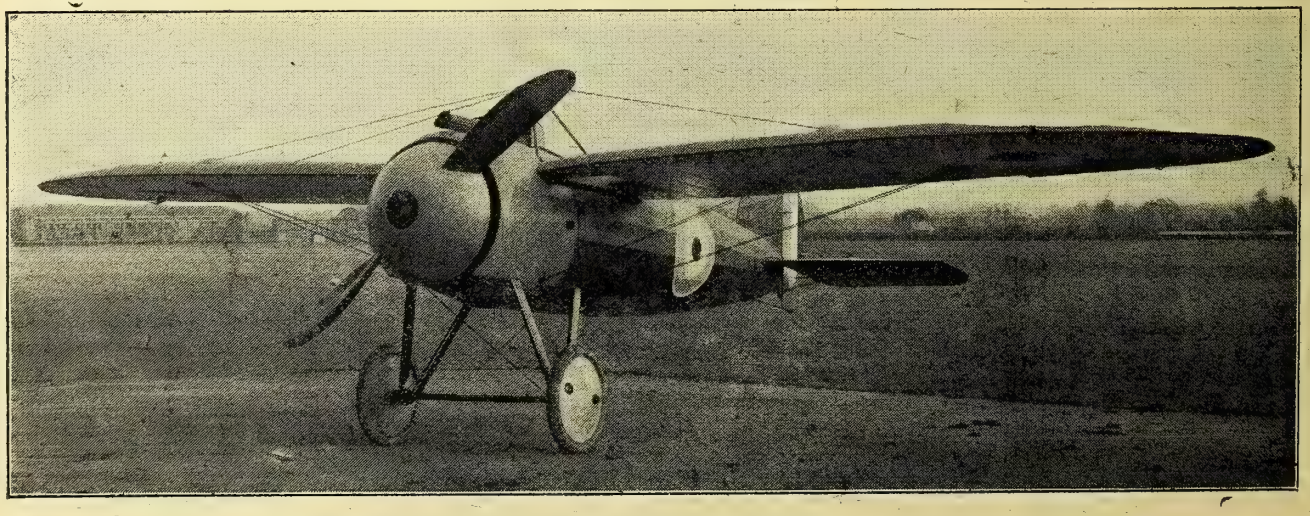
MILITARY.

Deaths.

ATKINSON.—Capt. Rupert Atkinson, M.C., D.F.C., Croix de Guerre (Belgium), R.A.F., who died on March 7th, whilst home on leave from Cologne, at High Kelton, Berkhamsted, Herts, of pneumonia following influenza, was the elder son of the late Brenan Atkinson, of Shanghai, and of Mrs. Atkinson, Berkhamsted, and the fiancé of Winifred Hiller. He was 22 years of age.

FOSTER.—Capt. Arthur Foster, R.A.F., formerly Lieut., 5th Manchesters and 2/6 Gloucesters, died on Feb. 20th from pneumonia following influenza. He was the son of Mr. and Mrs. W. Foster, Poole, and was 22 years of age.

FREEMAN.—Major Russell H. Freeman, M.C., Croix de Guerre, R.A.F., who was reported missing July 21st, is now



Three-quarter Front View of the Bristol Monoplane (110 h.p. Le Rhône).

presumed to have been killed on that date. He was the fifth son of Mr. W. R. Freeman, 103, Westbourne Terrace, W.2, and was 24 years of age.

WIENER.—Lieut. Louis de Villiers Wiener, R.A.F., eldest son of Mr. F. R. Wiener, of Newlands, Cape Town, joined the original band of young South Africans recruited by Captain Miller in February, 1917, when he was in his B.A. year at the South African College. In June of the same year he was commissioned, and later went to France. In April, 1918, he was wounded for the second time and returned to England. After a period of home service in Wiltshire he returned to the front, and on Nov. 4th, with two other machines, he set out to take photographs over the German lines. He was last seen at about a height of 16,000 ft. None of the three machines returned, and Mr. Wiener was posted missing from that date. Later his observer's grave was found near the Maas and one to "Lieutenant Wyner."

Engagement.

DOWDING—BLAND.—The engagement is announced between Major K. T. Dowding, D.F.C., the Queen's Regt. and R.A.F., son of Mr. and Mrs. A. J. C. Dowding, of 65, Wimbledon Hill, S.W., and Angela, daughter of Brig.-Gen. H. Bland, C.B., and Mrs. Bland, Bootham House, York.

Marriages.

JAMES—GUTHRIE-STIRLING.—The marriage of Lt.-Col. James, 3rd Hussars and R.A.F., to Miss Bridget Guthrie, daughter of Mrs. Guthrie-Stirling, will take place at St. Margaret's, Westminster, on March 27th.

MULCAHY-MORGAN—HEAPE.—On March 6th, at St. Paul's Church, Knightsbridge, Major T. W. Mulcahy-Morgan, M.C., R.A.F., second son of Mr. and Mrs. Mulcahy-Morgan, of Dundrum, Co. Dublin, was married to Barbara Mary, daughter of Mr. and Mrs. Walter Heape, of 10, King's Bench Walk, Temple, by the Rev. Arthur Winnington Ingram.

Birth.

CORFIELD.—On March 1st, at The Leoht, Meadway, Hendon, N.W., to Daphne (*née* Stedman), wife of W. Ralph Corfield, M.C., Capt., R.A.F.—a daughter.

* * *

Would any members of the 52nd Squadron, R.A.F., who were returned prisoners, or others who were over the enemy lines between Albert and Roye on the afternoon of March 26th, 1918, or those who have any knowledge of the fate of Sec. Lt. T. H. Buswell, R.F.C., or Lt. C. E. Wharram, R.F.C., who were flying R.E. 8, No. 5052, kindly communicate with Mrs. Allnutt, Drayton, Wallingford?

AIR FORCE.

Deaths.

CALLAWAY.—Major Frank Le M. Callaway, R.A.F., who died on March 2nd at Aldershot Military Hospital, of influenza, was the youngest son of R. G. Callaway, retired Inspector of Machinery, R.N., and Mrs. Callaway.

HANCOCK.—At the inquest held at Richmond on March 6th on Lt. John Mervyn Hancock, R.A.F., whose death was announced last week, Lt. Nolan, R.A.F., of the Northolt Aerodrome, said that Mr. Hancock was a pilot of 296 hours' experience. He was one of the best pilots at the aerodrome, and left on March 1st to fly to Croydon, where he was to leave the machine, a Sopwith "Snipe." It was considered a perfectly safe machine, but witness thought it was Mr. Hancock's first trip in a machine of that particular type. There was not much difference between it and a scout machine, and the management was the same for ordinary flying.

Dr. Ralph, of Richmond, said he saw the machine in the air flying at a great height. He saw the pilot fall out, and death must have been instantaneous. He did not think Mr. Hancock was unconscious when he fell from the machine.

Questioned by the Coroner, Mr. Nolan said the machine was practically new, and had been properly tested. Mr. Hancock should have been strapped in, but the probability was that he was not. In his opinion the machine caught alight, owing to a back fire of the engine. The jury returned a verdict of "Accidental death."

Mr. Hancock, who was 25 years of age, was the eldest son of H. A. Hancock, of Caulfield, Melbourne, Australia.

PUGH.—Lt. John Edwin Pugh, R.A.F., of 210th Squadron, R.A.F., and of H.M.S. "Princess Royal," died on Nov. 13th last at Gosselies, near Charleroi, Belgium, of wounds received on Nov. 10th. He was the only son of Mr. and Mrs. John Pugh, Allesley, Warwickshire.

Engagements.

AINSLIE—HELLINS.—The marriage arranged between Major E. M. L. Ainslie, R.A.F., second son of Mr. and Mrs. Ainslie, of Hanworth House, Harrow Weald, and Audrey, second daughter of the late Mr. Joseph Charlesworth, of Glenapp Castle, N.B., and of Lofthouse Park, Wakefield, and Mrs. Hellins, of Marnhull Rectory, Dorset, will take place at Holy Trinity, Sloane Street, on April 10th, at 2 p.m.

BANTING—LION.—An engagement is announced between Lieut. H. W. R. Banting, R.A.F., and Miss Serena Phylis Lion, youngest daughter of Mr. John Lion, of Severn Lodge, Addison Road, W.

FOSTER—HATCH.—The engagement is announced between Capt. William Foster, R.A.F., youngest son of Mr. Robert Foster and the late Hon. Mrs. Robert Foster, of Stockeld Park, Yorkshire, and Marjorie, only daughter of Sir Ernest and Lady Constance Hatch, of 20, Portland Place, W. (present address, 46, Upper Grosvenor Street, W.).

TOLHURST—MARSH.—A marriage has been arranged between Maj. W. H. Tolhurst, R.A.F., only son of Mr. and Mrs. Bernard Tolhurst, of Ditton Court, near Larkfield, Kent, and Sheila, eldest daughter of Mr. and Mrs. Richard Marsh, Egerton House, Newmarket.

Marriages.

CRAIG—BIRDWOOD.—On Monday, March 3rd, 1919, at Brompton Parish Church, Lt. Frank Colin Craig, R.A.F., second son of Mr. and Mrs. Frank Craig, of Perth, West Australia, was married to Constance Jean Gonville Birdwood, elder daughter of General Sir William and Lady Birdwood, by the Rev. Prebendary A. W. Gough and the Rt. Rev. the Bishop of Bathurst.

LITTLE—NICHOLLS.—On Dec. 21st, 1918, at St. John the Evangelist's, Holborn, Lt. Arnold Whitchurch Little, R.A.F., only surviving son of the Rev. A. W. Little, M.A., and Mrs. Little, was married to Phyllis May Burtonshaw, younger daughter of the late W. J. Nicholls and Mrs. Nicholls, of London and Burnham-on-Crouch, by the Rev. David Cowan.

PALMER—PROCTER.—On March 4th, at St. Augustine's, Kilburn, Capt. Reginald Faithful Palmer, R.A.F., only son of the late Dr. Palmer, M.A., M.B. (Cantab), of Lincoln, and of Mrs. Howat, Portsdown Road, London was married to Dorothy Mary, only daughter of the late Mr. E. B. Procter, of Lancaster, and of Mrs. Procter, 110, Essendene Mansions, Maida Hill, W.9, by the Rev. T. W. Roberts.

ROBINSON—HOCKING.—On March 4th, at Marylebone Church, Lieut. Frank Eugene Robinson, R.A.F., son of F. E. Robinson, Cleveland, Ohio, was married to Alizon Trelawney, daughter of Wilfrid Joseph Hocking, Priors Corner, Totteridge.

Births.

FERGUSON.—On March 3rd, at Winchester, the wife of Capt. J. S. A. Ferguson, R.A.F., of a son.

HEARN.—On March 4th, 1919, at 53, Goldhurst-terrace, South Hampstead, to Winifred, the wife of R. J. Hearn, M.A., M.B. (Cantab), Capt., R.A.F.—a daughter.

HORA.—On Sunday March 9th, at 44, Grove Park, Denmark Hill, S.E.5, the wife of Lieut. A. R. H. Hora, R.A.F., of a son.

LONGSTAFFE.—On March 1st, at 66, Hamilton Terrace, N.W., the wife of Major V. C. Longstaffe, R.A.F., of a daughter, who only survived her birth for 48 hours.

TOMLIN.—On March 2nd, at Fronfraith, Rhyl, to Dilys, the wife of G. Sacket Tomlin, R.A.F.—a daughter.

* * *

Mr. Symons, of 12, Oaklands Road, Bedford, will be very grateful for any information concerning the death of Lieut. Keith W. A. Symons, R.A.F., of the 73rd Squadron, attd. 6th French Army, who was reported missing while flying between Soissons and Chateau-Thierry on July 30th, 1918.

* * *

Sec. Lieut Samuel Andrew Thompson, of the 60th Squadron, R.A.F., has been missing since Sept. 5th. He was flying S.E.5a. C/1876. Any information will be gratefully received by his father, 2921 Scott Street, Vancouver, B.C., Canada.

THE R.A.F. COMFORTS FUND.

In the very early days of the war Lady Henderson, the wife of the then Director-General of Military Aeronautics, instituted a voluntary organisation which studied the comfort of the men of the Royal Flying Corps on active service at home and abroad, and also in captivity.

From small beginnings this organisation, then known as the Royal Flying Corps Comforts Fund, grew to be an enormous undertaking, but as the result of good organisation by Lady Henderson the fund was as efficiently administered on a large scale as it had been on a small.

Large sums of money entrusted to the committee which administered the fund under the guidance of Lady Henderson were spent on the purchase and dispatch of all manner of comforts and necessaries which could not easily be supplied from official sources, and the enlisted men became as used to looking forward to the arrival of their regularly sent parcels as to the arrival of letters from home, and the fund was so well supported that throughout the history of the Royal Flying Corps on active service, it was possible to supply every enlisted man with regular parcels.

On the formation of the Royal Air Force, the Royal Flying Corps Comforts Fund changed its name to suit the new condition of affairs, and, at the same time, undertook to cater for the creature comforts of the men of the Royal Naval Air Service, who

then became the sea-going section of the Royal Air Force, and who, up to that date, were cared for by an entirely different organisation.

Lady Henderson's committee added to their labours by undertaking, in association with the Society of the Order of St. John of Jerusalem, the distribution of all the supplies of food sent to British prisoners in Germany who belonged to the Royal Air Force, both officers and men, and this difficult work was handled with the utmost efficiency, the great house at Marble Arch, where the work has been done, resembling more nearly a wholesale grocer's warehouse than anything else.

Now that the signing of the Armistice has brought hostilities, at any rate, on the Western Front, to a close, it might be thought that the members of the Royal Air Force Comforts Fund Committee would have shaken hands and parted. Not so. The British Army of Occupation in Germany, and holding lines of communication in France, still require the services of a very large proportion of the personnel of the Royal Air Force, and the enlisted section thereof experience many of the hardships and discomfort which they endured during the period of the war. In other fields also much arduous work is being done. The R.A.F. sea-patrols are busily engaged in assisting to clean up the various minefields, and in locating and destroying the numerous mines which are floating about on unofficial cruises, and in weather, such as is being experienced at present, the work of the men on the different seaplane-carriers is not to be envied.

Readers of The Aeroplane who feel that they have a debt of gratitude to pay to the men of the Royal Air Force are cordially invited to send subscriptions to the Royal Air Force Comforts Fund Committee, Surrey House, Marble Arch, W.—W. L. W.

[It will be of interest to the R.A.F. to know that this appeal on behalf of the airmen was the last article written by the late Walter Wade.—C. G. G.]

THE R.A.F. ON THE RHINELAND.

In the Order of Battle of the Armies on the Rhine issued on March 8th by the Secretary of State for War the following appeared :—

ROYAL AIR FORCE.

Headquarters, 1; Brigade Headquarters, 2; Wing Headquarters, 6; Squadrons, 32 and 1 Flight; Balloon Wing H.Q., 1; Balloon Coys. H.Q., 5; Balloon Sections, 12; Aircraft Parks, 3; Reserve Lorry Parks, 9; Air Ammunition Columns, 3; Aerodrome Service Unit H.Q., 1; Tent Detachments, 10; Aerodrome Construction Company, 1; Maintenance Parties, 14; Agricultural Party, 1; Aircraft Depot H.Q., 1; Stores Units, 4; Accounting Sub-Sections, 4; M.T. Repair Sections, 4; Port Depot, 1; Balloon Gas Dump Section, 1; Hydrogen Tube Dump Parties, 1; Aeroplane Supply Depot H.Q., 1; Salvage Sections, 4; Emergency Landing Ground Parties, 5; Engine Repair Shops, H.Q. and 4.

THE WOMEN'S ROYAL AIR FORCE.

The Minister of Labour has been informed by the Air Minister that further recruits for the Women's Royal Air Force are now only required in the clerical categories, as clerks and typists.

Applications for employment in these categories will be received through the Employment Exchanges, where full particulars of the vacancies concerned and of the terms and conditions of service are available.

SIR WOODMAN BURBIDGE'S VIEWS.

In a recent interview with a representative of the "Times," Sir Woodman Burbidge, Bart., C.B.E., the Managing Director of Harrods, Ltd., spoke of his views on the possibilities of Commercial Aeronautics.

In his opinion, the numberless machines at present lying idle should be speedily utilised for business transport. Thousands of trained pilots are available, and if commercial aviation were organised on a business footing it could be developed into a great success. Facilities already exist for setting up a definite scheme. Certain aerodromes in this country could be set apart for the exclusive use of commercial machines, and for flights to the Continent arrangements could be made with the respective Governments for the use of some of the many aerodromes in France, Belgium, and other countries.

Sir Woodman Burbidge suggested that the Department of Civilian Aviation should be recognised as a distinct unit of the Air Ministry, and be equipped with sufficient initiative powers to undertake important enterprises.

He concluded: A bold step of this kind would be of great assistance to reconstruction and the development of commerce. Its immediate advantage would at once be recognised by the chiefs of large concerns from the economical point of view, as the saving in time to be achieved by an air journey would often be invaluable.

In the case of Harrods, the rapid delivery of goods from Paris would be a great consideration at the height of a short seasonal demand. If we could get articles like millinery over in a few hours instead of having to wait a week for them it would have a very decided effect on business.

The most important function of the aeroplane in commerce will be its utility for the rapid transportation of goods. The percentage of cost in relation to actual goods carried, of course, must be a deciding factor in determining the extent to which the service could be used, but if cost can be modified to enable air transport to conform to business requirements other difficulties could speedily be overcome.

At the annual meeting of Harrods, Ltd., on Wednesday, March 5th, Sir Woodman Burbidge, who travelled from London (Hendon Aerodrome) to Brussels by aeroplane on Saturday, March 1st, said that he was convinced of the necessity for the speedy development of aviation for commercial purposes.

He said :—

"I left at 11.20 a.m. and was talking business in Brussels at 4 p.m. We expect to have aeroplane deliveries twice or three times a week of the latest Paris fashions, and aeroplanes to take our buyers to Paris, an hour's journey compared with 12, and sometimes 24 hours, under old methods."

ENCOURAGING TRADE.

Sir,—I am connected with two manufacturing concerns which wish to renew their pre-war trade with merchants in neutral countries, but are practically prevented by Government restrictions.

It looks as though the purpose of the War Trade Department were to hamper British manufacturers until the Germans have had time to organise and occupy these markets.

I should like to say, to begin with, that the goods in question cannot be used for food, or in the production of food, they are not of use as raw material or munitions of war: nine-tenths of their value is represented by British labour.

In one case, a consignment of goods (for export to Spain) has been held up by the Government for three months because some precious detail of red tape had not been carried out.

These goods had been accepted by the Post Office (a Government Department)—even registered—for dispatch to Spain, but are apparently now confiscated. We shall probably lose our customer, which is more important than loss of the goods. A Spanish merchant who cannot rely upon us to serve him, will buy from the United States or Germany, or someone who can treat him decently.

Re another line of goods which we wish to export to Norway and Denmark. We are told that we must first get from our customer, Merchant Guild Certificates.

As indicating the difficulties under which we are trying to do business, allow me to explain the process.

You have an order, let us say, from Denmark for Calculating Machines (really coin counting machines, but I wish to avoid the suspicion of seeking publicity): you ask your shipper if he will take the goods; he tells you that you must first obtain a licence from the War Trade Department.

Your first step is to get the Forms—this may take you a week (a Government Department always takes four or five times as long to reply as a business house would)—you are provided with a booklet referring to a "Royal Proclamation" of May 10th, 1917, and 34 Amendations, all set out in detail. These are further modified by Orders of Council, Oct. 1st, 1918, and further Amendations. Then follows a list of goods which may, or may not, be exported, or which may be exported to some countries and not to others. You look for your class of goods in the list. They are, of course, not there. This voluminous list (with two or three Appendices) has included in it such things as Dari, Dhol and Mungo, but not Calculating Machines. However, you think it will save time to apply at once for a licence, but before you can do this you must set your goods in their boxes, or at least ascertain their net and gross weight, and the measurement of the boxes. With this, you must give pages of information about yourself and your customer, describe your business, how long established, nature of consignee's business, and other details as set out in a sheet of instructions of some 2,000 finely printed words.

After you feel that you have some insight into this tangle of red tape, you send in the application. You then wait patiently for about a fortnight and receive a printed letter (probably filled in by a junior clerk in the Government Department), informing you that you must obtain from your foreign purchaser a Merchant's Guild Certificate from the country in which he resides

So you must write to your customer, confess that England is under blockade so far as trade with neutrals is concerned; get him to go to the trouble of supplying you with the necessary documents, and then begin all over again with the War Trade Department.

This process will probably occupy three months—your customer may lose patience and cancel the order. In any event, he will welcome the German Manufacturer of Calculating Machines, who, you may be sure, will not be hampered by his Government officials.

We are taking back returned Army men and hoping to find places for others of our old employees who enlisted, but shall have to turn them down if these foreign markets are practically closed to us.

Chas. L. Burdick.

London, March 4th, 1919.

The AEROPLANE

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ON THE AIR ESTIMATES.

On Thursday, March 13th, ill-omened date, Major-General Seely, Under-Secretary of State for the Air Ministry, introduced the Air Force Estimates for 1919-20. The motion made reads :—

> "That a number of Air Forces, not exceeding 150,000, all ranks, be maintained for the Service of the United Kingdom of Great Britain and Ireland, at Home and Abroad, excluding His Majesty's Indian possessions, during the year ending on the 31st day of March, 1920."

Setting aside the question of what is "a number of Air Forces" as being merely an eccentricity of official grammar, one is faced with the appalling fact that General Seely's introductory speech occupied seventeen and a half columns of Hansard, and that the whole debate takes 120 columns. Therefore one recommends anybody who is in need of a little light amusement followed by a strong soporific to buy Hansard and read the lot. One has paid more than the official 3d. for less value in both respects.

Obviously it is impossible to reproduce the whole debate in this paper, therefore one resorts to the method used in the case of the Air Force Bill. One gives a précis of the speeches accompanied by a running commentary thereon, which commentary is contained in brackets to make it clear that it is not a part of the speeches.

The speech of the Under-Secretary for Air contained much quite interesting matter, hopelessly marred by rhetorical flourishes and attempts to deal with technical matters which are clearly outside General Seely's comprehension. For instance, his announcement, on the authority of Sir Charles Parsons, concerning the fact that the bigger an airship becomes the less power, relatively, it takes to drive it was so mangled in transit that it became perfectly ludicrous. The statement will be found reproduced verbatim in its proper place.

The worst of General Seely is that he really means well, and therefore one finds it difficult to harden one's heart so as to deal with him adequately. If he would only stick to his brief, and would rest content to be the mouthpiece of the Air Ministry, instead of trying to be clever and introducing into his speeches all kinds of matter which he has picked up outside and does not in the least understand, he would do much better for his own reputation and for success in his Department. As it is he merely makes himself look silly and exasperates those who honestly wish him well in his share of the great task which lies before all of us who are working for the progress of British Aeronautics and for the Command of the Air by the King's Flying Services.

The promises made to demobilised cadets will meet with very general approval, but one wishes something had been arranged about continuing the flying training of those who still desire to fly.

The finance question seems a trifle involved, but on the whole satisfactory, though some manufacturers who would rather be spoon-fed than win out on their merits in free commercial competition may fancy that they are being badly treated by the cutting down of orders for new aircraft. With five-engined machines costing the Nation £30,000 or so apiece £2,000,000 for new Service machines and £500,000 for experimental Civil Aviation machines will not go far.

The reduction of personnel will cause some heart-burning in the R.A.F., but it will be all for the best in the end. One hopes to discuss the question more fully at a later date.

The duties of General Sykes, Controller of Civil Aviation, as set forth in General Seely's speech, are well worth studying.

But it was when he reached the subjects of science and research and experiment that General Seely attained to the top of his before-the-war form. It is worth while to get so far before giving up the report in despair.

With those brief preliminary remarks let us to the subject :—

Major-General Seely remarked that it was five years since he submitted Estimates of £1,000,000 to the House for the War part of the Air Estimates in 1914. [One assumes that he meant the Air part of the War Estimates, for he was then War Minister and all Air Estimates then were for War purposes.] Continuing, he said that he now submitted estimates of £66,500,000, and that if the War had gone on they would have been £200,000,000.

He then proceeded to "pay some tribute to those who have been concerned in raising our air power to such a pitch of intensity as it had reached when the Armistice was signed." He said that we started with six squadrons and finished with about 200. [This is interesting, for 200 squadrons means at most 3,600 aeroplanes. We know that there were 30,000 officers and 250,000 men in the R.A.F., so we find that approximately 9 officers and 80 men were required to keep each aeroplane in the air. Which seems to indicate absurd inefficiency and confirms all that has been said about the Bolo House. Further it is well to note that even at our strongest we never had more than about 80 squadrons in France at one time, so the 200 figure must include the whole Home Establishment as well, and thus indicates still greater inefficiency. One of the chief tasks of the new Air Ministry must obviously be to produce an efficient organisation for future wars.]

Further General Seely said that we were, at the signing of the Armistice, producing 50,000 aeroplanes a year, though at the beginning of the war "we could build comparatively few aeroplanes and very few engines." [For which fact we could thank General Seely's own policy of buying all engines abroad and building nearly all of our aeroplanes in the Royal Aircraft Factory.]

He related that he himself witnessed in France "the first air combat" and recalled that Sir David Henderson said "This is the beginning of a fight which will ultimately end in great battles in the air in which hundreds and possibly thousands of men may be engaged at heights varying from 10,000 to 2,000 feet," on which he (General Seely) asked, "Is it possible that human endurance and human courage will be equal to that stupendous task?" [The average soldier would merely have asked, "D'you think they can stick it?" but evidently General Seely carried his platform vocabulary into the Field. It must have added seriously to his impedimenta. Incidentally both General Henderson and General (then Major) Sykes said much the same thing about air fighting a year or two before the war, so there was no need for all that polysyllabic surprise.]

On the subject of Casualties, General Seely said that our people had shot down 8,000 enemy machines in all theatres of war and that 2,800 of ours were missing, "most of them similarly shot down." These figures meant probably 40,000 or 50,000 desperate battles in the air, "sometimes far away into enemy territory, occasionally right across wide stretches of sea where an engine failure at any moment might prove fatal." [As a matter of fact, these figures mean nothing at all. A large number of the 8,000 Huns probably landed safely in their own territory and of our 2,800 missing probably as many were brought down by dud engines (thanks to the Government's pre-war policy) as by enemy action. And no account is taken of the hundreds, or thousands, more of our people, who were shot down and killed in our own territory and so were not "missing." And why should an engine failure at sea be more fatal than over land? As a rule it is much less dangerous.]

Demobilisation.

Referring to demobilisation General Seely recognised that the reduction of the Air Force would cause considerable hardship to manufacturers of aeroplanes and to their employés, but thought that "the people to whom our sympathies must first be due are the brave young pilots who will return to civil life" because "the training given to a pilot—although he gets a certain amount of engineering knowledge, and although the other knowledge which he obtains is of supreme value to the State in time of war, requiring as it does a standard of skill and courage almost greater than that required in any other walk of life—does not particularly fit a man for civilian employment." [Which is pure nonsense. A young and able-bodied pilot can turn his hand to anything, from pitch and toss to manslaughter, if he is not ashamed to work, whereas an older man, especially a married man with a family, cannot. A young unattached aviator can emigrate to some happily uncivilised country where strikes and Bolshevists are not. It is the middle-aged demobilisee who deserves pity. Also it is nonsense to say that a pilot requires more skill and courage than most other fighting men. The difference is only in kind, not in degree.]

Colonial (*id est* Overseas) cadets in the R.A.F. will be glad to hear that according to General Seely they are *all* to receive temporary commissions as from February 12th, 1919, together with gratuities on the men's scale and full officers' uniform allowance of £50, as well as first-class passages home, after which their temporary commissions will become honorary commissions.

All other cadets (*id est* the home-grown variety) whose training was discontinued on account of unfitness will receive honorary commissions on demobilisation. [Which seems absurd, for if unfit to become officers in war time they are obviously unfit to be honorary officers in peace time.] Those who graduated B before December 31st, 1918, will receive the full £50 kit allowance in addition, and those who have graduated B since that date will receive a refund of their actual expenditure up to £35. [Which seems a very fair and even generous way of treating them all, seeing that no probationer for a commission had really any right to spend £50, or anything like it, on his kit. One only hopes that the efforts of this paper to secure fair treatment for demobilised cadets has helped a little bit towards this satisfactory conclusion. It is to be hoped, however, that before long, when training is again started, those who have graduated B will be given an opportunity of learning to fly, so that their recent training and their kit may not be wasted and so that they may form a reserve for the peace-time R.A.F.]

Finance.

Turning to Finance, General Seely said that he was asking now for a vote for £45,000 on account of the estimated £66,500,000 which he said was an "outside figure." [After all the figure seems little enough. A matter of 25s. per head of the population of the British Isles seems a small enough sum per annum for an insurance premium against future air war.]

He remarked that he had a note comparing the £66,500,000 of this year with the £71,000,000 of last year. It was not an accurate comparison, for last year in addition the Ministry of Munitions paid £113,000,000 for the Air Force, and the War Office £4,000,000, making £188,500,000 in all, so that this year the estimate was reduced by two-thirds.

On the day the Armistice was signed our liabilities were £150,000,000, mostly for aeroplanes. We were making 4,000 machines a month, or nearly 50,000 a year, the credit for which belonged to the Ministry of Munitions. [As also the discredit for wasting millions on some of the worst aeroplanes and engines in the world, and for holding back or messing up the production of the best in the world.]

Here General Seely became a trifle involved, for he said that by cancellation of contracts the liability of £150,000,000 had been reduced to £66,000,000, of which £39,000,000 will be expended this year and £26,500,000 in the next financial year, and added, "This is out of the £66,500,000 which we are asking for. One item, the biggest item, is £26,500,000 of war contracts, which represents the surviving liabilities . . . after the Ministry of Munitions have cancelled the other contracts." Later he explained that up to 31st March this year we shall pay £39,000,000 . . . up to 31st March next year we shall absorb the £26,000,000." [Between his £66,500,000 and his £66,000,000, and his £26,500,000 and his £26,000,000, one becomes hopelessly fogged, so one leaves the riddle to finance experts. It does, however, seem fairly clear that for the 1919-20 financial year the Air Ministry will have £40,000,000 to spend on current matters and that the other £26,500,000 is intended to pay off old debts of 1918.]

Further, on expenditure General Seely said that £1,000,000 was to be repaid to Canada "for her contribution to our Air Forces in men, for pay, allowances, and clothing." [One asks why? seeing that Australia, with a much smaller population, raised and paid her own Flying Corps as part of the Australian Imperial Force.]

He said rightly that we owe all the Dominions a debt we can never repay for their help in securing the aerial supremacy of this country, and that "the largest debt in volume is due to the Dominion of Canada," and "of her services those who know what Canadian airmen [he meant aviators] did will not require to be reminded. They were second to none. [With which all will cordially agree, so why try to repay the debt with a paltry million pounds?]

Non-recurring charges, he said, were made up of £26,500,000 for liquidation of contracts, £6,000,000 for personnel who are leaving the R.A.F., £1,000,000 for Canada, £1,000,000 for petrol, oil, and other miscellaneous charges, and a further sum (deducibly £5,000,000 odd) for lands, buildings, etc., which brought the total to £39,000,000.

Recurring charges would amount to about £27,000,000. Personnel would be £18,000,000, Equipment £2,000,000 (for new aeroplanes over and above the £26,500,000 already ordered), £2,000,000 would be for land and buildings (over and above the other £5,000,000), £2,500,000 for oil, petrol, and "miscellaneous charges," making £24,500,000. There would then be a matter of about £3,000,000 "set aside for experimental research and civil aviation."

Reducing Personnel.

Continuing, he said that after July 31st the personnel would sink to "peace figures, approximately 5,300 officers and 54,000 men." The number of squadrons had been fixed approximately at 102. A certain number would be required at home. Though there was not much risk at present of attack from the air we should retain the nucleus and organisation of our Home Defence Force.

He said that we did not "rely so much on great numbers as on remaining in the forefront of aerial development, on aerial research, on being able always to have the best aeroplanes of the newest type." [Which is very much the kind of talk which Lieut.-Colonel Seely talked in 1912 and 1913. And we saw the dire results in 1915.]

After a discourse on flying in the East, General Seely said that we have now "got a force which we are reducing by three-quarters, the cost of which we are reducing by two-thirds."

Civil Aviation.

Turning to Civil Aviation, General Seely said that though £3,000,000 was set aside for civil aviation, experiments, and research, "far more than that is of advantage to civil aviation which comes out of the military £63,000,000." The building of military machines was "a means of keeping the Aircraft Industry going." [£2,000,000 for Equipment, as stated. Rather less than the cost of one of the newest high-speed cruisers, to keep a whole Industry going. Optimist!]

Research for military purposes would be of value for civil purposes. [Then why charge any of it against the civil aviation vote?] And the "great expenditure on meteorology would be of equal value to both." [Which is true if the work is done rather better than at present. The average local farmer could give most meteorologists points and a beating as a weather prophet.]

Still on the finance of Civil Aviation, General Seely said that £2,000,000 would be for research and experiment, £500,000 for special new types of machines, and £500,000 had "been asked for by General Sykes, Chief of Civil Aviation, for the special purposes of his Department." [Does that mean a Secret Service Fund with which to reconcile foreign nations at the International Air Convention? Because if so it seems inadequate.]

Apropos this half-million, General Seely said that it was not a final figure and stated that General Sykes had said to him, "The worst thing to do is to definitely lock up money which you do not want at once to use." [One refuses to believe that one having the excellent literary taste of General Sykes ever split an infinitive thus, or composed so horrible a sentence.]

The Duties of the Controller of Civil Aviation.

As to General Sykes' duties, General Seely said that his first duty would be "to complete the International agreement in Paris in regard to the future of flying." The Inter-Allied Con-

vention had already been approved by the Dominions and India, and it had been shown to the other Allies, who, he hoped, would accept the principles contained in our draft. He (General Seely) and General Sykes "with technical officers" [which seems a necessary proviso] would attend the next meeting of the Convention.

The next duty would be to plan and get ready air routes at home and abroad. Aerodromes would be equipped with meteorological stations, with sound and light signal stations, beacons, aerial buoys, balloons with special marks, telephone and telegraph stations, directional and ordinary wireless, wireless telephones. [From which one judges that the half-million will not go very far.]

Here General Seely exulted in the fact that "during the last few days we have achieved a result which we have been trying to achieve for many years. We have got a wireless telephone with which on the same machine you can both send and receive from the same operator." [It seems that Biggin Hill and Winchester might conceivably enlighten General Seely still further on this matter.]

The next duty of General Sykes, said General Seely, would be "to examine and advise on all schemes of aerial transport and to assist them in any way in which the Air Ministry can do so." The Air Ministry could "assist a great deal, because . . . nearly all the pilots and, in fact, all the best brains are either in the Royal Air Force or the Air Ministry, or are found among the different firms and inventors who worked for us during the war." [Which is necessarily true. But most of the best pilots and nearly all the best brains are getting out of the R.A.F. as quickly as they can, and are being acquired by clever commercial employers or are starting in business for themselves. And consequently what they know they will keep to themselves. The last people who will be able to tap their acquired knowledge will be the Air Ministry. Still it is interesting to see that General Seely admits that people in "the different firms" have brains, for before the war he claimed that "all the best brains" were in the Royal Aircraft Factory at Farnborough, and—as one has said before—we saw the dire results in 1915-16.]

Fourthly, he said, there will be the registration and licence of pilots and aircraft for all civil purposes. The Air Ministry was "bound to perform functions such as fall upon corresponding Government Departments with reference to vessels at sea. He had recently met representatives of Lloyd's and of "Lloyd's Register" and hoped these bodies would co-operate "in the matter of inspection" with the Air Ministry.

Science Research and Experiment.

Referring to research, General Seely said that he "would like to pay a special tribute to various men of science" who had been good enough to "advise and help" him "in considering the various subjects," on which he had touched, "notably Lord Rayleigh, Sir Richard Glazebrook and members of his committee, and Sir Charles Parsons and many others." [Without in the least wishing to decry the eminent scientific work done by these gentlemen, one would like to ask, purely from a desire for knowledge, what they have done for aviation. Can General Seely, or anybody else, show that any one of our aeroplanes flies a mile an hour faster, lifts a pound more weight, or climbs a foot higher as the direct result of their aeronautical work? The answer would be of intense interest to very many people who have built successful aeroplanes.]

Among the practical advances made of late General Seely mentioned that Lieut.-Col. Moore-Brabazon had had "a very large share in inventing" the air camera. [Many people know what good work Colonel Brabazon has done for aerial photography, but it is news to hear that he is an inventor.]

Another piece of "news" was that by means of wireless "we have been able to direct machines from the ground with complete success," though General Seely admitted that the Germans did it first.

Yet another startling announcement was that we are building "a seaplane of a very novel type and of a very great size," that "it has actually been flown," and that it has "five Rolls-Royce engines." [The reference is apparently to Lieut.-Col. John Porte's "Felixstowe Fury" which was copiously illustrated in many papers weeks ago.]

He also referred to another experimental aeroplane [apparently the Tarrant, which was described somewhat fully some time back in various papers] and said that it had a span of 141 feet, is 85 feet long, and would "carry a useful load of just under 20,000 lbs." [As if that meant anything to the average M.P.]

Further he said, "Moreover, we have another aeroplane of which the plans are completed, far larger than either of those, with eight engines." [Which seems a fairly obvious development.]

And then by way of climax he said, "Then we have under construction an entirely novel type of aircraft, which I will not particularise, but of which one can say that the mathematicians say that it should attain a speed undreamt of, and, of course, having qualities of a kind quite different from anything which we have seen. I hope later on in the year that I may be able to give some information about this somewhat remarkable invention." [According to the "Daily Express," which is usually very well informed about Government secrets, this "remarkable invention" is a very ordinary tandem biplane. It seems to be of a type discussed in this paper by Mr. W. H. Sayers in June, 1914, and a straight development from the Voisin tandem which was tried and failed somewhere about 913.]

The Comic Airship.

Perhaps the cream of the speech was the following passage:—"Sir Charles Parsons tells me one thing which I think will be new to most members of the House. It certainly was to me. It is as to the properties of airships which, in his judgment, contain immense possibilities in the future. The tractor power required to pull a given load, given the same speed, varies almost exactly inversely with the size of the vessel. Suppose you take an airship 750 feet long and assume it to have a speed of 60 miles an hour, and a displacement of 64 tons, the estimate is that you will require 5 per cent. of that 64 tons in order to pull your vessel at 60 miles an hour. But if you increase the length to 1,500 feet and get, as you would do with the same form, not 48 but 164 tons, you would require not 5 per cent. but 2½ per cent. in order to give that the same speed—that is, by doubling the size of your vessel you require only half the horse-power to do the same work." [The figures and the verbiage are according to the official report in Hansard. Can anybody extract any meaning from them? No prize is offered for the solution of the problem. The only effect on one's weary brain is to recall that delightful story of the Irishman who read an advertisement which said, "Buy one of So-and-So's Stoves and save half your Coal!" Whereupon he turned to his wife and exclaimed, "Begob! We'll buy two and save it all, me Jewel!"]



A Standard Avro Biplane (110 h.p. Le Rhône) fitted with Floats, coming alongside the Avro Aerodrome on the shores of Southampton Water.

Continuing his educative lecture, General Seely said that the River Nile provided "a perfect landing ground for a flying boat" for between 4,000 and 5,000 miles, and that "the sea is not a perfect landing ground because the waves are rough," and that ships are "constantly stopped by rocks and other obstacles, all of which are nothing to a seaplane." [All of which doubtless entitle General Seely to a seat in the Hall of Heroes alongside Christopher Columbus.]

Finally he assured the House that he was quite sure that if we tried our hardest and enlisted the best brains in our support we should "be able to retain that which now we most certainly have, the first place in the world in air development." [With which statement, at any rate, all will agree.]

THE DEBATE.

Captain Wedgwood Benn said that he hoped that practical experiments would be made before too much money was spent on large machines, "because everybody who knows these seaplane stations is aware that during the War there were immense machines, absolutely new, lying in the stations, which had never flown at all." He asked that "the services of distinguished men of science not associated directly with the Air Service" should be associated with the research branch. [Really Captain Benn ought to know better. All our worst failures, such as the No. 1,000 type to which he seems to refer, have been the result of letting "distinguished men of science" interfere with practical aeroplane designers.]

On the Service side Captain Benn inquired whether the Airship branch was to belong to the Navy or the Air Force in future. He also wanted to know whether the Air Force is to take over some of the work in distant garrisons previously done by the Army. Further, he urged [in accord with the views recently expressed in this paper] that the records of active service squadrons should be published, so as to make the best use of the *esprit de corps* of squadrons. He also wanted to know whether the promise to give the R.A.F. a separate medical service had been kept. [Which it has not.]

On the subject of observers Captain Benn remarked that in the R.A.F. the observer was "only regarded as a sort of apprentice pilot," and referred to the contempt with which the expert pilot [actually a superior chauffeur] regards the serious matters of air war, such as observing, bomb-dropping, photography, and wireless. He argued that the French and Germans were wiser in giving commands to observers "who are prepared to take trouble." [Wherein he is perfectly right.]

Mr. Joynson-Hicks raised the question of N.C.O. pilots, and said that "many of the German squadrons were piloted entirely by N.C.Os., and the observer was really in command of the particular machine." He also said: "The commissioned pilot is rather an expensive article to use," and thought that we should find "a very large number of the chauffeur type of engineer who would make excellent pilots and do it at much less cost to the country than the officer pilot." [Which is quite correct.]

Referring to finance, Mr. Joynson-Hicks said that the next time Estimates were introduced the House would expect to have them in detail. He pleaded for economy, despite hardships on aircraft manufacturers. He also hoped to see better provision for recreation for officers and men at aerodromes in this country. He inquired how many of the proposed 5,300 officers of the future would be "devoted to staff work in London and other centres" and how many pilots we should have.

Further, Mr. Joynson-Hicks objected to the close connection between the War Office and the Air Ministry, and quoted Ministerial speeches of a year ago in favour of the independence of the Air Force.

Mr. Churchill interpolated the remark that certainly there would be an Air Force "separate from the squadrons allocated to the service of the Army or the Navy."

Mr. Joynson-Hicks, continuing, referred to Civil Aviation, and said: "Years ago we had command of the sea because we had the coaling stations of the world. To-day we can have command of the air because we have the landing stages of the world." [That remark is well worth filing for reference, for it contains the greatest truth which has been spoken about aviation for a very long while.]

Lieut.-Col. Malone remarked that possibly the absence of members from the debate showed that they were tired of the air, but that criticisms and objections would be voiced just so long as the organisation and administration of the Air Ministry was not efficient nor effective. Referring to the integrity and independence of the Air Force, he said that in the last few weeks the Admiralty had offered to sever the naval side of the Air Service from the R.A.F. [One hopes that the offer will be accepted.] One could not help hearing these matters because any correspondence which came from the Admiralty or the Air Ministry by way of the Strand was bound to be intercepted by the public.

He advocated a specialist Air Staff and Air Planning section, and said that if this section of warfare was left in the hands of the naval and military staff the scope of operations would be restricted within the limitations of the sea and military frontiers. [All the more reason for giving the Navy and Army their own Flying Services, so that they will not interfere with purely aerial strategy.]

He argued [and quite rightly] that meteorology should be purely the affair of the Air Ministry. Also he suggested the appointment of a committee to draw up Air Force Regulations, the present Regulations having been "compiled by cutting up the existing Army and Navy Regulations and gumming them together" He bore witness to Mr. Churchill's good work "when he lifted the R.N.A.S. out of the chasm of indifference and apathy," but remarked that Ministers may change and that we could not base the organisation of the Air Ministry on the idiosyncrasies of individuals.

As to airships, he objected to their anomalous position, belonging entirely to the Navy, yet manned by the R.A.F., and said that they should not be a side-show to the Navy. He then referred to the advisability of employing "that distinguished officer who was connected with the inception and development of airships. [The reference was, undoubtedly, to Commodore Murray Sueter, C.B., the father of the R.N.A.S. and the saviour of the Aircraft Industry.]

On the subject of commercial aeronautics he asked whether it could "be really efficiently developed as a side-show to the War Office?" and said that at the beginning of the war both the Admiralty and War Office failed because they did not appreciate the association necessary between them and "the civilian nation." He said that a few days before a contract had been made between a British firm and the Chinese Government to run a State Service in China, yet not a single order had been placed in this country by the Government for aircraft for civilian purposes, and he cited instances in which such a service would be useful.

Lord Hugh Cecil impressed on the Secretary of State "the immense importance to the future of the Air Force of retaining as many as possible of the officers who have had combatant experience over the lines." There was a tendency in a public office to overlook the desirability of establishing and maintaining a true tradition in such a force. He said: "A much severer standard of personal courage is exacted by combatant officers of each other than anything which we who are outside would presume to exact. The language of eulogism which is often most deservedly uttered in this House with regard to the gallantry of pilots and observers is not uttered by themselves without great exception. They would tell you that there are many officers who fail in their duty, and it is exceedingly important in the Air Force that a distinction should be drawn between those who have done their duty and those who have not." He pointed out that if combatant officers leave, there will not be that tradition of what counts in good service handed down to the future.

On the subject of a separate Air Force, Lord Hugh said that eminent generals and eminent admirals are totally unfit to form an opinion or to express an opinion on the Air Service. They are utterly and distantly remote from any grasp of the subject that could be helpful. They are really not aware of the depth or density of their ignorance, and it is perhaps more the density than the depth. [All of which is true enough.]

Thereafter Lord Hugh said that "an airman [meaning an aviator] is quite as distinct from a soldier or a sailor as the soldier or sailor are distinct from one another. Compare a flying officer with a military officer. The very essence of a military officer's life is to be a leader. But an air officer is not a leader in the sense that a military officer is. [But he most certainly ought to be. That is just what is wrong with the R.A.F., especially with making all pilots into officers. In these days of wireless telephones an aerial patrol leader is more closely in touch with his command than is any cavalry or infantry officer.]

He expressed himself against importing into the R.A.F. senior officers whom he described as "disinterred examples of military eminence." [Wherein he is right.] Flying people and all those concerned with flying should begin young, and then they would go on flying "as late as the period of activity in human life extends in any profession." That would abolish the idea that middle-aged men should not fly.

Like other speakers, Lord Hugh protested against the Air Ministry being under the War Office. He also disagreed with Captain Benn as regards observers being put in command, and said that "it would be a mistake if we did not maintain what has been the practice of the R.F.C. and R.A.F.—the ascendancy of the pilot in the running of the Force. [Which is precisely where he is wrong. Very many of the evils in the R.A.F. are due to the ascendancy of the "full-out," "split-air" pilot, a brave lad, full of pluck, but without brains, who, in the slang phrase, is always "liable to go off at half cock." Lads of this sort are promoted to command squadrons and wings, which promptly lose all their discipline, whereas if a good, steady, brainy observer had been put in command everything would have been done decently and in order, and yet the offensive spirit of the Force would have been in no way decreased.]

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Mr. Baldwin Raper, late R.A.F., in a very sound maiden speech, pointed out "that flying is capable of playing so vast a part in the future destinies of this country that the greatest care must be taken to avoid any possibility of mismanagement or mistakes at the outset." If the Government proposes to control civilian flying, every precaution must be taken to protect it from official lethargy as well as from excess of official zeal.

Reviewing recent events, he wanted to know the exact reasons given by a well-known auditor for resigning last year his position as voluntary auditor of aerodrome accounts, and why his place had been filled by a Civil Servant, who could not have as much business experience. As there were no less than 300 contracts for construction of aerodromes, ranging from £100,000 to £1,500,000 each, the need for commercial accountancy was demonstrated. Bad book-keeping probably accounted for the delay before the Loch Doon scandal was discovered.

He suggested that the Director of Air Equipment should be a business man and not a soldier. He wanted to know whether the "break clause" had been made operative on all aircraft contracts and whether its operation had been subsequently varied, and, if so, where, when, and why exceptions had been made.

He also wanted to know whether the Director of Production and Research was under General Trenchard or General Sykes, and whether proper accounts had been kept of the cost of the flight from England to Karachi. He suggested a Committee of M.Ps. who had knowledge of commercial organisation to assist the Air Ministry in financial and business matters.

On the subject of civil aviation he thought it undesirable that it should be under War Office control. The War Office had its own great tasks to perform, and was it right that this new immense burden should be added? As to the Air Service being simply one branch of the Army, it might happen that the Air Service would "in future provide the major defensive and offensive organisations of this country." [All of which is quite sound. One hopes that some of Mr. Raper's pertinent questions may sink home. As a young, very successful, and intensely energetic business man, with very useful experience of flying, he should be a valuable asset to the Air Party in the House. But, like so many others, he misses the point about the connection between the Air Force and the Senior Services. The Senior Services should each have their own aerial arm for their immediate uses, and then, and not till then, the Air Ministry will have its hands free to develop an Independent Air Force as it should be developed.]

Lieut.-Col. Moore-Brabazon advocated the creation of an Air Staff, "so as to train people to deal with this new weapon as efficiently as possible." He knew the way aircraft had been used right through the war. "Anything new done by the R.F.C. was always very wonderful, and if you did not do quite what was expected of you, you turned round and blamed the Air Ministry." [And very justly so, as a rule.] He suggested "an efficient Air Service Staff College." [Here, one imagines, he will have the support of all the best people in the R.A.F.]

He protested against the importation into the R.A.F. of Staff officers from other Services "who knew nothing about the subject at all," and said that "if you belong to one Service you belong to that Service; you cannot be amphibious and change about every half-hour." [Which is true, within limits. At the same time, anybody who has had to do with R.A.F. General Staff work knows that it badly needs reorganising throughout by first-class G.S.Os. of the Regular Army with War Office experience.] If officers of the Army and Navy are to be seconded to the Air Force, then R.A.F. officers should be seconded to the Army and Navy, and so we might "lead up to that dream" of Mr. Churchill's, "an Imperial War Staff."

On the subject of the airmen of the R.A.F. he hoped that the new organisation of the R.A.F. would permit a man with ability to rise really to the top. He had heard that the new Air Force was to be a crack corps, and he added: "Do let it be a crack corps of efficiency and not a crack corps of social snobbery." [This is an excellent sentiment, coming as it does from one who is essentially an aristocrat. One hopes that it will be appreciated by those who are turning down applicants for permanent commissions because they have no private income.] He also advocated that a skilled tradesman should be as well paid in the R.A.F. as he would be in civil life.

Referring to General Trenchard's illness, he said that the General would come back to work too soon unless the Secretary of State "looked after him," and he hoped that all criticisms against the R.A.F. would be postponed until General Trenchard had a chance of getting the thing going. [Another very sound sentiment, though it need not prevent one from suggesting improvements for the General's attention when he returns.]

As regards the technical side Lieut.-Col. Brabazon said that war is not now brawn against brawn but brain against brain, and the only way we kept ahead in this war was because we were relying on the civil side that was making our machines. He disagreed with the eminent admiral who had said that if we looked after the men the material would look after itself. We saw the fallacy in the Air Force when the very best men mounted on bad machines were brought down time and again. During the War the active-service people got on one side of the Channel and there they stuck, while the Air Ministry got into a groove on this side. [Out of which one did one's best to push them.] At one time during the War there was the bitterest feeling between those in France and the Air Ministry. [All of which justifies this paper's agitations throughout the war.]

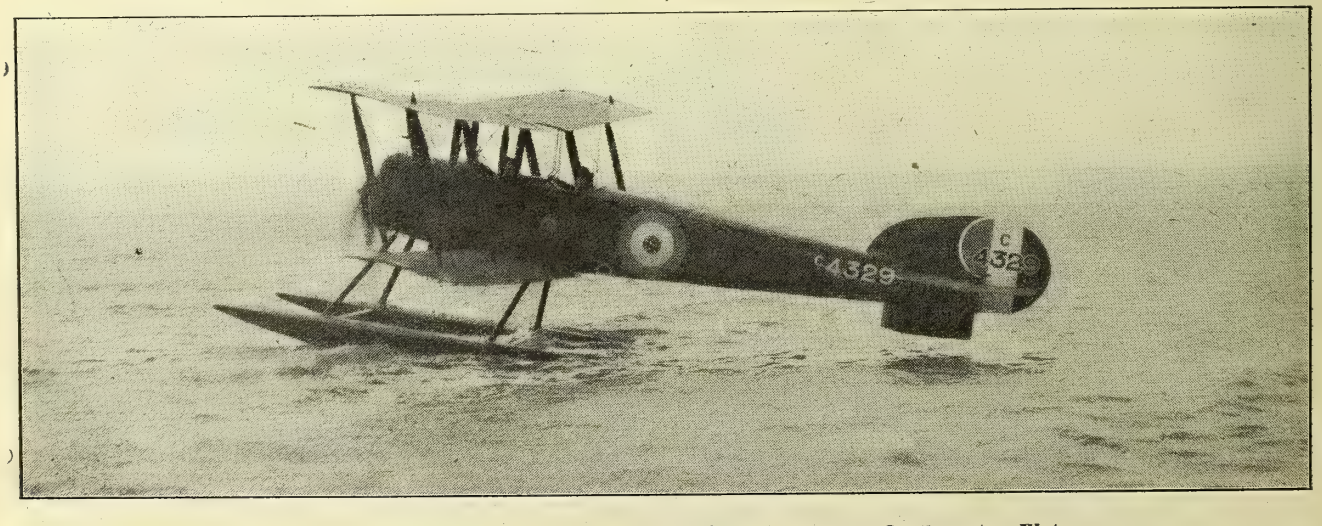
He advocated that pilots in squadrons should be interchangeable with the technical people, then the technical side would provide not what it thinks it wants but what the Air Force actually wants. The Royal Aircraft Factory was a much-abused institution, but we must have a centre where we can see that civilian firms are up to date and where they can possibly be beaten. Without it we may get in just such a fix as happened in France.

He paid a tribute to the good work of the women of the W.R.A.F. and asked whether they would be allowed to fly, as well as doing all the dull work of the R.A.F., and in conclusion he advocated continual attention to progress, saying "the ordinary bomb of to-day is as the bow and arrow to the howitzer compared with the bomb of ten years hence. In the future the only way of dealing with the situation is to have in your hands the possibility of hitting back a good deal more than you can be hit." [Altogether a very sound speech, which deserves to be filed for reference.]

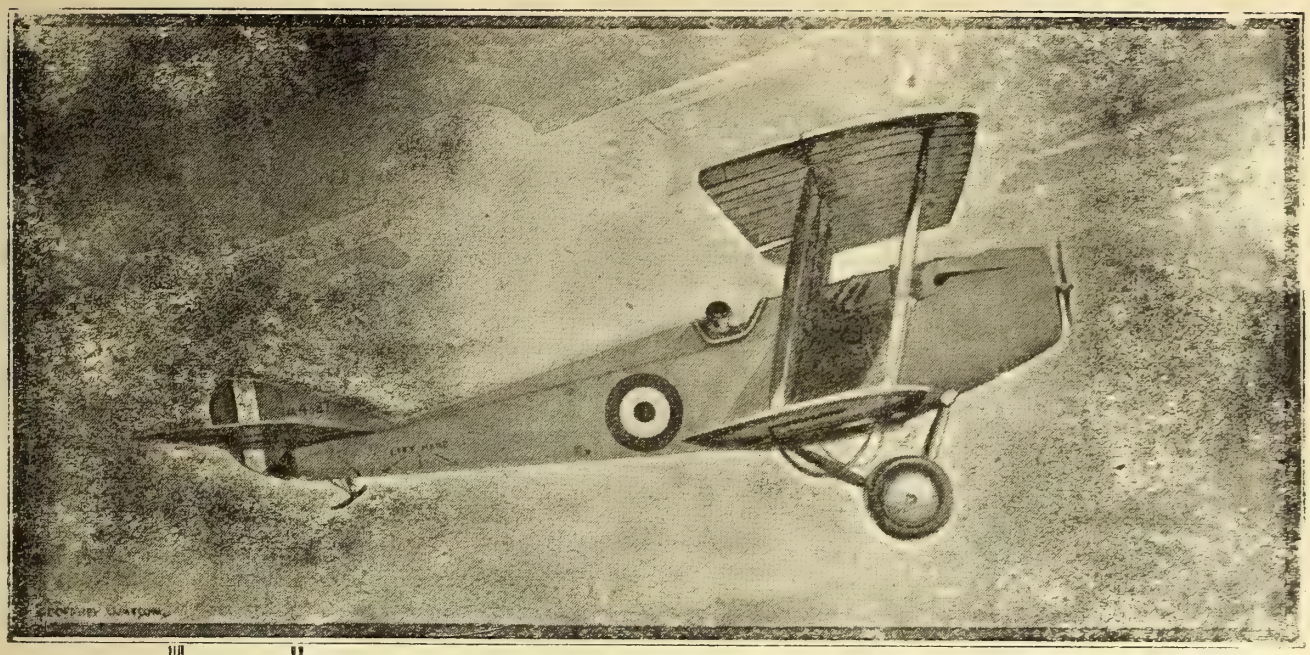
Sir Donald McClean talked on finance, and hoped that after Peace was declared "the House will have another opportunity . . . of checking expenditure." [Which is just what one would expect from a follower of Mr. Asquith.]

Mr. Bonar Law said that he could not be expected to give any promise in that respect.

Mr. Perring protested that there is not the same necessity in the ensuing year for expenditure on aeronautics as in previous

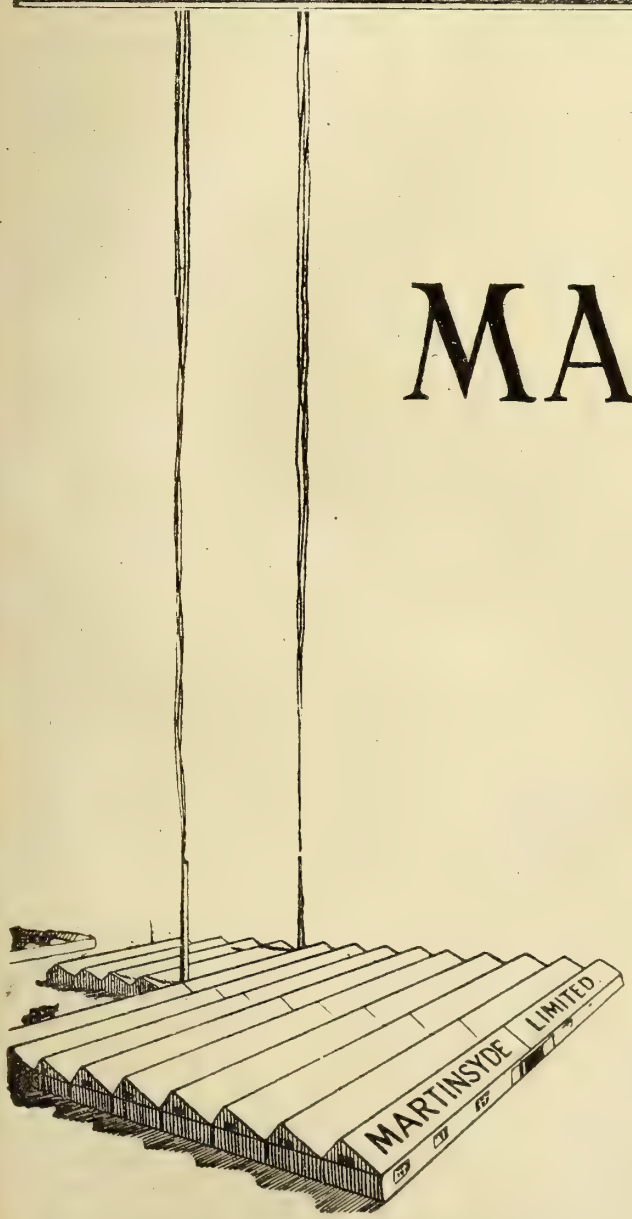


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years, as the German Army was to be stripped of aeroplanes and rendered harmless, and said that the Army, Navy, and Air Force Estimates represented something like £50 per head for every family in the country. [It is not clear whether Mr. Perring meant £50 per family or £50 per head of population. In either case the insurance premium is cheap.] Mr. Perring also said that the suggestion that the war is not over, and that we must be prepared and cautious in what we were doing, was a very serious reflection on the military advisers of the Crown. [This is sheer nonsense, and one would have thought that our experiences in 1914 and '15 would have been enough to warn even a member of Parliament that we must always be prepared for war. The rest of Mr. Perring's speech is not worth notice.]

Mr. Sturrock, a Scottish Member, complained that the prices paid to local labour by the makers of aerodromes had demoralised the labour market over the whole county in which the work was done, and created derision among all classes of people. A county councillor in Forfarshire had stated that Government stores to the value of £200 had been wastefully burned, although the huts, canvas, and other material involved could have been sold to the advantage of the neighbourhood.

Mr. Bartley Denniss also complained of extravagance, and referred particularly to the aerodrome at Uxbridge and to the conversion of Oldham Mills into aeroplane factories. He agreed that we must be prepared for war, and cited the case of the French Revolution which produced Napoleon, and said that the same thing might happen even now in Germany. He was glad that civilian aviation was being encouraged, and suggested that the route to India which had already been covered should be extended to Australia. He also desired an " all-red " route from London to the Cape, and hoped to see Cairo the great exchange centre of air traffic for the world, but he said that it would never happen without enormous assistance from the Government.

He understood that the United States were already contemplating sending their machines to the Argentine, which was a fine country for flying and full of young men whose pockets were bursting with money made during the war, and he said that the British Industry should secure that market. He also stated that he was interested in the Aerial League of the British Empire, which wished to assist as far as possible in the development of the Aircraft Industry, not for the benefit of itself, but for the benefit of the country.

Mr. Remer joined in the chorus demanding economy, and said that there were far too many officials whose only job was to write on documents " Passed on to you, please.

General Seely's Reply.

Major-General Seely, replying, said that in future the Air Ministry proposed to act on the principle that everyone in the Air Force should learn to fly, and that the future career of the observer would be found after he had flown, and not before. He did not believe that there were administrative services which could not be filled by flying men. He did not know of any member of the Air Force, except the chaplain, who would not be better for learning to fly, and even the chaplain would get sooner to heaven in that way than in any other.

The recommendations of the Civil Aerial Transport Committee would be borne in mind in the draft Aerial Convention now being submitted to the Allied Nations. The Air Ministry intended to do what they could to give greater comfort to our aviators and to make arrangements for plenty of outdoor exercise and amusement, for it is recognised that an aviator could only be in the air a comparatively short time, if only because of the enormous expense and the enormous distance covered in a short time.

He invited any Member of the House who believed that there was anything wasteful or uneconomical being done to bring the facts to his attention, and the Air Ministry would do their best to ensure economy.

Referring to Colonel Malone's speech, he said that it was new to him to hear that the Admiralty wanted to withdraw their section from the Air Force. He was sure that the Admiralty, in common with the War Office, saw that the only way to administer an Air Force is by an Air Ministry, and he could only repeat what Mr. Churchill would have said if he were there, namely, that his holding two offices did not in the least mean that the independence of the R.A.F. and the Air Ministry was in any way jeopardised.

On a personal point General Seely said : "The fact that my right hon. friend is so keenly interested in flying himself and was one of the first to encourage it—he has, I believe, with the exception of myself, flown more than any other Member of the House, except, of course, those gallant professional officers we have with us—is a proof that he is not likely to allow the Air Force to lose one jot or tittle of its independence." [One is lost in admiration at the egotism of this remark.]

He could assure Col. Brabazon that the Royal Air Force would not in future be put under the heel of unsympathetic, unscientific, and occasionally incompetent Staff officers from the other Services. The Air Force would in future have its own Staff College. There would be an Air Staff just as there is a General Staff at the War Office or a General Staff " which is being created at the Admiralty." [This is interesting evidence of the intelligence of the Navy.]

Everything would be done to encourage *esprit de corps* in the Air Force, and, while working in ever closer co-operation with the Army and Navy, it would become more and more independent in its ideas, thoughts, and aspirations.

As regards the constitution of the Air Council, the line of demarcation of the spheres of General Trenchard, General Ellington, and General Sykes was quite clear. None of them could be said to be " the boss of the other."

Referring to General Trenchard, General Seely said that we owe a great debt of gratitude to him for his services during the war. It would not be proper in introducing Air Estimates not to refer to them. " The Independent Air Force, which, of course, would form part of our fighting forces if ever we went to war again, was under his command, and had a vital effect in bringing the war to a victorious conclusion. The fact that he at once, when asked to come forward to take over his present duties again, did so, places the Government and the country in his debt."

He was sure the whole House would wish well to General Sykes in taking up his most difficult and new post, and to General Trenchard who took over at a most critical time.

Referring, apparently, to recent ill-timed criticism, General Seely said that all the senior officers of General Sykes' staff had been selected, and the whole staff is in process of formation. He hoped that in a short time the whole thing would be in working order. Owing to General Trenchard and himself (General Seely) having had influenza, there had been delay. General Sykes' staff would consist of both military and civil officers. Most of the posts would be filled by R.A.F. officers, but it was not intended that it should be a military organisation. General Sykes had asked to be allowed to retire from the Air Force in order to emphasise the civilian aspect of his duties.

The Present Position.

With the exception of his one slip into egotism, General Seely's reply on the Debate does not lay itself open to any criticism. The position as disclosed by him is eminently satisfactory, and if only the Air Ministry upholds his statement the outlook for aviation is singularly bright, at any rate compared with that of any other country in the world, for one hears on all sides that aviation is being either neglected or else grossly mishandled in every other country.

With Mr. Churchill as a practically all-powerful Air Minister, and so situated that he can secure the backing of the War Office for the acts of the Air Ministry, with General Trenchard as Chief of the Air Staff, and with General Sykes in charge of civil aeronautics, we are at any rate sure in this country that every venture concerned with aeronautics will be given a fair chance by those at the head of affairs. If any obstruction occurs, it will be through the intrigues or the stupidity of minor officials whose acts will undoubtedly bring them severe handling from their superior officers if they are properly reported in the right quarters.

A Canker at the Root.

The rest of the Debate was entirely devoted to a discussion of the affairs of Miss Douglas-Pennant, whose case has already been discussed fairly fully in this paper. The matter is so purely personal that although it involves an important principle, and therefore deserves every attention in high official quarters, and very probably deserves to be the object of an official enquiry, it would not justify one in devoting space to the whole discussion.

Curiously enough this personal matter seems to have moved the House very considerably more than did the millions of pounds involved in the Air Estimates, for at one time in the course of the Debate undoubtedly the feeling of the House was strongly against the Government : so much so indeed that Mr. Churchill himself had to come into the House to handle the Government end of the argument. Mr. Churchill by way of clinching the whole business read a strongly worded letter from


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Lord Weir in which he made it clear that he accepted the whole of the responsibility for the dismissal of Miss Pennant, and that she had been dismissed (or "superseded"—according to the particular word he used in his letter) by his instructions.

Lord Weir's loyal support of his subordinates does not in the least alter the fact that very possibly Miss Douglas-Pennant's dismissal was brought about as the result of a conspiracy against her by her own subordinates and certain of their male friends. Some very queer things have happened in the Women's Royal Air Force, as, for example, the affairs which brought about a very sudden reformation at Hurst Park, and equally queer things appear to be going on still at certain Air Stations, and it is therefore quite conceivable that an earnest and strong-minded woman like Miss Pennant would become severely disliked in her efforts to bring reform into the W.R.A.F. It is notorious that feminine intrigue has long been a canker at the root of efficiency in the Flying Services.

One holds no brief whatever for Miss Pennant, but one is firmly convinced that the Air Minister should accede to her demand for an enquiry because an enquiry is needed, not so much into the alleged behaviour of Miss Pennant which led to her dismissal, as into the general state of the W.R.A.F. which brought about the unpopularity of Miss Pennant.

The Future of the Industry.

Be that as it may, the general state of British Aeronautics, as one has already said, is as encouraging as one can dare to hope while the general psychological atmosphere of the country is in its present distorted state. If labour troubles do not make it impossible to manufacture anything in this country, there is no doubt that British manufacturers can capture the world's aircraft trade purely on the quality of their goods, and there is no doubt that the Air Ministry will give the Aircraft Industry every possible encouragement.

Criticism of the Royal Air Force as such, of the Air Ministry, and of the Aircraft Industry will of course be necessary, because only by criticism can the proper road of progress be indicated, but it must be clearly understood that criticism does not by any means imply pessimism. In fact the more optimistic one is in reality the more one is bound to criticise wherever and whenever one sees defects. If one were pessimistic one would not care what happened and would not bother to criticise.

One therefore joins General Seely heartily in wishing well to General Trenchard and General Sykes in the task of remaking the R.A.F. and of creating a Civil Air Service. On their success hangs the whole immediate future of the Aircraft Industry, and, ultimately, the existence of the British Empire.—C. G. G.

H.R.H. the Prince Albert, K.G.

It is officially announced that the Prince Albert has returned to England in order to qualify as a pilot. As the weather of the past few weeks has been unfavourable to flying, His Royal Highness has been working in the Appointments Department at the Air Ministry.

Brigadier-General Festing.

Reference to the Air Ministry "Gazette," of March 11th, will disclose the fact that Brig.-General Festing, C.M.G., was Director of Air Personal Services from Nov. 25th, 1918, to Jan. 13th, 1919, and from the latter date has been acting as Deputy Master-General of Personnel.

The Peace Conference.

The "Times" of March 14th states with apparent astonishment that the Peace Conference has become convinced of the necessity of making peace with Germany as quickly as possible. The Naval, Military, and Air terms are said to be practically settled.

On March 16th, Major-General Seely left London for Paris by aeroplane to discuss the plans for international aerial regulations agreed to by the Conference.

Major-General the Right Honourable J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., Under Secretary of State for the Air Force, and Major-General Sir F. H. Sykes, K.C.B., C.M.G., Controller-General of Civil Aviation, represented the British Government on the International Aerial Commission on March 17th. The American delegates are General Patrick and Admiral Knapp.

On March 16th Mr. Bonar Law flew from Paris to London on a D.H.4. Leaving Paris at 11.30 a.m., Mr. Law arrived at Hendon at 1.55 p.m. For the enlightenment of a certain section of the daily Press, it might be well to point out that this is not Civilian Flying.

Some Squadron Dinners.

24 Squadron, R.A.F., is arranging for a dinner to be held on April 12th in London.

All past and present officers should write to Major Robinson, R.A.F. Club, Bruton Street, W., at once, and should each send a cheque for £2 to cover expenses.

It is proposed to hold a Reunion Dinner for the members of the 86th T.S., R.F.C., on March 22nd. Will all officers of the late 86th Squadron (Wye and Northolt) wishing to attend please write to Capt. C. Faber, Carlyle Club, Piccadilly, W.1.?

A 46th Squadron Dinner will be held in London on Saturday, March 29th. All members past and present please write to Capt. Marchant, R.A.F. Club, Bruton Street, enclosing cheque for two pounds to cover expenses.

A Dinner will be held at Prince's, Piccadilly, on Tuesday, March 25th, at 8 p.m., for all officers who have served in R.A.F., M.E.F. Those wishing to attend should send names to Box Z.519 The "Times," or 'phone Kingsbury 200, Ext. 26, before 24th, stating number of squadron and year for allocation of tables.

The R.A.F. Behind the Line.

The organisation of the transport, etc., of the R.A.F. may be conveniently divided into four portions—in addition, of course, to the supply of personnel—dealing respectively with complete machines and the salvage and re-building of damaged ones; the supply of all spares, stores, and equipment; the construction and preparation of aerodromes; and lastly the provision and repair of mechanical transport.

The machines themselves of all types were supplied by the Aircraft Supply Depots. At the conclusion of hostilities there were three of these: No. 1 A.S.D. at Marquise, which supplied all units in the Northern sector; No. 2, which served the Southern sector; and No. 3, which provided machines for the Independent Force. Incidentally, every machine received in France passed through No. 1 A.S.D., as it was conveniently situated on the coast, and so served as a reception base for the machines as they were flown from England.

The aeroplanes from the A.S.Ds. were passed to mobile Issue Sections located nearer the lines, and in turn supplied by them to Squadrons as required.

Working in connection with each A.S.D. were several salvage sections. These also were situated close up to the squadrons, and were responsible for collecting damaged machines, and where necessary reducing them to scrap or sending them down to the Aeroplane Repair Section of the A.S.D.

Originally machines as well as spares had been supplied by the Aircraft Depots, but the rapid growth of the R.A.F. in France rendered it necessary to create separate units for the purpose.

Even with this sub-division of work the A.Ds., of which there are also three serving the same areas and unit as the respective A.S.Ds., are very large units, and the variety and quantity of stores and equipment they have to carry is immense.

Every part of every type of machine in use has to be stocked. All the numerous instruments and "gadgets" which have multiplied so rapidly; guns, bomb racks, sights, etc.; wireless and photographic apparatus; all spares for transport; propellers of every type; engine parts—all these have to be instantly available for the needs of the squadrons. The spares are distributed through Aircraft Parks, which are the advanced mobile issue sections of the A.Ds.

Complete engines as well as spares were issued by the A.Ds., and to keep them overhauled and in repair another large establishment was required—the engine Repair Shops, employing a staff of nearly 5,000. These shops carried out the repairs for all three A.Ds., that is to say, they were responsible for the repair of the engines of the whole R.A.F. in France.

Though each A.D. had a small section for minor repairs and the issue of mechanical transport, it was found necessary to establish a base depot for the reception of machines, etc., from England, for serious repairs, and periodic complete overhauls of all R.A.F. transport.

The construction of aerodromes is the work of the Aerodrome Service Units, of which Tent Detachments for the erection of hangars, etc., are a part. Several Canadian Forestry Companies have been attached to the A.S.Ds. during the war, and have rendered valuable service.



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British Aerial Transport and Better Aerial Transport.

Now that civilian flying is about to be resumed we are carefully reorganising to meet peace requirements. Our designer, Mr. Frederick Koolhoven, noted as the originator of the speediest war planes, has drawings in hand for every type of machine for civilian use, from the sporting two-seater for the owner-pilot to the largest passenger carriers. *Fast mail service aeroplanes are being made the subject of special study.* Comfortable touring models such as will be used in our transportation services are actually in construction.

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The World of Aeronautics

NEWS OF THE WORLD FROM ALL QUARTERS.

Air Raids into Germany.

Some results of the aerial invasions of Germany by the Allies were given in a Berlin telegram of March 15th. Official figures give the totals as 720 persons killed, and 1,754 injured up to November 11th, 1918. The damage done by enemy air raids from August, 1914, to November 8th, 1918, is computed at 23,500,000 marks, roughly £1,175,000.

Aerial Telephony.

On March 11th Mr. Daniels, Secretary for the U.S. Navy, held a conversation by radio-telephone with a Naval ensign who was flying an aeroplane from Washington to Hampton Roads. The conversation is stated to have taken place at a distance of over 150 miles. This is alleged to be a record for distance, but the report does not make it clear as to whether the record is for the U.S. or not.

Arctic Explorer's Flight.

On March 14th Dr. Nansen, the explorer, flew from London to Paris on a Handley Page aeroplane.

Surveying the Sahara.

The four French military aeroplanes which left Algiers towards the end of January have returned. They have been reconnoitring the interior of the Sahara, visiting all French stations in that part of the country, and have covered 1,900 miles in all.

Non-Stop to Madrid.

It is stated that the Handley Page aeroplane which will attempt the non-stop flight to Madrid will be piloted by Major C. H. Darley, D.S.C., D.F.C., R.A.F.

An American Flight.

Two U.S. flying-boats flew on March 12th from Hampton Roads, Virginia, to New York, a distance of 300 miles, in 270 minutes. Photographs were taken during the journey. Both are said to have been of the F.5l type, and each was equipped with two 400 h.p. Liberty engines. One of the machines suffered from engine trouble which was put right in the air.

Indian Flying.

On Feb. 26th, General McEwen's Handley Page aeroplane, "Carthusian," made a flight between Karachi and Delhi at the average height of 5,500 ft. It is said that the extreme heat and the sand from the desert caused slight trouble with the engines. Fifty officials made short flights in this machine on Feb. 25th near Delhi, and the following day the aeroplane, with Captain Halley, R.A.F., as pilot, proceeded to Lahore.

Rome to Trieste.

On March 10th Lieut. Amcillotto flew from Rome to Trieste in four and a half hours.

Morocco-France.

It is understood that Lieut. Lemaitre on his return journey flew from Casablanca, Morocco, to Toulouse, France, with a passenger.

Across the Alps.

According to the Paris newspapers, an Italian aviator is shortly to attempt to fly across the Alps on a Caproni aeroplane, in the course of a flight from Turin to Paris. Seven passengers are to be carried.

Civilian Flying.

According to the "Daily Mail" the regulations prohibiting civilian flying in England will probably be withdrawn on April 1st. Temporary regulations will then come into force until the publication of the rules of the Aeronautical Convention.

Newspaper Delivery by Aeroplane.

Newspaper delivery by aeroplane was carried out successfully last Friday, when a 320-h.p. Nieuport "Night Hawk," piloted by Mr. Leslie E. Tait-Cox, carried a special issue of the "Daily Mail" from London to Bournemouth. The 90-mile journey was made in 45 minutes, a performance that would have been far better had the conditions been more favourable..

"I got up to 3,000 feet over Acton with the dawn," said Mr. Tait-Cox, "but could see nothing for mist; in fact, the whole country was blanketed as far as Southampton. To make matters worse, my map blew overboard, and I had only a general idea of the compass bearing. However, by coming down to about 500 feet I picked up Staines reservoir and then Farnborough. After that the going was more difficult, and two or three times I had to swoop down to read the names of railway stations in order to fix my position."

It will be interesting if the "Daily Mail" follows up this experimental trip by arranging to deliver papers in turn to a large number of towns. Such a scheme certainly would advertise the possibilities of commercial aviation. One hopes that the Nieuport Company will not get into trouble for their enterprise in starting before the pistol went. No trouble was raised when Sir William Burbidge made his voyage to Brussels as a super-commercial traveller.

A Spanish Fatality.

The Minister for the Interior announced in Madrid on March 11th that Capt. Claros and Capt. Balseiro were killed in an aeroplane accident between the villages of Leganos and Cetafe. They had just left the Military aerodrome of Cuatro Vientos.

A New Rigid Airship.

It is expected that the large rigid airship—officially known as R.80—which is being built by Vickers, Ltd., at Walney Island, Barrow-in-Furness, will be ready for her trials in May.

This airship will be fitted with a bow mooring attachment, in order that it can be moored from a tower in the open. A special type of buffer bag and buoyant covering, which is the subject of Vickers' patents will be fitted to the forward gondola and the two "power-eggs." This will enable the airship to alight on the water, and will absorb the shock when landing.

R.80 will be equipped with four Wolseley-Maybach engines, each developing 240 b.h.p. This engine has been specially developed for use in airships.

A Dutch Aircraft Exhibition.

The first aircraft exhibition to be held in Holland will be open from July 5th to July 28th, at Amsterdam. The honorary president is M. Colyn, Senator and ex-Minister of War. Great Britain and France will be represented, and attempts are being made to run an aerial service from Amsterdam to London.

The exhibition covers the following sections:—1, historical group; 2, department of war; 3, Navy department; 4, ordinary aeroplanes; 5, seaplanes; 6, motors; 7, motor-cars and motor-cycles; 8, aeroplane-building, with separate parts and tools; 9, photography, maps, and literature; 10, telegraphy and telephone; 11, orientation and lighting; 12, implements; 13, meteorology; 14, experimental aeroplanes; 15, medical branch; 16, clothing, equipment, and heating.

It has been stated that Vickers, Ltd., are in communication with the promoters of the exhibition with regard to an air service between London and The Hague.

An Accident.

On a recent occasion an aeroplane containing two American aviators fell on a train which was travelling in the direction of Chaumont. One of the aviators was killed and the other seriously injured. A railway coach was derailed.

Contempt for Officers who do not Fly.

To the Editor of The Aeroplane.

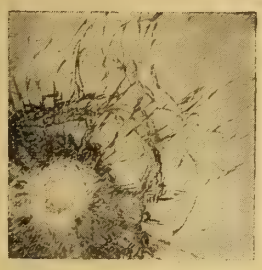
Sir,—I notice that after Major-General Seely had introduced the Air Estimates Lord Hugh Cecil spoke of the "contempt" R.A.F. officers who can fly feel for those who cannot. As one who has met a few thousands of Staff Officers, pilots, administrative, and technical officers, the remarks struck me as being somewhat misleading. If they had referred to officers who will not fly instead of to officers who cannot, one would be inclined to agree that the relations are unsatisfactory, but I cannot admit that the great body of fine sportsmen who have the good fortune to be pilots or observers have heads so much too big for their helmets that they look with scorn upon all others who have helped to build up the great Force of which we are all proud.

I will admit that I have at times heard a certain amount of criticism regarding Flying Officers who cease to fly as soon as they attain the higher ranks, but never have I noticed "a great schism" between pilots and other officers in the technical branches.

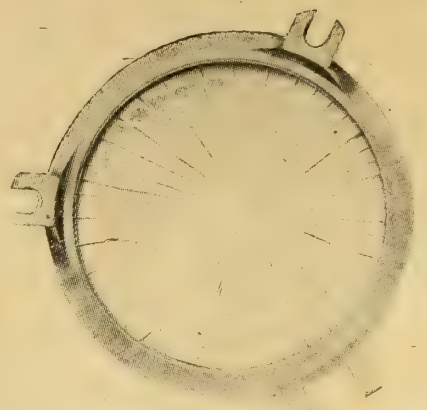
There is a very large number of keen "T" officers who, being interested in aviation, endeavoured in the early days of the war to become pilots, but were turned down on account of being over the age limit. Many of them obtained Commissions on their technical qualifications, and rarely missed opportunities of flying as passengers. Many engine, rigging, wireless and gunnery officers who are keen on their work have more flying hours to their credit than many of the youthful pilots who are said to regard them with so much contempt.

No, sir, there is no great gulf between the branches of the Service which are so closely connected. If there is any "contempt" it is for those who have learned to fly at Government expense, have sported their wings and then on some pretext or other have "wangled" cushy ground jobs. These are the "will nots" who have no particular aptitude for administrative work, and no technical knowledge, and are, therefore, as "dud" on the ground as in the air. More trouble has been caused in the Force by placing pilots of this type in administrative positions than by appointing responsible officers who are debarred from actual flying, but who have been given their posts on account of proved administrative or technical ability.

Ex.-"T."



5-Ply "Triplex" 1⅛ ins. thick. The bullet in this case struck the bottom corner, penetrating one layer of glass and one of Xylonite, but without going any further. The back sheet of glass was slightly bulged.



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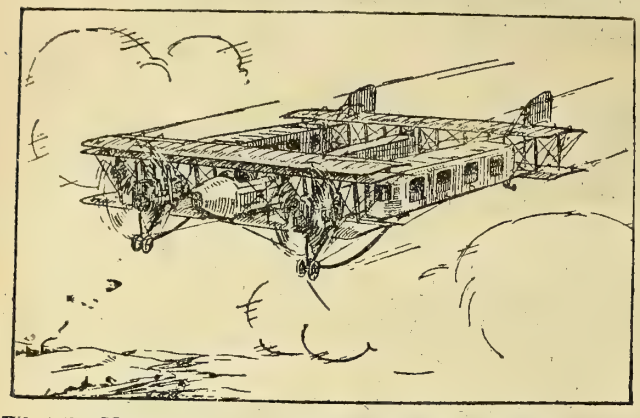
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THE WORLD OF AERONAUTICS.—(*cont.*)

A Tale of a Tail-less Aeroplane.

The mystery aircraft referred to by Major-General Seely in the House of Commons has set many pens scratching. The "Daily Express" "understands" that "it will be a tailless machine, a square in appearance, with two planes in front and two planes of the same dimensions behind. These planes are



What the Mystery Aircraft to which Major-General Seely referred will look like, according to the "Daily Express."

connected fore and aft by lattice frames, below which are swung enclosed Pullman cars for passengers and crew. Two, three, or possibly more cars will be carried between the front and rear planes. In the machine with three cars the crew will occupy the centre one, the two on either side being left for passengers or cargo.

"Rudders will be on the upper rear plane. The actual number of engines has not been determined, but the possibilities of the new type are considered to be such that a machine could be engined up to almost any power. A speed of 200 miles an hour would easily be attained.

"It is believed that the new machine can be made so stable in the air as almost to fly itself. When coming to earth it will be able to 'pancake' down almost vertically and quite slowly. This quality of 'settling' on a landing ground would prevent accidents if all the engines went wrong at once and all air speed was lost."

Leisurely "settling" is as much desired by aviators as it is disliked by creditors, but one fancies the writer of the article is rather over-sanguine on this point. The idea of this machine is not so strikingly original as the "Daily Express" imagines, as the suggestion originally appeared in THE AEROPLANE in 1914.

Esprit de Corps in the R.A.F.

(*To the Editor of* THE AEROPLANE.)

Sir,—"Soldier's" letter in your issue of March 12th makes very pleasant reading.

It is fashionable in certain quarters to jeer at the R.A.F., and, unfortunately, some of its own officers are the worst offenders in this respect. This is a splendid opportunity for these officers to retire into private life, or rejoin their original Service.

There is no reason why the R.A.F. should not be the finest Force in the world, and those who are keen on it, hope to make it so.

The "Morning Post" is of opinion that this young Service can only learn discipline if split up and attached to the "Navy or Army." We, who have been with it for some years, both in its present and previous forms, hope that it will shortly be superior to both the older Services.

Coming from the Navy one sees what a lamentable thing is the system of Military law under which the R.A.F. now suffers, and this is admitted by most soldiers.

Similarly, a soldier in the R.A.F. has doubtless observed things at ex-Naval Air Stations which are better done under Army routine.

When we are allowed time we hope to sort out the best habits and customs of both Services and add our own as they develop.

In a few years we hope to give the Guards points in smartness, drill, and discipline, and the Navy in adaptability and handiness.

Our first requirement is to get rid of those who are not with us heart and soul, and then to be allowed a little freedom from carping criticism till we can show what can be done with the material at our disposal—when the critics are welcome to "get busy" again. More power to their elbow, as their efforts can only do the Force good once it is a going concern!

After all, the senior officers of the R.A.F are not all fools! Some are capable of good work!

To take the much-discussed question of uniform. The colour selected is about the best "invisible blue" it is possible to find, so that khaki for land service becomes unnecessary. It is sufficiently light to make "whites" unnecessary in hot climates, so that the amount of uniform required by an R.A.F. officer will be less than that required by a Naval or Military officer—a very desirable state of affairs. There are lots of keen and capable officers and men in the R.A.F., and so long as they are under senior officers who are also keen on the Service all should be well.

It will break their hearts, however, if they are again placed under senior officers who are only brought in to "strafe" the new Force and to split it up.

Here's to the "future," friend "Soldier"—may we meet one day when the R.A.F. we love is what we should like it to be!

"SAILOR."

Aeroplanes for Survey Work.

On March 17th Lieut.-Col. M. N. McLeod, D.S.O., R.E., lectured upon mapping from aerial photographs to the Royal Geographical Society. He said that owing to the experience gained in the war very little development was required to give us the power, not only of preparing from air photographs complete and accurate large-scale maps of civilised and highly developed regions, but also of obtaining reasonably accurate maps of unexplored regions. For accurate work we could not, of course, dispense with the surveyor altogether, and in hilly country, until we could devise some satisfactory form of stereo-plotter, the air photographs would not help us very much. There did not, however, seem to be anything to prevent us making such an instrument, and when this was done it should be possible to map very cheaply and quickly steep, hilly regions at present troublesome to survey.

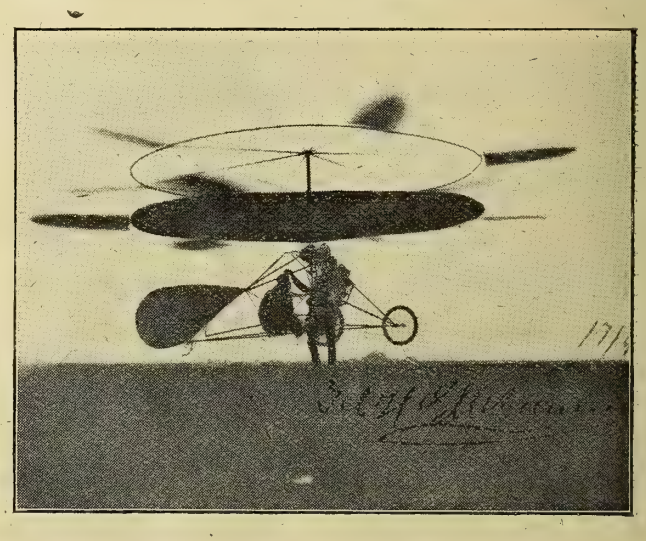
A "New" Kind of Aeroplane.

A "New Kind of Plane" is the title of an article that appeared in the "Daily Mail" last week. Naturally, one began to read it with a pleasant thrill of interest. But in the third line the word "helicopter" appeared, and the freshness of the "novelty" was somewhat dimmed when one remembered that as long ago as 1913 Ellehammer constructed a helicopter machine which actually raised itself from the ground.

According to the "Daily Mail" experiments with this "new" type of aeroplane are being secretly carried out near London, and it is stated that "experts who have witnessed tests say there is good reason to hope that an aeroplane completed on the lines of the experiments would not only rise straight up, but would be able also to alight on housetops or even on barges; thus dangers of landing at night or in fog would be minimised.

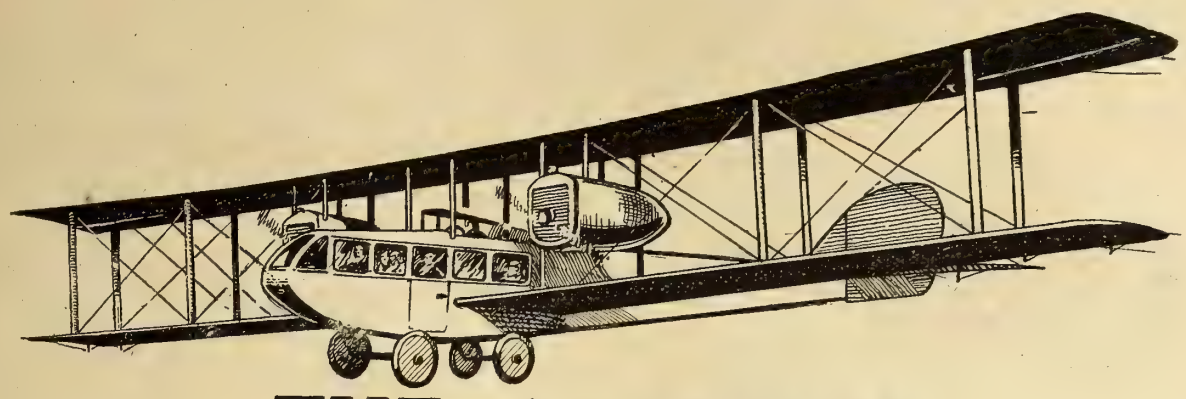
"An aeronautical authority told a representative of the 'Daily Mail' that, if perfected, the helicopter will be the greatest step yet made towards complete mastery of the air with a heavier-than-air machine.

"'Extensive experiments with helicopters,' he said, 'have been made from time to time in the United States, but with little success.' Since the war many notable British aeronautical engineers, at first sceptical, have turned their attention to the problem, which is now well on the way to being solved. Direct lifting can be attained only by a considerable reduction in straight-ahead speed, and this will always be a factor against direct-lift machines.'



The Helicopter which raised the Danish constructor Ellehammer from the ground in 1913. The standing figure is merely steadying the Machine.

"Another remarkable invention is a new system of aeroplane control, in which power will be used to relieve the pilot of the physical strain of working the ailerons, elevators, and rudder. The heaviest flying-boats and four-engined aeroplanes will be managed by a single pilot with the ease of driving an up-to-date motor-car."



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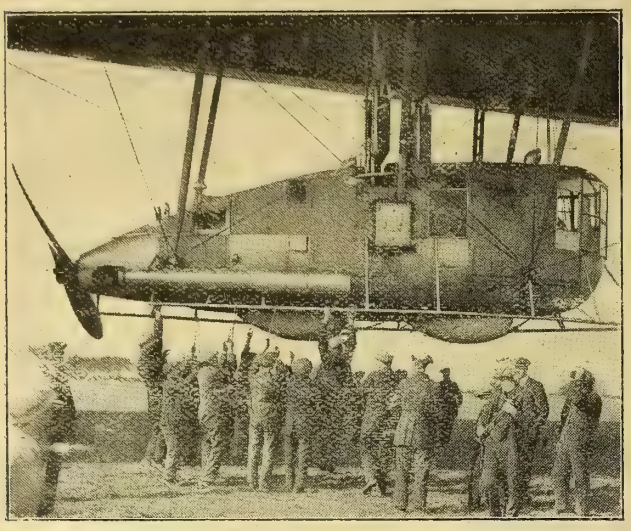
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THE WORLD OF AERONAUTICS.—(*cont.*)



The Rear Gondola of the R.34.

Another British Rigid Airship.

On March 14th trials were carried out at Glasgow upon the Naval airship R.34. The weather conditions were very good, and the ship made a flight of four and a-half hours. The ship is 665 ft. long and 80 ft. in diameter. With five 250-h.p. Sunbeam engines, she carries a load of 29 tons at 80 m.p.h. Her cubic capacity is two million cubic ft., and on her trials she carried a crew of 30. Colonel Park, of William Beardmore & Co., was on board during the trial.

The Sale of an Aerodrome.

It is understood that a Berlin Court-martial will shortly deal with the case of an officer of the German Air Service, one, Lieut. Porten, who will appear on the charge of having sold the aerodrome at Vilna to the Bolshevists for the sum of two million marks. The aerodrome was valued at roughly ten million marks.

The Peace Conference.

The following official communiqué, dated March 12th, 1919, has been received from Paris, and is passed to the Press for publication :—

The Supreme War Council met to-day from three to five p.m. The aerial terms to be imposed on Germany in the Preliminaries of Peace were discussed. The articles drafted by the Military Experts were examined in detail and adopted.

The next meeting will take place on Friday, March 14th, at three p.m.

A Worthy Critic.

An officer who has a very fine Service record writes of the memoirs of the late Major McCudden, V.C.—"Five Years in the Royal Flying Corps"—as follows :—

"'Five Years in the R.F.C.' is undoubtedly the best thing I have ever read. It seemed to me to answer so well the question of *esprit de corps* in the R.A.F. How can any force inheriting the traditions of squadrons like 56 and so forth—how can this force, inheriting the traditions of the R.F.C. and R.N.A.S., and manned by good fellows—fail to have magnificent *esprit de corps*?

"I should like to tell you that all the old R.F.C. fellows I have met who have read McCudden's book think about it just as I do. I can assure you nothing has made me feel more keenly the insignificant part I myself have taken in this late war, or made me realise how much I have neglected my opportunities. I think the reviews of McCudden's book have been all too tepid and lukewarm."

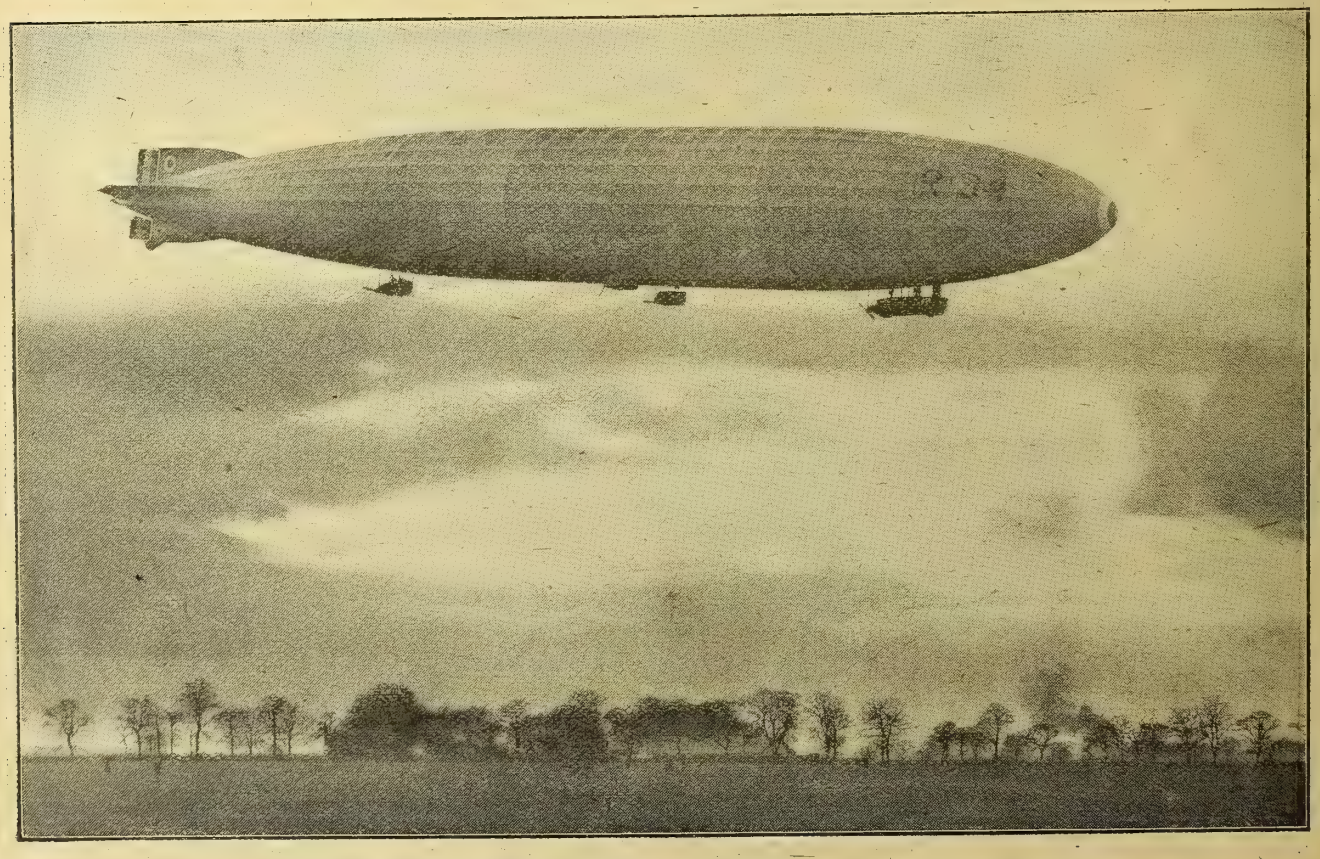
Despite all the kind things which have been said of the Memoirs, one feels that Major McCudden's family will appreciate these words more than those of any other critic.

A Distinguished Ally.

A recent visitor was Mr. D. Lawrence Santoni, one of the earliest pioneers of aviation. He has taken a very prominent part in the organisation of Italian aeronautics during the war, and has been responsible for the creation of the numerous and vast factories associated with the "Savoia" name.

On account of the great reduction in Italian aviation work for military purposes which has lately taken place, Mr. Santoni, who has already transformed part of his factories to undertake new work in that section of industry, formerly monopolised by the Germans, is prepared to negotiate for the disposal of the "Savoia" aeroplane and engine factory (which is equipped with the finest modern machinery suitable for wood and mechanical construction) to some large engineering firms desirous of starting manufacturing in Italy with the object of participating in the great industrial revival in which Italy, owing to her exceptional position as the "Bridge of the Orient," will certainly take a leading part.

The "Savoia" hydro-aeroplane works, which have produced some of the best-known types of flying-boats, will continue as hitherto. Mr. Santoni is also prepared to negotiate any arrangement with British aviation companies which may prove of reciprocal advantage, and will be glad to receive any communication from his English friends at the London offices of the "Savoia" Company, The British and General Aviation Contractors, Ltd. Lennox House, Howard Street, Strand, W.C.2.



The R.34 on her Trial Flight at Glasgow. She is 665 ft. long and carries 29 tons.

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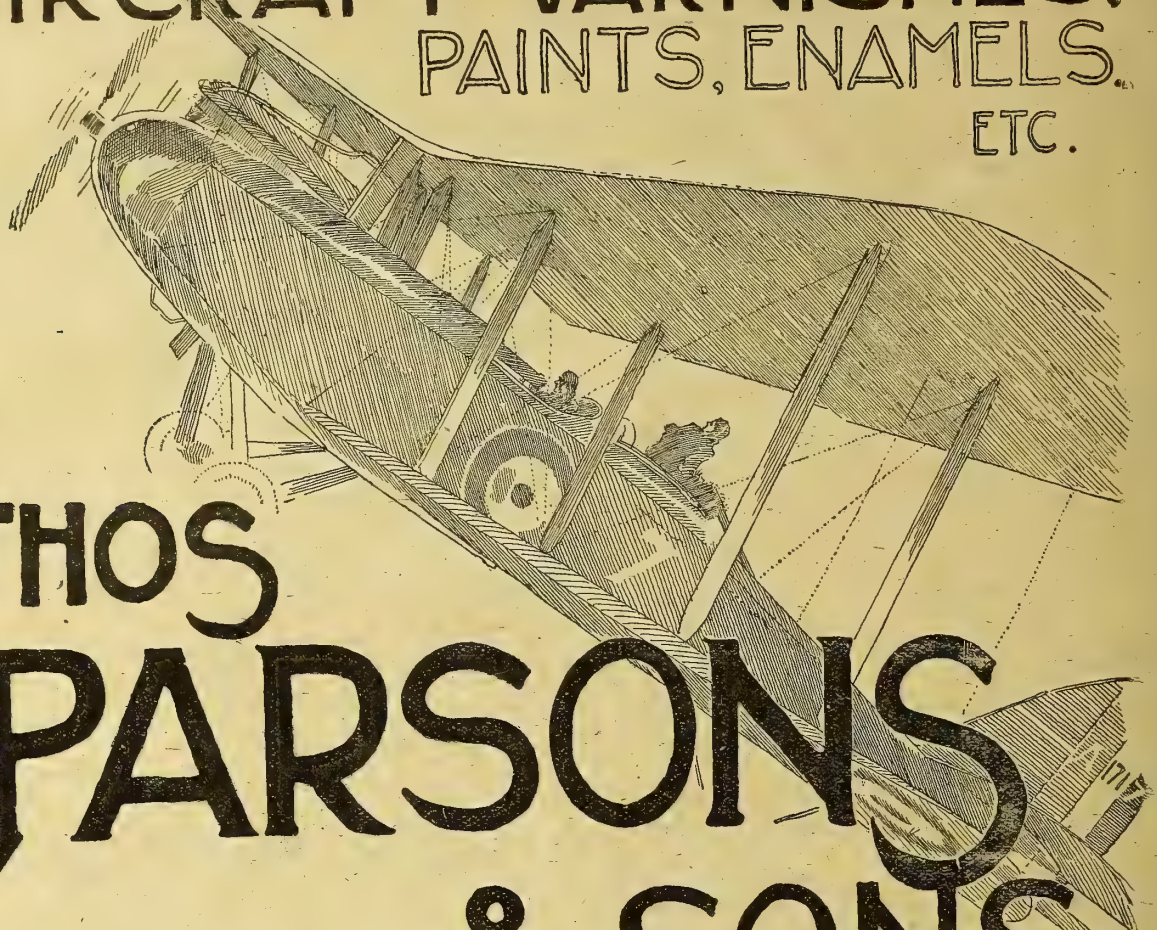
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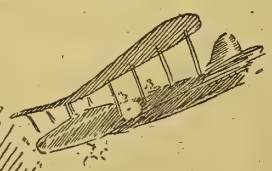
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AT ONCE for necessary forms and conditions of Registration.

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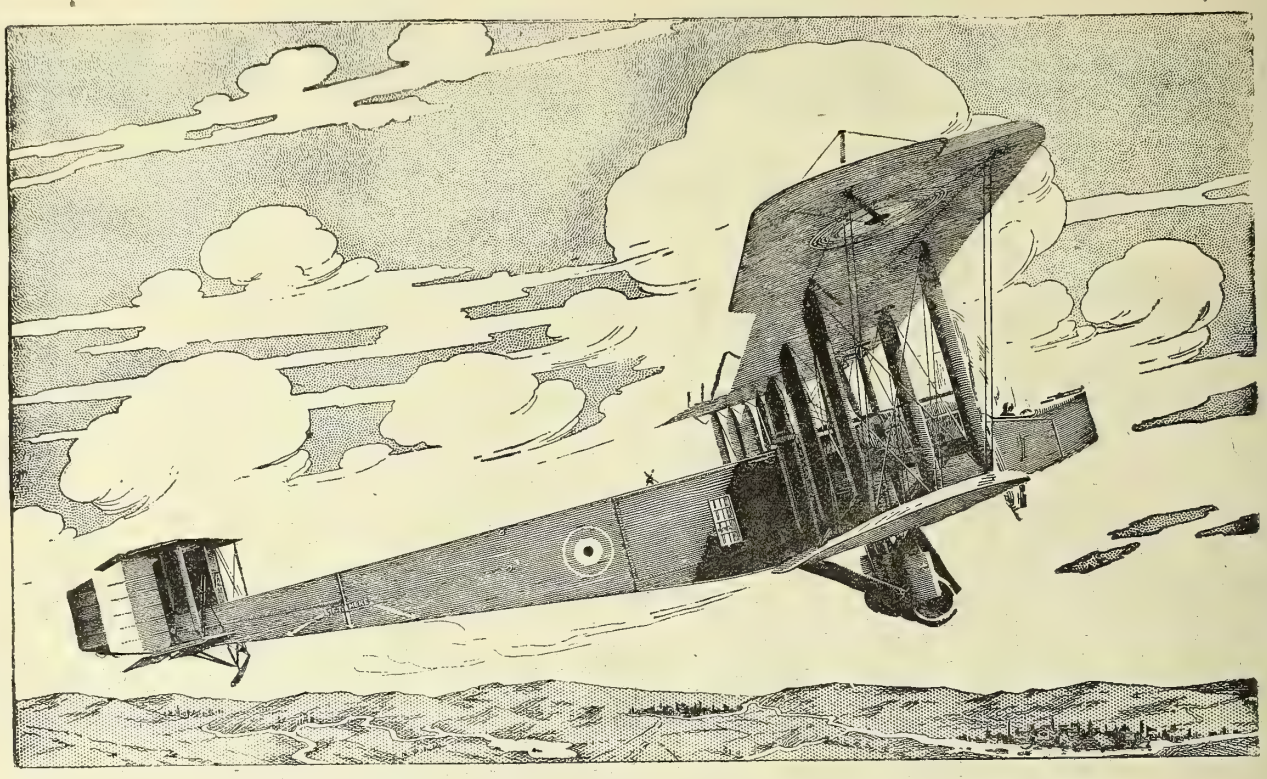
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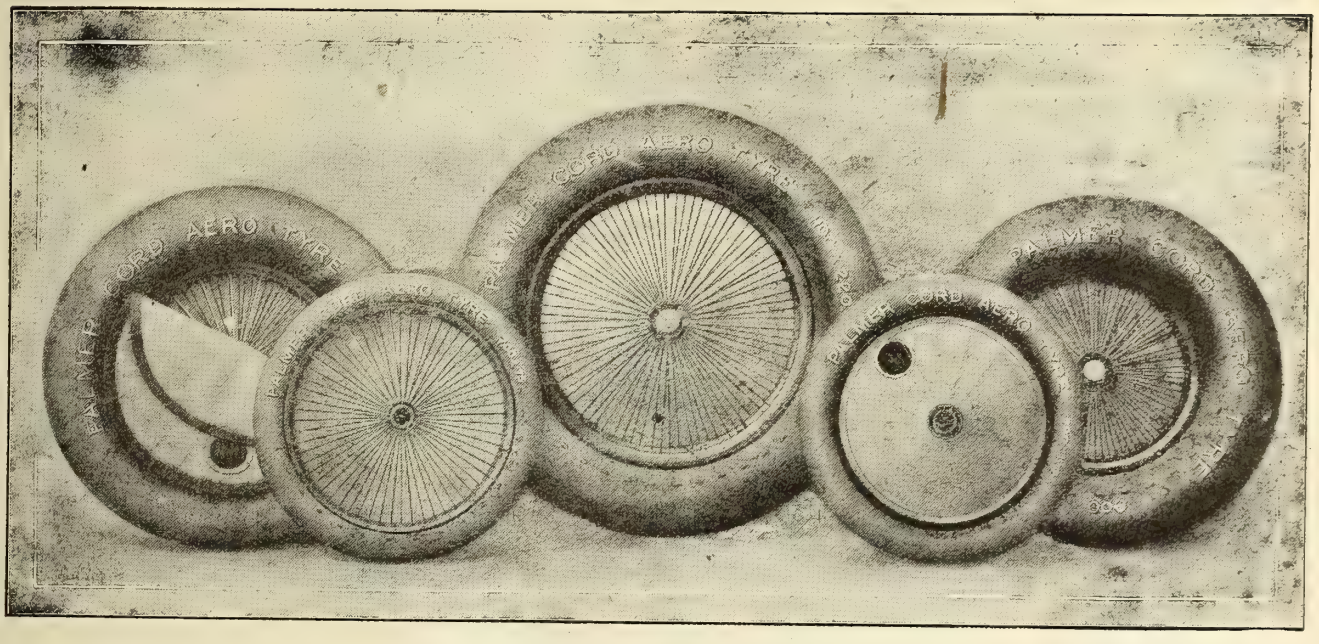
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Tyre Sizes	Wheel No.	Hub Length	Hub Bore	Track Line	Tyre Sizes	Wheel No.	Hub Length	Hub Bore	Track Line	Tyre Sizes	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m m	m m			m/m	m/m	m/m			m m	m m	m m
300×60	16	111.12	25.4	Central	700×100	33	150.	38.09	Central	800×150	†41	185.	55.	Central
,,	17	72.39	12.7	Central	,,	77	178.	44.45	132/46	,,	82	185.	55.	135/50
					,,	92	185.	55.	135/50	,,	85	185.	55.	Central
450×60	30	89.	31.75	Central	,,	95	185.	55.	Central	,,	†205	185.	60.32	Central
					,,	96	178.	55.	132/46					
575×62	21	160.	28.	Central	,,	99	178.	38.89	132/46	1000×150	97	250.	65.4	Central
,,	34	150.	31.75	104/46	,,	112	150.	40.	Central	,,	102	185.	55.	125/60
,,	111	150.	38,09	104/46						,,	201	185.	60.32	125,60
					650×125	119	178.	55.	132/46					
650×65	78	178.	44.45	132/46						900×200	107	185.	55.	Central
,,	79	178.	44.45	Central						,,	108	185.	55.	125 60
,,	100	178.	38.09	132 46	750×125	33	150.	38.09	Central	,,	128	220.	66.67	Central
,,	101	178.	31.75	132/46	,,	77	178.	44.45	132/46	,,	202	185.	60.32	Central
					,,	92	185.	55.	135/50	,,	208	185.	60.32	125 60
600×75	21	160.	28.	Central	,,	95	185.	55.	Central					
,,	34	150.	31.75	104/46	,,	96	178.	55.	132/46					
,,	111	150.	38.09	104/46	,,	99	178.	38.89	132/46	1100×220	134	220.	66.67	Central
					,,	112	150.	40.	Central					
700×75	78	178.	44.45	132/46						1250×250	136	250.	80.	Central
,,	79	178.	44.45	Central	800×150	†36	185.	55.	135/50					
,,	100	178.	38.09	132/46	,,	†40	185.	60.32	135/50	1500×300	115	304.8	101.6	Central
,,	101	178.	31.75	132/46						,,	126	304.8	152.4	Central

† *Wheels Nos.* 36, 40, 41, *and* 205 *are of stronger type than the other wheels for* 800 x 150 *tyres*

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THE WEEKLY COMMENTARY.

A description of the Napier "Lion" engine appears in this issue. This engine will be found to present many features of great interest, and the performances already to its credit are a sufficient guarantee that it will take a very important place amongst the world's aero engines in the immediate future.

In this week's instalment of the article on the "Design of Aircraft," Capt. Sayers commences the discussion of marketable types of aircraft, his first example being a sporting single-seater model. Though the use to which such a machine will be put can scarcely be described as "commercial," the manufacture of such machines may become quite a paying proposition, and the inclusion of such a type may therefore be justified, even within the strict limits of the title of the article.

Quite apart from such a ground for its inclusion, it is believed that the design is of interest, as showing how nearly a very small and low-powered machine may approach in all-round performance to the types with which war conditions have made us familiar.

A note by Mr. M. A. S. Riach, A.F.R.Ae.S., A.F.I.N.A., on the possibilities of the helicopter deserves attention. Helicopters and ornithopters have long been a subject for ridicule, but it is well to remember that twenty years ago the aeroplane was in the same position.

A description of a form of "Tautness meter" for determining the tightening of fabric caused by doping is described by Mr. T. W. H. Ward. It is claimed that this type of meter overcomes most of the disadvantages possessed by the types hitherto in use.

THE DESIGN OF AIRCRAFT FOR COMMERCIAL PURPOSES.—VI.

By CAPT. W. H. SAYERS, R.A.F.

Summing up the results of the foregoing discussion of the effects of increasing surface loadings, it has been shown that high loadings result in a serious loss of climb and ceiling, but that they may be carried to considerably greater lengths than has hitherto been considered advisable, with a definite gain in the useful ton-mileage for any given expenditure of fuel.

It has further been shown that, if the author's deductions from the consistent performance of a number of experimental machines, all fitted with an aerofoil section of the type which he has in mind, are correct, it is possible by the choice of a suitable wing section to use such heavy loadings without either a prohibitively high landing speed, or a serious loss in top speed, and with a quite reasonably good climbing performance.

In this connection the author wishes to state that he is firmly convinced that the aerofoil characteristics which he has ascribed to a high lift wing in Fig. 7 are by no means the limit to be expected. He has fairly good reason for believing that it is possible further to increase the ultimate lift coefficient without seriously impairing the lift/drag ratio—that is to say that he believes it possible to increase loading still further without raising the landing speed and without any appreciable loss either of top speed or of climb.

Also, it is seen that with increasing loading the prime costs of the machines decrease steadily, with a steady increase in the cargo and fuel capacity. Not only does the prime cost of the machines decrease, but the cost of shed accommodation decreases as the loading is put up.

Generally speaking, the heavily loaded machines will be more robustly constructed, and less subject to accidental damage than those more lightly loaded, and they will require less labour and materials for maintenance.

Thus, even if the contention that the performances of the heavily loaded types are superior for commercial purposes to the more normally loaded machines, in the matter of speed and fuel economy, is not accepted, there remains a very considerable saving in capital charges and in maintenance costs to the credit of the heavily loaded machine.

The series of machines which have been discussed in detail as to performance, are of a size which does not show the high lift wing to as great an advantage as would a really large machine, because with increasing dimensions the difficulty of keeping the weight of the structure to reasonable limits becomes more and more acute, and the value of the saving which can be attained by very heavy loading becomes increasingly important.

The design and performance data of this series were considered at length in order to give a fairly clear idea of the effect of high loading upon performance and cost, and to permit of a freer and more general discussion of the possible trend of design for specific purposes.

Whilst this series of articles has dealt with design from the commercial standpoint of cost, the consideration of cost is bound to enter very considerably into the development of privately owned pleasure machines, and it is therefore not out of place to consider such machines, more particularly because the two-seated private machine and the two-seater commercially operated "joy ride" and "taxi" machines are likely to have many features

in common. Not only this, but the development of pleasure flying is likely to be a necessary forerunner of any very extensive commercial use of aircraft.

There may be a limited number of very wealthy private owners to whom the cost of owning an aeroplane will be unimportant, but their number will be too small to create that confidence in aerial methods of transport which, more than anything else, is needful before commercial aeronautics can take its proper place.

Privately owned pleasure machines are likely to be mainly confined to the sporting single-seater of fairly high performance, possibly used for racing purposes, and the two- or three-seater machine, of moderate performance, whereon the owner and a friend may tour the country in reasonable comfort.

The pilot who has flown modern high performance fighters, and who would like a machine of his own to fly, is not likely to be satisfied with any machine of low performance and incapable of "stunting."

At first sight this would appear to call for a relatively expensive machine with an engine of 80 to 100 h.p.

Actually this is not the case. It is now a matter of fairly common knowledge that at least two machines have been built in this country during the past few years which, fitted with a two cylinder opposed A.B.C. engine of 32 B.H.P., have shown very remarkable performances.

Working on somewhat similar lines, and using the improved engines which are now available, the author would suggest the machine shown in Fig. 11 as a machine to meet the needs of the pilot who requires a really fast single-seater at a moderate cost. Actually this machine is a development of one which the author designed and built some little time ago, modified in directions which will make it easier and more pleasant to fly than was the original.

For so small a machine as this, heavy loadings are out of the question. It would be possible to build a machine for such a purpose which would have a very excellent performance by adopting a loading of 10 lbs. per sq. ft. This would reduce the span of the machine to about 14 ft., and would result in a very considerable saving of weight, cost, and housing space.

But it would be practically impossible to make this machine comfortable to fly. So small a machine would be so quick in all its movements that very few pilots would be able to handle it with any success.

The suggested machine could probably be manufactured and sold, in reasonable quantities, at £350, and certainly at £500. The shed space required for storage is very small, and, owing to the small size and weight, one man suffices to get the machine in or out of the shed.

At the top speed of 110 m.p.h., the fuel consumption will not exceed four gallons per hour—27.5 miles per gallon; and a touring figure of 35 miles per gallon at 85 m.p.h. could certainly be reached.

Generally speaking, the machine is on perfectly normal lines. The fuselage is of spruce—strutted, wire-braced, and fabric-covered. The fuselage might be built with spruce longerons and struts, and covered with thin 3-ply, with no wire bracing.

The latter construction would be less liable to get out of truth, but, if it did warp, would not be easily re-adjusted. It would also weigh nearly 20 lbs. extra.

Fuel tanks are carried over the pilot's legs, under the top fairing, where tanks for 10 gallons—2½ hours' full power fuel—can be fitted.

The planes are of normal structure, with spruce spars and ribs. The top plane, 19 ft. span × 3 ft. 6 in. chord, is level with the pilot's eye, giving a clear view over the top as well as under it.

The bottom plane of 13 ft. 6 in. × 2 ft. 9 ins. chord is staggered back to give a good view forwards and downwards for landing. Both planes have a normal "high speed" section.

Interplane struts are of steel tube faired with spruce, and the usual cable interplane bracing is employed.

The tail unit is of normal type, but is large for the other dimensions of the machine. This is necessary in

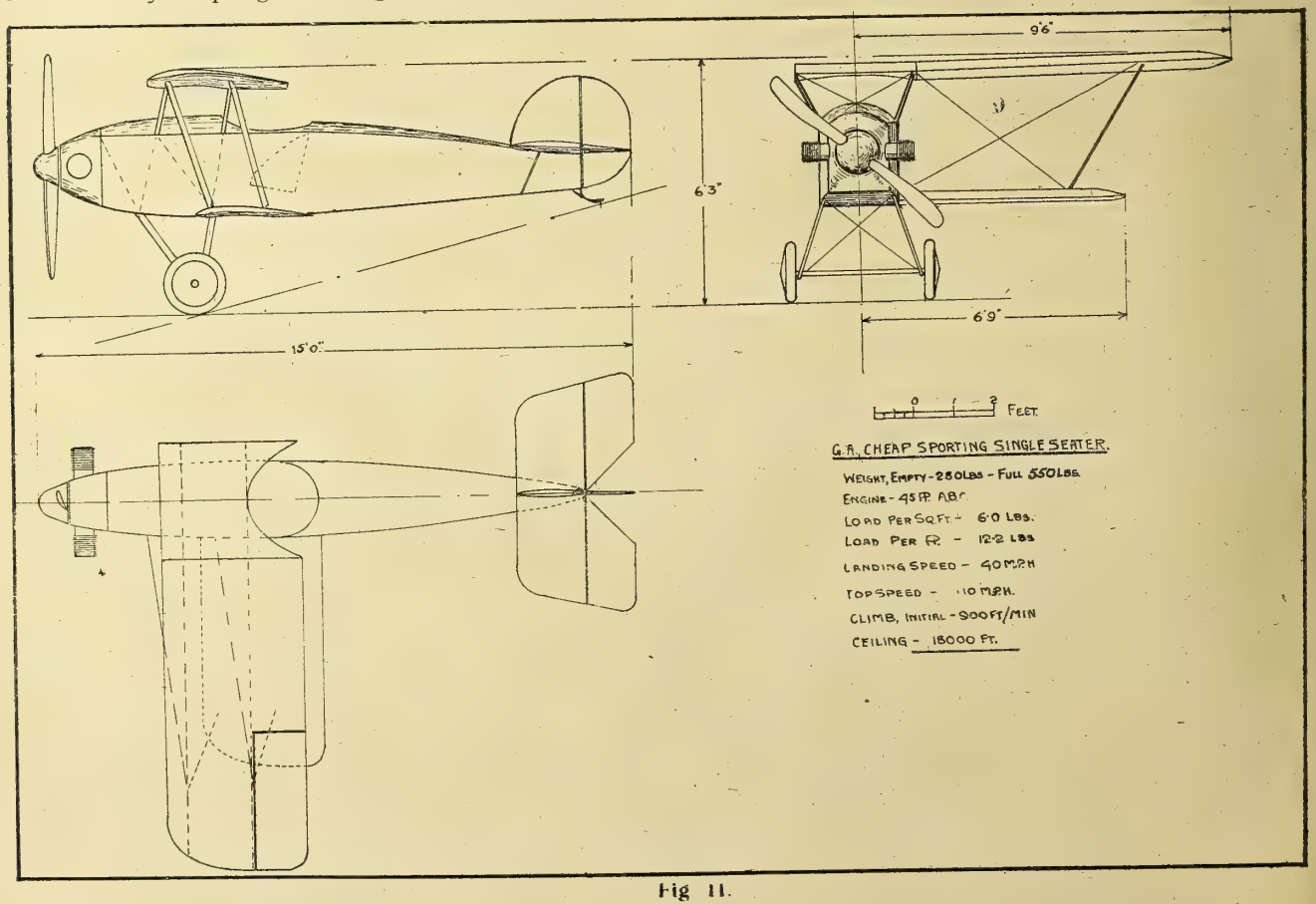


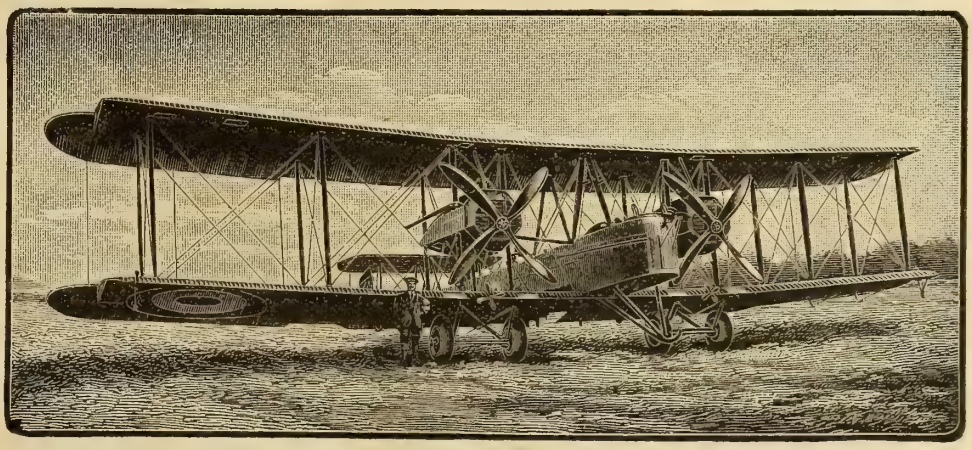
Fig 11.

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order to slow up the movements of the machine, which would otherwise be likely to prove uncomfortably quick.

A plain V type chassis, of steel tube, fitted with two 18-inch diameter landing wheels, is shown. It is possible that a centre skid chassis, of more or less "Avro" type, would be preferable for such a machine. It would be slightly heavier and a little more costly than the one shown, and would slow the machine considerably.

Contrary to the general idea, such a machine as this can be made extremely strong and robust, and experience has shown that it would be much less liable to accidental damage from bad landings, etc., than are larger machines.

The performance, noted in Fig. 11, is sufficiently good for most purposes. Fully loaded, the machine should reach 10,000 ft. in 14 mins., and have then a speed well over 100 m.p.h.

Though this machine is suggested primarily as a cheap sporting model, it may have other and more definitely commercial uses. Many large firms with important branches distributed over the country have fairly frequent need for the rapid transfer of documents from one branch to another. A machine of this type, kept by such a firm, could quite comfortably carry a few pounds of urgent letters 200 miles in less than 2 hours. With the very small housing accommodation required, and with the ability to take off and land in a very small aerodrome, such a machine offers a very cheap method of providing for such a need.

(To be continued.)

THE HELICOPTER AS A POSSIBLE TYPE OF FLYING MACHINE

By M. A. S. RIACH, F.R.Ae.S., Assoc.Inst.N.A.

The question of whether it is possible to design and construct a heavier-than-air flying machine that shall be capable of rising vertically from the ground, and, having risen, sustain itself in the air is one that is as old as, if not older than, the aeroplane itself.

In common with the aeroplane, success has been largely dependent upon the evolution of a light power unit.

But during the evolution of such a prime-mover, the development of the flying machine has been concentrated almost entirely in the aeroplane, and as a consequence the potentialities of other types of heavier-than-air craft, such as the helicopter, have been largely ignored, if not forgotten. At the present time the aeroplane is the only practical solution of the heavier-than-air flying machine, and as such necessarily embodies in its design the results of an enormous amount of previous work. Development tends to run very much in a groove.

But the practical utility of the aeroplane is limited in some respects, such as in rising and landing, and it is here that it may be possible for other types of craft to excel such an acknowledged serious rival as the modern aeroplane.

The Limitations of the Aeroplane.

No matter what you do, aeroplanes as at present understood will always be faced with the difficulties attendant upon rising and landing, especially the latter. If you decrease the wing-loading and fatten up the wing section in order to be able to land at a slower speed, your maximum flying speed immediately suffers as a result. To be of any practical value the aeroplane must be capable of flying at a certain speed when "all out," and this for a given engine immediately settles the landing speed. And if we are to be able in the future to rise and land from any restricted area, the aeroplane will either have to be so modified as to virtually cease to be an aeroplane at all, or a radically different type adopted in its place.

A Possible Alternative.

Considering the possibilities of the latter alternative, the helicopter presents itself as a possible solution of the problem. It may be shown analytically that, except in certain special cases the helicopter flying machine demands more power to rise for a given weight than the aeroplane.

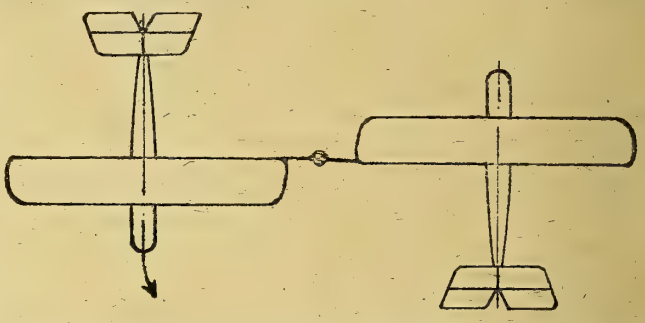
A useful rule for determining the amount of lift to be expected from a helicopter is the following:—

Take the product of the available B.H.P. of the motor and the diameter of the equivalent lifting circle in feet. Raise this product to the two-thirds power and multiply the answer by 9 ($T = 9\ D^{2/3}\ H^{2/3}$). This will give the net weight in lbs. that can be lifted. The parameter 9 is given as a workable value to be expected in an intelligent design. By "equivalent diameter of lifting circle" is meant the square root of the quotient of the sum of the areas, swept out of the blades of the lifting screws as seen in plan divided by 0.7854.

The climbing speed of a helicopter will generally be expected to be lower than that of the aeroplane of equal B.H.P.-weight ratio, and such questions as the calculation of "ceilings," rate of climb, etc., may be worked out with a very fair degree of accuracy from our present knowledge of airscrews and the data available.

Landing a Helicopter.

So far so good, but what about descent? If the power unit ceases to function what is going to happen to the "intrepid aeronaut" in his helicopter? This question is usually considered to contain the Waterloo of the direct lift flying machine. As a matter of fact a helicopter when falling freely will always attain what mathematicians call a "terminal velocity" of descent, and from an engineering point of view the problem is then immediately simplified into questions of the safe limiting speed for ordinary use. Imagine two aeroplanes executing a spiral glide, coupled together at their adjacent wing tips by a sufficiently long weightless rod.



The analogy with the helicopter falling should be at once apparent.

Most aeroplanes glide at an angle of 1 in 8 to 1 in 10, at speeds of from 60 to 100 miles an hour. The velocity of fall vertically will then be in the neighbourhood of 8 to 10 miles an hour, and this is the velocity that would be acquired by anyone jumping off a wall 2 to 3 feet high.

Parachutes commonly fall at anything from 12 to 16 feet per second, which is of the same order of figures.

Consider for a moment what initially occurs when a helicopter is allowed to fall freely from rest. The lifting screws (supposed free to rotate), being inclined, commence to revolve by the action of the relative wind striking them as the machine commences to accelerate earthwards. After a time the drag resistance of the screw blades causes the screw to reach a terminal angular velocity, at which speed they continue to rotate uniformly until the helicopter reaches the ground.

Whilst rotating the screws are exerting sufficient upward force or lift to prevent the machine from falling like a stone. That such must be the case may be easily demonstrated.

It is known that any body falling freely under the action of gravity stores up a definite quantity of kinetic energy capable of doing work. If a body of weight W lbs. falls a distance of S feet, it will store up energy equal to WS foot lbs. Now let the same body by some means be caused to rotate in a plane perpendicular to the axis of fall, then the energy possessed by the body will be the sum of its rotational energy and its falling energy.

But this energy has been supplied by gravity, and for a given distance of fall is a constant quantity for a given weight of body. We, therefore, have the equation:—

Rotational Energy + Kinetic Energy = Constant

or:—

Kinetic Energy = Constant — Rotational Energy.

It is obvious, therefore, that the bigger the rotational energy the smaller the kinetic energy, and, *ergo*, the *smaller the velocity of fall.*

It would appear from the foregoing that we have only to make the rotational velocity sufficiently high to prevent the helicopter from falling at all. This apparently paradoxical result is explained by the fact that the maximum angular velocity that it is possible to impart to the system is a function of the design of the helicopter itself and hence that the terminal velocity of fall depends upon the general type of the machine employed. This being so, it becomes necessary to determine the safe terminal speed of fall for a flying machine of this kind, and to make the necessary allowance for this in the design.

The question of horizontal flight in a helicopter is another and somewhat complicated problem, although it is by no means impossible to overcome the difficulties which present themselves and which are inherent in a flying machine of this class.

Enough has been said, however, to show that as a possible future alternative to the aeroplane, the helicopter should not be altogether overlooked.

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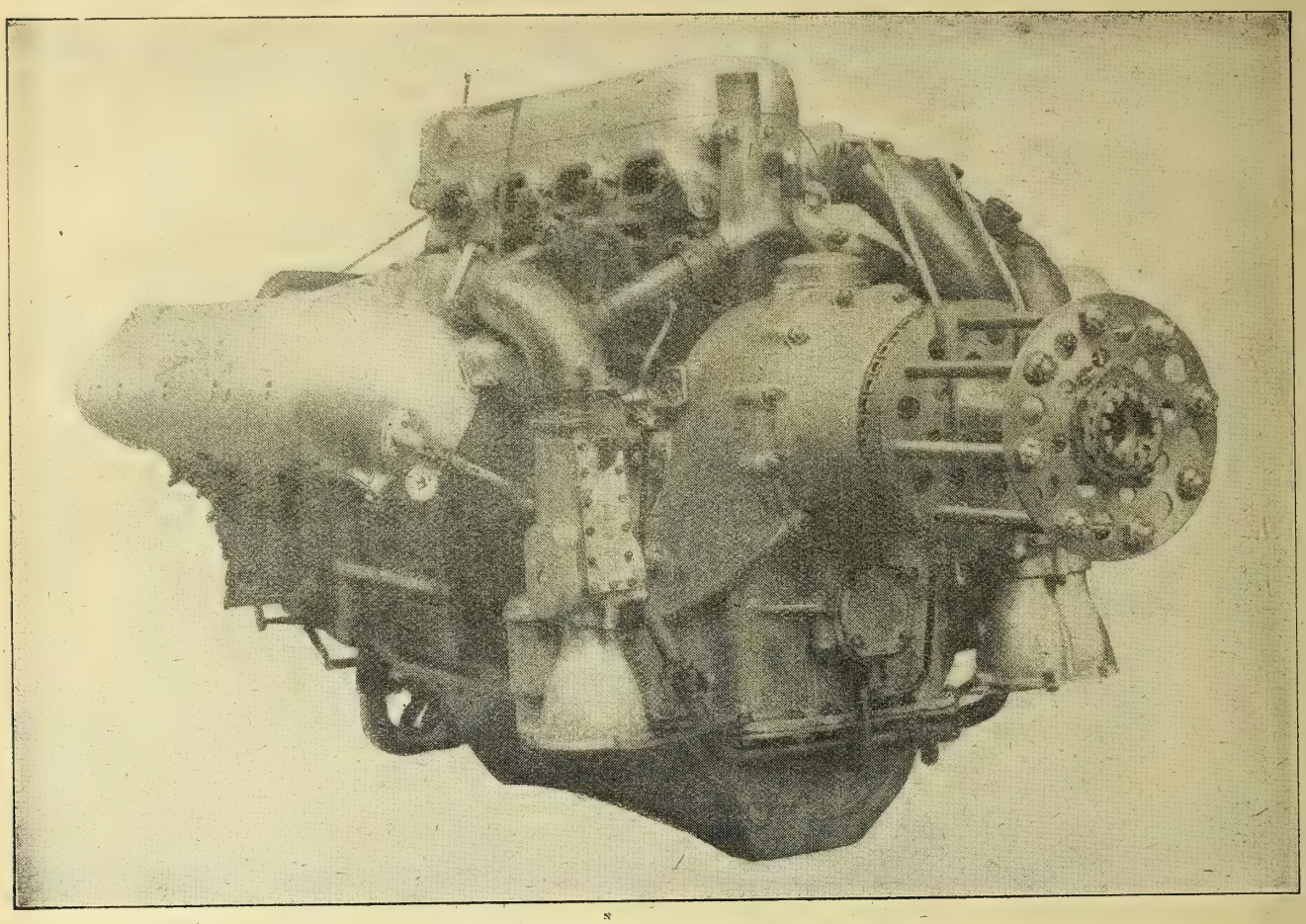
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View of complete Engine from Airscrew End.

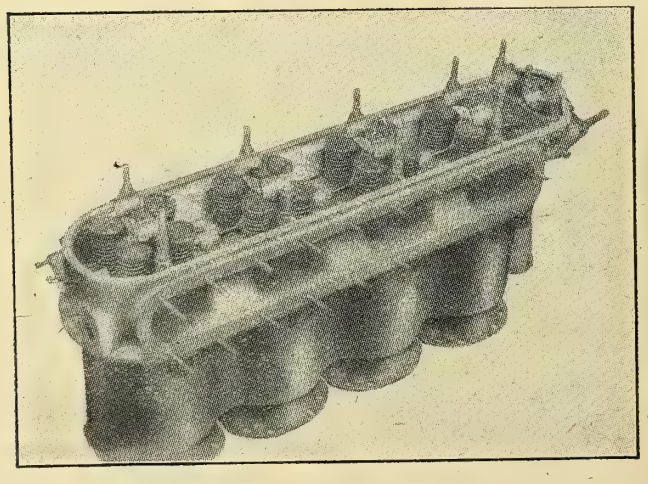
[The Editor desires to express his indebtedness to the Technical Department of the Air Ministry for assistance in compiling this description.]

The all-British "Lion" aero engine has many points of interest. The most noticeable novelty in the latest model is the new type of water jacket. There is now a separate jacket to each cylinder instead of a multiple jacket for each block of four cylinders. Undoubtedly, this is an improvement. Weight is saved, and the new method of making a water-tight joint between the cylinder and jacket is preferable to the old. In the former models the lower joint was made by a rubber ring; in the latest type the jackets are welded to the cylinders.

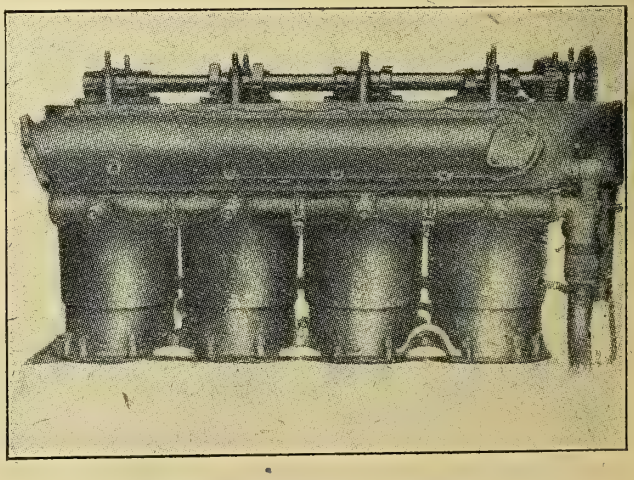
The "Lion" engine, which develops 450 B.H.P. at 2,000 r.p.m., and weighs only 1.86 lbs. per B.H.P. (without water, fuel or oil), is in its entirety a highly creditable British production. Its twelve cylinders are arranged in three sets in the "broad arrow" method. Each cylinder has two inlet and two exhaust valves, the seatings of which are screwed through the head of the cylinder into the head casting. The valves are operated by two overhead camshafts, and the cams act directly upon the tappet heads, the stems of which are screwed into the valve stems so that the clearance may be adjusted. A spring locking ring secures the tappet head when the adjustment has been made.

The Self-Starting Device.

The engine is started by pumping an explosive mixture into the cylinders and firing it by means of a hand-starting magneto. By means of linked control levers the two forward valves of each cylinder are opened by hand pressure. The air-pump is mounted in the cockpit, and by means of a two-way cock it can be used first to pump pure air to the cylinders to expel any foul gasses that there may be in the combustion chambers, and then the explosive



Cylinder Block with old type Water Jackets.



The new type Water Jackets in place.



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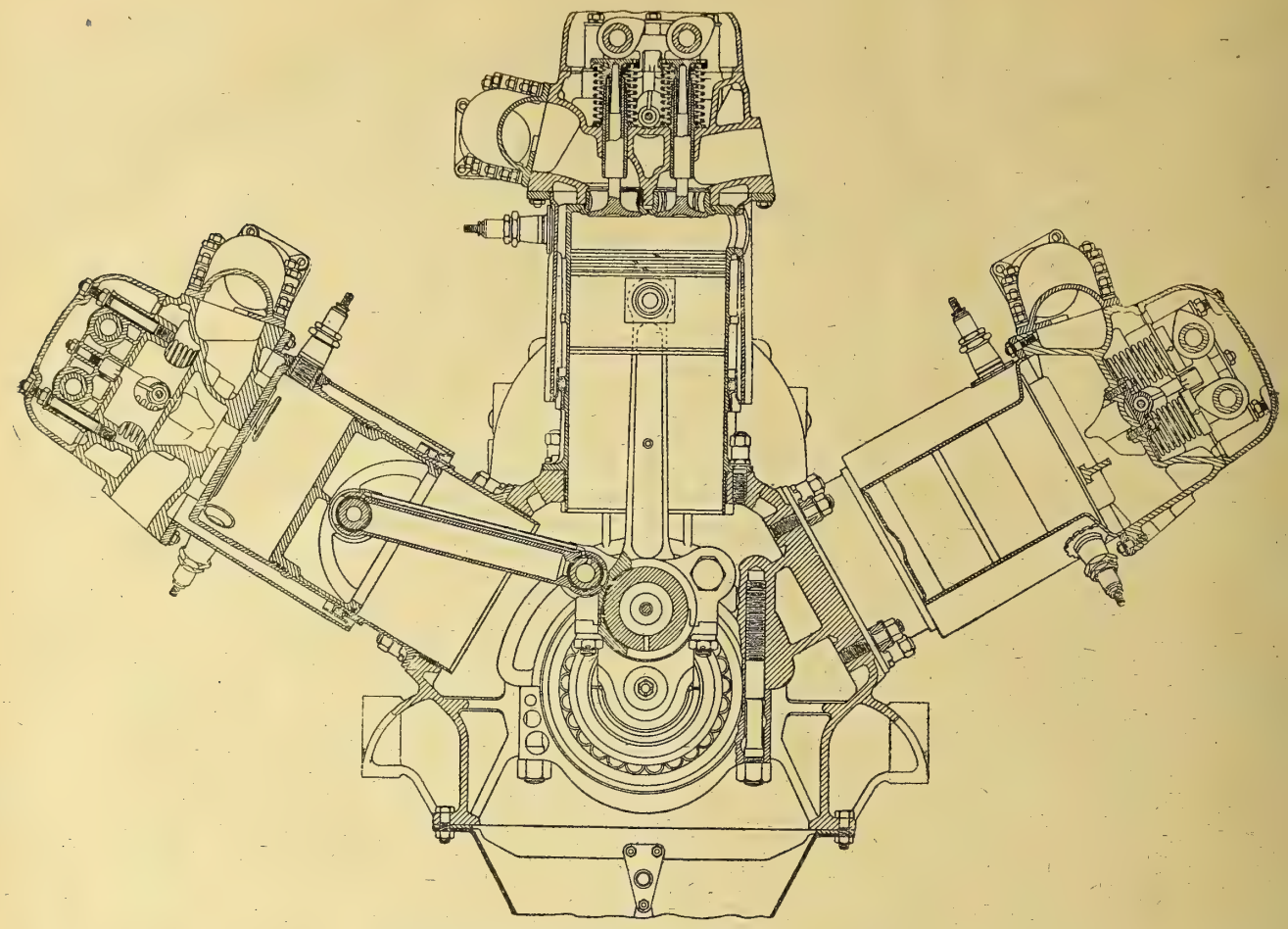
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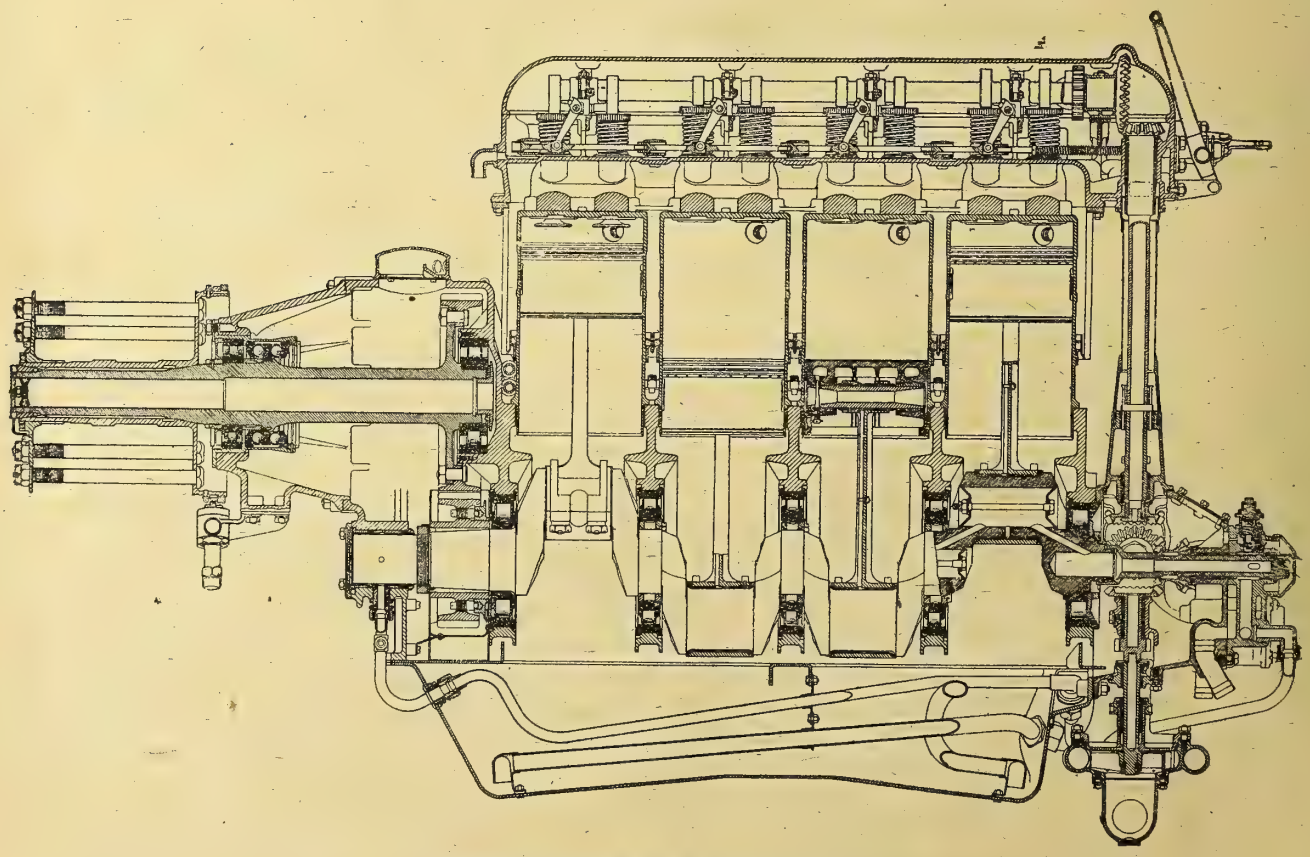
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Sectional End Elevation of the 450 h.p. Napier "Lion."

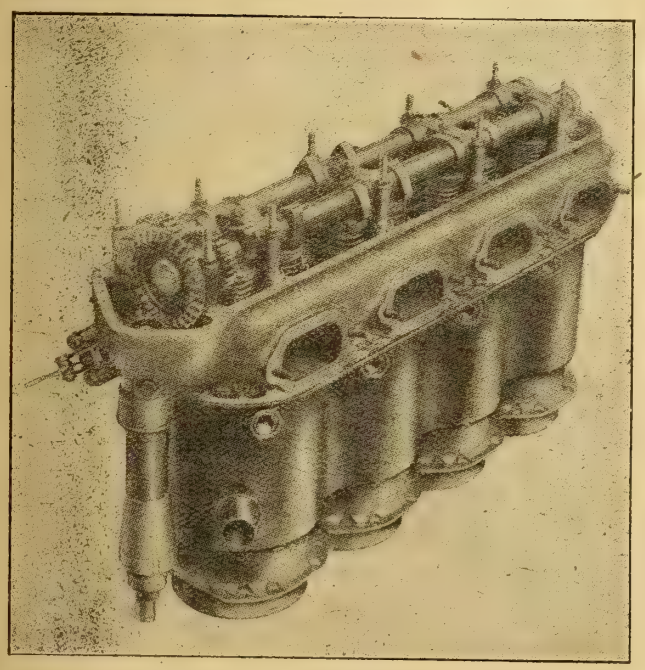


Sectional Elevation of the Napier "Lion."

mixture is ready for firing. The mixture is formed by pumping air through a petrol vaporiser which is a form of spray carburetter.

The three rows of cylinders are supplied with mixture, when running, by two carburetters, a single and a duplex type. The gas passages are water-jacketed. So far as the throttles, diffusion jets and altitude control cocks are concerned the carburetters resemble the H.C.7 type, but modifications have been made to adapt them to the "Lion" engine.

The altitude control system is that of reducing the supply of petrol as the machine climbs. This is, of course, necessary, because as the air becomes rarefied the percentage of air to petrol would become incorrect if the flow of fuel were not checked. There is a safety device, which causes the control



View of Twin Camshaft Assembly (Old type Cylinder Block).

when open to shut automatically when the throttle is closed. This prevents the mixture being too weak when the pilot makes a long dive and flattens out.

Lubrication.

Oil pumps of the spur wheel type are fitted and the lubricant is

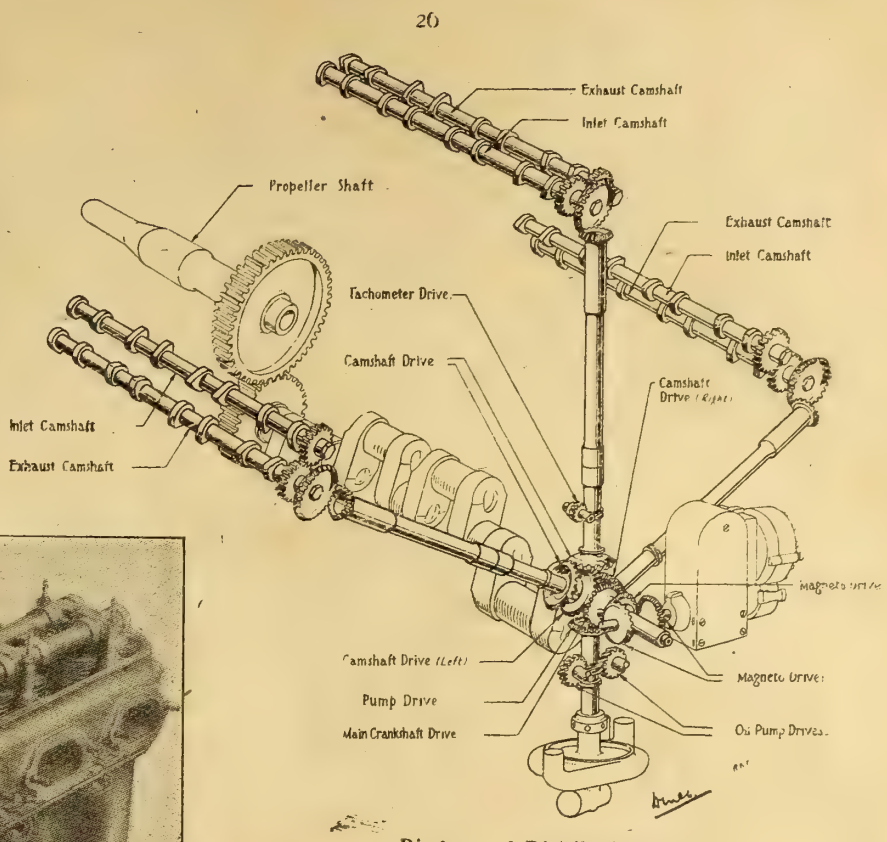


Diagram of Distribution Gears.

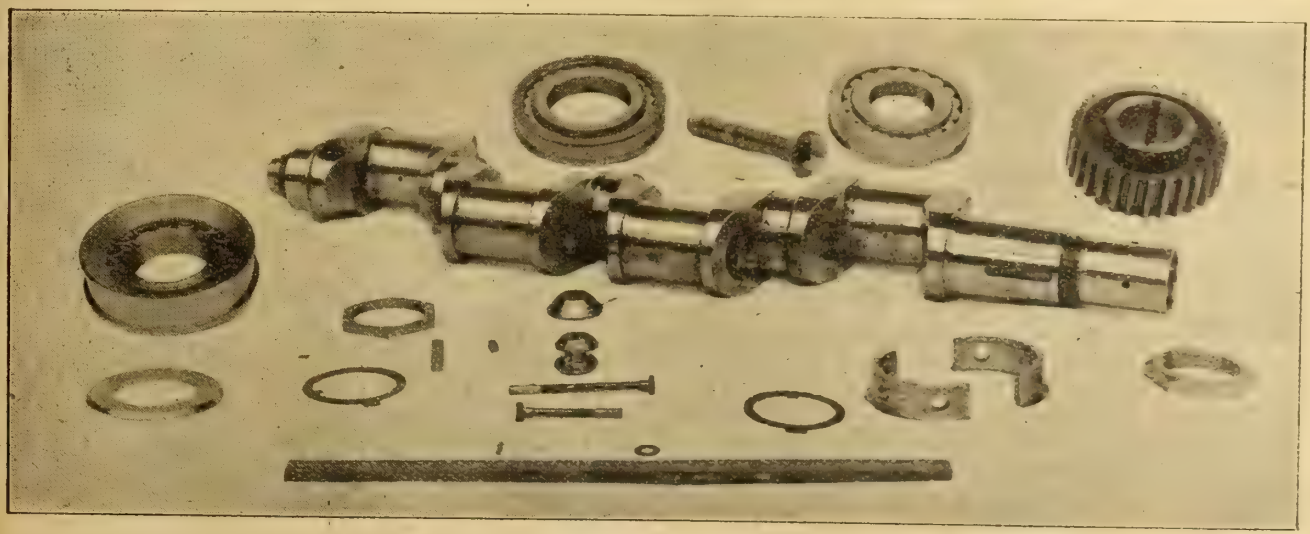
fed under pressure to both ends of the crankshaft and from thence along the inside of the shaft to the crank-pins and to the big-ends and gudgeon pins. Oil is also supplied under pressure to one of the camshafts on each set of cylinders and to the reduction gears. The cylinders are lubricated by oil splashed from the connecting-rod big-end bearings and gudgeon. Two scraper rings are fitted to each piston and the oil from the upper scraper ring is drained through holes cut in the piston.

Ignition.

Two 12-cylinder magnetos are fitted. They are of the A.V.12 type manufactured by the British Thomson-Houston Co., Ltd. Both rotate anti-clockwise and one has a special distributor rotor for starting purposes. They are driven at one-and-a-half times the speed of the crankshaft in order to give six sparks for each revolution of the engine, as this type of magneto gives four sparks to each revolution. Two plugs are, of course, fitted to each cylinder. Those recommended by Messrs. Napier and Sons are the K.L.G. type F.10.

The Crankcase.

The crankcase of the "Lion" is a fine casting of aluminium alloy. The top halves of the housings for the crankshaft plain



Crankshaft and Bearing Components of the Napier "Lion."

and roller bearings are contained in the two ends and four internal cross-webs. The lower halves of the housings for the roller bearings are steel caps carried in studs in the rear and cross webs.

The casing for the reduction gear is formed at the front end of the crank-case. The gearing is clearly shown in one of the diagrams. It will be seen that the arrangement is extremely neat. There are six camshafts—two for each set of cylinders, one operating the exhaust and one the inlet valves. Only one camshaft on each set of cylinders is driven by the reduction gear, the other camshaft is geared to this. Consequently, there are three shafts driven by the bevel gear wheel attached to the crankshaft. The diagram also shows how one shaft has two bevel wheels, one of which engages with the bevel wheel that drives the centre shaft. The compact arrangement by which the six camshafts, water pumps, oil pumps, and two magnetos are driven is clearly shown.

The following general particulars and dimensions are of interest:—

CYLINDERS.

Steel forgings machined all over. Water-jackets of steel. Détachable aluminium cylinder head, containing inlet and exhaust passages, valves and valve-actuating mechanism.

PISTONS.

Of aluminium alloy, fitted with two gas and two scraper rings. Gudgeon pins of large diameter and hollow, working in steel bushes.

CONNECTING RODS.

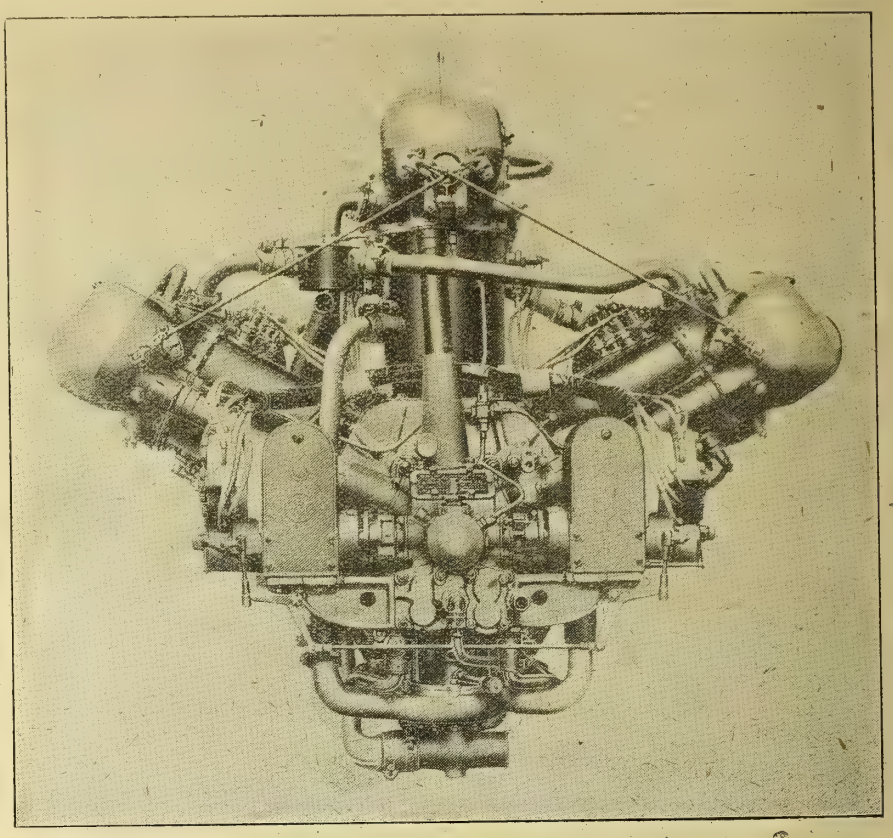
Machined from special high-grade steel. The master rod, coupled to the pistons of the vertical block of cylinders, is formed with lugs on either side, to which are attached the short auxiliary rods for the pistons of the right and left groups of cylinders. The big ends are white metal lined, anchor pins and other parts work in bushes of ample size.

CRANKSHAFT.

Machined from a solid steel forging. The four throws are in one plane, and all journal bearings and crank-pins are of large diameter and bored out. The shaft is carried in five substantial roller bearings and a large plain bearing at the forward end.

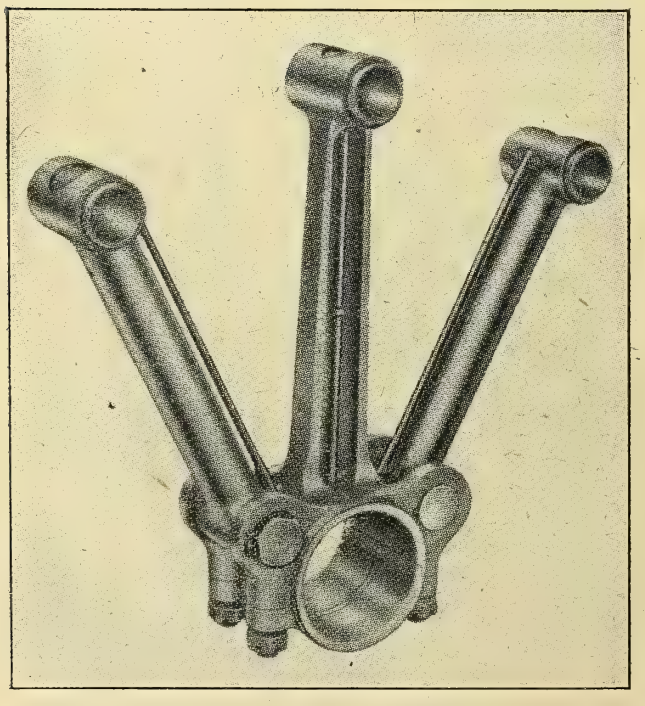
WATER-PUMP.

Centrifugal type, mounted to rear end of engine and running at half crankshaft speed. The spindle is fitted with a metallic packed gland and a screw-down greaser. Water is delivered through a separate outlet to each of the three cylinder blocks.

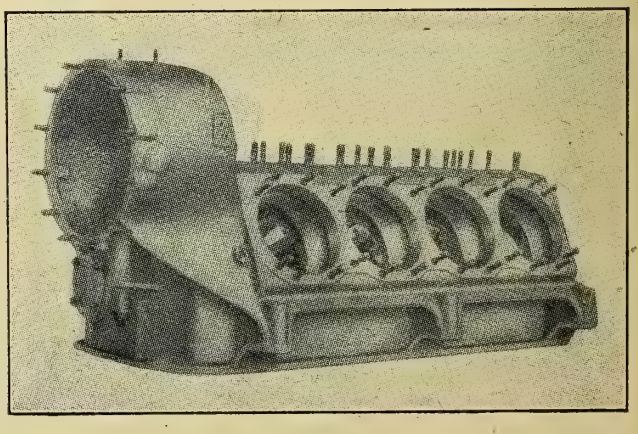


Distribution End of the Napier "Lion."

Number of cylinders	Twelve.
Arrangement	Three sets of four each, one vertical, two at 60 deg.
Bore	$5\frac{1}{2}$ in.
Stroke	$5\frac{1}{8}$ in.
Horse-power, normal	450 at 1925 revs.
Direction of rotation of propeller shaft	Clockwise view from propeller end.
Speed of ditto	Reduction ratio 1 to 1.52 of crankshaft.
Ignition	Two special dual magnetos; anti-clockwise rotation.
Oil consumption	0.02 pint approximately per B.H.P. hour at full load.
Fuel consumption	0.51 pint approximately per B.H.P. hour, full load.
Self starter	Napier Patent Air Petrol System
Weight of engine	850 lbs. approximately, complete with propeller boss, carburetters, induction pipes, etc.
Weight per h.p.	1.89 lbs.
Length over-all to centre of propeller	4 ft. 8 in., approximately.
Width over-all	3 ft. 6 in., approximately.
Height over-all	3 ft., approximately.



Connecting Rod Assembly.



Upper Half of Crankcase—The Napier "Lion."



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"GWYNNE, LONDON."

A RELIABLE TAUTOMETER FOR TESTING DOPED SURFACES.

By T. W. H. WARD—Managing Director, Titanine, Ltd.

In my letter to you of October 23rd relative to the "inflammability of Dopes," I prefaced my remarks by a criticism of the methods of testing at present in vogue and endeavoured to suggest an improvement upon them. It is my intention that this note shall follow upon the same lines.

As is well known, aeroplane dope has the peculiar property, when applied to fabric, of pulling it taut. Bearing on this property several new words, such as "tauten," "tautness," and "tautometer," not appearing, I believe, in any standard dictionary, have had to be coined, but they have the advantage of being readily understandable.

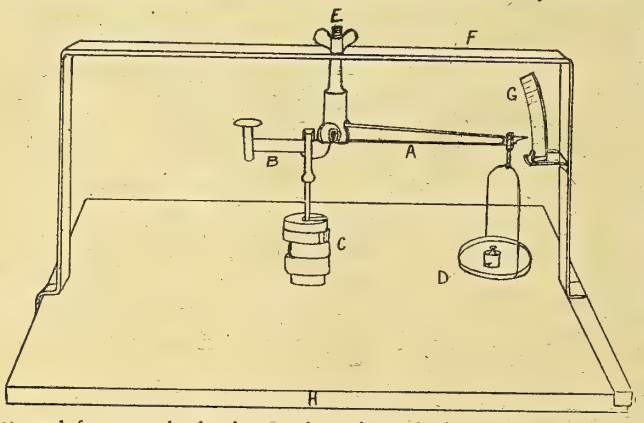
The power of tautening varies with different dopes, hence the necessity for the tautometer, which should measure the degree of tautness brought about by the particular dope or covering employed. Until recently the "tautness" was simply more or less guessed, the method usually adopted being merely to tap the doped fabric and to deduce the tautness from the note produced. The higher the note the greater the "tautening" power of the dope was assumed to be.

The function of a tautometer is to measure the effect of a depressing force, usually exerted by applying a known weight to the centre of a known area of doped fabric.

This tautness determination is a measurement of at least two important factors of the dope, i.e., the tension or state of strain given to the doped fabric and the flexibility of the dope film.

The method of tapping has proved to be both inaccurate and misleading. For instance, a hard film is frequently obtained when an acetyl dope is employed and the doped fabric sounds tauter than measurement with a reliable tautometer proves it to be. In reality a high note frequently indicates a hard and brittle film which will have a great tendency to crack on exposure.

There are various types of instruments for measuring "tautness" now in use, one, for example, consists of a heavy round-

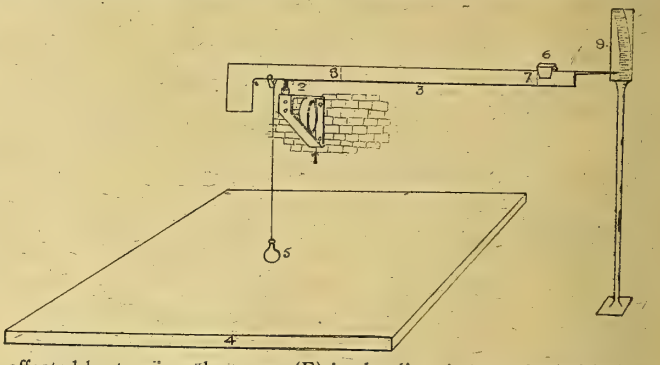


bottomed framework, having a pivot through the centre attached to a spring on the upper side, which, in turn, is connected with a pointer. Except for a knob fixed to the lower end of the pivot only the outer rim of the round bottom of the instrument touches the doped fabric. This instrument is placed on the frame to be measured, and according to the "tautness" of the doped fabric the knob at the end of the pivot is pushed upwards to a greater or less extent, thus compressing the spring and moving the pointer round to a position which may be read off on a circular scale. This instrument has many disadvantages, the chief of which is that only the tautness of the small portion of the doped fabric enclosed by the rim of the instrument is measured. Also, the whole weight of the tautometer rests on the doped fabric, and that is obviously no small factor in its disfavour. One cannot consider this instrument at all satisfactory, and yet it has been the one most commonly used for the purpose.

Unlike other instruments generally used for measuring tautness, the tautometer used by my firm is based on the principle of a balance with a 10 to 1 beam (or any other convenient ratio), so that the deflection of the long arm (Fig. A) may be magnified for a slight depression of the other (B).

This beam is suspended on a knife edge in the ordinary way, except that the support is connected with a screw (E) which is used to adjust the beam to any height required. This screw also serves to fix the whole apparatus to a framework (F)—which fits over the frame to be measured in such a way that the specified weight (400 grammes having been adopted in the case of the instrument described) is suspended from the short arm, exactly over the centre of the frame. This weight is compensated by a 40-gramme weight (D) in the scale pan, suspended from the long arm (A).

When this tautometer is placed on a frame the reading of the pointer, at the end of the long arm, should be at zero on the curved scale (G) attached to the framework at the right hand side. If this is not the case the necessary adjustment may be



effected by turning the screw (E) in the direction required either to raise or lower the beam. When this has been done the 40-gramme weight should be removed from the scale pan. This causes the 400-gramme weight (C), which till now has been just touching the surface, to rest on the doped fabric and the depression due to it may be read off by means of the pointer and scale at the other side. This curved scale may conveniently be divided into divisions representing millimetre (or fraction of an inch) depressions of the 400-gramme weight on the doped fabric.

The 10 to 1 beam has the advantage here of causing quite a perceptible deflection of the pointer for only 1 m m. depression of the weight, and it must be understood that the smallest deflections are caused by the tautest frames.

The instrument has been in daily use by my firm for two years, with extremely satisfactory results. A simple adaptation on the same principle has also been used for much larger frames (and might with advantage be employed for aeroplane wings), as follows :—

In this case all framework is dispensed with, except for the bracket (1) used for supporting the knife edge (2) of the beam (3). This is fixed to the wall at a convenient height and should stand out half way across the frame (4) (or wing to be measured), so that the weight (5) to be used for determining the tautness may be arranged to touch the centre of the frame. The beam, itself, should be counterpoised, as before, so as to give a long arm and a short one, when in equilibrium on the knife edge. Then, as in the previous case, a heavy load is suspended from the short arm to test the tautness of the doped fabric, but, unlike the other tautometer, instead of having the compensating weight in a scale pan, a sliding weight (6) has been adopted, which is placed directly on the beam. When a reading is taken, one slides the weight from the marked position (7) of equilibrium to another position (8) nearer the knife edge, so calculated as to allow the necessary load to rest on the doped fabric. The reading of the pointer on the curved scale (9) may then be read off as before, to show the depression of the doped fabric caused by the weight of the load.

The great advantage of the principle, described above, is its simplicity, the readings obtained being the direct result of allowing a specific weight to rest on the centre of the doped fabric. This is a great improvement compared with other instruments, which, by having their whole weight resting on the surface, both complicate matters and give misleading results.

The "Liberty" Fuel.

In the issue of January 15th reference was made to certain tests made by the American Bureau of Standards with petrol substitutes.

It was there stated that tests were made on commercial trucks with "Liberty" fuel.

The Bureau of Standards write to point out that the impression thus given is erroneous, and have supplied a copy of their report giving the particulars of the tests actually made.

From this it appears that the Bureau, at the request of the General Engineering Depôt of the U.S. Army, made a series of tests upon three different grades of petrol substitute which were provided by Captain E. C. Weisgerber.

Of these Nos. 1 and 2 were known as Motor Fuel A and Motor Fuel B, and No. 3 as "Liberty" Fuel. Nos. 1 and 2 were tested in a truck engine upon the bench against "commercial gasoline," with satisfactory results.

The "Liberty" fuel was similarly tested in a 150-h.p. Hispano-Suiza aeroplane engine, in comparison with a representative grade of aviation spirit.

These tests show that this fuel gave about 3 per cent. more power for a 10 per cent. greater weight of fuel per h.p. hour.

No road tests of any of the fuels were made by the Bureau of Standards and no test of the "Liberty" fuel was made by them, except on the aeroplane engine.



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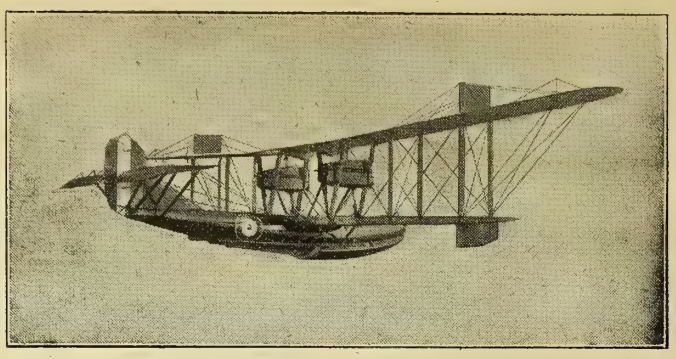
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THE AIRCRAFT TRADER

MARKET TOPICS.

Prices are for Quantities on Usual Terms.

March 13th, 1919.

COPPER.—This market has been very quiet recently, although there has during the past few days been a little more buying, and the market has become somewhat steadier, notwithstanding the substantial increase in Government stocks. The Government have withdrawn the prices at which they are prepared to sell Copper, and are now open to receive offers from buyers.

The price of Electrolytic is now £89; this does not show a great disparity compared with standard; the price of strong sheets has also been reduced £4, bringing the basis price to £118 per ton. There is still need for further adjustment here, and the same remarks apply to Brass and Copper Wire, which have been reduced ½d. per lb. The Scrap Copper and Brass question is very obscure, and consumers are anxious to know the quantities which the Government have for disposal; needless to say the figures are expected to be very large indeed.

The position in U.S.A. is very dull, and producers have reduced their output from 50 per cent. to 60 per cent., and it is even reported that some of the smaller mines have shut down entirely.

Comparative Prices.

	Per Ton.
To-day (March 13th)	£77 0 0
Last week	74 10 0
Last month	83 0 0
Average price, 1918	115 10 0

TIN.—Tin continues to be very susceptible to the slightest influence, and consequently rapid fluctuations continue; but prices finished up with a net advance of £8 to £9 per ton, and although the general feeling is that further advances will take place, it is not likely that the high values now in existence will be maintained. Notwithstanding the low stocks held here, there is plenty of Tin in existence; the F.M.S. Government alone must hold large quantities, as they have not yet sold any of the Tin they have taken over from the producers, and until it is known what they intend doing with their stocks the position here will continue to become more difficult and obscure. The position in U.S.A. is unchanged except that a report has been received to the effect that the Government have strictly forbidden any Tin to be sold under the Government price.

Comparative Prices.

	Per Ton.
To-day (March 13th)	£236 10 0
Last week	235 0 0
Last month	226 0 0
Average price, 1918	329 10 0

LEAD.—A little more interest has been shown in this market, but business is not very brisk; there are indications, however, that the demand will increase very quickly. Although the Government stocks of Lead show a large increase, the price shows no sign of weakness, and, if anything, is a little firmer.

The position in America appears to be improving, and no cheap Lead has been recently offered here by U.S.A., but this is probably because they cannot give a competitive f.o.b. price.

The present price is now £26 10s.; on March 4th the price was £25 10s.

STEEL.—This market is in a very unsettled condition, due primarily to the Labour unrest, and the possibility of a coal strike or a substantial increase in the price of coal. Sellers will not book any orders at firm prices; they are stipulating that the material will be supplied at the price ruling at the time of delivery; their attitude is quite justifiable under present conditions, but how can manufacturers enter into contracts at firm prices when there is a possibility of a large advance in the price they must pay for Steel?

The whole situation is very obscure, but they are very strong indications that between now and early in May there will be substantial advances on the prices ruling at present. The H.S. Steel market is in a very depressed condition, and hardly any dealings are taking place in Aircraft Steels.

TIMBER.—The stocks of Aeroplane Timber continue to increase, but the demand is very insignificant, and the Government have not yet intimated what they intend doing with the wood. While the Oregon Pine is perfectly useless for aeroplane construction, and could be disposed of immediately for other purposes, the Silver Spruce recently received is of fairly good quality, and it may be a good policy to retain this timber for future aeroplane construction. It is not known what the cost of the Timber is f.o.b. England, but the price at which it is being issued is quite reasonable.

Mahogany prices continue to show a tendency to weaken, and although prices may decline further it is quite possible that they will stiffen when Mahogany users get on their peace programme. While the prices of Silver Spruce and substitutes are still controlled, the prices of other Aircraft Timbers, including Plywood, are now free.

FABRIC.—The Fabric position is very peculiar. It is not quite clear whether it is permissible for firms to obtain supplies direct from the mills, and no official information appears to have been issued on this point; at the same time some constructors have recently had Fabric offered to them, passed A.I.D., and in accordance with A.B. specification, at prices as low as 1s. 9d. per sq. yard, whereas the present Government price is 3s. 1d. per sq. yard. Apparently the Air Ministry must be getting about 1s. 6d. to 1s. 8d. per yard from dealers for Fabric for which they are charging constructors 3s. 1d. per yard.

One cannot understand why it should be necessary to dispose of the material at such a ridiculous figure; there are even indications that even if the control were abolished the price would advance; on the other hand the demand is likely to be very small for some time, and this would probably re-act against an advance, but it is hardly likely that the price will come down 50 per cent.

Industrial Goodwill.

Goodwill between employer and employee is always the most valuable possible asset in the running of a business, and when employees spontaneously express their appreciation of their employer one has definite proof of the existence of such goodwill.



Herewith appears a photograph of a very handsome silver cup presented to Mr. Albert E. Cole by the employees of William Cole and Sons, Ltd., Hammersmith Road, W., the well-known motor firm, who have done so much excellent aircraft work during the War. The cup bear the inscription:—

> "Presented to Albert E. Cole, Esq., by the staff and employees of William Cole and Sons, Ltd., as a token of remembrance, and to commemorate the Great War, 1914-1918."

It is to be hoped that similar goodwill towards the heads of their respective firms is felt by all in the Aircraft Industry.

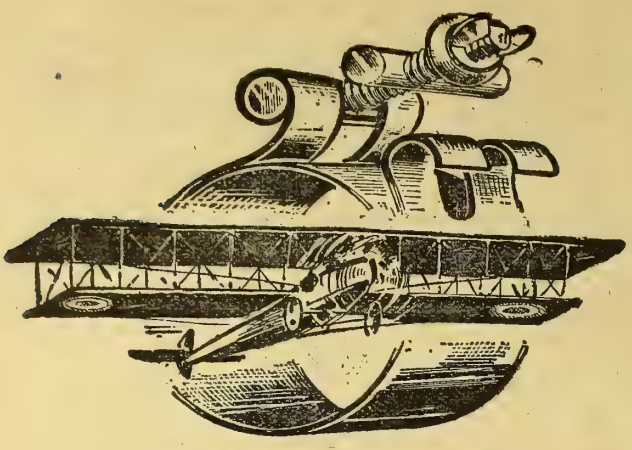
A Trade Move.

Mr. C. D. Flint, who was for a considerable time employed at the Air Ministry, has established himself as an Advertising and Printing Contractor at 190, Fleet Street, E.C.4, under the title of C. D. Flint, Ltd.

The firm intends to design advertisements and to make suggestions for the writing of advertisement copy, for the distribution of advertisements, and for the buying of space. Posters, showcards, folders, booklets and note-headings will also be designed and produced by the firm for their customers.

One of the firm's artists has been, like Mr. Flint, at the Air Ministry, and, therefore, the firm has quite a working knowledge of the inside of aeronautical affairs, so that their services should be of use to the Aircraft Industry.

Prior to joining the Air Ministry, Mr. Flint was for some years Advertising Manager at one of the largest Electrical Engineering firms in the Kingdom.



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RATS!
With a Few Comments on Aerial Insurance.

By "Medway."

"Once upon a time," says The Aeroplane of Feb. 26th, "there was a Handley Page with a rat on board." Rats are notoriously addicted to leaving sinking ships. The Handley Page was the reverse of sinking. Therefore, the rat hung on. The higher the aeroplane went, the less the rat liked the situation. Possibly it was suffering from a weak heart.

An Immoral Constitution.

A clergyman attributed its trouble allegorically to wickedness rather than weakness. Its immoral constitution could not stand "the rarefication of the air when it reached the pure high atmosphere." Consequently, what did it do? First it fainted, and then it fell out. This is peculiar. The average rat will fall out over anything on earth. It is a quarrelsome beast. But it falls out first and faints afterwards, if at all.

However, we must face facts. This particular rat got the order of things wrong. It fainted first, and hence its downfall. Probably, as it gyrated to earth, it realised its mistake. But it was too late. The fatal step over the side had been taken, and there was one rat the fewer.

At this point I realised that the story was in some way familiar. It cleared up what had long been a mystery. At last I remembered what that mystery was. It was contained in a riddle that has haunted and beset me, and others, since early youth:

"Why is a mice when it spins?"

"Because the higher the fewer."

For "mice" read "rat." Why not? They are both rodents. "There was," as a poetical but scientific friend of mine once remarked, when disturbed by a gnawing sound, which I attributed to a rat:

"There was a comic rodent
Lived in a comic house.
He thought himself a comic rat,
But was a comic mouse!"

Which shows how close the connection is.

The Genesis of an Article.

Anyhow, this is as far as I had got when I decided to write this article. The inspiration came from The Aeroplane. The article must therefore be on Commercial Aeronautics. The title was obvious. The only question was what the article was to be about.

To decide this knotty point, I determined to moralise. Why, after all, should we—as a species—despise the rat? Is he notably inferior—morally or physically—to the human race. Morally, I doubt it. Physically, and with due allowance for size, certainly not.

Why, then, did he faint and fall out? If this could happen to a rat, may it not also happen to a mere man? Obviously, yes. He may be forcibly prevented from falling out, but he cannot be forcibly prevented from fainting if the "rarefication of the pure high atmosphere" gets the better of his faulty heart.

The Birth of the Subject.

There are, then, chances—small, perhaps, but still existent—of terminating one's mortal career by reason of flying, but without anything in the nature of a crash. This contemplation gives me my subject. I have done it before, but what matter? I can do it again in different words. Besides, it fell flat, and I shall keep it up until it ceases to do so. Resolved, then, that this has unexpectedly turned out to be an article on Aerial Insurance. The fact must be duly noted in a sub-title, and I must get to business.

A Lloyd's Register of Aircraft.

They say that Lloyd's are taking the thing up seriously, and intend working up an Aircraft Register on the lines of that already in existence for shipping. This means inspection of manufacturing methods, and subsequent survey and classification of the machines in service. The commercial aeroplane of the future will—or will not—be "A1 at Lloyd's." I can hardly imagine that, if it be not, it will be patronised well, if at all, as a passenger carrier.

Perhaps it will only be in respect of "A1" machines that underwriters will consider the personal insurance of passengers at all. This would be reasonable and probably highly desirable.

Personal Insurance.

I notice in the forecast of a Continental service that the fare is to include a £4,000 personal insurance. This is all right in its way, but does not necessarily give any sense of security. On the other hand, if a passenger knows that the machine itself is insured at Lloyd's on the lowest possible rates, he knows he is getting as much safety as is consistent with any kind of aerial travel.

As to personal insurance, I cannot see why the average passenger should ask for any extraordinary protection. If he is a sane man, he will have made provision by means of life insurance or other means, under which those dependent upon him will be left with what he regards as a competence in the event of his death. To insure one's self for a journey for an additional four thousand pounds is merely a little speculation, like backing an outsider for the Derby. If a man has covered himself properly in his everyday life, I cannot see why he should wish to increase the cover because he intends to fly to Paris or Brussels. The widow of a man killed in an aeroplane accident does not require four thousand pounds more than the widow of a man who dies in bed.

Invalidation by a Mis-chosen Death.

My point is, however, that both require some provision. If a man is well insured and then goes and gets killed while doing something, the mere doing of which invalidates his insurances, then his dependents are likely

to be left destitute. This is the risk that a great many people will not take. The trouble is that very many existing insurance policies have been granted under conditions signed by the applicant for the policy. A common question has been, "Do you intend to indulge in aeronautics?" and a common answer has been, "No." Having written this answer and put one's signature to it, what happens if the policy-holder takes a flight and is killed while doing so?

Presumably, when he made the declaration, flying was regarded as peculiarly dangerous. Some years later, when he is killed, it has ceased to be so regarded. Consequently, he has forgotten all about his declaration. Possibly, the insurance company would take the view that they had no right to regard the policy as having become invalid. Their object in asking the question was to make sure that the applicant did not mean to take an excessive risk. It is open to argument whether, if the risk had ceased to be excessive, the insurance company could refuse to pay.

Another point is that, having signed a declaration of the kind already mentioned, a man might take a flight and subsequently or during the flight die of heart failure. The insurance company might hold that his death was directly due to his having failed to comply with the conditions under which the policy had been granted. This would be a case of falling between two stools. The ordinary life policy would be no use, and the accident policy granted in connection with the flight would not cover such contingencies.

The Solution of the Difficulty.

The solution of the difficulty seems to have come nearer since I last wrote on the subject. If Lloyd's have an Aircraft Register, it would not be unreasonable for all the insurance companies to agree that no life policy shall become invalid by reason of its holder travelling in aircraft classified A1 at Lloyd's.

Evidently we cannot go on for ever regarding aerial travel as something peculiarly dangerous, and in effect telling a business man that, if he makes an aerial journey, he is risking the value of all his life insurance policies. The point may seem rather a trivial one, but it is one that ought to be taken up between Lloyd's Register and the insurance companies and underwriters. If it is not settled in advance by these means, some very awkward legal cases will inevitably arise. We want to avoid anything of this sort because it merely serves to frighten the public off aerial travel.

Accidents should be given as little publicity as possible. If all the London papers were to publish daily, in heavy type, full particulars of all the accidents that occurred in the London streets, we should presently find quite a big proportion of the population growing afraid to cross the road. When we can see ahead the probability of public attention being drawn to aerial risks by law suits in connection with the validity of policies, the best course is to eliminate such undesirable publicity by coming to a fair agreement in advance. I suggest that the subject is one for discussion by those who are presumably moulding the policy of Lloyd's in connection with aerial travel.

QUICKENING THE MAILS TO SOUTH AMERICA.

By G. L. D. Jones: Editor, "The Buenos Aires Herald."

If a merchant in London posts three letters to business correspondents in New York, Rio de Janeiro and Buenos Aires, respectively, he can get a written answer back from New York before the Brazil man has had time to consider his reply, and four or five days before the man in the Argentine capital has even received the third letter.

An aerial mail from England to Dakar, making connection at that rapidly growing port with the steamship services, would lessen by six or seven days the time for mails between the United Kingdom and the countries of South America.

In normal times mails between England and Argentine take three weeks. During the war the mails were delayed and irregular, and the British Chamber of Commerce in the Argentine Republic, after many complaints, secured from the Postmaster General the concession that mails should go by the first available boat. But, even so, three weeks was the minimum journey, and it is likely to remain so for some time to come. The speed of ships is conditioned largely by the urgency and fragility of their freights, and frozen meat, hides and wheat—the chief cargoes from this part of the world—are not perishable goods. There is no pressing necessity to burn more or better coal in getting them home in two weeks instead of three. Passengers are a minor consideration. But business letters are an entirely different affair. British and European interests in Argentina are very considerable, and the fact that six or seven weeks interpose between a letter and its reply imposes a very heavy handicap on the conduct of business. Even taking Mr. Grahame-White's estimate of air letters costing 2s. 6d. for every 200-300 miles, the cable rates between England and South America are so high that the business men would welcome the opportunity. At 250 miles for 2s. 6d., a letter could be sent for £3, which would contain very much more information than the 30 cabled words costing the same amount.

So far discussion of aerial possibilities, at any rate to within a few months ago, has had to occupy itself with preliminary considerations of practicability, weather conditions, types of machine, day and night flying, etc. Recent flights have taken the wind out of many arguments, and the practicability of postal air service is now beyond doubt. But even so discussion has been confined to short direct routes from London to Continental cities and air-ways across the United States.

Extremely long distance flights are yet largely in the experimental stage, however successful and free from mishaps they may be. Short distance flights, on the other hand, are coming more and more into the region of ordinary matter of fact things. Cannot the advantages of the short distance flights be applied to the longer distances, by combining the aeroplane with other modes of transport, letting the aeroplane fly as far as possible and then connect with steamer?

Plans for a tunnel to the African coast, a railway to Dakar, and boat from there onward have already been mooted as a means of shortening communications. An air service to Dakar, and steamship connection from there on, seems at least as practicable.

London-Bordeaux-Lisbon-Gibraltar-Dakar would form a route in traversing which the airman need never be more than a few miles from land. Several steamship companies already call at Dakar, and the port, which has developed so extensively during the war, is probably not yet so built up that space could not be found for a landing-place and aerodrome within accessible distance of the shipping, making transhipment of mails easy and rapid. The erection of stations along the African coast, allowing relief machines to take up the service if necessary, should present no insuperable difficulties.

Whether it is worth it is a question for the Government and commerce to decide. A week saved out of three weeks is a consideration which appeals to the business man. Much will depend upon whether the Government is prepared to subsidise such enterprises or whether it will keep to the method of letting out the conveyance of overseas mails to private tender. In the latter case difficulties might arise between the mail-carrying steamship companies, who might wish to retain the monopoly over the whole journey, and private aerial enterprises which might be prepared to contract for conveyance over the air portion of the route only. Beyond all doubt the air and sea route to South America would make time on the purely sea route, and time is money.

BRITISH ENTERPRISE IN FRANCE.

It is interesting to find that a certain number of British firms are really starting out with an enterprising programme for after-the-war business. A great opportunity in this direction was opened by the Foire de Lyon, otherwise known as the Lyons Fair, which opened on March 1st, and closed on March 15th.

So far one has heard nothing of British aeronautical firms exhibiting thereat, but possibly they were prohibited from doing so by the embargo on the export of aircraft. However, certain firms in other lines of business have not lost the opportunity, and among them a firm which deserves to be highly congratulated is Thomas Robinson and Son, Ltd., of Rochdale, well known to readers of The Aeroplane as makers of woodworking machine tools.

The firm have sent to this office a catalogue which they have prepared in French for distribution at the Lyons Fair to foreign customers. The reading matter is in technical French, and the illustrations show in a remarkably fine manner the numerous different types of woodworking machinery built by the Robinson firm. The style and production of the catalogue may well serve as a pattern for aircraft firms and makers of aircraft material who are anxious to capture foreign trade, for it is certainly one of the best productions of its kind turned out in this country.

The name of Robinson, of Rochdale, is already famous among woodworkers wherever the English language is spoken, and this catalogue demonstrates conclusively that the firm intends that the name shall be equally well known wherever the French language is spoken.

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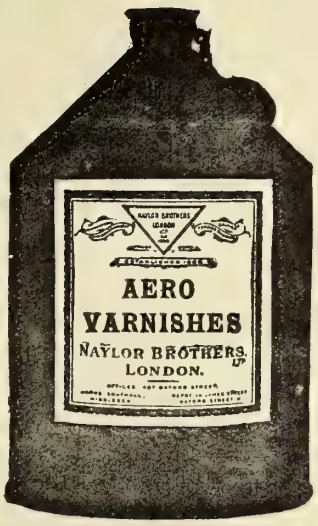
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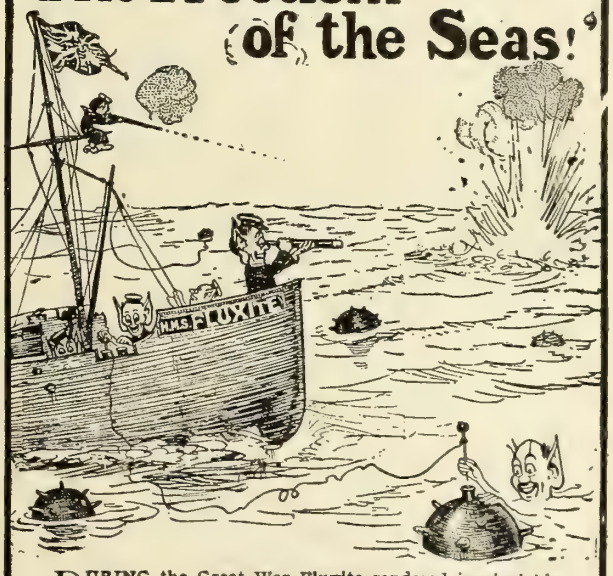
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POST-BELLUM POLICIES.

By The Special Commissioner of "The Aeroplane."

II.—MR. T. O. M. SOPWITH, C.B.E.

The Opposite Point of View.

Now let me take Mr. T. O. M. Sopwith's views, which he gave me as completely as is possible in the circumstances of the present uncertainty of what the air regulations are to be.

First, then, apropos his firm's post-war programme, I gather that it proposes for the immediate future to confine its attentions to two types consisting of, first, a small sporting two-seater, and, secondly a three-seater of a heavier and more comprehensive type.

The two-seater is to be a machine almost exactly on the lines of the Pup, which he chooses as being the type to be regarded from a purely flying point of view as most suitable for conversion into a successful machine for the individual owner-pilot.

Mr. Sopwith considers it is his most popular machine with service pilots. Its performance, it will be remembered, with the 80 h.p. Le Rhone engine is a speed of about 105 miles an hour, and a climb to 10,000 ft. in about 15 minutes.

This performance will be maintained by the removal of the war load of guns, ammunition and magazines, etc., thus allowing for the weight of the extra person to be carried.

The machine is to be purely a pleasure two-seater with three hours' petrol. Looked at from the point of view of cost, it should be cheap to buy, as it is expected to turn it out at well under £1,000 complete. As regards running expenses, these, Mr. Sopwith says, should not be heavy, as with any good class engine of the present day very little overhauling should be required, and the petrol consumption in normal weather works out at 17 miles to the gallon.

The three-seater will be a machine for the man who wishes to get about quickly and who will employ a pilot. The two passengers will be seated side by side in a decked-in fuselage providing the greatest possible amount of comfort and freedom from wind-pressure and cold. As characteristics of design, the machine will have light loading, low head resistance, and extremely solid construction. The horse-power will be in the neighbourhood of 200.

Other Possible Types.

Mr. Sopwith also says that he has three other types which are already designed to deal with the requirements of marine and long-distance travelling. All these three will be of considerably larger size than is usually associated with the designs of this firm, and, should engine developments permit, they will have single-power units. Although the company has generally produced the small fighter variety, it has already turned out three high-powered single-engine machines—namely, the Cuckoo, the Rhino, and the big Rolls-Royce engined triplane, all of which were constructed during the war.

In the immediate future, however, the firm's policy is the development of machines for the private owner. Mr. Sopwith evidently does not feel inclined to construct a large multi-engined machine until he has a very definite idea of what will be required of it.

The Probable Life of an Aeroplane.

The question was then raised as to the life of a machine. This, Mr. Sopwith pointed out, is very difficult to estimate, as war treatment is in no way a fair test and gives no data on which to work, but with reasonable care and peace conditions he thinks it should spread over a number of years. This applies, of course, to the small machines, and he does not consider that the very large types will have anything like so long a life.

I suggested that, in view of the possibility of there being large numbers of private owners it might be advisable to keep a working party of skilled mechanics at their call. Mr. Sopwith concurred on general lines, but pointed out that, with the present-day engines of the right types, breakdowns on cross-country journeys of five or six hours' duration are by no means frequent. He thought, however, that it was a point not to be overlooked in the general establishment of lines of policy.

The Trend of Design.

Turning to the question of the trend of improvements in design, both of engines and machines, Mr. Sopwith is not very communicative, but he evidently aims at light loading.

With regard to performances required under the changed conditions, he is very strongly of opinion that speed within economical limits will be the predominating factor in the choice of a machine for any purpose, but that high speed must under no circumstances be attained at the cost of high landing speed. In other words, peace machines must have a very high range between their maximum and minimum flying speeds. Mr. Sopwith informed me that he was the first designer to show conclusively—which he did with the original "Tabloid"—that it was possible to make a machine with a speed range of considerably over 50 per cent. variation. The "Tabloid" had a range of from 36 to 92 miles an hour.

The landing speed, in his view, is of pre-eminent importance, both from the point of view of permitting the pilot to get into a reasonable sized field, and also, of course, of his getting out of it. This, again, implies light loading.

Ultimate ceiling is not in his opinion very important, as he considers that the average height at which flying will probably take place will not be over 10,000 feet. Stability will play an important part, but with peace requirements this is a much more simple problem than in the case of war necessities.

Asked what he proposed to do with regard to competitions, Mr. Sopwith said that his policy will be of the most complete order, and that the company intended to enter for every competition that was reasonable. Before the war their experience in competitions was very successful, both all-British and international. He pointed out, too, that his was the only firm to have won an open foreign competition for seaplanes, which it did in winning the Coupe Schneider at Monaco in April, 1914, with a machine which was the fore-runner of the Baby Seaplane.

Personal Comfort.

The personal comfort of pilot and passengers is, undoubtedly, very important, but considerable experimenting will be necessary to ascertain the various factors which will secure real comfort for long journeys with a good view of the land that is passing underneath. Concerning this latter point, Mr. Sopwith feels that there is much to learn in dealing with the totally enclosed fuselage, in much the same way that considerable experimental work was necessary with enclosed motor-car bodies.

He went on to the status of the pilot of the future, which he thinks should be very favourable, as this pilot will have to be very highly qualified as a pilot purely and simply. The medical examination will probably be very stiff, and he will have to be an expert in navigation, with a very good sense of locality. A good man, therefore, as in most walks in life, should command a high salary, more especially seeing that his education to obtain this standard would be costly.

He further supposes that all pilots will have to obtain an Air Ministry Certificate, or something of that character, similar to the case of officers in the Mercantile Marine. It is Mr. Sopwith's view that it is absolutely essential that the public should have some very definite guarantee that it is in the charge of a man whose competence is beyond all question, as most especially at this stage is it necessary to have the full confidence of the public not only in this respect, but also in the exploitation of flying generally. While Mr. Sopwith was saying this, I had visions of future pilots' advertisements with copious explanations of previous crashes. However, that is beside the point.

Mr. Sopwith concluded his remarks by saying that he felt it extremely difficult to express definite opinions in regard to future flying until the position is considerably less nebulous than it is at present. British aircraft constructors are working under considerable difficulties, owing to restrictions both in this country and abroad, and this in contrast to certain foreign countries which are being allowed almost entire freedom of action to extend their activities everywhere, and generally to urge along the education of the enormous public that will ultimately fly.

He said: "We have got very definite ideas of what we want to carry out and get ahead with, but it is difficult to make public our policy for the more distant future until we can clearly see what can be undertaken, having regard to the, as yet, unsettled international regulations for flying. The Industry is young, and will want very careful nursing into a sound commercial proposition.

"That it can be done there is no doubt, but it is a great mistake to raise the hopes of the public, as is being done, until we know on what those hopes can be built."

A Pan-American Aero Show.

The Aero Club of America announces its intention of holding a Pan-American Aeronautical Exhibition. This will be held between May 1st and June 1st inclusive, at Atlantic City. Daily contests will be held, for which valuable prizes will be offered. Not only will regular aeroplane and seaplane flights be arranged, but also tests with balloons, hydroplanes, parachutes, and aviettes. The last-named are bicycle and motor-cycles fitted with wings.

"The Joystick."

The February edition of "The Joystick," the official house organ of A. V. Roe and Co., Ltd., contains a number of interesting contributions, amongst others being a short account of the life of John Ruskin. It was the hundredth anniversary of his birthday on Saturday, Feb. 8th.

An account is also given of the raid carried out by three British aviators flying Avro biplanes upon the Zeppelin sheds at Friedrichshafen, with a description of the careers of the aviators concerned.



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CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

The Bournemouth Aviation Company have asked permission of the Swanage District Council to land passengers from flying-boats and seaplanes. The service, it is stated, is to make about five trips a day. The Swanage Council have replied that the quay or pier will be available, or the passengers could land by boats. Limitation of space prevents landing on the beach.

According to a correspondent of the "Daily Chronicle" the latest aerial transport project is to convey fresh fish, strawberries, and other perishable goods from Aberdeen to London. It is hoped to link Edinburgh and Glasgow with this route. Fish merchants, it is stated, say the cost of transit would be prohibitive.

Scandinavia.

It is stated in Malmo that an aerial passenger service between the southern Swedish towns and Copenhagen will be established in April. It is proposed to use seaplanes driven by 100 h.p. engines with a speed of 80 to 150 m.p.h. The fare for each passenger is calculated to cost about five kronor (5s. 7½d.) a minute.

A contract between the Department of Agriculture and the Aerial Navigation Co. has been signed at Christiania for the establishment of the first Norwegian air station at Lind Oe, near Christiania.

An air station, stated to be the first to be established in Norway, is to be constructed at Lindoe, near Christiania. It is also understood that the contract between the Department of Agriculture and the Aerial Navigation Company has been signed.

Canada.

The Canadian Government has decided to appoint an Aerial Board to investigate the possibilities of Commercial Aeronautics in Canada.

New Zealand.

Bishop Cleary, of Christchurch, has been making episcopal visits by seaplane, and the innovation has been a marked success.

Australia.

The aerial survey party has reached Charleville, due west of Brisbane, in Central Queensland, the first stage of the trans-Continental route.

United States of America.

Messrs. Lord and Taylor, of New York, are alleged to be the first firm to use an aeroplane for commercial purposes in the U.S. It is stated that they sent a consignment of goods of the household variety, including such articles as a bed and a carpet-sweeper from Long Island to Mount Vernon, N.Y.

DUMPING ENGINES.

One has heard on several occasions and from several different quarters recently that the Americans are prepared to sell Liberty engines of alleged 400 h.p. at about £350 apiece. British engines of approximately that h.p. cannot be bought for much less than £2,000 apiece at present.

It is obvious that something must be done about it by the Air Ministry and by the S.B.A.C. The Americans have to get rid somehow of 20,000 or 30,000 Liberty engines. This country seems to provide the only active market for any of them at the moment. The British aeroplane maker can scarcely be expected to withstand the temptation to buy five Libertys for the price of one British engine, for, despite its looks, the Liberty is as reliable as a Ford car.

If British aeroplane makers buy Liberty engines there can be hardly any market for British engines, and so the prices of British engines cannot be reduced by turning them out as "production" jobs. On the other hand, if this country is to be made safe against invasion in future it must produce all its war material at home, and must not start the next war equipped entirely with foreign engines—as it did in this war. And that means "quantity production."

The two conditions are directly opposed to one another. Therefore, official action is necessary. The solution in this case is not protection or a tariff wall, but the total prohibition of the import of foreign aero-engines, except for samples on which to base the manufacture of similar engines in this country.—C. G. G.

AERIAL DISINFECTION.

There has arrived at this office a circular letter from Tele-Dis Services, Ltd., of 97, Queen Victoria Street, E.C. The letter and the accompanying leaflet being headed "Aerial Disinfection."

At first sight one had a dim vision of an agitation on the part of some quaint league or other for the disinfection of the air by removing from it all aircraft and other obnoxious matter. This first impression was rather confirmed by the fact that the firm's note-head bears in large letters the word Tele-Dis Services, which somehow gave one to think that here was a notion for doing the said dis-service at a distance, somewhat on the lines of that wonderful invention which was introduced to Major-General Seely—then Lieut.-Col. and Minister for War—by a certain adventurer who called himself McCallum More.

This fellow More pretended that he had a wonderful invention for de-magnetising the magnetos of aircraft at great distances, and thus causing the aviators to descend against their will. Colonel Seely was kind enough to place facilities for experiments at his disposal, and eventually the inventor decamped, leaving behind him sundry perfectly good bricks. If his claim had had any basis in fact such an operation as he proposed might very well have been called a "Tele-Dis-service." Even as it was, he did Colonel Seely a distinct disservice at a distance.

Further investigation of the letters in question, however, discloses the fact that here is quite a sound idea on the part of a firm which claims to consist of experts in sterilising and disinfecting. Apparently, the scheme is to send the firm's operators round to offices, workshops and so forth, equipped with a very powerful aerial spraying apparatus loaded with a special germicide disinfectant so as to remove from the air influenza germs and other obnoxious bugs. It seems that the "Tele-Dis" part of the title implies that the firm is prepared to disinfect persons, things or places at a distance from its own establishment.

Those who live in fear of infection, or under circumstances which are favourable to infection, will do quite well to inquire further from the firm about their system.

TIMBER RESTRICTIONS RELAXED.

The Board of Trade, by a notice dated March 5th, 1919, under the Articles of Commerce (Relaxation of Restrictions) Order, 1918, have cancelled as from March 31st all the Orders relating to the purchase of imported Timber abroad, and also withdrawn the maximum prices both for imported and home-grown Timber supplies other than pitwood. As regards importation, no licences will now be required for the importation of hewn, sawn, planed or dressed Timber of all kinds, including hard woods and sleepers; this does not include pitwood and manufactured or semi-manufactured goods, such as boxboards, for which licences will still be required unless they are produced in and imported from parts of the British Empire.

The stocks of Timber belonging to the Government will be disposed of after March 31st at prevailing market prices. These stocks including goods yet to arrive will probably amount to about 550,000 standards, and particulars will be available in the course of a few weeks.

In order to facilitate the preparation of stock returns, intending purchasers are requested not to apply for the issue of delivery orders in respect of goods already in store in this country from March 31st to April 12th inclusive unless absolutely necessary. With a view to this purchasers are asked to make arrangements beforehand for their requirements to cover this period. This does not apply to arriving supplies, and applications to purchase such goods should continue to be made to the Government Timber Buyer, Salisbury House, London, E.C.1.

As regards pitwood, a further announcement will be made later.

The above notice apparently applies to all kinds of Aircraft Timber, including Silver Spruce, Douglas Fir, Mahogany, and Walnut.

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AIRCRAFT FINANCE

THE OPENING OF AVIATION INSURANCE.

Satisfaction is to be derived from the knowledge that the elaborated and modernised scheme of aviation insurance has started promisingly. Proposals are being received from all parts of the world, and doubtless business will expand rapidly and consistently as the real merits of the scheme are adequately appreciated and become more widely known.

An impression that it is purely an experiment and worthy only of that degree of seriousness due to an interesting novelty may arise out of the idea entertained in some quarters that aviation is merely a passing phase of misdirected commercial activity.

Old and New Methods Contrasted.

In reality the scheme is the scientific application of the knowledge already obtained of aircraft working, a collection of commercially sound facts, backed by a practical experience of insurance with the object of being able to cover the maximum risk that may arise out of a specified operation at a minimum premium. Contrast this with the previous position of aviation insurance. There was no specialisation in the business, no really permanent market in the business, and so the insurer was dependent more or less on the whim of the underwriter. The business proceeded individually and spasmodically, without any approach to standardisation, consequently the premiums charged fluctuated more or less violently, and were at times almost prohibitive. The drawback of such haphazard methods are obvious.

Embryonic Transport Schemes May Develop.

Insurance is a stabilising power which frequently determines the inherent soundness of a commercial proposition: it assists development and stimulates progress. There is a good deal in the complaint of the hundreds of embryonic transport ventures that their crystallisation has been retarded by the fact that the requisite financial and kindred facilities have not progressed commensurately with the physical growth of aviation. This no longer applies with so much force.

Fixing the Premiums.

All sorts of ordinary commercial risks connected with aviation are now insurable with the same ease as any other class of business. In assessing the premiums, except in the risk of damage to property, against which owners may wish to insure, as they did against the risk of injury through air attack during the war, the underwriter will take into consideration the following factors:—

1. The type of machine and the circumstances of its construction.
2. The experience of the pilot.
3. The route of the proposed voyage.
4. The nature of the flying, whether by day or night, or by both, and whether the flying will be "straight," or whether any "stunts" will be attempted.

With the data available, the premium charged will, it is believed, be established on a commercial basis as distinct from the former method of speculation, pure and simple.

Individual Merits Reckoned.

The best interests of aviation will be served, not by the quotation of "flat" rates of premium covering comprehensive risks, except in special cases where the circumstances demand it, but rather by employment of experts capable of taking into consideration the many factors centreing in each risk, and in each instance deduce the minimum rate to the point determined by its individual merits.

By such a process the insurer can arrive at the real solid basis of the working cost of his proposition; the factor of the expense of insurance being no longer an indefinite quantity, he knows where he stands, and can act accordingly.

Perhaps it is necessary to explain once again the reason for the numerous questions asked in the proposal forms. These arise out of the fact that aviation is in its infancy, consequently does not possess a collated record of experience upon which the underwriter can base his calculations.

As aerial transport progresses and experience is gained and information scientifically recorded, so will the necessity for such numerous questions coincidently diminish. Anyway, the information asked for is not personal, and is simple enough.

Depreciation and Premiums.

One of the important aspects of the modernised scheme will be the allowance for depreciation which will permit of the quotation being graduated accordingly. Thus the prospectus which has been issued provides that in the value to be paid in the event of loss a deduction, after the first 100 hours of flying life of the aircraft, shall be made of 1/500th for each hour of flying life. These figures are not fixed quantities. The governing idea is that normally a machine for the first 100 hours suffers no depreciation. After that time depreciation sets in which should be allowed for in the agreed value.

Such a stipulation would improve the moral hazard in respect of the fire risk, but every consideration would be given in cases where sound reasons can be advanced against its inclusion

Specialisation in Aviation Risks.

It will be found by experience that this specialisation in aviation risks with such solid financial backing and such an expert executive will fill a big gap in the aeronautical commercial structure. How different would it be if British aviation had to depend during the next few years, which promise to provide its *annus mirabilis*, solely on haphazard insurance methods! Without such facilities as are now provided, it would have floundered about, struggling against adversity, until by some lucky chance it proved its capabilities beyond all question to discover, perhaps, that tender official nursing had already determined the pre-eminence of some foreign country in aeronautics.

CURRENT TOPICS.

Budget Fears Check Stock Exchange.

Apprehension concerning the Budget is increasing rather than diminishing, and is reflected in suspicion of unsettlement and insecurity which chokes initiative in the financial world. Business in the Stock Exchange is growing small and beautifully less day by day, even pure investment being of much smaller dimensions than of recent months.

The Chancellor of the Exchequer's task is no light one; it is pregnant with great possibilities, both for good or evil; a false step may inflict incalculable damage. It is to be hoped that he will elaborate a fundamentally sound programme, based on facts rather than theorising, and act with due consideration for conditions as they are rather than a revolutionary impulse.

Aviation and the Channel Tunnel.

Except for the gamble in one or two specialities of questionable merit, the general run of securities is sagging. The impetuous outburst in Channel Tunnel Company shares is of interest. The price has been run up to an enormous premium on the strength of the Government's decision to consider the feasibility of burrowing through to France. By the time the project materialises, aviation transport facilities should have progressed sufficiently to become a life competitor of tunnel travelling.

Important Oil Deal.

Oil shares are awaiting developments. The idea of an All-British Oil Combine is still being talked out, and incidentally the big Shell Company, which, with its association with the Royal Dutch Company, constitutes the only real competitor of the Standard Oil octopus, is now supposed to have secured control of the Mexican Eagle Company. This belongs to the Pearson interests, and is an undertaking of some magnitude.

Government's Aircraft Orders.

By the way, Major-General Seely's expressed sympathies with the large British aircraft undertakings because of the enforced reduction of Government orders is a factor of little influence on aircraft share values. Perhaps it will frighten a few investors, but the generality recognise that plenty of time has been provided for aircraft ventures to "turn round" and develop in other directions. The Government business will be missed, but it is not good to depend too much on one outlet.

New Darracq Capital.

The new capital issue of the Darracq Company, referred to some time ago, is now being made, consisting of 125,000 7 per cent. Cumulative Preferred Ordinary shares at the price of 21s. each, and 275,000 Ordinary shares at 30s. They are a fair commercial risk to the investor who favours things of this sort.

Whitehead Aircraft Claim.

In an action by the Whitehead Aircraft Co., Ltd., against the Fulham Small Arms, Ltd., the appointment of a receiver of the defendant company was applied for. Counsel said the plaintiffs were the assignees from a former company of the same name of a debenture issued as security for the payment of purchase money by the Fulham Co. to the Whitehead Co.

Defendants said they were prepared to give ample security for the payment of the money.

Mr. Russell said he would give up the debenture to be cancelled if defendants paid into court £20,000 to meet principal amounting to £15,732, interest £2,000, and further interest and costs.

Mr. Micklem said there was bona-fide dispute between these parties as to whether anything was due or not. Probably there was something due, but plaintiffs held a debenture which covered the whole of the assets which the old company sold to the Fulham Co. If the debenture were cancelled, the money would be raised and paid into court.

Eventually the motion stood over for three weeks in order that steps might be taken to bring the money into court. His Lordship observed that the action was going to be a substantial one. Defendants ought to have no difficulty in raising the £20,000.

Sceptre Aviation Petition.

In the Chancery Division a petition to stay the voluntary winding-up of the Sceptre Aviation Company, Ltd., was submitted.

Mr. Gore Brown, K.C., said that the company had done extremely good business during the past year, making a large profit. A scheme to amalgamate with a larger company fell through, and the company now wished to continue its successful business as before. The petition was granted, subject to the Registrar being satisfied that the creditors would be either adequately secured or paid off.

Norman-Thompson Flight Scheme.

In the Courts an application was made that the petition for the compulsory winding-up of the Norman-Thompson Flight Co., Ltd., might be withdrawn. Counsel stated that a scheme of arrangement had been sanctioned which provided for the issue of prior lien debentures, which were to secure the costs of all parties. The Judge allowed the petition to be withdrawn.

Vickers' Gigantic Deal.

A gigantic deal is represented by Vickers' absorption of the Metropolitan Carriage, Wagon, and Finance Co. The amount involved approaches £12,000,000, and necessitates Vickers increasing their capital to £26,500,000. In justification of the fusion it is claimed that the two undertakings are so closely linked, apart from very large common interest in the British Westinghouse Electric and Manufacturing Co. and other engineering, etc., business. Both are largely interested in Aircraft.

Terms of Exchange.

Shareholders of the Metropolitan Wagon are offered for each of their shares two 5 per cent. free cumulative preference shares, and one and a-half ordinary shares of Vickers, or alternatively 95s. in cash, and holders of the "A" preference shares one new Vickers preference share, and holders of the "B" preference 1⅓ new Vickers preference shares.

NEW COMPANIES.

Rep Plugs, Ltd.—Private company. Registered March 4th. Capital £5,000 in 4,500 shares of £1 and 10,000 founders of 1s. each. Manufacturers of sparking plugs, importers, exporters, electrical engineers, manufacturers of devices and appliances for aerial and water navigation or progression, etc. The subscribers (each with one share) are:—T. H. R. Key, 92, Kimberley Gardens Harringay, N., engineer; A. Thomsen, 32, Cumberland Park, Acton, aeronautical engineer; E. Baumann, 32, Cumberland Park, Acton, aeronautical engineer; L. Ripault, 98, Hallan Street, W.1, engineer. Managing director: L. Ripault. Registered office: 23, Warren Street, W.

Aerial Indicators, Ltd.—Private company. Registered Feb. 27th. Capital, £6,500 in 3,500 preference shares of £1 and 60,000 deferred shares of 1s. Manufacturers of aeronautical maps, signals and indicators, agents for all methods of aerial navigation, electric and mechanical and general engineers, etc. Subscribers (each with one preference share) are:—A. W. Browne, 16, Regent Street, S.W., accountant; T. T. D. Gessin, 16, Oxford Avenue, Southbourne-on-Sea, electrical and mechanical engineer. First directors by the subscribers. Secretary: A. W. Browne, 16, Regent Street, S.W.

Croydon Aviation and Manufacturing Co., Ltd. (delayed from Somerset House).—Private company. Registered Feb. 24th. Capital £20,000 in £1 shares (10,000 6 per cent. cumulative preference). To take over the business of the Croydon Aviation and Engineering Co., Ltd., and to carry on the business of manufacturers and dealers in aircraft, aeronautical apparatus, hydroplane ships, launches, boats, and other conveyances, garage and hangar proprietors, engineers. The subscribers (each with 2,000 ordinary shares):—J. C. Smith, Desborough Road, High Wycombe, Bucks, manufacturer; J. T. Cox, Queen's Road, High Wycombe, Bucks, furniture manufacturer; F. Lynch, "Wayside," Flackwell Heath, High Wycombe, Bucks, manufacturer. First directors: J. T. Cox, J. C. Smith, F. Lynch, and H. J. De Courcy Moore. Registered office: 2, Gresham Buildings, Guildhall, E.C.

Selwyn Machine Works, Ltd. Private company. Registered March 6th. Capital £8,000 in £1 shares Engineers, machinists, electricians, founders, manufacturers of motor, cycle, and aircraft parts, etc. Agreement between G. F. Bullock and H. J. King. First directors: G. F. Bullock, 46, Oakwood Road, Sparkhill, Birmingham, storekeeper, and H. J. King, 43, Capethorn Road, Smethwick, millwright. Secretary: M. Bayliss.

French and Foxwell, Ltd.—Private company. Registered March 7th. Capital £4,000 in £1 shares. Electric, petrol and general engineers and contractors, manufacturers of and dealers in tram, electric and other apparatus, manufacturers of motor vehicles, owners of hangars and garage sheds, etc. Permanent governing directors:—D. G. French, Florenceville, Grove Road, Sutton, Surrey, engineer; H. G. Foxwell, North Lodge, Tadworth, Surrey, engineer. Solicitor: E. M. Gibson, jun., 3-5, Queen Street, E.C.

Clutchnut Engineering Co., Ltd.—Private company. Registered March 12th. Capital, £1,000 in £1 shares. Engineering, metal working, and general inventors, manufacturers, agents, etc., in connection with aeroplanes, hydroplanes and general aircraft or otherwise; motor, railway, marine, tramway and laundry engineers, etc. First directors, C. Jefferies, Whitehall Hotel, Guildford Street, W.C., engineer, and Ida E. Thompson, Euston Station Hotel, N.W. Registered office: 2, Sardland Street, W.C.1.

MORTGAGES, CHARGES, AND SATISFACTIONS.

T. Jackson, Sons, and Co., Ltd.—Satisfaction in full on Jan. 13th, 1919, of debentures dated Feb. 24th, 1917, securing £1,000.

Associated Aircraft, Ltd.—Issue on Feb. 10th, 1919, of debentures for £250, part of a series already registered.

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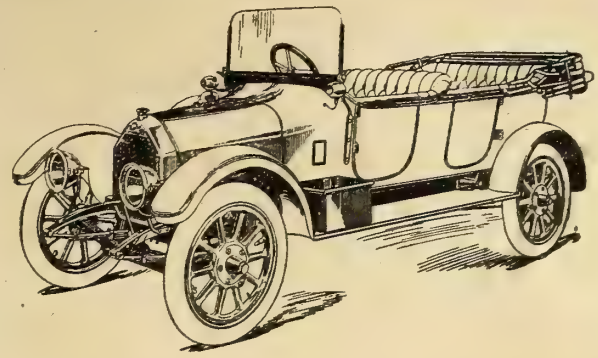
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AIRCRAFT IN PARLIAMENT.

The following written answers were given on March 10th :—

SOLDIERS, SAILORS, AND AIRMEN'S UNION.

Lieut.-Col. MALONE asked the Secretary of State for War whether, in view of the fact that the Admiralty have now recognised and approved the principle of lower deck representation, it is now proposed to recognise the Soldiers, Sailors, and Airmen's Union or any other organisation in the military or air forces ?

Mr. CHURCHILL : The answer is in the negative.

ROYAL AIR FORCE.—OFFICERS (DISCHARGES).

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether wholesale discharges of officers in the Royal Air Force, against their will, are now being made; and when he will be in a position to make a statement as to the future needs of the force in regard to men and officers ?

Major-Gen. SEELY : The officers who are being demobilised at present are those desirous of discharge. I shall hope to be able to make a statement as to the future needs of the Royal Air Force in officers and other ranks when the Estimates are taken.

DEMOBILISATION GRATUITY.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether a distinction is made on demobilisation between the officers of the Royal Air Force who are ex-Royal Naval Air Service and those who are ex-Royal Flying Corps officers; whether the ex-Royal Naval Air Service officer receives 124 days' pay as gratuity for the first year of service and 50 days' pay for every other year's service, but the ex-Royal Flying Corps officer receives the same for the first year and 62 days' pay for the other years; and why there is this difference in the gratuity of officers doing similar work in the same Service ?

Major-Gen. SEELY : Both temporary ex-Royal Naval Air Service officers and ex-Royal Flying Corps officers receive on demobilisation the same rate of gratuity for the period of their service in the Royal Air Force. The period of their previous service in the Navy or Army is rated for gratuity according to the Regulations of the Admiralty and War Office respectively. The rates for the Navy and Army are as stated in the question.

CONTROLLER OF CIVIL AVIATION.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry what salary is being paid to the Controller of Civil Aviation; what staff he has; whether the new Regulations have yet been issued; and generally when he can make a statement on the subject ?

Major-Gen. SEELY : The salary and staff arrangements for the Controller-General of Civil Aviation are being considered by a Committee appointed by the Secretary of State to advise him as to the reorganisation of the Air Ministry, and their recommendations will be furnished at an early date. By regulations I understand my hon. friend to refer to the orders to be made under the Air Navigation Act, 1919. Conferences as to these orders are still in progress with representatives of the Aircraft Industry. I shall hope to make a general statement when introducing the Air Force Estimates.

MADRID (PROPOSED FLIGHT).

Mr. LYON asked the Secretary of State for War if his attention has been called to the statement that the Air Ministry had been obliged to abandon a proposed flight from London to Madrid on account of the perturbed state of Spain; has any communication from his Majesty's Ambassador at Madrid been received on the subject, or was there any communication with the Spanish Government or with the representative of that Government at the Court of St. James ?

Major-Gen. SEELY : The statement was to the effect not that the proposed flight had been abandoned, but that it had been postponed. This decision was not come to as the result of any diplomatic representations, but it was considered that postponement was advisable in view of possible transport difficulties in connection with the extensive preparation required for an initial flight of this kind. The reports as to disturbances have been greatly exaggerated.

MUNITIONS.—NATIONAL AIRCRAFT FACTORIES.

Mr. KELLAWAY has circulated the following statement, pursuant to the promise given on Wednesday last, in reply to Mr. Rose (Official Report, col. 427-8) :—

The number of National Aircraft Factories erected or purchased by the Ministry of Munitions is 10. All of these factories were completely finished and were engaged in production for some months prior to the Armistice. The approximate cost of these establishments is £2,261,300.

* * *

The following written answers were given on March 11th :—

LONDON-MADRID (PROPOSED FLIGHT).

Mr. LYON (by private notice) asked the Secretary of State for War why, if it was considered that the postponement of the announced flight of military aeroplanes from London to Madrid was advisable, in view of possible transport difficulties in connection with the preparations required for any flight of this kind, the official reason for the postponement given to the Press was "the disturbed conditions existing in Spain"; and whether the official announcement published in the Press the following day (namely, March 7th), that "as the reports of the disturbed conditions of Spain had been proved to have been greatly exaggerated it is hoped to proceed with the proposed flight in due course," was made after representations by the Spanish Government that the initial statement was incorrect inasmuch as there were never any disturbances in Spain which would interfere with such a flight.

The UNDER SECRETARY OF STATE FOR AIR (Major-Gen. Seely) : The Ministry of Shipping represented to the Air Ministry that considerable delay was probable in the delivery of the special petrol, oil, and spares necessary for this flight owing to disturbed conditions in Spain. It was accordingly decided to postpone this important flight pending the receipt of further information. The Spanish Government having informed us that there are no disturbances calculated to prevent the arrival of the necessary materials, arrangements for the flight are now being proceeded with.

Mr. LYON : I beg to give notice that I will raise this question on the Adjournment to-night.

ROYAL AIR FORCE.—ORDERS (PUBLICATION).

Colonel YATE asked the Under Secretary of State to the Air Ministry whether he will communicate Air Force Orders to the Press on the same conditions as Army Orders and Army Council Instructions are communicated under the authority of the Secretary of State for War ?

Major-Gen. SEELY : Air Ministry Orders are published in a weekly series, and, following Admiralty precedent, are not generally issued to the Press. I am considering what further steps can be taken to issue to the Press such orders as are of special general interest or importance.

AERONAUTICAL PLYWOOD.

Sir HERBERT NIELD asked the Chancellor of the Exchequer if he will state who is responsible for the Regulations considered to be necessary for the realisation of the stocks of aeronautical plywood in this country at the date of the Armistice or contracted to be purchased by His Majesty's Government at that time; whether he will cause inquiries to be made of the S.M. 7 Department (Aircraft Supplies) as to whether any and what offers were received by that Department for the purchase of the entire stock referred to; whether, on the 28th day of January last, a firm offer extending over three weeks was received of 47s 6d. per 100 square feet for the purchase of such entire stock; if he will state whether, on the intervention of the Timber Controller or that of some other and what controller, the provisional arrangements made by the S.M. 7 Department (Aircraft Supplies) to accept the offer above referred to were overruled, if he will state whether 2,500,000 square feet were placed by the Timber Controller with Messrs Foy, Morgan and Company, timber brokers, for disposal; whether Messrs. Foy, Morgan and Company, in the absence of any adequate accommodation for the storage of the plywood at Liverpool, stacked the same in open sheds and that, consequent on weather conditions, the value has deteriorated; and if he will likewise state the amount of loss occasioned to the Treasury consequent upon the cancelling of the provisional order previously referred to ?

Mr. BRIDGEMAN : I have been asked to take this question. The Ministry of Munitions is responsible for regulating the disposal of surplus aeronautical plywood which is being carried out under the Timber Controller, who is also Controller of Surplus Timber Disposal under the Surplus Government Property Disposal Board. Certain offers were received for the purchase of the entire stock referred to, including an offer in the terms mentioned in the question, but no provisional arrangements were made by S.M.7 Section of the Aircraft Production Department to accept that or any other offer. With regard to that offer, the Timber Controller was consulted, and, as the price offered was less than half the c.i.f. cost to United Kingdom port, he considered that it would be unwise to accept the offer before asking other manufacturers and dealers to tender for the plywood. The Aircraft Production Department agreed, and the offer was refused.

Considerable quantities of plywood have been placed with Messrs. Foy, Morgan and Company, as brokers, and have been stored in Liverpool and London. A representative who has just returned from Liverpool states that the goods have been properly stored in dry warehouses, and have not deteriorated in any way. No loss has resulted from the refusal of the offer referred to. I may add that it has been decided that publicity should be given in every case as to the disposal of surplus Government timber, and that, where possible, sales should be by public auction or public tender.

ROYAL AIR FORCE (BOYS).

Captain HACKING asked the Secretary of State for War whether paragraph 392 (vi.) (b), King's Regulations, discharge of boys under 18 years of age who gave wrong age on enlistment, applies to the Royal Air Force; and,—if not, what the regulations are which govern the release of such boys ?

Major-Gen. SEELY : The answer to the first part of the question is in the negative. The rules governing the release from the Royal Air Force of boys who gave a wrong age on enlistment are contained in an Air Ministry Order which directs their discharge if they enlisted without the written consent of their parents or guardians, provided that their age at the date of application for discharge does not exceed 17 years.

* * *

The following oral answer was given on March 12th :—

OFFICERS' EFFECTS.

Mr. MOLES asked the Secretary of State for War whether he is aware that Captain Walter A. Tyrrell, M.C., R.A.F., was killed in action in France on June 9th, 1918, and his brother, Captain J. M. Tyrrell, R.A.F. (attached), was killed in action on June 20th, 1918; whether Alderman J. Tyrrell, Belfast, father of these two gallant soldiers, was, in August, 1918, informed by Messrs. Cox and Company, bankers, that all sums due to these two officers had then been credited to the Effects Department of the War Office; whether a letter to that Department was sent by Mr. Tyrrell on August 17th, 1918, and left unacknowledged until October 22nd, 1918, when a formal reply in the shape of Form No. 10 was sent; whether other letters sent by Mr. Tyrrell on the 5th and 20th December, 1918, respectively, as well as on February 17th, 1919, and March 4th, 1919, have elicted no reply, except further issues of Form No. 10; whether, in view of the fact that nearly nine months have elapsed since the death of these two officers and almost seven months since the estates were credited to the Effects Department of the War Office, he will direct an immediate settlement; and whether any and, if so, what notice will be taken of the undue delay and the lack of consideration evinced in these cases ?

Mr. CHURCHILL : I am informed that Alderman Tyrrell's letter was answered on September 18th, and the Department has been in constant communication with his solicitors since August last. The delay in settlement is largely due to the fact that the disposal of estates must await the report of the Committee of Adjustment in France, and must be carried out in due legal form. In the case of Captain Walter Tyrrell, the solicitors were informed on January 14th that payment would be made on production of letters of administration or probate of will, but so far nothing has been produced. I can assure my hon. friend that there is every desire on the part of the War Office to expedite settlement of these matters.

Lieut.-Comdr. NORMAN CRAIG, in his speech on the occasion of the Navy Estimates, made the following statement, which is of interest :—

"Our aerial reconnaissance was non-existent. The Zeppelin, in its true usefulness, does not bomb undefended towns, but as the eyes of a fleet it is at the lowest estimate equal to two light cruisers, and some people put it as high as the equivalent of six light cruisers. Our aerial reconnaissance at the outbreak of war was non-existent."

Comdr. BELLAIRS on the same occasion said :—

"Another point in regard to the War Staff is this : The Secretary of State for War has adumbrated a proposal for giving the war mind to officers of the Army, Navy, and the Air Service, so that they should consider their problems as a whole. If the War Staff is going to be isolated in naval circles or to be housed at Greenwich, you cannot possibly get that. They ought to work side by side at Camberley."

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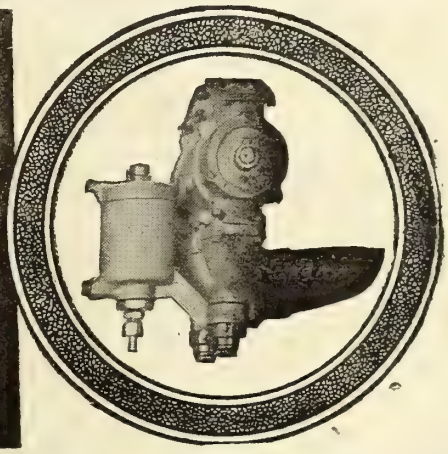
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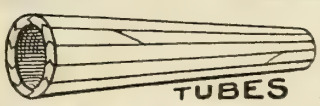
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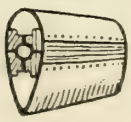


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The following written answers were given on March 13th :—

HOSTILE AIRCRAFT (SUSPENDING ENTANGLEMENTS).

Major LANE-FOX asked the Under Secretary of State to the Air Ministry if he can state with whom the idea of suspending entanglements for hostile aircraft originated; what reward, if any, has been paid to him; and whether he is aware that a suggestion of this invention was received by the Air Board in 1914, and was rejected as being useless?

The UNDER SECRETARY OF STATE FOR AIR (Major-Gen. Seely) : The method of suspending entanglements from balloons which was adopted in 1917 was taken from designs used in the defence of Venice, and the credit for the inception is due to the Italian Government. A proposal for the use of entanglements hung from balloons was first patented in 1913, and several hundreds of proposals of a similar nature were received during the war. It is not considered that any reward was due to the originators as the value of the proposals depended entirely on the methods devised for carrying them into practical effect. The Air Board did not come into existence until May, 1916, and it is not possible to identify the particular proposal referred to in the last part of the question.

* * *

The following is taken from "Hansard," of March 14th :—

SUPPLY (MARCH 15th).

Resolutions reported.

ESTIMATES, 1919-20.—NUMBER OF AIR FORCE.

"That a number of Air Forces, not exceeding 150,000, all ranks, be maintained for the Service of the United Kingdom of Great Britain and Ireland at Home and abroad, excluding His Majesty's Indian Possessions, during the year ending on the 31st day of March, 1920."

VOTE ON ACCOUNT.

"That a sum, not exceeding £45,000,000 be granted to His Majesty, on Account, for or towards defraying the Charges for Air Force Services at Home and abroad, which will come in course of payment during the year ending on the 31st day of March, 1920."

Resolutions agreed to.

The Case of Miss Douglas-Pennant.

The following letter appeared in the "Morning Post" of March 13th.

Sir,—You have been good enough to call attention in your columns to the refusal of the Government to grant me an inquiry into the circumstances leading to my summary dismissal from the Women's Royal Air Force in August last, and, as you are aware, the matter has formed the subject of questions in the two Houses of Parliament. Assuming that the Air Ministry would not have taken this step except upon a written report as to my conduct and qualifications, I asked Major-General Seely on January 31st last for a copy of such report, and after some delay was informed that no written report was received. On February 14th I wrote again to General Seely upon the subject in the following terms :—

"Dear Sir,—I am much obliged to you for your letter of the 11th inst., but, speaking quite frankly, I am puzzled at what you write.

"In the first instance you say that I was asked to resign my appointment. You have obviously been misinformed, as I was given no option of resigning. On the contrary, up to within a few days of August 28th last my request to be allowed to resign was refused by Sir Godfrey Paine, and on that date I was summarily dismissed from the Force by Major-General Brancker. You state that the decision of Lord Weir was based on his having satisfied himself that I was not so well suited to carry out the duties of the appointment as were other candidates who had more experience of that class of work, and I gather from the last paragraph of your letter that in your view, whilst this decision contained no reflection on my capacity to fill many other positions with distinction, it did necessarily reflect upon my capacity to fill the post of Commandant of the Force.

"It is only right that I should point out to you that, in consequence of questions being asked in the House, Lord Weir caused an answer to be given on August 6th that he had every confidence in my ability and discretion as Commandant. Further, Major-General Brancker, when dismissing me on August 28th, stated that this step had not been taken on the ground of my inefficiency as Commandant; but owing to the fact that I was so grossly unpopular that everyone declined to work with me. Again, on September 2nd, when I had an interview with Lord Weir, he informed me that his reason for dismissing me was because I could not obtain the co-operation of other women's organisations.

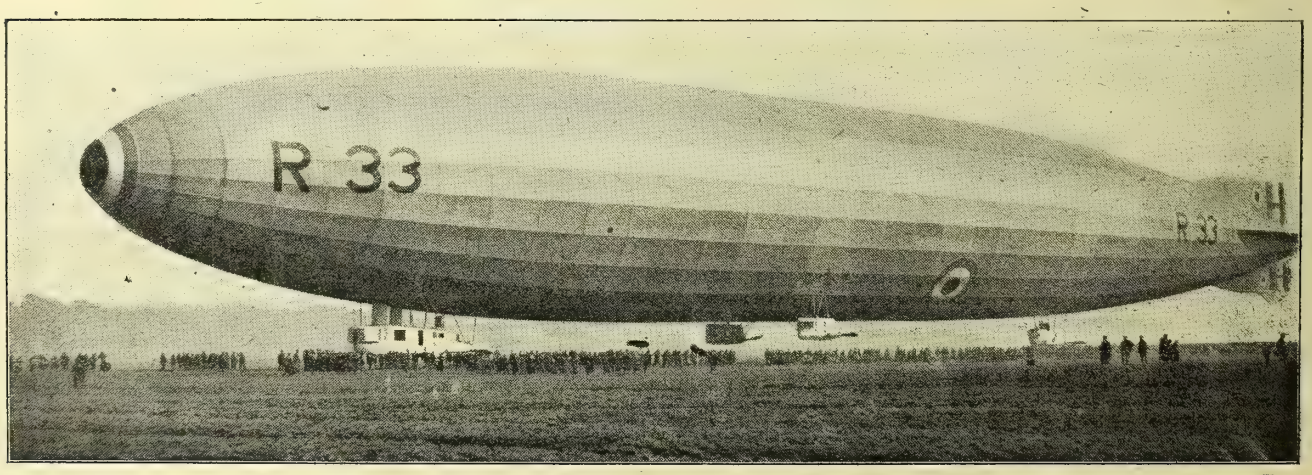
"You will, I am sure, appreciate that these statements are as inconsistent with one another as they are with the statement contained in your letter—that Lord Weir had satisfied himself that I was not so well suited to carry out the duties of Commandant as were other candidates who had more experience of that class of work. I am surprised to learn from you that my dismissal was not in consequence of any written report as to my conduct having been made, as I understand that I could only be dismissed as the result of a written report. In view, however, of the discrepancies to which I have above referred, I feel I am entitled to ask you to give me the exact purport of the verbal reports which led to my dismissal.

"I am sorry to trouble you further, but I think you will appreciate that the matter is of far too serious moment for me to allow it to rest where it is. I am, yours faithfully, V. DOUGLAS-PENNANT."

To the above letter I have been quite unable to obtain a reply. Meanwhile, Lord Londonderry, in the House of Lords on the 27th ult., was forced to admit that I had not been treated with the consideration to which I was entitled, and further gave an assurance to their lordships that if I could satisfy the Ministry that my dismissal was due to malice or intrigue the fullest inquiry should certainly be held. I subsequently received a communication from Mr. Winston Churchill asking me to submit to him a statement which would satisfy him that I did complain that malice and intrigue were responsible for my dismissal. I at once submitted such a statement, which could have left his mind in no doubt on the subject.

After a few days I received a reply that my statement was not sufficiently specific, and that I must more clearly indicate against which individual officers of the Air Force I made complaint. This I at once did, and I have now heard that Mr. Churchill still refuses to direct an inquiry on the ground that I do not bring specific charges against either Lord Weir or Major-General Brancker. In other words, the very definite pledge given by Lord Londonderry in the House of Lords is absolutely disregarded, and the Government clearly intend to avoid at all costs the consequences of an inquiry and to refuse to grant to me the measure of justice to which I am surely entitled.

I know that I can look to you for your valuable support, not merely on my own behalf, but in the interests of other men and women who are called upon to serve the Government, and may subsequently find themselves, as I have done, the victims of malice and intrigue, which the Government are content to countenance, or a convenient scapegoat for the mismanagement and failure of favoured officials.—Yours, etc., VIOLET DOUGLAS-PENNANT.



The Armstrong-Whitworth Rigid Airship R.33, coming out for test on Howden. As may be seen by comparison with the picture of the Beardmore Ship R.34, the two vessels are of similar type. It is alleged that whichever has the better performance will make an attempt to cross the Atlantic to the United States.

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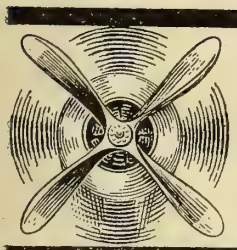
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PARIS NOTES.

I am able to send this week the first advertisement announcing a definite commercial aeroplane service that has yet appeared in the daily Press. It appeared in the Continental "Daily Mail" of March 13th.

Simultaneously with this announcement comes the information that the War Minister has recommended the President of the Republic to rescind the decree of the 31.7.14, which made it an offence for civilian machines to fly over any part of France. This is at least a step in the right direction, and apparently Messrs. Farman think, or have reason to think, that it will take place before the 22nd inst. One wonders how much longer the British Government will be before authorising a similar declaration; one also wonders if they realise to what extent they are retarding the development of commercial aerial service, and whether they are aware of the inactivity prevalent in aircraft factories as a consequence of their refusal to move in the matter.

One knows of a big British concern that were ready to start their International Service two months ago in conjunction with a group of French firms, but the British Government refused the necessary permits—hence the reason for the French concentration on the Paris-Brussels route.

The Aerial Service Paris-Brussels

By FARMAN.

The FARMAN firm will start its regular aerial passenger service with the aeroplane "GOLIATH," between PARIS and BRUSSELS, from March 22. Departures will be, provisionally, made weekly

Leave TOUSSUS-LE-NOBLE (Buc), near Versailles, Saturday, at 9 a.m
Arrive BRUSSELS, at 11.45 a.m. Leave BRUSSELS, Monday, at 3 p.m.
Arrive TOUSSUS-LE-NOBLE, at 5.35 p.m

The fare for each journey is fixed at 365 francs.
Passengers must have properly signed passports with them. MM. FARMAN will furnish the necessary information on this important point.
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An Aerial Tour de France.

The return to peace conditions could not be better indicated than by the announcement here that at some date in June and July this year a Tour de France will be held Entries will be restricted to machines of the Aerobus type. The point of departure and finish will naturally be Paris; prizes to at least £4,000 are indicated. I have not been able to find out whether the contest is to be International or not, but it is announced that it will be open to civilian and military pilots and constructers. The flight will cover five to six thousand kilometres, but stops, all controlled, will be made. The prospective rules provide for machines to be entered in classes according to their seating accommodation, thus, it is rumoured that No. 1 will be for machines having six or more seats; No. 2, four seats; No. 3, three seats; No. 4, two seats. Vital parts of the machines will be marked before the start, and penalties imposed if these parts have to be changed en route.

A Military Competition.

The close affinity, in all but the seating accommodation, that exists, at the moment, between the "armistice bomber" and the pioneer aerobuses is well demonstrated by a glance at the probable conditions for the great competition to be held under French Government auspices some time in 1920; the conditions laid down approximate to those exacted by the military people for their latest type of bombing machines. The dominating factor is, of course, endurance, to be assured by the use of several motors—all authorities here are agreed that at least three are necessary, and many favour four. The following résumé of the proposed conditions will be found interesting, although they are liable to modification or amplification before being finally framed.

Motors.

Motors must run 300 hours at 8/10th of their power limitation of weight per h.p. of the propulsive group, i.e., including fuel for five hours flying. Airscrew running at 800 r.p.m.

Motors to be divided into three categories:
125-150 h.p., 250-300 h.p., 500-600 h.p.

Machines.

(a) Safety coefficient; 6.
(b) Excess of power; theoretical ceiling; 4,500 metres;
(c) Minimum speed at 2,000 metres; 150 kilometres;
(d) Landing; under practical conditions to have a maximum weight of 38 kilogrammes per square metre;
(e) Security; multiplicity of power units—three or four—any single unit to be sufficiently powerful to sustain the machine in the air.

The Military Aeronautical Salon.

Regarding the Military Aeronautical Salon that I mentioned last week, the date is not yet fixed, but it is likely to be held at the Grand Palais, and will follow the Painting Salon, but will precede the annual Automobile show. I also learn that Capt. Hirschaüer will be first director of the Aeronautical Conservatoire. Capt. Hirschaüer is an aviator, and his father, it will be remembered, was Aviation Chief here early in the war.

Football Team in an Aeroplane.

The football team went to Brussels by train last Saturday because the weather looked bad—the journalists and photographers, who were not so "pressé" waited and were rewarded—the machines did start and arrived at Brussels long before the team.

Normal Air at High Altitudes.

Echo of the past. It now comes to light that M. Jacques Balsan, vice-president of the French Aero Club, himself an aviator, suggested, as far back as 1912, an arrangement whereby, by employing exhaust gases to work a compresser, it was possible to "make" normal air at high altitudes. He put this idea to Col. Dorand, in charge of the technical section, who put M. Rateau on the job—hence the Rateau turbine employed by M. Bréguet. Truth will out, and honour is certainly due!

Aeroplane Souvenirs.

All connected with Aviation are acquainted with a proud possessor of a "prop stick," maybe you have one yourself, maybe you have fitted a clock in the boss of an airscrew, maybe—well, there are lots of things that the ingenious-minded (should I say, souvenir freak?) can make from the odds and ends to be found in the "crash corner" of an active or home service Bessoneau.

After all, what is the use of crashing if you don't get a souvenir? In fact, what is the use of flying if you don't crash, and—well, the best things said are left unsaid for, be it known, you may search Webster or Ogilvie thoroughly, and yet not find such wealth of meaning as lies in innuendo! Well, as I was going to remark, many readers will have admired the souvenir table, to be found in the foyer of the Aircraft Supplies, Ltd., with the top divided into four by the insertion of an airscrew, legs made from struts, and contour fitted into strut sockets, and "atmosphere" obtained for the whole by the addition of fauteuils made from aeroplane rushwork chairs, pattern A.G.S. No.——?

I have been reminded of all this by the fact that at the Arts-et-Métiers here, there is an exhibition under the ægis of "The Society of Art applied to the Trade," and in which one sees chairs, bedsteads, table-legs, etc., made from fuselages, ink-wells from hand-grenades, and also a lot of useful furniture made in aviation factories since the armistice, to prevent the workers from becoming bone-stiff, and, incidentally, to keep the firm out of liquidation, for, be it whispered, orders are none too plentiful here, as in England, and, certainly, not enough to go round. By the way, it is rumoured here that a Czecho-Franco combine have secured a concession to run an aerial service between Prague and Paris!

Meanwhile, the Americans not having cleared out of the aerodrome at Meriquac, the Paris-Bordeaux service is further postponed.

One of the Paris-Lille postal machines came to grief this week on the ramparts of Lille; the pilot was seriously injured Védrines is going to have a "reception" when he gets to Rome—lucky Védrines.

Fonck and Nungesser are as much in the limelight as ever. The Academy of Sports has decided to give the former the Prix Henri Deutsch de la Meurthe and the Portuguese Government have conferred the Grande Croix de Guerre on both these aviators. As it is the custom over here to wear, not merely the ribbon, but all the medals and orders, they must really feel surfeited with good things.

M. Jacques Mortane, Editor of "La Vie Aérienne," has just finished a volume of souvenirs and documents on Lieut. Roland Garros.

I hear that the Caudron people are preparing to enter the Italian competition for small machines which is being organised by the Léga Aerea Nazionale, of Milan, for July next. It will take place at Taliedo. Certainly, the little Caudron upon which Védrines made his sensational descent on the roof of the Gallerie La Fayette is worthy of being entered.

On Thursday nine provisioning machines left Paris—seven for Valenciennes, one for Lille, and one for Brussels.

Swiss News.

In pre-war days I remember, several friends of mine carried out experiments with cycle-planes, their idea was to fit supporting surfaces to a pedal cycle sufficient to carry them over any hedge or small obstacles they might encounter, in other words an original conception of latter-day "contour chasing." I am reminded of this by news from Geneva which says that "interesting experiences" have been obtained on the Petit Lancy road with a "flying motor" called an "aviette." More "experiences" are to follow.

Passenger and joy-ride flying are in full swing in Switzerland, thanks to good weather. Prices have been controlled by the State, and run out at 50 francs for quarter of an hour or fraction of same. Thus the voyage from Dubendorf to Lucerne should cost 300 francs, and from Thoure over the Jungfrau, 500 francs.—

F. T. N.

AERONAUTICS AND THE LAW.

TIME.

By "THE LINCOLN IMP."

"What's the time, please?" is not usually a difficult question to answer, but—"What is Time?" is a poser.

Time is largely a matter of Place. To borrow the technical language of law, Time is "limited out of" Eternity. Endless Time is our modern conception of Eternity, but its mediæval meaning was rather an omnipresent circular Time, like a whiting with its tail in its mouth or a cannibalistic serpent making an indigestible meal off itself. But it was not of Eternity that we were to speak, but of Time.

Time, like everything limited, is a relative term. Thus, sidereal time is relative to the stars, solar time to the sun, Greenwich time to Greenwich, and any other local time to the particular locality. So that time, as we have said, is largely a matter of place.

All places on the same meridian have, of course, the same solar time which is their own local time; but the inhabitants of places which are not on the same meridian do not rise and eat together, though they may think they do. The wireless mid-day signal outruns the sun and sees Paris dining ahead of us as we dine ahead of Dublin. Which introduces my subject, "What is Time in law?"

Any expression of time in an Act of Parliament or in a deed or other legal instrument refers, unless it is specifically otherwise stated, to Greenwich mean time in the case of Great Britain, but to Dublin mean time in the case of Ireland.

Paddy on his way home from London in a super R.33 has his "spot of Irish" refused on the score that it is past closing time; and the bar-tender points a confirmatory finger at the ship's Greenwich time clock. Paddy insists, and pulls out of his pocket his own infallible watch, which shows that by Dublin time it wants some minutes to the hour. Which of them is right? Is it a "case of England" or a "case of Ireland"? Does Paddy's drink hang (a) on their situation in the sky over England or Ireland, or maybe the Irish Sea? Or (b) the national flag of the airship—say Irish-American, or (c) that the licence was granted under the English or Irish Licensing Acts? (d) Or on some other subtler distinction?

The problem calls for solution, for the matter in dispute might be something more serious than "a spot of Irish"; it might, for instance, be "a spot of Scotch."

"Sunset" and "Sunrise" are not "expressions of time" or so it has been held in the case of carriages, bicycles, velocipedes, and other similar machines which have to show a light between one hour after sunset and one hour before sunrise. For this purpose "sunset" and "sunrise" do not refer to the time at which the sun sets and rises at Greenwich and Dublin (as the almanacs put it!), but to local sunrise and sunset.

The International Rules of the Air which are now being drafted will probably incorporate the Rules Relating to Navigation, which were considered, modified and approved by the C.A.T. and Imperial Defence Committee. Art. 1 of these Rules provides: —

"The regulations concerning lights must be observed from sunset to sunrise."

"By day" and "By night" also are freely besprinkled throughout the Rules and the Draft Convention, and it seems necessary to call the attention of legislative draftsmen to the necessity of defining these and similar terms; since no definition was inserted in the original draft or by either of the Committees which considered and approved it.

"Night" and "Day" are now defined for the purposes of many Acts, including the Larceny Act 1861, the Night Poaching Act 1828, the Game Act 1831, the Housing of the Working Classes Act 1885, and the Public Health (London) Act 1891, as the periods between 9 pip emma and 6 ack emma, and between 6 ack emma and 9 pip emma respectively. For the purposes of other Acts and of legal and commercial documents, "a day" may include "a night" and be the period between two successive midnights or any period of 24 hours, or it may exclude the night and be the period between sunrise and sunset. In the days of Lord Coke the life of a burglar depended on the degree of the light when he broke and entered and stole. Could you make out his face by the waning light of the sun (not the moon)? Not a burglar! Was it after "the wolf"? Let him swing!

"A burglar," says Lord Coke, "is by the common law a felon that in the night breaketh and entereth, etc." The word in the indictment or appeal is *noctanter, i.e., noctu*, by night.

The natural day is divided *in lucem* light, which is *dies solaris*, and *in tenebras*, which is night. And therefore as long as the daylight continues whereby a man's countenance may be discerned it is called day; and when darkness comes and daylight is past, so as by the light of day you cannot discern the countenance of a man, then it is called night.

In ancient records *crepusculum* was signified when it was said *inter canem et lupum*: for when the night begins the dog sleeps and the wolf seeks his prey. *Inter canem et lupum, i.e., inter diem et noctem, vel in crepusculo—Anglice* twilight."

With the greatest respect for the learned Lord Coke, his explanation of the phrase "between the dog and the wolf"—anglicé twilight—is a trifle far-fetched. It is a poor sort of watch-dog that sleeps when night begins! At the risk of piling Ossa on Pelion we hazard another explanation: was it not to the constellations Canis and Lupus that the ancients referred?

Canis major "the blazing dog-star," the brightest star in the heavens, ushers in the dusk, but Lupus, comprising only stars of the second or lower orders of magnitude, is invisible until twilight is merging into night. This is as scientific a test as "light enough to read a newspaper," and much more poetic than the identification of Mr. Bill Sykes.

The third dimension of travel in the sky raises a new complication. Sunrise is relative not only to the meridian, but also to the altitude. Can the sun be said to have set or not to have risen at a time when its very rays are blinding the pilot?

The Imp has vivid recollection of a trip, untimely cut short by the conking out of the engine; he saw the sun rise twice during that morning. The scene was so beautifully poetic and has been so exactly described by Pope in his Homer that this must be our excuse for borrowing the very language of the poet. Here is the story.

Our orders are:—

"Fly if thou wilt, to earth's remotest bound."
(We start before dawn.)
"The sun, the moon and all th' ethereal host
Seem'd as extinct; day ravished from their eyes
And all heaven's splendours blotted from the skies."
(We take off—in a B.E.2c.!)
"The lash resounds, the rapid chariot flies
And in a moment scales the lofty skies."
(We see the sun.)
"Now rosy morn ascends the court of Jove,
Lifts up her light and opens days above,
Forth burst the sun with all-enlightening ray.
They stopp'd the car"
(It stopped itself:)
"And stooping dexter with resounding wings
The imperial bird descends in airy rings."
(We glided down in a steep right-hand spiral with the R.A.F. wires singing.)
"Meantime the radiant sun to mortal sight
Descending swift roll'd down the rapid light."

The sun sank as we spiralled down, and the light speedily vanished of this our shortest day. It was still before dawn when we landed.



A Hun Kite-Balloon, copied from the French Caquot.

THE FUTURE OF YOUNG PILOTS.

By C. G. S.

Though endorsing your views up to a certain extent, I would like to draw your attention to the following points, which, in my opinion, have been overlooked :—

(1) If commercial flying is to depend on joy-riding as the principal feature, I think that all prospects for its future might well be doomed. Will not joy-riding be a mere sideline in the same way that motoring for pleasure only is a sideline to motoring generally?

(2) As to the possibility of a Government monopoly, or the monopoly of a private firm, is not this a very extravagant view to take. The air is free, and why should there be any more difficulty in arranging an aerial route than a sea route? Could the air be monopolised any more than the sea or the roads for motoring?

Civil Transport Concerns.

(3) Whilst admitting that there is no immediate future for the young pilot, or comparatively experienced pilots, what will the civil transport concerns do for pilots when development takes place and they require them. Though the Air Force is said to have contained about 35,000 officers, how many of these are pilots; how many are first-class pilots, and how many are fit and wish to continue flying? The majority of pilots that I have met do not in any way wish to continue as mere aerial chauffeurs, but what qualifications will these men possess for civil work if they remain in the Force? I agree that at the time being pilots are falling over each other in search of jobs, but I think if the numbers were analysed that very few are out for purely flying jobs.

Supposing that Commercial Flying is a success, from whence will concerns draw their pilots? At first they will probably obtain more than enough from those demobilised from the Air Force, but it must not for one moment be assumed that every ex-officer will be willing to take up the new venture. Perhaps 50 per cent. of the demobilised officers will return to their former employments or prospective employment. This will reduce the 35,000 to roughly 17,000. The Air Force proposes to keep about 7,000, and this would leave 10,000 officers and cadets, not all of whom are pilots, and very few of which are fit and experienced pilots for commercial purposes. Out of the latter figure a percentage must be taken of those who will have become established in other civil occupations. I therefore think that though at first sight there seems to be an almost unlimited supply from which to draw, as development takes place there will be a very great shortage.

The Royal Air Force will not continue to train pilots and afterwards allow them to throw up their commissions for the benefit of private enterprise. Whence, then, is the commercial firm to draw its pilots in the future? Can it afford to train for itself? Is not the cost of training (a training to be of any commercial use) too enormous to warrant the possibility of a few good pilots being turned out from a large number of pupils taken at first? How, then, is the commercial firm to maintain its supply of pilots? Possibly by the budding pilot spending a large sum at some flying school. What is this sum likely to run into? A popular rate seems to be from £8—£10 per hour, and as a pilot is of little use until he has gained at least 100 hours' flying, this involves a sum of from £800—£1,000 inclusive of maintenance. His flying existence is a precarious one at the best of times, and his experience is of little use in any other than the purely flying sphere. He will, therefore, demand a high salary as compensation for the money he has spent in training and the comparatively short time of his active flying career.

Can the R.A.F. pilot be said to draw a high salary when the cost of his training and experience are taken into consideration? There is also the possibility of a reduction in pay, especially as pilots are cheap at the moment.

(4) What is the R.A.F. going to do for the man who crashes or becomes unfit in other ways and when his flying life is over? Experience shows that, as a rule, the flying man does not make a good administrative officer. The administrative posts will not empty at the same rate as the flying officers become unfit. The flying man will have no qualification for commerce, and very little for other branches of the Service. Will the administrative posts be as well paid as the flying, and will any guarantee be given that when a man becomes unfit for flying he will draw an equally good rate in any other branch or Service to which he is transferred. Otherwise, it seems to me that the pilot's career is starting in the middle and working downwards. In other words, by hard flying, etc., he will kill the "goose which lays the golden eggs."

Chaotic State of Affairs.

(5) As to staying in the R.A.F. for a further year. Is much flying and development likely to take place in the present chaotic state of affairs? Will the year spent justify the waste of time in other respects? Had not the young officer better spend his time at some University, or take up an alternative livelihood in order to fit himself better for future development?

(6) Owing to the reduction in armaments likely to take place through the formation of the League of Nations, are not the Services likely to become of second-rate importance, at any rate, during the next 20 years? Will the young pilot (the man who should be so full of grit, initiative, etc.), be satisfied with continued training without the hope of future war, at any rate, during his service? Would not the type of man who is dependant on his pay and without private resources be better employed in something likely to engross his whole interest and leave the Service to the man who has private resources and the means to further any private interests or hobbies?

Admittedly, there is little in the Service in peace time to engross the whole of an active man's outlook, especially if there is little prospect of active service.

THE GRIEVANCES OF R.A.F. CADETS.

The following letter has been received :—

Sir,—I hope that by publishing this letter in your journal you may bring this case to the knowledge of the Air Ministry, as a the particular camp at which I am stationed the senior officers do not take any notice of applications forwarded to them officially, and I take it that they are so uncertain of retaining their own jobs that they have no time or inclination to worry about such items as "Flight Cadets."

One is quite aware that this is not the way to air a grievance, but it is the only way left at present, as letters forwarded to the Air Ministry and the Minister for Air have been returned marked "for disciplinary action, please," but, fortunately, the bird had flown into civil life.

Your article re Cadets is very good, indeed, but you have omitted one or two important facts re kit and training.

Every "Flight Cadet" who draws the large sum of £12 10s. for his kit allowance is actually stopped 30s. for sports kit, although he hands in to the Quartermaster all sports kit in his possession when he is "demobbed." What the 30s. is for as regards to sports kit no one can find out, except that it is an Air Ministry order, and when one comes to consider that every cadet who passed through the Cadet Brigade (Hastings) and the Schools of Aeronautics was stopped 30s. from his pay at each school for sports kit, one realises that the R.A.F. cadet is being robbed right and left.

Referring to the kit allowance, all ex-R.N.A.S. and R.F.C. cadets who passed their examinations, and had Colour Service to serve, were told by the O.Cs. at the Schools of Aeronautics and the Gunnery School, Uxbridge, that they were certain to receive commissions, and would receive the £50 kit allowance. On the strength of this, most of them purchased a full kit (including the blue to look smart, verb sap.), and now, of course, they have visions of heaps of tailors' bills and a cheque for £11 to settle them.

Your other suggestion that all Flight Cadets should be allowed to continue their training and graduate is a very good one, but I should lay down that it applies only to Service men and not to the civilians who joined the R.A.F. as cadets. If this suggestion is not practicable I would suggest to the Air Ministry that it is their duty to train and allow to graduate all Flight Cadets who came from the R.N.A.S. and R.F.C., who have Colour Service to serve (most of those have seven years to serve), and let them continue in the Service at their old ranks with brevets and be allowed to fly, for it is a great shame that these men (nearly all technical Serjeants and Serjeant-Majors, or equivalent rank) should be returned to their Squadrons or be absorbed in the R.A.F. through the medium of Blandford after trying in vain to be allowed to fly for the past five years. One knows that any technical man (who was worthy of the name) serving in the R.N.A.S. or R.F.C. was not allowed to leave his Squadron to go through a course to fit himself to become a pilot or take a commission, until the boom came for pilots about a year ago.

Of course, we quite understand that a commission is out of the question now, but we do think that the least the Air Ministry can do is to let us graduate and take our wings and not send us back to the ranks again in our old grades, after losing all chances of promotion for nearly a year, as is now suggested by one or two of the senior officers here.

Some of these cadets have forwarded applications to their O.Cs. asking for leave, so that they may go to a civilian school and take a "civilian ticket" at their own expense, so keen are they to fly, but nothing has been heard of these applications so far.

Trusting I am not asking too much of you to insert this letter in your next issue.

"Icarus."

"A HAPPY DAY AT THE AERODROME."

AS IT USED TO BE:—By "An Optimist," R.F.C.

"Ting-a-ring, ring!" . . . Thanks for waking me, alarum clock—I was enjoying a most beautiful nightmare—in fact, I had descended from umpteen thousand feet in a spinning nose-dive, and was just about to strike the dear old earth, when your sweet voice interrupted my journey. Thanks awfully!—and now I suppose it is time to rise—it will be light enough for flying in an hour's time.

With the thought of the nightmare still in my mind, I dress, shave, strop my razor and shave again, the icy wind whistling round the house, and the grey clouds scurrying across the sky.

Hurrying downstairs, I find the fire has not yet been lit, and that breakfast has been on the table for the past twenty minutes. Yes!—quite cold, thanks, but, still, cold eggs and bacon are not at all bad, and are readily unstuck from the plate by means of a knife.

Breakfast over, and, after a glance through the casualty list, I take my place in the tender beside the other flying officers. Arriving at the aerodrome, we are greeted by the C.O., who immediately calls to me and conveys his wishes by a corkscrew movement of his hand towards the sky.

Knowing the C.O. too well to pretend not to know what he means, I don my leather coat, goggles, helmet and gloves, and take my seat in the newly arrived R.E.8.

While running the engine for a few minutes on the ground, I am accosted by G——, who has a piece of paper in his hand, and is collecting on behalf of S——'s wreath. Taxi-ing across the aerodrome, I carefully avoid the wreck of two Avros snugly burning on the rubbish heap. Opening out the engine, I race across the aerodrome and gradually leave the ground, escaping the telegraph wires by 4½ inches.

Attaining the altitude of 2,000 ft., and my hair no longer standing on end, I fly across the three ploughed fields to inspect J——'s crash. How strange does an aeroplane look when suspended in the trees!—what a pity J—— didn't take the precaution of fastening his safety belt, for I am sure it would have saved him.

Feeling cold and tired after flying for nearly two hours, I decide to descend, and after leaving orders with the mechanics to refill the machine with petrol and oil, I enter the coffee hut in time to see the last cup of coffee served to someone else.

Beaming with smiles, I leave the hut, and am met by the C.O., who inquires, with paternal affection, the reason why I am not in the air and performs the same corkscrew motion with his hand before I have time to reply.

After removing from my undercarriage the twigs gathered from the tree tops when making my last descent—I watch M—— land. Just as I expected!—I knew he would land in that hole—it ought to have been filled in. Anyway—the wreckage can soon be removed, and our ambulance will reach the hospital in no time—if it doesn't break down, as it did this morning.

After flying about for ninety minutes at 6,000 ft., and with the thought of the nightmare still in my mind, I decide to land, as it must be nearing lunch time, when the engine begins to pop and splutter, and down goes the nose of the machine. Finding it impossible to rectify matters, I decide to continue gliding, and, after making two circles and an S turn, I eventually perch in the aerodrome.

After being informed by the mechanics that they quite forgot to tell me there was only enough petrol put into my machine for about seventy minutes' flying, I discover the fact that the tender has left for the mess, and that I shall have to walk—distance 1½ miles.

Arriving at the mess I find lunch nearly over—but cold liver and bacon is quite a filling dish. Lunch over, I am again greeted by G——, who has another slip of paper in his hand.

"Oh—I've settled with you already for S——'s wreath, old man!" say I. "This is not for S——'s," says he—"it is for Y——, he fell into the reservoir this morning, while you were up!"

ABOUT SNIPE AND CUBISTS.

Dear Mr. Editor:—

My initials are doubtless familiar to you, but—to avoid confusion—let me hasten to protest that I have no connection with the shop next door; "In other words" (as George Robey would say) I disclaim any relationship with any other P.B., hyphenated or otherwise.

This I do, not in my own interests, but in those of the other fellow.

I am not, nor do I aspire to become, a Member of Parliament. As somebody once remarked, "It's the finest club in the world, but the road to it is so damn dirty."

Neither have I ever seen service—naval, military, or aerial—having come to years of indiscretion which disqualify me at least from the first and the last, and confessing to a total absence of any longing to participate, in a non-commissioned capacity, in number two. But I am, so to speak, drifting with the tide.

Let me pull myself together, despite the fact that I have dined in Soho, at a place as dull as ditchwater, but not half as dirty, and therefore, on both counts, of no interest to your readers. To revert for the moment to my own personality.

As Swinburne remarked:—

"I am that which began;
Out of me the years roll;
Before God and man
I am perfect and whole;

God changes, and man, and the form of them—I am the soul."

In other words (as Robey would say, again) my form is fairly consistent:—

"I am that which is placed
By the Editors' chair;
With the scissors and paste
In his doings I share,

Chairs change, and the men who are in them, but I shall be constantly there."

Digesting, as I do, a quantity of matter which fails to appeal to you in its original form, but only as a source of revenue by negotiation with the waste-paper merchant (whose excess profits I envy) I feel it my duty to get back at you, and to inflict upon you a modicum of that with which you daily burden me.

Now, for a start, I have a little proposal to make to you in the matter of advertisements. Why not employ a futurist or cubist or one of the Camden Town School to do your pictures for you?

Get the sort of man who gets a job as one of the British artists at the front. A man who visualises a cattle track as a series of right-angled triangles, and a tree as an amputated centipede.

If you were to take this trifling precaution I feel sure that D.O.R.A. would fail to realise that your pictures of factories were imaginative visions of what factories would like to be if they had time.

She would mistake them for geometrical patterns or designs for tessellated pavements. But may be I am prodding you in a soft spot, so let me slip along to something different.

[Not at all, old thing! I have nothing to do with advertisements, so it doesn't worry *me* in the least. It is only the shareholders who worry.—Ed.]

All the same, I am provoked to suggest another simile for the futurist sheep path; namely, the diagram of the flight of a jack snipe.

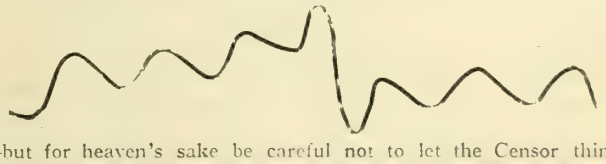
Now, I wonder if any of the scientific people can tell me whether a snipe really turns sharp corners—or only swings through abrupt curves—and if he does something approaching the former, how he does it.

The manœuvre is very disturbing to anyone who is trying to shoot him, and it strikes me that a similar performance might be of great service to a pilot under fire.

At present the odds are very much in favour of the aeroplane as against the "Archie" species, but the time may come when the conditions of partridge shooting may be duplicated—with all the sizes and distances magnified about a hundred times.

In that case, the game will have a poor chance if the guns are any good, and it will be worth while for the partridge to complicate matters a bit by turning himself, at will, into a jack snipe.

By the way, the jack has another quaint, but less common, trick, which consists of folding himself up and dropping like a stone just as you pull the trigger. His course appears to be something like this:



—but for heaven's sake be careful not to let the Censor think for an instant that this is a side elevation of the Blank Aircraft Factory at Dash, or we shall *all* be in the soup!

[Dear Mr. Censor, this is not an elevation of an aircraft factory.—Yours, Ed.]

All of which brings me to the question that I want to put to those of your readers who know exactly what can be done by a bird and what can be done by an aeroplane.

Have we yet reached the point at which, in the matter of sharp and swift changes of direction, the aeroplane can do all that any bird can do, as well as various things that are not included in any bird's gymnastic education?

Or have we still anything to learn from the earliest exponents of the Art of Flying?

Yours, W. P. B.

CRITICISM OF THE ARMY.

The following letter has been received :—

In the debate on the Address in the House of Commons, speeches were made by various Members, who during the war have distinguished themselves on active service, and whose opinions, therefore—contrary to those of most politicians—may be said to carry some weight. Some of these gentlemen, carried away by their convictions that an undivided and independent Air Force is essential to the welfare of the country, so far forgot themselves as to indulge in malicious attacks on the Regular Army in the manner so well known to readers of the cheaper and nastier papers.

At present space is not available to deal with the specious and futile arguments put forward as "proof" that a separate Air Force is necessary, or to refute the popular fallacy that aircraft will in time render the use of armies unnecessary. It is hoped that both these points will be fully discussed in a book which is now being prepared for publication. In the meantime it seems only fair to the Army that a few of the more glaring misrepresentations should be placed in their true light.

I will quote a few passages from the speeches made on February 12th :—(1) "I know the sort of thing the Army people want. They want spectacular points, such as 'How many Huns have been destroyed to-day' . . . . . the Army point of view is what is in the newspaper," etc.

Surely this distinguished officer does not suppose that any seriously-minded Regular Army officer who takes an interest in his profession cares in the least about what is in the newspaper! Or does he think that none of them ever give any time or study to the art of war—or to anything but sport and society? Let us give him the credit of more common sense than that; so it may be assumed that he realises that there is a very large number of Army officers who have given their life-long study to the many branches and aspects of war on land. Needless to say, among other things, they have long considered and discussed the work of aircraft in connection with war on land. Then does he seriously imagine that they too have not grasped the fact that the number of aircraft destroyed is not "the fundamental fact of air warfare"? Surely if civilians can grasp this perfectly true fact about air war, while acting temporarily as amateur soldiers, he does not suppose that men whose life-work is the study of war are so dense that they cannot see it too. Incidentally, he—in common with many others—has missed the important point; that if it were really true that the Army have not got the "air sense" which he complains that they lack, then there would be all the more reason for the establishment of closer connection between them and the flying personnel, who are meant to work with them. In fact, the very arguments he uses in favour of keeping the Services separate would, if founded on fact, be a conclusive proof that they ought to be more closely knit together. For how can officers of one Service be expected to keep in close touch and sympathy with another when politicians are driving them ever farther apart?

A considerable number of Regular Army officers have served as flying officers during the war with this very object in view—to gain a clear and comprehensive idea of military aeronautics, in order to improve their own efficiency and maintain liaison with the new military force.

Now, however, this laudable intention is to be frustrated in the future, as Army officers have no longer the same facilities for educating themselves on this important subject.

(2) My second quotation is from the speech of another distinguished officer, and is as follows :—"It is well known that every gunner thinks he knows exactly where his shot goes." I need quote no more of such stupendous rubbish. Does not the author of such a remark know that the whole science of gunnery hangs on the fact that no one can tell where any given round will fall, even with the most accurate gun? Has he never heard of "the error of the gun," "the error of the day," or the "fifty per cent. zone"? Apparently not—though really it is hard to believe that such ignorance could be displayed by a senior officer of a Service which is supposed to work in the very closest touch with the artillery.

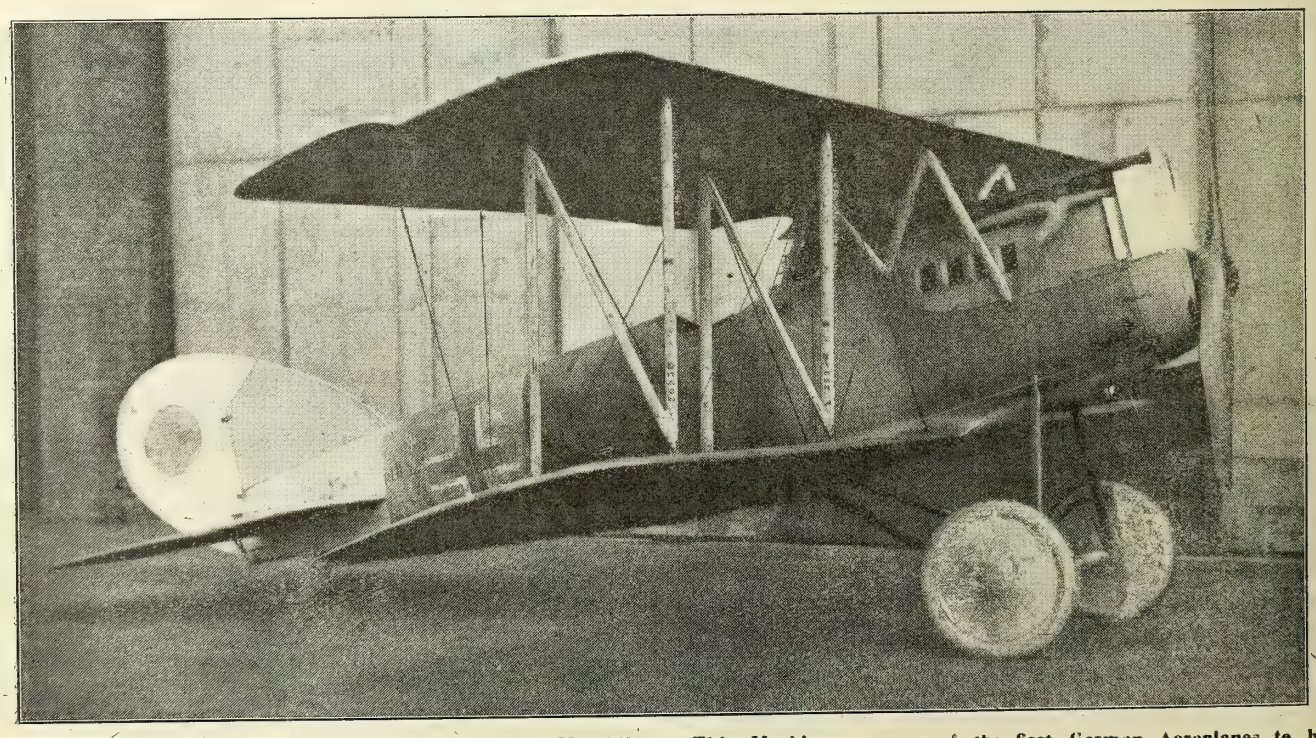
There are many other remarks in the speeches to which exception could justly be taken if space would permit. But enough has been said to point out that such unfounded attacks on the Army are not only rather bad taste (when originated by officers of another Service), but are also stupid, and display ignorance and wrong-headedness.—A Regular Army Officer (Attached Royal Air Force).

St. Dunstan's Day.

It is the wish of St. Dunstan's Hostel to place on a satisfactory basis a fund which will enable them permanently to supervise the work of those men of H.M. Forces who were blinded in the war, and who have been discharged from the Hostel.

The After-Care Department will see that these men are visited regularly by competent people, who will see that the work of the blinded men does not deteriorate, as it is apt to do without supervision. The men will be provided with raw material of the best quality at cost prices. This will eliminate the difficulty which is imposed upon blind workers if they are obliged to purchase their own raw material in small quantities.

In order that this work may be carried out, a Tea Concert will be held at the Central Hall, Westminster, on Easter Monday, April 21st. Mrs. E. Davidson is organising the concert, at which many well-known artists will appear. Tickets—price 12s., 10s. 6d., and 8s. 6d., including tax and tea—can be obtained from Mrs. E. Davidson, 17, Park Avenue, Willesden Green, London, N.W.2.



Three-quarter Front View of a Pfalz Scout (160 h.p. Mercédès). This Machine was one of the first German Aeroplanes to be surrenderd to the Allies under the Armistice Terms, and was flown to England by a Pilot of the R.A.F.



NAVAL & MILITARY AERONAUTICS



GEOFFREY WATSON

FROM THE "LONDON GAZETTE."

AIR MINISTRY, MARCH 11TH.

R.A.F.—The following temp. appt. is made at the Air Ministry :—Director of Air Personal Services.—Col. (actg. Brig.-Gen.) F. L. Festing, C.M.G., and to retain his actg. rank whilst so empld., from Nov. 25th, 1918, to Jan. 13th.

FLYING BRANCH.—Maj. E. Dalziel to be Maj. (K.B.), from (T.), May 6th.

Capt. R. Grey to be Maj., April 1st, 1918, but not to carry pay and allowances prior to Jan. 14th.

Capt. S. T. L. Greer, A.F.C., to be actg. Maj. whilst empld. as Maj. (A.), Sept. 1st, 1918.

Capts. to be actg. Majs. whilst empld. as Majs. (A. and S.) :— C. J. C. Clayton, D.F.C., Oct. 1st, 1918; A. T. Barker, D.F.C., Nov. 1st, 1918.

Capt. J. L. Gordon, D.F.C., to be actg. Maj. whilst empld. as Maj. (S.), Oct. 1st, 1918.

Lt. H. W. Chattaway to be actg. Capt. whilst empld. as Capt. (A.), Dec. 1st, 1918.

Lt. A. S. Hartley to be Lt. (A.), from (O.), Oct. 29th, 1918.

Sec. Lt. L. G. Smith (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (A.), Aug. 5th, 1918 (since killed).

Sec. Lt. F. I. Livingstone (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., Obsr. Officer, Sept. 30th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. S. L. Dowswell (Lt., Manitoba R.), Jan. 11th; Sec. Lt. G. F. Watson (Sec. Lt., City Lond. R., T.F.), Feb. 8th; Lt. (actg. Capt.) T. C. Creaghan (Lt., W. Ont. R.), Feb. 10th; Sec. Lt. (Hon. Lt.) R. J. Mesney (Lt., R. War. R., Spec. Res.), Feb. 21st; Sec. Lt. J. McIntyre (Sec. Lt., E. Yorks R.), Feb. 22nd.

The following are transferred to the unempld. list :—Lt. H. D. Arkell, Jan. 14th; Lt. R. A. Carter, Sec. Lt. G. D. Scott, Jan. 15th; Sec. Lt. B. E. Sadler, Jan. 16th; Lt. H. E. F. Russell, Jan. 17th; Sec. Lt. A. W. Elliott, Jan. 18th; Lt. W. Franklin, Jan. 20th; Lt. A. N. Barlow, Lt. J. C. Grant, Sec. Lt. G. M. Hughey, Jan. 24th; Lt. H. S. Davison (Suff. R., T.F.), Lt. W. Dix, Lt. D. O. Thomas, Lt. W. H. Thomas, Jan. 25th; Lt. A. J. J. O'Farrell (E. Lancs. R., T.F.), Lt. A. G. Raven, Lt. H. W. Riding, Lt. (actg. Capt.) W. Selwyn, Jan. 28th; Sec. Lt. H. R. Sturgiess, Sec. Lt. G. R. Stark, Jan. 29th; Capt. S. Turner, Jan. 30th; Sec. Lt. J. Davidson, Jan. 31st; Sec. Lt. S. A. Bird, Sec. Lt. F. F. McKilligan, Feb. 1st; Lt. H. S. Baldwin (Worc. R., T.F.); Lt. J. H. Inskip, Lt. B. Reading, Lt. R. A. Thomas, Feb. 2nd; Sec. Lt. J. H. Bradbury, Sec. Lt. F. D. Genlloud, Lt. J. W. Gillespie, Lt. T. E. A. Griffith, Feb. 4th; Lt. H. Arkell, Lt. E. S. Grinsted, Sec. Lt. T. Robson, Lt. J. K. Tullis, Feb. 5th; Lt. J. N. Hawthorne, Feb. 6th; Sec. Lt. R. H. Baker, Feb. 7th; Lt. W. Casson, Feb. 8th; Sec. Lt. J. W. R. McPhail, Feb. 10th, Lt. G. M. Clark, Lt. S. K. Isaac, Capt. J. H. Keens, Sec. Lt. T. T. Warriner, Lt. H. S. Whitby, Feb. 11th; Lt. W. Green (E. Yorks R.), Sec. Lt. (Hon. Lt.) B. Lockey, (Lt., K. L'pool R., T.F.), Sec. Lt. R. L. Rogers, Feb. 12th; Sec. Lt. F. T. Arnold; Sec. Lt. L. R. Blacking, Sec. Lt. E. Hardcastle, D.F.C., Feb. 13th; Sec. Lt. A. C. Beard (H.L.I., T.F.), Sec. Lt. W. G. Davis, Sec. Lt. L. Edwards, M. C., Lt. R. G. Hart, M.C., Feb. 14th; Sec. Lt. R. Bennett, Lt. F. C. Coops, Sec. Lt. A. W. N. Evans, Lt. M. O. Fairhurst, Lt. A. T. Hopwood, Sec. Lt. S. V. Spiller, Lt. F. R. P. Williams, Lt. E. H. Wilford; Sec. Lt. T. Warburton, Lt. J. W. Willett, Feb. 15th; Lt. A. J. Ferrier (Shrop. L.I.), Sec. Lt. (Hon. Lt.) J. G. Hadden (Lt., R. Scots Fus., T.F.), Sec. Lt. S. Hodges, Sec. Lt. J. L. Irving, Feb. 16th; Sec. Lt. H. W. Goldsack, Feb. 17th, Lt. D. C. S. Bland, Sec. Lt. H. Bulie, Lt. T. E. Chrimes, Sec. Lt. A. Cooper, Sec. Lt. A. R. Giroux, Sec. Lt. S. J. Henley, Lt. L. C. Jordan, Capt. C. R. Vaughan, Feb. 18th; Sec. Lt. H. S. Colls, Sec. Lt. K. L'E. Davey, Maj. J. O. Davis, M.C. (R.E., T.F.), Capt. J. Day, M.C., Sec. Lt. H. E. Froy, Lt. R. W. Griffiths, Sec. Lt. N. H. Haylock, Sec. Lt. O. G. Meredith, Lt. L. B. Moor, Sec. Lt. L. L. Nelson, Sec. Lt. H. Noble, Capt. G. Preen, Capt. (actg. Maj.) J. B. Solomon, Lt. F. A. Whittall, Feb. 19th; Lt. C. F. Briggs (R. W. Surr. R.), Lt. O. C. Cassels, Lt. R. F. Connack, Lt. V. F. S. Dunton, Sec. Lt. J. M. Evans, Sec. Lt. R. J. Eye, Capt. L. R. Evershed, Sec. Lt. A. F. Honeysett, Sec. Lt. D. A. Jones (R. Welsh Fus., T.F.), Lt. J. H. McCann (E. Yorks R., T.F.), Sec. Lt. P. F. Mitchell, Sec. Lt. J. D. Podmore, Sec. Lt. W. A. Westacott, Sec. Lt. E. L. Wynn, Feb. 20th; Lt. F. Berry, Lt. T. O. Davis, Lt. W. A. B. Eastwood, Sec. Lt. T. Elliott, Lt. F. N. Finch, Sec. Lt. W. Holmes, Sec. Lt. C. J. Mitchell, Sec. Lt. C. S. Muir, Feb. 21st; Lt. W. I. Caveu; Lt. H. E. R. Finch, Lt. F. D. Levey (Lt., Lond. R., T.F.), Sec. Lt. G. Lindsay, Sec. Lt. A. Stephens, Sec. Lt. E. A. Sewell, Lt. E. H. Umbers, Lt. W. O. B. Winkler (R.G.A.), Feb. 22nd; Lt. L. E. Evans, Lt. H. J. Jewell, Sec. Lt. L. F. Marshall, Sec. Lt. D. L. Murchison, Sec. Lt. M. E. Smith, Lt. (actg. Capt.) D. Sutherland, Feb. 22nd; Sec. Lt. F. S. Gregson, Feb. 24th; Sec. Lt. A. T. Barker, M.C. (K. Liverpool R., T.F.), Lt. (Hon. Capt.) L. I. Collins, Lt. E. L. Darneley, Sec. Lt. F. P. Dodsworth, Sec. Lt. L. Eastwood, Sec. Lt. (Hon. Capt.) G. E. Haworth (Capt., Ches. R., T.F.), Sec. Lt. G. E. Stevens, Lt. E. H. Ward, Feb. 25th; Sec. Lt. W. Barlow, Sec. Lt. A. E. T. Bruce, Sec. Lt. L. Crowther, Sec. Lt. G. F. Dupuy, Sec. Lt. G. A. Fraser, Feb. 26th; Lt. (actg. Capt.) F. T. Bright, Lt. A. N. David, Feb. 27th; Sec. Lt. E. W. Bragg, Sec. Lt. T. W. Hart, Feb. 28th; Lt. B. G. Beardall, Lt. (actg. Capt.) H. Cubitt, Sec. Lt. J. E. Kemp, Lt.-Col. (actg. Brig.-Gen.) C. F. Lee (Capt. W. Som. Yeo., T.F.), March 1st; Lt. G. C. B. Cotterell, March 4th; Capt. W. B. Elliott, D.F.C., March 12th.

Capt. A. J. Brown, M.C., relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 12th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—G. L. Barritt (Lincs. R., T.F.) (contracted on active service), R. Fletcher; L. Lucas (contracted on active service), March 12th.

The following Lts. relinquish their commns. on account of ill-health :—L. S. Gray (caused by wounds), Feb. 15th (substituted for notification in "Gazette," Feb. 14th); C. Geen (Lond. R.), March 12th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—H. H. Eland, J. W. Whitmarsh (contracted on active service), March 12th.

The following resign their commns. :—Sec. Lt. R. Cockburn, Feb. 1st (substituted for notification in "Gazette," Jan 31st); Lt. R. Q. Thomas, March 12th.

The surname of Sec. Lt. B. P. Jenkins is as now described, and not as stated in "Gazette," July 19th, 1918.

The initials and surname of Sec. Lt. J. O. Taylor are as now described, and not J. Ostram-Taylor as stated in "Gazette," July 5th, 1918.

The number of F./Cadet J. Stephens is 2364, and not 178060 as stated in "Gazette," Nov. 22nd, 1918.

The surname of Lt. (actg. Capt.) R. D. Caley is as now described, and not as stated in "Gazette," July 23rd, 1918.

The notification in "Gazette," Jan. 28th, concerning Lt. A. W. Sharp, is cancelled.

ADMINISTRATIVE BRANCH.—Capt. C. H. C. Woollven to be Capt., from (A.), Jan. 20th.

A. Mackenzie (temp. Lt., High. L.I.) is granted a temp. commn. as Lt., with seniority from April 1st, 1918, and to be actg. Capt. while empld. as Capt., Nov. 9th, 1918.

Lt. J. E. Arnot to be actg. Capt. while empld. as Capt., Jan. 8th.

Capt. F. A. Coward to be Lt. (Hon. Capt.), from (A.), Nov. 29th, 1918.

Lts. (A.) to be Lts. :—B. N. Wills, Nov. 6th, 1918; E. P. Pycroft, Nov. 14th, 1918; J. Adam, Dec. 10th, 1918; E. P. Watso, Dec 15th, 1918; N. H. Kemp, Dec. 16th, 1918; C. D. Bremner, Dec. 19th, 1918; A. S. Harris, Jan. 2nd; N. C. Bennison, H. T. Kemp, Feb. 3rd.

Lt. D. W. MacIntosh to be Lt., from (O.), Nov. 19th 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. :—W. R. Casting, July 1st, 1918; (Hon. Lt.) A. Nash, Sept. 21st, 1918; W. J. Scarff, Dec. 1st, 1918.

Sec. Lt. C. H. Strong (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., June 24th, 1918.

Sec. Lts. to be Sec. Lts., from (A.) :—E. Anderson, Nov. 15th, 1918; J. F. Kinlock, Jan. 2nd; R. S. Walter, Jan. 6th; C. W. Sutcliffe, Jan. 14th; A. N. Jones, Jan. 22nd; R. C. Rogers, J. R. Sleight, Jan. 29th.

Sec. Lt. F. W. McClive to be Sec. Lt., from (A. and S.), Jan. 14th.

Sec. Lts. to be Sec. Lts., from (O.) :—D. O. Davies, Aug. 28th, 1918; J. F. J. Peters, Jan. 16th; W. E. de Turberville, Jan. 17th; T. J. Calnan, Jan. 22nd; R. R. Parker, Feb. 1st; F. C. Peacock, M.C., Feb. 17th.

Sec. Lts. to be Sec. Lts., from (O.) :—(Substituted for notification in "Gazette," March 4th) :—C. M. McGorrery (and to be Hon. Lt.), W. J. Bradshaw, Dec. 18th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. (Hon. Capt.) H. Wright, Dec. 12th, 1918; Lt. W. J. T. Wright (Lt., Can. Ry. Ser.), Jan 13th.

The following are transferred to unempld. list :—Sec. Lt. C. Rolfe, Jan. 24th; Sec. Lt. W. A. Scott, Jan. 25th; Lt. F. W. Irving, Jan. 26th; Sec. Lt. W. G. Galloway, Sec. Lt. D. T. Stewart, Jan 28th; Lt. R. J. Thomas, Feb. 4th; Sec. Lt. (Hon. Lt.) S. G. Lewis, Sec. Lt. J. D. Smithie, Feb. 6th; Lt. W. Brackenberg, Sec. Lt. H. R. Hardcastle, Feb. 8th; Lt. A. J. M. Fairbairn, Capt. C. F. Garrard, Feb. 11th; Lt. (actg. Capt.) T. E. Mills, Feb. 13th; Sec. Lt. G. H. Beattie, Feb. 15th; Lt. E. L. Davies, Feb. 16th; Capt. P. B. Anderton, Lt. A. A. Frew, Lt. R. H. M. Park, M.C., Feb. 18th; Lt. F. J. Martin, Feb. 19th; Lt. M. J. Dalton, Sec. Lt. C. McPherson, Sec. Lt. G. E. A. Royle, Feb. 20th.

Lt. (hon. Capt.) (actg. Maj.) R. E. C. Bruce-Knight, Feb. 23rd; Sec. Lt. A. L. Horrell, Feb. 24th; Lt. (actg. Capt.) G. W. Beor, Sec. Lt. S. S. Tremayne, Feb. 26th; Lt. V. H. Hughes, Feb. 28th, Capt. G. G. Braithwaite, March 1st.

Sec. Lt. I. C. Bannister (24209) relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 12th.

The notification in "Gazette," Jan. 21st, concerning Lt. W. G. Stevenson, D.F.C., is cancelled.

The notification in "Gazette," Feb. 18th, concerning Sec. Lt. S. R. S. Burnett is cancelled.

TECHNICAL BRANCH.—Sec. Lt. W. G. Kentfield to be actg. Capt. while empld. as Capt. (Grade A), July 1st, 1918.

Sec. Lts. to be actg. Capts. while empld. as Capts. :—J. R. Coulthard, Jan. 1st (substituted for notification in "Gazette," Jan. 24th); W. A. Fowler, March 1st.

Lt. F. D. C. Gaiger to be Lt. (Grade A), from (O.), Aug. 13th, 1918.

Sec. Lt. H. J. Adkins to be actg. Lt. while empld. as Lt. (Grade A), June 1st, 1918.

Sec. Lts. to be Sec. Lts. (Grade A), from (Ad.) :—A. Milne, Nov. 10th, 1918; E. W. Barton, Nov. 24th, 1918; A. G. S. Lyford, Dec. 18th, 1918; A. J. Penaluna, Dec. 24th, 1918.

Sec. Lt. G. G. C. Piggott to be Sec. Lt. (Grade B), from (Ad.), Sept. 16th, 1918.

The following are transferred to unempld. list :—Sec. Lt. (Hon. Lt.) J. Butcher, Lt. J. H. Thomas, Jan. 14th; Maj. J. W. Collinson, Jan. 15th; Lt. (actg. Capt.) H. C. Gaze, Jan. 16th; Lt. L. M. Hughes, Jan. 25th; Capt. W. Douglas, Lt. A. Firth, Sec. Lt. (actg. Lt.) A. B. Taylor, Jan. 27th; Lt. R. Elcock, Sec. Lt. W. Teer, Jan. 28th; Capt. V. F. Bartlett, Feb. 1st; Sec. Lt. H. Hayter, Lt. W. J. Harcourt-Hunter, Feb. 4th; Lt. W. G. Dixon, Feb. 6th; Lt. L. R. W. Loyd, Feb. 8th; Capt. R. G. B. Lt. E. T. Driver, Feb. 14th; Sec. Lt. F. M. Burr, Maj. A. T. Evans, Feb. Bird, Feb. 10th; Capt. G. E. W. Broade, Sec. Lt. F. S. Burt, Feb. 13th; 15th; Sec. Lt. (Hon. Lt.) A. T. Brogden, Lt. H. M. Franklin, Feb. 16th; Sec. Lt. A. J. Bird, Feb. 17th; Capt. F. Crompton, Feb. 18th; Sec. Lt. (actg. Lt.) S. H. Hewett, Lt. A. W. Isherwood, Lt. F. A. de V. Robertson, Feb. 19th; Sec. Lt. (actg. Lt.) W. J. Ley, Lt. J. A. Pritchard, Feb.

20th; Capt. P. L. Hunting, Capt A. Williams, Feb. 21st; Sec. Lt. W. J. Hollis, Feb. 22nd; Sec. Lt. T. H. Baxter, Sec. Lt. (Hon. Lt.) D. C. N. Cook, Lt. F. J. C. Exton, Sec. Lt. F. V. Ruston, Feb. 23rd; Capt. W. R. Flint, Lt. G. Kitchin, Feb. 25th; Lt. W. T. Close, Sec. Lt. H. C. A. Coggs, Feb. 26th; Capt. A. F. Hambly, Feb. 27th; Sec. Lt. H. S. Cann, March 1st; Maj. F. R. F. Davies, O.B.E., March 4th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—W. J. King, N. S. Stevenson-Moore, March 12th.

The notification in "Gazette," of Dec. 24th, 1918, concerning Sec. Lt. A. H. Mitchell, is cancelled.

Memoranda.—The date of appt. of Col. (actg Brig.-Gen.) F. L. Festing, C.M.G., as Deputy-Master-General of Personnel is Jan 14th, and not as stated in "Gazette," Dec. 6th, 1918.

The date of appointment of Lt.-Col. (actg. Brig-Gen.) R. H. More, C.M.G., as Director of Air Personal Services is Jan. 14th, and not as stated in "Gazette," Dec. 6th, 1918.

Lt. W. B. South is granted the actg. rank of Capt. (without pay and allowances of that rank), March 11th.

Lts. to be Hon. Capts. :—E. W. Crosbie, A. A. Goodman.

The following are transferred to unempld. list, from (S.O.) :—Capt. C. H. Simpson, Jan. 22nd; Capt (actg. Maj.) G. K. MacDonald, Jan. 29th; Capt. (actg. Lt.-Col.) H. G. Gold, Feb. 21st; Lt. (actg. Maj.) F. M. Iredale, M.B.E., March 1st.

The notification in "Gazette," Jan. 3rd, concerning Capt. J. H. Woolner, A.F.C., is cancelled.

War Office, March 13th.

Regular Forces.—Commands and Staff.—The under-mentioned appt. is made :—General Staff.—G.S.O., 2nd Grade.—And to be temp. Maj. whilst so empld. :—Temp. Capt. W. E. de B. Whittaker, Gen. List, from the 3rd Grade, vice Lt. P. E. B. Fooks, M.B.E., R.A., T.F., who relinquishes the temp. rank of Maj., Feb. 7th, 1919.

Air Ministry, March 14th.

R.A.F.—The following temp. appts. are made at the Air Ministry :—Deputy Director.—Maj. (actg. Lt.-Col.) E. G. Mackenzie, and to be actg. Col. whilst so empld, Feb. 10th.

Staff Officers, 1st Class.—And to be actg Lt.-Cols. whilst so empld., if not already holding that rank :—(P.) Maj. (actg. Lt.-Col.) J. M. Boyd, Feb. 1st; Capt. (actg. Maj.) W. B. Adams, Feb. 16th.

Staff Officers, 3rd Class.—(P.) Lt. R. A. Toller, and to be actg. Capt. whilst so empld., Jan. 31st; Capt. G. Aste, Feb. 13th.

The following temp. appointments are made :—Staff Officers, 1st Class.—And to be actg. Lt.-Cols. whilst so empld. (Air).—Capt. (actg. Maj.) J. Rubie, O.B.E., Maj. G. H. Thomson, Oct. 18th, 1918.

Staff Officer, 2nd Class (P.).—Capt. J. M. Mitchell, M.B.E., and to be actg. Maj. whilst so empld., Oct. 18th, 1918.

Staff Officer, 3rd Class (P.).—Lt. (Hon. Capt.) P. V. G. Van der Byl, M.C., and to be actg. Capt. whilst so empld, March 3rd.

The date of appt. of Lt. (actg. Capt.) A. Graham is July 10th, 1918, and not as stated in "Gazette," July 10th, 1918.

The date of appointment of Lt. (actg. Capt.) G. W. Rogers is Dec. 1st, 1918, and not as stated in "Gazette," Feb 7th.

Flying Branch.—Maj. (actg. Lt.-Col.) B. F. Moore to be Maj. (A.), from (T.), and relinquishes the actg. rank of Lt.-Col., March 4th.

The following Majs. (actg. Lt.-Cols.) to be Majs (K.B.), and relinquish the actg. rank of Lt.-Col. on ceasing to be empld. as Lt.-Cols. :—J. R. Bedwell, M.C., C. H. Stringer, March 10th; Lt J. V. Kynaston to be Lt. (A.), from (T.), Jan. 14th.

Prob. Flt. Offr. W. A. Scott (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (A.), Sept. 27th, 1918.

The following are granted temp. commns. as Sec. Lts. (Observer Officers) :—A. G. Horlock (Lt., E. Kent R., T.F.), and to be Hon. Lt., April 1st, 1918; S. T. Goodman, M.C., D.C.M. (temp. Capt., R. Fus.), July 6th, 1918, and to be Hon. Capt. (substituted for notification in "Gazette," July 12th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. H. E. Jones (Lt., B. Columbia R.), Dec. 6th, 1918; Sec. Lt. (Hon. Lt.) F. B. Denison (Lt., C. Ont. R.), Feb. 10th; Lt. J. F. W. Blackall (Lt., Newfoundland R.), March 6th.

The following are transferred to unempld list :—Sec. Lt. A. V. Britnell, Sec. Lt. H. McD. Small, Jan. 15th; Lt. F. L. Clark, Jan. 22nd; Lt. A. A. Charlesworth, Jan. 25th; Sec. Lt. (Hon. Lt.) A. M. Campbell, Jan. 26th; Lt. G. H. S. Cregeen, Jan. 27th; Lt. J. Welby, Jan. 28th; Sec. Lt. S. A. Barnett, Lt. J. G. Carey, Sec. Lt P. E. Richardson, Jan. 29th; Sec. Lt. D. A. Cobbald, Sec. Lt. D. V. Crawley, Maj. S. W. Price, M.C., Jan. 31st; Lt. (actg. Capt.) H. C. Chambers, Sec. Lt. A. C. Richmond, Feb. 1st; Lt. (Hon. Capt.) R. I. P. Barker (A.S.C., T.F.), Sec. Lt. O. Hopkins, Sec. Lt. (Hon. Lt.) (actg. Lt.) M. H. Unwin, Feb. 2nd; Sec. Lt. O. V. Judkin, Feb. 5th; Sec. Lt. J. B. Bushe, Feb. 7th; Sec. Lt. C. F. W. Illingworth, Feb. 9th; Sec. Lt. C. W. Calder, Sec. Lt. A. G. Hatten, Sec. Lt. A. C. Scott, Feb. 10th; Capt. F. H. Creasy, Capt. B. R. Shaw, Feb. 11th; Lt. C. Brown, Feb. 12th; Sec. Lt. G. W. Booth, Sec. Lt. E. P. Elliot, Sec. Lt. R. E. Stevens, Feb. 13th; Lt. H. E. Austin, Lt. W. S. Cattell, Capt. W. C. Parker, Feb. 14th; Lt. W. C. G. Cribbett, Lt. J. Feather, Lt. W. Haddow, Sec. Lt. L. R. Reeves, Sec Lt. J. F. Vickerton, Lt. J. W. Willett, Feb. 15th; Lt. W. A. Amor, Sec. Lt. A. C. Davis, Lt. E. B. Humphries, M.C., M.B.E., Feb. 18th; Lt. A. C. Ball, Lt. E. B. Crickmore, Sec. Lt. H. H. Dobson, Lt. F. E. B. Elsbury, Sec. Lt. R. F. Finke, Sec. Lt. G. E. Herring, Lt. R. G. Hornby, Lt. F. N. Insoll, Sec. Lt. (Hon. Lt.) A. Rothfield, M. C., Lt. E. H. Stuart, Feb. 19th; Sec. Lt. G. H. Clark, Sec. Lt. E. J. Freestone, Sec. Lt. J. S. Hughson, Lt. F. B. Wilkins, Feb. 20th; Lt. (actg. Capt.) R. Affleck, Lt. T. E. H. Birley, Sec. Lt. G. R Butcher, Sec. Lt. F. G. Forshaw, Sec. Lt. C. W. Harry, Sec. Lt. E. W. Renny, Sec. Lt. W. Trezise, Sec. Lt. A. G. Ward, Capt. L. E. Wear, Feb. 21st; Lt. (actg. Capt.) J. R. Allen, Sec. Lt. S. L. F. St. Barbe, Lt. J. C. Barrett, Sec. Lt. S. L. Hudson, Sec. Lt. T. W. Hancox, Sec. Lt. R. F. Jarrom, Lt. G. F. Yuill, Feb. 22nd; Sec. Lt. H. L. Burley, Sec. Lt. C. H. Booth, Lt. J. I. Crofton, Lt M. J. R. Duff-Fife, Lt. A. Duncan, Sec. Lt. D. E. Gray (substituted for notification in "Gazette," Feb. 18th); Sec. Lt. J. W. McManamy, Sec Lt. R. A. Mills, Sec. Lt. J. B. Palmeter, Sec. Lt. C. W. Payne, Lt. H. C. Vizard, Feb. 23rd; Sec. Lt. J. C. Collins, Lt. A. G McL. Jennings, M.C., Feb. 24th; Sec. Lt. C. P. Bertioli, Lt. J. R. Landry, Capt. N. J. A. L. Prinsep, Lt. A. P. Wornum, Feb. 25th; Lt. R. W. Briggs, Sec. Lt. J. Haddow, Lt. J. D. Horgan, Lt. W. F. Jelffs, Feb. 26th; Sec. Lt. S. G. Birch, Lt. M. F. St. Clair-Fowles, Lt. S. C. Stevens, Capt. T. K. Thyne, Feb. 27th; Capt. P. Brewster, D.S.C., Lt. L. F. Ebbutt, Lt. D. French, Lt. H. A Lovett, Feb. 28th; Sec. Lt. E. A. Bateman, Sec Lt. J. B. G. Bradley, Sec. Lt. B. R. Burns, Sec. Lt. R. G. A. Colley, Sec. Lt. R. F. Crossling, Sec. Lt. G. Herrett, Lt.-Col. R. P. Williams, March 1st; Lt. W. C. Dale, Sec. Lt. F. Gough, Lt. E. C. Harrison, Sec. Lt. J. E. C. Hornsby, Lt. A. C. Vallance, March 2nd; Sec. Lt. (Hon. Lt.) A. E. Ansell, Sec. Lt. E. A. Hearne, March 3rd; Capt. W. S. R. Bloomfield, Lt. M. H. Harland, March 4th; Sec. Lt. C. Hinns, March 7th; Lt. M. H. Harland, March 12th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—J. L. Walton (caused by wounds), Dec. 14th, 1918 (substituted for notification in "Gazette," Dec. 13th, 1918); A. T. Iaccaci, D.F.C., C. R. O'Hagan, F. T. S. Menendez, F. W. H Oxley (contracted on active service), H. A. Pickford, A. A. Riches, B. S Smallman (contracted on active service), March 15th.

Lt. G. Broadbent relinquishes his commn. on account of ill-health caused by wounds, March 15th.

The following Sec. Lts. relinquish their commns on account of ill-health, and are permitted to retain their rank :—H. H. Bland, S. J. Bolitho, C. H. Edwards, March 15th; Sec. Lt D McK. Sheridan resigns his commn., March 15th.

Sec. Lt. E. H. Maw is antedated in his appointment as Sec. Lt. (A.), June 30th, 1918.

Sec. Lt. P. W. Adams is antedated in his appointment as Sec. Lt. (O.), April 20th, 1918.

Sec. Lt. G. G. Travis is antedated in his appointment as Sec. Lt. (O.), June 1st, 1918.

The date Lt. R. B. Donald relinquished his commn. is March 9th, and not as stated in "Gazette," November 8th, 1918.

The name of Lt. L. A. Martin is as now described, and not as stated in "Gazette," Feb. 4th.

The surname of Lt. G. B. Anderton is as now described, and not as stated in "Gazette," Feb. 4th.

The notifications in "Gazette," Jan. 28th, concerning Sec. Lts. W. Bartley and E. E. Jones are cancelled.

Administrative Branch.—Capt. H. A. Dawson to be Capt., from (T.), March 3rd.

Lts. to be actg. Capts. whilst empld. as Capts :—R. F. Hamlyn, Sept. 28th, 1918 (substituted for notification in "Gazette," Feb. 11th; A. W. Grigsby, from (T.), Nov. 1st, 1918; H. B. Stutfield, Jan. 30th; G. V. Walsh Feb. 3rd.

Lts. (A.) to be Lts. :—C. L. W. Brading, Jan. 6th; M. G. Taylor, Jan. 25th; J. A. Kirker, Jan. 28th; S. E. Gane, Feb. 7th; B. R. Perry, Feb. 8th; J. S. Andrews, F. G. Baker, A. F. Forsyth, V. Mercer-Smyth, J. A. H. Savage, H. G. Tambling, C. E Worthington, Feb. 14th; A. A. Miles, Feb. 15th; T. E. H. Birley, C. D. G. Gray, T. L. Green, L. B. Moor, S. Roche, H. Townsend, H. E. Waters, Feb. 17th; C. F. Cunningham, D. Miller, J. Milton, D. M. Rawcliffe, Feb. 18th; V. C. Coombs, J. G. Kerr, Feb. 19th; A. L. Newell, Feb. 21st.

Lts. (K.B.) to be Lts. :—A. J. Johnston, Oct. 31st, 1918; C. H. Hartley, Feb. 20th.

Lts. (O.) to be Lts. :—J. P. Coleman, Aug. 2nd, 1918; R. T. Robbins, Jan. 28th; B. Barton, Feb. 7th; L. Marsh, Feb. 10th; F. B. Rees, Feb. 17th; O. Sherwood, Feb. 18th, H. O. Long, March 4th.

W. J. Beach (Lt., Lon. R., T.F.) is granted temp. commn. as Lt. Sept. 13th, 1918.

Sec. Lts. to be Sec. Lts., from (A.) :—R. C. Rogers, Jan. 22nd; (Hon. Lt.) E. Cropper, Jan. 31st, and to be Hon. Lt.; G. E. T. Payne, W. E. Blackett, J. S. Stringer, Feb. 14th; W. Y. Gothorp, Feb. 15th.

Sec. Lts. to be Sec. Lts. from (O.) :—J. K. Best, Jan. 1st; P. C. S. McCrea, (Hon. Lt.) G. H. P. Whitfield, and to be Hon. Lt., Feb. 14th; E. Darby, Feb. 15th.

Sec. Lt. T. Temple (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., Oct. 1st, 1918.

The following are transferred to unempld. list :—Sec. Lt. A. J. Hall, Jan. 22nd; Sec. Lt. W. G. Kingsdon, Jan. 26th; Sec. Lt. T. D. Barnes, Jan. 28th; Sec. Lt. F. Griffith, Feb. 4th; Capt. M. A. Sargent, Feb. 13th; Lt. Hon. J. E. de G. Henniker-Major, Feb. 14th; Sec. Lt A. P. Manners, Feb. 17th; Lt. (actg. Capt.) J. R. Bingham, Sec. Lt. E. J. Cotton, Feb. 20th; Sec. Lt. G. H. Gleadow, Feb. 21st; Sec. Lt. W. Cole, Feb. 23rd; Sec. Lt. D. R. Samuel, Feb. 25th; Sec. Lt. C. J. Eastaugh, Feb. 20th; Sec. Lt. C. W. Dunford, Feb. 27th; Sec. Lt. (actg. Lt.) W. J. Spooner, Feb. 28th; Sec. Lt. L. F. Rippon, March 2nd.

Capt. C. G. Huntriss relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 15th.

The following Lts. (Hon. Capts.) relinquish their commns. on account of ill-health and are permitted to retain the rank of Capt. :—G. B. Lockwood, F. C. Smith, March 15th.

Lt. (actg. Capt.) R. S. W. Dickinson (C. Gds.) relinquishes his commn on account of ill-health, March 15th.

The initials of Capt. B. H. Brodie are as now described, and not as stated in "Gazette," March 7th.

The notification in "Gazette," Jan. 28th, concerning Capt. J. W. Williams is cancelled.

Technical Branch.—Lt. E. A. Comeau to be actg. Capt. whilst empld. as Capt., Dec. 6th, 1918 (substituted for notifications in "Gazette," Jan. 31st and Feb. 14th).

Sec. Lt. (Hon. Lt.) E. M. Wood to be actg. Capt. whilst empld. as Capt., Feb. 15th (substituted for notification in "Gazette," Feb. 28th).

Sec. Lts. to be actg. Capts. whilst empld. as Capts. (Grade B) :—(Hon. Lt.) (actg. Lt.) R. C. Graham, April 1st, 1918; (Hon. Capt.) F. C. Marsh (substituted for notification in "Gazette," Oct. 29th, 1918); (Hon. Lt.) (actg. Lt.) E. G. Seth-Smith, June 1st, 1918.

Sec. Lt. W. Borland to be actg. Lt. while empld. as Lt. (Grade B) from (Ad.), and to be actg. Capt. (without pay and allces. of that rank) while specially empld., Feb. 26th.

Lt. J. P. Coleman to be Lt. (Grade A), from (Ad.), Nov 19th, 1918.

Lt. J. J. Little to be Lt. (Grade B), from (A), Oct. 18th, 1918.

Lts. to be graded for pay as Lts. while empld. as Lts. (Grade A) :—E. E. Beaumont, April 1st, 1918; C. C. Bazell, Oct. 1st, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. (Grade A) :—H. P. Strong, May 2nd, 1918; H. J. Brown, F. W. Wrench, Sept. 1st, 1918; F. S. Wainscot, Oct. 1st, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. (Grade B) :—E. I. Davies, June 1st, 1918; (Hon. Capt.) W. E. Humphreys, Sept. 17th, 1918.

Sec. Lts. to be Sec. Lts. (Grade A), from (Ad.) :—G. G. Kirby, Dec. 7th, 1918; H. W. F. Long, Jan. 1st; D. F. Bowering, Jan 2nd.

Sec. Lt. S. Pollard to be Sec. Lt. (Grade B), from (Ad.), Feb 14th.

The following are transferred to unempld. list :—Maj. E. R. Bond, Lt. T. H. D. Silvers, Jan. 17th; Maj. F. S. Creswell, O.B.E., Jan. 18th; Sec. Lt. H. Stokes, Jan. 22nd; Lt. H. H. Cox, Jan. 23rd; Sec Lt. T. Campbell, Jan. 26th; Sec. Lt A. Forsyth, Jan. 29th; Lt. T. F. Braines, Jan. 30th; Sec Lt H L. Cooper, Feb. 3rd; Sec Lt J Binns, Feb. 4th; Capt. A. E. Courage, Feb. 5th; Lt. S. E. Devonald, Capt D W. Pinkney, Lt. T. F. Pullein, Capt. J. D. Troup, Feb 6th; Lt. P. S. Woodroffe, Feb. 7th; Sec. Lt. J H. M. Stevenson, Feb. 8th, Capt. A. A. Scott, Feb. 11th; Sec. Lt. (Hon. Lt.) W A. T. Hunter, Sec. Lt. W. A. E. Lea, Lt. L. C. Row, Feb. 12th; Lt. P. W. Day, Sec. Lt. A. B. Fortt, Lt. E. F. Sutton, Feb. 13th; Lt. (actg. Capt.) P. M T. Hill, Lt. G. A. Spencer, Feb. 15th; Lt. F. Grattan, Lt. H. Tallis, Feb 17th; Sec. Lt. (Hon. Lt.) E. E. Chalmers, Sec. Lt. A .G. Ruthven, Feb. 18th; Capt. R. Davidson, Sec. Lt. E. G Davison, Sec Lt. W. H Heard, Feb. 19th; Sec. Lt. E. Hulme, Capt. L. O. Spain, Lt. H. B. Shepherd, Feb. 20th; Sec. Lt. H. C. Bolingbroke, Sec. Lt. W. C. Stribling, Feb. 21st; Sec. Lt. (Hon Capt.) C. G. Banister, Sec. Lt. T. C. Balfour, Lt. D. McK. Finlayson, Sec. Lt. W. H. Henstridge, Feb. 22nd; Sec. Lt. A. O'Sullivan, Feb. 23rd; Capt. C. M. B. Dobson, Capt. E. A. Goodwin, Sec. Lt. J. G. Probert, Feb. 24th; Sec. Lt. J. J. Dwyer, Feb. 25th; Sec. Lt. H. Freeman, Sec. Lt. J. R. C. Hamilton, Feb. 27th; Sec. Lt. C. F. P. Davies, Lt. A. D. H. Foster, Sec. Lt. F. P. Hammond, Feb. 28th; Sec. Lt. S. Aspinall, Sec. Lt. F. Bunting, Maj. G. Dennison, Maj. C. E. Fairburn, Capt. S. V. Green, Lt. U. P. Jonckheers, Sec. Lt. H. J. Keay, Sec. Lt. (Hon. Lt.) G. H. Whitaker, March 1st; Sec. Lt. F. B. Jeffries,

March 2nd; Lt. J. M. Heesem, Capt. R. N. Vyvyan, Capt. H. A. Watts, March 4th.

Maj. (actg. Lt.-Col.) C. Defries relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt.-Col., March 15th.

Maj. J. P. A. Waller relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 15th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—W. E. Feldwick, S. G. Howard, March 15th.

The date of appt. of Sec. Lt. (actg. Lt.) W. W. Hammond as actg. Capt. is Nov. 1st, 1918, and not as in "Gazette," Feb. 15th.

CHAPLAINS' BRANCH.—Rev. Capt. H. Hole is transferred to unempld. list, March 1st.

MEDICAL BRANCH.—Lt. J. Walker-Brash to be Capt., Nov. 16th, 1918.

MEMORANDA.—Maj. C. T. Hesketh relinquishes his commn. on ceasing to be empld., Oct. 21st, 1918.

Lt. (actg. Capt.) E. S. Crabtree relinquishes the actg. rank of Capt. on ceasing to be specially empld., March 15th.

Lt. G. Clark to take rank and prec. as if his appt. as Lt. bore date Feb. 5th.

The following are transferred to unempld. list, from (S.O.):—Capt. H. J. Eller, Lt.-Col. (actg. Brig.-Gen.) C. H. Whittington, C.M.G., C.B.E., March 1st.

Capt. T. B. Marson relinquishes his commn. on account of ill-health caused by wounds, March 15th.

ADMIRALTY, March 17th.

FOREIGN DECORATIONS.

The following decoration has been conferred by his Majesty the King of Roumania:—

ORDER OF MICHAEL THE BRAVE.

Third Class.

Lt. Comdr. Richard B. Davies, V.C., D.S.O., R.N.

WAR OFFICE, March 17th.

The following extracts were taken from a dispatch which has been received by the Secretary of State for War from Gen. Sir Charles Monro, G.C.B., G.C.M.G., Commander-in-Chief, India, on military operations in the Indian Empire, including Aden, and in South and East Persia, during the period April 1st, 1917, to May 31st, 1918:—

In December, 1917, a unit of the R.F.C. was added to the Aden Force and aeroplanes co-operated successfully with the troops.

In the final appreciation Gen. Monro says:—

The Royal Air Force was seriously handicapped by engine troubles and bad weather. Nevertheless, and despite the difficulty of flying over mountainous country, the traditions of that Service were upheld to the full.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, March 15th.

The following were severally introduced into the presence of his Majesty, when the King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

THE MOST DISTINGUISHED ORDER OF SAINT MICHAEL AND SAINT GEORGE.—Companions.—Col. Kennedy Brooke, R.A.F., and Lt.-Col. Ivo Edwards, R.A.F.

BAR TO THE DISTINGUISHED SERVICE ORDER.—Maj. Charles Bryant, R.A.F.

THE DISTINGUISHED SERVICE ORDER AND THE DISTINGUISHED SERVICE CROSS.—Maj. Frank Digby, R.A.F.

His Majesty then conferred decorations as follows:—

THE DISTINGUISHED SERVICE CROSS AND BAR.—Capt. Leonard Rochford, R.A.F.

THE DISTINGUISHED SERVICE CROSS.—Capt. Alfred Clemson, R.A.F.; Capt. Dennis Knowles, R.A.F.; Capt. Kenneth Saunders, R.A.F.

THE MILITARY CROSS.—Capt. Geoffrey Cock, R.A.F.; Capt. Alfred Leitch, R.A.F.; Sec. Lt. Stephen Horscroft, R.A.F.; Sec. Lt. Hubert Knight, R.A.F.

THE BOARD OF TRADE SILVER MEDAL FOR GALLANTRY IN SAVING LIFE AT SEA.—Mr. Bertram Millichamp, late R.A.F.—In May, 1917, two lieutenants, a leading mechanic, and Millichamp were flying on a seaplane at a height of 1,200 ft., when they sighted an object on the water. They immediately descended, and the object was discovered to be an upturned float with two men on it. In spite of the rough sea, they landed their plane on the water close to the float, and on a second attempt succeeded in rescuing the men—an officer and an air mechanic who had been without food or water for five and a half days. The plane was so damaged through landing in the heavy sea that it was unable to rise, and they therefore taxied for three miles with the boat leaking badly and shipping quantities of water over the bows. When the tail of the machine was filled with water they made distress signals, as a result of which assistance was obtained, and all the men, together with the seaplane, were brought to land.

ADMIRALTY APPOINTMENTS.

The following appointment has been made:—

MARCH 13th.—R.N.R.—Actg. Lt. (temp.).—R. E. Teague, to "Argus," March 5th.

THE CASUALTY LIST.

NAVAL.

Reported March 13th.

ACCIDENTALLY KILLED.—Fawcett, Maj. H., R.M.L.I.

MILITARY.

Reported March 13th.

PREVIOUSLY REPORTED PRISONER, NOW REPORTED DIED OF WOUNDS AS A PRISONER IN GERMAN HANDS.—Patch, Capt. H., S. Lan. R., attd. R.F.C.

Reported March 15th.

PREVIOUSLY REPORTED MISSING, NOW REPORTED DIED OF WOUNDS AS A PRISONER IN GERMAN HANDS.—Pollard, Sec. Lt. G. H., Arg. and Sutld. Highrs., attd. R.F.C.

AUSTRALIAN IMPERIAL FORCE.—ACCIDENTALLY KILLED.—Downe, Lt. C. L., F.C.

Reported March 18th.

OVERSEAS MILITARY FORCES OF CANADA.

KILLED.—Mackenzie, Lt. D., M.M., Can. F.A., attd. R.A.F.

AIR FORCE.

Reported March 14th.

KILLED.—Reid, Sec. Lt. W. R.
Simmons, Lt. A. D.
DIED.—Ellis, Lt. T. A.
Hammond, Lt. V. J.
Sharman, Lt. C. L.
Thompson, Lt. S.
Thurston, Capt. D. R.
REPATRIATED.—Atkinson, Lt. J. M.; Meakin, Sec. Lt. G. E. R.; Reeves, Lt. W. A.; Robinson, Capt. W. E.; Smith, Lt. S.; Tooke, Capt. B. C.

Reported March 15th.

KILLED.—Forder, Lt. E. G.
DIED.—Findlay, Sec. Lt. F.
Harker, Capt. H. K.
John, Capt. F. E.
Kavenagh, Sec. Lt. C. P.
Lawrence, Capt. P. W. B.
Thomson, Lt. J.
Toller, Lt. R. A.

Reported March 17th.

KILLED.—Hacklett, Lt. L. A.
Hancock, Lt. J. M.
DIED.—Chaney, Maj. H. E.
Martin, Lt. B.
McNeaney, Capt. J. H.
Porter, Sec. Lt. W.
Stoyle, Lt. A. P.
Todd, Sec. Lt. L. G.
Vickers, Capt. S. W., M.C., D.F.C.
Whitelaw, Sec. Lt. F. J.

PERSONAL NOTICES.

NAVAL.

ENGAGEMENT.

CLARK HALL—LOCKHART.—A marriage will take place in the summer between Lieut.-Col. R. H. Clark Hall, D.S.O., R.A.F. (Comdr., R.N.), son of the late John Clark Hall, Co. Derry, Ireland, Registrar-General of Shipping and Seamen, and Lillias, elder daughter of Colonel R. Eliott Lockhart, late R.H.A., and Mrs. R. Eliott Lockhart, The Hewke, Lockerbie.

MILITARY.

DEATH.

FREEMAN.—Major Russell H. Freeman, M.C., R.A.F., who was reported missing on July 21st, 1918, and is now presumed killed, was the fifth son of Mr. W. R. Freeman, of 103, Westbourne Terrace. He was born in 1894, and educated at St. Christopher's School, Eastbourne, Winchester, and Christ Church College, Oxford. On the outbreak of the war he obtained a commission in the Worcestershire Regt., and went to France on Jan. 1st, 1915. He was invalided home with paratyphoid in the spring of that year, and after recovering he joined the Royal Flying Corps. He went to Egypt in June, 1916, where he earned the M.C. and the Croix de Guerre, and returned to England in June, 1917. He was last seen flying in the direction of Belleau in the evening of July 21st.

ENGAGEMENTS.

BOYD—WARREN.—The engagement is announced between Lieut. G. E. Boyd, S.A.H. and R.A.F., son of Dr. Boyd, of South Africa, and grandson of the late Lord Provost Boyd, of Edinburgh, and Vera-Lilian, only child of Mr. and Mrs. George Warren, of Esher, Surrey.

JENSEN—HAUGHTON.—A marriage has been arranged, and will shortly take place in Penang, between Major H. D. Jensen, M.C., R.A.F., son of the late Mr. H. P. F. Jensen and Mrs. Jensen, of Broadwater, Worthing, and Aline Hutchinson, younger daughter of Colonel T. H. Haughton (Indian Army, retired) and Mrs. Haughton, of Chisbeach, West Worthing.

BIRTHS.

MOLESWORTH.—On March 14th, at 34, Albert Road, Regent's Park, the wife of Capt. W. E. Molesworth, M.C., R.A.F., of a daughter.

RANDELL.—On March 12th, at Lyndhurst, Tankerton, to Mary (née Thompson), wife of Lieut. William Randell, 3/10th Bn. Middlesex Regt., attd. R.A.F.—a son.

* * *

Would any members of the 52nd Squadron, R.F.C., returned prisoners, or others, who were over the enemy lines between Albert and Roye on the afternoon of March 26th, 1918, or who have any knowledge of the fate of Sec. Lieut. T. H. Buswell, R.F.C., or Lieut. C. E. Wharram, R.F.C., of R.E. 8, No. 5052, kindly write to Mrs. Allnutt, Drayton, Wallingford?

* * *

Information is wanted as to the fate of Lieut. R. E. Bion, 20th Hussars, attd. R.A.F., of No. 40 Squadron, R.A.F., who took part in an attack on April 18th, 1918, near Lacon, and who fell and was presumably taken prisoner, but from the moment of the attack all trace of him has been entirely lost. His relatives, who are in India, are anxious to hear of his fate and hope that this will catch the eye of some of his fellow officers. Communications will be gratefully received, addressed to "Secretary to Headmaster, Clayesmore School, Winchester."

Will any one of the five aviators of the 32nd Sqdn. of the R.F.C., who went over the enemy lines from the Droglandt Aerodrome with Sec. Lieut. E. Seth-Ward, R.F.C., on the early morning Aug. 10th, 1917, communicate with Melville Seth-Ward, Sutmer Court, Chalfont St. Giles, Bucks.

AIR FORCE.

Death.

RUSSELL.—Capt. Cyril E. S. Russell, R.A.F., who died on March 5th of pneumonia following influenza at Cologne, was the husband of Doris Russell, of 4, Woodlands Road, Littlehampton, and third son of Mr. and Mrs. W. W. Russell, of Court Lane, Dulwich, S.E. He was 31 years of age.

Engagement.

MANSEL LEWIS—KNIGHT.—An engagement is announced between Capt. A. Mansel Lewis, R.A.F., younger son of Mr. and Mrs. C. W. Mansel Lewis, of Stradley Castle, Llanelly, S. Wales, and Muriel, second daughter of Mr. and Mrs. Grey Knight, of The Manor Cottage, Fleet, Hants.

Marriages.

BEAUCHAMP—SMYTH.—On Feb. 20th, at Chester, Lieut. F. E. Beauchamp, R.A.F., eldest son of the Rev. P. Beauchamp, of Connaught, Sask., was married to Myrtle, daughter of J. Smyth, Esq., of Ivy Cottage, Louise Street, Chester.

BONE—THOMAS.—On March 10th, in London, Major E. H. Kavanagh Bone, R.A.F., of The Grange, Hever, Kent, was married to Margaret Louise Thomas, of 31, Buckingham Gate.

LARKIN—DOMAN.—On March 15th, at St. Saviour's, Paddington, Captain H. J. Larkin, D.F.C., R.A.F., elder son of Mr. and Mrs. H. B. G. Larkin, of Bailey's Hotel, W., and Melbourne, was married to Vera Grace Russell, younger daughter of Mr. and Mrs. W. A. Doman, 70, Portsdown Road, Maida Vale, W., by the Rev. T. Vezey-Mason.

MACLAREN—PARKES.—On March 11th, at St. James's Church, Emsworth, Lieut. Duncan Maclaren, R.A.F., only son of the late Mr. D. L. S. Maclaren and Mrs. Maclaren, of Brockenhurst, was married to Ruth Esme Parkes, third daughter of the late Mr. Alec Parkes and Mrs. Parkes, of Enderlie, Emsworth, by the Rev. H. C. Sprigg, M.A. (Rector), and the Rev. C. A. Mourilyan, M.A. (Brother-in-law of the bride).

TROUP—HOLT.—On March 11th, at St. Mary's Church, Bryanston Square, Lieut. Howard Branston Troup, R.A.F., M.S., son of Mr. and Mrs. Troup, of Kensington, was married to Ena Grace, second daughter of the late Wm. Holt and of Mrs. Holt, of Portman Square, by the Rev. L. J. Percival.

Births.

COOK.—On March 13th, at The Hyde, Ingatestone, Essex, the wife of Capt. Charles R. Cook, R.A.F., of a daughter.

DINGLEY.—On March 7th, at Hockwold, Norfolk, to Norah (née Brash-Wheeler), wife of Capt. W. L. Dingley, R.A.F.—a son (Claude John Brash).

MARSHALL.—On March 12th, at Breakcliffe, Bramley, Leeds, to Capt. D. V. D. Marshall, R.A.F., and Mrs. Marshall—a daughter.

* * *

Lieut. P. H. Goodhugh, R.A.F., was taken prisoner on Aug. 30th, 1918. Any news gratefully received by Miss Goodhugh, care of Bank of Montreal, Waterloo Place.

Athletics in the R.A.F.

On March 12th, Mr. George Robey's XI beat the R.A.F. at Stamford Bridge by 4 goals to 2. The match was played for the Chevrons Club and a fund for R.A.F. sports abroad. Captain the Prince Albert, K.G., R.A.F., Major the Prince Arthur of Connaught, K.G., and Major-General Sir Godfrey Paine were present. Major Louis Greig, R.A.F., was in attendance upon the Prince. About 5,000 people were present.

The scratch side had the best of the early play, and after Shee had headed through a centre by Hendren, Cock, of Brentford, and Mr. Robey scored—when the ball was passed back to the goalkeeper. The Air Force then put on two goals, Smith, of Queen's Park Rangers, getting them both, but the scratch side kept the lead, and Cock, with another goal, assured them of victory.

The R.A.F. and the London Command played a drawn game on March 13th at Stamford Bridge. An outstanding feature of the match was the soundness of the defence on each side. The score at the interval was 1—1.

The R.A.F. Team consisted of—Cpl. Kempton (The Arsenal), goal; A/M Bettridge (Chelsea) and A/A M. J. Harrow (Chelsea), backs; A/M J. Walters (Aston Villa), A/M Barton (Tottenham Hotspur), and Lieut. Yorke (Aston Villa), half-backs, A/M H. Ford (Chelsea), Cpl. C. Freeman (Chelsea), A/M W. Smith (Queen's Park Rangers), Cpl. Ives (Clapton Orient), and A/M. Fox (Queen's Park Rangers), forwards.

The Royal Air Force Rugby Football Team was beaten by the Mother Country by three goals (one dropped) and five tries (29 points) to a penalty goal and a try (six points), at Twickenham, on March 15th, in the Inter-Services and Dominions Championship.

The ground was in excellent condition, the rain held off during the match, and the game seemed enjoyable to play and was certainly enjoyable to watch. Moreover, much of the football of the winners appeared to be very good.

The Air Force had no superiority in any department of the game, and were definitely weaker in resource and combination. Before coming to a final conclusion about the winners, one would like to see what they would do with an old-fashioned Scotch pack which could wheel the scrum and use four feet a man in the loose. The R.A.F. side was:—

Lieut. W. Seddon, back; Captain Mitchell, Major H. T. Sloan, Captain Copeland, Lieut. G. M. Wrentmore, and Captain G. B. Crole, three-quarter backs; Lieut. H. W. Taylor and Captain J. L. Hamilton, half-backs; Captain G. Thom, Captain E. F. Turner, Captain Copeland, Captain W. W. Wakefield, and Lieuts. R. S. Simpson, L. H. Thesen, D. H. Malan, and J. P. Finlay, forwards.

On March 15th the Philistines beat the Royal Air Force (Uxbridge) at hockey by six goals to three.

For Charity's Sake.

A concert will be held in aid of the Women's Auxiliary Forces Clubs at Queen's Hall on March 25th, 8 p.m., by "Ye Merrie Muffins" concert party of the 51st Inf. Brigade, who are coming specially from France by kind permission of Brigadier-General Maxwell Dudgeon, who is organising the concert.

A Cycle-Car Meet.

The name of the Cyclecar Club is about to be changed to the Junior Car Club, and an opening season rally will be held on Saturday, March 29th, to Burford Bridge.

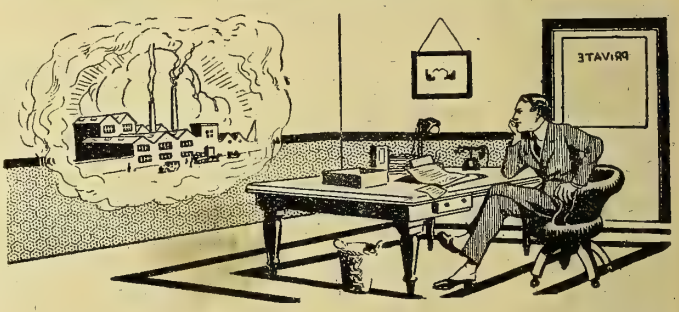
Arrangements have been made for tea to be served at the Burford Bridge Hotel at 4 p.m., to be followed by a concert.

It is to be hoped that all old members will be able to attend and prospective members will be welcomed.

Routes.—(1) Streatham, Mitcham, Sutton, Epsom and Leatherhead.

(2) Kingston, Esher, Leatherhead. Burford Bridge is a few miles beyond Leatherhead on the Dorking Road.

Particulars of membership will be posted to prospective members on application to the Secretary, Mr. A. C. Armstrong, 15, Rosebery Avenue, E.C.1, or the captain, H. P. McConnell, 199, Piccadilly, W.1.



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ON SOME AFTER-DINNER IMPRESSIONS.

By way of launching the Aircraft Industry on the troubled waters of Civil Aviation the Society of British Aircraft Constructors organised quite a remarkable function on March 20th. It hardly seems possible that any other Industry could gather unto itself at a banquet so many distinguished guests as did the Aircraft Industry on Thursday night. Its own particular Secretary of State—or perhaps one should say its own particular half of him—its own particular Under Secretary of State, its own particular Controller-General, the heads of practically all the departments of its own particular Ministry, and its own particular Members of Parliament were present, each and all on the very best of terms with the formerly despised "Trade," which was at one time at once the butt and the *bête noir* of so many distinguished officials and their literary henchmen.

When one remembers the feeble and unorganised state of the infantile Aircraft Industry before the war, and the struggles of its rickety childhood during the early days of the war, such an affair as that of last Thursday seems almost impossible. That it should have become possible is due entirely to the ability of those who have managed the affairs of the Society of British Aircraft Constructors, and to the foresight of those who founded that Society.

The Work of the S.B.A.C.

It is well to recall the historical fact that the S.B.A.C. came into being as the result of the meeting of four men, whose names should be set up in letters of brass on the portals of whatever abode the S.B.A.C. may occupy in its prosperous future. Somewhere early in 1916 there were gathered together in the office of the Aircraft Manufacturing Co., Ltd., Mr. Holt Thomas, the chief of that firm; Mr. H. White Smith, the Secretary and a Director of the British and Colonial Aeroplane Co., Ltd.; Mr. R. O. Cary, Managing Director of the Sopwith Aviation Co., Ltd.; and the late Major H. F. Wood, Manager of the Aviation Department of Vickers, Ltd. From their meeting sprang the S.B.A.C., and never has the maxim "Union is Strength" been better exemplified.

In the early days of the Nineteenth Century, when Ireland had Home Rule of a sort and the Union with England was being "wangled," the great Curran, speaking on the advantages of Union, told one of his audiences, by way of a homely illustration, that he had endeavoured to sleep that night in an hotel in Galway, which, he explained, was infested by the common *pulex irritans*. "And begad!" said he, "if the fleas had been unanimous they'ld have dragged me out of me bed!" It seems that the erstwhile irritating members of the Aircraft Industry have by their unanimity dragged officialdom out of its bed and awakened it to the vital importance to the British Empire of establishing the science and practice of aeronautics on a thoroughly sound footing.

The Basis of a Policy.

It is worth while in this connection to recall a phrase used by Mr. Joynson-Hicks during the debate on the Air Estimates on March 13th. Referring to the need for official encouragement of Civil Aviation, he said: "Years ago we had command of the sea because we had the coaling stations of the world. To-day we can have command of the air because we have the landing stages of the world."

Let that axiom sink well in, and you will see that there we have the basis of a policy which should guide all future Governments in their dealings with aeronautics. No other nation in the world has such complete control of the world's air lines.

It is true that we cannot organise "All-Red" routes to everywhere, but it is a fact that, except in the Western Hemisphere, no air line which is worth running can be run without the consent of the British Empire. Barring lines between Germany and Russia, we control every line which is worth while in Asia and Africa. And if the British Aircraft Industry does not run those lines it does not deserve to be an Industry.

Mr. Joynson-Hicks has done much valuable work for aeronautics since the earliest days, as a leader of necessary agitations. He has preferred to be a critic when he might have been an official personage. And he deserves to live in history for that phrase. He is like the pioneer who, having led the trek across the desert, has topped the divide and has pointed out the easy course ahead. One hopes that, unlike Moses on Mount Pisgah, he will live long to enter into possession of the Promised Land, and that he may see aerial omnibusses as common as those L.G.Os. whose destinies he has so successfully directed.

The Justification of Agitation.

All the old agitations, which drew so much official obloquy on the heads of those of us who agitated, are fully justified by one phrase in General Seely's speech. He recalled how he at the War Office and Mr. Churchill at the Admiralty had competed as to who could get the most money out of the Treasury. General Seely said that he himself won, but that now he thought that Mr. Churchill had "spent his money best."

There indeed is the *amende honorable*. It persuades one to forgive General Seely all his past sins, for it shows that he has at last seen the true light. One only regrets that he did not see the red light of danger when it was held up to him in those very early days before the war when he let himself be persuaded by evil counsellors to spend almost all the Army's aviation vote on the Royal Aircraft Factory and on officially designed machines of alleged standardised types, while Mr. Churchill was spending the Navy's money on buying all sorts of comic experimental aeroplanes from the

"Trade," thus wet-nursing the infant Aircraft Industry and laying up for himself treasure, if not in Heaven, at any rate as near it as the ceiling of the best contemporary aeroplane. It was those machines built for the R.N.A.S., and the knowledge gained by the firms which built them, that saved the R.F.C. during the bad times of 1915 and 1916.

The Memory of Good Service.

Gratitude has been defined as a lively sense of favours to come, but there are times when the definition is inapt. Such a time occurred on Thursday. Mr. White Smith, talking of the early days of the R.F.C.—then, like the R.A.F. to-day, a supposedly single Service, but in reality two utterly opposed factions—referred to the work of General Henderson, whose name was received with the respectful applause due to his earnest and well-intentioned efforts in organising the R.F.C. Then, in a precisely similar way, Mr. White Smith mentioned Commodore Sueter and his work for the R.N.A.S. His name drew a prolonged outburst of cheering and hand-clapping which was quite startling in so sedate an assembly.

Now, comparatively few of those present knew Commodore Sueter personally, and most of them did not know that he was present that evening. It is some two years since he was first Stellenbosched and then retired on half-pay as a reward for having by his wise policy of supporting genuine progress and enterprise saved the whole position of our Flying Services. It was he who made it possible for Mr. Churchill to spend his money better than General Seely spent his.

Two years is a very long time in these days, and the Sueter period in the R.N.A.S. is quite ancient history. Yet the cheers upon cheers which greeted the Commodore's name showed that if he is ancient history he is also a living tradition.

It is easy to say that of course a Trade gathering would cheer the man who put money into the Trade's pockets, but one noticed particularly that the heartiest applause came from Service officers who knew what the Commodore had done to save British aviation, who have learned during the last year the dire results which have fallen upon the French Service d'Aviation through meddling and muddling officials, and who know how dismally the Naval side of British aviation has been mishandled since Commodore Sueter was deprived of the command.

The memory of good work does not readily die among those who have suffered in their own persons through mistaken policies and evil councils.

Brilliant Sense.

Mr. Churchill's speech was both brilliant and sound, as is his habit. It confirmed one in the belief that even half of him will make a better Air Minister than the whole of any ordinary politician. The grim humour of his reference to our desire before the war to have a full hundred aeroplanes actually fit to fly against an enemy whose name must never be mentioned put the position in those days in as neat an epigram as has been produced. His graduated description of our active-service aviators as "fighting animals," as "fighting beings," and then as "fighting angels" caught the fancy of his audience at once. And his warning against "the trough between the waves" of aeronautical success impressed all with its sound common sense.

One knows enough of Mr. Churchill and his enthusiasm for aeronautics to believe wholly in his promise that within the limits to the funds which Parliament will vote the Air Ministry will do its utmost "to liberate and stimulate the development of civilian aviation in order to acquire for the civilian and commercial aircraft of this country that same primacy which in the field of war we have succeeded indisputably in obtaining."

A Text for the Industry.

There is a literary quality in the phrasing of all Mr. Churchill's speeches which sets them above those of his contemporaries, and it adds to the statesmanlike character of his utterances. His concluding phrase is worthy of especial notice. He said: "I express my sincere wish that the British Aircraft Industry shall consolidate itself and gather together all its strength and press forward on every reasonable and hopeful line of advance until it is quite clear that the conquest of the air in time of peace is as sure and as certain as the conquest of the Huns was bound to be in time of war."

There is a text which the Aircraft Industry would do well to have printed and nailed up over its bed to read o' nights. The future of the British Aircraft Industry is now in the hands of the British Aircraft Industry. And if it consolidates itself and gathers together all its strength it will achieve the command of the air.

But, if the various firms quarrel among themselves, or distrust one another; if the management of the various firms adopt reactionary methods towards labour; if the methods of selling and of getting business generally are to be those of the English shopkeeper of the pre-war period; then the command of the air will pass elsewhere.

The Great Opportunity.

We in this country have the greatest opportunity of ages past, if we grasp it. We can capture the world's aircraft trade if we go the right way to work. America, our most dangerous competitor, has money and enterprise, but only the vaguest idea about how aeroplanes should be designed, built, or operated. France is utterly behind us in design, thanks to official mishandling—and the lack of effective agitators—though she is at least our equal in quality of workmanship. Italy has designers and constructors, but is lacking in commercial enterprise. Germany is upset by factitious Bolshevism which has been stirred up by the Junkers' *agents provocateurs*, so as to get the unruly elements under proper control after their leaders have been salutarily shot—an excellent scheme ultimately, but one which is going to hang up progress for a year or two.

Now, therefore, is our chance to forestall our competitors. We have the landing stations of the world, we have the best aeroplanes in the world, and we have the best pilots in the world. Also, most aircraft firms have probably managed to stow away enough money out of their war profits to allow them to take pioneer risks which would be unjustifiable in any ordinary industry. Our success is dependent only on our ability to "get busy."

Getting Busy.

There are two difficulties about getting busy. One is the natural disinclination of the average Englishman to get out of his groove and do something unusual. The other is the disinclination of the average official to let anybody under his control do anything ungroovy or unusual.

The former difficulty is purely a matter for the individual firm, and is not a grave danger in the Aircraft Industry. It scarcely seems that the pioneer firms of the Industry, the heads of which were so eccentric—not to say lunatic—as to devote themselves to aeronautics ten years ago, will find much difficulty in persuading themselves to go out after business, which is necessarily of an unusual kind, in an unusual way.

Nor will the new firms which are being started as operators of aircraft by various groups of demobilised R.A.F. officers find it difficult to adopt unusual business methods, though those methods may affect the ordinary humdrum business man much as the

evolutions of "our Mr. Moorshead" affected Mr. Kipling's Admiral when he told the skipper of the T.B. to go and conduct his own manœuvres in his "own damned tinker fashion." At any rate one hopes that the Aircraft Industry will show more enterprise than did the motor trade in the days before the war.

Official Encouragement.

The disinclination of the official mind to permit anything unusual is another matter. Here the foresight and ability of General Sykes is the key to the situation, and his speech gives everyone confidence in his intentions to help progress, as well as in his perception of the difficulties ahead. The only real danger seems to lie in the interpretation of the new regulations by his subordinates.

Take, for example, the question of pleasure flying, or "joy-riding" as it is familiarly called, for therein lies the immediate future of Civil Aviation, which will keep things going until the international air lines begin to operate and until the manufacturers are able to start to look for foreign trade. If the officials of the Civil Air Service are stupid, all kinds of obstruction may occur.

Suppose a firm wishes to run a peripatetic joy-ride and exhibition business, as the late Captain Hucks or the late Mr. Hamel used to do before the war, is the Air Ministry going to insist on inspecting and licensing beforehand every landing-ground used by the firm, on the argument that it is for a "commercial purpose," and that it may be used for smuggling? One gathers that the idea of smuggling is becoming an obsession with some of the minor officials.

If a special staff has to be organised to dash about the country to inspect the weekly landing-grounds of joy-ride firms, there will be considerable unnecessary delay. At the same time one recognises that something must be done to prevent inexperienced or avaricious firms from using dangerous grounds just because they are cheap to hire.

There seems to be some regret among some officials that they cannot prevent people from landing in their own fields, and there is an impression that the term "Commercial Flying" may be stretched to cover much flying from private grounds. For example, if a man has a big house with an expanse of park land adjoining, and wishes to hire an aeroplane or two to give exhibitions and joy-rides for the entertainment of his friends, this may be called "Commercial Flying" because the machines are hired and not his own property. Therefore the landing-ground will have to be inspected and tested and licensed, and officials will have to be in attendance to stop smuggling, before it can be used for a day's entertainment.

A department which lives in dread of smuggling by Avros or Sopwith Pups in the neighbourhood of Carlisle or Hereford must be in for a fairly anxious time, or else it must be badly infected with the microbe of officiousness. Either state of mind seems to portend the infliction of vexatious rules.

Pilots and owners of aircraft will naturally be liable for any damage done by them, even by accident, so it seems a trifle absurd for a pilot or owner to have to get a special permit from the Air Ministry every time he desires to land a passenger in or take one up from a piece of ground the owner of which is agreeable to permit its use for that purpose.

One merely mentions these points as an example of what may happen if General Sykes does not keep a firm hand on his subordinates. He himself is quite capable of deciding when a landing-ground is being used for commercial purposes and when it is not, and probably all will go well when he has given a few decisions on the subject.

Of the Sub-Departments of his Department one does not propose to write at the moment. It will be time enough to do so when their precise organisation and functions are made public. But one can say that the divisions of duties seem well chosen.

The Australian £10,000.

More exciting at the time being is the announcement of the Australian Government's £10,000 prize for the first Australian pilot to fly to Australia. It is a thoroughly sporting offer, and shows how widely the Commonwealth Cabinet differs from our own. Already



A View of the Forward Gunner's Seat of a German Twin-engined Bomber.

several Australian pilots are on the move to organise an attempt on the prize, including one plucky lad who some time ago began working out a scheme to fly to Australia entirely on his own account, with the intention of making the journey pay for itself on the way.

Actually the journey is safer than the trans-Atlantic flight, though it involves more hard work and organisation, especially if it is to be done as a more or less continuous flight and not as a prolonged tour. In either case, it should be done this year.

Lord Weir's Farewell.

Lord Weir's speech was, as usual, a small masterpiece of humour and hard common sense skilfully intermingled. He touched the root of the matter when he pointed out that the Aircraft Industry proper would get along all right when the non-aircraft firms got out of it and returned to their own jobs. One deeply regretted, however, to hear from him that he and his firm are forsaking aircraft work. There is always room at the top for good men and good firms, and it is a pity that all the experience which he and his people have acquired should be thrown away.

One cannot believe, however, that Lord Weir himself will lose touch with aeronautics. He understands the possibilities of flying and knows the trade too well ever to dissociate himself entirely from either. Though in a manner he bade farewell to the Industry, we can comfort ourselves with the knowledge that his shrewd judgment, his keen wit, and his vast experience will always be available for the good of British Aeronautics when needed. Though, like Cincinnatus, he may be returning to his plough—which really means his pumps—after having "deserved well of the *Rei Publicæ*"—which does not mean the Republic, thank Heaven—he is too good a patriot to sever himself from the King's Service.

The Air M.P.

Lieut.-Col. Moore-Brabazon revealed himself as the best after-dinner speaker whom aviation has produced. His humour and his daring, of the truly Irish type, endeared him at once to his audience, and his bland suavity of manner sharpened rather than blunted the edge of his jests. Certainly in him we have the man who will draw the House of Commons to listen to a debate on the air, for despite his having what Mr. Churchill jestingly called "the cheek" to talk about fairy tales which are good enough for "another place" the House recognises an able man when it sees him and it loves a ready wit, so it will begin by listening to him because he is amusing and will end by listening because he talks sense.

Representing as he does the R.A.F. and the Royal Aero Club, *id est* the Services and the Sport, and knowing the Industry more than usually well, Colonel Brabazon bids fair to become the leading Air M.P. before very long. And he will be a more than ordinarily useful asset when rows arise over the interpretation of the new Air Laws.

A Final Impression.

There are many other matters which one would like to discuss as the result of hearing the various speakers at the S.B.A.C. dinner, but space forbids. The speeches are reported as fully as possible elsewhere in this paper, and one commends them to the attention of all who wish to get at the inside of British Aeronautics, for each speaker gave voice in his own way to the feelings of his particular section of the aeronautical community.

One is left at the finish with the feeling that, if everything in the aircraft garden is not so lovely as we could wish, it is, at any rate, a great deal lovelier than we deserve. After all, perhaps we are only suffering—like our weather—from a somewhat delayed Spring. And frequently a very bad Spring means an exceptionally beautiful Summer. So may it be.—C. G. G.

TRANS-ATLANTIC SABOTAGE.

One gathers that those who are going across the Atlantic to assist in the attempts to fly the Ocean from the Western side will be well advised to protect themselves and everybody and everything connected with the flight against sabotage.

One does not for a moment suggest that American competitors in the flight, or any reputable person connected with them, would be guilty of sabotage against British competitors or machines or material, for one knows that the better-class American is as good a sportsman as the better-class Britisher, but it appears that there is a good deal more than sport surrounding this competition.

Industrial interests are largely involved on the American side, and it is said that certain people are determined that nothing, unless it has a "Liberty" engine, shall be allowed to start for the Atlantic flight, or, at any rate, shall be allowed to start in such a condition as to have any chance of reaching this side. Also, there appears to be a good deal of heavy betting on the subject, and it is notorious—as, for example, in the case of English horse-racing—that the professional gambling fraternity will stick at nothing to win.

Certain people who have already been to Newfoundland in connection with the trans-Atlantic flight have been warned by the people locally not on any account to touch the mainland of America, either in coming to Newfoundland or in returning from Newfoundland. It is also said that certain material which was being sent to Newfoundland, in preparation for the British attempt, was mysteriously sunk in harbour.

One recollects that in the international yacht races before the war, in which heavy gambling was involved, the greatest care was necessary in order to prevent sabotage, and also that some rather peculiar tricks were played in the matter of the loading of a certain yacht.

Therefore one strongly advises all those from this country who are going to the other side to assist in the competition to see that their material is closely guarded by absolutely trustworthy people, and that they themselves take every precaution against being doped or otherwise rendered unfit for service.—C. G. G.

To Canadian Aviators.

All Canadians of all ranks in the R.A.F. who are interested in mutual co-operation for military, commercial, and social purposes on their return to Canada are invited to write to "Canfly," c/o The Aeroplane, 166, Piccadilly, W.1., giving their names and addresses.

It should be noted that this has nothing to do with any employment agency, nor is it concerned with any register of pilots. It is merely an effort on the part of a Canadian officer, who is returning to Canada, to keep Canadian aviators in touch with developments and with one another.

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THE AIRCRAFT CONSTRUCTORS' BANQUET.

Some Memorable Speeches—Mr. Churchill on "Fighting Angels"—The Future of The Industry.

The Banquet given by the Society of British Aircraft Constructors at the Savoy Hotel on Thursday, March 20th, was an unqualified success, and the greatest credit is due to all concerned in the promotion of this great and representative family meeting of those who have brought aeronautics to the present high state of development, and to whom we look for further progress in the future.

A gathering at which were present the Right Hon. Winston Churchill, M.P., Secretary of State for the Air Force and President of the Air Council, the Lord Weir, late Secretary of State for the Air Force, Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., Under Secretary of State for the Air Force and Vice-President of the Air Council, Major-General Sir F. H. Sykes, K.C.B., C.M.G., Controller-General of Civil Aviation, and the chiefs of nearly all Departments of the Air Ministry, is an event to be remembered.

A D——d Happy Family.

One wonders how many other societies of manufacturers could arrange dinners at which they could meet their particular Cabinet Ministers and such a gathering of distinguished men. General Seely quoted a remark he heard in Paris apropos the Peace Conference, when one of those present said, "We're a d——d happy family, anyway." "A d——d happy family" describes perfectly the great meeting at the Savoy Hotel.

Those who were present had reason to be happy. They had beaten the Hun out of the air in war, and they had met to discuss the possibilities of beating the world in peace.

The Chairman, Mr. H. White Smith, C.B.E., Chairman of the S.B.A.C., led off with the toast, "The Royal Air Force." After a generous tribute to all branches of the Service, he said:—

"In proposing this toast one's thoughts naturally go back to the early days of the Royal Flying Corps and the Royal Naval Air Service, and we think of the good work done by Sir David Henderson—(Applause)—and the far-sighted views he took on many of the difficult questions in those early days, and we also remember the good work done by Commodore Sueter—(Prolonged Applause)—whom we are so glad to see with us to-night. You remember the difficulties that these men had, difficulties from a stingy Treasury, difficulties of obtaining the numbers of machines that were so urgently required, and we appreciate the great work that they have done. We think of the many other officers who were associated with them, and who have given their services to build up what is now one united force. And we also remember the great work which has been done in the field, in Flanders, by General Trenchard. (Cheers.)

"You, Mr. Churchill, have become the head of this great Force at a time of transition, but we are glad to know that your view is that this Force should be a separate Service. (Hear, hear.) We believe that by doing so you can still further work up its efficiency and establish its already great traditions. We further desire to express to you, sir, our appreciation of the great work which you did when head of the Admiralty—(hear, hear)—and the great encouragement which you gave, in those early days, to the support and development of aviation. We remember how enthusiastic you were, and the value of the support you so freely gave to this work. We remember, too, sir, that afterwards you became head of the Ministry of Munitions, and you still gave the same enthusiastic support, and we feel sure that now you are the head of the Air Council you will still more keenly have the interest of the great Service at heart, and that under your direction the Royal Air Force will retain its unique position in the defence of our great Empire."

Mr. Churchill on "Fighting Beings."

Mr. Winston Churchill replied for the Royal Air Force in a brilliant speech.

—He said:—"Mr. White Smith, My Lords and Gentlemen, this is an impressive and even formidable gathering. It marks the enormous progress made by the Aircraft Industry during the war. When we look back to those early days to which our Chairman has referred, when we aimed at having 100 machines—(laughter)—with which to fight against the potential enemy, whose name we must never mention for fear of shocking the more virtuous of our fellow-countrymen, when we look back to those early days when you have rightly reminded us that Sir David Henderson and Commodore Murray Sueter were the professional heads of the two military services, it is a surprising experience to see how large our legions have grown in the process of beating Germany out of the air, as she has been beaten on the land and on the sea, and under the sea. (Cheers.) On behalf of the Royal Air Force I return my most sincere thanks for the kind words which your Chairman has spoken, and for this tribute to our young fighting men, whose brilliant feats of arms have opened a new chapter in the history of chivalry and romance.

Fighting Angels.

"On the whole, looking back on the struggle, there is no doubt whatever that we produce a higher class of fighting animals, of fighting beings, of fighting angels—(laughter)—in the air than any of the combatants whom we were compelled to encounter; we are capable of producing them in larger numbers, and of drawing them from more widely different classes of our race than any other country.

"The achievements of the Royal Air Force show that the British nation is good all through, that we produce a race of fighting beings who exhibit the highest qualities of personal prowess and daring which in the history of the world have ever been displayed among men.

Overwhelming Victory.

"The war is over. It has terminated in a victory so overwhelming that it exceeds our fondest dreams, and yet it hardly satisfies some of our more moderate expectations. (Laughter.) Do not be disheartened by the temporary difficulties through which we are passing. We have gained a tremendous result, we have made a tremendous effort, and, naturally, there must be a period of reaction, mental and physical. There must be the trough between the waves.

Difficult Years.

"But the tide is going forward; the tide of British fortune is going forward, and, so far as the air is concerned, and so far as the Royal Air Force is concerned, no doubt we have before us difficult years. We have years when the great war effort still leaves us exhausted and weak, and when the new peace development, the permanent development of the Royal Air Force, has not yet risen to its full and steady maturity. We have a difficult time to go through, and we must all help each other to the best of our ability. (Cheers.)

"On behalf of the Royal Air Force and the Air Ministry I can assure you that General Seely and I will do our utmost to help the Aircraft Constructors of this country. (Cheers.) We have obtained the services of General Sykes on the side of civil aviation, and he will devote all his energy and influence to the furtherance of this great new condition of our daily life, which is bound to come into its own and to its full fruition—be it this year, next year, or the year after. (Cheers.)

A Tribute to General Trenchard.

"Then we have in General Trenchard, Chief of the Air Staff, an officer who will do all in his power to facilitate from the military side the furtherance of the task on which General Sykes is occupying his nights and days. (Cheers.)

"But there are limits which we cannot transgress. There are limits to the amount of funds which Parliament can be rightly asked to vote and to the character of the help and assistance we can give to the Aircraft Industry. But within those limits we will do our utmost to liberate and stimulate the development of civilian aviation in order to acquire for the civilian and commercial aircraft of this country that same primacy which in the field of war we have succeeded indisputably in obtaining. (Cheers.)

The Conquest of the Air in Peace.

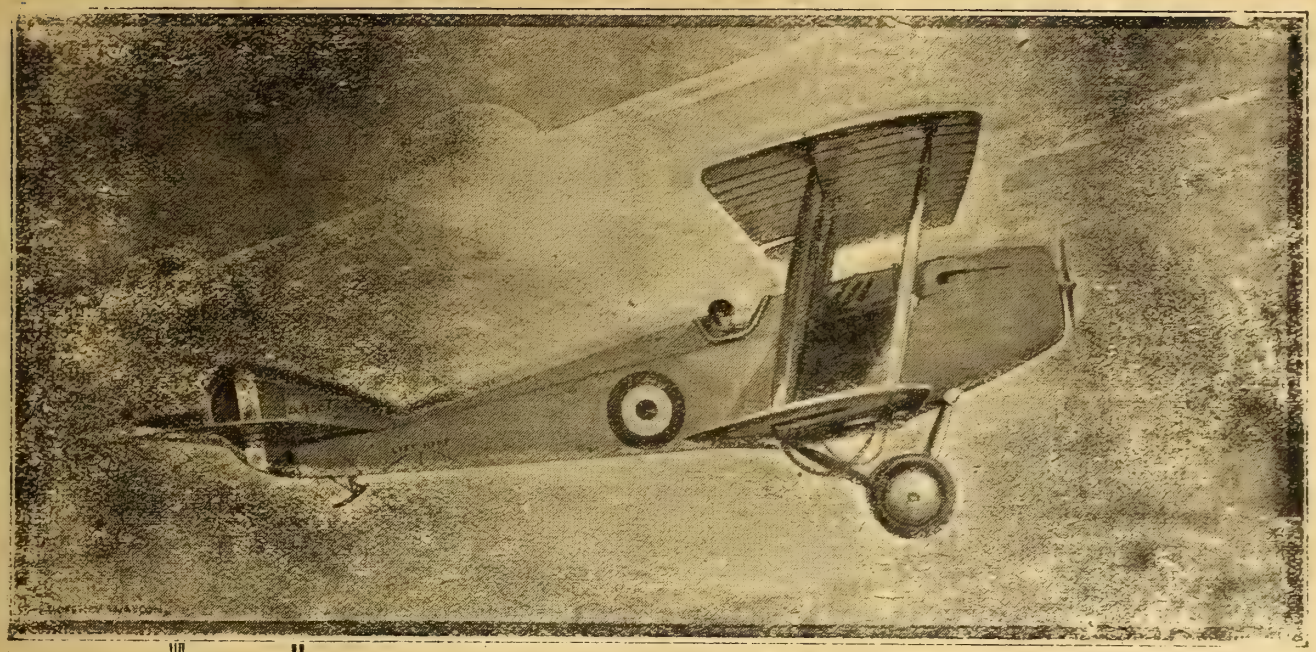
"I thank you for associating me with the toast of the Royal Air Force, and in return I will express a sincere wish that the British Aircraft Industry will consolidate itself, and will gather together all its strength to press forward on every reasonable and hopeful line of advance until it is quite clear that the conquest of the air in time of peace is as sure and as certain as the conquest of the Huns was bound to be in time of war." (Cheers.)

Mr. Churchill's speech was received with considerable enthusiasm. He was followed by Lieut.-Col. Moore-Brabazon, M.P., representing the Royal Aero Club.

"The Future of the Air."

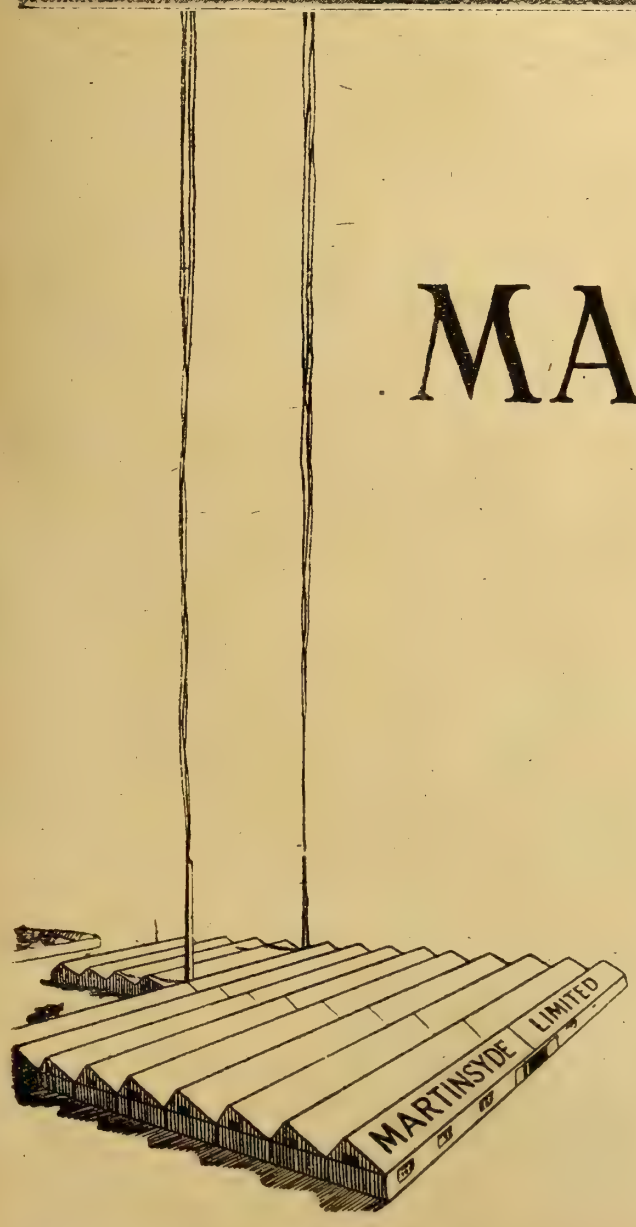
The Chairman, introducing Colonel Brabazon, said: "I should like to explain why we have asked Colonel Moore-Brabazon to take this important toast. Colonel Moore-Brabazon holds the British Aviators' Certificate No. 1. It seemed to us that we could not ask a better man that the man who started at the beginning to give us his views on the future of the air."

Lieut.-Colonel J. T. C. Moore-Brabazon, M.P., said: "Mr. Chairman, I can quite understand the Chairman's thought that to choose me to propose this important toast required a little explanation. (Laughter.) I would also add that I am speaking here as representing the Royal Aero Club, and in the absence of the Duke of Atholl and General Sir Capel Holden. As your Chairman has told you I do represent, in a way, something of an historical character in aviation, for I would remind you that I have succeeded in solving a problem which at one time was thought to be impossible, and that was to cause a pig to fly. That is the most historical thing that I can tell you. (Laughter.)





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Only the other day I saw in the paper that I flew 150 yards ten years ago. That particular occasion was very much impressed on my mind because it really occurred not through any fault of mine, but through a gust of wind, and when I reached the ground again and walked back to the hangar considerably alarmed, the taxi-driver who had brought me alarmed me more still by kissing me on both cheeks. (Great Laughter.)

"Now, gentlemen, I am speaking to-night to a body of men who know a great deal about aviation, consequently I am not to try any feats of oratory and talk about the magic carpet; that seems to have been rather overdone. It is all right for the House —another place—(laughter)—but it will not go down here.

"We have got to a position when we can, with confidence, say that we are right ahead of any other country in the world. (Cheers.) And when we say that we have to remember that that did not happen by itself. It happened because of certain men in this country and certain men in this room to-night. I want to say this, that it is about time that this country said 'Thank you' to those men. (Loud cheers.) We have had some of our soldiers decorated, and rightly so. We have received in the Air Force I think four K.C.Bs., and one Civil Servant has been decorated with us, because those men in a very able way knew how to direct the Forces that were put into their hands, but we have to remember that there were other people who supplied the goods, who put them in their hands. You cannot make bricks without straw, and we have been given to use in the Air Force the very best machines in the world, and it is now the time I think that we, the public, should recognise the genius of the men who made the machines that gave us the victory. (Cheers.)

"In talking of the future of the air one is very liable to begin to tell fairy stories. I only give you an example. The other day General Seely made a most remarkable speech in the House of Commons and spoke of a machine he knew of that was going to do something remarkable. On that day in one of our prominent papers I saw, to my amazement, a picture of what was called an aeroplane. It looked, I must say, rather like a flying public-house, and it was described as the new aeroplane that will do 200 miles an hour. If there was one thing which was absolutely certain, it was the impossibility of its going 200 miles an hour. (Laughter.)

"There is a peculiarity about Englishmen, which is that they like to be left alone, but circumstances over which we have no control have brought us under the Government control of the Air Force. I think we may, anyhow, congratulate ourselves upon the men who had first to fill the responsible places to control us. (Cheers.) First of all, we have the Right Honourable gentleman, the Secretary of State for Air. I think, perhaps, it would be to paint the lily to praise him. It is a little bit difficult to speak after him in the beginning, but if I may make a remark in regard to him, I would tell him that if by any chance he should happen to meet the Secretary of State for War—(laughter)—I would ask him to tell him, if he should by any chance meet him, that we here believe that the one Service of the future and the one really effective arm of England is the Air Service and nothing else. (Cheers.)

"And then we have General Seely, the Under Secretary of State for Air. Not only is he particularly ornamental, with his breast of many colours, but also, I would say, he is a man of singular intelligence. First of all let me say that it is very difficult to get £60,000,000 out of anybody, but he has managed to get that out of the House of Commons. And also, let me pay another tribute to his great intelligence, and that is that he has agreed to allow the Aircraft Industry to design their own machines. (Cheers.)

International Agreements.

"Now, Sir, I understand that the governing bodies of Aeronautics are going to use the great powers and the great ability of your Society in one of the sub-Commissions which are being formed for the international use of aircraft. I do hope that on one of those sub-Committees not only will you use this Society, who are our hosts to-night, but the Government will also use a similar body, namely, the Royal Aero Club, for which I speak, because, in the past, I am sure you will agree with me, that we have done useful work for aviation, as I hope they will do in the future.

"Now then, as to the future of aviation, do not let us think that the future lies in the hands of the Government to make or mar; the future of Aeronautics in this country lies in our hands, and no others. (Cheers.) It is for us to push ahead now that we have got right to the top, and never let anybody else pick us up. When I look round this room at all my old friends, and think of the genius which has put us where we are, I do not think there is much doubt about the future of the air, and, consequently, I propose this toast, 'The Future of the Air,' with the very greatest profit and with the very greatest pleasure, and I couple with that toast the names of General Seely and General Sykes." Loud cheers.)



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General Seely's Speech.

Major-General Seely apologised for being in uniform, although a civilian Minister, and explained that he had just arrived from Paris. He praised Mr. Claude Johnson, whose engine did not fail, though he rather expected to have to swim the last two miles of the Channel, as he heard an ominous tick when 3 miles out at 900 feet.

He said if the future of the air was to be for the world, and especially for this Empire, there had got to be wise discretion, good laws, and close and harmonious co-operation of all the effective elements concerned. [Mr. Churchill: "And the Treasury "] They had got to be a happy family.

With all sincerity he declared he rejoiced that Mr. Churchill was at the head of the Air Service. (Cheers.) He and Mr. Churchill worked together in the early days, trying who could get most money out of the Treasury. (Laughter.) He just won, getting the most money, but he was inclined to think that Mr. Churchill spent the money he got best. (Laughter.) [This justifies the whole existence of The Aeroplane, which has spent the whole war in telling the world that Mr. Churchill and Commodore Sueter were right in supporting the Aircraft Industry, and that General Seely and General Henderson were wrong in supporting the Royal Aircraft Factory.—Ed.]

Continuing, Colonel Seely said—addressng Mr. Churchill:—"You had the great good fortune that you found one or two geniuses. I will not name them, they are represented here, and you gave them a free hand, in the splendid way you have of giving people their chance. (Hear, hear.) You did produce for the Royal Naval Air Service, which was a branch then of the unified Royal Flying Corps, now happily the Royal Air Force, the best possible machine it was possible to produce at the time, and I do not think that any one man in the administrative sphere has done so much for flying in this or any other country as Mr. Churchill." (Cheers.) Further, he said:—"But there is another man whom I would describe as the founder of victory in the air. Just as Carnot was the organiser of victory in France 100 years ago, so Lord Weir was the organiser of victory in the air. (Cheers.) Of course, many others have been hard at work, have been doing their best, and doing it very well, but he just gripped the whole Army, brought all parties together and made a happy family, a real happy family. The spontaneous applause with which you received my mention of his name shows that you agree with me that he did wondrous work to give us the mastery of the air. (Cheers.)

"As to wise laws, I will leave General Sykes to speak. We have both just come back from Paris, and it is a fortunate thing that at the meeting where the main principles were discussed, all those main principles were accepted by the representatives of the great nations there assembled. (Cheers.) That is a great step forward. Sub-Committees are now considering the different details so as to carry out those main principles. Our Chairman to-night, Mr. White Smith, is the representative of this country, and a most able representative, on the Commercial Committee that is working out the details, and the most important details of that side of our business. But I would like to add this, that if we may say with satisfaction that the meeting, the day before yesterday, accepted all the great principles which we hoped to see accepted by them, it was to General Sykes that we owe it—he cannot speak for himself—that those main principles were laid down on wise, far-reaching lines in language which all could understand, and in language which commended itself finally to the representatives of America, of France, of Japan and of Italy. (Cheers.) I look forward next week to seeing the business completely settled, and if that happens, as I hope it may, it will be largely due to the foresight, to the energy and skill and devotion to duty of General Sykes. (Cheers.)

"On the third point, of course, we have got to have with us the workmen who make the aeroplanes. There is a great deal of thought just now about a strike. We who are concerned with aircraft cannot forget that though we may feel disturbed and even angry at the prospect of so great a dislocation, these are the same people who worked so hard, so loyally, for such long hours, who put in such marvellous work to produce such wonderful machines. The same spirit that prompted them to do all that in time of war will, no doubt, carry us through our troubles in time of peace. I proclaim myself in this matter an optimist. I am sure the British character is not such as to spoil the great victory which we have won. (Cheers.)

"Lastly, Sir, we have to make a complete happy family by bringing with us the designers and the makers of aeroplanes. Of design I would say this. We have got the mastery of the air, and we got it for several reasons. First and foremost, as you said, in that most eloquent, glowing passage of yours, Mr. Churchill, because of the gallantry and daring of our pilots, but not less because we led in design. (Cheers.) Speaking as one humble individual I take off my hat to the designers.

But, of course, there is one thing to be said, and an interesting thing to a gathering of the British Aircraft Manufacturers, an interesting thing in your presence, General Sykes, as Controller of Civil Aviation. Here we are talking of the future of the air which is a civilian future and in the whole round world to-day there is not one civilian aeroplane; there is not one aeroplane designed for civilian purposes—not one."

Major-General Sykes' Speech.

Major-General Sykes, who was also in uniform, apologised for being "improperly dressed," and explained that he was in khaki for the last time. [One noted also that he had shaved off his moustache.—Ed.]

He spoke of the four squadrons that went overseas in 1914, and said that they saved the British and French Armies. He then proceeded to look towards the future. He thought it all "Tommy rot" to be pessimistic. There was much to be done, but it would be done. Not so very long ago the seas were uncharted, and now we were faced with similar problems to those of early navigation.

The Five Sub-Departments.

Continuing, he said:—It is getting late, but perhaps you will bear with me while I say a few words as to how I think we ought to try to organise this Department; and I want everybody's help in seeing whether I am right or wrong. The way it is proposed to organise it is broadly into five branches; four or five branches.

One for communications, to do with wireless signals, visual signals, telephone, telegraph, charts, maps, survey work, and all that sort of thing.

Then, of course, there is meteorology, to which we must put a big effort. I thing it is going to mean a great deal to us.

Then there is information. I want to try and collect information from all over the world and issue it to the Industry, information which will help on the British Industry in whatever direction it wants it in regard to information.

The fourth branch I call the sort of business managership of the Department, which has to do with licensing, registration, records, aerodrome inspection, general assistance in all those directions.

Another one has to do with the work which, for instance, has been going on in Paris, the broad views of international planning, rather on the lines of the Admiralty Planning Division, into which all the information from the other branches would come, and which would collate it on broad lines and be able to give assistance to the Industry and to manage the division as a whole on broad lines of policy, indicating Empire routes and so on, international relations.

Those are the five sub-divisions into which I hope to form this Department, and I think we should be able to do a great deal of useful work. We look upon ourselves, I certainly do now, as, if I may say so, the unpaid partners of the British Industry, and I hope you will view us in that way. To every form and firm of British industry to do with aviation we are a form of—whatever it is put at, a half per cent., or whatever it is—of Government assistance to the Industry as a whole, but our whole effort shall be put into help and goodwill to try and ease and oil and grease the wheels wherever it is wanted. (Cheers.)

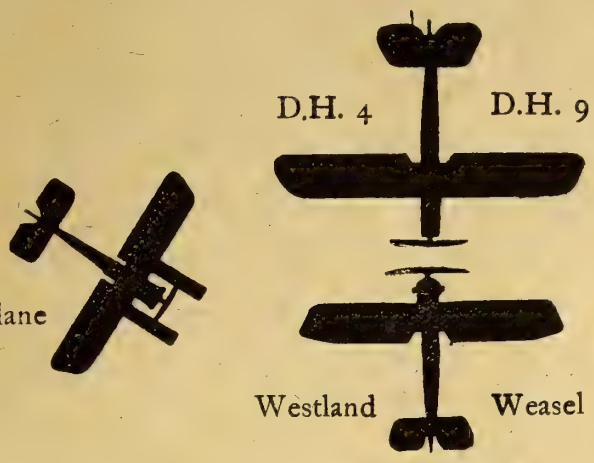
Finally he said:—I do not know that there is anything more I ought to tell you, but there is one announcement I want to make which will interest you very much, and that is that this afternoon I had a wire from Mr. Hughes in Paris to say that his Government had agreed to the offer of a £10,000 prize to an Australian-manned machine which flies to Australia. I think that is a splendid offer. (Cheers.)

If Australia takes that lead, I hope all the other Dominions will follow. Then we shall be able to have great prizes, hanging out the bait to all the ends of the world, and at all events it will help us. I hope to wire back, with the Secretary of State's concurrence, thanking Mr. Hughes very much, and saying how I feel, and how you also appreciate this, I think, very generous offer of the Australian Government. (Cheers.) Thank you very much indeed for having so kindly listened to me.

The Lord Weir's Speech.

The Lord Weir, proposing "The British Aircraft Industry," said:—I derive a certain measure of satisfaction from the reflection that, at one time, I was an aircraft constructor myself, and I welcome the opportunity of telling the constructors what really good fellows they are, because in the past I have so frequently had to conceal that friendly eulogy. (Cheers.) In the necessity of asking for more and more output, I have found that I could only compliment you in an oblique or indirect fashion. For instance, I could tell Mr. Holt Thomas what a paragon of production Mr. Handley Page was, and Mr. Handley Page what a magnificent system was adopted by Mr. Holt Thomas. (Laughter and cheers.)

He said that he doubted whether among the many great examples of progress during the war any equalled that of the Aircraft Industry. Four years had witnessed the growth of an industry of extreme complexity, of a highly technical character, the growth being represented by the original employment of not more than 1,500 people, rising to the employment of over 250,000.



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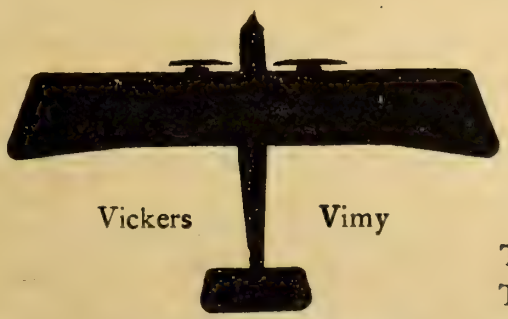
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That was the industrial side. The technical side was more extraordinary still. An original speed of 60 miles an hour had now reached 150 miles, flying weights had increased from one ton to twelve tons, engine weights had been reduced from 5 lb. per horse-power to 2 lb., and the individual power unit had risen from 80 horse-power to 700 horse-power. (Cheers.)

A Deserved Tribute.

On this point he said: This performance has been due to a large number of factors. I believe that many of these have already been mentioned to-night, but I would place first among those factors the outstanding one of grim necessity; the job had to be done. History shows that Britain always responded to that call and aircraft constructors were no exception to that rule. (Cheers.)

The second factor is the existence at the beginning of the War of a small band of pioneer firms, those who provided the nucleus upon which the whole edifice was founded, without whose foresight and courage in the early stages of the war success would have been quite impossible. To those firms a lasting and enduring tribute should be paid by the British people, and by the Air Ministry. They were firms of individuals, who, before the war, became animated with a profound faith in the future of flying. They thought of flying in its military sense, without a hopeful feature early in the war, in fact, faced with the certainty of a very large outlay and of a very problematical return, they had devoted their time, their brains, and their enterprise to the thankless task of pioneering a scientific novelty against apathy, scorn, and, in many cases, often ridicule. (Cheers.) To them the debt that we owe can only partially be repaid by the fullest degree of appreciation, by general practical arrangement, and recollection at all times and on all occasions of what they did and what they risked in fulfilling their ideals, and in providing that strong backbone of enterprise and of sound technical ability which put their industry foremost against all competitors. (Cheers.)

Another especial feature and factor has been the genius of the inventive capacity of our new designers and of the technical staff of the Aircraft Constructors. (Cheers.) To them we owe in a large measure the supremacy in the air, and to the great designers in particular we are not only indebted for high purposes achieved, but all the manufacturers and the entire industry are indebted for designs of machines for achieving this remarkable object.

The Future.

Further, he said:—When you think of the Industry as it stood on Armistice Day, when we consider the immediate future of military, civil and sporting aviation—because I believe that the sporting side will play a large part in the Industry—you fully appreciate that you have to trim your sails to meet those altered conditions.

Quite definitely it would appear to me that many of you who came into this sphere of aircraft production, many of you who made it an auxiliary to your other industry, should clear out of aviation and leave the more limited field to those who genuinely have a prior claim. (Cheers.) I hope I have shown a personal example. Those of you who are left the task will not have an easy one to reduce your organisation to the reduced scale. The military demands will be comparatively small and the civil demands appear to me to depend on confidence and the enterprise which proceeds from that confidence.

I am asked to propose prosperity to an Industry that has an immediate future full of doubt and perplexity; but, Gentlemen, with a final future of which there is no doubt, and in which there are limitless possibilities. We have seen how the necessities of war have produced this Industry. A moment's thought shows that in its scale it is out of all proportion to its demand. Accordingly, to-night I will venture to plead on your behalf for the very fullest recognition by the Government, by the Air Ministry, that you are reasonably entitled to a special degree of consideration and to the most generous help and most generous support in the development of civil flying. (Cheers.)

I have already publicly stated my views on the development of civil aviation and of the nature and of the character of the help which should be given, and from conversations which I have had with Mr. Churchill and General Seely which have been confirmed to-night, I feel rather sure you can rely on their very active support and prompt and decisive action. (Cheers.)

The Final Speeches.

The Chairman (Mr. H. White Smith) said:—I should like, first of all, to assure Lord Weir that no one is more grateful than the Constructors for the work and the assistance that the Department of Aircraft Production has been to the Industry. We know the valuable work which Lord Weir himself did as the Head of that Aircraft Production Department, and the work which has been carried on since so ably by Sir Arthur Duckham and by General Alexander—(cheers)—and also the valuable work in the technical Department which rendered us such great assistance under the able leadership of General Pitcher and General Weir. (Cheers.)

A Note of Warning.

We have now to consider how we can reorganise our Industry from a war Industry to a peace basis. General Seely to-night, in his brilliant speech, has stimulated our faith, a faith which I may say has never flagged. But I think it is well to sound a note of warning, because a great many people, in their enthusiasm for aviation, are taking it as though commercial aviation were an achieved success. It is for us, as business men, to differentiate between what we imagine and what we believe to be possible, and what has already been achieved.

For aviation to be a success it must first of all be made to pay, and it can only be made to pay when the aircraft are so reliable as to produce absolute regularity of service, and it can only be successful when running costs bear a proper relation to the revenue which is obtainable from the service. I am sure you will agree with me when I say that we have not yet proved the success of commercial aviation.

I have just returned from Paris, and in conversation with members of other nationalities one is impressed by the fact that we have the advantage at the present time of being ahead; we have the advantage of having a Department over us who are sympathisers, who are desirous of helping us, and who are going to do all they can for us.

I have this opportunity of referring to the very cordial relations which have existed between the Air Ministry and ourselves as a society. It has always been our endeavour to avoid—shall I say?—an attitude of carping criticism, and if we had anything to say to go straight to the authorities and say it? It is an attitude which, I say, we shall always endeavour to pursue, because I believe it will make for co-operation; it will make for progress in every direction.

When Lord Weir was at the Ministry in charge of Aircraft Production he always encouraged us to come to him and tell him our difficulties, and he was always ready to help us; and General Seely, since he has come to the Ministry, has always adopted a most friendly attitude, and helped and consulted us to a very large degree, and it has been a great privilege to contribute our share to the work which we all have so much at heart. (Cheers.)

I think, too, if I may say so, a very wise choice has been made in placing General Sykes in the position of the head of Civil Aviation. I am sure we shall find him just as good a friend when he dons the black coat as we have always found him in uniform, and we are sure that he will be equally inspired in his decisions, and in the hard work which he will give in his new Department, as he has always been in the past in his military duties. (Cheers.)

There is a difficult time, we feel, before the Industry, but what is so gratifying is to know and to feel that we shall have the active support and assistance of the Ministry, and that working together we shall be able to fulfil our common desire in maintaining the supremacy of British aviation throughout the whole world.

Mr. Neville Gwynne, replying for the engine section of the Industry, spoke appreciatively also of the work women had done in the Aircraft Industry, both in skilled and unskilled work.

Mr. Holt Thomas proposed thanks to the Chairman and the Secretary, Mr. C. V. Allen, both of whom returned thanks gracefully, and a memorable evening came to its end.

Dumping Engines.

To the Editor of The Aeroplane.

Sir,—In your issue of March 19th under the heading of "Dumping Engines," you refer to the statement that American manufacturers are offering for sale in this country Liberty engines of 400 h.p. for £350, and that no British engine of the same power is purchaseable for less than £2,000. I am not able to verify the facts—but the statement seems highly probable, and everyone must agree with your view that the position is lamentable.

But your proposed remedy—the total prohibition of the import of aero engines—would merely confirm the British manufacturer in that pig-headed stupidity which is his leading characteristic and would enable him to maintain the price of British-built aero engines round about the absurd price of £5 per horse power which now appears to be more or less an accepted standard.

If the British engine maker will attack the problem with a fraction of the energy and the courage which was shown by the early pioneers of Aircraft construction in this country, he can put aero-engines at least as good as the "Liberty" on the market at a profit to himself for £1 per horse-power in the very near future.

If he will do this, the future of aviation in Britain may be regarded as assured.

If, on the other hand, he is to be protected from all external competition, one may safely assume that the price of such engines will very shortly ascend to £10 per horse-power, as the British Aircraft Industry dies and the market fades away.

If even American competition fails—as it very likely will fail—to induce our self-satisfied motor-mongers to give up playing at engineering and to adopt decent manufacturing methods, surely it is better for Britain that it should have an Aircraft Industry without an engine industry than that it should be bereft of both.

(Signed) Discouraged.

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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

Captain H.R.H. Prince Albert, K.G.

Captain H.R.H. Prince Albert, K.G., R.A.F., second son of the King, has been appointed from Staff Officer to be Captain in the Administrative Branch of the Royal Air Force.

A Royal Flying Accident.

On March 18th, H.R.H. the Prince Aimone, Duke of Spoleto, the son of the Duke and Duchess of Aosta, who was on his way to see his parents, met with an accident. The seaplane, piloted by Lieut. Pierotti, in which he was a passenger, fell into the Adriatic. A steamer plying between Trieste and Capo d'Istria picked them both up and took them to Trieste, where they were taken to hospital. The Duke of Spoleto was not severely hurt, but Lieut. Pierotti died a few hours after his admission to hospital.

Major-General Seely and Speed.

On Sunday, March 16th, Major-General Seely flew from Folkestone to Paris in an Army biplane. He covered the distance of 172 miles in 74 minutes.

Gratuities to R.A.F. Officers.

The War Office, in its grant of retiring gratuities to temporary officers, enacted that the substantive rank or the appointment held on Nov. 11th, 1918, should decide the rate of the gratuity. The Air Ministry enacted that in the case of appointments the position of the officer not on Nov. 11th but on the previous June 1st should decide the rate of gratuity. This limitation caused some dissatisfaction. The "Morning Post" hears that it is to be withdrawn, and that the Air Ministry will come into line with the War Office in this matter.

Adding to the Gaiety of Aeronautics.

In the "Daily Mail" report of the flight of Mr. J. H. Thomas, M.P., to Paris the reporter stated that when Mr. Thomas arrived on the aerodrome "H.M. air-liner 'Silver Star,' a twin-engine converted Handley Page bomber, resplendent with new aluminium paint, was ready with the engines running." Mr. Thomas immediately entered the machine and "a moment later the pilot, Major McCrindle, called out 'contact'; the blocks were knocked away from the wheels, and Mr. Thomas was away on his journey."

It was thoughtful of the pilot to call out "contact" while the engines were running so nicely with the switch off. And what a voice for the parade ground Major McCrindle must have!

800 Miles Per Hour.

At a dinner given at the Ritz Hotel by Sir George Riddell to the British correspondents, Major-General Seely said that he was assured by air experts that there are no reasons why aeroplanes should not travel at 800 m.p.h. before long.

No. 60 Squadron.

It is proposed to hold a dinner on Saturday, April 5th, for all officers who served overseas in No. 60 Squadron.

Will officers desirous of being present communicate at once with Captain E. J. D. Townsend, at Room 419, Air Ministry; or R.A.F. Club, 13, Bruton Street, W.1.

An Aerodrome Raid.

About 2.30 a.m. on the morning of Thursday, March 20th, a number of masked men raided the Collinstown Aerodrome, Dublin County. There were eleven soldiers guarding the aerodrome; eight were resting in a hut, and the other three were on guard in the grounds.

The soldiers were surprised, disarmed, and bound with ropes. The raiders then left, taking with them 70 rifles and 1,800 rounds of ammunition. No aeroplanes are missing, and no arrests have as yet been made.

More Rigid Airships.

It is understood that the Government has instructed Beardmore and Co., Ltd., Glasgow, and Armstrong, Whitworth and Co., Ltd., Selby, Yorks, to proceed at once with the construction of two more rigid airships.

The dimensions of these airships will be approximately: Length 800 ft., capacity 3,000,000 cubic ft. They will be driven by six engines developing a total of 1,800 h.p.

An Unfortunate Accident.

On Tuesday, March 18th, two convalescent officers, Capt. R. J. Dunn, Lincoln Regt., and Sec. Lieut. W. J. Pegg, 10th Warwicks, were driving in a trap to Rauceby to see a meet of the Belvoir Hounds. Whilst following the hunt along the main road from Sleaford to Newark they were both killed, and the coachman injured by an aeroplane, which, it is alleged, swooped down, rose again, and proceeded on its journey. A pilot and observer at Cranwell Aerodrome have been placed under arrest in connection with this accident.

The Dutch Commission.

The Dutch Commission which is to inquire as to how Holland and the Dutch Indies might participate in aerial mail traffic will most probably arrive in England about April.

An International Aviation Exhibition.

It is understood that an International Aviation Exhibition will be held at The Hague from May to July. It will be of an entirely non-Military character, the main aim being to demonstrate the commercial possibilities of aircraft.

Dutch Commissioner's Flight.

The Air Ministry states:—

Two members of the Dutch Aviation Commission which has been visiting this country returned to Holland on March 17th in two British flying-boats, piloted by officers of the R.A.F.

These boats, each carrying a crew of four officers and men, as well as a member of the Commission, left Felixstowe at 10.45 a.m. and landed at Texel at 2 p.m., where the passengers and crew disembarked, the boats being moored for the night.

The flying-boats left Texel again yesterday afternoon and landed at Felixstowe at 4.10 p.m.

What did Major-Gen. Seely Mean?

To the Editor of THE AEROPLANE.

Sir,—I was very amused by your remarks in to-day's issue of your paper on Major-General Seely's Air lecture. He must mean that if you double the size (linear dimensions) of an airship, the h.p. required for the same speed is 4 times as much, whilst the weight lifted is 8 times as much; hence, the B H.P./weight ratio is halved. I can think of no other explanation!

M. A. S. R.

Aerial Surveying.

Some interesting information about the regions of the Wadi Saura, Tidikelt, and the Mid-Sahara was collected during a recent reconnaissance carried out by aeroplane and motor-car under the orders of General Nivelle.

The fact is firmly established that it is possible to begin an aerial and motor-car service between the southern posts of the Algerian Sahara and the coast, *via* Colom Bechar, Insalah and Tuggurt. This would create a basis of revictualment for penetration across the Sahara towards the Niger.

An Accident to a Survey Party.

According to a report from Chittagong, Brigadier-General Borton and Capt. Ross-Smith, who have been engaged in surveying the coast-line for suitable sites for the Calcutta-Rangoon aerial route, met with an unfortunate accident.

They had finished their work at Chittagong and were about to leave for Akyab when an explosion caused a fire on the boat in which they were travelling. She was immediately run aground on a sand-bank where she burnt down to the water-line.

Six men were injured and had to be removed to the hospital, but neither of the officers was hurt. All the notes and plans which had been made of the districts already surveyed were destroyed.

Athletics in the R.A.F.

On Saturday, March 22nd, the R.A.F. Rugby Football team met the United Hospitals Fifteen on the Richmond Athletic Ground. The play of both sides was, on the whole, disappointing, and it was not until the last quarter of an hour of the match that the R.A.F. team played really well. The concluding score was:—R.A.F., 13 points, and United Hospitals, nil.

Hot Air.

The following appeared in the "Morning Post" of March 20th:

"It is stated that the excessive demands of the Royal Air Force on the telephone system have largely influenced the Postmaster-General in deciding to abolish priority calls. The Air Ministry, speaking approximately, has put four times as much strain on the telephones as other Government Departments.

"The Postmaster-General has had to consider how best to deal with what was found to be a dominating factor without endangering public convenience, and the decision of the Postmaster-General is that all priority calls, except for communications between Cabinet Ministers and such as may be found necessary owing to sudden emergencies, should no longer exist. It is claimed that the action of the General Post Office is dictated by a single regard for the public generally, and it is hoped they will be helped materially."

So now the beauties of the Bolo will not be able to demand for their chiefs those prized priority privileges. The only remedy seems to be to promote heads of Departments to Cabinet rank.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE WORLD OF AERONAUTICS.—(*cont.*)

The International Aerial Commission.

It is understood that the International Aerial Commission is by way of being an established fact. A body to be known as the International Air Council has been formed to deal with all questions arising from aerial navigation. The following are said to be among the principles of the Convention :—

1. International air licences for pilots. Pilots to be divided into two classes—naval and military, and civil.

2. International rules for construction and management of aerodromes.

3. Creation of a bureau of international meteorological information.

4. Internationalisation of flying signals.

The Proposed Air-Regulations.

The sub-commissions appointed by the Inter-Allied Aerial Commission continue to examine the various questions within their respective spheres. Although no definite decisions can be said to have been reached, it appears to be probable that all aircraft will have to obey rules similar to those laid down for maritime shipping.

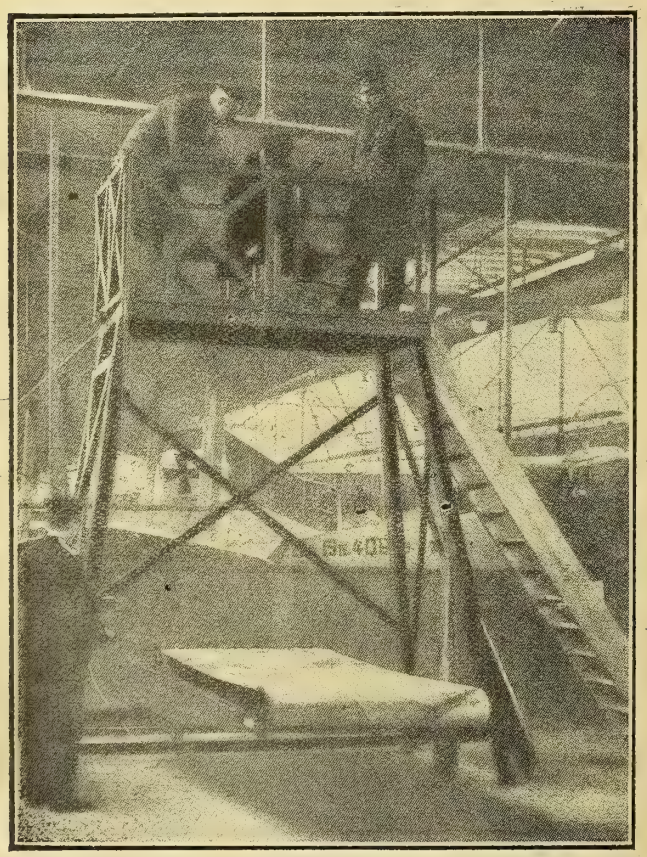
Passing to the right will be the universal rule. At night machines will be compelled to carry fore, rear, and side lights. Aerial "roads" will come into use in much the same way as did land roads, merely from custom.

Various routes have naturally been formed by flying in the past, and others will gradually follow. As soon as a certain route is seen by the authorities to be frequented, landing-stages, guiding lights at night, and visible signs for day flying will be established.

There is also under consideration the question of the qualification that will be necessary before a pilot's certificate for personal conveyance and for carrying paying passengers will be granted. The standard for a pilot's certificate has varied in the past. This is to be changed.

It is probable that flying tests in the future will be more difficult than they were for war pilots. It may be, however, that two certificates will be authorised—firstly, that of an apprentice, allowing the holder to fly within a restricted area; and, secondly, the certificate of the trained pilot.

There will also be a standard medical certificate for pilots. In the past the health qualifications necessary varied with the climatic conditions of the country in which flying was to be done; now, with universal flying, the pilot will have to pass a health test which will qualify him for flying in all countries.



Practice in the use of Bomb-sights in a German School.



A Junker Low-Flying Biplane taking aboard a Cargo of Food and Drink for transmission to the Trenches during the last phase of the War.

The Aerial Terms to Germany.

Exception might very easily be taken to the use of certain words in the report of the "Times'" political correspondent of the Air terms offered to Germany. For instance, he prefers the word dirigible to airship.

Be that as it may, one gathers that Germany will be allowed only 100 seaplanes until Oct. 1st. No aerodrome or aircraft will be allowed within 150 kms. (93 miles) of the frontiers, or east of the Rhine, and all existing aerodromes are to be demolished and the ground ploughed up. Which seems a great waste of money, time and labour.

Anyway, if this is so, one fails entirely to see sense in the next proviso, namely :—

"Free aerial passage and the right of landing are to be given by the Germans to Allied aircraft until complete evacuation of German territory by Allied troops."

In other words, after one has prevented any aircraft from landing comfortably, one is expected freely to allow Allied machines to land. It would appear that, in this matter, the Germans score. Commercial aeronautics certainly will not. But possibly it is trading with the enemy to convey goods, etc., to Germany by air.

Until the signing of the Peace Treaty, the manufacture or importation of anything connected with aeroplanes—but not apparently with aircraft—is forbidden. All military aviation material is to be handed over, and airships will be kept inflated at Germany's expense until taken over by the Allies.

The terms, if as alleged, would appear to be severe.

The Sale of an Aerodrome.

Since the publication of the note last week regarding the sale of the aerodrome at Vilna to the Bolsheviks, the following details from the "Berliner Tageblatt" have come to hand.

During the war Lieut. Porten was stationed at a flying school in Kovno. After the Revolution, when friendly relations came to exist between German soldiers and the Russians, Lieut. Porten got in touch with the Bolsheviks, and offered to sell to them the aerodrome, on condition that he was paid in German notes. The offer was accepted and the money paid, but the sale came to the notice of the German Staff at Kovno, and Lieut. Porten was arrested. He bribed his gaoler and escaped with him and the money to Königsberg, where he became a leading light of the Workmen's and Soldiers' Council. He attempted to cover up his tracks by getting the Bolsheviks to arrest the Germans at Kovno who knew of his proceedings. When Königsberg was reoccupied by the Government troops Lieut. Porten was arrested. He was found to have kept incriminating correspondence with the Bolsheviks.

A Fatal Accident.

Capt. Palli, an Italian aviator, was killed recently at Bourg St. Maurice, Savoy, while attempting to fly across the Alps during a flight to Rome via Paris. The machine was caught in a snowstorm.

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THE WORLD OF AERONAUTICS.—(*cont.*)

A Good Airship Flight.

An account has been received from the Press Bureau of the long distance flight over the North Sea which was performed by the British non-rigid airship, N.S. 11.

The voyage, which took the form of a circuit embracing the coast of Denmark, Schleswig-Holstein, Helgoland, North Germany, and Holland, was characterised by extremely unfavourable weather conditions. The total distance of the round trip was 1,285 miles relative to the air, and the time taken was 40½ hours.

Starting from an airship station on the Firth of Forth at 3.45 p.m. on Sunday, March 16th, the airship laid a straight course for Denmark, the wind at that time blowing from the north-west at 15-20 miles per hour. The Dogger Bank Noord Lighthouse was passed at 1 o'clock on Monday morning.

ACCURATE NAVIGATION.

Although the night was intensely dark owing to the moon being obscured by clouds, so accurate was the navigation that the airship was not more than a mile out of her course in the 280 miles flight to this point.

From the Noord onwards the north-westerly wind continued to increase in velocity, and calcium flares were dropped into the sea at frequent intervals, from which bearings were taken to determine the increasing allowance for drift.

Course was set for Denmark, and the Lemvig Light Vessel, 370 miles from the base, was picked up at 5 o'clock on Monday morning. Turning south, the airship cruised down the coasts of Denmark and Schleswig-Holstein towards Helgoland.

STORMS AND RAIN SQUALLS.

With sunrise the weather conditions became worse, and after passing through several small storms and rain squalls in the Helgoland Bight, Helgoland was reached at 8 o'clock.

Passing at a distance of four miles from the island a new course was set for the Frisian Islands, and at 6 o'clock in the evening the airship was off Terschelling, the wind having then attained a speed of 30 knots from the north-west.

After leaving the Dutch coast to return to England, the airship's troubles began. Hourly the wind grew stronger and rougher, and it appeared impossible for the airship to return to its base.

In addition other difficulties arose. At midnight one engine broke down and the airship was forced a considerable distance to leeward. At this stage it was uncertain whether England could be reached at all, and a landing in France was contemplated by the commander of the airship. But eventually it was decided to hold on in hope of the wind abating. Fortunately this is what occurred, and a "landfall" was made at the last point on the English coast, the North Foreland.

Another Accident.

On March 23rd a postal aeroplane from Chateauroux, which was forced to land at Libourne (Gironde) through petrol shortage, met with an accident. Both pilot and passenger were injured, the passenger being M. Gandillère, a sporting journalist. The aeroplane was flying to Bordeaux.

Dover Seaplane Base.

It has been reported in the daily news-sheets that Dover Seaplane Base is to be dismantled. The personnel gave a farewell dinner recently. It is stated that three big sheds are to be taken over by the Dockyard authorities. The aircraft of the Dover Base have been operating during the war with the Dover Patrol, whose work is too well known to need repetition.

A Flight Under Tower Bridge.

Lieut. Sidney Pickles, late R.N.A.S., descended from a height of 1,000 ft. when over the Thames on Friday, March 21st, passed through the square formed by the two towers and the upper and lower cross structures of Tower Bridge.

He was flying a Fairey seaplane, and was travelling at a speed of 120 m.p.h.

A French Flight.

On March 23rd, M. Roget made a flight from Marseilles to Paris, about 500 miles, in 3 hours and 45 minutes.

Farmers as Meteorologists.

To the Editor of THE AEROPLANE.

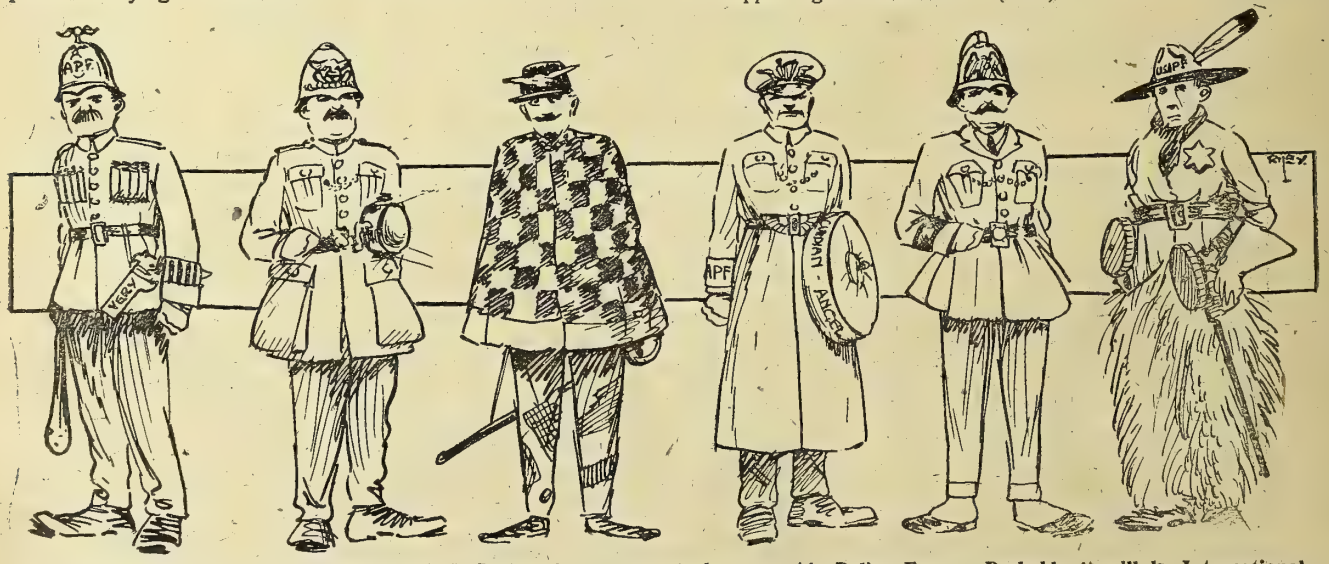
Sir,—I was delighted with your remark last week to the effect that "the average farmer could give most meteorologists a beating as a weather prophet." Undoubtedly, what we need is a committee of farmers at the Air Ministry to give advice with regard to suitable weather for Atlantic flights, and to say when Cabinet Ministers should, or should not, flip to France.

Think of the accurate data that farmers possess to enable them to forecast mid-Atlantic aerial currents at heights of 10,000 feet! I consider it essential in the national interests that a number of farmers be selected at once and gazetted as Colonels and Majors, R.A.F. (Met). They should be selected from widely separated areas. For example, Col. Spud-Giles might be selected because he has farmed on the banks of Newfoundland; Lieut.-Col. Wurzle-Mangel because he has a small holding in the North Sea; Major Merdeglace, because he has ploughed his lonely furrows on an Alp of not less than 10 000 feet in height.

They should be barred from the use of any of the misleading, so-called "scientific," instruments such as ocean navigators use to ensure the safety of their vessels. They should not be allowed access to the information transmitted from countless observatories which enable the "scientific" meteorologist to forecast weather correctly only about 97 times out of a hundred. No knowledge that could in any way bias their instinct would be allowed to reach them.

The last point is a vital one. Most up-to-date farmers to-day have the special meteorological reports sent to them. Our farmerteorologists must therefore be of the good old thickheaded breed who, owing to their hatred of newfangled ideas, allowed Britain's agriculture to decay before the war. These are the men we need to assist in the development of the new science of aeronautics.

Away with all foolish schemes for "sounding" the air with kickshaw kites, and bamboozling balloons. Down with academic anemometers, hidebound hygrometers and antiquated aneroids! Let our newest science of Aerial navigation be dependent upon the unaided instincts of Col. Spud-Giles, the worshipful dug-out whose neglect of modern methods did so much to save us from being a self-supporting nation.—R.A.F. (Met.).



THE AIR POLICE.—It has been officially stated that we are to have an Air Police Force. Probably it will be International and Local at the same time. As the designing of new uniforms is one of the most important duties of the Air Authorities a few suggestions are offered—for which no charge will be made. Reading from left to right they are as follows:—(A). Provincial Police. Armament as shown. (B). Metropolitan Police. Fitted with Aldis Lamps, Bolo Bananas and Pockets. (C). Our French Bobbies would no doubt prefer "camouflage" as a distinction from the ordinary gendarmes. (D). The Irish Constabulary would, of course, want something different from anyone else. (E) The City Police would, no doubt, go in for something quite "Posh." (F). And "over there" the Air Force Sheriff would be "Some dog's body."



Announcement

THE Selsdon Aero & Engineering Co., Ltd., have the honour to announce that they have been appointed the sole manufacturers for Great Britain of the "Wasp" and "Gnat" types of

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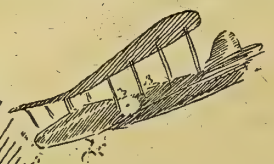
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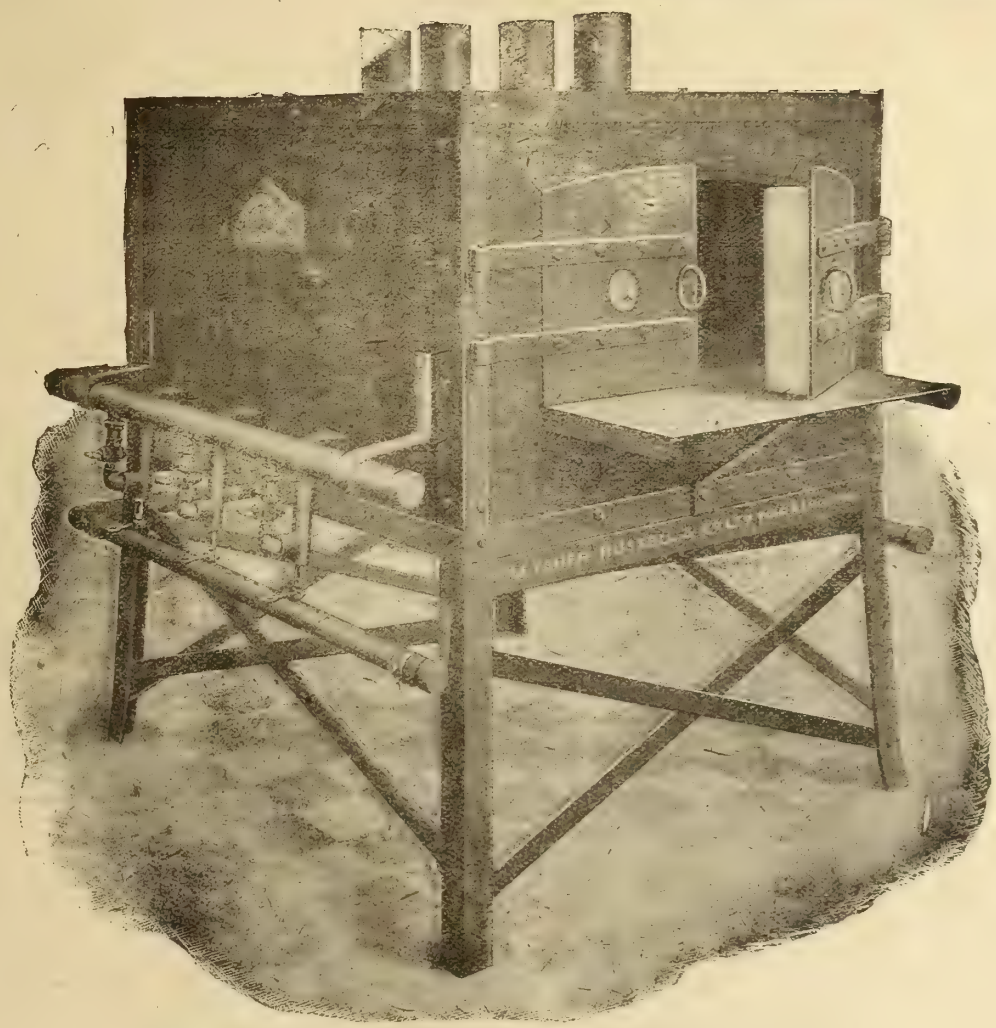
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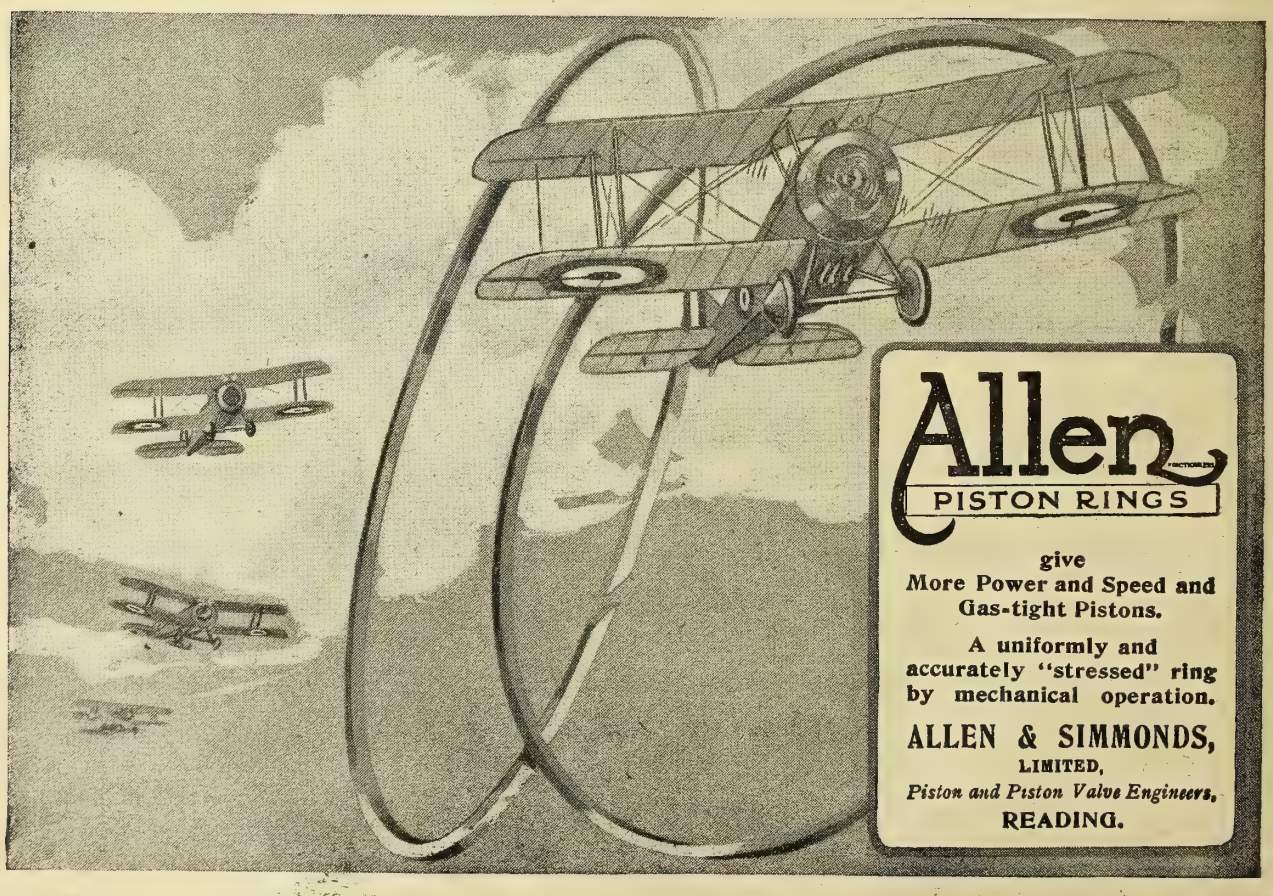
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THE WEEKLY COMMENTARY.

In this week's issue Capt. Sayers discusses the relative merits of the flying boat and the float seaplane types for small low-powered two-seaters for summer passenger and pleasure work on the coast.

For such small machines as are in question the float seaplane appears to have the greater possibilities.

A description of the 200-h.p. high compression Mercédès engine, supplied by the Controller, Technical Department, Department of Aircraft Production, appears in this issue. The extremely simple arrangement of the carburetter, which makes it impossible to open the engine out to full power at sea level, but which allows the full advantage of the engine's high compression ratio when flying high, is well worthy of note.

It seems highly probable that, for any given output at any predetermined high altitude, a lower total power plant weight can be secured in this manner than by any system of separate charging pump. Even if this is not the case, the simplicity and reliability of such an arrangement has much to recommend it.

The recent article by C. W. P. on the "Trend of Naval Aircraft Design" and the answer thereto which appeared in the same issue have produced signs of considerable interest, and two communications bearing thereon will be found in this number.

COMMERCIAL AIRCRAFT DESIGN VII.

SPORTING SEAPLANES.

By Capt. W. H. Sayers, R.A.F.

From the minute single-seater already discussed, and proceeding upward in the scale of size, one comes to the small two-seater machine.

This type may be equally a privately owned touring machine, a commercially run "joy ride" machine, or a taxi. Generally speaking, for all three purposes, considerations of cost operate in similar ways.

For all such purposes very high speed or very great climbing capacity will not be essential, but low first cost, small housing accommodation, and low cost of operation and maintenance will be important.

For pleasure purposes, either as a private vehicle or for hire, seaside work during the summer months offers a very promising field for aerial development. Also, generally speaking, coastwise rail communications are poor, and the passenger steamship services negligible. There is, therefore, an opening for the taxi as a coastwise means of transport.

For such coastal work it seems fairly obvious that some type of seaplane should be used, for thus one avoids the necessity of prepared landing grounds.

Two alternative types are available—the flying boat and the float seaplane. Generally there seems to be a fairly strong prejudice in favour of the flying-boat type for all purposes.

It is believed that this is purely prejudice, so far as small sizes are concerned, and to indicate graphically the relative advantages of the two types alternative outline designs are put forward for both classes for the kind of work described.

In both cases very low engine powers, as compared with present-day current practice, have been taken as the basis of design.

The engine common to both the types illustrated is a three-cylinder air-cooled radial engine of 70 b.h.p. at 1,800 r.p.m., weighing, complete with magneto, carburetter, and exhaust pipes, 110 lbs., and with a fuel consumption of 6 gallons of petrol (45 lbs.) and 0.5 gallons of oil (5 lbs.) per hour.

No such engine is known to exist at present. On the other hand, an engine of this description was designed over two years ago by one of the most successful British engine designers, and the results which have been reached by other engines of the same origin and of similar type leave no room for doubt that it can be built commercially if the demand for such an engine arises.

Even our American friends appear to have manufactured successfully an engine complying generally with the outline specification.

The general outline of a flying boat for this engine is given in Fig. 12. In comparison with the normal idea of a two-seater boat the dimensions appear to be ridiculous. Actually the surface provided is ample for the total weight, and that total weight can be reached in such a machine, and the performance noted on the figure can be achieved with the power assumed.

But in considering the detail design a number of difficulties are encountered at once. First is the question of the height of the centre of thrust. For the power available and the probable speed, an airscrew of about 7 ft. diameter is desirable.

This means either placing the engine in the upper centre section, or cutting away the hull behind the seats for clearance.

The later alternative involves a heavy and expensive hull, and the former a very high centre of thrust, with

a consequent large change in the equilibrium of the boat, according to whether the engine is running or not.

On the grounds of simplicity of structure and cleanness of outline, the engine has been placed in the upper centre section.

To counteract the diving moment due to the high centre of thrust, an inverted cambered tail plane in the slip stream is used. Thus, when the engine is opened up, the diving moment due to the high thrust is opposed by an additional downward pressure on the tail plane caused by the high slip-stream velocity.

As actually drawn, this machine would, on the most favourable assumptions as to position of C.G and centre of resistance, change the speed of flight corresponding to equilibrium by about 30 m.p.h. if the engine were switched on and off without using the elevators. That is to say that, if the machine were gliding "hands off" at 50 m.p.h. and the engine were switched on, the speed would automatically increase to 80 m.p.h.

With the C.G. too far forward, it would turn over on its back on switching on, and with it farther back than the best position the machine would stall when the engine was switched off.

This trouble could be corrected by the use of a considerably larger tail, at the cost of added weight and a rather seriously reduced performance; but it would be difficult to make this machine pleasant to fly.

In the second place, pilot and passenger would both be liable to get extremely wet when taking off and alighting.

Pilot and passenger are both out of the slip stream, a distinct advantage from the point of view of comfort, and both have an excellent view.

In Fig. 13 a twin-float seaplane designed for the same purposes as the boat is illustrated.

This machine is on conventional lines, except that lift wiring has been discarded, and the wings are braced direct from the chassis by steel tubes which serve as tension members in flight and as struts when landing.

This arrangement has been tested in practice in a number of seaplanes, and it has been found that the floats afford ample protection against accidental damage to the chassis—in that, before any unnoticed harm to those parts from which the wings are braced can occur, either in alighting or taking off, the floats would be [illegible] to be wrecked fairly completely.

The top plane, 22 ft. span and 4 ft. chord, is level with the pilot's and passenger's eyes, and the lower plane, of smaller chord and span than is the upper (15 ft. by 3 ft.), is staggered back considerably. An excellent view for all purposes is thus obtained.

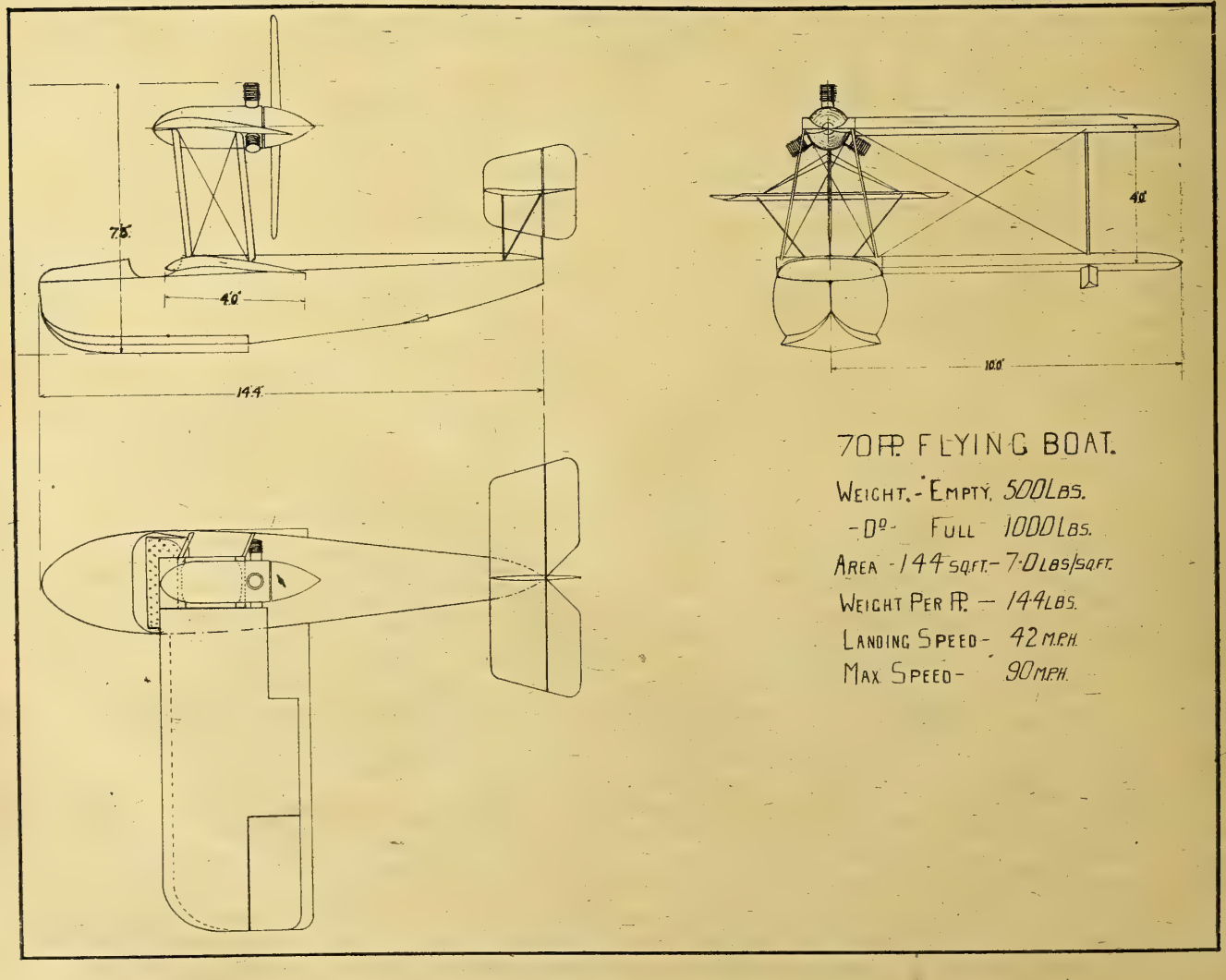
As far as flying qualities are concerned, this machine is free from the troubles experienced in the boat, and switching on and off the engine could be made to produce very little change in the equilibrium speed.

The crew are carried well out of the water, and would keep dry under all ordinary conditions.

As concerns seaworthiness, the float seaplane would probably be found superior to the boat in such a size, as the boat would ship water in any seaway at all, whereas in so small a size the floats and chassis of the seaplane can be made extremely strong without incurring a prohibitive weight.

The boat is of somewhat smaller overall dimensions, and would therefore cost a little less for housing, but the seaplane would be distinctly cheaper in first cost.

The float machine would have a better all-round per-



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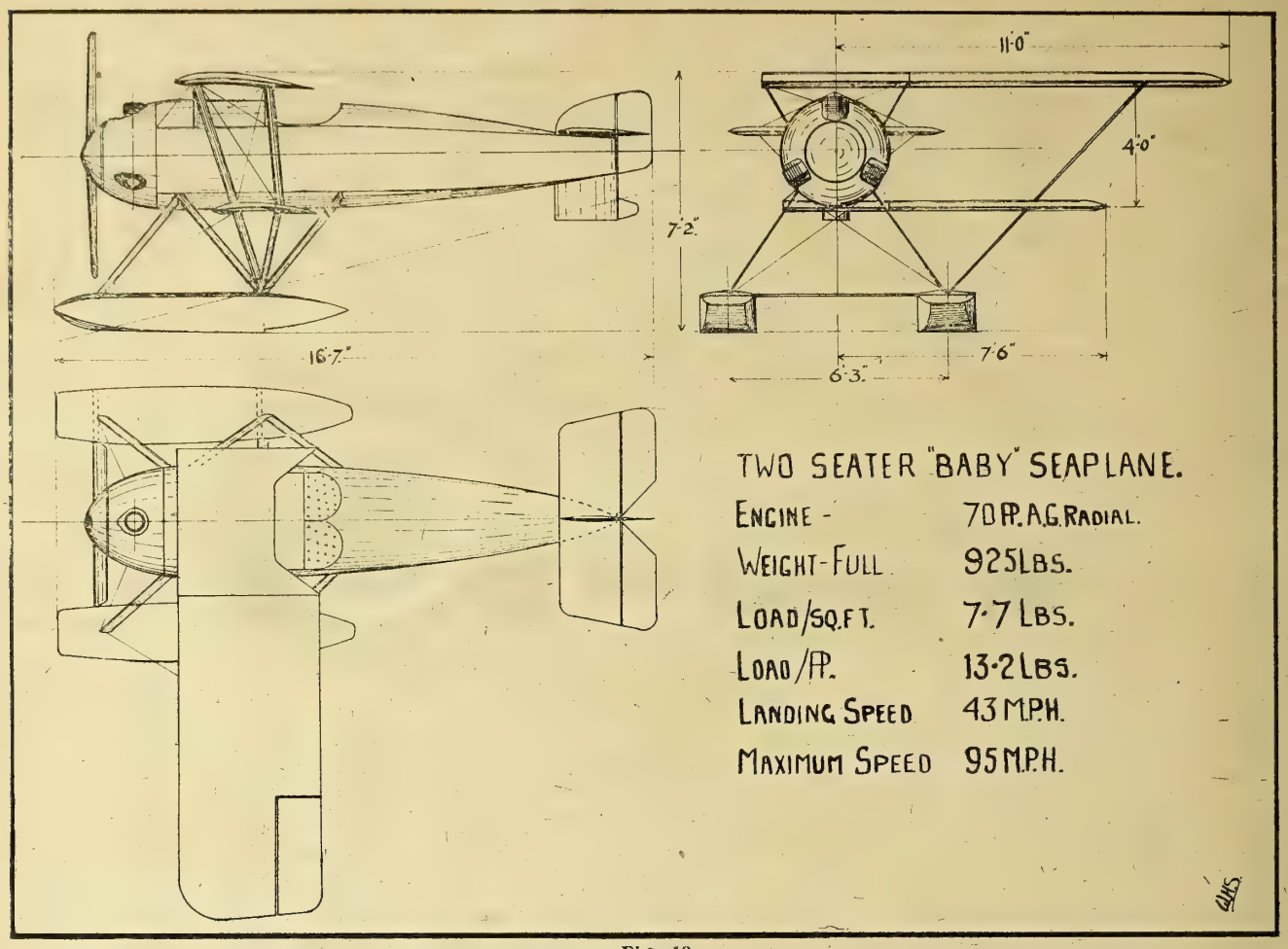


Fig. 13.

formance than the boat, partly because it can be built actually lighter, but mainly because the centre of thrust conditions in the boat necessitates a large downward load on the tail during all flying conditions, which is effectively added to the load carried by the wings.

For both machines a moderately high loading per square foot has been adopted. The loading has been chosen to give a manageable overall span (*i.e.*, to make a machine not too quick in its lateral movements) without increasing its total weight unnecessarily. Both these machines would be quick in their movements, and would be unsuitable for a pilot of the "ham-fisted" variety; but it is believed that the float machine, at any rate, could be flown with comfort by any pilot with reasonably good hands.

Good, but not abnormally good, workmanship and materials would be required throughout both machines to make them safe structurally, but the cost of securing both these requirements would leave it possible to produce these machines at a much lower cost than is usually considered reasonable for a machine for the duty and of the performance of which both these are capable.

At a rough estimate the flying boat could be sold for £650, and the float machine for £550, provided that a reasonable number could be laid down at the one time.

(*To be continued.*)

SEAPLANE v. AEROPLANE.

The following letters have been received:—

Sir,—With reference to a letter signed "C. W. P." in your issue of Feb. 19th, I should like to say a few things in defence of the seaplane. "C. W. P." commences his letter with the remark that he has very strong views on this subject. With all due respect to "C. W. P.", I think he would have been nearer the mark had he substituted the letter "w" for "st" in a certain word.

With regard to the trans-Atlantic flight, he says, that first consideration should be the capacity for the longest possible duration of flight, and that any emergency flotation gear should be as light as possible, "so obviously floats or a flying-boat would not be used."

I must say that it is by no means obvious to me why a flying-boat would not be used. I thought it was common knowledge that at least one flying-boat will be used, and it is universally acknowledged, in the Service, that this particular machine stands the best chance of all of successfully crossing the Atlantic.

It does not seem to have occurred to "C. W. P." that substantial flotation gear can be quite consistent with capacity for long duration of flight. Perhaps no standard active service machine had a greater radius of action than the large flying-boats used on sea patrols in the English Channel, the North Sea, and the Mediterranean.

Few people seem to realise that in the event of a forced landing in mid-Atlantic the occupants of a landplane, unless they land very close to some ship, are as good as dead, but the occupants of the flying-boat are in a distinctly better position, though, to say the least of it, either are unlucky.

The cream of "C. W. P.s" letter lies in the last sentence, in which he states that the only possible profitable use to which seaplanes might be put, barring seaside joy-riding, "is river transport in the Tropics, where landing grounds are non-existent." But are they non-existent? To the best of my knowledge, they are not by any means, and besides, who has any use for such an expensive method of transport in the Tropics? And does he imagine that seaplanes can operate successfully from any average river? In view of the fact that they are usually not at all the type of machine on which one cares to take off and land cross-wind, unless all the rivers are at least half a mile wide, the idea is not merely impracticable, but impossible.

FLIGHT SUB., R.N.A.S.

Sir,—Regarding your reply to my article on Seaplanes. It is gratifying that you agree with me in regard to the neglect of the twin-float type of seaplane.

However, as regards the bad results gained from the small type of flying-boat, apparently there is great difference of opinion on this point. One knows of several comparatively small single-engine flying-boats which have none of the dreadful "bad manners" mentioned. I agree that for really "baby" seaplanes, no harm results from three-point float suspension—but machines of

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this type are about as dead as mutton, and need not be considered.

The only other criticism of the proposed twin-float seaplane mentioned in your reply is the remark regarding the floats being fitted beneath the engines. Torsional strains are experienced in the planes between the engines in a seaway. It is not quite clear to me how these stresses would be any more dangerous than in a land machine built on the same plan.

Provision must be made in a twin-engine land chassis for landing one side slightly before the other. It must be pointed out also, that in the proposed seaplane the floats, main planes and tail planes can be braced in an efficient manner.

Doubt was expressed in the article as to the advisability of using machines fitted with any kind of float for serious commercial work, rather would aeroplanes (with safety flotation gear) and airships be made use of. It must be remembered that aircraft have not only to compete against ships and other types of conveyance, which depend for their success financially on the third-class passengers and freight, but against special types of rapid transit, such as Channel tunnels and small high-speed steamers which would certainly be built if the demand existed.

Before this long-distance flying is to pay, there must be a demand for it, and it must be fairly regular.

I was thankful I had an ordinary boat to cross from the Channel Islands in, coming back from leave, the other day I would not have arrived that day had I booked by air! No visibility and huge breaking seas and rain squalls would have prevented flying over, but the boat arrived, and thought nothing much about it.

Let us hope commercial flying will not have to exist on its profits at first, and that it will make haste slowly.

C. W. P.

[One is still inclined to agree with "C. W. P."—in places.

There is very little doubt—as he says—that the really "Baby" seaplane is dead. It died of neglect, and is very likely to be resuscitated in the not very distant future however.

The torsional stresses encountered in a twin-float seaplane are very different from those met in twin-chassis land machines. Wheels give roughly a point contact, and one side of the chassis may be touching the ground whilst the other is off the ground.

Seaplane floats have a very appreciable length, and in a seaway it may, and does, happen that the heel of one float and the nose of the other are on the crest of a wave at the same moment, and that at some very short interval the conditions will be reversed.

This produces an alternating torsional stress of very great importance; and it is, in fact, very difficult safely to transmit such a stress through the wings.—Ed.]

THE STAAKEN-ZEPPELIN GIANT BIPLANES.

The following information has been communicated by a neutral correspondent concerning the Staaken Giant aeroplanes.

It is reported that only seven Staaken Giant aeroplanes were available at the Front, and that none of the other Giant machines which have been illustrated in the Press had appeared on Active Service Apparently the Staaken Works of the Zeppelin organisation could only turn out these machines on an experimental basis, or else they had not reached the production stage.

In the five-engined machine there are two engines in each of the nacelles, each pair driving a single pusher airscrew, and a fifth engine mounted in the nose of the fuselage driving a tractor screw.

One observer and one mechanic occupy the front compartment immediately behind the bow engine. Two pilots are side by side in a second compartment just in front of the leading edge of the wings, with the officer in charge and an observer sitting side by side immediately behind them. At least one mechanic is stationed in each of the side engine nacelles, and three gunners occupy the rear cockpit behind the trailing edge of the wings and aft of the petrol tanks. Petrol tanks in the form of vertical cylinders are placed in rows on either side of a central gangway in the fuselage in very much the manner in which the petrol tanks are arranged in the "catwalk" of a Zeppelin.

Another interesting machine which is mentioned is a four-engined biplane with two tractor and two pusher airscrews placed fore and aft of a pair of nacelles, one on either side of the fuselage. In this type there is an enclosed cabin with an open observation platform in front similar to the arrangement found in the original Sikorsky biplanes. The machine is apparently similar to that described by M. Lagorgette in The Aeroplane.

GIANT ITALIAN SEAPLANES.

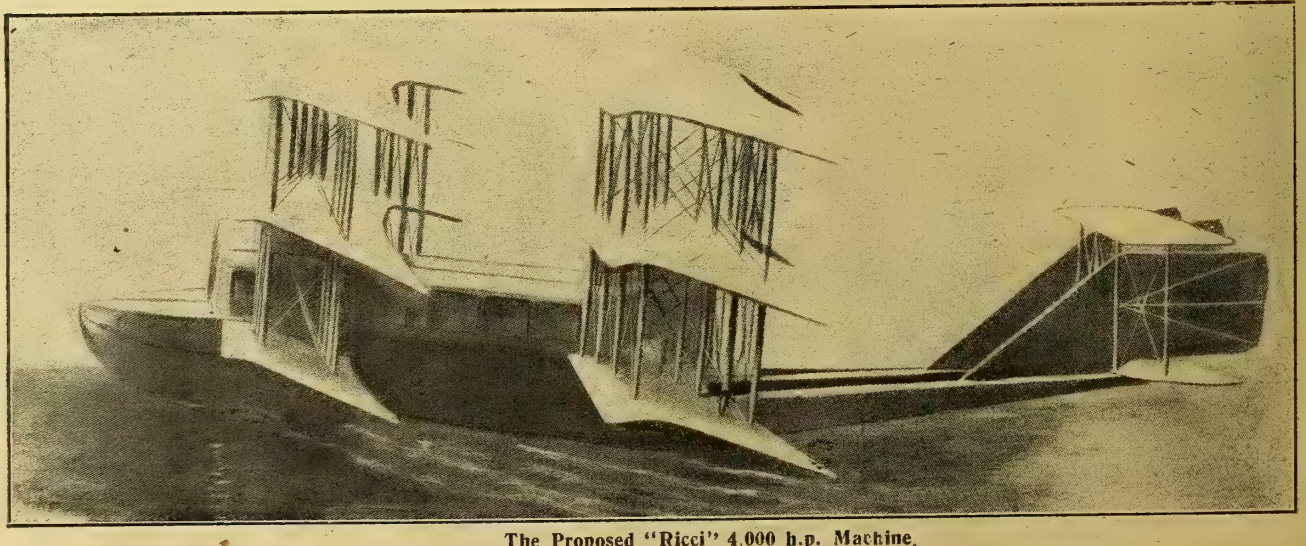
From the Posilipo (Naples) firm of S.I.A.M. come particulars of the 700 trimotored seaplane, mentioned in the directors' report a short time back. It is a somewhat normal looking craft with I.F 240 h.p. engines, two centrally-placed floats and a fairly pronounced dihedral to the lower plane. The floats extend back to and support the tail organs and triple rudders. The ailerons to both planes are much swept back.

The Ricci Bros., who built a Canard or tandem-planed sea aeroplane as early as 1912, have published the designs for several original deep-sea craft. Perhaps the most interesting is the sea-gull-shaped seaplane, designed on the Eiffel formula and with a 300 h.p. motor, which has already been discussed.

Another novelty is the quadruplane to carry 150 people and 14,000 lbs. of cargo, engined by eight of the 600 12-cylinder (V.) F.I.A.T.s, which a man in the business says they usually estimate as giving nearer 700, by the bye. This giant is to have wings with steel spars and duralumin ribs surfaced with nickel-chrome steel. Tail and control surfaces idem.

Its engines are located in couples at front and back of nacelles, and transmit power independently of each other to two bronze four-bladed tractor screws and to two propellers idem. These nacelles are on the second plane counting upwards and in the same vertical plane as the two floats which contain the tanks for fuel, etc., and at their extremities carry a biplane tail about the size of a C.A. of 1914. The centre parts of the nacelles form the motormen's cockpits, and the vessel would be controlled from the centre bridge above the second floor of the saloon, which is of the height of the gap between the planes, and the floor of which is on the level, or would actually be part of the centre section of the second plane. Compressed air apparatus is intended to be used for working the controls.

A 2,000 H.P. triplane is also illustrated as it would be, as, too, a tandem 4,000 H.P. triplane, which seems to be a sort of aerial barge. This has two sets of planes parallel to each other, but not in the same horizontal plane, the back set being placed at the distance of their chord from the front set, but appreciably higher, farther from the boat body, that is to say. All six wings have rounded ends at the entering and much swept back ailerons at the trailing edges.—T.S.H.



The Proposed "Ricci" 4,000 h.p. Machine.

THE 200 H.P. HIGH COMPRESSION MERCEDES ENGINE.

The following particulars are published by courtesy of the Controller, Technical Department, Department of Aircraft Production :—

The following report on the running performance of the 200-h.p. High Compression Mercédès Engine is based on an examination and tests carried out at R.A.E. on the engine (No. 775) taken from a Fokker D.7 biplane (G/2 B/14) brought down in France on June 6th, 1918.

It is of interest to note that this is the first Mercédès engine to be fitted with an altitude compensator carburetter. This compensator, which is here fully described, is so arranged that it is impossible to run the engine all out on the ground.

In most respects this engine is identical in design with the standard 180-h.p. Mercédès engine already reported on, except as to the following points :—

1. New design of pistons giving increased compression.
2. Carburetter—fitted with altitude control.
3. Induction manifolds—water-jacketed.
4. Duplex horizontally opposed air pumps.
5. Wireless dynamo mounted on induction side of crankcase, driven by gearing from rear end of crankshaft.

Piston Design and Compression Ratio.

The pistons used in these engines are of the usual Mercédès construction, being built up with steel crowns which carry the gudgeon pins. The crowns are screwed and welded into their cast-iron skirts, and, as shown in the sectional drawing (Fig. 2), are considerably domed as compared with the concave heads used in the standard 180-h.p. Mercédès engines, thus giving a compression ratio of 5.73 : 1, i.e., an increase of 23.54 per cent.

Standard 180-h.p. Mercédès connecting rods are fitted, and the distance from the gudgeon-pin centre to the top of piston is the same as before.

Carburetter.

The carburetter fitted to this engine is of the standard Mercédès type, with the exception of the throttle barrel, which is slightly modified to provide the automatic altitude control. This device consists of two extensions on the bottom of the barrel diametrically opposite to each other, of the shape shown in the sketch.

A section of the complete carburetter is shown diagrammatically in a figure.

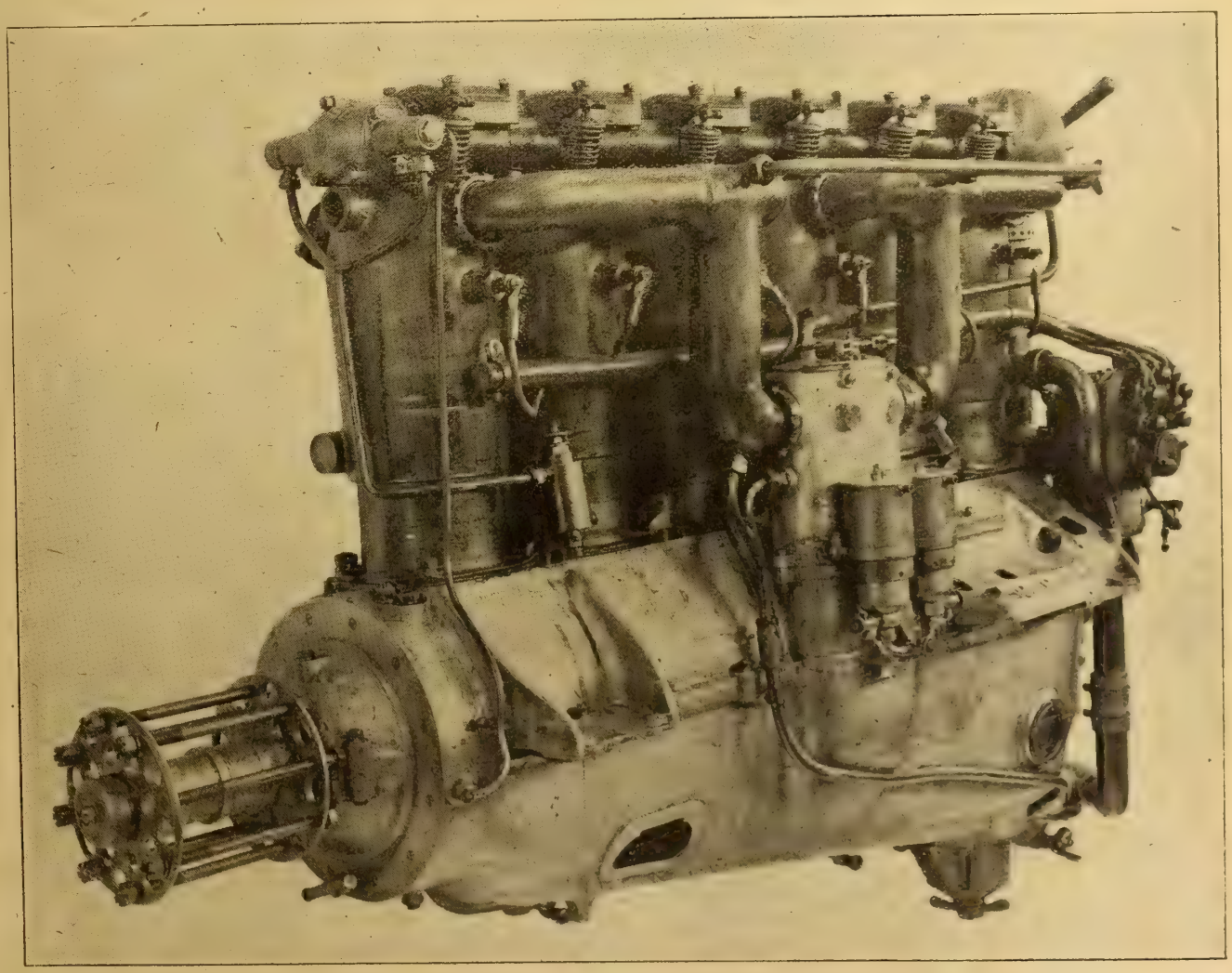
Slots are cut in the sliding air valve to correspond with the extensions on the throttle barrel. The throttle control lever is marked for opening out to its maximum ground level position, and at all throttle openings up to this mark the lift of the sliding air valve is restricted, owing to its coming in contact with the extensions on the throttle barrel. Immediately the throttle is opened past the mark on the control lever, the extensions on the throttle barrel come in line with the slots in the sliding air valve, allowing the air valve to lift to its maximum position and uncover extra air holes, thus weakening the mixture to such an extent that the engine stops if the throttle is fully opened on the ground.

Induction Manifolds.

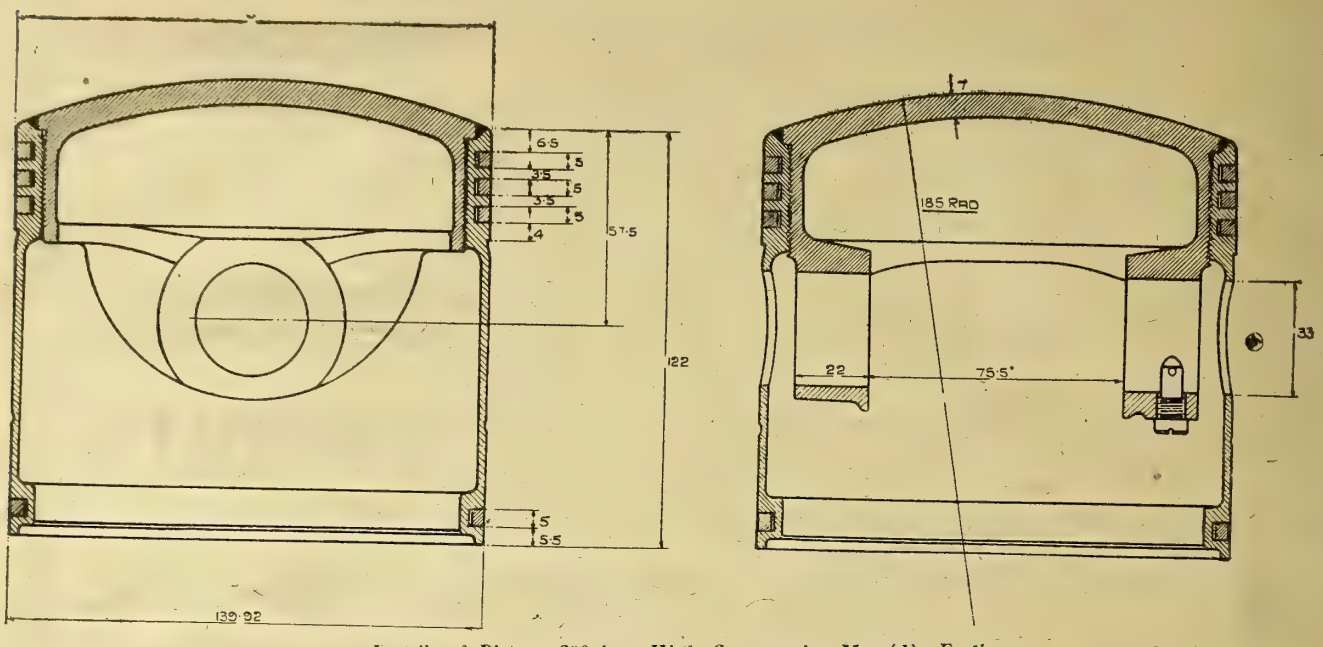
The induction manifolds are fitted with welded steel water jackets in place of the usual asbestos lagging. The jackets are each in direct communication with a feed from the water pump to the carburetter, the respective outlets being connected to the rear end cylinder jacket. Circulation is controlled by a cock on the return pipe (presumably for use in hot weather) which does not affect the water supply to the carburetter jackets.

Air Pump.

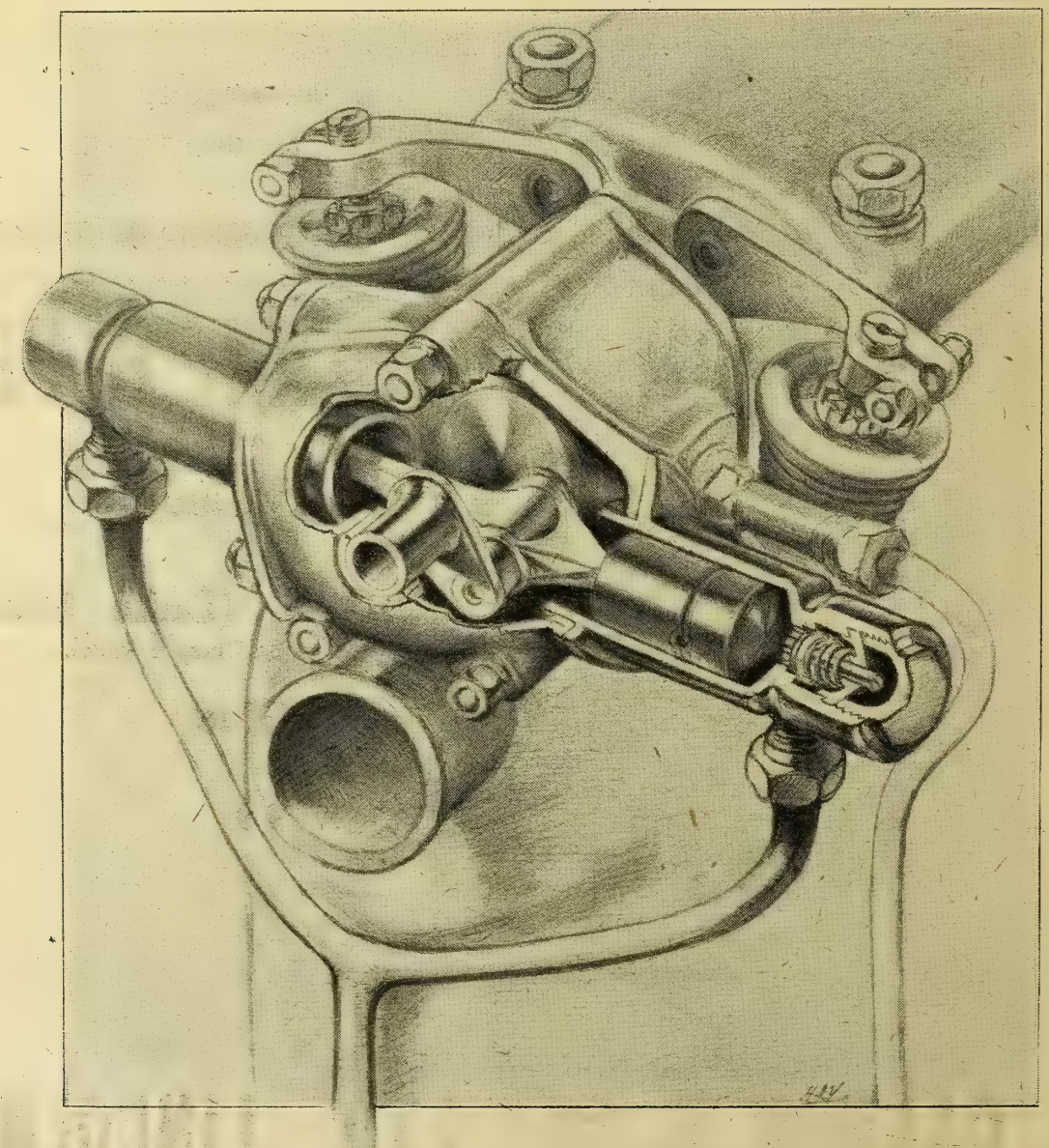
A double acting air pump of the usual plunger type is now fitted in place of the standard Mercédès air pump used hitherto on these engines. Both plungers are operated by a small common crank attached to the front end of the camshaft, the construction of which is shown in a sketch.



Three-quarter View from Airscrew End, 200 h.p. High Compression Mercédès Engine.



Details of Piston—200 h.p. High Compression Mercédès Engine.



The Air Pump of the High Compression Mercédès Engine.



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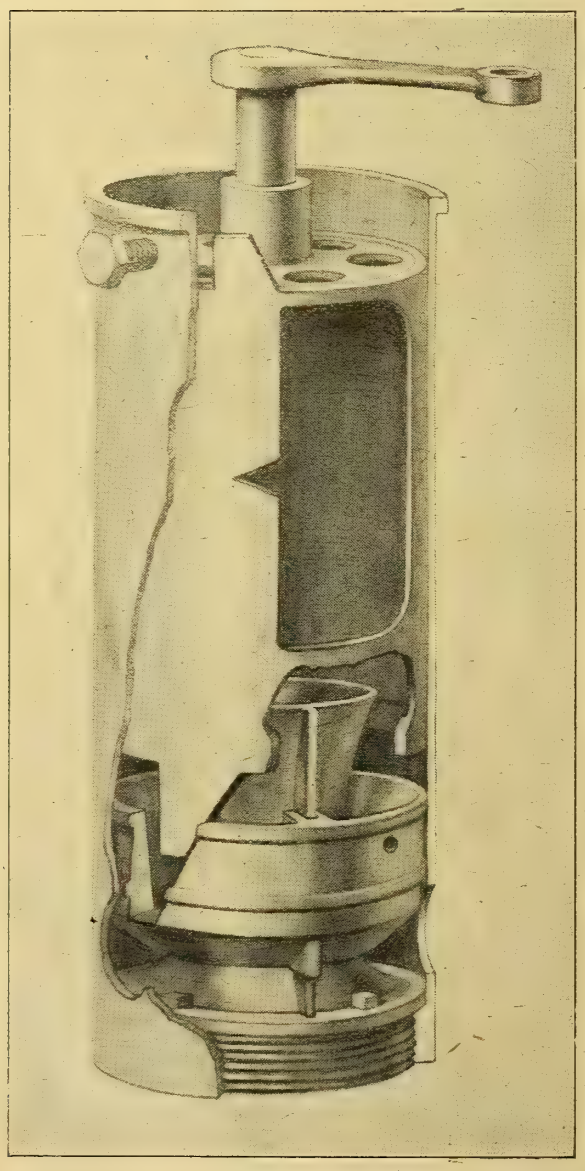
COMPARATIVE DATA.

In view of the similarity of design of the 160-h.p., 180-h.p., and 200 h.p. (high compression) Mercédès engines, the following brief comparison of the leading data is interesting :—

	160 H.P.	180 H.P.	200 H.P. (H.C.)
Bore	140 mm.	140 mm.	140 mm.
Stroke	160 mm.	160 mm.	160 mm.
Compression ratio	4.5 : 1	4.64 : 1	5.73 : 1
Normal B.H.P. and speed	162.5 at 1,400 r.p.m.	174 at 1,400 r.p.m.	204 at 1,600 r.p.m.
B.H.P. per c.f. Stroke vol.	312 B.H.P.	334 B.H.P.	391 B.H.P.
B.H.P. per sq. in. Piston area	163.5 B.H.P.	175 B.H.P.	205.4 B.H.P.
Normal B.M.E.P.	102lbs. sq. in.	109lbs. sq. in.	112lbs. sq. in.
Fuel consumption per B.H.P. per hour	0.58 pt. =0.522 lb.	0.545 pt. =0.491 lb.	0.629 pt. =0.566 lb.
Diameter of choke tube	24.0 mm.	24.0 mm.	24.0 mm.
Capacity of main jets	355 cc. per min.	355 cc. per min.	450 cc. per min. (test jet) 250 cc. per min. (standard jet)
Oil consumption per B.H.P. per hour	0.031 pt. =0.035 lb.	0.042 pt. =0.047 lb.	0.029 pt. =0.032 lb.

Valve Timing.

Inlet opens	2 deg. L.	Top dead centre.	1 deg. L.
Inlet closes	35 deg. L.	40 deg. L.	40 deg. L.
Exhaust opens	63 deg. E.	40 deg. L.	46 deg. E.
Exhaust closes	13 deg. L.	10 deg. L.	8 deg. L.



Part Sectional View of Carburetter Barrel, showing Altitude Control.

Tappet Clearances.

Inlet	0.017 in.		0.017 in.
Exhaust	0.014 in		0.015 in.
Magneto timing	30 deg. E.	30 deg. E.	30 deg. E.

TESTS.

Three sets of calibration curves were taken in the following order :—

(a) With the carburetter opened out to its maximum position for ground level running.

(b) With the sliding air valves fixed at the base of the choke tubes and the throttle fully opened.

(c) With a 180-h.p. Mercédès carburetter (which had no altitude control) fitted in place of the standard carburetter, the jets being opened out to suit the engine, and the curves being taken with the throttle fully opened.

In the last test a fair amount of trouble was experienced with over-heating, due to the high compression ratio employed, but this was overcome at the expense of petrol consumption.

From the general running it is assumed that the normal speed of the engine is in the region of 1,500-1,600 r.p.m., as these are the best running speeds. Below 1,400 r.p.m. the engine is very rough, and it has a very bad period between 1,000-1,200 r.p.m.

Summary of Power Curves.

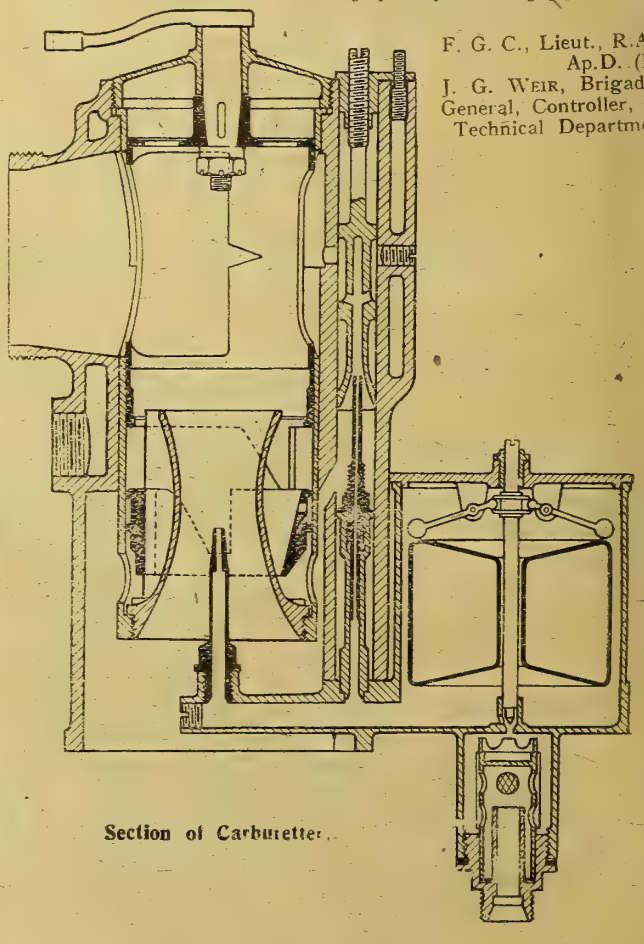
R.P.M.	1,200			1,400			1,600		
Para. as above...	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
B.H.P.	148.5	144.5	151	164	174	180	171	186	204
B.M.E.P. lbs./in.	108.5	105.5	110	102.5	109	112.5	94	102	111.9
Petrol Consumption pt. B.H.P./hr.	.515	.650	.680	.511	.590	.645	.520	.590	.629

Maximum power recorded—217 B.H.P. at 1,750 r.p.m.

Induction pipe depressions were taken between Nos. 1 and 2 cylinders.

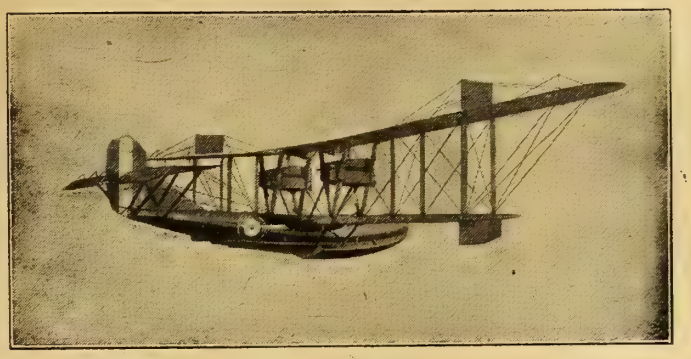
Subsequently two one hour duration tests were carried out—
1 at 1,500 r.p.m.
1 at 1,600 r.p.m.

R.P.M.	1,500	1,600
Average B.H.P.	168	171
Average water inlet temperature	60 deg. C.	58 deg. C.
Average water outlet temperature	67 deg. C.	63 deg. C.
Average oil pressure	20 lbs. sq. in.	20 lbs. sq. in.
Average oil temperature in tank	23 deg. C.	20 deg. C.
Oil consumption	4 pts. per hour= .024 pt./h.p./hr.	5 pts. per hour= .029 pt./h.p./hr.
Petrol consumption	91 pts./hr.= .54 pt./h.p./hr.	96.5 pts./hr.= .565 pt./h.p./hr.



Section of Carburetter.

F. G. C., Lieut., R.A.F. Ap.D. (L.).
J. G. Weir, Brigadier-General, Controller, Technical Department.



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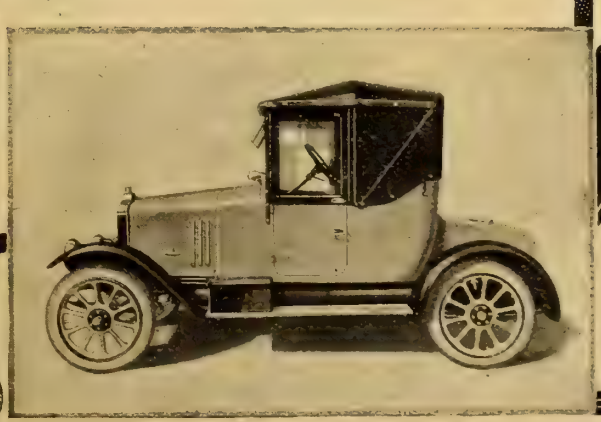
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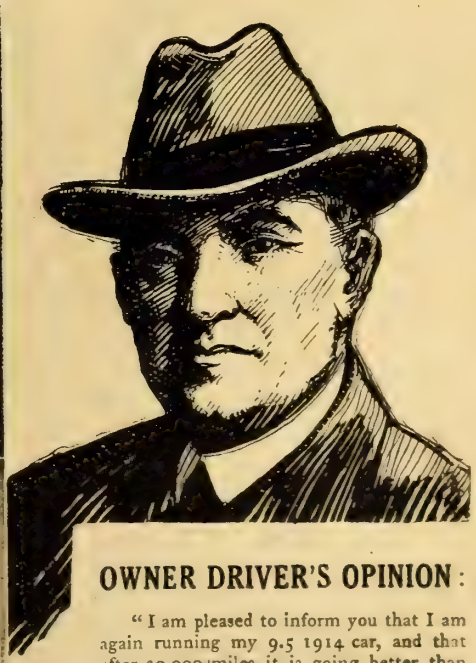
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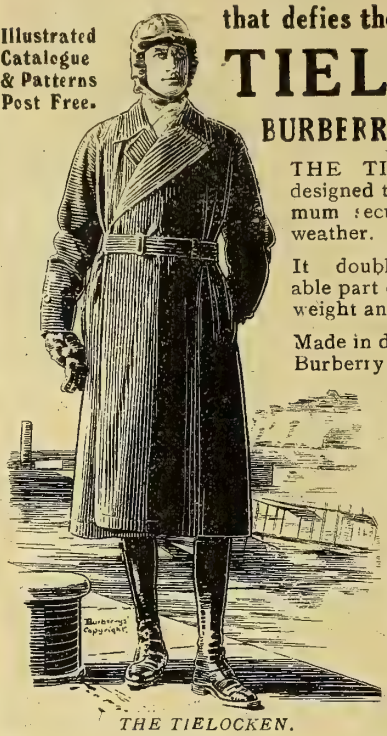
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PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the current Official Patents Records :—

Patents Applications.

Aeronautical Instrument Co. Apparatus for ascertaining direction of travel of clouds. No. 6421. March 14th.
Anzani, A. Screws for aviation engines. No. 6171. March 12th.
Bijur Motor Appliance Co. Starting-apparatus for aircraft engines. No. 6206. March 12th.
Boettcher, A. H. Pilot-director and bomb-dropping sight for aircraft. No. 6071. March 11th.
Bradley, J. Means for indicating and recording pitching and rolling of aircraft, etc. No. 6157. March 12th.
Brown, E. E. Metal spars or longerons, etc., for aviation. No. 5987. March 11th.
Flanagan, J. H. W. Stabilisers for aeroplanes. No. 6216. March 12th.
Frassinetti, R. Propulsion of aeroplanes. No. 6224. March 12th
Frassinetti, R. Landing-chassis for aeroplanes. No. 6218. March 12th.
Nardin, L. Planes for aeroplanes. No. 6536. March 15th.
Pavely, D. A. Model aeroplane glider. No. 5996. March 13th.
Pearson, O. Aero map-case. No. 6350. March 13th.
Renn, F. W. Gangways for use with aircraft, etc. No. 6196. March 12th.
Reynolds, F. Controlling devices for aeroplanes, etc. No. 6425. March 14th.
Salt, A. E. Goggles for airmen, etc. No. 6061. March 11th.
Weiss, J. Aeroplanes. No. 6420. March 14th.

Complete Specifications Accepted, prints of which can be obtained on and after April 3rd, 1919.

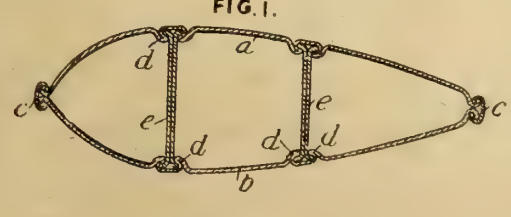
9100/15. Jan. 21st, 1915. Brewer and Aeronautical Instrument Co. Means for indicating the angle of incidence of the wind relative to the wings of aeroplanes.
9102/15. June 21st, 1915. Ogilvie and Aeronautical Instrument Co. Means for indicating variation in direction of wind.
9879/15. July 7th, 1915. Stadward. Clinometers for use on aeroplanes.
10816/15. July 26th, 1915. Holt. Aerial illuminating device.
11827/15. Aug. 16th, 1915. Minsart and De Droog. Speedometer for aeroplanes, ships, and like purposes.
12684/15. Sept. 3rd, 1915. Pettit and Martinsyde, Ltd. Wire stays, or the like, for aircraft.
12859/15. Sept. 8th, 1915. Short. Shackles for aeroplane stay-wires.
12896/15. Sept. 8th, 1915. Dinwiddy. Apparatus for determining the range and vertical height of aircraft or other objects.
13173/15. Sept. 15th, 1915. Walker. Instruments for navigating and directing course of aircraft.
109,801. Aug. 25th, 1916. Edde, H. **Motors for aircraft.**
123,798. Feb. 22nd, 1918. Hackett, W. W., and Accles and Pollock. Hinge parts of the framework of aeroplanes, and the like.
123,833. March 9th, 1918. Enycourt, E. H. T. d'. Means for starting the flight of aeroplanes, seaplanes, and the like.
123,893. May 7th, 1918. Short, H. O. Floating structures particularly adapted for landing, launching, or loading hydro-aeroplane flying-machines or flying-boats.
123,902. May 23rd, 1918. Massey, L. Construction of aeroplane spars, struts, longerons, bearers, and the like.
123,910. June 11th, 1918. British Westinghouse Electric and Manufacturing Co. Aeroplanes, and the like.
123,628. March 26th, 1918. Cellon, Ltd., Tyrer and Co., T., and Tucker, T. Production of dopes.
123,629. March 26th, 1918. Thomas, G. H., and Wilkinson, G. S. Internal-combustion engines for use on aircraft.
123,633. March 27th, 1918. Armstrong, Whitworth and Co., Sir W. G., and Lock, R. G. Covers for holes in the fabric of airships.
123,691. Aug. 15th, 1918. Allen, A. T. Bullet-proof guard or shield for aeroplane and like machines.
121,463. Dec. 11th, 1917. Soc. des Moteurs Salmson (Systeme canton-Unné). Device for fixing an engine in an aeroplane.

Abridgments of Recently Published Specifications.

121,389. Aeronautics; metal tubes, etc. Dickson, H. C., Glengarth, Quinton, Birmingham.

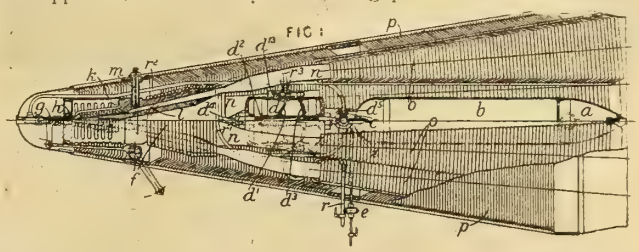
Tubes, stays, struts, etc., are constructed of sheet metal bent into the required cross-section and formed with internal ribs adapted to hold one or more internal cross-webs, the invention being also applicable to the planes, body, and other parts of aircraft. In the form shown, a tube is composed of two plates *a*, *b*, or a single plate, bent to streamline form and united at the flanged edges by strips *c*. Ribs *d* are formed in the plates and serve to hold webs *e* each composed of two plates flanged at the edges as shown. As applied to the planes of aerial machines, the tube may be shaped to the usual camber, but in the case of tail-planes, may be of the symmetrical shape shown. According to the Provisional Specification, the upper and lower faces of such a tail-plane may be extended forwards to constitute a sheet-metal body for the accommodation of the pilot.

FIG. 1.

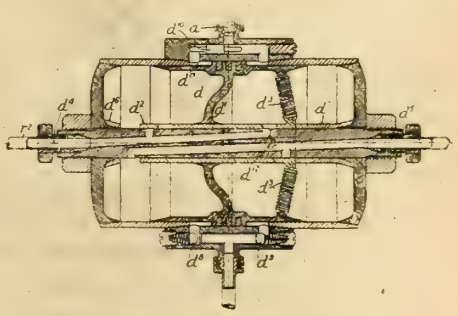


121,980. Aeronautical vehicles. Leech, S. 1, Westridge Road, Southampton

Propelling.—A jet propeller for aircraft and vehicles comprises means for producing continuous high velocity jets of combustion products through conduits *n* past a series of ejector vanes *o* so as to produce a partial vacuum within the apparatus and cause air to flow in from outside against deflecting vanes *p*, thereby producing a propulsive reaction towards the left of the device shown in Fig. 1. The apparatus also comprises a receiving-chamber *a*, vapour chamber *b*, a combined vapour engine and petrol pump *d*, a vaporising-coil *f*, a vapour jet *h* with a regulating-valve *g*, air-induction vanes *k*, and combustion-chamber *l*. The apparatus is started by introducing petrol into the chamber *a*

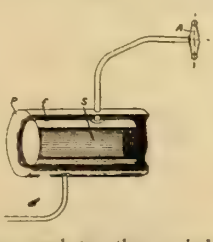


through a non-return valve and applying external heat. The vapour passes into the chamber *b* and exerts a pressure on the main petrol supply through a reducing-valve *c*. Petrol is forced through a pipe *r*, the pump-cylinder d^{13} of the device *d*, and a pipe r^3 to the vaporising-coil *f*. A valve *c* previously closed, is then moved to put the reservoir *b* into communication with the coil *f*, through a pipe r^1, and through a pipe r^2 with the jet *h* and the vapour-exhaust end d^4 of the device *d* so as to equalise the pressures. The valve *g* is then opened, and a jet of vapour mixed with air induced through the vanes *k* enters the combustion-chamber *l* and is ignited by a sparking-plug *m* or spongy platinum, the combustion products issuing from the conduits *n*. When the combustion-chamber and surrounding coil *f* have reached the necessary temperature, the valve *c* is turned to put the chamber *b* and pipe r^1 into communication with the vapour-inlet end d^5 of the device *d*. The position of d^1, Fig. 2, of the device *d* is caused to reciprocate under the action of the petrol vapour by means of a sleeve valve d^2 which is moved against one or other of its stops d^6, d^7 every time compression springs d^3 are moved past their dead centres by the travel of the piston. An enlarged portion of the piston working in the cylinder d^{13} pumps petrol through the inlet valves d^8, d^9, and delivers it through a sliding valve d^{10} and non-return valve d^{11} to the pipe r^3 and vaporising-coil *f*. The exhaust vapour is led to the jet *h* through the end d^4 and pipe r^2, and the action continues until the petrol is exhausted or the valve *g* closed. A guide d^{12} prevents rotation of the sleeve-valve d^2.



121,479. Tanks; radiators. Tebaldi, A., 79, Via Monte Rosa, Milan, Italy.

In order to prevent leakage from a liquid storage vessel such as a petrol tank or a radiator when perforated by a bullet, the vessel S has a vacuum maintained therein by means of an exhauster A. To prevent ignition of the contents, the vessel S is enclosed in an outer jacket P, the space between the two vessels being filled with an inert gas such as the cooled exhaust from an internal-combustion engine. A stream of exhaust gas is kept flowing through the tank S by means of a small hole *f*.



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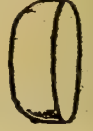
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MARKET TOPICS.

Prices are for Quantities on Usual Terms.

COPPER.—Very little business is being done in Copper. At the same time prices have been fairly steady and a very appreciable decline in prices is doubtful; in fact it is quite probable that the price will begin to advance when signs of activity in buying begin to appear.

The market has been very idle during the past week, and although there have been a few inquiries from consumers for manufactured Copper interest in the latter does not revive, and this is chiefly due to the unreasonable prices ruling at present. The same remarks apply to manufactured brass and there is very little prospect of heavy buying until prices are adjusted. As previously pointed out, the prices are out of all proportion with the prices ruling at present for Copper Ingot.

Comparative Prices.

	Per Ton.
To-day (March 19th)	£78 10 0
Last week	177 5 0
Last year	110 0 0
Pre-War	49 0 0

TIN.—The chief item of interest this week is the report that the F.M.S. and the Dutch Governments intend fixing a minimum price of approximately £242, c.i.f. U.K., for Straits Billiton and Banka Tin. This report has not been confirmed and it is not possible to attempt to forecast the future trend of this market until it is officially known what arrangement is made

It has previously been pointed out in these reports that the stocks which were accumulating in the East were counting against active buying and it was not likely that there would be a revival of activity until it was known what would happen to the F.M.S. and Dutch stocks. The arrangement referred to would strengthen the market and remove any possibility of any appreciable decline in values here.

The reported price is probably correct, as it was rumoured at the beginning of the month that the F.M.S. Government had refused to sell under £240, c.i.f. The market has been fairly active recently, but buyers are not very eager. The present uncertainty of the Labour position may account for this.

The position in U.S.A. is still very dull, this being apparently due to the length of time it will take the authorities to clear the accumulated stocks at the present rate of progress; the quantity which has been distributed up to the present is only 4,000 tons.

Comparative Prices.

	Per Ton.
To-day (March 19th)	£237 5 0
Last week	238 15 0
Last year	320 0 0
Pre-War	120 0 0

LEAD.—The present industrial position is not conducive to active buying. There has, however, been a fair demand, but it is hardly likely that this will increase with the Government holding a stock of 100,063 tons. The general feeling of the market has certainly improved, and the Government have recently sold fair quantities to consumers, although it is rumoured that purchases have been made at prices which are lower than the official prices.

Comparative Prices.

	Average.
To-day	£26 15 0
Last year	29 0 0
Pre-War	19 10 0

STEEL.—This market is being very seriously affected by the present uncertainty of the Labour position, and although it is difficult to see any possibility of prices declining, buyers are very backward. The lack of demand for Aircraft Steels is primarily due to the uncertainty of the future Aircraft requirements of the country, but it is doubtful whether buyers of other Steels will gain anything by holding back. The increased wages and decreased hours of miners must have their effect. What it will be on the price of Steel is doubtful.

The recent statements on this point are contradictory. Mr. Talbot, representing the National Federation of Iron and Steel Manufacturers, when giving evidence before the Coal Commission, stated that an advance of 1s. per ton on Coal meant an advance of 4s. per ton to the cost of Finished Steel for fuel only, and if the miners' demands were allowed the extra cost of Coal would be 8s. per ton and the increased cost per ton of Steel for fuel alone would be 32s. per ton, based on four tons of Coal for the manufacture of one ton of Steel.

On the other hand, the Chairman at Brown, Bayley's Steel Works recently informed the Shareholders that they used approximately two to two-and-a-half tons of Coal in producing one ton of Steel, and if the miners' demands were granted the price of Coal would rise from 4s. 6d. to 5s. per ton. The latter estimate appears to be more reasonable, and it looks as though the price of Steel will advance about 8s. to 12s. per ton. There is also the prospect of an advance in the price of Pig Iron about the end of April, due to the payment of subsidies by the Government being discontinued.

From the foregoing it will be seen that everything indicates an advance in the price of Steel. It is agreed that prices are high enough at their present level, and if further advances take place our export trade will suffer very seriously. Some buyers are waiting to see what will happen to American Steel. The price should be much lower than the price ruling here, and this feature of the market is being very keenly watched.

There is a slump in the Tool Steel market and very few orders are being placed. No official information appears to have been issued indicating that the official price list for Aircraft Steels has been cancelled or modified, and it is assumed that the prices on this list are still in force.

TIMBER.—The Timber market is now practically free from the hand of the Controller, and although the demand is not very large buyers are showing interest in the market, and with the settlement of the present Labour unrest brisk buying should be witnessed.

The prices obtained at the recent sales continue to indicate a substantial decline in values and it will probably be a month or two before prices become firm; the demand will be very large indeed when it does come, and it will not be surprising to see prices advance at the same time. Of course the Controller holds large stocks of all kinds of Timber, and he is stated to have said that it is not his intention to flood the market with these stocks but to release the wood as it is wanted to meet trade requirements.

This should to a certain extent keep the market steady [illegible] ruling prices until the Government stocks are exhausted will probably be the prices at which he disposes of this material. The stocks of Aircraft Timber, which are very large indeed, do not decline very much. The demand for Mahogany is fairly good, but prices are at present uncertain.

THE MONTHLY MARKET PRICE LIST.

March 20th, 1919.

The prices given below are the prices ruling on the above date

Terms.—Usual for the various materials mentioned.

Prices must not be taken as specific quotations for definite quantities delivered to any part of the country.

Aluminium.

Ingot	£150 per ton.*

Brass.

Sheets	12⅝d. per lb.
Strip	11⅝d. per lb.
Wire	12d. per lb.
Tubes	14¼d. per lb.
Castings	14d. per lb.
Turning Rod	12⅜d. per lb.
Brazed Tubes	16¾d. per lb.

Copper.

Ingot, Standard, Cash	£77 10s. per ton.*
Ingot, Standard, 3 mos	£73 5s. per ton.*
Best Selected (net)	£80 per ton.
Sheets	£114 per ton.
Wire	12d. per lb.

Fabric.*

Linen, R.A.F., 17C, Spec., 36 in. wide,	3s. 1d p. yd.
Linen, R.A.F., 17C, Spec., 38in. wide,	3s. 3d. p. yd.
Linen, R.A.F., 17C, Spec., 42 in. wide,	3s. 7d. p. yd.
Spaced, R.A.F., 17C, Spec., 37½ in. wide,	2s. 1d. p. yd

GUN METAL.

Castings, Plain ..... 1s. 7d. to 2s. per lb.

LEAD.*

Virgin Pig ..... £26 10s. per ton, c.i.f. net
Sheets .....£42 per ton, D/d net.
Pipes .....£42 10s. per ton net.
Dry White .....£54 10s. per ton, less 5 per cent.
White in Oil .....£66 5s. per ton.
(lots over 5 cwt. less 5 per cent.)
Red in Oil .....£49 per ton, less 2½ per cent.
(lots under 5 cwt. less 5 per cent.)
Red in Oil .....£49 per ton, less 2½ per cent.

NICKEL.

Nickel .....£195 per ton.

PHOSPHOR BRONZE.

Ingot, 5 cwt. and under .....£112 to £145 per ton.
(Subject to Copper and Tin Fluctuations.)
Castings ..... 1s. 4d. to 1s. 7d. per lb.

PHOSPHOR COPPER.

Ton lots.....£150 to £156 per ton.

STEEL.

High Speed, 14 p. cent., Tungsten, 3s. 4d. p. lb., basis*†
High Speed, 18 per cent., Tungsten, 3s. 11d. p. lb. basis.

ALLOY STEELS TO AIR MINISTRY SPECIFICATIONS.

Round and Square :—

Specification No. S2 .....£86
Specification No. S2 (bright-drawn) £115
Specification No. S8 .....£86
Specification No. S10 .....£70
Specification No. S12 .....£75
Specification No. S14 .....£43
Specification No. S15 .....£70
Specification No. S16 .....£70
Specification No. S17 .....£75
Specification No. S18 (oil-hardened) £86
Specification No. K1 .....£75
Specification No. K2 .....£75
Specification No. K3 .....£86

The above prices are for ¼ in. to 5/16 in. only, other sizes are proportionate.

HEXAGONS.

	.455 and .525	.601 and .710
Specification S2	£79	£77
Specification S8	£79	£77
Specification S2 (bright-drawn),	£112	£112
Specification S8 (bright-drawn),	£112	£112

SPELTER.

English f.o.b., Birmingham £41

TIN.

Tin .....£238 10s.

TINPLATES.

Tinplates (Cokes) .....33s. 10½d., basis, f.o.t.*

TIMBER.

	Official.
Silver Spruce	10s. 4d., c.f.
*English Ash—	
Selected Logs	7s. 6d., c.f., f.o.r.
Selected Lengths and Thicknesses of Plank	10s. 6d., c.f., f.o.r.
Mahogany	1s. 7d. to 1s. 10d.
Walnut	1s. 7d. to 1s. 10d.

* For further details see Home Grown Timber Prices Order.

ZINC.

Zinc Sheets (American) .....£65, f.o.b., New York.

*Official Prices. †Includes Selection and Delivery.

British Enterprise.

The following communiqué has been received in reference to the Hall-Scott Motor Car Co., an American firm :—

"Extensive plans for enlarging the use and application of the airplane to public service, transportation and sporting fields of the Antipodes are in process of formation by the officials of the New Zealand Flying School, at Auckland, N.Z.

"L. A. Walsh, the managing director of Walsh Bros., and Dexter, Ltd., aeronautical engineers and constructors, has directed a remarkable development of aviation in New Zealand while training military aviators. In a recent letter to L. S. Scott, secretary of the Hall-Scott Motor Car Company, of San Francisco and West Berkeley, California, he indicates the advance in aviation, and the opportunity before competent fliers, that exists in these Antipodean quarters of the Globe.

"Several of their planes are equipped with Hall-Scott A.5a six-cylinder engines, and designs have been perfected by the engineers of the flying school, for building several single and twin-engined flying boats, as well as airplanes of the conventional overland type, which will be powered with the new Hall-Scott 1-6, 220 horse-power engine of the Liberty type, recently perfected.

" 'The Minister of Posts and Telegraphs in New Zealand,' " says Mr. Walsh, in his letter to the Hall-Scott Motor Car Company, 'recently stated he intends to establish the carrying of mails in aircraft throughout New Zealand. These plans were in process of formulation prior to the cessation of hostilities, and now that the Armistice has been signed, with a virtual impossibility of Germany reviving her military power, there is a special impetus given these plans, because of the return to New Zealand of a number of capable military fliers, who will be available for this Public Service.

" 'For this service we have in mind flying-boats, and airplanes of the overland type, equipped with single engines of 125 and 200 h.p. respectively, and with twin-engines of 250 and 400 h.p. We shall use these higher-powered boats and planes for the longer runs.'

"As part of the programme of post-war aviation development outlined by the New Zealand Flying School, is a plant to construct a flying-boat to make the trip from New Zealand to Australia. 'Flying-boats are eminently suitable,' says Mr. Walsh, 'for the coastal and inland waters of Australia and New Zealand, and as yet the former country has had no vivid demonstration of the value of the airplane and its possibilities in commercial and public service.'

"The initiation of such a commercial service for the transportation of mails and passengers between the two countries is expected to receive substantial Government support into both New Zealand and Australia, and the aggressive financial assistance of the many wealthy and enterprising commercial concerns in the two countries.

" 'Out of the five different types of airplane engines used by the New Zealand Flying School,' writes Mr. Walsh, 'the Hall-Scott is eminently the best, and we believe that the combination of our machines and the Hall-Scott engines applied to commercial aviation will lead to exceptionally satisfactory results in mail service, passenger carrying, sporting flights, and other general flying.' "

* * *

The lesson taught by the above article to those who think is that British manufacturers are spending too much time in talking of expansion and are paying too little attention to the regions that may with ease be exploited in the Colonies. It is a disgrace to British enterprise that American engines should be popular in countries which owe peculiar loyalty to Great Britain. One realises the difficulties which have encompassed British companies during the war, but one feels that British aviation companies have been content to rest on their war-time laurels with but little thought for the future.

A New Consultant.

Mr. Howard T. Wright has opened a new office at 161, New Bond Street. He describes himself as an "Aeronautical Consulting Engineer," but his programme covers a far wider range than is usually understood by the term, in that he specialises in the financial and commercial as well as the technical side of works management and production, post war programmes, and the many new industrial problems which the war has produced.

Mr. Howard Wright will be remembered as one of the earliest pioneers of British aviation, having built aeroplanes with success in 1908.

A CHEAP AEROPLANE.

According to Press statements the Blackburn Aeroplane and Motor Co., of Leeds, is producing a two-seater aeroplane, fitted with a 46-h.p. A.B.C. "Gnat" engine, which will be sold for £350.

The machine is so designed that two people will be able to sit side by side in a comfortably upholstered cockpit. It is expected that a maximum speed of 95 m.p.h. will be attainable, with a petrol consumption of about 3½ gallons per hour.

RADIATOR REPAIRS.

Photographs of an aeroplane radiator which was recently sent to Barimar, Ltd., scientific welding engineers and sheet metal workers, of 10, Poland Street, London, W.1, tell the story of a low-flying craft which stopped enemy machine-gun bullets, and, incidentally, led to radiator troubles. Numbers of these radiators found their way to Barimar, whose large staff of specialists removed sections of damaged tubes, fitted new tubes and casing in parts where perforated.

It is not generally known that far greater skill is required effectually to repair a radiator than to make a new one. Before this radiator left the Barimar factories it successfully withstood pressure of 15 lbs. to a square inch in hot and cold water, and air tests, and was in every respect equal to a new radiator.

As priority and other restrictions have now been removed, all kinds of radiator and lamp repairs can now be carried out by Barimar experts without delay.

COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

ON STANDARDISATION.

By "Medway."

Judging by its contents during the last week or so, the day is rapidly approaching when the "Times" will come out avowedly as an aeroplane daily. In the main its thunder is rumbling to good purpose, and is calculated to stir officialdom into prompt action. In some details, however, it reveals the fact that its staff is not yet fully adapted to act as that of a sound aeronautical paper.

The two great crazes of the moment are organisation and standardisation. All of us know men who are organising so hard that they have no time left for executive work. We have all met people who are so obsessed with the idea of standardisation that, if they had their way, the earth and the Heavens above the earth would be completely standardised, and life would be made the dullest thing imaginable.

No one with any experience in the world of motor transport or with any real knowledge of the problems of aero-engine design could possibly agree with the statement put forward in the "Times" to the effect that an Imperial Air Commission should be appointed to resolve on the standardisation of one type of engine and machine for all the Imperial aerial routes.

The Dangers of Excess.

"Standardisation" is a beautiful word. All prophets of efficiency use it in every sentence. Their enthusiasm, however, affects very materially their sense of proportion. Standardisation is a fine thing, provided that it be not carried too far. Like most other things, it is bad when carried to excess. The degree to which it is possible advantageously to standardise a product depends mainly on the degree to which that product is showing a real tendency to standardise itself. To standardise a commercial aeroplane and its engine at its present stage would be madness.

In this, as in nearly every argument on this subject, the United States is held up to us as a beautiful example. We are told that a standard British engine must be adopted for the whole Empire, and that the paramount importance of this action must be understood, because the stations on the Imperial air routes will not be able to store spare parts for more than one type of engine, or be staffed with mechanics expert with more than one machine. From this, it is stated, it follows that none but the standard machines will be able to use the great routes, unless they carry their own spare parts and mechanics, so reducing their capacity for freight or passengers.

The Killing of Enterprise.

This is a policy of perfection absolutely unattainable at the present day, and entirely undesirable at the present stage. Were we to standardise to such a point, we should effectually prevent all progress beyond that point. We should kill individual enterprise in its application to commercial aeronautics. In a year or two we should find that the standard machine and engine used on the great Imperial routes was infinitely inferior to the non-standard machine and engine used elsewhere. The Imperial routes would become a by-word of inefficiency.

Think what would have happened if we had rigidly standardised the commercial motor vehicle fifteen years ago, when it had reached the stage quite as advanced as that which the aeroplane has reached to-day. We should have compelled our manufacturers to build to the standard. We should have forced our garages to refuse to give service to any but the standard type. Some ten years later, when the war broke out, we should have had to depend on mechanical transport ten years inferior to that of our enemies.

When we talk about standardising, we have to give proper regard to the rate of progress in the design of the article under discussion. If the rate is high, standardisation is the wrong policy; if the rate is very low, it is probably the right thing. For instance, there is no great difference in efficiency between the locomotive of to-day and the locomotive of twenty years back. We might have standardised the locomotive in 1900, and we should still find that the type compared at least fairly well with a design embodying all the knowledge we now possess. At the worst, the standard would have to be changed once in every ten or twenty years in order to keep our system decently efficient.

In the case of the commercial motor vehicle, a fair degree of standardisation is now becoming reasonable. Progress is not so rapid as to make it necessary for a manufacturer to plan for a very small production of one type because it will presently be rendered obsolete by a new type. We have not, however, in respect of road vehicles gone so far as to justify standardisation as between various manufacturers' products. It still remains a good thing that each make has its own individuality and that the user can choose between the various makes without being definitely biased by any extraneous advantages encouraging the selection of one particular type of machine.

The Types of To-Day Are Obsolete To-Morrow.

Progress in aeronautical engineering is going on so rapidly that the best possible type that could be selected for standardisation to-day would begin to be obsolete to-morrow.

This does not mean that there is no room for standardisation at all. Even now it would be easy enough for all manufacturers to get together and agree to the adoption of certain standards. For example, we need not all use different screw threads, but we can and do adhere to one standard series. This process can be gradually carried on until it extends from the smaller to the larger components. Ultimately a single engine may perhaps be standardised for a particular class of work.

By that time the great Imperial air routes will be used for a large variety of purposes. They will be served by high-speed light machines carrying express mails and dealing with very urgent passage traffic. Then there will be the regular passenger services, demanding a different type of machines with quite distinct qualities. Then again there will be the freight carrier, which will be no more like the light mail carrier than a 5-ton motor

lorry is like a road-racing car. We cannot conceivably standardise either the machine or the engines as between these types. Consequently, even in twenty years' time, when commercial aeroplanes are as common as commercial motors are to-day, the aerial routes will still be obliged to provide facilities for the repair and attention of engines and aeroplanes of many absolutely distinct types.

Even in fuel supplies we cannot standardise. If we do, we condemn everybody to use the high-grade expensive fuel necessary for the class of machine which aims simply and solely at speed, regardless of cost. The freight-carrying aeroplane will want something much cheaper and cruder. It will sacrifice a little efficiency to be able to use this. This means that different fuels will have to be stored, and it also means inherent differences in the engines designed to use those fuels.

A Severe Handicap.

The fact of the matter is that if some people were allowed to talk about "standardisation," "organisation," and "camouflage," they would not be severely handicapped if the use of all the other words in the language were prohibited. The new Ministry of Ways and Communications has wonderful possibilities. Doubtless "Standardisation" and "Efficiency" will be its watchwords. Even so, we could hardly imagine that Ministry evolving a standard road vehicle with a standard engine, and allowing nothing else to be used for the purposes of all classes of road traffic. And yet road traffic is far more ready to be standardised than air traffic.

My own impression is that for some time to come we shall get farther and farther away from the possibility of complete standardisation. The more we realise the immense variety of uses to which aeroplanes can be put, the more shall we be obliged to design special types, both of machine and of engine, to fit those uses. If we have not got mechanics capable of being expert in more than one type of engine—which I do not for the moment believe—then at all costs we must manufacture them. If the spare parts stores at the depots on our Imperial lines are in the first instance made so small that they can only carry the spares for one type of machine, they will have soon to be made larger and larger. If we pin our faith now on standardisation, our aerial services in five years' time will be the most inefficient in the world, and nobody will use the British Imperial routes if they can possibly use any alternative provided by another nation.

Wait for Five Years.

For Heaven's sake let us stop talking about standardisation, and make up our minds not to discuss the subject for at least five years. By so doing we might lose a little, but we should gain a great deal. We should leave our designers free to improve the species, and we should make it possible for commercial and military aeronautics to progress side by side instead of becoming absolutely divorced from one another. If the appointment of an Imperial Air Commission means that a lot of worthy officials and bureaucrats are going to start standardising an infant industry, then for goodness' sake let us worry along in our own haphazard individualistic way without a Commission at all.

In point of fact, the Commission is wanted to work out the routes and shape a business-like agreement between the various Governments of the Empire as to the allocation of cost of maintaining the routes. But if it is to do any good it must start on the assumption that the routes and their equipment must be adapted to the encouragement of machines of all makes and types.

To revert in conclusion to the more or less parallel case of road traffic, it is fairly generally conceded, in principle at least, that the roads must be made for the traffic and not the traffic for the roads, because the opposite principle creates a bar against all progress. Similarly, our Imperial air routes must be made and continually adapted to the traffic which requires to use them. To attempt to adapt the traffic to the route, when the one is in its infancy and the other is not yet in existence, would be absolutely fatal.

POST BELLUM POLICIES—III.

By The Special Commissioner of "The Aeroplane."

Mr. A. W. M. RAMSAY (British Caudron Company).

Mr. Ramsay tells me that the British Caudron Co. intends building:—

1. Single-seater machines.
2. Two and three-seaters.
3. Medium-large machines, as distinct from the very large type.
4. Seaplanes.

The first are to be for the use and amusement of owner pilots, as also the two and three-seaters, but of course in the latter case the machines will be designed for those who wish to employ a pilot for joy-riding, and also for instructional purposes in schools. Mr. Ramsay gave me an idea of the price for the two-seater, which struck me as low, but no doubt the firm will make an announcement on the subject, and anyway it is none of my business to mention it here, only prospective buyers will find it interesting when it is published.

The medium large is to be the already extant French type, which is probably familiar to those who read this paper, as photographs of this machine have already appeared. This "Appareil" will be the mail and passenger carrier of the British Caudron Company. Mr. Ramsay does not consider that it is necessary to build larger machines to carry 50 or 60 passengers, and gives the impression that he is an adherent of the smaller types. Incidentally he expresses the hope that the Government will grant subsidies to mail carriers.

Seaplanes are, of course, an entirely new departure for this firm, and I have no details of the form of construction proposed, but it is evident from the fact that the Caudron Company intends entering the seaplane market that they consider that there will be a considerable future before the "Aquatic" machine.

In the more immediate future Mr. Ramsay thinks that the chief market will be the two and three-seaters run by owner-pilots and the private owners.

He places the ultimate ceiling that will be required for all commercial and pleasure types at 15,000 feet.

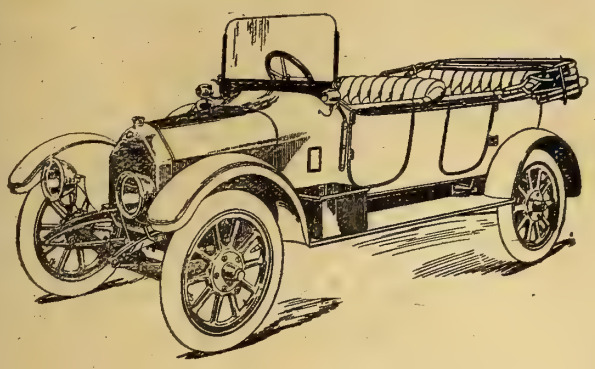
He says that so far as he can judge from data gathered from machines of his firm's building, he would give a period of, say, five or six years as a minimum flying life. It is hardly necessary to add that the stipulated care in maintenance

As regards the pilot of the future, he considers he will have to be very highly trained, and a very skilled individual, who should consequently command a high price for his services.

Among the problems of the future to which Mr. Ramsay drew my attention is that of the aerial house of refreshment—alcohol to form a staple commodity, of course. Some people will think it urgent that it should be solved. Personally, I had not thought of a larger lighter-than-air craft with a nice landing space on top, and a convivial meeting place on the first floor down, and all modern conveniences, as someone suggested on my mentioning it. It gives food for thought, however, and the one thing I will determine upon is never to even risk being thrown out.

Safety Goggles.

The advantage of wearing goggles made with Triplex glass is shown by a letter received recently by the Triplex Safety Glass Co., Ltd., from Mr. Clifford B. Prodger, of the Prodger-Isaac Aviation Co. He wrote:—"I have made several hundred flights, wearing these goggles, on various types of experimental land machines and seaplanes, during which time I have had three rather nasty accidents. The goggles were broken on each occasion without splintering, and after each crash I have managed to get them repaired successfully. I believe that if I had been wearing ordinary goggles in these accidents my eyesight would have been seriously injured."



OUR DECISION

IN this announcement of Humber Policy is interesting information for Motorists — both tho e who *know* HUMBER CARS and those whose patronage we confidently solicit.

Concentration on two models—10 h.p. and 14 h.p.—is the basis of our future policy. But not the whole policy in the sense that concentration involves vast production of a design so rigidly standardised as to exclude improvements. In basing our policy on Concentration we provide for the initiative and originality of our Designing Staff and ample scope for progressive improvements in both mechanical details and materials. Consequently the two models will at all times have our undivided attention, and their established reputation must inevitably be enhanced.

Humber

Full particulars will be sent on request.

HUMBER LIMITED

HEAD OFFICE AND WORKS - - COVENTRY.

LONDON AND DISTRICT:
Show Rooms: 32, HOLBORN VIADUCT, E.C.1.
Repair Works: CANTERBURY RD, KILBURN, N.W.

SOUTHAMPTON AND DISTRICT:
25/27, LONDON ROAD, SOUTHAMPTON.

The

3 TENSES

The Spirit *of* the PAST—

PRATT'S PERFECTION MOTOR SPIRIT

The Spirit *of* the PRESENT—

PETROL

The Spirit *of* the FUTURE—

PRATT'S AGAIN!

and, for Heavy Commercial Cars,

"TAXIBUS"

as soon as restrictions disappear.

ANGLO-AMERICAN OIL Co., Ltd.,
36, Queen Anne's Gate, LONDON, S.W.

Anglo's **BENZOL** can now be obtained through the principal Garages and Dealers in the country. Neither vouchers nor licenses are required for the use of **BENZOL**, which is free from all restrictions.

CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

Mr. H. B. G. Larkin, General Manager of the Commonwealth Government Line, flew to Paris on Wednesday, March 19th, in order to consult Mr. W. M. Hughes, Prime Minister for Australia, on certain business matters.

Arrangements have been made for civilian passenger flights to be made from Victoria Pier, Folkestone, during the season. The machines will carry four passengers, and flights will be made to other coast towns and to Boulogne. The Navarro Aviation Co. will supply the machines.

The question as to what powers a town council possesses regarding flying in the district has been raised by the Dover Town Council. In the Town Clerk's opinion, no corporation has as yet been empowered to licence aeroplanes for transport purposes, and his suggestion that aircraft companies should be instructed to apply to the Air Ministry has met with approval.

Permission has been given by the Cleethorpes Council to the Navarro Aviation Co., allowing them to conduct pleasure flights from the beach in the summer. Besides which, regular aeroplane services will be established between Cleethorpes and other towns.

France.

An aerial-postal service was inaugurated between Paris and Bordeaux on March 23rd. Two machines left Le Bourget at 10 o'clock, one of which carried 228 lbs. weight of mail. The distance is 330 miles.

The Farman "Goliath" machine flew from Brussels to Paris on March 23rd, carrying eight passengers. Amongst them was the Italian Chargé d'Affaires and the special correspondent of "La Nacion," Buenos Aires.

Germany.

A Berlin telegram of March 16th, referring to the Armistice Commission, says:—

"In order to establish aerial routes to Prague and Warsaw from Strasbourg and Mainz the Entente desire to establish landing places north of Wuerzburg and Bayreuth and two others in Silesia. The Czecho-Slovak State is to be supplied with foodstuffs via the Elbe and the Rhine. The transport, via Hamburg, will be controlled by Allied and Czecho-Slovak authorities, while foodstuffs, via the Rhine, will pass through Rotterdam to Mannheim or Frankfort, and thence by rail via Nuremburg and Pilsen."

Italy.

As I mentioned a few weeks ago, the dirigibles are not going to be left out of Mail Services here. With a wealth of details, some to be taken, I make no doubt, well shaken and with cold water, or at least "cum grano salis," the dailies are telling how M.1 has gone into dock to be fitted with a fine up-to-date restaurant-car body to take 30 passengers—no mention of the chef—before starting the Rome-Naples passenger trade! As there is never smoke without fire, some of the faster new ships will, no doubt, be put on to the heavy mail jobs soon.

It is stated definitely in a respectable technical publication and over the signature of a well-known pre-War officer-pilot that the number of military pilots' certificates taken here during the hostilities is 3,000. Also that the brevets obtained by observers and gunners amount to 6,000 during the same period. It would be interesting to know for certain how many Allied warriors are included in these numbers.

From Gabinari's at Livorno come first particulars of the Rabbeno-Magaldi patented amphibious alighting chassis. In the photos which I have only so far been privileged to see, the alighting gear is fitted to a large boat-bodied machine with a 6-cylinder engine and plenty of surface. The landing wheels are in streamlined "paddle boxes." I hope I have explained myself.

The Padua-Vienna postal service is likely to be extended to the Bohemian capital Prague. General Segrè, of the Italian Mission, is understood to favour the plan. An Aviation Party has been formed in Parliament.—T. S. H.

Holland.

It is reported in Amsterdam that the Dutch Government has purchased 30 seaplanes, of a modern type, from a German works situated in the neighbourhood of Kiel.

It is probably intended to use these machines on the England-Holland service, if British permission is obtained. But one would have thought that British-Dutch manufactured seaplanes on a service to England would be much more congenial to British Authorities.

Sweden.

A Bill submitted to the Swedish Riksdag on Friday, March 21st, suggests placing an amusement tax on tickets for pleasure flying. The Swedish Air Traffic Committee is opposing the Bill on the ground that it would jeopardise the future development of Commercial Aeronautics.

The Cellulose Affair.

The following letter recently appeared in "The Times":—

Sir,—What has happened to the Committee appointed to inquire into what has been termed "The Cellulose Scandal"? "The Times," in an article on August 8th, 1918, entitled, "A Case for Inquiry," said:—

"As the charges are made by a Commons Committee the tribunal should be judicial rather than political in its composition, and perhaps the most expeditious tribunal would be a small committee of commercial lawyers with some representation of the manufacturing interest. In any case nearly everything will depend on the nature of the terms of reference to inquiry, and it is by their drafting that the zeal of the Government will be tested."

Mr. Bonar Law, after one of the discussions on the subject, undertook that a full inquiry should be made by a proper tribunal into the whole subject. The tribunal was appointed on August 9th, consisting of Lord Sumner, Lord Inchcape, and Lord Colwyn. The terms of reference were:—

"To inquire into and report upon the formation and financial arrangements of the British Cellulose and Chemical Manufacturing Company and associated companies, and upon their relations with the Department of the Government."

Obviously, this reference was not adequate to meet the suggestion of "The Times" or to fulfil Mr. Bonar Law's undertaking. It was inadequate because the Committee have not power to examine documents or to call for witnesses and must depend entirely on voluntary submission. The formation and financial arrangements of the company and its relations with the Government Department are two extremely delicate matters which cannot be probed to the bottom unless persons interested in the promotion of the company and Government officials supply all the information in their possession. Under the terms of reference the Committee have no power to compel witnesses to give evidence or to take voluntary statements on oath. Mr. Bonar Law's explanation at the time was that it would require legislative authority to confer such powers on the Committee.

Apparently it was thought that the inquiry was urgent and that time should not be wasted in securing legislative authority. Over seven months have elapsed since the Committee were appointed: they have had volunteer witnesses before them, they have invited others to give evidence, and have no doubt done their best to fulfil the terms of reference. Lord Sumner, unfortunately, has been called to Paris on work connected with the Peace Conference, and the Committee have not finished hearing evidence or begun to make a report. The evidence given on behalf of the company and its promoters must obviously be of the nature of a defence. Persons in the service of the company would only give official evidence, and no one is under any obligation to tell the whole story. Other witnesses would no doubt represent rival interests, so that the Committee would have to make up their minds on evidence which was either partial or prejudiced.

There is no reason now why the inquiry should remain imperfect, incomplete, or secret. The original indictment against the company and its methods was made by a House of Commons Committee. Colonel Godfrey Collins, as Chairman of the Committee on National Expenditure, told the House of Commons that they were prepared to justify the report. Colonel Gretton and other members insisted that a "most searching investigation" was necessary, and Sir Frederick Banbury said:—"A more discreditable transaction has never been brought to the notice of the House."

It is incumbent, therefore, upon the House to see that the inquiry is thorough and that the whole subject is sifted to the bottom. Would it not expedite as well as facilitate the work of the Committee if they now were granted powers to employ experts and to call evidence? It would also add to public confidence if full publicity were given to the investigation.—Yours truly, INQUIRER.

Post-Bellum Policy in New Zealand.

The Canterbury (New Zealand) Aviation Co., Ltd., have issued a booklet in which their post-bellum policy is outlined. It is stated that Sir Joseph Ward has announced a Postal Air Service which is to be in operation within the next few months, and that this service, both Government and local, will afford employment to a large number of aviators.

The company offer to instruct pilots to the standard of efficiency required for the Aero Club certificate for a fee of £100, which covers the risk of damage to machine and all third party claims. They also undertake to arrange passenger flights at the rate of £5 for 10 minutes and £2 10s. for every additional five minutes. Cross-country flights will be undertaken at a charge of £30 per hour, and aeroplanes are offered for hire to certified pilots on terms of £15 per hour for two-seater machines, and £12 per hour for single-seaters.

The directors state that they intend to import engines and aeroplanes for sale, and that they are in negotiation through their London agents

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AIRCRAFT FINANCE

A LLOYD'S REGISTER OF AIRCRAFT.

Lloyd's Register of Aircraft, compiled on similar lines to the world-important Register of Shipping, is something to be cherished by all who have the real interests of commercial aviation at heart.

And it is coming, though one must be patient, and expect its appearance not to-day or to-morrow, but at some indefinite date in the not very distant future. What a pity that its advent cannot be accelerated by some special measures without involving such a constant and heavy financial strain upon its sponsors.

Strain of Initial Outlay.

Apart from the tabloid wisdom contained in the tag that "Rome was not built in a day," one must bear in mind in connection with this embryonic Register of Aircraft that the problem of cost is a very serious one, calculated to retard unduly the consummation of this pre-eminently useful and important section of commercial aeronautics.

The factor of expense is more formidable, perhaps, than might be experienced in any ordinary branch of commercial activity because of the exceptional nature of the business of aviation.

During the period of initiation, which is only about to begin, the process of standardisation must necessarily entail heavy expenditure, altogether apart from the outlay that is essentially capital expenditure. It will become more costly if the scheme is to be made efficient and maintained on a parity with the expected rapid growth of commercial aviation, until the moment when aerial transport attains economic perfection and permanency.

Indispensable Collation of Facts.

Even then the expense ratio of the upkeep of the Register of Aircraft will not be inconsiderable in relation to the aggregate business involved. Lloyd's Register of Shipping is an indispensable collation of essential facts evolved by the collaboration of experts; they work on a common basis. The upkeep of the remarkably successful system embodied in Lloyd's Register obviously entails an enormous expense. It is cheap at the price, to use a colloquialism; because of its successful application its expense is not noticeable; it grew up with shipping.

The Demands of Modern Commerce.

Likewise the Aircraft Register must grow up with commercial aviation; it could not very well happen otherwise; but as aviation, to attain success and permanency, must profitably compete with the things that, despite their comparative inferiority, are firmly established, the task is an unduly hard one.

Half a century ago the world moved slowly; now the passion is for the utmost speed consistent with safety; it is not only a passion but a necessity demanded by the modern business with its intense competition. This is a disadvantage against which commercial aviation has to contend, and which will render the task of elaborating the Register unduly expensive.

State Contribution Desirable.

The indispensability of the Register of Aircraft being admitted, and the extraordinary expense of perfecting and enlarging the system of survey and the collation of results being generally recognised, it might be suggested quite conscientiously, and with due regard to exceptional character of the appeal, that the State might take a hand in the scheme.

Is it not true that there is to be a civil branch of the Air Ministry which is to cost £500,000 in the first year? Half a million does not seem much for a branch department of a Ministry to trifle with; but it proves that the Government is not completely indifferent to civil aviation, and a small portion of the sum properly applied by commercial experts would probably be beneficial and helpful.

Public Advantages Would Result.

Having regard to the principle of public safety and the premium it would put on efficiency in the navigation of the air, the Register of Aircraft would appear to have just claim for a State contribution towards its initial cost and upkeep.

Without exaggeration, and without any appeal to sentiment, the dole would in the long run prove profitable and advantageous in many ways, because it would carry a certain official power.

Cost of an Aircraft Register.

Compared with the Shipping Register, the cost of the Aircraft Register would be very high, because of the nature of an aeroplane and an airship. The "life" of a steamship or a sailing vessel is infinitely greater than that of present-day aircraft, and there will always be a big difference in this respect, even when the perfect aircraft is evolved.

Admittedly the capital cost of an aeroplane is comparatively small compared with that of a ship, but, the aircraft being delicate, the necessity for supervision by the surveyor must naturally arise more frequently, which would add to the expense and react on the premium quoted by the underwriter for the acceptance of risks.

It Is Never Too Early.

Some people, no doubt, consider the idea of a Register as a flight of fancy rather than a serious proposition, or alternatively maintain that it is premature so long as commercial aeronautics remain in the initiation stage of activity; likewise, they would prefer that the growth of commercial aeronautics should produce concomitantly the Register.

The *laissez-faire* doctrine has been exploded by the great war, with its many revelations. State supervision as well as, in some instances, State help, are demanded by so many people that they have come to stay for a long time. By State supervision one does not mean anything like the abuse, interference, and stupidity characteristic of war-time experiences. Those deficiencies are burying themselves because of the fear created by the political and social emancipation now developing

CURRENT TOPICS.

Worried Stock Exchange.

Stagnation, tinctured with depression, still characterises the Stock Exchange. So long as the Labour prospects are uncertain no material change is expected, while the apprehension concerning the Budget, with its possibilities of harm if the new financial programme is not carefully thought out and skilfully applied, checks business and throttles initiative. These are very trying times, and somehow people are unable to obtain the usual degree of comfort from the reflection that the darkest hour is before the dawn.

Vickers and the Combine.

As an outcome of the proposed fusion of the Metropolitan Carriage and Wagon Co. into Vickers, the shares of the latter have fallen sharply to 38s. At the lower price they would probably be a cheap purchase, for, apart from the disclosed profits made during the war and secreted in the business, Vickers should do well with its enlarged peace programme. Its interests are considerable and manifold. What people don't like about the projected fusion is the waste of money on the underwriting of the new shares. No doubt underwriting is necessary, but the cost is considerable and, it is thought, out of proportion to the risks involved.

Aero Shares Idle.

Aviation shares proper have been very subdued like almost everything else in the Stock Exchange. The delay in the appearance of the Whitehead Aircraft Company report and profit statement is commented on unfavourably. Darracqs have been flat; less support has been given to Rolls-Royce.

New Capital Issue Increasing.

It is clear from the number of new capital issues now curtseying for the kind consideration of the working public that the Treasury is more amenable to the demands of industry. Amongst others, there is the issue of 100,000 6 per cent. cumulative and participating preference shares of Auto Carriers (1911), Limited. The price of issue is 22s., which is considerably lower than the market price of the existing shares.

De Dion Bouton.

The De Dion Bouton Co. (1907), Ltd., made a profit of £12,414, which reduces the debit balance to £9,514. Being no longer entitled to the name of De Dion Bouton and the contracts with the Government having terminated, liquidation is proposed. The assets and undertaking are to be sold to the Laughlan Steel Co. for a consideration sufficient to provide 15s. in cash and 5s. in Laughlan Steel shares to every £1 ordinary and £1 Laughlan Steel for every 20 deferred shares.

French Items.

The Blériot Co. has now increased its capital from two to four million francs by the issue of 20,000 new shares of 100 francs each, which are offered to shareholders at 110 francs. Simultaneously, 1,000,000 francs will be distributed from the special reserve, being 50 francs per share, leaving shareholders to provide 60 francs per share new money.

At the next meeting the Carburateur Zenith will declare a dividend of 70 francs per share and propose an increase in the capital from 3,360,000 francs to 5,040,000 francs. The new 16,800 shares are to be offered to shareholders in the proportion of one new for two old shares, 50 francs of the proposed dividend being taken in part payment of subscription.

An Aircraft Bankruptcy.

At the London Bankruptcy Court an application was made for the discharge of Arkodius Gunsbourg, trading as "A. Gunsbourg and Co.," against whom a receiving order was made on Oct. 24th, 1917. The statement of affairs showed liabilities amounting to £6,050 and assets estimated to produce £969. The debtor was a Russian, and in November, 1914, commenced business as a commission agent under the style of "A. Gunsbourg and Co." In January, 1916, he was joined by a partner who brought in £5,600 capital under a deed of limited partnership, but in June, 1917, the partnership was dissolved.

In May, 1916, debtor and his partner formed a company called the "Standard Aircraft Manufacturing Co., Ltd.," of which debtor was appointed director, but he resigned in June, 1917, and transferred his shares in the company to his partner. In March, 1916, he joined with others in the formation of "The Stanley Aviation Co., Ltd.," which, however, did no business and was now moribund. Subsequently, as debtor was in financial difficulties, he sold his business to a company called "A. Gunsbourg and Co., Ltd."

In the Official Receiver's opinion, the debtor's failure was partly attributable to his personal extravagance, his expenditure being at the rate of £1,200 a year, whilst he was losing money on his trading. Debtor estimated his loss on "The Standard Aircraft Manufacturing Co." at £780, but he always hoped to be able to make a profit on his share in the company.

Accused of Offences against Bankruptcy Act.

The Official Receiver submitted that the debtor had committed the following offences against the Bankruptcy Act, that his assets were not equal to a dividend of 10s. in the £; that he had continued to trade after knowing himself to be insolvent; that he had contributed to his bankruptcy by rash and hazardous speculation and unjustifiable extravagance in living, and that the debtor had been guilty of misconduct in making a fraudulent assignment of his assets to "A. Gunsbourg and Co., Ltd."

Mr. Bell (Carter and Bell), who opposed the discharge on behalf of the trustee and a number of creditors, submitted that the debtor had been guilty of fraud and swindling in France and that in February, 1907, he was sentenced by the French Criminal Court to eight months' imprisonment for fraud, and for swindling he was sentenced to 13 months' imprisonment. He also submitted that the debtor was deported from France by reason of those conditions. He had subpœned a witness from Scotland Yard, with French official documents, to prove the convictions, but unfortunately the witness was not present.

Mr. Tindale Davies, barrister, who supported the application on behalf of the bankrupt, submitted that there was no evidence to show that his client had been convicted in France. It was true certain official documents and photographs had been produced, but that was not proof. Asked if his client was prepared to go into the box and deny that he was convicted, Counsel replied in the negative, adding that as there was no legal proof therefore there was no necessity for him to go into the box. Moreover, a man might be convicted of swindling in France, and it might not be an offence in this country. He submitted that it is only an ordinary trading case, and the debtor was willing to consent to judgment for £1,000 if granted an immediate discharge; £250 to be paid down, £250 in three months, and £500 in six months.

Discharge Suspended.

The Official Receiver did not think it was a case in which the discharge should be granted for a money payment because the debtor had been guilty of fraudulent conduct. The learned Registrar said that in view of the opposition of the Official Receiver he could not grant an immediate discharge. He did not like the look of the case of a man who claimed to be a Russian although born in Berlin. He came over here with the refugees from Belgium and in one-and-a-half years £6,500 of his partner's capital was lost. In addition to which the debtor owed a further £4,900 to trade creditors, in the meantime he had lived very extravagantly and he did not intend to allow him to trade for some time. Therefore, the discharge would be suspended for four years.

Bowden Capital.

It is announced that the capital of the Bowden Brake Co., Ltd., has been increased to £75,000, and in response to the offer to the shareholders to take up new shares applications were received largely in excess of the shares available.

State Control.

The following letter appeared in the "Morning Post" of March 10th:—

Sir,—Is not the hour now striking for the Government to lead the way in commercial aviation and in the State control of such airways as rightly belong to us? Innumerable military aircraft are at this moment lying idle; thousands of trained pilots are available; existing aerodromes are potential "stations."

Under the administration of capable business men, with sound organising powers, I believe the thing would take practical shape quickly. Officially fathered by the Air Ministry, the project would have the warm support of every business man with vision enough to see its urgency as a factor in trade development.

The great thing is to make a start. Though we flounder a little at first, let us start. Even the time that would be saved by controllers of great businesses almost warrants it of itself. The transportation of goods would follow, to develop, one may hope, into the carrying of general merchandise at competitive rates.

With good heads set promptly to work, and with the Government's powerful backing, we should see Britain spared the chagrin of having to follow in another nation's lead.—Yours, etc., Woodman Burbidge, Managing Director, Harrods, Ltd., March 19th.

NEW COMPANIES.

Radio Communication Co., Ltd.—Private company. Registered March 14th. Capital £200,000 in £1 shares (100,000 preference). To acquire the benefit of inventions connected with radio telegraphy and telephony and other methods of intercommunication, to acquire, make and supply apparatus for the transmission of signals, sounds and communications, whether submarine, between ship and ship, between ship and shore or otherwise, etc. The subscribers (each with one share) are:—A. L. Dunning, Bankside, Eskdale Avenue, Chesham, company secretary; S. Seabrook, 75, Broadway, Chesham, solicitor's clerk. First directors to be appointed by the subscribers. Registered offices: Oswaldestre House, Norfolk Street, W.C

AIRCRAFT IN PARLIAMENT.

Omitted in error from Question 97. Col. 1471 (of "Hansard").

Major LANE-FOX: Is he aware of the statement made in the Press and elsewhere that it was a distinguished officer in the Air Service (This is in reference to the originator of the balloon apron. The question was reported last week.), and can that now be definitely contradicted, in view of the dissatisfaction caused to a great many gentlemen?

Major-Gen. SEELY: I presume all this happened while I was away from this country. I will make inquiries, and will make some statement if facts are as stated.

* * *

The following written answer was given on March 17th:—

FLIGHT CADETS (EGYPT).

Mr. RONALD McNEILL asked the Secretary of State for War why flight cadets who have risen from the ranks are being sent home from Egypt with third-class passages, while cadets who have not so risen are given second-class passages, although in many cases the latter have had shorter periods of service than the former; and if he will give instructions that this discrimination shall be avoided in future?

Mr. PRATT (Lord of the Treasury): I have caused inquiries to be made of the Air Force authorities in Egypt, and will acquaint the hon. Member with the result.

* * *

The following written answer was given on March 17th:—

ROYAL AIR FORCE (WILLIAM BUNTING).

Major HENDERSON asked the Secretary of State for War whether he was aware that 3rd Class Air Mechanic William Bunting, No. 185154, Royal Air Force, who was demobilised at Georgetown on February 3rd, has received no pay or ration money since the above date, contrary to paragraph 935, Demobilisation Regulations; that this man has twice written to the pay office and received no reply; and whether, in view of these circumstances, he will cause immediate inquiries to be made into this case?

Major-Gen. SEELY: A final settlement of this airman's account is now being made. He accepted the deferred scheme of payment whereby he agreed, provided he was demobilised and paid twenty-eight days' pay and ration allowance in advance, and £2 12s. 6d. in lieu of a suit of clothes, to allow his final settlement of any moneys due to him to be postponed for a period not exceeding three months from the date of his discharge. The advance of twenty-eight days' pay and ration allowance, and allowance for plain clothes, was paid to him at the dispersal station.

* * *

The following written answers were given on March 18th:—

APPLICATIONS FOR RELEASE.

Mr. RENDALL asked the Secretary of State for War whether a recruit who joined the Royal Air Force (Wireless Telegraphy) at the age of seventeen years eight months, in September, 1918, voluntarily, and was therefore not eighteen when the Armistice was declared, ought, in consideration of the fact that he was not liable to military service at the date of the Armistice, to be refused his discharge; and, if not, will he approve the discharge of the boy in question, H. F. Thatcher, No. 292830, A.C. 2/1st Wireless School, Hut D5, Royal Air Force, Flower Down, Winchester?

Major-Gen. SEELY: Airman Thatcher enlisted for the duration of the war, his parents' consent having been obtained. I regret that it is impossible to allow preferential treatment in considering his claim for discharge.

BALLOON FACTORY, FINCHLEY.

Major NEWMAN asked the Secretary of State for War whether the War Office has purchased or intends to purchase the national balloon factory at Finchley with a portion of the land and houses adjacent; and, if the purchase has been completed, will he give the total cost and the use to which it is proposed to put the disused factory and the land and houses purchased?

Mr. CHURCHILL: I am not in a position to make any statement on this subject at present.

* * *

The following oral answers were given on March 19th:—

PILOT PUPILS (FLYING TRAINING).

Mr. MOSLEY asked the Under Secretary of State to the Air Ministry whether observers of the Royal Air Force who are now training to graduate as pilots will be allowed to complete their course before being demobilised?

Mr. PRATT: The flying training of all pilot pupils, whether they have been observers or not, has been discontinued in the interest of public economy.

OBSERVERS (GRATUITIES).

Mr. MOSLEY asked the Under Secretary of State to the Air Ministry whether the gratuities of observers who have been returned to England to undergo training as pilots are assessed upon the rate of pay which they received in France while drawing flying pay, or upon the rate of pay which they are now receiving in England, where they do not draw flying pay during the period of their training

Mr. PRATT: Gratuities are in all cases assessed on the basic rate of pay, exclusive of flying pay, and the amount is not altered by the fact of being returned to England.

* * *

The following written answers were given on March 19th:—

DEMOBILISED MEN (DELAYED PAYMENTS).

Sir JAMES AGG-GARDNER asked the Secretary of State for War if he was aware that great delay frequently takes place in remitting to members of the Air Force who have been recently demobilised the ration allowances and gratuities due to them; and if some steps may be taken to redress and remove this grievance?

Major-Gen. SEELY: Inquiries are being made on the subject of the question, and a further communication will be addressed to the hon. Member as soon as the necessary information can be obtained.

AIR MINISTRY STAFF.

Viscount WOLMER asked the Under Secretary of State to the Air Minister whether wounded officers and soldiers are being discharged from the Air Ministry while civilians and girl clerks are being retained?

Major-Gen. SEELY: In the reduction of staff which is at present taking place those airmen who have been demobilised have been so treated at their own request. Several wounded officers, whose work has come to an end, have also been discharged. The work on which girl clerks and civilians are employed is unsuitable.

* * *

The following written answers were given on March 20th:—

CARPENTER RATINGS.

Mr. HANCOCK asked the Under Secretary of State to the Air Ministry whether air mechanics entered into the Royal Naval Air Service as carpenter ratings, and who brought their own tools with them into the Service, were entitled to 3d. per day as tool money; and, if so, when will this money be paid?

Major-Gen. SEELY: In the Royal Naval Air Service the carpenters bought their own tools and received 3d. a day for upkeep. In the Royal Air Force the tools are issued to the men on loan and no such upkeep allowance is made. Tools belonging to ex-Royal Naval Air Service men on joining the Royal Air Force were either bought by the Royal Air Force at a valuation or sent to their homes at public expense.

INVENTIONS (REWARDS).

Major LANE-FOX asked the Under Secretary of State to the Air Ministry whether any and, if so, what sum has been paid to any officer of the Royal Air Force as a special reward for the invention or development of anti-aircraft entanglements?

Major-Gen. SEELY: The answer is in the negative.

* * *

The following written answer was given on March 21st:

PAY.

Captain W. BENN asked the Under Secretary of State to the Air Ministry what will be the conditions of pay for the Flying Service after peace is declared, as regards flight-lieutenants, flight-commanders, and squadron commanders; and whether special flying pay will be continued?

Major-Gen. SEELY: The whole question of the future emoluments of officers and other ranks of the Royal Air Force is under consideration, and an announcement on the subject will be made as soon as a decision is reached.

* * *

The following answers were given on March 24th:—

THE LOCH DOON SCHEME.

Answering Sir S. ROBERTS, Major-Gen. SEELY, Under Secretary for the Air Force, said the total expenditure incurred at Loch Doon to Feb. 19th, 1919, was £404,433. In this figure the cost of land and compensation to tenants is not included. The saleable plant and other assets have already been largely removed, being either transferred for Government purposes elsewhere or sold to other purchasers. The value of materials disposed of in these ways will amount, when removal is completed, to an estimated total of approximately £210,000.

THE DOMINIONS AND FLYING.

Major-Gen. SEELY, replying to Mr. Hurd, said:—The Dominions have been asked for suitable officers to be appointed for liaison between their respective Governments and the Air Ministry. Certain of these officers have taken up their duties and are the channel for assisting a complete interchange of information and views. With regard to aerial commerce and communications within the Empire, representations of the Dominions and India in Paris are assisting the Air Section of the British Peace Delegation, and their co-operation has been of great help in the consideration of the International Aerial Convention and the Regulations and Rules of the Air. The Dominions concerned are also being consulted by the Department of Civil Aviation on the subject of aerial communication and routes, and every endeavour is being made to keep in close touch on these subjects.

A Deserved Honour.

Lieut. A. Baldwin Raper, M.P., has just received from the Air Ministry the order of St. Stanislas, which was awarded by the Russian Government before the Revolution, with a notification of the King's permission to wear the decoration. The Order was awarded in recognition of Lieut. Raper's services to the Russian Aviation Mission in this country, to which he was attached for some time, testing machines and training pilots.

The Need for Hurry.

A correspondent who wishes to buy R.A.F. aeroplanes and run a flying service writes:—

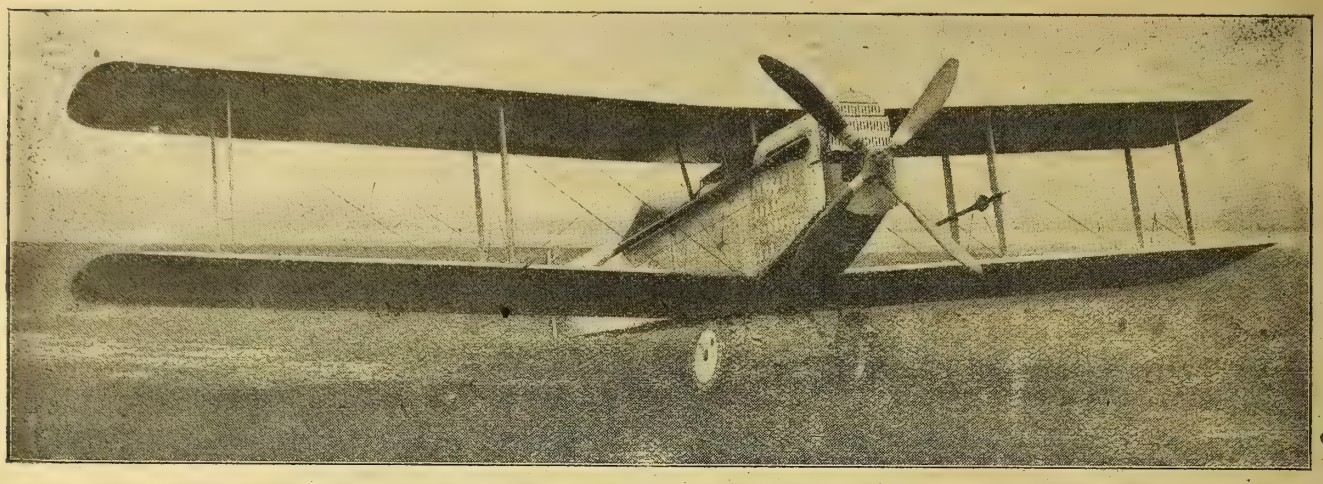
"Couldn't you indicate the importance of quick decisions about machines and conditions under which they may be utilised? This country is quite impossible for flying except for seven months of the year, and I do not think that under present arrangements it appears likely that we shall be able to employ our pilots for more than five months usefully this year.

"As a pilot's employment in this country is essentially one that continues during a few months only, I think you will agree that not one of us can give our pilots a fair chance of earning much money this year unless we can start to work at the earliest possible date."



The Citadel of Dünaburg am Tage taken from a German Aeroplane.

THE TRANS-ATLANTIC ATTEMPTS.



The Trans-Atlantic Sopwith Biplane ("Eagle" Rolls-Royce Engine, 400 h.p.)

The Sopwith Atlantic Scheme.

The interest attached to the "Daily Mail" Prize of £10,000, offered to the first aviator to make a trans-Atlantic flight, has been stimulated by two more British aeroplane manufacturers entering machines for the competition.

The Sopwith Aviation Co. has entered a specially designed two-seater machine fitted with a Rolls-Royce "Eagle" engine. Mr. H. G. Hawker—the Sopwith test pilot—has been nominated as pilot, and Lieut.-Comdr. Mackenzie Grieve, R.N., as navigator. The entry has been accepted by the Royal Aero Club of the United Kingdom, with which all entries must be lodged.

Mr. Hawker and Lieut.-Comdr. Grieve, together with the machine and a number of mechanics, have already started for St. John's, Newfoundland, where the start will be made. The Royal Aero Club has made arrangements with the Air Ministry for Major A. Partridge, R.A.F., to act as official starter in Newfoundland. This officer will attend to the timing, sealing and marking of the machine for identification purposes.

The Sopwith machine was recently tested. A distance of 900 miles was covered in 9 hours and 5 minutes, 146 gallons of petrol being used. This constitutes a third of the capacity of the fuel tanks.

The latest meteorological information will be transmitted to Newfoundland by the Air Ministry. Mr. Hawker will advise the Royal Air Force Meteorological Bureau when he is ready to start. He will then be informed when the weather is suitable, and probably will get an hour's warning.

The fairing of the fuselage has been so constructed that it forms a boat sufficiently large to support both pilot and navigator for some considerable time, should a forced descent have to be made on the surface. Both men will wear life-belts.

Mr. Harry Hawker was in the motor trade in Australia when flying began in this country. He and half a dozen other young Australians, including Lieut.-Col. Harry Busteed and Major Eric Harrison—who are now two very distinguished aviation officers—came over to England with their savings in their pockets and engaged themselves as mechanics—Mr. Hawker with the Sopwith firm and the other two with the Bristol Company.

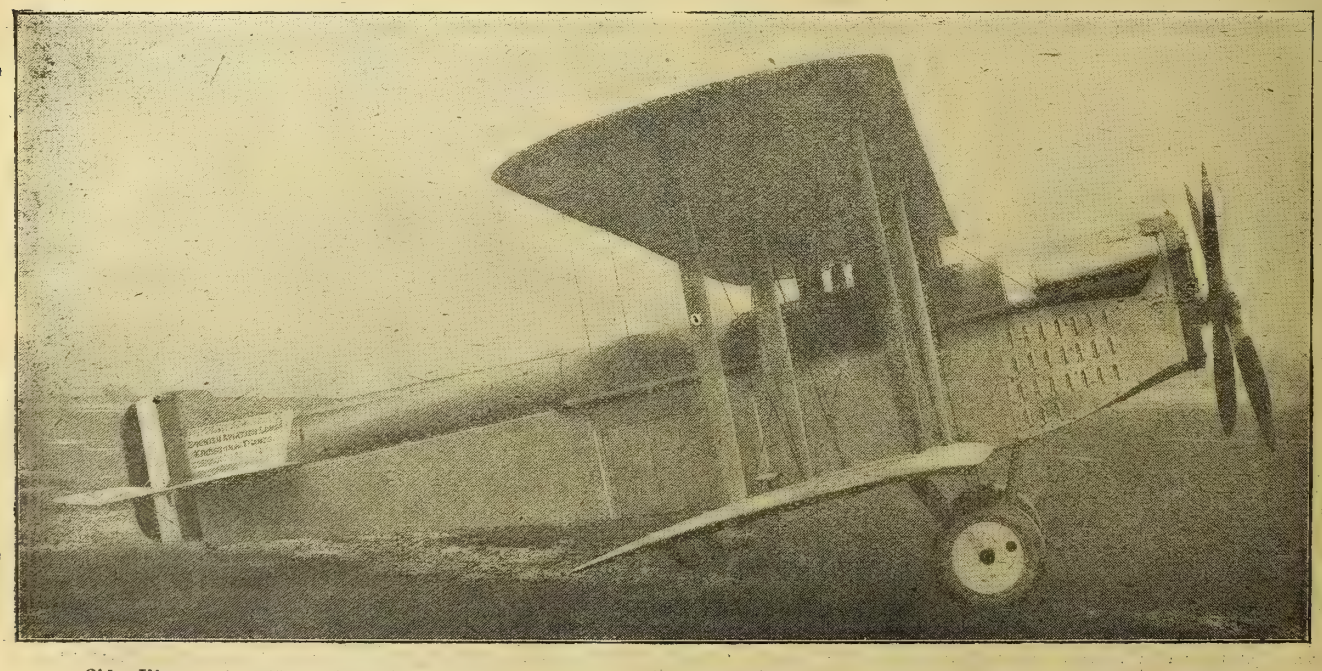
Mr. Hawker's skill as a mechanic attracted the attention of Mr. Sopwith, and his intelligence so impressed Mr. Sopwith that he himself taught him to fly. Mr. Hawker quickly developed into one of the most skilful pilots produced in this country.

On Oct. 24th, 1912, Mr. Hawker, on a Sopwith biplane designed after the pattern of the American Wright, and driven by a 40 h.p. A.B.C. engine, put up the British duration record of eight hours and 23 minutes, thus winning the Michelin Cup for that year.

On May 31st, 1913, on a Sopwith tractor biplane, with an 80 h.p. Gnôme engine, he put up the British altitude record of 11,500 feet, and on June 16th of the same year, on the same machine, he put up the record, with a passenger, of 12,900 feet. On the same day he took two passengers up to 10,600 feet, and on July 27th he took three passengers to 8,400 feet, all of which were British records.

In 1913, on a Sopwith seaplane, he made two attempts to win the "Daily Mail" £5,000 prize for a flight on a seaplane round Great Britain. The first time he was knocked out by illness at Yarmouth, and the second time he met with an accident near Dublin.

During the war he has put up the British record to something over 20,000 feet, but the figure is not yet made public, and it is said that in some of his recent tests he has reached a height of very much nearer 30,000 feet. Throughout the war he has done



Side View of the Trans-Atlantic Sopwith. The Life-boat forms the Fairing of the Fuselage from Cock-pit to Tail.



The Trans-Atlantic Short Biplane (" Eagle " Rolls-Royce Engine, 400 h.p.)

extremely valuable work in testing Sopwith machines, and the high performance of these aeroplanes, which has placed the various Sopwith types among the most successful fighting machines in the world, is largely due to improvements suggested by Mr. Hawker, as the result of his tests.

He was married in 1917.

Lieut. McKenzie Grieve has not been concerned with aeronautics, but is an R.N. officer who has specialised in navigation and wireless. He has been commended by the Admiralty for his work in this direction, and has been chosen as the navigator on this trip, owing to his having combined two branches of the Naval officers' work, which are not, as a rule, made the subject of specialisation by one man.

He has recently qualified as an aviator, so as to be able to relieve Mr. Hawker at the controls when necessary.

The Short for the Atlantic Flight.

On Friday, March 21st, Short Bros. lodged an entry with the Royal Aero Club for a two-seater biplane fitted with a Rolls-Royce "Eagle" engine. Major James C. P. Wood, R.A.F., was nominated as pilot, subject to the sanction of the Air Ministry, and Capt. C. C. Wyllie, R.A.F., as navigator.

The Short machine is of the type known as the "land bomber." It will be fitted with larger petrol tanks and wireless apparatus. The war equipment will be removed. The machine is now being converted at the Short works.

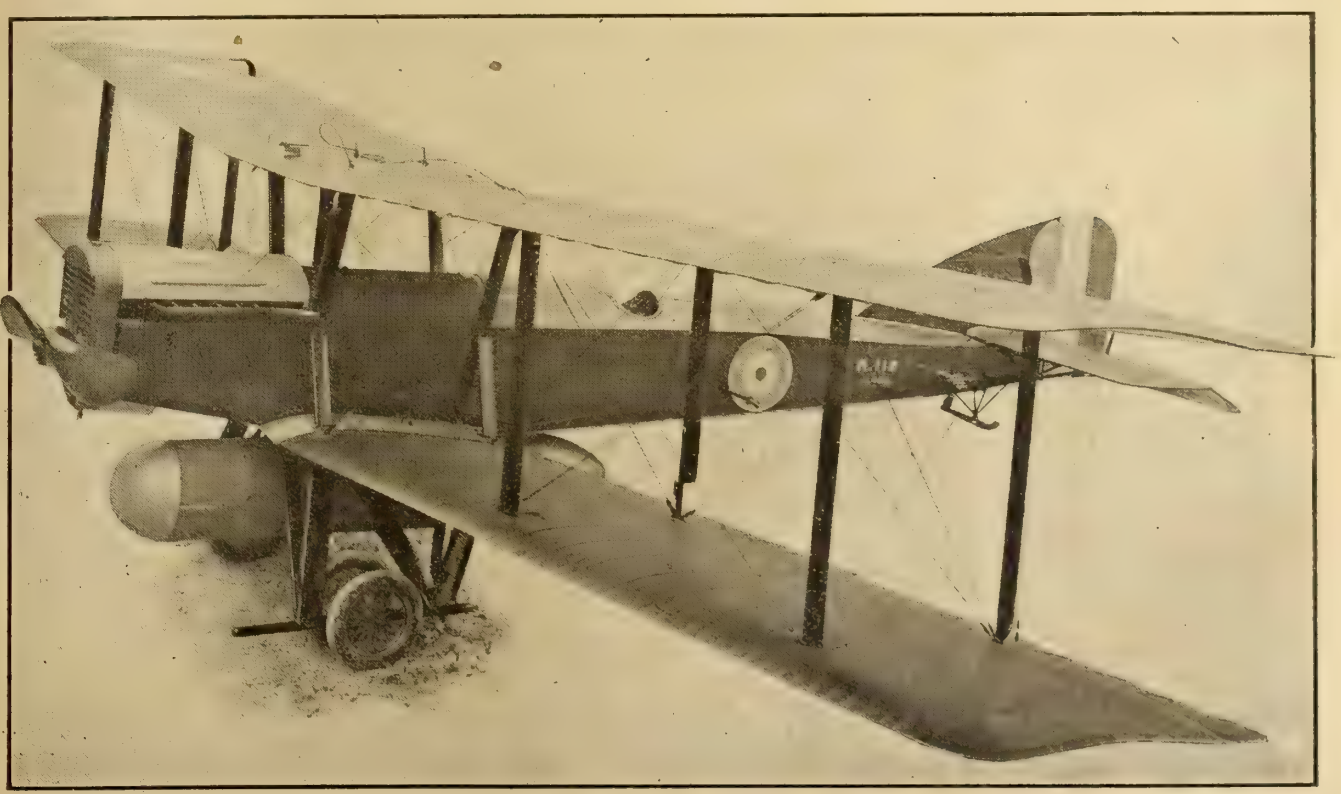
The machine has a span of 51 ft. 6 ins., and weighs about 8,000 lbs. fully loaded. The only unusual feature of the machine is a large torpedo-shaped petrol tank which is fitted beneath the fuselage. This tank can be emptied quickly, and will have sufficient buoyancy to keep the aeroplane afloat if a forced descent is made on the surface.

In an interview with a representative of the " Daily Mail," Capt. C. C. Wyllie, R.A.F., who is to be navigator of the Short machine in the projected trans-Atlantic flight, said :—

" We look to the sun, the Pole star, and a clear horizon to fix our position, and then with the new instrument, which is something like a sextant, we can say to within 20 miles where we are at any time of day or night. By means of a ' navigating machine,' which is really a ready reckoner for turning the readings on the sextant into plain facts upon the chart, and an aerial compass which I am fitting with a nautical card, I think we will be able to steer a fairly accurate course.

" A ' course and distance ' indicator and a ' directional ' wireless installation will provide a check for our calculations. Not the least important of our instruments is a chronometer watch.

" Passing ships will be asked to signal their position, and we can then calculate ours by means of a ' bearing-plate.' Ships on



Three-quarter Front View of the Trans-Atlantic Short Biplane. The big Petrol Tank (a dummy for test purposes) is noticeable between the struts of the Undercarriage.

the main traffic routes will also be asked to 'make smoke' from the funnels at the end of every watch—that is at 8 a.m., noon, and 4 p.m. This is a simple matter for the stoke-hold crews, and an oil-burning vessel would leave a patch in the sky which we could see for 60 or 70 miles.

"In cloudy or misty weather we shall be dependent entirely upon our directional and short wireless sets, and any sudden wind from north or south in a hazy sky would drift the machine many miles off the correct course without our knowing it. We are looking to the extraordinary endurance of our machine, 3,200 miles, to get us out of trouble of this kind."

The Trans-Atlantic Martinsyde.

It has now been stated in the columns of the Press that Martinsyde, Ltd., are entering an aeroplane for the Atlantic flight competition. The machine, which has been christened the "Raymor," is stated to be a two-seater aeroplane fitted with extra tanks. The pilot is Mr. F. P. Raynham and the navigator Capt. W. F. Morgan, R.A.F. (late (R.N.).

Mr. Raynham has carried out all the Martinsyde tests throughout the War. He has already made a number of long flights on the trans-Atlantic machine, carrying loads which show that the voyage is a comparatively easy feat.

The engine to be used in the flight is a "Falcon" Rolls-Royce, and it also has given first-class results, having been used on all these long flights and showing not the slightest sign of wear on final examination. The longest flight was one of seven hours' duration in which everything, including the condition of the pilot, passenger, machine and engine, was entirely satisfactory at the finish.

The machine shows a very high speed, which varies very little indeed with different loads and different altitudes, at any rate within the range of altitude which is likely to be reached during the passage.

Capt. Morgan, R.A.F., who is accompanying Mr. Raynham, besides being a specialist in navigation and wireless is a very experienced pilot, and therefore there should be no difficulty about either of the crew having a rest when so disposed.

The Martinsyde machine is more or less like the famous F.4, a machine of a type which was never used on active service, although a year before the end of the War it was by some miles per hour the fastest, as well as being the highest-climbing, aeroplane in the world.

A Canadian Effort.

Lieut.-Col. R. Collishaw, R.A.F., announces in the Ottawa Press that he will attempt the trans-Atlantic flight in May. He will be accompanied by Major Leckie, R.A.F., Major McKeever, R A.F., and Capt. Sinclair, R.A.F.

It is said that they are to use an American-built Handley Page.

U.S.A. Help.

Mr. Franklin Roosevelt, Acting Secretary of the U.S. Navy, announced recently that the U.S. Government will assist and encourage all competitors, regardless of nationality, for the "Daily Mail" prize of £10,000.

A Possible Post.

The British aviation officials in charge of the projected flight from Newfoundland to England say that they may carry several letters from this country, but the cost will be £100 each. The letters must not exceed one ounce in weight each, and the number is limited to 12. Inquiry has not so far revealed that many Americans are anxious to spend £100 to send a letter to Europe by aerial mail.

An Italian Rumour.

According to "Italia Nuova," a Caproni machine will compete for the "Daily Mail" trans-Atlantic Prize. This is probably the American-built Caproni, as Signor Caproni intimated his intention to postpone any attempt till next year.

A German Atlantic Airship Scheme.

Reports state that a Zeppelin is being built and is nearing completion at Friedrichshafen which will carry nine engines, with eight propellers. The ship, which is said to be capable of carrying 150 passengers, is intended for an attempt upon the Atlantic flight. It is also understood that the new Siemens-Schuckert Riezenfluegzeug, which is undergoing trials at Döberitz, will also attempt to fly across the Atlantic. This machine is said to be fitted with tanks capable of holding 750 gallons. It has six engines with a total of 1,800 h.p. driving four propellers. The flight from Hamburg to New York will, it is stated, take 20 hours.

The Vickers Atlantic Airship.

It is also understood that Vickers, Ltd., are building an airship designed for an attempt on this flight. Her cubic capacity is 1,200,000 ft., and she will have four 240-h.p. Wolseley Maybachs. Her crew will number 16 men.

PARIS NOTES.

For the first time in the history of French aviation, it seems that France will not be represented in an epoch-making flight. I refer to the coming contest to cross the Atlantic by air either with a view to winning the "Daily Mail" £10,000, or just for the sake of the achievement, should it be accomplished by an official machine or dirigible.

It is undeniable that at the cessation of hostilities British Aviation was supreme, so that it is strange to find on reflection that the majority of all "pioneer" flights have been made by Frenchmen, with the exception of the long-distance flights on Handley Pages by Military pilots during the last few months. A glance down the following table will better show what I mean:—

Performance.	Date.	Miles.	Time. H. M.	Aviator.
First cross-Channel flight ...	25/7/09	25	0.37	Blériot
First flight over a Capital (Paris)	19/10/09	26	0.43	de Lambert
First cross-country (London-Manchester)	28/9/10	185	3.56	Paulhan
,, flight over a mountain (Alps)	23/9/10	25½	0.42	Chavez
,, circuit (Circuit de l'Est	7/17/8/10	493	11.50	Leblanc
,, International cross-country (Paris-Madrid) ...	21/24/5/11	767	37.26	Védrines
,, circuit of England.....				de Conneau
,, International sunrise to sunset (Paris-Warsaw)	10/6/13	850	9.24	Brindejonc de Moulinais
,, Mediterranean flight (St. Raphael-Bizerte)	23/9/13	500	7.53	Garros
Greatest speed realised on a long-distance flight(Paris-Damgarten)	31/10/13	593	5.20 (125 m.p.h.)	Gilbert
Longest voyage with passenger (Paris-Cairo)	10/11/13 1/1/14	2810	—	Bonnier
Longest non-stop flight (Nancy-Cholum, Poland)	20/6/16	810	10 hrs.	Marchal
Longest oversea voyage in 24 hours (Miramas - Rozas) (with passenger)	26/1/19	850	10 hrs. 35ms.	Coli

The South Atlantic Passage.

I hear that Frenchmen intend to make a flight from Paris to Pernambuco! It is a far cry, or, rather, a far fly, but I have not the slightest doubt that these energetic Frenchmen will succeed. All the same, reverting to the projected crossing of the North Atlantic, they are following the British and American preparations with considerable interest; indeed, complaints are being raised in some quarters at the non-entry of the French machines; but I doubt whether they will come to anything, as they feel that the British preparations are too far forward to admit even a sporting chance of winning a third ten thousand pounds for this impoverished country.

Loads of 2,000 Tons.

One of the most promising portents for the future of Aviation is that of the continued optimism displayed by its oldest adherents and pioneers. Thus, M. Clement Ader, the first man to fly in Europe, and one of the oldest, as regards age, connected with Aviation, is convinced that constructional difficulties will be overcome, and that the span of Aerial Liners will one day equal 500 metres, and carry a load of 2,000 tons! In support of his belief, he points out that the coracles of yester year are to-day's liners.

Conversations Overhead.

Apparently, England is not the only place where chicanery exists. I heard two French officers talking in a train the other day, and the conversation ran as follows:—

"Oh, yes, they land the machines at Dunkirk."

"At Dunkirk?"

"Yes; and having placed them on trucks per grande vitesse, take them into St. Raphael!"

"What a lovely voyage!"

"Superb."

"And what happens to the machines at St. Raphael?"

"The machines? Oh, they burn them!"

British Pilots Wishing to Fly in France.

Any British pilots wishing to fly in France after they are demobilised are invited to write to M. Gaubert, Farman Aerodrome, Toussous-le-Noble, prés Vtrsailles.

Suggested Use for French Naval Machines.

The French Navy is going to keep only a very small proportion of hydro-avions now that the war is virtually over, and those not required are to be sold to individuals or to exportation companies. This would seem to be an excellent opportunity for an enterprising concern to start a pleasure passenger service on the Cote d'Azur, say from Menton-Monte Carlo or Nice-Marseilles; in fact, the same service which I recollect Mr. R. F Macfie was so keen on starting in 1912.

The Navy has decided to keep the dirigibles for experimental purposes, which is a very sound idea. There are relatively a large number of concerns that will continue to experiment with aeroplanes, etc., compared with the few who would be prepared to sink the necessary capital in lighter-than-air machines.

We all know by now that France is a keen partisan in favour of the League of Nations, but she first demands a satisfactory disarmament of the Germanic Empire. Hence, her inquietude anent the reported formation at Tilsit of a "Society for Aerial Sports" which proposes to organise competitions between fighting pilots and amateur or civilian aviators. Opinion here is very much against allowing any such formation of "fighting pilots."

The Paris-Rome-Paris Record.

The event of the week may be Védrines' attempt on a Paris-Rome-Paris record. Up to date (the 20th) the weather has not been sufficiently favourable, excepting one day, when, owing to the large amount of fuel he must carry, he could not get filled up in time, and Védrines will use a Caudron 23 bis No. 4163, the main dimensions of which are:—Span, 25 m. 470; length, 12 m. 860; giving a supporting surface of 100 square metres.

The machine is bi-motor (Salmson) and bi-helice. The "light" weight of the machine is 2,350 kilos.; it will carry 1,620 kilos. of petrol, and 280 kilos. of oil, which is calculated to be sufficient for a 14-hour flight at full power, or a distance of 2,000 kilometres without stop.

The difference between the C.23 and its bombarding ancestor is chiefly in the disposition of the fuel supply, which, in this case, occupies the centre of the fuselage between the struts. If Védrines follows the itinerary given below, he will pass over the following mountains:—

	Metres.		Metres.
La Grande Porlaz	3,214	Le St. Gervais	3,680
L'Aiguille de Biounasset	4,001	Le Dome de Goûter	4,331
La Frasse Glacier	3,431	Mont Blanc	4,810

Itinerary	Kil.	Itinerary	Kil.
Paris	0	Moretta	600
Melun	50	Carru	650
Sens	100	Albenga	700
Auxerre	150	Gênes	750
Avallon	200	Spezzia	800
Arnay-le-Duc	250	Livourne	850
Chalon-sur-Saône	300	Piombino	900
Lons-le-Saulnier	350	Grossetto	950
Bellegarde	400	Mangiano	1,000
Thône	450	Vitterbo	1,050
Mont Blanc	500	Rome	1,100
Busselone	550		

Unless he changes his plans, Védrines will follow the same route on the homeward journey. He will be accompanied by his mechanic, Guillain, who was so wounded in the first battle of the Marne that he was returned to tune-up machines and remained.

A Dead American.

One by one the pilots of the Lafayette Squadron are passing away; the latest is Mr. David Peterson, who became an Ace on being transferred to the American Flying Corps.

Grandes Aerogares.

Captain Lenderoin has returned to Paris from Hyères to make his report after studying the local terrain with a view to choosing a spot suitable for one of the "grandes aerogares" of the future. This one will be the junction of the Nice-Italy line.

There has been an unfortunately large number of fatal accidents in hydro-avions at St. Raphael the last few months, and it is the general opinion *now* that St. Raphael is the last place in France that should have been chosen for the daily exercise of hydro-aeroplanes. "L'Eclaireur" de Nice is ventilating this grievance very forcibly.

Surrendered Boche Machines for Belgian Posts.

Simultaneously with M. Farman's announcement of a Paris-Brussels service comes the news that the Belgians are ready to start a reciprocal service with surrendered Boche machines capable of flying 125 m.p.h *Quelle ravanche!*

The Belgian Postal Authorities having put their house in order and established the necessary control posts, the aerial post, which has hitherto been confined to official correspondence, will be open to the public. As yet, there is no news as to whether a surtax will be charged, or whether the charge will remain normal, as is the case with that of the Paris-Lille service.

Commercial Aeronautical Missions.

Apropos the British (Commercial) Aeronautical Mission to the Spanish Government, it is well to note that the French have a mission in Japan. Lieut. Dukert is in charge. During the war he brought down three Boche machines, and was instructor at the Ecole de Tours; he was a pre-war pilot.

Train and Aeroplane Posts Combined.

Although such flights are beginning to get monotonous in their frequency and success, it is one's duty to record the following performance, completed under the most adverse conditions, which the French describe as "dog's weather." On the return journey rain, hail, and gale were experienced. This flight is specially interesting in view of the fact that the French were able to experiment with their pet idea, an aerial post by a combination of train and air—the train by night and the air from dawn to dusk.

March 8th.—M. Latecoëre arrived by night train from Paris with official and ordinary mail. Left midday, landed Barcelona, and finished first stage of journey at Alicante at 8 p.m.

March 9th.—Left Alicante 6.30 a.m., stops at Malaga 10 a.m., and Rahat 3.30 p.m. Arrived Casablanca 4.30 p.m.

March 10th and 11th.—Official reception at Casablanca and Rahat.

March 12th.—Left Casablanca 7.30 a.m., stopped at Rahat to fill up, stopped Arbaoua (fog), reached Malaga 3 p.m.

March 13th.—Left Malaga 6.30 a.m., stopped Alicante 10.12 a.m., at Barcelona 3.30 to 4.15, arrived at Canet, near Perpignan, at 6 p.m. (mistral encountered).

March 14th.—M Latecoëre by train to Perpignan in order to give the mail to the Postal Authorities.

March 15th.—M. Lemaitre arrived at Toulouse. M. Latecoëre visited M. Pichon, Foreign Minister, on his return, and handed him a letter from General Lyautey, who is Resident-General in Morocco.

French Speed Records.

As yet, there is no limit to the claims of the speed record over here. Further, to my notes on this subject of last week, M. Henri Farman states that early in 1918 a small fighting biplane of his design, the H.F.31, with a 400-h.p. Liberty engine and a load of 650 kilos., attained a speed of 240 kilos. per hour. Climbed to 2,000 metres in 6 minutes, 3,000 in 10 mins. 15 secs., 4,000 in 17 mins. 15 secs., and 5,000 in 27 mins.

This is further contested by M. C. Gourdou, who, in a letter to "Auto," claims that in May, 1918, a two-gunned monoplane with a 180 h.p. (?) Hispano-Suiza, officially attained a speed of 247 kilometres per hour. It carried fuel for 2½ hours and its load was the same as for a 300 h.p. machine, and yet it reached 5,000 metres in 18 minutes! M. Gourdou further states that his machine has a factor of safety of 20.

Gradually information, suppressed or censored, during the war, is coming to light. For example, what the French describe as a world's record, was made on August 24th, 1918, by M. Sadi Lecointe in a Monocoque Spad-Herbemont, type XX, fitted with a 300 h.p. Hispano-Suiza engine, carrying a passenger and fuel for three hours, in addition to the heavy armament usual on such machines during the war. The total load carried was 459 kilos. M Herbemont, the co-inventor, was carried as passenger.

The official performance of this machine was a maximum speed of 230 kms. per hour near the ground, and a minimum speed of 107—certainly a great range. At 5,000 metres, a speed of 212 kms. per hour was registered.

A few days later M. Sadi Lecointe took it out solus, and, in spite of its heavy armament, got 237 kms. per hour near the ground; rose to 7,000 metres in half an hour and flew at 193 kms. per hour at 7,500 metres.

Machines of this type were ordered in large numbers prior to the Armistice, but the war ended too soon for it to play an effective rôle therein. For commercial and peace work the Maison Spad are fitting an extra passenger seat in place of the armament, so that it will probably be the fastest three-seater for some time to come.

Then, again, there is the little single-seater Nieuport type 29, a biplane which made its appearance last autumn, fitted with a 300 h.p. Hispano-Suiza engine.

The following are the details of its performance during an official test last year.

Useful load carried, 167 kilos; duration of flight, 2½ hrs.; speed near the ground, 236 kms. per hr.; climbed to 1,000 metres in 1 min. 56 secs.; 2,000 metres in 4 mins. 19 secs.; 3,000 metres in 6 mins. 37 secs.; 4,000 metres in 9 mins. 53 secs.; 5,000 metres in 13 mins. 26 secs.; 6,000 metres in 18 mins. 46 secs.; at 6,000 metres it maintained a speed of 210 kms. per hour; its ceiling is 8,500 metres.

Machines of this type are now being sent to scouting squadrons charged with watching the Rhine. It is interesting to note the comparative time for each successive thousand metres. First thousand, 1 min. 56 secs.; second, 2 mins. 23 secs.; third, 2 mins. 18 secs.; fourth, 3 mins. 16 secs.; fifth, 3 mins. 33 secs.; sixth, 5 mins. 20 secs.—F. T. N.

AVIATION AND LIFE ASSURANCE.

The Need for the Periodical Medical Examination of Commercial Pilots.

At the Institute of Actuaries, Staple Inn Hall, Holborn, W.C.1, an interesting discussion on "Aviation and Life Assurance" took place on Monday, March 24th.

It was opened by L. T. Stamm, M.D., late R.A.F., who said:

In all matters appertaining to aviation we are at the beginning of things, and most especially is this true of Assurance, because we have so few figures and facts upon which we can base any estimate of the risks.

In discussing the matter a few weeks back with one of your honorary secretaries I made some remarks and suggestions from the medical point of view, which he seemed to think might be of interest to others of the same profession, and it is on that account that I am before you to-day. I must therefore hold your hon. secretary responsible if I fail to offer you that food for reflection which you had reason to expect.

Although the subject for discussion is announced as Aviation and Life Assurance, I trust it will not be amiss if I take a wider view of the subject so as to include assurance in general in relation to aviation. I prefer to consider first the risks of aviation, and then the means by which some of these risks may be estimated and to some extent controlled.

The Chief Risks.

There are three chief risks in the air:—

1. Weather conditions, especially fogs and storms.
2. Mechanical defects.
3. Defects of the pilot.

1. Weather conditions are at present beyond our control and must therefore be reckoned as a risk, the amount of which can only be estimated by experience, and which will probably prove to be somewhat greater than the risk from the same cause at sea.

2. Mechanical defects are being more and more controlled, and we look to the time when they may become, at least in certain types of flying machines, almost a negligible quantity; that time has not yet arrived. I believe there are some gentlemen present from the Air Ministry who are specially qualified to speak on this point, so I need but refer to it.

Defects of the Pilot.

3. It is the possible defects of the pilot about which I am specially concerned, for the medical officer is but the inquirer to the human mechanism, and I want to emphasise in the first place the importance of the pilot and his skill in calculating the risks of aviation, because this factor not only stands by itself as one of the three chief risks in the air, but it also modifies and is bound up with each of the other two.

For instance, a machine may crash, and the attributable cause may be bad weather conditions—fog or heavy gale—but there is a very small percentage of bad weather conditions in which the best possible pilot, with the utmost capacity for meeting emergencies, and in his best mental and physical condition, would not by some means or other make a good or approximately good landing. And the same holds good for mechanical defects.

If something goes wrong, the eventual upshot enormously depends upon the pilot. The engine conks over somewhat unpropitious ground and with one pilot there is a crash, which with another, in spite of some much more serious breakdown, involving perhaps considerable loss of the controls, a perfectly good landing is effected. So that the all-important, all-predominant factor is the personality, the experience, the ability, the fitness of the pilot.

Ordinary and Exceptional Risks.

All these risks vary according to the class of aviation work in which the pilot is employed and the type of the machine. Obviously, the simplest and safest kind of work is that of the *ferry pilot,* for the ferry pilot takes just the ordinary risks of the air as already outlined without any complications. Next in the order of risk may be placed the *test pilots.* Here one has an added risk owing to the fact that the machine is taken into the air for the first time after leaving the workshops and a mechanical defect may disclose itself only on getting up.

I was talking to a man who had been in close touch with the aviation world since before the war, and he told me that of a small band of pre-war expert test pilots only a few were left, and he gave it as his opinion that in almost every case these expert pilots had crashed fatally from doing something stupid, which they would themselves admit if alive, and not from any mechanical defect.

They were worked so hard and made so many repeated trips into the air daily that they did their work mechanically and without sufficient mental attention. They became mentally stale, and on this account these poor fellows came to grief. In peace-time, of course, no such strenuous conditions of service need or should occur, but the story points on much which I shall emphasise later.

The Case of the Fighting Pilot.

In the case of the *fighting pilot,* the risks are enormously increased because the fighting risks are added to the ordinary risks of the air. The losses in the Air Force at the front were appalling, but it would probably be very wide of the mark to take these losses as a standard for calculations of risk in any future war. The losses were undoubtedly greatly increased by the fact that the Air Force was practically formed in the course of the war and everything was consequently rushed.

Young boys were sent to the front with little flying experience and still less equipped with any fighting skill. To anyone with any practical knowledge of what was expected of these boys, what they had to do, what the demands are on ability, skill, and pluck to constitute a good fighting scout, it is a constant source of wonder and admiration that they did what we know they did and any of them came through alive.

Then there are the risks of the *learner.* There is no doubt that in the case of ordinary flying, as against flying and fighting, the pilot runs the greatest risks when he is doing his first, perhaps, 50 hours' solo flying. The extent of the risks depends upon preliminary training in dual control, his inherent capacity as a pilot, and to some extent—luck.

The Most Risky Machines.

In all these different classes of aviation work the risks again vary according to the type of machine. The small scout machine, whether used simply for flying or as a fighting machine, is the most risky, because it makes greater demands on the skill of the pilot, offers greater temptations to the pilot to take risks in stunting, etc., and is more liable to mechanical breakdown.

The question naturally arises: Have we any data from which we can form an estimate of what the actual risks of aviation in civilian life are likely to be? Aviation during the last four years has been so almost exclusively of the fighting type that it is difficult to calculate the risks of ordinary flying from the past four years' experience.



A German Kite-Balloon Section Laying out a K.B.



Inspecting the Finger-nails of a German K.B. Section as a safe guard against their tearing the Fabric.

Even the ferry pilot has not been free from the risks inherent in war conditions. I would suggest that the most useful statistics, if they could be obtained, would be those showing the casualties among experienced pilots employed on home service as instructors. They would give as nearly as possible data upon which one could base an estimate of the risks of a pilot employed in civilian aviation.

The Personal Factor.

I have already laid stress on the importance of the personal factor of the pilot in estimating the risks of aviation for assurance purposes, and I would point out that this not only applies to the assurance on the life of the pilot, but also to any other form of assurance, whether of the passenger, cargo, or flying machine itself, so that in all these different forms of assurance, if the risks are to be reduced to within reasonable limits, this personal factor of the pilot must be studied.

First of all, we have the ability and the experience of the pilot. It is supposed that all pilots will be under some State control and will be licensed.

How far such a licence will carry with it any security that the pilot is really efficient remains to be seen As may be already known to you, medical service of the Air Force has devised special methods and tests by which we are able not only to test the physical health of the prospective pilots and their physical ability to withstand special stresses and strains of air conditions, but also we are able in some measure to estimate the general ability and temperamental suitability of the candidate for the work.

Medical Tests for Pilots.

If every civilian pilot is submitted to these tests and also undergoes a thorough and prolonged apprenticeship in the air before he receives a job involving the responsibility of carrying passengers and cargoes, we shall have a good foundation to start from. But matters do not end there. A pilot may to-day be physically and mentally fit for his work, and one month, two months, or three months hence he may be quite unequal to his job.

Medical study in the Air Force has demonstrated that the strain of flying falls almost entirely on the nervous system, and it is to this system that all our special tests are chiefly applied. For flying one requires a tough nervous system, or, as I have elsewhere suggested, a good nerve physique. For instance, one not only requires sound and healthy heart and lungs, but the nerve-mechanism controlling these organs must be sound and healthy. When a man gets "stale" or "run-down," his nervous system suffers as a whole, but the weakness may manifest itself in many different ways and at different points.

Defects in the Nervous System

It may show itself in a weakness of these lower nerve centres controlling the vital functions, such as the heart, or the higher centres connected with the mental functions may be affected so that he is no longer equal to an emergency, is liable to get "wind up," or is not able to make those rapid responses to sudden changes which emergencies in the air may demand.

All these defects in the nervous system we are able to detect in one way or the other, and medical work on these lines is by no means complete. We may look to the time when we shall be able to test a man in the same way as we can test a machine or an engine, and to say definitely, apart from his own subjective feelings and ideas about himself, "This man is fit or is unfit to go into the air." From an assurance point of view, therefore, as well as from every other point of view—the safety and welfare of the pilot and safety of the public—it is essential that there should be a registration of all pilots, involving a thorough examination, both technical and medical, to test the ability and physical fitness of the pilot, and, furthermore, periodic medical examination to test the continuance of that fitness.

Effects of Alcohol and Tobacco.

It is only by some such provision for the testing of pilots by medical men specially qualified for the purpose that we can hope to minimise this all-important risk of the fitness of the pilot. In connection with this proposed medical supervision comes the question of the habits of the pilot, especially in regard to alcohol and tobacco. There is no doubt that the nervous strain involved in flying tends to excess in the consumption of both these poisons.

Both alcohol and tobacco in excess act deleteriously on the nervous system and tend to produce a lowering of the general fitness, which is so important to the aviator. In the case of alcohol one has also to reckon with the possibility of more sudden and disastrous effects which I need not specify in more detail. It is an open question whether a small amount of stimulant with meals is actually beneficial, at any rate for some people.

It is the habit of promiscuous "drinks," be they few or many, that has such baneful effects, both immediate and remote, and on this account I have no hesitation in saying that, from the point of view of life assurance, a lower rate of premium should be made to the abstainer pilot.

Some aviators claim that they fly better with alcohol inside them. That may be, but the immediate effect of alcohol is always uncertain and dangerous, and the effect of the habit in the long run definitely deleterious. The good type of pilot is the man who can fly without any such doctorings and bolsterings up of his self-confidence.

A Very Serious Problem.

Then, again, a service under proper medical supervision would afford a valuable check to risks on this score. All serious-minded men interested in the future of aviation are, I believe, fully alive to the fact that this matter of alcohol and the pilot constitutes a very serious problem.

While it is recognised on most hands that medical supervision of pilots, such as I have indicated, is highly desirable and necessary, everyone appears to look to somebody else for responsibility in the matter. Individual commercial enterprises are not prepared at present to encumber their service with any such liabilities, and rather look to the Government for a lead in the matter.

In the Assurance world also they seem to look for some central authority like Lloyd's to institute a registration of pilots involving medical inspection. In regard to Life Assurance such a system of periodic medical inspection would undoubtedly be of immense value by diminishing the risks on the life of the pilot, but I would suggest also that, in assuring the lives of pilots, life assurance companies should consider the advisability of such pilots undergoing, in addition to the ordinary medical examination, a special examination to test their fitness to withstand the conditions of the air on the lines of the tests carried out in the Air Force.

It is impossible to deal in detail with these special medical tests that have been developed in the Air Force Medical Service, but I have brought a couple of apparatus used for this purpose which I thought would be of special interest.

The Mercurial Manometer.

One consists of a mercurial manometer with a mouthpiece attached by a connecting rubber tube. The candidate is told to take a good breath and then make an expiratory effort through the tube so as to force the mercury up to 40 millimetres and hold it there as long as possible. He should be able to keep up the pressure for at least 40 seconds, and during that time the pulse rate is counted every five seconds. Considering the duration of the expiratory effort and the variations of pulse during the effort, one is able to estimate the condition of the cardio-respiratory apparatus, and especially the controlling nerve-mechanism and its ability to withstand the stresses and strains of aviation.

To Colonel Flack is due the credit for devising and developing this test, and it has proved of great value, not only in the examination of candidates for the Air Force and rejection of the unsuitable, but also as a test for unfitness resulting from stress of service.

In my opinion this apparatus would prove of great value and afford some very interesting results if it were adopted in the routine medical examinations for ordinary life assurance, not only in air service, but in other war service. It has been found that war strain affects the nerve control of the head rather than the heart itself, and undoubtedly in a less degree the same applies to the stresses and strains of ordinary life.

Test for Higher Nerve Centres.

The other apparatus has been devised by myself and affords a means of testing the higher nerve centres immediately connected with the mental functions, in regard to their power of rapid and accurate response. It is a means of measuring the "reaction time" of the mental functions, or the time a man takes to think and respond by action. It consists, briefly, of four signals, two lights and two sounds, any of which can be given separately by touching a key.

The candidate responds by touching one of several keys, appropriate to the signal. When the examiner touches his key to give the signal, a stop-watch registering 1,100ths second is started electrically, and when the candidate responds by touching one of his keys the stop-watch stops and so registers the time interval between the signal and the response.

He is gradually led up from one signal separately to the expectation of all four signals, and it is this final four signal test which has proved to be a very good criterion of his mental ability and skill as a pilot.

A hundred and fifty pupil-pilots were tested in this way, and independently their instructor's opinion was obtained as to their ability as pilots, and a remarkable correlation was shown between the opinions of the instructors and the result of my reaction time apparatus. In addition to a quick mentality, ready and accurate in response, the pilot requires an emotional stability, so that he is not easily disturbed and overcome by the emotion of fear. The galvanometer has been found to offer a very good test of this emotional stability, and is likely to be adopted as a further means of testing the temperamental suitability of a man for the Air Force.

There are many other tests and methods employed, including of course the blood-pressure tests, tests for equilibrium, etc., which I will not take up your time to describe. As I have already indicated, they are for the most part directed to testing fitness of the nervous system as being that part of the human mechanism which is especially liable to suffer from the stress of aviation.

The question has been asked how long will a man continue as an active pilot? Here, again, one has no definite data upon which to base an authoritative opinion.

I can only venture to hazard the suggestion, taking all things into consideration, that, even given a successful flying career, without any nerve-breaking crashes or accidents, most pilots will probably wish to drop into some "ground" job of a less strenuous nature after a term of, say, 10 to 15 years, and many after a much shorter term of service, whatever the nature of the service may be, fighting or civilian, a ferry pilot or instructor.

* * *

The Discussion.

In the discussion that followed many interesting points were raised.

Mr. Besant said that actuaries would welcome any statistics which the Air Ministry could supply. Such statistics were needed before aviation assurance could be put upon a scientific basis. It was evident that periodical examination would be necessary. Pilots must be kept up to pitch. There were grave dangers in the over-indulgence in alcohol and tobacco, but apparently there was but little evidence to show that flying led to permanent injury to the health of a pilot.

Assurance was being considered carefully. A certain office quoted recently 5 per cent. for R.A.F. officers and 3 per cent. for civilian fliers. More statistics were needed.

Major-General Sir S. Brancker, K.C.B., A.F.C., said that aviation is to-day safer than the majority of people realise, and that it is not necessary for a pilot to be physically perfect. He said that he had been told in his early days that he would be a danger to himself and everybody else, as his eyesight was defective. Yet during all the flying he had done he had never hurt anybody and had never injured himself except for one slight scratch.

In peace-time pilots would not be expected to ascend to great heights and to dive at speed, or to perform stunts. He believed that commercial flying would be done at an altitude of about 2,000 ft., and that, if greater heights were reached, the ascent would be made slowly. This would reduce the strain of flying.

Failure of equipment would be eliminated, and breakage in the air would cease. Well-organised air routes would have good landing grounds at frequent intervals, and so dangers would diminish.

He gave some interesting particulars of the air services that have been in operation between London and Paris and Paris and Cologne. Seven hundred voyages had been made without a single pilot or passenger being injured.

As to the age to which a pilot could continue to fly, he did not see why one could not fly as long as one could ride a horse. A pilot was not necessarily too old at sixty.

People had mistaken ideas of flying. As a matter of fact, commercial flying would be an extremely dull job. He would think it sheer boredom.

It was probable that there would be Government training and medical examination of pilots, and there might be some difficulty with regard to the control of scattered detachments where pilots on dull and unhealthy stations would be exposed to the temptations of alcohol. It might be necessary to have travelling medical officers to visit such stations.

He considered that there were some very lean years to come for commercial flying. Assurance offered great difficulties, but he thought it essential that those difficulties be faced before commercial flying could be placed on a firm basis. He had been glad to note that during the last two months assurance rates had come down.

Brig.-Gen. J. G. Hearson, D.S.O., said the pilot was not the only factor to consider. The thoroughness and loyalty of the ground staff were also to be taken into consideration in determining the factor of safety. In fact, the human element was a tremendous one. There might be a temporary in-operation of a policy. That is to say that a society might warn the holder that the policy would be invalid if he flew with a certain pilot or travelled in machines from certain aerodromes.

He thought that investigations ought to be made by the insurance companies, and that they should not rely upon statistics supplied to them. The whole subject must be considered carefully.

Lt.-Colonel Mervyn O'Gorman, in a particularly well-reasoned speech, spoke of the risks of aviation. He remarked that it is still considered somewhat heroic to go into the air. The pilot appealed to popular imagination because he fought alone. No such hazardous single combats had taken place for thousands of years as those our pilots fought in the air. Nothing like these combats had taken place since gladiatorial times.

But these combats had made people think flying more dangerous than it is in reality. If we exclude the fighting risks, flying is not so dangerous as is generally believed. We have statistics of the flights in England during the war of all those who were training, and if we consider them, excluding the pilots engaged in home defence work, but including all those who were found unfitted to be pilots and who had been turned down for heart weakness, over-fondness for the well-known Ws. or other causes, we found that the average man flies three times round the world before he meets with a fatal accident.

Those fliers in training were subjected to much tension. They had to learn to perform stunts. In peace-time results should be far better, because stunts would not be necessary for commercial flying. Also, the machines would not be subjected to such severe strains. For example, if a machine had to be turned in peace-time, the change of direction would not be made so quickly. This would save strain.

Again, it is possible to make machines that have lifeboat stability—that is to say that they will right themselves from any position. In war-time stability has often been sacrificed in order to gain other qualities. The peace machine would fly itself, and, instead of the pilot suffering from strain, he would be more likely to feel the effects of dangerous somnolence.

Too Much Teetotalism.

Colonel Flack disagreed with the view that the best pilots were teetotallers. He said that he would consider that "too much teetotallism would go against them." Those who never take alcohol were not such good sportsmen, he thought, speaking broadly. Over-indulgence is bad, of course. It would be necessary to have a periodic overhaul of pilots.

Many accidents had been caused during the war by pilots flying, owing to the urgency of the work, when they needed a rest. He remembered one whom he had advised to remain on the ground. This aviator had been induced to keep on with his work, and the result was a crash. The last thing he remembered was flying over London, and he woke up to find himself in an ambulance. Many accidents would be avoided if periodical medical examinations were insisted upon.

Employment of Discharged Soldiers, Sailors, and Airmen.

The following official communiqué has been received:—

The Secretary of the War Office forwards the following for publication:—

The attention of the Army Council has been called to the apparent unwillingness of certain employers of labour to engage demobilised soldiers who are not in possession of silver war badges to prove that they have served in the Army during the present war.

For the purpose of avoiding unnecessary hardships to such men and in order to remove any misunderstandings which may have arisen with regard to this badge, it is considered advisable to reiterate the underlying condition which governs this award—viz., physical disability or advanced years which render a man unfit to render further military service.

It must be understood that this badge is in no sense a commemorative war medal awarded to all who have served during this war, but is a distinctive mark reserved for those who have been compelled to return to civil life on the grounds of ill-health.

It must therefore be apparent that to require every applicant for employment to produce a silver war badge as proof of his statement that he has served during the war is unnecessary and unjust.

If proof be required, the production of the protection certificate (Army Form Z.11), transfer certificate (Army Form Z.21), or discharge certificate (Army Form B.2079) would satisfy all necessary demands. It must be emphasised that men who have been demobilised, as opposed to those who have been discharged on account of physical disabilities, are ineligible for the award of the silver war badge.

[Note.—The Editor hopes that aeronautical firms will, in so far as possible, employ those who have fought during the past war for King and country. Neither prosperity nor happiness will be ensured in this country until the just claims of those who have borne the brunt of the war have received fair and honourable treatment.]

A Star Concert.

The entertainment which Mr. G. Holt Thomas is providing at the Y.M.C.A. Hall, Tottenham Court Road, on Wednesday, 26th inst., at 7.30 p.m., bids fair to eclipse all the previous concerts which have been organised by the London Aircraft firms in aid of the Y.M.C.A. funds for the housing and entertaining of disabled soldiers and sailors.

The arrangements are in the experienced hands of Mr. F. H. Payne, who has secured the promise of contributions from a number of famous artists, including Mr. Harry Tate, Mr. Davy Burnaby, Mr. Tom Stuart, Captain Herbert Radcliffe, Mr. Alec Fraser, Mr. Cyril Clensy, and Mademoiselle Yvonne Granville. Mr. Peter Page will be at the piano.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

Air Ministry, March 18th.

R.A.F.—The following temp. appointment is made at the Air Ministry :—Staff Officer, 3rd Cl. (P.).—Lt. (actg. Capt.) C. E. Crowne, and to retain the actg. rank of Capt. while so empld, Feb. 27th.

Flying Branch.—Maj. R. L. Farley to be actg Lt.-Col. whilst empld. as Lt.-Col. (K.B.), Aug. 13th, 1918.

Capt. W. Lambert to be actg Maj. whilst empld. as Maj. (K.B.), Aug. 13th, 1918.

Lts. to be actg. Capts. while empld. as Capts. (A.) :—J. H. Cooper, July 1st, 1918; H. Daniel, M.C , July 14th, 1918; W. S. Hill-Tout, Aug. 22nd, 1918; E. P. Humphries, M.B.E., M.C., Oct. 1st, 1918; H. E. Judge, Oct. 26th, 1918; G. R. Ashton, C. A. Bouchier, C. S. Ramsay, Nov. 1st, 1918; G. H. Langley, Dec. 13th, 1918.

Sec. Lt. J. G. Nash to be actg. Capt. whilst empld. as Capt. (A.), Dec. 1st, 1918.

Sec. Lt. (actg. Lt.) (Hon. Capt.) C. J. P. Copner retains the actg. rank of Lt. whilst empld. as Lt. (K.B.) from (Ad.), Nov. 8th, 1918.

Sec. Lt. C. W. Harrison to be actg. Lt. (K.B.) whilst empld. as Balloon Comdr., Oct. 1st, 1918.

Lt. C. W. Sowter to be Lt. (A.), from (Ad.), March 6th.

Sec. Lt. T. H. Lewis to be Lt., March 1st.

Sec. Lt. E. A. Blundell to be Sec. Lt. (A'shp), from (T.), April 1st, 1918.

Prob. Flt. Officer A. J. **Rankin (late R.N.A.S.)** is granted a temp. commn. as Sec. Lt. (A.), July 15th, 1918.

F. J. Parker (temp. Sec. Lt., York and Lanc. R.) is granted a temp. commn. as Sec. Lt. (O.), Aug. 15th, 1918.

The following are granted temp commns. as Sec. Lts. (Obsr. Officers) (substituted for notification in "Gazette," Feb. 14th) :—L. W. Hopkins (temp. Sec. Lt., E. Surr R.), W. A. Westacott (Sec. Lt., R.W. Kent R., Spec. Res.), Oct. 23rd, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. G. S. Roden (Lt., Can. Rly. Ser.), Jan. 11th; Lt. (actg. Capt.) A. Sleep (Capt., Can. For.), Jan. 12th; Lt. (actg. Capt.) J. W. G. Clark (Lt., C. Ont. R.), Jan. 20th; Lt. W. N. Sheffield (Lt , Manitoba R.), Jan. 28th; Lt. B. H. Kewley (Lt., Manitoba R.), Jan. 30th; Lt. (Hon. Capt.) W. M. Miller (C. Lond. Yeo., T.F.), Sec. Lt. H. R. Herbert (Lt., E. Ont. R.), Feb. 13th; Sec. Lt. (Hon. Capt.) R. R. Layte, M.C. (Capt., Nova Scotia R.), Feb. 17th; Lt. R. Mott (Lt., Brit. Col. R.), March 1st; Sec. Lt. (Hon. Lt.) A. H. C. Bruce, March 6th.

The following are transferred to unempld. list :—Sec. Lt. A. V. Bromham, Nov. 14th, 1918; Lt. P. McK. Haldimand, Jan. 12th; Lt. H. H. Beddow, Sec. Lt. A. C. Brown (substituted for notification in "Gazette," Jan. 28th), Jan 18th; Sec. Lt. C. G. Burnip (substituted for notification in "Gazette," Feb. 18th), Sec. Lt. W. W. McDavid, Lt. G. R. Simons, 21st; Capt. G. R. Hodgson, A.F.C., Lt. (Hon. Capt.) E. C. Powell, Jan. 22nd; Sec. Lt. W. B. Tretheway, Jan. 24th; Sec. Lt. C. Bartow, Jan. 25th; Lt. C. R. Borkland, Lt. M. C. Howell, Sec. Lt. A. V. Owens, Jan. 29th; Lt. R. S. Bell, Jan. 31st; Lt. J. C. C. Cotes (substituted for notification in "Gazette," Feb. 18th), eSc. Lt. W. W. McDavid, Lt. G. R. Simons, Lt. J. L. Stocks, Lt. E. P. Thorne, Feb. 1st; Sec. Lt. L. Rogerson, Sec. Lt. S. E. Rowley, Feb. 2nd; Sec. Lt. C. F. Bailey, Lt. M. J. Thurston, Feb. 3rd; Lt. G. A. Pitt, Lt. A. B. Taylor, Feb. 4th, Sec. Lt. L. H. Peach, Sec. Lt. H. R. A. V. Puncher, Sec. Lt. G. W. Shickle, Sec. Lt. D. A. Stenhouse, Feb. 5th; Sec. Lt. H. G. B. Booth, Lt. E. J. T. McWeeney, Feb. 6th; Lt. A. Pilling, Lt. R. Siddall, Sec. Lt. T. G. Stubley, Feb. 7th; Sec. Lt. F. Thornton, Feb. 8th; Capt C. J. S. Lea, Feb. 9th; Sec. Lt. F. T. Brown, Lt. R. L. S. Morrice, Feb. 10th; Sec. Lt. G. Adamson, Lt. H. W. How, Lt. H. C. C. Murray, Sec. Lt. N. Nutton, Lt. R. K. Sherman, Feb. 11th; Lt. F. H. Glover, Sec, Lt. (Hon. Maj.) F. H. Humphrys, Sec. Lt. H. C Hall, Sec. Lt. T. G. L. Harris, Capt. J. W. James, Sec. Lt. W. Milburn, Lt. W. H. Weller, Lt. H. D. Wright, Feb. 12th; Sec. Lt. W. J. Delaney, Lt. M. A. Fisher-Brown, Sec. Lt. R. F. Glazebrook, Lt. J. G. Lumley, Capt. W. A. McClatchie, M C., Feb. 13th; Lt. (Hon. Maj.) E. C. Carner, D.S.O., Lt. B. Head, M.C., Sec. Lt. C. A Moth, Capt. D. C. Page, Lt. C. M. Powell, Lt. (actg Capt.) J. McD. Walker, Feb. 14th; Lt. W. Beer, Sec. Lt. J. J. Gribbin, Lt. (actg. Capt.) J. Hodgson, D.F.C., Feb. 15th; Lt. (actg Capt.) L. Cummings, Sec. Lt. A. H. Harrison, Lt. O. Jones, Feb. 16th; Sec. Lt. M. S. O'Rorke, Capt. R. M. Waddington, Feb. 17th; Lt. E. H. Walker, Sec. Lt. R. D. Weaving, Sec. Lt. A. H. Wharrier, Feb. 18th; Lt. H. R. W. Brown, Lt. W. L. Coutts, D.C.M., Sec. Lt. H. W. Derbyshire, Lt. H. J. Ellam, Lt. A. F. Percy, Lt. A. W. Reynell, Lt. G. Waugh, Sec. Lt H. W. Weedon, Sec. Lt. V. A. Wheeler, Feb. 19th; Sec. Lt. A. G. S. Blake, Lt. A. R. Crisp, Sec. Lt. L. J. Cuzner, Lt. (actg. Capt.) R. N. Hall, M.C., Sec. Lt. G. Harrison, Sec. Lt. D. H. Hartness, Sec. Lt. A. G. Hawkins, Sec. Lt. W. H. G. M. Ling, Lt. H. W Oliver, Sec Lt. C. A Showell, Lt. J. Surflee, Sec. Lt. C. Swann, Sec. Lt. J. D. Young, Feb. 20th; Lt. W. Haigh, Lt. G. Hegginbottom, Capt. D. Plaistowe, Lt. H. C. Smith, Feb. 21st; Lt. H. A. Blain, Sec. Lt. F. W. V. Blommestein, Lt W. Munn, Sec. Lt. J. G. Nash, Sec. Lt. W. G. S. Searight, Sec. Lt. W. Simpson, Feb. 2nd; Sec. Lt. W. Gibson, Lt. C V. Palmer, Lt. H. D. West, Lt. H. A. Whittaker, Feb. 23rd, Sec. Lt. D. F. Grant, Capt. H. M. Yeatman, Feb. 24th; Sec. Lt. J. Dwerryhowse, Lt. J. G. Hughes, Lt. A. Jackson, Sec. Lt. B. Rider, Sec. Lt. G. A. R. Shilson, Capt. B. G. St. J. Smith, Feb. 25th; Sec. Lt. F. Austin, Sec. Lt. G. R. Davidson, Lt. W. W. Fielding, Sec. Lt. T. James, Lt. R H. Johnson, Lt. H. C. Margrett, Sec. Lt. W. E. Pilgrim, Sec. Lt. J. Tremain, Sec. Lt. H. J. Utley, Sec. Lt. A. E. White, Feb. 26th; Sec. Lt. A. G. Boland, Lt. A. F. Chick, Sec. Lt. A. E. Dew, D.F.C., Lt. R. B. Ellis, Sec. Lt. P G. Greenslade, Capt. F. S. Mills, D.S.C., Lt. C. L. Rayment, D.F.C , Feb. 27th; Sec. Lt. W. G. Brown, Lt. (actg. Capt.) J. Cunniffe, Sec Lt. G. H. Pearce, Lt. E. W. Pickford, Lt. C. D. Walinck, Feb. 28th; Sec. Lt. (Hon. Lt.) C. L. Childs, Lt. G. R. Crammond, Sec. Lt. R. H. S. Grundy, Sec. Lt. G. B. James, Sec. Lt. (Hon. Lt.) A. V. Jones, Lt. E. Kew, Sec Lt. K. P. McGowan, Sec. Lt. P. E. Sawle, Sec. Lt. S. G. Strand, March 1st; Lt. B. W. Blayney, Capt. E. J. B. How, Capt C. N. Lowe, M.C , D.F.C., Lt. E. C. Mogridge, Sec. Lt. A. F Moseley, Sec. Lt. W. V. Philpott, Sec. Lt. H. J. Pretty, Sec. Lt. J. Whitteridge, March 2nd; Lt. W. P. Brown, Sec. Lt. C. H. B. Brudenell, Lt. E. Burton, Sec. Lt. S. J. E. Callcott, Lt. G. K. Chadwick, Capt. G. M. Cox, M.C., Sec. Lt. M. F. McGregor, Sec. Lt. H. Perkins, Sec. Lt. L. G. P. Robinson, Capt. W. B. Sinclair, Lt. N. T. Thorneloe, Lt. R B. E. Turnbull, Lt. E. R. Taylor, March 4th; Lt. E. T. Collins, Sec. Lt. V. Lock, Lt. (Hon. Capt.) H. E. Reynell, Sec. Lt. J. F. Russell, Capt. W. L. Scandrett, Sec. Lt. H. Walpole Lt. S. E. Whiteley, March 5th; Sec Lt. G. G. Armstrong, Sec. Lt. A. B. Bedford, Lt. J. Buckley, Sec. Lt. H. C. Clemans, Sec. Lt. T. C Cooper, M.C., Sec. Lt. W. F. F. Harwood, Sec. Lt. B. McNear, Sec. Lt. W. T. Randles, Lt. A. W. Winsor, March 6th; Sec. Lt. T. D. Bell, Lt. E. J. Thompson, Sec. Lt. T. Treise, March 7th, Lt. W. G. Ruggins, March 9th; Lt. E. P. Crossen, March 12th.

Capt. P. E. Ridewood relinquishes his commn. on account of wounds contracted on active service, March 19th.

The following Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—R. Dolman, T. W. G. Gowland, T. H. Holmes, F. E. Hobson, O. B. Swart, March 19th.

The following Sec. Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—A. S. Helmer, March 8th (substituted for notification in "Gazette," Jan. 14th); N. C. B. Carrick, M. S. Dickinson, W. H. Sawyer, March 19th.

The date of appointment of Maj. E. Dalziel is May 6th, 1918, and not as stated in "Gazette," March 11th.

Lt. R. A. Crandall is antedated in his appt. as Lt. (O.), April 1st 1918.

The surname of F. D. Levy is as now described, and not as stated in "Gazette," March 11th.

The notification in "Gazette," Jan. 21st, concerning Lt A. L. Code is cancelled.

Administrative Branch.—H. E. J Hewitt (temp. Maj., K.R.R.C.) is granted a temp. commn. as Maj. (Oct. 29, 1918), sen. April 1st, 1918.

Lts. to be actg. Capts. while empld. as Capts. :—Hon. Capt. F. Allen, Oct. 16th, 1918; A. J. Clark, from Oct. 27th, 1918, to Jan. 5th; A. J. Barber, Dec. 21st, 1918

Sec. Lt. C. W. Probets to be actg. Capt. while empld. as Capt. from (T.), Sept. 9th, 1918

Lts. (A.) to be Lts. :—B. H. McCormack, June 13th, 1918; A. T Croucher, Oct. 15th, 1918; Lt. T. Onslow, Oct. 28th, 1918; W. Jaffray, Nov. 22nd, 1918, A. P. Cragg, Dec. 4th, 1918; J. H F. Hambly, Dec. 12th, 1918; A. Pascoe, Dec. 20th, 1918; A. E. Burton, Jan. 3rd; W D Boehrer, Jan. 7th; J. W. Parsons, Jan. 9th; C. W. Beatty, Jan. 14th; F. St. K. Anderson, R W. G. Morrison, Jan. 22nd; J. R. S. Spearing, Feb. 1st; M. C. Mosso, A.F.C., Feb. 4th; (Actg. Capt.) F. B. Pattison, Feb. 7th, and relinquishes the actg. rank of Capt.

Lts. (K.B.) to be Lts. :—W. H. Chatham, Dec. 20th, 1918; E. G. Boulenger, Jan. 7th.

Sec Lts. to be actg. Lts. while empld. as Lts. :—H N. Turner, Sept. 1st, 1918; G. E. Blake, Oct. 21st, 1918.

Sec. Lts. to be Sec. Lts. from (A.) :—A. C. Lamb, Jan. 6th; J. Hunter, Jan. 10th; A. J Newnham, Jan. 20th.

Sec. Lts. to be Sec. Lts. from (A and S.) :—V. C. S. Bach, Nov. 23rd, 1918; (Hon. Lt.) E. J. Leedle, Dec. 12th, 1918, and to be Hon. Lt.; Sec. Lt. H. Perkins to be Sec. Lt., from (A'shp.), Jan. 7th.

Sec. Lts. to be Sec. Lts., from (O.) :—W. T. Wreford, Nov. 19th, 1918; R. W. Turner, D.F.C., Nov. 27th, 1918; M. I. Hough, Jan. 1st; J. R. Colquhoun, Jan. 14th; A. G. Currington, Jan. 27th; V. Lockey, Feb. 11th.

The follg. are transferred to unempld. list :—Sec Lt. W S. Brown, Capt. E. W. Hall, Jan 17th; Sec. Lt. W. A. Bennett, Jan. 21st; Sec. Lt. W. L. Milburn, Jan. 27th; Capt. R. Clough, Sec. Lt. A Todd, Jan. 28th; Capt. W. S. Wilson, Feb. 1st; Sec. Lt. W. Bagster, Sec. Lt. J. Moston, Feb. 2nd; Sec. Lt. E. J. Burton, Feb. 5th; Sec. Lt. B B Brown, Feb. 6th; Sec. Lt. F. Belcher, Sec. Lt. H. G. Biltcliffe, Feb. 10th; Sec. Lt. H. V. Hall, Feb. 12th, Sec. Lt. L. N. Bubier, Feb. 19th; Sec. Lt C. H. Greswell, Sec. Lt. G. R Price, Feb. 2tho; Sec. Lt. G. M. Ashwell, Lt W. J. Hatcher, Sec. Lt. W. H. Smallwood, Feb. 22nd; Sec. Lt. H. E. Ilott, Sec. Lt. C. E. Ray, Feb 23rd; Lt. G. W. Elderkin, Sec. Lt. W. A Haw, Sec. Lt. F. G. L Robinson, Feb. 24th; Sec. Lt. G. W. Detmold, Sec. Lt. J. Howard, Sec. Lt. J. P. Pickford, Feb. 25th; Sec. Lt. A. E. Ashley, Sec. Lt F. L. Dadd, Feb. 26th; Sec. Lt. J. E. Bird, Feb. 28th; Sec. Lt. E. R. Cox, Sec. Lt. J. C. Crunden, Capt. D. E. Garnett, Lt. (actg Maj.)) N. McArthur, Lt. J. Nairn, Mar. 1st; Sec Lt. D. E. Court, Mar. 2nd; Sec Lt. D. J. Brooks, Mar. 3rd; Sec. Lt. E. P Beard, Lt. E. H. Billinghurst, Capt. R. Dinwoodie, Sec. Lt. G. T. Jerome, Sec. Lt. E. V. Tucker, Mar. 4th; Capt. J. W J. Cremlyn, Mar. 6th; Sec. Lt. J G. Bennett, Mar. 7th.

Lt. (Hon. Capt.) F. H. H. Miles (Capt., Lon. Yeo., T.F.), relinquishes his commn on account of ill-health contracted on active service, Mar. 19th,

Lts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank :—H. E. Wild, D. A. Wright, Mar. 19th.

The surname of Lt. W. G. Hurrell, D.F.C., is as now described, and not as stated in "Gazette," Feb. 4th.

The initials of Lt. A. O. Matt are as now described, and not as stated in "Gazette" of Feb. 25th.

Technical Branch.—Maj. A. S. Morris, O.B.E , to be actg. Lt.-Col. whilst empld. as Lt.-Col. (Grade A), Sept. 9th, 1918

Capts. to be actg. Majs. whilst empld as Majs. (Grade A) :—C. G Nevatt, W. E. Smith, Sept. 9th, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (Grade A) :—C W. Duffield, Nov. 30th, 1918; W D. Squire, Dec. 1st, 1918.

Lt. (Hon. Capt.) (actg. Capt.) J. Ramsay, M.C , retains actg rank of Capt. while empld. as Capt (Grade B), from (Ad), Oct 1st, 1918.

Lt. O. W de Putron to be actg. Capt. while empld. as Capt. (Grade B), Nov. 1st, 1918.

Lts. to be Lts. (Grade B) :—T. W. Cave, M.C. (from O.), F. P. Watts, from (Ad.), Jan. 4th.

Sec. Lt. (actg. Lt.) F H. Goodwin, to be Lt., Dec. 12th, 1918.

Sec. Lt. A. J. Allen to be actg. Lt. while empld as Lt., Dec. 1st, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. (Grade A) :—M. F Tomkins, June 1st, 1918; H F. Weet, Oct. 1st, 1918; (Hon. Lt.) S. Herbert, Oct. 16th, 1918; (Hon. Lt.) W. E. Jones, Dec. 1st, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. (Grade B) :—H. Fraser, B. Freeman, June 7th, 1918; W. Gardner (No. 0041), July 19th, 1918; (Hon. Lt.) W. H. O. Jones, Sept. 28th, 1918; (Hon Lt.) M R. Preece, Sept. 29th, 1918; C Littlejohn, from (Ad.), Oct. 1st, 1918; J. W. Atkinson, Oct. 16th, 1918; G. J. Finley, Nov. 23rd, 1918.

Sec Lts. to be Sec. Lts. (Grade A), from (Ad.) :—R. O. Griffith, Dec. 7th, 1918; S. H. Ewins, Dec. 28th, 1918.

Sec. Lts to be Sec. Lts. (Grade A.), from (Ad.) :—C. H. Bunn, Dec. 1st, 1918; J. L. Ingham, F. H Swoffer, J. Tunbridge, Jan. 4th; C. E. Easton, Jan. 14th; L. J. Slack, Jan. 18th; C. M. Byham, Jan. 28th; G H. Stanley, Feb. 25th; H. S. Smith, Mar. 5th.

The follg. are transferred to unemptd. list :—Lt. (actg. Capt.) F. A. Roberts, Jan. 2nd; Capt. T. S R. Blunt, Jan. 13th; Sec. Lt. (Hon. Lt.) T. J. Benson, Jan. 16th; Sec. Lt. A. C. Blackmore, Jan. 17th; Sec. Lt. (Hon Lt.) G. Oliver, Jan. 18th; Capt. G. G. Smith, Jan 23rd; Sec. Lt. (actg. Lt.) H. D. Oliver, Jan. 27th; Lt. J. H. Falconer, Jan. 28th; Sec. Lt. A. R. Russell, Jan. 29th; Lt. L. H. Chamberlain, Feb. 1st; Lt. R. Tyzack, Feb. 4th; Sec. Lt. F. L. Tomlinson, Feb. 5th; Lt. F. M. Howard, Feb. 8th; Capt. T. J Offer, Feb. 9th; Sec. Lt J. E. Liddiatt, Feb. 10th; Lt. D. G. Moreton, Feb. 12th; Sec. Lt. L. N. Jarvis, Feb. 13th; Lt. R. J. Cowan, Feb. 15th; Sec. Lt. A. C. Parnacott, Feb. 17th; Sec. Lt. O. H. Shenstone, Feb. 18th; Sec Lt. H Jenks, Feb. 19th; Sec. Lt. J. A. Graham, Lt. E. J. Phelps, Feb. 20th; Sec Lt. L. C. Owen, Capt. (actg. Maj.) F. E. Pollard, Feb. 21st; Capt H. O. P. Hammond, Sec. Lt. F. P. Reavey, Feb. 23rd; Sec. Lt. (actg. Lt.) E. D. Jones, Feb. 24th; Lt. A. Ginger, Sec. Lt. R. E. H. Heenan, Lt. C. H. Holcroft, Lt. H. R. Horswill, Sec. Lt. L. Shears, Feb. 25th; Sec. Lt. (Hon. Lt.) H. F. M. Nash, Feb. 26th; Sec Lt. J. H Davie, Sec. Lt. L. R. Paget, Lt. (actg. Capt.) G. C. C Pentland, Sec Lt. T. H. Price, Lt. W. A. Syme, Feb. 28th; Capt. J. B. Butler, Sec. Lt. G. W. U. Clissold, Sec. Lt. (Hon Lt.) C. H. W. Cross, Capt. P. G. Emery, Lt. (actg. Capt.) A. R. Jackson, Capt. S. R. Mullard, M.B.E., Sec. Lt. J Pritchard, Lt. P. E. Scrivener, Mar. 1st; Sec. Lt. W. G. Blackmore, Lt. E. W. Kemp, Mar. 2nd; Maj. J. G. T. Crawford, Lt. C. Cadman, Mar. 3rd; Sec. Lt. C. L. Hales, Sec. Lt. (Hon Lt.) E. F. Hall, Mar. 4th; Sec Lt. C. F. Dakin, Capt. J. D. Fry, Lt. J. B. Glass, Lt. B. Walker, Capt. J. R. H. Whiston, Mar. 5th; Sec. Lt. W. T. Bodger, Sec. Lt. R W Selby, Lt. T. P. Shillcock, Mar. 6th; Sec. Lt. J. Calderwood, Sec. Lt. (Hon. Lt.) F. Meixner, Mar. 7th; Maj. D C. Willock, Mar. 16th

Lt. (actg. Capt.) H. T. Woodhead relinquishes his commn. on account of ill-health, and is permitted to retain rank of Capt., Mar. 19th.

Sec Lt. (Hon. Lt.) A. L. Curtis relinquishes his commn. on account of ill-helath contracted on active service, and is permitted to retain rank of Lt., Mar. 19th.

Sec. Lt. (Hon. Lt.) (actg. Lt.) A. C. H. Dashwood (R. Fus.) relinquishes his commn. on account of ill-health, Mar. 19th.

Sec. Lt. W. Godfray relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Mar. 19th.

The date of appt. of Lt. (Hon. Capt.) F. Grave as actg. Capt. (Grade B) is Aug. 1st, 1918, and not as stated in "Gazette," Feb. 11th.

The Christian names of Sec. Lt. (actg. Capt.) Charles Henry Bell are as now described, and not as stated in "Gazette," Jan 11th.

Medical Branch.—The follg. are transferred to unemptd. list :—Lt. W. Cahill, Feb 27th; Capt. R. E. V. Hale, Feb. 28th; Capt. H. G. Sutherland, Mar. 4th.

Lt O. S. Martin relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Mar. 19th.

Memoranda.—Lts. to be Hon. Capts. :—(Actg. Capt.) B. F. G. Cunliffe, J. Gerrard.

Sec Lt. R. V. Weeks is granted the hon. rank of Lt., May 22nd, 1918.

The follg. are transferred to unemptd list from (S.O.) :—Lt. (actg. Maj.) P. C. Simmons, Jan. 19th, substd. for notification in "Gazette," Feb. 14th; Sec. Lt. (actg. Capt.) C. A. Perry, Jan. 30th; Lt. (actg. Capt.) J. S. Stooke-Vaughan, Feb. 3rd; Capt. T. E. Grant, Feb. 6th; Capt. (actg. Maj.) J. W. Burt, Feb. 10th; Maj. (Hon Lt.-Col.) F. H. L. Errington, C.B., Feb. 12th; Capt. A. O. Betts, Maj. (actg. Lt.-Col.) G. D. Hannay, O.B.E., Lt. (actg. Capt.) C J. W. Hosken, March 1st; Lt. (actg. Capt.) R. A. W Collett, March 2nd.

Capt. A. J. Mann relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Mar. 19th.

Air Ministry, March 21st.

R.A.F.—The following temp. appointments are made :—Staff Officers, 2nd Cl., and to be actg. Majs. while so empld. :—(Air) Lt. (Hon. Capt.) (actg. Capt.) W. Reid, Dec. 30th, 1918; (P.) Capt. C. B. Baker, Nov. 18th, 1918.

Flying Branch.—Capt. (actg. Maj.) C. F. Gordon, O.B.E., M.C., to be Capt. (O.), from (S.O.), and relinquishes the actg. rank of Maj., Oct. 11th, 1918.

Lts. to be actg. Capts. while empld. as Capts. (A.) :—W. J. Butler. C. A. Farquharson, R. L. Lyster-Smythe, C. E. Van-Leénof, F. V. Way, A.F.C., E. W. White, Dec. 1st, 1918.

Lt. Gwyne Lea to be Lt. (A.), from (Ad.), July 5th, 1918.

Lt. G. C. Mumford to be Lt. (O.), from (A.), June 22nd, 1918.

Sec. Lt. E. Nordberg to be Lt., April 2nd, 1918.

P. S. M. Wilkinson (temp. Capt., Hants. R., attd. Wilts. R.) is granted a temp. commn. as Sec. Lt. (A.), and to be Hon Capt., Nov. 7th, 1918.

Sec. Lt. C. G. Gowing (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (A.), July 26th, 1918.

The following are granted temp. commns. as Sec. Lts. (Obsr. Officers) :—W. Woodstack (Lt., R.F.A., Spec. Res.), and to be Hon. Lt., June 20th, 1918 (substituted for notification in "Gazette," Feb. 14th); E. E. Carrall-Wilcocks (temp. Capt., R. Fus., attd. Staff. R.), and to be Hon. Capt., Oct. 17th, 1918

The following are removed the Service, His Majesty having no further occasion for their services as officers :—Sec. Lt. C. F. Buker, Dec. 21st, 1918; Capt. H. G. Boswell, D.S.C., March 22nd.

The following relinquish their commns. on ceasing to be empld. :—Lt. W. J. McMahon (Lt., Cent. Ont. R.), Dec. 16th, 1918 (substituted for notification in "Gazette," Jan. 28th, concerning Lt. W. J. McMahon (Can. For. Corps); Lt. D. S. Weld (Lt., W. Ont. R.), Jan. 3rd; Sec. Lt. W. S. Vipond (Lt., Can. Conting.), Jan. 20th; Lt. F. W. Crawford (Lt., E. Ont. R.), Jan. 29th; Lt I. O. Chantler (Lt., Sask. R.), Feb. 20th; Sec. Lt. (Hon. Lt.) F. McGraw (Lt., B. Col. R.), Sec. Lt. L. F. Stevenson (Lt., Quebec R.), Feb. 24th.

The following are transferred to unempld. list :—Capt. T. Ellis. S Lt. A. S. Wilson, Jan. 15th; Lt. A. W. Gardner, Jan. 19th; Lt. R. G. Bundey, Sec. Lt. C. W. Hurst, Lt. C. Marriott, Jan. 21st; Sec. Lt. A Martin, Jan. 22nd; Lt. W. L. Bing, Jan. 23rd; Maj. F. H. Swann, Jan. 24th; Sec. Lt. G. Grisdale, Jan. 26th; Sec. Lt. S. J. Graham, Jan. 27th; Sec. Lt. D. V. Beckingham, Capt. W. C. Gage, Jan. 31st; Sec. Lt. W. Davies, Sec. Lt. S. Jones, Feb. 1st; Sec. Lt. S. H. Ellis, Feb. 2nd; Capt. H. L. Despard, Feb. 4th; Sec. Lt. W. S. T. Le May, Sec. Lt. M. Walker, Sec. Lt. A. F. Waltzinger, Lt. E. F. Worthington, Feb. 5th; Lt. A. G. Graves, Sec. Lt. H. Murray, Sec. Lt. J. W. Pope, Feb. 6th, Sec. Lt. A. W. R. Evans, Lt. J. E. Frost, Feb. 8th; Capt. S. Cockerell, Lt. C. McPhail, Sec. Lt. C. F. Wandsworth, Feb. 9th; Sec. Lt. E. M. Lomax, Sec. Lt. F. E. Peters, Sec. Lt. H. T. Ross, Feb 10th; Lt. A. T. Eason, Feb. 11th; Lt. J. Drew, Sec. Lt. (Hon. Lt.) J. R. Houghton, Lt. S. Wittington, Feb. 12th; Lt. C. Fry, Lt. J. L. S. Fry, Lt. A. S. Graves, Lt. F. Shingleton, Feb. 13th; Sec. Lt. E. C. Mathews, Sec. Lt. J. A. Whitehead, Lt. W. H. Winter, Feb. 14th; Lt. J. C. Macgown, Sec. Lt. C. E. Mason, Lt. B. D. Nicholson, Lt. H. H. Wall, Feb. 15th; R. H. Fotheringham, Sec. Lt. G. J. Lewin, Maj. K D. P. Murray, M.C., Feb. 16th; Capt. E. E. Bennett, Lt. C. H. Bird, Lt. N. Bury, Sec. Lt. C. E. Faulkner, Lt. (actg. Capt.) G. A. D. Hancock, Sec Lt. H. D. Johnson, Lt. (actg. Capt.) J. M. McCleery, Feb. 18th; Sec. Lt. F. T. Briggs, Sec. Lt. O. L. Frampton, Capt. G. G. G. Hodge, Sec. Lt. A. E. Johnson, Sec. Lt. F. C. Littleboy, Sec. Lt. F. D. Marshall, Capt. T. L. Purdon, M.C., Sec. Lt. F. H. Paulton, Feb. 19th; Capt. G. G. Boyton, Sec. Lt. F. W. Jones, Sec. Lt. P. J. Pitts, Feb. 20th; Lt. A. A. Green, Sec. Lt. R. C. Mills, Feb. 21st; Sec. Lt. J. L. Goss, Sec. Lt. H. A. McKay, Sec. Lt. N. S. Muir, Sec. Lt. W. W. Walker, Lt. A. W. Young, Feb. 22nd; Sec. Lt. L. A. W. Galloway, Lt. J. A. MacGregor, Lt. A. G. Pointing, Sec. Lt. A Sowdon, Sec. Lt. H. F. Walters, Feb. 23rd; Capt. A. E. Popham, Sec. Lt. T. R. Walkington, Sec. Lt. O. C. S. Wallace, Feb. 24th; Lt. J. Brydone, Sec. Lt. W. H. C. Gillett, Capt. P. Godfrey, Lt. C. B. E. Lloyd, Lt. W. B. Melville, Sec. Lt. K P. Stockton, Feb. 25th; Lt. A. E. Baker, Sec. Lt. L. H. W. Gascoigne, Lt. T. W. Kneale, Lt. (Hon. Capt.) (actg. Capt.) D. Watson, Feb. 26th; Lt H. E. Dempsey, Sec. Lt. A. H. Farrington, Sec. Lt. A. E. Sherwood, Lt. G. M. Yuill, Feb. 27th; Sec. Lt. (Hon. Lt.) G. B. Baird, Lt. K. C. Bass, Sec. Lt. E Bower, Lt. F. C. Edwardes, Lt. W. E. Hall, Sec. Lt. H. J. Humphrey, Sec. Lt. C. A. Newham, Lt. (Hon. Capt.) J. C. Perkins, Capt. F. A. M. Rawes, Lt. A. H. Warton, Sec. Lt. A. F. Webster, Feb. 28th; Lt. (actg. Capt.) J. P. Barnes, Lt F. S. C. Buchanan, Lt. J. B. Birkhead, Lt. H. Dillon, Lt. R. L. Golds, Sec. Lt. T. I. Goodall, Lt. N. W. Hamilton, Sec. Lt. W. F. List, Sec. Lt. J. McLelland, Sec Lt. R. R. Mason, Sec. Lt. C. C. Rollason, Capt. W. Smith, M.C., Lt. A. G. Wingate-Gray, March 1st; Capt. J. D. Atkinson, A.F.C., Capt. T. C. Chamberlain, Lt. (actg. Capt.) S. W. Highwood, Lt. A. R. Hunt, Lt. H. F. Mase, Sec. Lt. H. Seddon, March 2nd; Sec. Lt. H. E. J. Steele, March 3rd; Lt. S. S. Alder, Sec. Lt. G. Bradley, Sec. Lt. R. D. Broad, Capt. D. N. Drybrough, Sec. Lt. H. Davies, Sec. Lt. H. M. Feltham, Sec. Lt. W. Gilbert, Sec. Lt. J. R. Glover, Lt. H. S. Green, Sec. Lt. F. S. Griffis, Lt. L. W. Mawbey, M.C., March 4th; Lt. S. F. Allabarton, Sec. Lt. S. W. Beckett, Sec. Lt. R A. Gunther, Lt. D G. Heady, Sec. Lt. G. C. Jeremiah, Lt. H. S. Laing, Sec. Lt. C. G. Rich, March 5th; Lt. N. S. McConnell, Sec. Lt. R. Roberts, Sec. Lt. W. Sutcliffe, Lt. J. H R. Sutherland, Sec. Lt. J. L. Warmington, March 6th; Sec. Lt. C. L. Bowley, Capt. H. J. Brewster, Sec. Lt. R. Boosey, Capt. J. M. R. Cripps, Lt. S. W. Cubitt, Sec. Lt. G. G. Duddell, Sec. Lt. F. C. Edney-Hayter, Lt. J. H. Hardman, Sec. Lt. O. A. Kempe, Lt. (actg. Capt.) R. G W. Martin, Sec. Lt. C. W. Martin, Sec. Lt. A. R. Pengilly, Sec. Lt. H. Park, Lt. D. L. Reed, Lt. A. W D Stackhouse, Lt. G. S. Shepherdson, March 7th; Sec. Lt. J. Briscoe, Sec. Lt. T. Dowsett, Sec. Lt. H. Enzlin, Sec. Lt. P. D. Fenton, Sec. Lt T. C. Herman, Sec. Lt. R. A. Higgins, Lt. J. R. Holden, Sec. Lt. W. F. Jagger, Sec. Lt. W. T. Jones, Sec. Lt. G. E. S. Lamb, Sec. Lt. A. Low, Sec. Lt. E. A. Liggins, Lt. G. W. Platt, Lt. J. A. Percy, Sec. Lt. S. Richards, Sec. Lt. G. V. Young, March 8th; Sec. Lt. B. E Drane, Lt. R. W Hemsley, Sec. Lt. W. Leithead, Sec. Lt. H. K. Wilson, Sec. Lt. J. R. Watkins, March 9th; Lt. (actg Capt.) F. N Chadwick, Sec. Lt. M. R. Haseler, Sec Lt H. S. Rowland, March 10th; Lt. P. G. Ashford, Lt. (Hon. Capt.) J M. Beaufort, Lt. F. L. Chapple, Sec Lt. P. R. Pierce, Sec. Lt. A. Petty, March 11th; Lt. (actg. Capt.) B E. Barnum, Sec. Lt. I. W. Dunbar, Sec. Lt. F. F. G. Hepworth, Sec. Lt. (Hon. Lt.) S. B. Moir, Lt. R. B. Sovier, M.C., March 12th, Capt. E. A. Lloyd, March 13th; Sec. Lt. D. V. McLeod, March 17th.

Maj. J P. Wilson, D.S.C., A.F.C., relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 22nd.

Capt. C. R. Clapperton (R.G.A., T.F.), relinquishes his commn. on account of ill-health contracted on active service, March 22nd.

The follg. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—S. F Napper, W. T. Simpson, J. Valentine (caused by wounds), March 22nd.

The follg. Lts. relinquish their commns. on account of ill-health :—E. H. Millington (Ches. R., T.F.), H. F. Young (Lancs. Fus.), contracted on active service, March 22nd.

The follg Sec. Lts. relinquish their commns on account of ill-health, and are permitted to retain their rank :—N. C. B. Carrick (contracted on active service), G. T. Cunningham, H. Dyson, F. Johnson, E. J. Morris, March 22nd.

Sec Lt. H. W. Minish is antedated in his appt. as Sec. Lt. (O.), June 4th, 1918.

The surname of Lt. F. D. Levy is as now described, and not as stated in "Gazette," March 11th (substd. for notification in "Gazette," March 18th.

Admiralty Branch.—Capt H.R.H. Prince Albert, K.G., to be Capt., from (S.O.), March 3rd.

Lt. H. F. D. Lane to be actg Capt. whilst empld. as Capt., July 15th, 1918.

Lts. (A.) to be Lts. :—(Hon. Capt.) N. Robertson, Nov. 23rd, 1918; N. A. Birks, Feb. 15th; A. L. Garrett, Feb. 25th

C S. Marriott (temp. Lt., attd. Lancs. Fus.) is granted a temp. commn. as Lt., July 12th, 1918, seny. from April 1st, 1918 (substd. for notifications in "Gazettes," Nov. 8th, 1918, and Jan. 21st).

Sec Lt. J. Sadler relinquishes his commn. on ceasing to be empld., Nov. 19th, 1918.

The follg. are transferred to unempld. list :—Lt. T. Bullough, Jan 10th; Sec. Lt. T. Scott, Jan. 28th; Lt. G Bevis, Feb. 1st; Lt. W. A. J. Gribble, Feb. 4th (substituted for notification in "Gazette," Feb. 28th concerning Lt. W. A. John); Sec. Lt. H. C. Beeton, Feb. 7th; Lt. W. B. Green, D.F.C., Feb. 14th; Sec. Lt. J. A. Peile, Feb. 16th; Sec. Lt. C. H. Deeks, Feb. 19th; Capt. C. G. Darwin, M.C., Sec. Lt. N. J. Graham, Feb. 21st; Lt. (actg. Capt.) W. J. O. Newton, Sec. Lt. (actg. Capt.) F. R. T. Pearson, Feb. 22nd; Lt. T. A. M. Gardiner, Feb. 23rd; Sec. Lt. S. R. Durdin, Lt. H. N. B. Richards, Feb. 25th; Sec. Lt. G. A. Faulkner, Sec. Lt. B. McD. Hastings, Feb. 27th; Sec. Lt. L. R. Gibbs, Capt S. W. Godin, Capt. B. V. Grealy, Feb 28th; Lt. W. F. Morris, March 1st; Sec. Lt. (Hon. Lt.) C. L. Childs, Sec. Lt. A. H. Silver, March 2nd; Sec. Lt. J. T. Brumwell, Sec. Lt. R. C. Dickinson, Lt. W. C. Foster, Sec. Lt. G. T. Johnston-Smith, Sec. Lt. (actg. Lt.) I. P. Muller, March 5th; Sec. Lt. R. W Napier, March 6th: Sec. Lt. E. F. Askew, Sec. Lt. C. Hepworth, Sec. Lt. G. F Moseley, March 7th; Sec. Lt. C. Appleby, Sec. Lt. J. J. McNamara, Maj. C E. Norris, Sec. Lt. T. Waitt, March 8th; Lt. J. E. Arnott, Lt. G B. Barker, Lt. E. L. Humpherus, Capt. L. J. Robertson, March 9th; Capt. T. D. McMeekin, March 10th.

Capt. H. G. Waterall relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, March 22nd.

Lt. H. F. L. Codner relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, March 22nd.

The follg. Sec. Lts relinquish their commns. on account of ill-health, and are permitted to retain their rank :—F. C. Arundel, H. Ord, March 22nd.

Sec Lt. (Hon. Capt.) A. A. McLachlan (Capt., Sea. Highrs.) relinquishes his commn. on account of ill-health contracted on active service, March 22nd.

The notification in "Gazette," July 23rd, 1918, concerning Lt. (Hon. Maj.) A. F. Douglas is cancelled.

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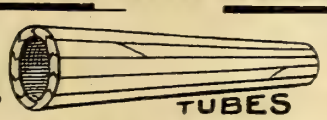
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Technical Branch.—Lts. to be actg. Capts. whilst empld. as Capts. (Grade B) :—N. C. Watt, Oct. 22nd, 1918, W. P. Mytton, J. M. R. E. St. Amory, Dec. 1st, 1918.

Sec. Lt. (actg. Lt.) A. W. Brittain to be actg. Capt. whilst empld. as Capt., Jan. 12th.

Lts. (Ad.) to be Lts. (Grade B) :—S. T. Stephens, July 9th, 1918; E. R. Wood, Oct. 1st, 1918.

Lt. H. P. Beasley to be graded for pay as Lt. whilst empld. as Lt. (Grade A), Nov. 1st, 1918.

Sec. Lt. H. Woffenden to be actg. Lt. whilst empld. as Lt. (Grade A), Oct. 1st, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts. (Grade B) :—E. S. Bullen, May 21st, 1918; J. K. Shrimpton, Dec. 1st, 1918.

The following are transferred to unempld. list :—Capt. J. C. Beddard, Lt. J. P. White, Jan. 21st; Sec. Lt. (actg. Lt.) J. Mackie, Jan. 31st; Lt. G. Barnett, Sec. Lt. (Hon. Lt.) W. H. Jones, Feb. 1st; Lt. S. J. Broderick, Sec. Lt. W. E. Palmer, Feb. 4th; Lt. S. W. Bunting, Sec. Lt. J. G. Plester, Lt. (Hon. Capt.) W. Redmond, Feb. 5th; Lt. (actg. Capt.) H. N. Charles, Feb. 6th; Sec. Lt. H. A. Kauper, Feb. 10th; Lt. (actg. Capt.) J. A. P. Martin, Feb. 12th; Lt. (Hon. Capt.) (actg. Capt.) J. C. Wallace, Feb. 14th; Sec. Lt. M. Laidlaw, Feb 15th; Sec. Lt. T. L. Lewis, Feb. 17th; Capt. (Hon Maj.) W. R. G. Atkinson, Feb. 19th; Lt. (actg. Capt.) E. J. Edwards, Feb. 20th; Sec. Lt. F. G. Brooker, Feb. 21st; Sec. Lt H. Philp, Feb. 22nd; Capt. A. W. Empson, Feb. 23rd; Maj. C. J. Murfitt, O.B.E., Feb. 24th; Sec. Lt. A. H. Gregory, Sec. Lt. E. G. Terraneau, Feb. 26th; Lt. J. R. Evans, Capt. L. A. Goss, Sec. Lt. (Hon Lt.) (actg. Lt.) G. D. G. Hake, Feb. 27th; Sec. Lt. G. Burrows, Feb. 28th; Capt. J. W. Eckford, Lt. J. N. Mearns, March 1st; Sec. Lt. S. S. Dungey, Sec. Lt. H. P. Griffits, March 2nd; Capt. A. E. Blackmore, Sec. Lt. W. F. Boyd, Sec. Lt. E. W. Davis, Lt. J. D. Fairbairn, Sec. Lt. H. Gould, Sec. Lt. F. T. Russell, Sec. Lt. H. T. Savage, March 4th; Sec. Lt. C. H. Badderley, Lt. J. B. Bowes, Capt. E. G. Millar, Maj. W. H. Reid, March 5th; Sec. Lt. F. A. Grimwood, Sec. Lt. C. J. F. Kynaston, Lt. H. A. Milnes, March 6th; Capt. E. St. J. G. Bevan, Lt. (actg. Capt.) A. L. Johnson, Capt. A. W. T. Powell, March 7th; Sec. Lt. B. W. King, March 8th; Lt. J. Kirsop, Sec. Lt. H. H. Peppercorn, March 9th; Sec. Lt. R. M. Brown, Lt. F. P. Burns, Sec. Lt. J. R. Chatter, Lt. R. T. Royse, March 11th.

Capt. H. Farquharson (Gen. List, T.F.) relinquishes his commn. on account of ill-health, March 22nd.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—H. Gray, G. Pitt (caused by wounds), March 22nd.

Sec. Lt. J. N. Yuille relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, March 22nd.

Medical Branch.—Lt. J. A. Johnson to be Capt., Jan. 15th.

Maj. F. H. Stephens (Staff Surg., R.N.) relinquishes his commn. on ceasing to be empld., Jan. 31st.

The following are transferred to unempld. list :—Lt. G. D. M. Beaton, Feb. 7th; Capt. D. H. Fraser, M.C., Feb. 20th.

Chaplains Branch.—Capt. J. D. Bolton is transferred to unempld. list, Feb. 27th.

Memoranda.—R. G. Millar is granted a temp. hon. commn. as Lt.-Col., Nov. 20th, 1918 (substituted for notification in "Gazette," Jan. 14th).

Lt. J. Hill to be Hon. Capt.

The following Hon. Lts. relinquish their commns. on ceasing to be empld. :—D. F. Young, Dec. 16th, 1918; R. S. Leighton-Bailey, Dec. 31st, 1918; C. C. Bissett, Jan. 15th; H. Taylor, Jan. 16th; G. A. S. Atkinson, Jan. 31st; D. H. Irwin, C. E. King, Feb. 16th.

The following are transferred to unempld. list from (S.O.) :—Capt. (actg. Maj.) R. H. Peto, Jan. 13th; Lt.-Col. C. M. Robertson, March 11th; Lt.-Col. (actg. Brig.-Gen.) B. C. Fellows, C.M.G., March 19th; Col. (actg. Brig.-Gen.) A. Huggins, C.M.G., D.S.O., March 20th.

Admiralty, March 24th.

The following awards have been approved for services in the Royal Naval Air Service between July 1st and Dec. 31st, 1917 :—

To receive the Meritorious Service Medal.

C.P.O., 3rd Cl., Edward Henry McCarthy, O.N. F10584.
C.P.O., 3rd Cl., Robert Pollock Gardner, O.N. F3731.
P.O. Percy James Brazier, O.N. F18403.
C.P.O., 3rd Cl., George Lethbridge, O.N. F18416.
C.P.O., 3rd Cl., James McCall Orr, O.N. F18444.
P.O. Dennis Henry James Gibson, O.N. F10607.

ADMIRALTY APPOINTMENTS.

The following appointments have been made :—

March 20th.—R.N.A.S.—Lieuts.—H. W. Furnival, D.S.C., to "Ark Royal," March 12th; N. A. Macqueen, to "Ark Royal."

FROM THE COURT CIRCULAR.

Buckingham Palace, March 20th.

After an Investiture the following officers of the Imperial Japanese Naval Air Mission had the honour of being received by his Majesty :—Rear-Admiral K. Yoshida, Engineer-Commander K. Kitajima, Lieut.-Commander S. Kono, Lieut.-Commander T. Ohzeki, and Lieut.-Commander S. Hayashi.

Buckingham Palace, March 22nd.

The following were severally introduced into the presence of his Majesty, when the King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

The Most Honourable Order of the Bath.—Military Division.—Companions.—Maj.-Gen. Edward Ellington, R.A.F., and Brig.-Gen. Francis Scarlett, R.A.F.

The Most Distinguished Order of Saint Michael and St. George.—Companion.—Lt.-Col. Gerard Holmes, R.A.F.

The Distinguished Service Order.—Lt.-Col. Edward Corballis, R. Dublin Fus., attd. R.A.F.

His Majesty then conferred decorations as follows :—

Bar to the Military Cross.—Lt. Harry Barnes, R.A.F.

The Military Cross.—Capt. James Davison, R.A.F.; Capt. James Day, R.A.F.; Capt. Herbert Hegarty, R.A.F.; Lt. Dudley Eglington, R.A.F.; Lt. Edwin Ward, R.A.F.

Buckingham Palace, March 24th.

Major-General the Right Hon. J. E. B. Seely, M.P. (Under Secretary of State for the Royal Air Force) had an audience of the King this morning.

THE CASUALTY LIST.

MILITARY.

Reported March 21st.

Previously reported Missing, now reported Killed.—Matheson, Lt. A. P., R.F.C.

AIR FORCE.

Reported March 21st.

Killed.—Downe, Sec. Lt. C. L.
Heron, Sec. Lt. W. F.
Marchant, Lt. C. H.
Died.—Baird, Lt. D. D.
Earll, Sec. Lt. H.
Hill, Lt. S. N.
MacDonald, Sec. Lt. J. A.
Percival, Lt. E. R.
Richardson, Lt. A. D.

PERSONAL NOTICES.

NAVAL.

Death.

STOVIN.—Lieut. Frederick Cecil Stovin, R.A.F. (formerly R.N.A.S.), who was reported missing on April 24th, is now reported by the German Red Cross to have been killed in aerial action over the German lines. He was the youngest son of Dr. and Mrs. Stovin, Westcliff-on-Sea, Essex, and was 19 years of age.

Engagement.

FORBES-BENTLEY—BRISTOW.—A marriage has been arranged, and will shortly take place, between Capt. Rupert Forbes-Bentley, D.S.C., R.A.F., of Masslands, Beckley, Sussex, and Ruth Harriett, eldest daughter of Charles Bristow, Bank House, King's Lynn.

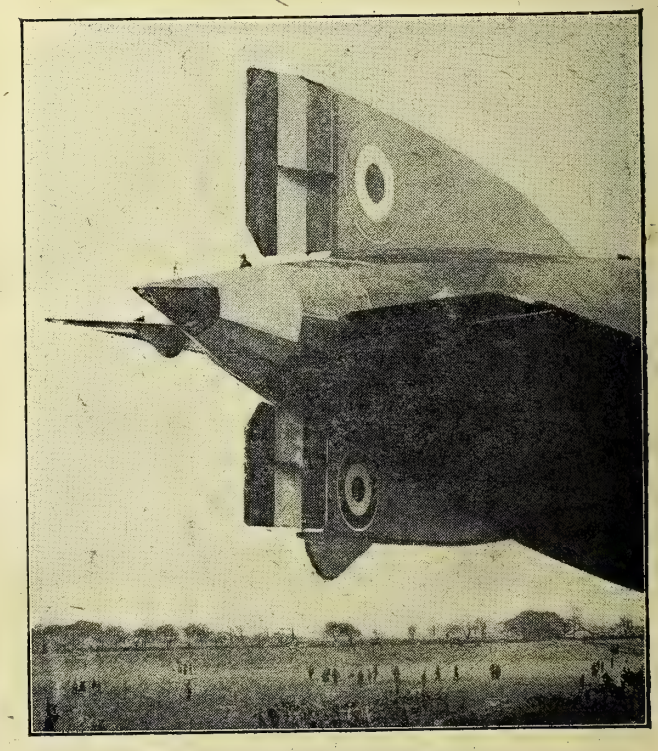
Birth.

COOPER.—On March 18th, at St. Lawrence Nursing Home, Westcliff, to the wife of Major Arthur Q. Cooper, D.S.C., R.A.F., a daughter.

MILITARY.

Marriage.

FORSTER—TAYLOR.—On Feb. 4th, at St. Paul's Church, Vancouver, B.C., Capt. Kivas Burton Forster, D.F.C., 27th Manitoba Bn., attd. R.A.F., youngest son of Major-General J. B. Forster, C.B., Colonel, the Royal Irish Regt., was married to Dorothy A., only daughter of Mrs. and the late Capt. Allan Taylor, British Service, 1256, Georgia Street, Vancouver, B.C., by the Rev. H. C. King.



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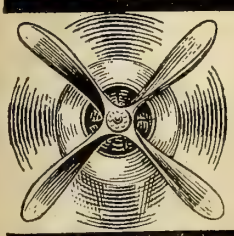


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AIR FORCE.

Deaths.

FENWICK and UNDERWOOD.—Lieut. Fred Fenwick, R.A.F., test pilot at Newcastle Aerodrome, and John Henry Underwood, naval wireless operator, were killed at Newcastle Aircraft Exhibition on March 24th. The machine fouled the cable of a captive balloon over the exhibition and crashed.

FISHER.—Major Hubert F. Fisher, R.A.F., who died of pneumonia, following influenza, on March 22nd, at the R.A.F. Hospital, Eaton Square, W., was the youngest son of J. A. Fisher and Mrs. Fisher, of St. Kilda, Gloucester, and dearly beloved husband of Madge Fisher. He was 34 years of age.

JACOB.—Lieut. John Victor Reed, R.A.F., who died on March 16th at Wimereux of cerebro-spinal meningitis, was the youngest son of Major J. E. Jacob, Aldershot. He was 21 years of age.

RUSHTON.—Capt. Cecil George Rushton, R.A.F., who was previously reported missing, is now officially presumed to have been killed in action on May 16th over Bruges. He was the only son of George Alfred and Florence Rushton, of 14, Penywern Road, Earl's Court, S.W., and was 34 years of age.

TRATMAN.—Lieut. Leslie W. T. D. Tratman, R.A.F., who died on March 13th at the 4th Northern General Hospital, Lincoln, was the only son of Mr. and Mrs. Tratman, of Uleymount, Duncombe Hill, Forest Hill. He was 20 years of age.

Engagement.

WILLIAMS—DE STOMPH.—A marriage has been arranged, and will shortly take place, between Mr. Arthur Wetherby Williams, late R.A.F., only son of Thomas Wetherby Williams and Mrs. Wetherby Williams, of Mount Pleasant, Ilfracombe, and Helene Sonia Raymonde de Stomph, only child of his late Excellency General Baron Antoine de Stomph and of Baronne Sophie de Stomph, née Comtesse Zyndram Kovstialovsky.

Marriage.

WILLIAMS—BARNARD.—On March 19th, at St. Thomas of Canterbury Catholic Church, St. Leonards-on-Sea, Douglas C. S. Williams, R.A.F., son of the late W. S. Williams, of Weddell Island, Falkland Islands, was married to Helen Elizabeth Dorothea, daughter of the late Louis H. Barnard, formerly of State College, Penn., U.S.A., and of Mrs. Barnard, Kenilworth, St. Leonards-on-Sea, and granddaughter of the late Dr. Helen Barnard-Densmore, of London and New York.

Births.

BATCHELOR.—On March 15th, at "Glenlyon," Alexandra Road, Andover, Hants, to Una, wife of Major T. A. Batchelor, D.F.C., R.A.F., of a son.

BENTLEY.—On March 21st, at Souldern Rectory, Banbury, the wife of the Rev. John H. Bentley, R.A.F., of a daughter.

BRYANT.—On March 10th, 1919, at Dorrien House, Finchley, the wife of Capt. E. H. Bryant, R.A.F., of a daughter (Betty).

JACKSON-TAYLOR.—On March 14th, at 34, Sydney Street, S.W.3, to Joyce, wife of Major P. S. Jackson-Taylor, R.A.F.—a daughter.

POLHILL.—On March 17th, 1919, at Monkwood, Chingford, the wife of Lieut. S. F. P. Polhill, R.A.F., of a daughter.

WILKINSON.—On March 18th, at 46, Ashburnham Mansions, Chelsea, the wife of Capt. F. C. Wilkinson, R.A.F., of a daughter.

* * *

Capt. Sydney Philip Smith, Flight Commander, 46th Squadron, R.A.F., France, was last seen on April 6th, 1918, over Lamotte on "Camel" D.6491. Will repatriated officers and men who can give any information, please write to Mr. Arthur H. Smith, Morningside, Aldershot?

The Royal Naval, Military, and Air Force Tournament.

The following Army Order has been issued by the War Office:—

War Office, March 22nd, 1919.

VI.—The Royal Naval, Military, and Air Force Tournament.—With reference to Army Order 49 of 1919, it is announced that the 36th Annual Tournament will be held at Olympia from Thursday, June 26th, to Saturday, July 12th, 1919, and not as therein stated.

By command of the Army Council,—(signed) R. W. Brade.

A Raid Rescue Reward.

On Friday, March 21st, Sir Nevil Macready presented at Ilford Police Station, on behalf of the Carnegie Heroes Fund, a certificate and War Bonds for £10 to three men who risked their lives in lifting people from three houses in Seventh Avenue, Manor Park, which were wrecked by a bomb during the air raid on Whit Sunday, 1918.

The men were Pte. George Leathers, Mr. James Varlow, and Mr. Thomas Briggs. They worked all night and part of the next day at great risk from falling walls.

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ON THE SELECTION OF AVIATORS.

In these sheets a week ago there appeared a lengthy report of a paper read by Dr. L. T. Stamm, late R.A.F., in which the lecturer pointed out to the Institute of Actuaries that Lloyd's Underwriters who intend to take up the insurance of aviators, aircraft, and aerial passengers should pay particular attention to the physical fitness of the pilots of all kinds of aircraft. He advocated that the insurance people should arrange for their own doctors to inspect pilots at intervals, and he discoursed most interestingly on the various ills to which the flesh—and the brain, when any—of the pilot is heir.

Though in the lecture he was primarily concerned with the health of the pilot as it affects civil aviation, Dr. Stamm included Service pilots in his discussion presumably because they also concern insurance companies by reason of their own life assurances. Therefore one feels justified in quoting Dr. Stamm in support of the argument that in re-making the Royal Air Force, and especially in the matter of giving the first two thousand promised permanent commissions, in the R.A.F. the very greatest attention should be paid to the health of the personnel, both physical and mental.

Though there are few more fallacious proverbs than that which says "*Mens sana in corpore sano*"—for some of the sanest minds are in the veriest crocks of bodies, and some of the healthiest bodies are purely animal and have no minds at all—it is of the greatest importance that in the re-made R.A.F., and among civilian aviators also, the pilots in particular should be sound in mind and body.

As one has said on previous occasions, the fact that a man has been a first-class war pilot is in no way a guarantee that he will be of any use as an R.A.F. officer in time of peace or as a pilot or manager of commercial aircraft. Other things being equal, the active-service aviator should always have preference over anybody else. But distinction as a war-pilot should not be allowed by itself to entitle a man either to a permanent commission or to a job.

A Libel Story.

Being oneself concerned in a libel action during the next day or two may give point to the following story which not only adorns a tale but points a moral to what succeeds it. The story goes that a certain provincial paper wished to refer in a complimentary manner to a gentleman of the type which Lord Hugh Cecil recently described as a "disinterred example of military eminence." Unfortunately, owing to a misprint, the paper called him a "bottle-scarred veteran."

Somewhat naturally the epithet produced a severe letter from the officer's solicitors, who demanded an ample and prompt apology. This the paper published in all sincerity, but the festive compositor made another horrible error, with the result that the apology ended by saying, "of course we *should* have described this officer as a battle-scared veteran."

The story does not relate what happened next, but one imagines that the immediate effect must have been the death of the officer owing to apoplexy.

The Undesirables.

Be that as it may, there you have, and very aptly described, the two types of officers who should on no account be given permanent commissions in the R.A.F. The former in particular should not be given a job in civil aviation either.

The "bottle-scarred veteran" is an incurable. His state of mind, or rather of appetite, is excellently illustrated in a story which has recently come into circulation:—

Two long-service soldiers were demobilised and drew quite handsome gratuities. They clubbed their gratuities together and bought a public-house, where in due course they entered into possession.

Five minutes after the legal time of opening on their first day there was a violent hammering on the door. One of the partners went to the door and found there a regular customer of the house, who demanded to know how much longer they were going to be about opening the place. "Gawd!" replied the Tommy, in amazement. "We ain't goin' to *open* this pub.! We've *bought* it!"

When a man has reached the stage of being a chronic drunkard he should be turned out of aviation, no matter what his ability may be. There are, as is well known to any R.A.F. officer or man, certain pilots who will never fly unless they have doped themselves first with alcohol. There are others who, though they will fly when cold sober, fly better—for the time being—when they are drunk. There are others who have the sense not to drink when they are going to fly, but who soak steadily in the mess or at home afterwards.

There are some who are as drunk as possible as far as possible all day long, but who have a curious faculty of sobering up, and becoming quite steady as far as appearances go, when they are getting ready to fly. And there are others who stagger to their machines, climb into them in a dazed kind of way, and yet fly beautifully when once they are off the ground. Yet others have the habit of taking a drink or two before they start and of taking a flask—which later in their career becomes a bottle—of liquor (generally brandy) with them, so that they can have a nip now and again while in the air.

None of them would ever admit that they drink to keep their nerve going. They merely say that it makes them feel happier about things in general and gives the world a rosier colour. One has oneself heard a young

officer announce to the world at large in a restaurant, "I'm never happy unless I'm half tight."

Now, in a decent infantry regiment of the Old Army men of such habits would very soon find that they had better resign their commissions, and there is still more reason why they should not be allowed to remain in the R.A.F. They are a constant danger to all who fly with them as passengers and to all who are on the ground below them, for sooner or later the "bottle-scarred veteran" will be let down by his overstrained and stimulated nerves and will come to a sticky end.

What Every Doctor Knows.

Every R.A.F. doctor knows the truth of all that one has stated hereinbefore, and that knowledge is probably at the back of Dr. Stamm's warning to the Insurance people that "In the case of alcohol one has also to reckon with the possibility of more sudden and disastrous effects" than in the case of too much smoking. He said further, "It is an open question whether a small amount of stimulant with meals is not actually beneficial, at any rate to some people. It is the habit of promiscuous 'drinks,' be they few or many, that has such baneful effects, both immediate and remote."

It is true that Lieut.-Colonel Flack, another R.A.F. doctor, disagreed to the extent of denying that the best pilots are teetotalers, and said that in selecting pilots, other things being equal, the fact that a man was a teetotaler "would go against him," and one agrees with him that "those who never take alcohol are not such good sportsmen." But one feels sure that Colonel Flack would be the first to turn down a pilot who showed signs of hard drinking, or one who was known not to be able to carry his liquor like a gentleman.

On the West Coast of Africa it is a recognised fact that in the bad areas the hard drinkers die first, the teetotalers next, and that the moderate drinkers stand the climate best. It is much the same with flying nerve. The teetotaler is always a crank, but there is little fear of his nerve going just because he does not drink. All the same, a little alcohol now and again might just give his system the stimulus necessary to improve his health in quite other respects, and so might save him from getting into a run-down state which would ultimately affect his nerves.

But so far as aviation of all kinds is concerned the "bottle-scarred" veteran must be cleared out. One's only wonder is that the R.A.F. authorities have for so long continued the pay of so many pilots and other officers who are notoriously confirmed drunkards.

One does not for a moment suggest that they are the majority of the pilots. They are in fact a small minority. But they are an infectious lot, and injurious to the moral of the Service. They lure youngsters into drunken habits. They are a nuisance in the mess and in their clubs. They are conducive to indiscipline in that they earn and deserve the contempt of the men under them. And they are a constant danger to the public on the ground.

Anyone in the R.A.F. could probably rattle off the names of half a dozen of them among his own circle, without stopping to think, and in the total they must run into some hundreds. So the sooner they are cleared out of the Service the better.

The Battle-Scared Veteran.

But the merely "battle-scared veteran" may make quite a good civilian aviator. One has in mind a particularly brilliant pilot who frankly admitted that he was scared to death of battle-flying, but who continued to do very valuable work for the nation after he was sent back from the front.—Here one desires to assure all ex-R.A.F. or present R.A.F. pilots, and all the civilian pilots, that one has not one of *them* in mind. People are so apt to jump to conclusions in these days.

Also, certain of one's personal friends who are perfectly priceless pilots to whose care one would not hesitate for a moment to commit oneself confess that they have quite lost their nerve for anything in the way of fancy flying, and yet one would rather trust them than any of the young and vigorous "stunt" pilots simply because when they are in the air they take no chances and are always on the look-out for safe landing places. Such men are much less likely to crash a machine-load of paying passengers than are pilots who do not know the meaning of the word "nerves."

Pilots of their kind are likely to be very valuable to aerial transport firms. They might even be useful squadron officers in the R.A.F. because of their experience. They would at any rate do much to stop the silly stunting over beaches, promenades, roads, and so forth, which has done so much to earn for the R.A.F. in the past the reputation of being a collection of undisciplined cads.

Another Air Hog.

How little good is done by brigade or area orders is shown by the following extract from a letter:—

"I had the most horrible fright of my life the other day, when we were skating. My husband and I had taken A—— and her three little schoolfellows skating (we were the only people on a private pond), and some hateful creature in the air must have caught sight of us, for he came down and did exactly what is depicted in an advertisement for a certain school of flying in The Aeroplane.

"The four kiddies did exactly what the Huns in the picture do—the three little sisters made a rush for me, and A——, who was in the middle of the pond, represented the prostrate figure. She said afterwards that she would rather be rolled out flat than have her head knocked off. D—— and I don't come into the picture—he was in some reeds hunting for a hockey ball, and I was on the bank with one boot off tightening up a skate screw.

"I was much too indignant and scared to take the number of the aeroplane; but it was a horribly dangerous and unkind thing to come and frighten the kiddies like that. I can't imagine what any man would want to do it for. And the observer actually added insult to injury by waving his hand to us as they flew away. I think I'm 'outs' with the R.A.F. just now!"

That was written some few weeks ago by a gentlewoman who has long been keenly interested in flying, and whose house in Wiltshire has on several occasions had its internal economy deranged by the hospitality which she has lavished on errant aviators who had made forced landings in the neighbourhood.

It is difficult—indeed it is impossible—to understand the type of mind which finds pleasure in diving at vehicles on roads, or at children playing on the beach or on the ice. Even the most brainless of pilots must have enough approximately human intelligence to know that his act can only frighten those below him, and that they cannot feel the slightest admiration for what he himself doubtless regards as his skill in "flirting with death"—one believes that such is the correct journalistic *cliché*.

Therefore his only possible motive in such a performance must be that peculiarly contemptible form of vanity which consists in self-admiration, and may be expressed concisely in the phrase, "What a hell of a fellow I am!"

When one sees one of these air-hogs at work one's only sentiment is that of regret that he escapes time after time without crashing and injuring himself for life. One never wishes for his instantaneous death in a crash following one of his stunts, because that would be far too easy a let-off for a swine of his species, whose only mission in life seems to be that of proving that pigs can fly.

The Air Ministry's Opportunity.

Be that as it may, it is earnestly to be hoped that in selecting aviators for permanent commissions and for civilian flying those who have to make the selection will be careful to wash out those who are known to be addicted to air-hoggery.

It has been announced officially that there were at the signing of the Armistice 30,000 officers in the R.A.F. It has also been announced that there are to be 11,000 officers in the R.A.F. for the Army of Occupation—which includes the "Army of the Rhine" as it is officially called, and all units at home, and elsewhere. It is said that 2,000 permanent commissions are to be given in the immediate future, and that the peace-time establishment of the R.A.F. will include 6,000 commissioned officers.

The arrangement seems excellent. The Personnel Department at the Air Ministry has a great opportunity. It can choose its first 2,000 from the very pick of the R.A.F. Only the very finest characters who have proved themselves to be first-class leaders of men, administrators, and fighters all at once should be included in that 2,000.

The remaining 4,000 can then be selected at leisure from the 11,000 of the R.A.F. with the Army of Occupation. That Army—and its accompanying Air Force—must exist until Germany has discharged all her obligations under the expected Peace Treaty, and until Austria, Hungary, Bulgaria, and Turkey have done likewise and have settled down to normal peaceful conditions. That will mean several years to come.

People are rather apt to think that the Anglo-German-Belgian-Dutch army which won the battle of Waterloo packed up and went home one day in June, 1815. As a matter of history there was an Army of Occupation—consisting of English, German, Prussian, Russian, Austrian, and assorted Hun soldiery—in France until late in 1819. So we may expect to see a Franco-British Army in Germany until some time in 1922 or 1923.

Besides which, if our Government has any sense at all, we shall raise a goodly volunteer Army, with a disproportionately large Air Force, for the invasion of Russia and the smashing of Bolshevik power this year. That war might well keep going for another five years or more, reckoning on the analogy of the wars following the French Revolution of 1789.—But of that one will discourse at a later date.

The Chosen People of the R.A.F.

The point is that for the time being some 9,000 R.A.F. officers—namely the 11,000 of the Air Force of Occupation, minus the 2,000 permanent commissions—will be on probation for the remaining 4,000 permanent commissions. That happy state of affairs should enable the Personnel Department of the Air Ministry to produce at the end of the probationary period the finest armed force which has ever worn the King's uniform. It will be a lamentable failure on the part of the Master-General of Personnel if such a result does not follow.

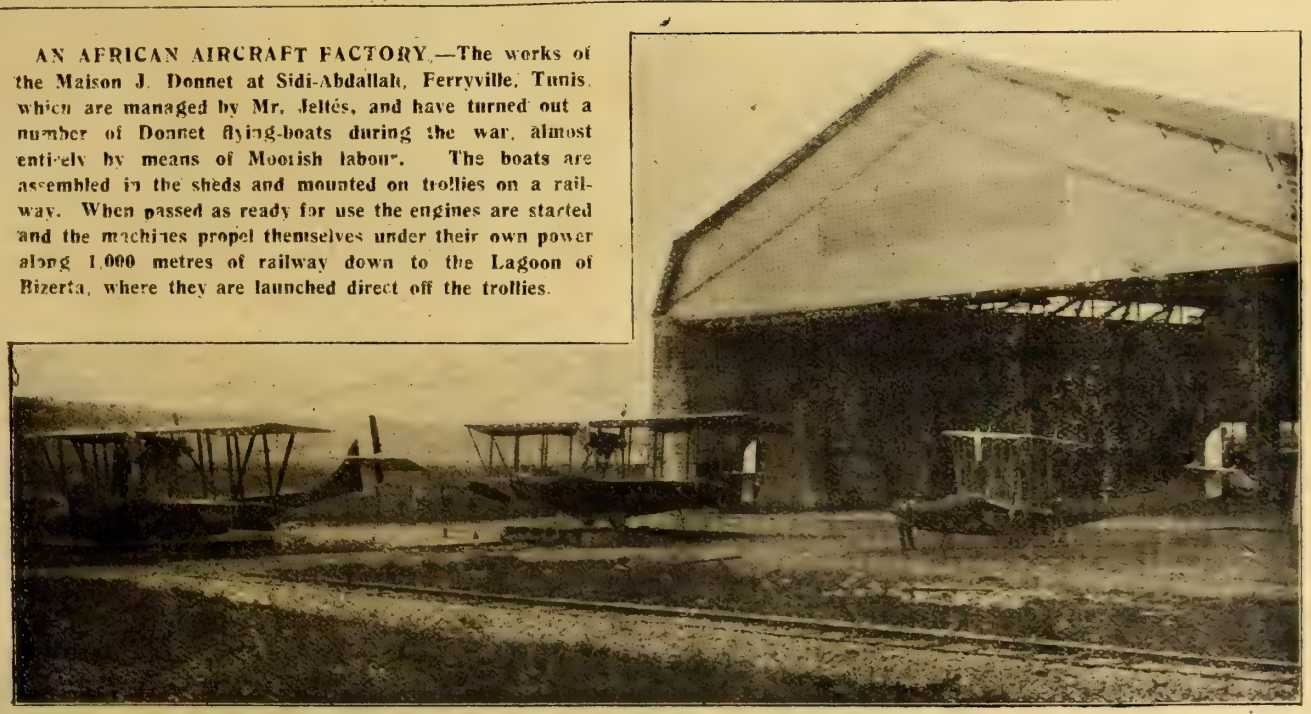
The 11,000 are at present still on probation, for one has not heard as yet of any permanent commissions being signed by the King. The first 2,000 should be absolutely flawless examples of the *preux chevalier* of the air, *sans peur et sans reproche*. Such a number can surely be found.

The rest of the 11,000 will, one hopes, endeavour to model their behaviour on that of the chosen 2,000 and not on that of the baby-scarers and invalid-killers who have brought reproach and contempt on the R.A.F. uniform.

The Patient Point of View.

Some few weeks ago one dealt with much this same theme and published a letter describing the manners and customs of the wrong sort of officer. The writer quoted the instance of an Officer Commanding a training station who on occasion was so drunk that he lay under the table in blissful ignorance of the fact that the mere uncommissioned Cadets whom he was supposed to be training to be officers and gentlemen were squirting him with soda-water. This produced a letter in reply which is worth quoting. It reads thus :—

> Sir,—I have just read with disgust the letter—apparently written by an officer of the Force—in your issue of The Aeroplane of 5th ult. May I take the liberty of suggesting that the publication of a letter of this description is, to say the least, carrying things a bit too far?
>
> Here we have, to use your own words, "a letter written in a passion," yet you published it as, as far as I can see, an absolute proof of a great many of your recent criticisms of the Air Force officer.
>
> I am inclined to think that the modicum of truth in this letter might be likened to "telling tales out of school," and, moreover, the writing of it shows an absolute lack of that *esprit de corps* which we all, you with us, wish to make "absolute."
>
> Perhaps this "lack" is why the writer is in (apparently) no great favour with the authorities.
>
> In quite a different strain is "Soldier's" letter of this week's issue, and perhaps you will agree, Sir, that therein may be found ample explanation of the same unfortunate occurrences of which you and your correspondent appear to make so much.
>
> Believe me, Sir, the "core" of the Royal Air Force is good



AN AFRICAN AIRCRAFT FACTORY.—The works of the Maison J. Donnet at Sidi-Abdallah, Ferryville, Tunis, which are managed by Mr. Jeltés, and have turned out a number of Donnet flying-boats during the war, almost entirely by means of Moorish labour. The boats are assembled in the sheds and mounted on trollies on a railway. When passed as ready for use the engines are started and the machines propel themselves under their own power along 1,000 metres of railway down to the Lagoon of Bizerta, where they are launched direct off the trollies.

and solid, and will, I am sure, preserve the "fruit" that is around it.

Do not forget that in times such as we have just passed through it is impossible to keep the "cockle out of the wheat." But given time—to continue my simile—the cockle can be tied in bundles to burn.

Your criticisms, Sir, are often good and appreciated by your many readers, but the constant dragging of other people's dirty washing—and very little at that—into public seems to me and my brother-officers a form of occupation unproductive and unprofitable to all concerned.

(Signed) R.F.C. ex R.N.

The Justification of the Public Laundry.

Naturally one sympathises with the writer, who was formerly a Naval officer, but one does not agree with him. Surely it is better that dirty linen should be washed in public than that it should not be washed at all. At any rate, it is then exposed to the fresh air and is ultimately cleansed, though it may give offence at the time. And that is preferable to leaving it in an unsavoury mass in a confined state where it becomes a danger to the health of its own household.

To adopt the writer's own metaphor, a sound core alone would not preserve a fruit which is affected externally with disease. And unfortunately it is the external disease of the R.A.F. which is so evident to everybody. Therefore it is necessary to spray the still immature fruit with a strong germicide, so that it may develop to its full health and strength. It is true that the spraying process does attract attention to the disease, but it is better in the end for the resultant crop.

In the early days of the war there were Regular Officers of the finest type who resented one's efforts to provide the R.F.C. with better aeroplanes and engines. They would rather have been killed in a B.E. than have flown safely over Hunland in a superior "Trade" machine which was given to them as the result of public agitation. Similarly, no doubt, there are officers who would rather wait for years for the R.A.F. to "find itself" than have it cleaned out and remade as the result of public exposure of its evils.

But, this is the most critical period in the existence of the R.A.F. The opportunity offers itself to build up the finest Service in the world with the least possible trouble and without being unfair to people who think that they have claims to permanent commissions because they are hard fighters and hard workers in spite of being hard drinkers and hard livers. Now is the time to find the men who happen to be officers and gentlemen as well as hard fighters and workers, and to get rid of those who, despite their warlike virtues, would not be a credit to the Flying Services.

Therefore, one claims that one is justified in giving the fullest publicity to such evils as affect the R.A.F. to-day, and must be driven out from the R.A.F. of the future. For if those evils are exposed now, the authorities can have no excuse in the future for selecting men of the wrong type for permanent commissions.

A Reason in Writing.

Nobody in the R.A.F. can be more desirous of seeing our Flying Services the finest in the world than one is oneself. One knew every individual officer of the R.N.A.S. and the R.F.C. when they were first formed, and one's chief desire is to see the new Flying Services—whether they are to be combined in the R.A.F. or split, as they should be, among the three Services—raised again to the level of Service spirit, intelligence, smartness, and loyalty of the original units from which they have grown.

And one's next desire is to see that those who engage in commercial aeronautics shall carry with them into civil aviation the Service spirit of devotion to duty, keenness for efficiency, self respect, and due regard for law order and decency, by which alone civilian flying can be made a success, can avoid being regarded as a circus stunt or as being on the level of a country fair, and can attain to its proper position as the equal of the British Mercantile Marine, that unofficial Service which has the proudest and finest record of any of our national efforts during the War.

It is one's jealousy for the good name of British aeronautics, both Service and Civilian, which obliges one to expose the defects in our aerial constitution in the hopes of curing them much as fresh air cures gangrene, instead of allowing them to fester in obscurity till they become a danger to aeronautical progress.—C. G. G.

THE HENDON HANDLEY PAGE SCANDAL.

Apropos a recent paragraph in this paper inquiring why some twenty Handley Page machines have been pegged out in the wet at Hendon for several weeks—and in some cases for months—one is moved to ask further questions.

Is it a fact that when the difficulty of housing the large output of Handley Pages became acute the Kite Balloon Department of the Air Ministry notified the Equipment Department that there were in its possession something over a hundred portable sheds for kite-balloons, each of which sheds would be capable of housing a Handley Page when the wings are folded?

Is it a fact that such sheds are or were available?

If so, why were they not used?

If such sheds exist, is it a fact that they are at present lying in store, folded up and suffering from the effects of damp and rats?

If the facts are as implied in these questions, is anybody to be made responsible for the waste of public money involved?

When one recalls all the fuss which was made over the loss of a few hundreds of thousands of pounds at Loch Doon, it seems strange that such a scandalous state of affairs as that involved in the waste of these Handley Pages, which represent almost as much money as the Loch Doon affair, should be passed without notice. The Loch Doon affair was at worst an error of judgment. This seems to be either a case of gross neglect of duty or of sheer imbecility. In either event the person who is responsible deserves to be severely punished.

C. G. G.

THE ROYAL AERO CLUB, 1919.

The Royal Aero Club held its annual general meeting on March 31st. The following members were elected to fill the nine vacancies on the committee:—

Dunville, Lieut.-Col. John D., R.A.F.
Grey, Lieut.-Col. Spenser D. A., D.S.O., R.A.F.
Holden, Brig.-Gen. Sir Capel, K.C.B., F.R.S.
Hubbard, Lieut.-Col. T. O'B., R.A.F.
McClean, Lieut.-Col. F. K.
Maitland, Brig.-Gen. E. M., D.S.O., R.A.F.
Northcliffe, Lord.
Ogilvie, Lieut.-Col. Alec, R.A.F.
Page, F. Handley.

The full committee for 1919 is therefore as follows:—

Chairman: Brig.-Gen. the Duke of Atholl, K.T., M.V.O., D.S.O.
Brancker, Maj.-Gen. Sir W. S., K.C.B.
Bucknall, Ernest C.
Cockburn, G. B.
Dunville, Lieut.-Col. John D.,
Grey, Lieut.-Col. Spenser D. A., D.S.O.
Holden, Brig.-Gen. Sir Capel, K.C.B., F.R.S.
Hubbard, Lieut.-Col. T. O'B., M.C.
Lloyd, Col. F. Lindsay, C.M.G.
McClean, Lieut.-Col. F. K.,
Maitland, Brig.-Gen. E. M., D.S.O.
Moore-Brabazon, Lieut.-Col. J. T. C., M.P.
Northcliffe, The Rt. Hon. the Viscount.
Ogilvie, Lieut.-Col. Alec,
Page, F. Handley.
Samson, Col. C. R., D.S.O
Singer, A. Mortimer.
Sopwith, T. O. M.

One hopes that the revised committee will act better and more promptly in the interests of all members of the Royal Aero Club than have committees of the past.

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WHAT DOES IT MEAN?

The two advertisements which appear below were published in the Agony Column of recent issues of the "Times" newspaper. It has been suggested that they have to do with the R.A.F., and a solution of the puzzle would be interesting :—

T'GN.—Return at once. Ca's departed. R. M. too dashing. Two vacant places.

T.G.N.—M. G. P. Dangerously ill and must go for sea voyage.—C.

The letters T.G.N. are doubtless intended merely to catch the eye of an individual, but the other letters do undoubtedly fit certain officers of the R.A.F. For example, C.A.S. (which is probably arranged as "Ca's" merely as camouflage) stands for Chief of the Air Staff. As is commonly known, General Trenchard has been dangerously ill, and there are, unfortunately, those who hope that he may not return to duty at the Bolo House. So in this case the wish may be father to the thought.

R.M. form the initials of Brig.-General R. M. Groves, whose activity and intense desire for efficiency may very well cause him to be considered "too dashing" by those who prefer inefficiency and a policy of drift. Thus there are probably some who hope to see "two vacant places."

M.G.P. is the common abbreviation for the Master-General of Personnel, an office now held by Admiral Lambert, formerly Fourth Sea Lord of the Admiralty. Or they might be a purposeful inversion of the initials of Major-General Sir Godfrey Marshall Paine, now Inspector-General R.A.F. and formerly M.G.P. One has not heard of the illness of either of these officers, and one hopes that they are in the best of health, but possibly the advertiser is better informed.

If anyone in this country wished to communicate quickly with somebody in the "Army of the Rhine" it seems quite possible that the Agony Column of the "Times" would be swifter and surer than a letter, besides being safer—for letters do sometimes fall into the wrong hands. Therefore one is tempted to ask whether this is a part of a fresh series of Bolo intrigues. Any light on the subject will be welcomed.—C. G. G.

GERMAN NAVAL AIRCRAFT.

The following account of the visit of the Allied Naval Commission to German Seaplane Stations is abstracted from an article by a member of the Commission which was published by the "Times" :—

German light cruisers, battle cruisers, and battleships showed no evidence either of carrying aeroplanes or of having been equipped to carry and fly them. The very evident astonishment which the Germans displayed at the sight of aeroplanes perched on the turrets of British battleships and battle cruisers, or on the revolving platforms of the light cruisers, made it practically certain that they were gazing on a sight entirely new to them. Even greater was the excitement they displayed at the sight of the British "carrier" ships.

When the squadron of "Kaisers" were being escorted up to Scapa for internment, the "Argus," which was out in the Firth "doing trials," passed the German line, on opposite courses, at a distance of not over 1,200 yards. The monstrous loom of her fantastically high freeboard, the unbroken run of the deck which was almost as large as a polo field, the smoke welling up from under her stern, the aeroplane diving for a landing, combined to form an apparition which seemed fairly to carry the Germans on all five of the ships off their feet with excitement.

The low sandy coasts of Germany on both the North Sea and the Baltic lend themselves admirably to seaplane stations, and those established have been placed and improved with the greatest skill and care.

The principal stations inspected by parties from the Allied Naval Commission were Wilhelmshaven, Nordeney, Borkum, Helgoland, and Sylt, on the North Sea side, and Kiel, Warnemünde, and two stations on the island of Rugen, in the Baltic. Of these, Nordeney, undoubtedly one of the largest and best-equipped seaplane stations in the world, and Warnemünde, the principal German experimental station for naval heavier-than-air machines, were the most interesting.

The general run of machines at Nordeney were of tried and proven types, such as the Frederichshafen, Brandenburg, and Albatros, with which the Allies were already thoroughly familiar. The one exception was a giant monoplane flying-boat, which is undoubtedly the most striking machine of that character in existence at present. Its wing-spread of perhaps 130 ft. is exceeded by that of a number of Allied and German machines, but a chord of wing of between 15 ft. and 20 ft. had hardly been equalled, at least in any of the types known to the public.

The hull of the boat was largely of steel and duralium, and looked stiff enough to weather very heavy seas. Roughly speaking, it looked to be from three to four times the displacement of that of the earlier types of Curtiss flying-boats, and incomparably more comfortable. Between the wings was a stoutly-built house for a pilot, containing a sound-proof room for the wireless operator.

According to a German officer, this giant monoplane flying-boat was the last gift of the great Count Zeppelin to the German people. He completed the design of it before he died, but most of the construction and all the experimental development of it have been carried out since.

Because Count Zeppelin, at the time he designed this machine, did not believe it possible, on account of its great size and weight, to land safely on the earth, he decided to make it of the flying-boat type. It was to be kept at a seaplane station on the coast of Belgium, to fly over the front on bombing raids. He chose the monoplane type on account of the trouble always found from the lower plane of a bipkane being knocked about by the waves in a rough sea.

Before the "Giant" was used for bombing experiments it had been proved possible to land large aeroplanes safely on the earth. As that made it possible for bombing raids to start nearer their objectives than if they had been pinned down to coastal stations, the Zeppelin flying-boat was turned over to the Naval Air Service for long-distance reconnaissance. For this work it was proving highly satisfactory, although it had to be flown—and especially to be landed—very carefully.

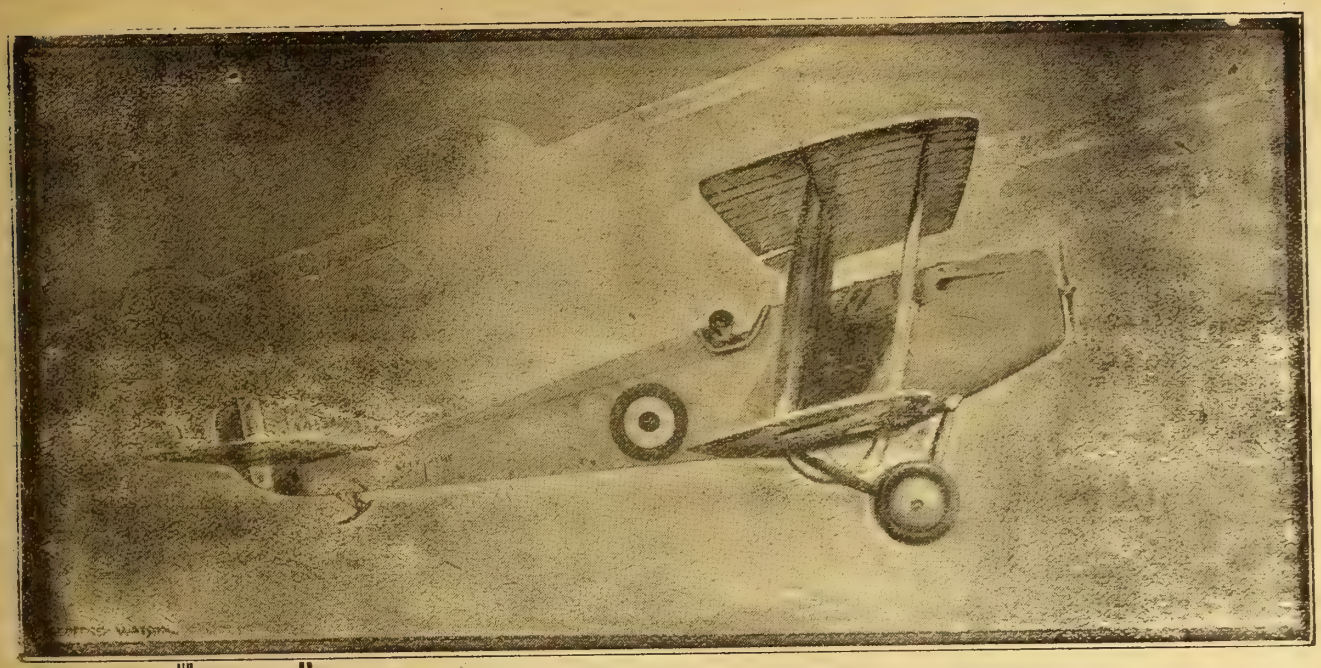
The German naval authorities had not counted on their great experiment station at Warnemünde being included among those which the Allied Naval Commission should inspect, and it was only after the most vehement protests that they finally acceded to Admiral Browning's demand that facilities for such a visit should be arranged. Warnemünde is a prosperous port and summer resort on the south coast of the Baltic about 100 miles east of Kiel.

There were close on 200 machines in the dozen or more sheds, practically all of them new types, or old ones in process of improvement. The latter included some very useful-looking Brandenburgs, Albatroses, Frederichshafens, and Gothas, most of which seemed to indicate an effort toward lighuess and speed rather than an increase in size. Light but very strong steel pontoons were the rule among all of these new machines. Generally speaking, they were less highly finished than similar British and French types, but there was no indication whatever that they had suffered through shortage of any materials. Aluminium—or, where greater strength was an object, the alloy, duralium—were used lavishly, and even brass and nickel were not skimped. The camouflaging had been very cheaply and effectively done by printing a design—usually a hexagonal pattern, in which deep maroons and indigos predominated—directly upon the fabric before applying the dope. This could hardly have represented five per cent. of the labour of painting the "dazzle" designs separately; yet—on the score of decreasing visability at least—it is undoubtedly the more effective of the two methods.

A two-engined Gotha torpedo-carrying seaplane attracted a good deal of interest, less on its own account than because it was expected that the Germans would have given much attention to the development of this type. It was never felt, right down to the day of the Armistice, that the Grand Fleet was absolutely safe in either Scapa or Rosyth from an attack by torpedo-carrying seaplanes—brought over in a carrier-ship, of course. Yet it now appears that the Germans had done much less in developing this branch of their flying service than the Allies.

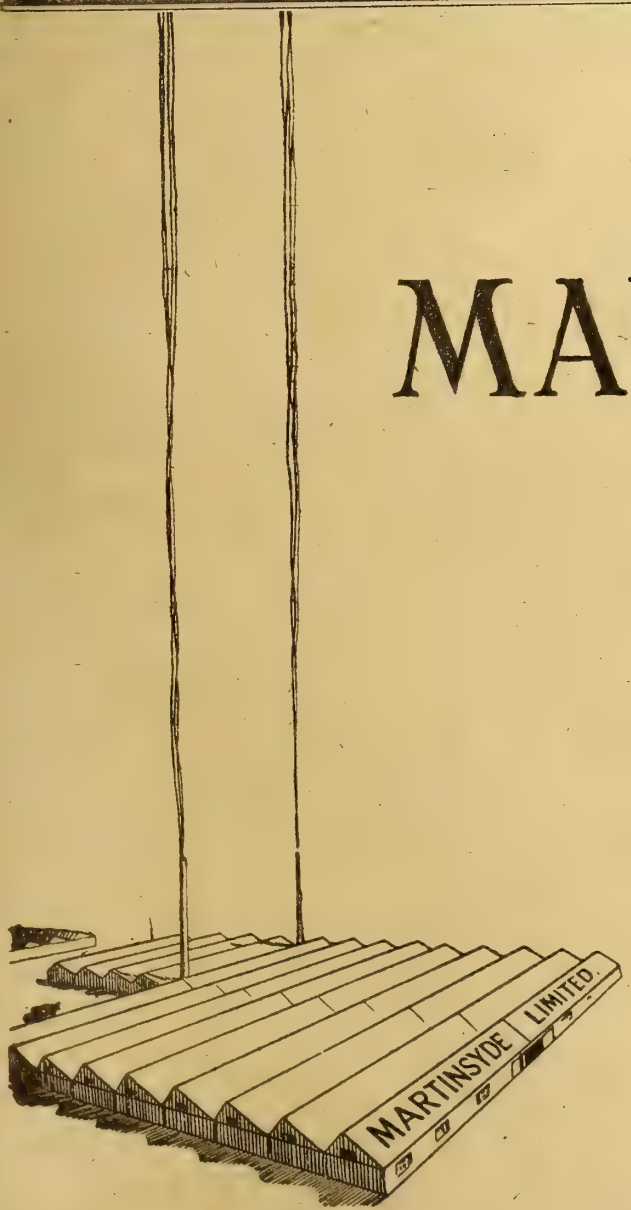
Of very late types there were several each of Travemundes, S.V.K.S., and Sablatnigs, none of them large, but all showing the constant effort to develop more speed. Especially interesting were two or three of the new all-metal Junkers, even the wings of which were made of corrugated sheets of duralium.

Warnemünde's most spectacular exhibit was a "giant" seaplane with four engines and a wing-spread of something like 150 feet. Though this was greater than that of the great monoplane at Nordeney, it is not improbable that the latter had a greater wing area and perhaps a greater lifting power. Perhaps I can give no better idea of the size of the fuselage of this seaplane than by mentioning that, in the course of the inspection, four of the Allied officers and twelve of the Germans were inside it at the same time, and that, standing on the floor, I could catch no glimpse of one of them.





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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

H.R.H. the Prince of Wales at the Handley Page Aeroplane Factory.

H.R.H. the Prince of Wales visited the Handley Page factory at Cricklewood, on Thursday, March 27th, accompanied by H.R.H. Prince Albert. The Princes made an inspection of the works that lasted two hours.

A Change of Title.

The King has been pleased to approve the alteration of the title "Secretary of State for the Royal Air Force" to that of "Secretary of State for Air."

Two Rumours Denied.

It is stated in the "Times" that the following two rumours have no foundation whatever:—

"Firstly, that Mr. Winston Churchill, Secretary of State for War, was contemplating breaking up the Royal Air Force and restoring its Military and Naval branches to the separate control of the War Office and the Admiralty.

"Secondly, the rumour which concerned the Department of Civilian Aviation, and credited Sir Eric Geddes with the design of absorbing this Department under the supreme control of the Transport Ministry."

We shall next hear doubts cast on the rumour to the effect that lighter-than-air ships are to be controlled by the local Inspectors of Weights and Measures

43 Squadron's Dinner.

43 Squadron R.F.C. and R.A.F. propose to hold a Dinner in London. Will members present and past write to Lieut. H. C. Hull, Red Lion Hotel, Salisbury?

Sixty-Year-Old Pilots.

The remark made by Maj.-Gen. Sir W. S. Brancker, K.C.B., A.F.C., at the meeting at the Institute of Actuaries, reported in last week's issue, to the effect that a pilot is not necessarily too old at 60, has aroused some interest. It is well that the general public should understand that the pilot of a commercial machine need not be a youthful acrobat. The aerial liners of the future may, in many cases, be piloted by staid, experienced officers of a type similar to the Captains of crack Atlantic seacraft. Youth will not have everything its own way in peace-time aviation; there will be room for experience, though Major-General Brancker must not be understood to mean that "none but the old deserve the air."

Octogenarian Anxious to Fly.

When an application for permission to hold a flying fair came before the Peterborough Town Council recently, Alderman Daniel Redhead, who has just turned 82, said he is anxious to fly. "We shall all be expected to fly soon," he said, "so the sooner we see how it's done the better." Alderman Redhead has not lost courage with age.

Flying as a Sport.

This season flying as a sport is to be a big feature of the Ranelagh Club's programme. Several aeroplanes for the use of the members will be maintained at the Club.

The machines will be of two types—Vickers passenger aeroplanes, with a seating accommodation for 10 passengers, and Vickers two-seaters. The "Times" states that members will be allowed to use these machines for trips to the Continent or to any part of England, or merely for short trips round the London district. Members will be able also to learn flying at the Club. It is interesting to note that some of the very first flights by Mr. Grahame-White, Mr. G. Hamel, and the Hon. Charles Rolls were made at Ranelagh, but one has grave doubts about the suitability of Ranelagh as an aerodrome for big passenger machines.

Aeroplanes without Pilots.

Discussing the possibilities of directing pilotless aeroplanes at a distance, the "Journal" remarks that experiments are being made in France, and that a French machine has succeeded on a prescribed route, with certain specified detours, in accomplishing a flight of 180 kilometres (about 112 miles) and in landing when so ordered in an aerodrome indicated. It would have been easy for the machine, the newspaper adds, to drop bombs anywhere at a word of command.

But does our respected contemporary really mean "at a word of command"? Even a Serjeant-Major with laminated steel lungs could not be expected to order a pilotless aeroplane to hear the order "'Shun! Drop bombs," at a distance of 112 miles.

A Flight to India.

An undated message from Lahore states:—The Handley-Page aeroplane, "Old Carthusian," has reached Lahore, the final stage of its journey. The pilot received many congratulations on the successful completion of the flight of over 7,000 miles.

Mrs. Hewlett going to New Zealand.

Mrs. Hewlett, who was the first British woman to fly, is going to New Zealand, and probably Australia, partly for business and partly for pleasure. Mrs. Hewlett is the wife of the well-known novelist, Mr. Maurice Hewlett. She has the distinction of being the only mother who has taught her own son to fly.

Guarding Railways with Aeroplanes.

It is reported from Cairo that during the recent disturbances aeroplanes on several occasions drove off with machine-gun fire parties of natives who were tampering with the railway lines. In police work of this description there will always be use for aeroplanes in some part of the world. One aeroplane would be more effective than many hundreds of armed guards.

The Three Essentials.

Colonel the Master of Sempill, of the Technical Department, lecturing before the Junior Institution of Engineers, said that many types of aeroplane had a future, but only the running of commercial services could test their real possibilities.

He described his flight with General Weir from Farnborough, Kent, to Mudros, Greece, a distance of 2,100 miles, where they were obliged to end their journey owing to radiator damage. Their experience showed that three things were essential: a careful consideration of the parts, good weather reports at all aerodromes, and quicker arrangements for taking in petrol.

Desertion by Aeroplane.

Desertions by aeroplanes across the Swiss frontier are again becoming frequent. According to the "Daily Express":—

Two Italian aviators named Bizzolato and Stacko landed near Lugano in a powerful Caproni. They were in uniform, and declared openly that they had deserted. They carried two bicycles in their aeroplane. The machine is guarded by Swiss soldiers, but the occupants were liberated, as owing to the cessation of the war the authorities do not know what to do with aerial deserters.

Two Austrian officer deserters landed near Davos in an aeroplane recently.

A Heath Robinson Story.

For the following story one has to thank a lady reader of THE AEROPLANE:—

At an Exhibition of Aircraft in the North, the officer acting as the official guide, when coming to a certain machine, which shall be nameless, but of which it is sufficient to say that it was the product of the late Royal Aircraft Factory in 1916, was accustomed to say: "And here you have the type of aeroplane on which Captain Leefe Robinson brought down the first Zeppelin over England."

Later on he was succeeded by a zealous, but junior, officer, who quickly mastered most, but not all, of his senior's "patter." This is what he was overheard to say: "And here you have the aeroplane on which the famous Captain Heath Robinson brought down the first Zeppelin over England."

The full humour of it will be appreciated by those who know and have suffered in the machine described. And, it may be added, by those who know the kind of aeroplane Mr. Heath Robinson draws.

Managing a Ranch from an Aeroplane.

Mr. J. Pierpont-Morgan, son of the famous financier, is reported to have bought an aeroplane for the manager of his large ranch in Montana. The ranch extends over 150 miles of territory, and it has proved impracticable to build roads over which the manager can travel in a motor-car.

Mr. Schmitt, the pilot who has been engaged, was recently discharged from the American Air Service, says the "Daily Mail." He is also a wireless operator, and the aeroplane will be fitted with wireless and stations will be established at intervals on the ranch so that the manager, while making his rounds, can keep in constant touch with every part of the territory under his supervision. In this way, Mr. Morgan contends, much time and expense will be saved.

It is to be hoped that this method of supervision may be followed in other parts of the world. Owners of large farms in Australia will find aeroplanes equally useful. Little Boy (ex-Bolo) Blue would soon find those "sheep in the meadows and cows in the corn."


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The WORLD of AERONAUTICS (continued)

The London-Madrid Air Service.

Captain Hamilton, whose mission it is to inspect the ground near Vittoria with a view to the institution of an air service between London, Vittoria, and Madrid, arrived at Vittoria on March 29th.

Free Aerial Accident Insurance.

On Tuesday last, April 1st, the "Daily Mail's" new scheme of free insurance for passengers in aeroplanes and airships came into force. This journal now undertakes to pay £250 to the legal personal representative of any registered reader between the ages of 16 and 65 who is killed by an accident to any aeroplane or airship in which he or she is a fare-paying passenger. The insurance covers flights over the United Kingdom, the English and Irish Channels, the North Sea and the Continent of Europe.

This is a very sporting offer. While much discussion on aerial risks is still taking place, the publishers evidently have found that such low rates of insurance are possible that they can afford to give free policies to their readers.

America Claims the Altitude Records.

The altitude record of 28,900 feet made last September in Dayton by Major R. W. Schroeder, in an American aeroplane with a Hispano-Suiza engine, still holds, according to a cablegram received at the Aeronautical Exposition, and published officially from Washington, U.S.A.

The information, which is said to have been received from London, was to the effect that the flight which Capt. Lang, of the Royal Air Force, made on Jan. 2nd, in England, was between 27,000 feet and 28,000 feet, instead of 30,500, as reported at the time. This correction was made on a re-reading and calibration of the instruments.

The End of an Exhibition.

The Aircraft Exhibition held on Newcastle Town Moor, and which was organised by the Royal Air Force, was closed on Tuesday, April 1st, after having been open for six weeks. The success is all the more noteworthy because of the uncertain weather experienced at this time of the year.

The Exhibition, the first of its kind in the country, was originally intended to remain open for a month, but the period was extended owing to the widespread public interest in it. 175,000 people visited the Exhibition, and the payments for admission amounted to £6,400. The proceeds, after meeting expenses, are to be devoted to Royal Air Force charities.

An exceedingly satisfactory result.

Aeronautics as Part of College Courses.

The Division of Military Aeronautics, U.S.A., in co-operation with the Committee on Education and Special Training of the General Staff, has arranged a training programme for College students, which will not interfere with their prescribed College courses, but which will, at the end of three years, turn out men prepared for commercial or for military aviation.

In view of the depreciation among Reserve Officers of not less than 10 per cent. a year, it is estimated that the Air Service must draw from some source about 1,000 pilots, 650 aeroplane and balloon observers, and 100 engineer officers every year.

The Dis-Use of Parachutes.

The "Daily Mail" of March 31st published the following leading article :—

By an amazing decision attributed to the Treasury the further equipping of R.A.F. aeroplanes with parachutes has been stopped. This is economy gone hopelessly mad. The battle-efficacy of the parachute was dramatically demonstrated last year when two Boche airmen alighted in safety by this means from a giant aeroplane that was shot down in flames near Cambrai. We had a few aeroplanes equipped when hostilities ceased. If we had been more alert many valuable lives might have been saved.

It seems incredible that for the sake of a Treasury saving our airmen should be cut off from the chance of escaping from a disabled machine in mid-air. There are many unavoidable risks they must take. Why add one that is avoidable? If ships are required to carry boats and life-belts for saving life at sea, why should aeroplanes be destitute of life-saving appliances in an element less explored and quite as dangerous? For the present we prefer to believe in the existence of a misunderstanding. Whatever the explanation, Treasury parsimony must not be indulged at the expense of our airmen's lives.

Aircraft and Aviators for the Argentine.

It appears that quite a number of British aviators who are leaving the Royal Air Force have recently offered their services as Military Pilots to the Argentine Military Authorities. Some of them, it appears, have approached the Argentine Legation on the subject, and have gone so far as to state definitely to the Legation Authorities that the Argentine Government requires them.

For the benefit of aviators who may be similarly inclined one makes the announcement, which is based on an official statement by the Argentine Authorities, that no instructions have been received in this country to engage aviators for the Argentine Army, and that, moreover, it is impossible for anybody who has not been born in the Argentine to enter that nation's Army.

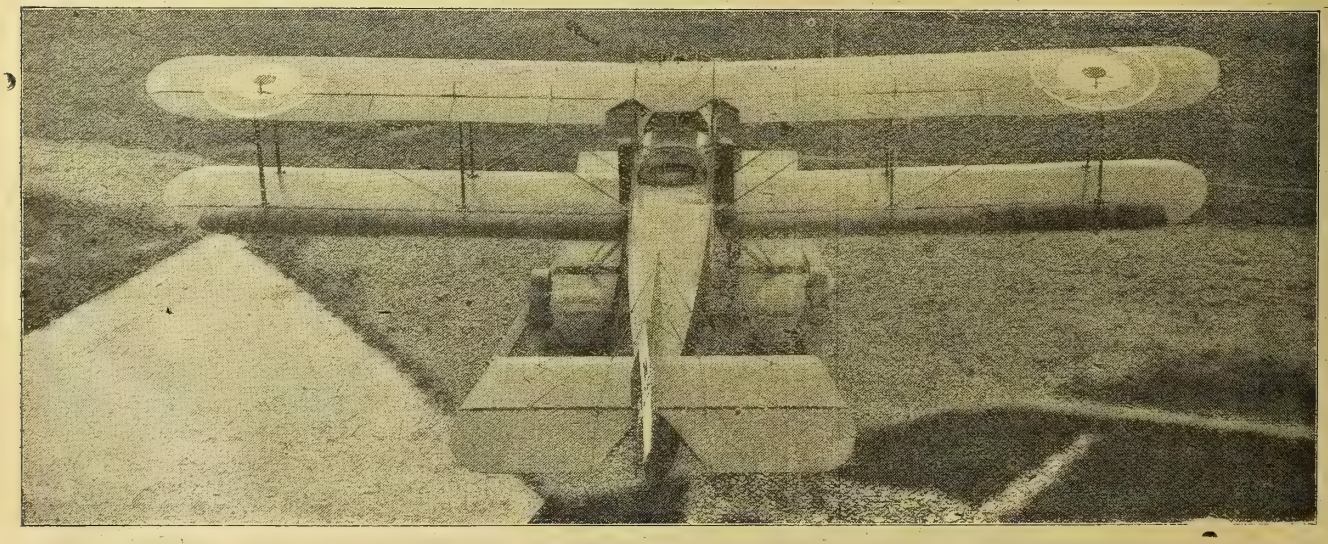
One assumes that this regulation would not be strictly enforced by the Argentine Republic if it was at war, but it certainly holds good in time of peace.

On the other hand, the Argentine Authorities are very keenly interested in British aeronautical developments, especially in relation to military aircraft, and British manufacturers who are at liberty to supply aircraft of war to foreign countries would do well to make their products known to the Argentine Military Authorities. Such photographs, specifications and so forth as are permitted by the Air Ministry to be transmitted to foreign Governments should be sent to Lieut.-Colonel Luis Jorge Garcia, Military Attaché, the Argentine Legation, 3, Holland Park Mansions, Holland Park Gardens, W.

To Canadian Aviators.

Canadians of all ranks in the R.A.F. who are interested in co-operation for military, commercial, and social purposes on their return to Canada are invited to write to "Canfly," c/o The Aeroplane, 166, Piccadilly, W.1, giving their names and addresses.

It should be noted that this has nothing to do with any employment agency, nor is it concerned with any register of pilots. It is merely an effort on the part of a Canadian officer, who is returning to Canada, to keep Canadian aviators in touch with developments and with one another.



Rear View of Fairey III.c. (360 h.p. "Eagle" Rolls-Royce), more or less of the type which has been entered for the Atlantic Flight.

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The World of Aeronautics (continued)

Another London-Paris Record.

On March 28th one of the De Havilland machines of the official communication squadron used by the Peace Conference Delegates made the flight from London to Paris, a distance of 250 miles, in one hour 20 minutes.

The Fatal Accident near Sleaford.

The following report is taken from the "Morning Post," of March 29th :—

The inquest was resumed at Cranwell Aerodrome yesterday on Captain Robin G. Dunn and Second Lieutenant William John Pegg, who were killed on the high road near Sleaford by a passing aeroplane on the 18th inst. The two officers, who were staying at Caythorp Court, used as a convalescent hospital, were driven by a groom to the meet of the Duke of Rutland's hounds, and followed along the roads.

Labraham, the groom, said they were returning when they saw an aeroplane following them. It swerved to the right and passed over the fields. Further along the road an aeroplane, which he believed to be the same, suddenly appeared from behind a rick flying very low, and came straight towards them, passing directly over the trap. He was hit on the side of the head, his hat being smashed, and this saved him. The next thing he remembered was that he was in the trap and both officers were sitting beside him dead. There was no aeroplane in sight and no one about.

Wing-Adjutant Captain C. S. Richardson said that when he heard what had happened he sent for every pilot who had been up. After cautioning Lieutenant Trevor Walter Chater, he said to him : "I understand that you deliberately dived on the back of the cart on the road running along the south side of the aerodrome?" He replied, "Yes." Witness then said : "You have read and understood the rules of the aerodrome regarding low flying?" and got the answer, "Yes." The witness also saw Lieutenant Christopher Moody, who was a passenger with Lieutenant Chater at the time. When the witness questioned him, Moody said when in the air they made a dive which threw him about so much in the fuselage that when Chater made a second dive he crouched in the cockpit for security. He felt a slight bump, which he thought might be due to contact with the road.

Lieutenant Moody, in evidence, said he had been up with Chater before, and there was nothing unusual in his management of the machine that afternoon.

Mr. Charles Mellor, barrister, stated that, relying on his advice, Lieutenant Chater would not give evidence. He pointed out that the cause might be an error of judgment or a miscalculation, but the jury had heard nothing to convince them that what had happened was due to an act of gross negligence on Lieutenant Chater's part. He pointed out that Chater was only 18½ years of age, and had done only about four months' flying. He appealed to the jury to say that the youth had not been guilty of manslaughter, and expressed the deep regret of Lieutenant Chater at the fatality.

The Coroner said they could see for themselves the deep feeling with which Lieutenant Chater had watched these proceedings.

After a long consideration, the Foreman of the jury announced : "We have come to the conclusion that the two officers were accidentally killed."

[It will be necessary at a later date to make further reference to this accident. The matter is possibly sub judice at the moment and no comment can properly be made.—Ed.]

A Club for American Active-Service Aviators.

News has been received from the United States that a club has been formed by some 500 American aviators who crossed the German lines during the war. The headquarters are in New York City, at No. 11, East 38th Street. It is intended to affiliate it with the Army and Navy Air Service Association and co-operate in every way.

Laurence La Tourrette Driggs, who is said to have been a guest of the British Government and observed many of the air activities, is one of the founders of the club. He has returned to America and taken back with him a large number of valuable air trophies which are exhibited at the Aeronautical Exposition.

The prize of the collection is a pennant streamer from Baron von Richthofen's Flying Circus. Mr. Driggs got it the day after the armistice was signed in one of the cities evacuated by the Germans.

Next to this in interest are the insignias from the American Air Service squadrons.

The first squadron over the German lines was the 185th Aero Squadron. This is represented by a devil holding a bomb, representing the bombardment forces. This squadron received the largest number of decorations during the war for individual work.

The Revival of "La Conquete de l'Air."

Congratulations are due to M. Adhémar de la Hault, who has revived the Aeronautical Journal "La Conquete de l'Air," published in Brussels. In the issue that has just been received there appears an article upon Aerial Navigation between England and India.

Aircraft Paintings.

Those readers of The Aeroplane who are sometimes in the neighbourhood of Bond Street should pay a visit to the Brook Street Art Gallery, 14, Brook Street, New Bond Street, W.1, where they will always find on view interesting speciments of water-colour drawings of aircraft by Mr. Geoffrey Watson.

The Gallery has recently been appointed sole agents for Mr. Watson's pictures, and it may be of interest to one-time active-service pilots and observers to know that Mr. Watson is willing to paint any type of machine, allied or enemy.

Colonial Flight Cadets.

The following letter from "A Colonial Flight Cadet" discloses a state of affairs that appears to need investigation :—

May I be permitted, through the medium of your paper, to lay a few facts before the public?

I have often read suggestions by you that flight cadets, instead of being demobilised against their will, should be allowed to continue their training until graduated. I consider this an excellent suggestion, and I think it applies still more to Colonial flight cadets.

As you are aware, flying ceased at the Training Squadrons about two months ago, and since that time Colonial flight cadets have been doing nothing whatever while awaiting repatriation. With the present available means of transport, it may be a few months yet before we can get home, which time could be more profitably employed in flying, and this would, I think, do much to bring about universal commercial aviation.

Apart from that consideration, I think it only fair to let the public know exactly how Colonial flight cadets are being treated prior to repatriation. The majority of South African cadets (as everyone in the Force knows) were granted commissions after leaving the Armament School, prior to joining a training station. This was due largely to the backing up of one of their Generals, and was hardly fair to the other Colonials; however, the Air Ministry is apparently going to rectify matters (*vide* General Seely's speech), by granting all Colonial cadets commissions as from Feb. 12th.

This sounds very well, and rather gives the impression that the Government is treating Colonial cadets splendidly. I am afraid, though, that it is apt to be misleading. The War Office, though making no noise about it, have already gazetted their Colonial cadets, and treat them very well at their camp at Pirbright. They have no fault to find. Although the Air Force commissions are supposed to date before the Army ones, no Colonial Air Force cadet has yet been gazetted, though the announcement came out three weeks ago! And in the meantime cadets are leaving for home!! Deeds are what we want not fine speeches.

Cadets in the Air Force who are awaiting repatriation may be divided into two classes :—Canadians at Shorncliffe and all other Colonials at Blandford. The Canadians, I believe, are not badly off. I can only speak for Blandford. Blandford, as everyone knows, is a desolate enough place, but the treatment we receive there makes it ten times worse.

The mess! It is far and away the worst I have ever been to during the whole period of my training as a cadet. The cadets and flight cadets have to clean and wash up the plates, dishes and their own forks, knives and spoons, which must be taken away with them, and occasionally scrub out the dining room. All my Service-kit has been handed in at the Squadron before leaving, and one must admit that "joy rags" are hardly the clothes to wear when engaged on work of that nature!

At a training squadron flight cadets are members of the Officers' Mess, why should it be so different at a Repatriation Camp? The treatment we receive makes us rather regret ever having joined the Air Force (or rather, the Royal Flying Corps, as it was then). Apparently, it would have been better not to have made good, and to have been made a Serjeant-pilot rather than a flight cadet.

At any rate, we would have received better treatment, at least, at Blandford. Englishmen are certainly going the wrong way about to strengthen the bond between the Colonies and the Home Country. At Blandford nothing can be heard but discontent and dissatisfaction.

Surely, this is not as it should be; it cannot be so very hard to improve matters and make everything run smoothly and with general satisfaction. Why not give Colonials a good impression of England, and let them return home satisfied at least that they have had a square deal?

Hoping that you will see your way to publish the above.

A Colonial Flight Cadet.

PARIS NOTES

Aviation has had its red-letter days in the near and distant past, but surely it has never had such a red-letter week as the one just ended.

On Saturday, March 22nd, M. Farman's "Goliath" left Toussus-le-Noble, near Paris, on its first civilian passenger service flight between the French and Belgian capitals. The start was to have been at 9 a.m., but was delayed owing to the snow. The machine eventually left the aerodrome at 1.25 o'clock, piloted by Lt. Bossoutrot.

The burgomaster of Enghien (Belgium) was among the passengers, and on the return journey M. Rafaël Guariglia, Italian Chargé d'Affaires at Brussels, was carried. The return journey was made on Sunday, the 23rd. The respective times were:—Outward, 2 hrs. 50 min.; return, 2 hrs. 57 min., the machine landing at Toussus at 5.45 p.m. The service will be weekly until further notice.

In a spirit of *joie de vivre*—or maybe it was *joie de vol*—M. H. Farman took Lt. Nungesser for a spin in the "Berline" limousine, and a Mr. Sharp and a Capt. Clark left by air to keep a luncheon appointment at Tours!

A thumbnail sketch of the hero of the "Goliath" flights is sure to interest, so here goes:

Lt. Lucien Bossoutrot is 29 years of age. As he was in one of the first classes to be mobilised, the 2nd of August found him a corporal in the 28th Regiment of Infantry. By October 28th, 1914, he had been promoted to adjudant, and took part in the battles of Charleroi, Marne, and Reims.

Transferred to aviation in January, 1915, he obtained his brevet April 1st, No. 1,856, and his military brevet May 1st, No. 909. He was sent for duty with Squadron 22 on June 1st, and promoted to sous lieutenant in April, 1916.

He accomplished the usual squadron work, and followed his squadron from Artois (1915) to Verdun, thence to the Somme, and subsequently took part in the French offensive in Champagne in 1917. He passed unscathed through the usual incidents of war, and gained the Croix de Guerre and three citations for his 500 hours of flying. Next he was engaged on receiving machines from the Farman works at Toussus le Noble, tuning up the first F.50 and F.60 between whiles. The F.60 of 1918 is the "Goliath" of 1919.

The Paris-Bordeaux Mail.

The long-promised aerial mail, Paris-Bordeaux, was also accomplished on Saturday, the 22nd, with relays at Chateauroux. The service is being maintained in both directions. On Saturday two machines left the aerogare at le Bourget, and were "relayed" by two machines of Squadron 226 at Chateauroux. One of these latter, carrying the mail, arrived at the aerogare Beau-Desert, near Bordeaux, at 2.50. The total time was 4 hrs. 50 mins.

The second machine, having a forced descent owing to want of petrol, ran into some vines and overturned. The pilot and passenger were taken to hospital, but are not seriously hurt. The inverse journey was made by Adjudant Vachot in 3 hrs. 40 mins. (left Beau-Desert at 12.30 and arrived at le Bourget at 16.10).

Journey Divided into Two Stages.

On Sunday the mail was carried by air from Bordeaux to Paris, but not from Paris to Bordeaux. Squadron 56 is responsible for the first stage—*i.e.*, to Chateauroux—and Squadron 226 from there to Bordeaux. According to schedule, the total journey should only take 4 hours, but machines of this type having only enough fuel for 3 hours, the route is divided into two, but it will not be a permanent arrangement.

It was owing to bad weather necessitating a longer voyage that the above-mentioned accident occurred, Lt. Alary having run out of petrol. Emergency tanks are now being fitted.

On Monday the journey from Bordeaux to Paris was accomplished in 3 hrs. 40 mins. by Lt. Chretien and Lt. Gibot on a Salmson postal avion. A stop of 5 mins. was made at Chateauroux.

The Farman Frères are also starting a civilian passenger service to Bordeaux and back. An F.50, piloted by Lt. Constantin, will be used. There is seating accommodation for six passengers.

230 Kilometres an Hour.

I now come to the third and most sensational flight which it is my duty to record. I refer to that of Lt. Roget (hero, on 26/1/19, of the double crossing of the Mediterranean) on a Bréguet biplane from Marseilles to Paris in 3¾ hrs. He left Marseilles with his mechanic Offray at 10.45 on the 23rd (Sunday) and landed at Villacoublay at 2 o'clock. He thus attained an *average* speed of 230 kms. an hour! In fact, he covered the distance from Marseilles to Lyons in 1 hr. 45 mins. The ordinary express train service takes 14 hrs. from Paris to Marseilles.

The machine was fitted with a 300-h.p. Renault, and all went well—his rev. counter showed 1,500 r.p.m.—until Dijon. After that—well, his map went overboard at 1,500 metres, which height he maintained during the whole voyage. It may help one to appreciate what a fine performance this is when I say that, taking Paris as the centre of a circle, and flying for an equal distance in any direction, he could have reached in 3¾ hrs. any of the following towns—Liverpool, Bremen, Hanover, Nuremberg, Munich, Milan, Marseilles, or Bayonne. Is that not a convincing argument for the extensive trial of aerial mail carriers?

From Lille to Paris in One Hour.

Records displace each other like chicks in an incubator. The latest is that of Adjudant Patin, who with four bags of mail and 1,200 telegrams left the aerogare at Lille on the 25th at 12.15 and landed at le Bourget at 1.15, thus reducing the Paris-Lille journey to 1 hr. The official scheduled time for machines is 1½ hrs.

Under the command of Lt. Jacothet, the following aviators ensure the daily service between Paris-Lille and Paris-Brussels:—Sous-Lt. Laffon, Adjts. Rocheville, Poilleux, Monin, Serjts. Couderc, Heritier, Corne, Louis, Cpl. Maurice Farman and Patin. Cpl. Farman is the nephew of the famous constructor.

The first trial of the combined train and air mail service took place on the 23rd ult. between Nice and Avignon. A Bréguet 300-h.p., piloted by Adjt. Issert, and with a passenger, picked the mails up from the Paris express at Avignon. The machine arrived at the Californie aerodrome at Nice at 12.15. Motor vans were waiting, and the mail was at once transferred to the Central Post Office and thereafter distributed.

Un Circuit Aérien.

It is now definitely decided that the Circuit de France Aérien will take place in August. All pilots, constructors, and officials of the Aero Club having approved this period, the tour will be organised by the "Avenir," a daily journal here.

The Paris-St. Nazaire aerial mail functions regularly. Adjt. Mohr made a record when he flew Paris-Le Mans and return (400 kils.) in 2 hrs. 35 mins. Apropos the Lille-Paris in 1 hr., this does not seem so extraordinary in view of the later news that Adjt. Larmande of Squadron 472 flew from Brussels-Paris with an American officer, carrying diplomatic correspondence, in 1 hr. 25 mins.

The first military postal machine from Casablanca arrived at Tangier at 11 o'clock on March 19th. The journey took 5 hrs. A regular service is in operation between Tangier and Rahat.

Aerial Reconnaissance of the Sahara.

Some weeks ago General Nivelle sent an aerial reconnaissance mission into the middle of the Sahara in order to determine the possibility of linking up the outposts and to create a supply base for future trans-Saharien development. This was accomplished by Capt. Dandy and Lt. Andoin-Dubreuil, of 547 Algerine Squadron. Since then, however, the authorities have commenced to convert a large waste into an aerodrome 11 miles out of Tangier on the way to Fez. The semi-military aerial police will be stationed there, as also, it is expected, the aerial post.

It is probable that, when Roget or Fontan, or, mayhap, if we are lucky, both together, start on their Paris-Dakar raid, they will have a competitor in the name of Lt. Lemaitre. At any rate, he has announced his intention of trying it in two stages, the first at Casablanca and the second at Tarfaya, in the Canary Islands.

Lt. Janquet and two passengers flying from Alicante *via* Barcelona to Toulouse accomplished the 900 kilos. in 5 hrs.

A New French Hydravion.

The first trials of a new French hydravion called the "Orion" are now taking place at the Lorient Maritime Arsenal by M. Le Borghe. The following are the salient dimensions:—Span, 32 metres; length, 16 m. 50; height, 6 m. 50; chord, 3 m. 80 (at wing tips), 4 m. 50. Power unit: 3 motors, 12 cylinders, each 400 h.p., actuating 3 airscrews, 2 pushers and 1 tractor; estimated speed, 125 kms.p.h; length of flight, 10 hrs. There is accommodation for 30 passengers in the hull, of which the measurements are:—Length, 16 m. 50; width, 2 m. 80.

Originally destined for war purposes, it is now in process of being transformed for commercial usage.

A New Technical Journal.

It is announced that a new technical aviation journal is to make its appearance under the title of "L'Aviation Nouvelle." M. Roidor-Séville will be the technical editor.

My remark re the burning of machines at St. Raphael was particularly apropos, inasmuch as most of the papers of the 22nd ult. devote considerable space to the information which had reached them from Nice.

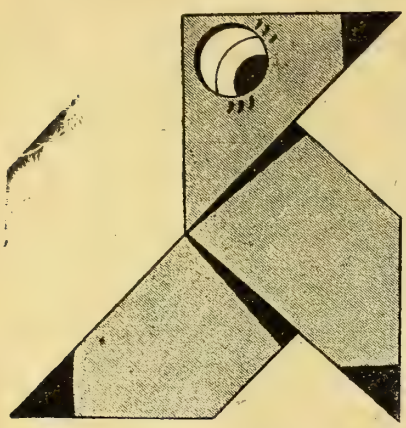
In 1913 M. F. Roidor-Séville organised the first Congress of Human Flight at the Grand Palais, at which 52 representatives of European countries were present. There was to be another congress in 1914, but the war intervened. Several members are no more, but the remainder have been convoqued and have resolved to continue the good work.

F. T. N

A PARIS EXHIBITION OF AEROPLANE MARKINGS.

In the half-empty Trocadero Palace, high on the Passy Hill, a number of aeroplane badges are on view, being part of the aeronautical history museum of the future, foreshadowed in these columns some weeks ago.

These clear-cut devices in vivid simple colouring—for the most part they are bi- or tricoloured—suggest battle, murder and sudden death in a hundred and forty one (so far) whimsical and witty ways.



At odd moments most of us have wondered at the strange and complicated devices which form the design of the majority of armorial bearings and have family crests and have given more than a fleeting thought as to the circumstances and the artists that gave them origin. But as their origin, although happily, not always their meaning, is in most cases obscure, owing to the paucity of data handed down to us from the early Middle Ages, our interest speedily wanes.

Times change, likewise our appreciation and sense of values, thus we find to-day various commissions, honorary and otherwise, engaged in collecting and presenting data which will provide the "meat" portion of the history books of our children's children.

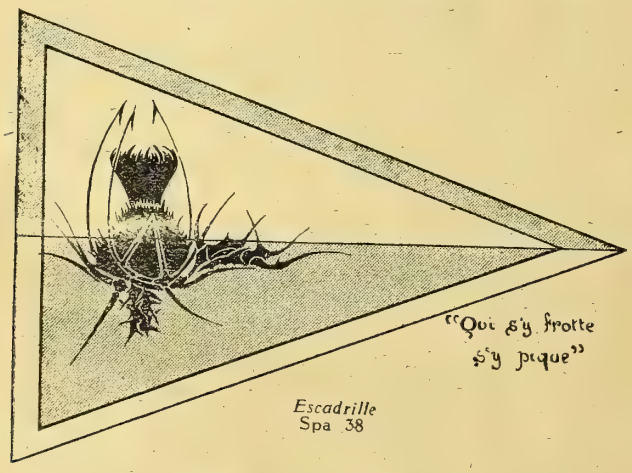
This exhibition, opened on March 20th, organised by Lieuts. Dorville and Piron, is of great documentary value, not only for its variety and completeness, but for the originality of the exposés.

Personal Mascots of Notable French Aces.

Here one may see the personal mascots of the more notable French Aces, as distinct from the squadron badges affixed to all machines of any particular squadron. The collection is further enriched by the inclusion of several American, Italian, and German examples.

The British ones are, I understand, in process of being collected.

Here is the original "Stork" taken from one of Guynemer's machines and known as "Old Charles." It is recorded



Escadrille
Spa 38

that Jules Védrines (who was responsible for the early training of Guynemer) used to tell his pupils how the stork taught her brood to fly by pushing them to the edge of the nest, making them flap their half-fledged wings and in time leaving them to shift as best they could for themselves; whether he left Guynemer to a like fate is not recorded.

At any rate, Guynemer determined to make the stork his mascot—and later it was, and still is—the ensign of the incomparable No. 3 Squadron. Incidentally, I noted that over thirty squadrons had adopted this bird of good omen as their mascot—the design only differing in attitude.

Emblems of Death.

Next in point of interest is the original from Nungesser's machine. On a black, heart-shaped background can be seen a coffin, skull, crossbones, guarded by two lighted candles, thus exemplifying the vigilance of death as personified by Nungesser. This original is taken from his Nieuport single-seater No. 1805, in which he fought 100 combats, and was officially credited with 21 victims, between November, 1916, and July, 1917, taking part in the battles of the Somme, Aisne, and Flanders.

The machine was a type XXVII, specially made for him and fitted with a 50-h.p. rotary Clerget-Blin. Another personal relic belonging to Lieut. Nungesser is that of the SPA. 65 Squadron,



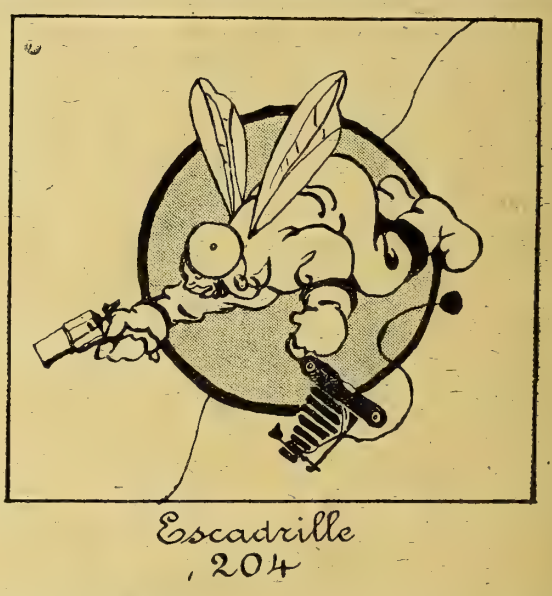
Escadrille
V. b. 109

to which he was later transferred, and which gained four army citations and the *fourragère* to its military colours.

Another original is that belonging to 227 Squadron, which consists of the rugged features of an old Gaul, with carroty hair and ear-rings, coupled with a Fee-fo-fi-fum expression.

Armed with a Verey Pistol and Camera.

One of the most amusing is that of Squadron 204 with a winged Ack Emma, apparently ambidextrous, in the act of firing a Verey



pistol and taking photographs. Possibly the wittiest example is that of Squadron Spa. 38, by which, in translation, one reads that "Whoever dares to touch gets pricked"—certainly a fearsome-looking thistle—and the R.G.A. have mounted the head of Clemenceau on the body of a bulldog with a tricolour cockade background, very pretty and effective: then there are the American ones, breathing defiance and damnation from every line; thus one, entitled, "Who said rats?" relates to a black cat on a nearly black flag and another, also American, is a horseman charging the Devil.

Mythology has entered but little into the artists' imagination, although there are a few examples of winged horses and other pre-historic monsters, and Satan—but is Satan a myth?

Anyway, mascots and distinguishing insignia have been evolved for the most part from quite prosaic and unimaginative sources, such as bees, ducks, eggs, chicks, cats, parrots, rabbits, snails, storks, cocque d'or, owls, crabs, elephant, tiger, porcupine, shamrock, turtle, hawks and, dare I say it? a rocking-horse!



To the "Blasons de guerre" of the late Capt. Guynemer and the late Major Lufberry (of the Lafayette Squadron) are affixed each a golden palm-leaf, rosetted with the symbolic tricolour.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE TRANS-ATLANTIC COMPETITION.

The British Air Ministry Machines.

At the Felixstowe depot of the Royal Air Force preparations are being made for shipping to Newfoundland the triplane flying boat known as the "Felixstowe Fury." This machine was designed by Lieut.-Colonel J. C. Porte, C.M.G., R.A.F., who, it is understood, will act as navigator.

It is understood that the start will be made from St. John's, Newfoundland. Intermediate stops for fuel will be made at the Azores and possibly Lisbon.

A crew of five will be carried, consisting of two pilots, a navigator, a wireless operator and a mechanic, whose chief duty will be to attend to the petrol supply.

A series of important tests is being conducted in the airship R34 at Glasgow. It is proposed to redope the outer covering of the balloon, which, however, successfully withstood a severe snowstorm during the flight to Ireland. It is expected that the airship will attempt the Atlantic flight in May or June.

The Aero Club of America has announced the reception of a cable from the British Air Ministry, in which it is stated that the Air Ministry is considering the club's invitation to fly one of its airships across the Atlantic to the Pan-American Aeronautical Exposition at Atlantic City in May.

The Martinsyde Machine.

The machine which has been entered by Martinsyde, Ltd., for the Atlantic flight competition is fitted with dual control, and follows closely the F4 type. A Rolls-Royce "Falcon" engine, developing 285 h.p., is fitted, giving the machine a cruising speed of 100 m.p.h. with a good reserve.

It has a wing span of 41 ft. and a length of 26 ft. The machine contains one petrol tank of 370 gallons capacity.

In January, Captain Morgan, R.A.F., the second pilot and navigator, went to Newfoundland to make arrangements for the flight and to choose a flying ground. He subsequently returned to England and left London again on Sunday, March 30th, for Liverpool and Newfoundland. The machine left Liverpool en route for St. John's, Newfoundland, on March 27th.

Mr. Raynham intends steering a course from St. John's to Dingle Bay, County Kerry, and then altering course direct to Brooklands, passing over Bristol. This will mean a non-stop flight of 2,400 miles, which, with favourable weather conditions, Capt. Morgan hopes to cover in 22 hours. Capt. Morgan qualified as a pilot in 1914.

The Fairey Entry.

The Fairey Aviation Co. have lodged an entry with the Royal Aero Club, and have nominated Lieut. Sydney Pickles, late R.N.A.S., as pilot. A navigator has not yet been selected. The machine entered is a 3c type float seaplane, fitted with a Rolls-Royce "Eagle" engine. It has a wing span of 46 ft. 6 in. and a length of 36 ft. The petrol tank is of 385 gallons capacity.

Sopwith Preparations.

A message from St. John's, Newfoundland, states that in connection with Mr. H. G. Hawker's projected attempt to make a Trans-Atlantic flight, the Sopwith Aviation Company's agents are building a large, wooden shed in which to house two aeroplanes, which are due to arrive from Digby, N.S., at any time now.

The agents say that they can assemble the machines, one of which is for trial purposes only, within a week. Then will come a series of short flights to determine the air conditions.

Messrs. Hawker and Grieve, who arrived at St. John's, N.F., on Sunday, March 30th, with the Sopwith aeroplane for the Trans-Atlantic flight, began assembling the various parts of the machine on Monday, March 31st, which task they expect to complete within a week. They will then make experimental flights, and propose to begin their Trans-Atlantic flight at two o'clock in the afternoon on April 16th, because, with the full moon on that night, they will have only seven hours to spend in darkness in mid-ocean. They hope to reach the British Isles by the following forenoon. They estimate that the distance can be covered in nineteen hours if all goes well.

The Duke of Atholl's Views.

Referring at the annual meeting of the Royal Aero Club, on Monday, March 31st, to the "Daily Mail" £10,000 prize for a Trans-Atlantic flight, the Duke of Atholl said that he had no doubt that success would attend the attempts at an Atlantic flight which would be made in the next few months.

It must be regarded as a very important step in civilian aviation, although at the present time it must be regarded as a sporting event brought about by the broad-mindedness of Lord Northcliffe, the vice-president of the Club. It was of interest that the majority of the entrants were from this side of the Atlantic, with British-built machines, and he hoped that the laurels would be gained by a Briton, on a British-built machine, with a British engine.

An Attempt Abandoned.

Captain Sundstedt announced on Friday, March 28th, that he had decided to abandon his attempt to make a Trans-Atlantic flight with the seaplane "Sunrise." He states that his financial backers should not have permitted other aviators than himself to fly the "Sunrise." The result of their doing so was that it fell into Newark Bay, causing damage which will require much time to repair.

The American Preparations.

According to the American newspapers, the machines entered by the United States Navy Dept. will attempt a Trans-Atlantic flight on the first clear day in May, or as soon thereafter as the fog enveloping the Newfoundland coast begins to clear.

Charts for the guidance of the aviators are being made from data compiled by the United States Weather Bureau. The machines will probably carry a crew of five, including pilots, mechanics, a wireless operator, and possibly also an aerographer. Mother-ships fitted out for the care and repair of the flying boats will be employed in addition to destroyers, and alternative routes have also been chosen.

Exact details are not to be published until immediately before the flight. The distance between the starting point in America and Newfoundland is 1,300 nautical miles, and from Newfoundland to Ireland about 1,800 nautical miles.

A question of etiquette has arisen in regard to the forthcoming attempt by United States Naval aviators to fly across the Atlantic. The Acting-Secretary for the Navy, Mr. Franklin D. Roosevelt, considers it impossible for the United States Government to compete for or to accept the "Daily Mail" prize of £10,000 for the first Trans-Atlantic flight.

The Aero Club of America, on the other hand, is anxious that America should win the prize, and its president, Mr. Alan R. Hawley, announced on March 30th that if the Navy Department will give its consent he and other members of the Aero Club will contribute to ensure the £100 entrance fee in order that the prize may be awarded to the Naval aviators if they succeed in crossing the Atlantic.

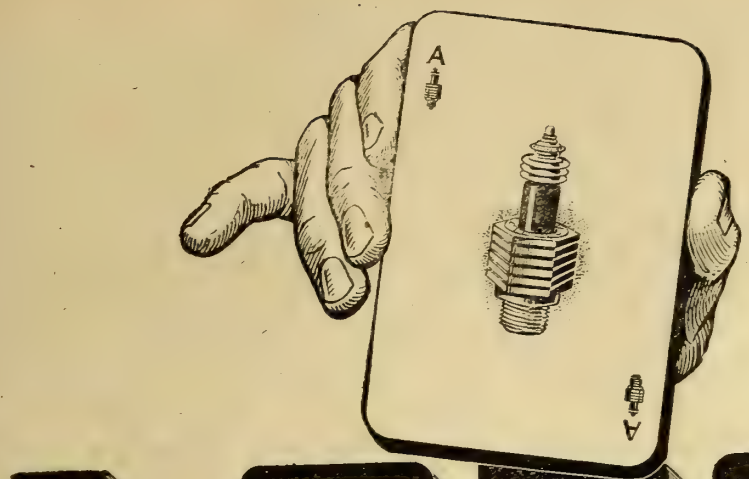
Mr. Hawley added that the prize, if won, might then be given to whatever charity the Navy Department selected, his own suggestion being the American Red Cross or some other organisation which promotes the comfort of men of the Navy.

Mr. Hawley's offer was brought to the notice of Mr. Roosevelt, who said:—

"We appreciate the spirit in which the offer was made, but cannot see how it could be accepted, or how the American Navy could be a contestant for a prize given by private enterprise."



The Martinsyde "Raymor" (285 h.p. Rolls-Royce Falcon) which has been entered for the Atlantic Flight.



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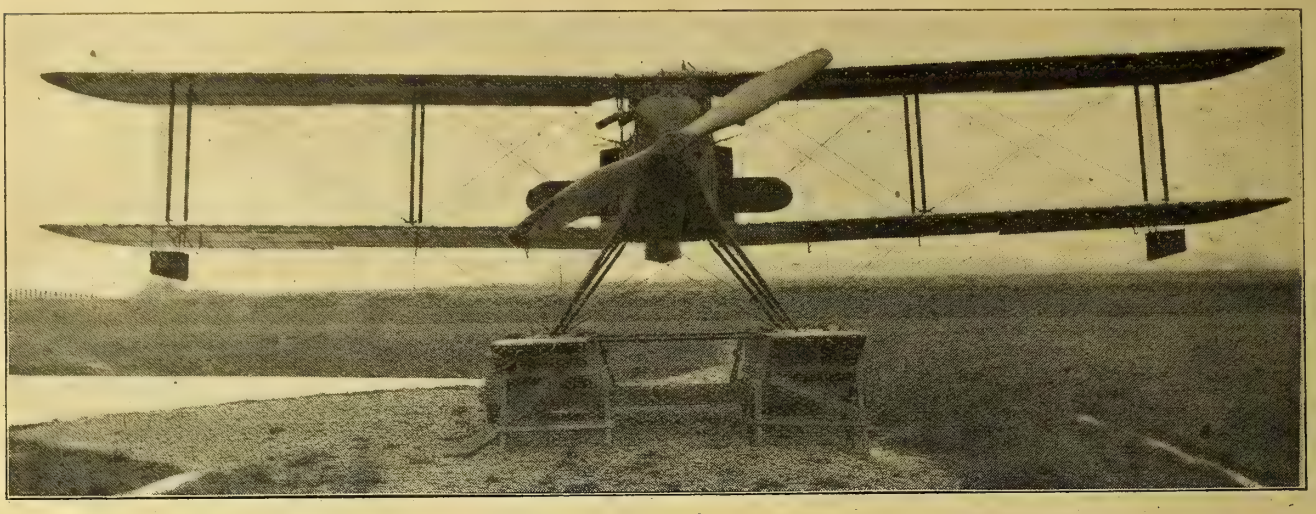
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Front View of a Fairey III.c. (360-h.p. "Eagle" Rolls-Royce). More or less of the type entered for the Trans-Atlantic Competition.

French Civil Aviation Trials.

In order to encourage commercial and touring aviation, the "Echo de Paris" is offering £12,000 in prizes for a series of trials in which safety and comfort will be the chief considerations.

The course will consist of about 20 stages totalling 2,500 miles. It will cross the principal towns in France and will extend to all neighbouring countries except Germany.

This is a very sporting offer and is likely to prove quite as beneficial as, if not more so than, the £10,000 offered by the "Daily Mail" to the first aviator to fly across the Atlantic.

An Exhibition of Aircraft Photographs.

An interesting exhibition illustrating the work of the Royal Air Force was opened at the Grafton Galleries on Tuesday, April 1st, and will remain open until May 31st. More than 200 photographs in colour will be on view.

A Giant French Seaplane.

In a French Naval dockyard the trials have been taking place of a giant seaplane, which was originally intended for war purposes, and which has now been converted for commercial use. The first trials have given excellent results, according to Reuter, and in a few days the machine will be ready to take the air.

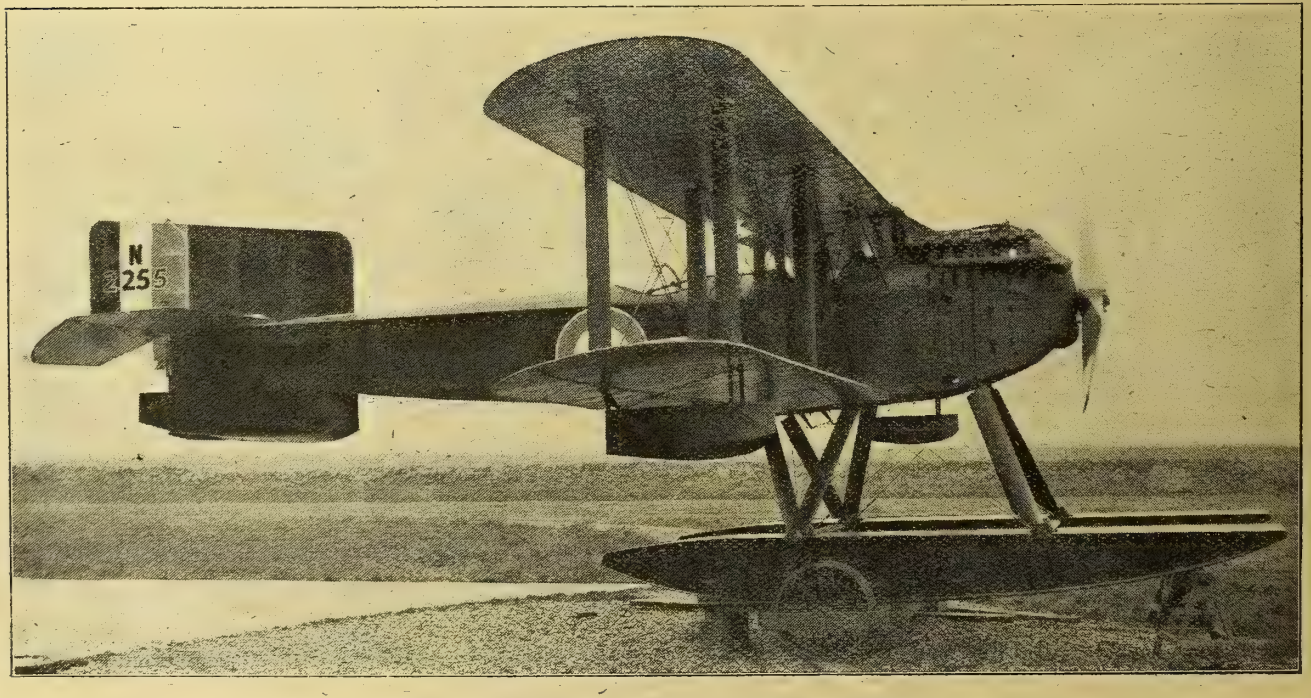
The following are the principal characteristics of this new type:—Span, 106ft. 8in.; length, 55ft.; height, 21ft. 4in.; width of wing, 12ft. 8in.; width of wing at tip, 15ft. It is driven by three 12-cylinder motors of 400 h.p. each, which drive three propellers, two at the rear and one in front. The body of the machine, which is 55ft. in length and 9ft. 4in. wide, will accommodate 30 passengers. The three motors require 235 litres (about 52 gallons) of petrol an hour.

The speed is from 78 to 93 miles an hour, and an uninterrupted flight of 10 hours can be made, as two petrol tanks holding 1,110 litres (about 245 gallons) of petrol each are carried. The machine, which has been christened "Orien," will be piloted during its trials by M. Jean le Borgne, chief naval pilot.

Aerial Taxis.

The first aerial taxi depot in the world will be established within the next two months at Garden City, Long Island, New York, according to Mr. Glenn H. Curtiss.

Mr. Curtiss said: "We shall have a taxi depot which will furnish small machines for short inter-city travel, anything less than 200 miles, on order. Experienced pilots will be available to drive these aeroplanes, and the total cost will be surprisingly low. It certainly will not exceed that of a motor-car trip, for we save on the pilot's and the aeroplane's time even if we may have a larger running cost to meet."



Side View of a Fairey III.c. (360-h.p. "Eagle" Rolls-Royce).

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AIRCRAFT IN PARLIAMENT

The following oral answers were given on March 24th :—

LOCH DOON AERODROME.

Sir S. ROBERTS asked the Under Secretary of State to the Air Ministry what was the total expenditure incurred at Loch Doon; whether the saleable plant and other assets have been removed; and what was the amount of the proceeds of sale arising therefrom?

The UNDER SECRETARY OF STATE FOR AIR (Major-Gen. Seely) : The total expenditure to February 19th, 1919, was £484,433. In this figure I do not include the cost of land, and compensation to tenants is not included. The saleable plant and other assets have already been largely removed, being either transferred for Government purposes elsewhere, or sold to other purchasers. The value of materials disposed of in these ways will amount, when removal is completed, to an estimated total of, approximately, £210,000.

Mr. J. JONES : What was the amount of sacrifice that the landlords have made?

Major-General SEELY : I have not got the figures for the land.

AERIAL COMMERCE (DOMINIONS.)

Mr. HURD asked the Under Secretary of State to the Air Ministry what measures he is adopting to carry out his undertaking to keep in touch with aviation progress in the Dominions; and whether, seeing the vital part taken by Canada and other Dominions in the air triumphs of the War, and the necessity of developing inter-Imperial commerce and communications by aviation, he can devise means to bring the Governments of the Dominions into intimate working association with his Ministry?

Major-General SEELY : The Dominions have been asked for suitable officers to be appointed for liaison between their respective Governments and the Air Ministry. Certain of these officers have taken up their duties and are the channel for assisting a complete interchange of information and views.

With regard to aerial commerce and communications within the Empire representations of the Dominions and India in Paris are assisting the air section of the British Peace Delegation, and their co-operation has been of great help in the consideration of the International Aerial Convention and the regulations and rules of the air. The Dominions concerned are also being consulted by the Department of Civil Aviation on the subject of aerial communication and routes and every endeavour is being made to keep in close touch on these subjects.

* * *

The following written answer was given on March 25th :—

DEMOBILISATION (WIRELESS OPERATOR.)

Mr. IRVING asked the Secretary of State for War whether Corporal V. C. Spain, wireless operator, Royal Air Force, attached 90th Brigade, Royal Garrison Artillery, British Expeditionary Force, enlisted in September, 1915, and submitted the necessary certificate from the postmaster of Dover to the headquarters of the squadron during the week ending January 18th, 1919; whether the Royal Air Force authorities say he can only be demobilised by the Royal Garrison Artillery, whether the Royal Garrison Artillery say it is nothing to do with them, as he belongs to the Royal Air Force; and whether he will issue the necessary instructions to settle the question of authority?

Major-General SEELY : This case is for the Air Ministry to settle, that Ministry being responsible for all Royal Air Force personnel—the name of Corporal Spain has been registered for release, and he will be released as soon as the exigencies of the Service permit.

* * *

The following oral answer was given on March 27th :

WOMEN'S ROYAL AIR FORCE.

Mr. THOMAS GRIFFITHS asked the Under Secretary of State to the Air Ministry if Mirabelle Hallan, a member of the Women's Royal Air Force, was detained in a cell at Redcar for three and a-half days because there was no resident magistrate's clerk in Redcar; whether the charge brought against this woman was dismissed; whether he proposes to take any action against those responsible for wrongly accusing this woman; and whether he will consider the possibility of granting her compensation for the financial loss sustained by her as a result of being kept in prison for this period on an unfounded charge?

The UNDER SECRETARY OF STATE FOR AIR (Major-General Seely) : Miss Mirabelle Hallen was guilty of a breach of her contract of service, namely, refused to perform her duties, and, after being several times warned, was handed over to the civil authorities in accordance with the terms of the contract. The action of the civil authorities has already been dealt with in the reply given on behalf of the Home Office on the 24th instant.

* * *

The following written answers were given on March 27th :—

ANTI-AIRCRAFT FORCE.

Lieut.-Col. BURGOYNE asked the Secretary of State for War if he will state what recognition the War Office proposes to give to those officers and men who, night and day, have given admirable service in the Anti-Aircraft Corps in England during the War?

Captain GUEST : It is at the discretion of the General Officer Commanding-in-Chief, Great Britain, to bring to notice such services as he considers are deserving of recognition. The most favourable consideration has in the past been accorded by the Army Council to all recommendations proposed for Anti-Aircraft Corps in England, and any further services brought to notice will receive due consideration.

Mr. RAMSDEN asked the Secretary of State for War whether he can state the present duties of the Anti-Aircraft Force in this country; and whether he will take steps to demobilise the officers and men attached to it, especially those whose duties are to protect towns and munition areas inland?

Mr CHURCHILL : The present duties of the Anti-Aircraft Force in this country are to maintain the anti-aircraft defences so that they can be made efficient in a short time in case of necessity. Both officers and men of the anti-aircraft defences have been demobilised as far as possible, and only the number required to keep in order the guns, aeroplanes, and searchlights and general organisation are now being retained.

MISS DOUGLAS-PENNANT.

Brig.-General Sir OWEN THOMAS asked the Secretary of State for War whether, in fulfilment of the promise he made to the House, he has consulted the Prime Minister with regard to the publication of the Report of the hon. Member for Luton on the enquiry made by him, at the Prime Minister's request, into the circumstances surrounding the summary dismissal of Miss Violet Douglas-Pennant from the commandantship of the Women's Royal Air Force?

Mr. CHURCHILL : I have consulted the Prime Minister and also the hon. Member for Luton. The Report was written as a confidential Paper for the personal information of the Prime Minister. In the interest of the public service, there is the strongest objection to the publication of such a document.

* * *

The following written answers were given on March 26th :—

DEMOBILISATION.—APPLICATIONS FOR RELEASE.

Viscount WOLMER asked the Secretary of State for War whether he was aware that Sergeant Meek C. F. Ford, No. 204691, is still being retained in the Air Force at No. 21 Kite Balloon Base, Lerwick, Shetland, although he joined the Royal Naval Air Service in May, 1915, and has been applied for through the Labour Exchange by Messrs. Bowditch and Ford, builders and contractors, of South Farnborough, Hants, who have urgent work waiting for him to do; and whether, in view of the urgency of the building problem at the present moment, he will give instructions for Sergeant Meek Ford to be immediately demobilised?

Major-Gen. SEELY : I am obtaining the necessary information from Lerwick, and will acquaint my Noble Friend with the decision reached.

Major HENDERSON asked the Secretary of State for War whether he was aware that Dr. D. Carmichael, Laurieston House, 2, Albert Drive, Pollokshields, Glasgow, applied unsuccessfully for the release of his assistant, Lieutenant Morris Hyman, M.B., Royal Air Force, Headquarters 233rd Squadron, Dover, although his appeal was backed up by the local war emergency committee; and whether, in view of the shortage of medical practitioners in Glasgow and the prevalence of influenza there, he will agree to have this decision reversed and the above-named officer released?

Major-Gen. SEELY : So far as I can ascertain, no application for the release of Lieutenant Hyman has been received by the Air Ministry, the Ministry of National Service, or the Scottish Central Professional Committee Medical officers are released from the Royal Air Force in a definite order of priority. Lieutenant Hyman, who is a newly qualified medical man, aged twenty-six, joined for duty on November 1st, 1918, and I regret that I do not consider that the circumstances would warrant my granting any special priority in his case

ROYAL AIR FORCE.—LONDON-BOURNEMOUTH FLIGHT

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether a Service aircraft, believed to be a Nieuport Nighthawk, flew from London to Bournemouth on March 14th with newspapers; whether this is in accordance with the Regulations; and by whose authority this flight was carried out?

Major-Gen. SEELY : The machine in question was being constructed for the Royal Air Force by a firm of contractors, and was undergoing the customary "Maker's Test," consisting of a four-hours' flight carried out by the firm's pilot. No particular route was specified. The Regulations at present in force prohibit civil aviation except when carried out under Naval or Military instructions. In the present case instructions for the flight were issued by the Air Ministry authorities, but no permission to carry newspapers was either asked or granted, and the firm in question have been informed that the Air Ministry cannot permit such action pending the re-opening of civil aviation.

MISSING OFFICERS.

Lieut.-Col. DALRYMPLE WHITE asked the Under Secretary of State to the Air Ministry if the names of Lieut. W. Hodgkinson, observer, Royal Air Force,, and of Capt. Lynn Campbell, pilot, Royal Air Force, who were reported as missing after a flight in machine B.F. E2,256, on October 9th, 1918, were included in the list of 2,900 missing men sent to the German Government about February 28th, 1919; whether any information has been received as to the fate of these two officers; and whether he can now state the objective of this aeroplane on October 9th, 1918; so that private inquiries can be made by the parents?

Major-Gen. SEELY : The list recently sent to the German Government included only names of men definitely known to have been prisoners. The names of the two officers mentioned in the question do not come into this category, and were not included in the list. No information has been received regarding Lieut. Hodgkinson. An unofficial and unconfirmed report states that Capt. Campbell was killed. I regret that I am unable to indicate the probable place of descent of the aeroplane, as this might be miles away from the locality over which it was last seen. I have ascertained that this locality was the Foret de Mormal. Further inquiries into this and similar cases are being made.

* * *

The following written answer was given on March 28th :—

AIRCRAFT DISPOSAL DEPARTMENT (LINEN.)

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry how many yards of linen are now in the possession of the Aircraft Disposal Department?

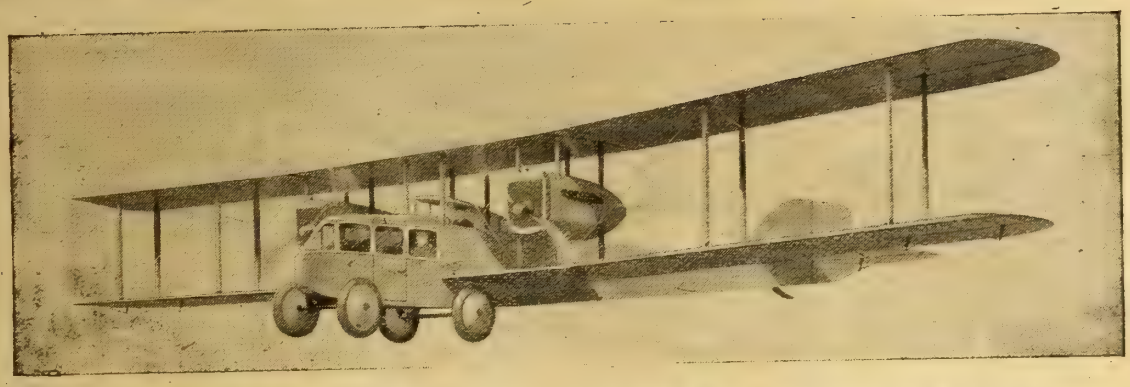
Mr. KELLAWAY : The total stocks of linen in the possession of the Ministry of Munitions and available for disposal is 31,970,725 yards

Relics of Aerial Combats.

The Royal Air Force have established a depot for war relics and trophies at Sports Bank Hall, Sports Bank Street, Catford, S.E.11, where a large amount of interesting and valuable material has been collected. The collection includes relics of air combats, models, and a large number of trophies from Zeppelins and notable enemy machines from France, together with portions of equipment used by British officers in escaping from captivity.

It has been announced in the "Times" that the president of the Royal Air Force section will be glad to receive trophies and relics of all kinds, and photographs connected with the R.N.A.S., R.F.C., and R.A.F., at the above address, as it is desired to make the Air Force Section of the Imperial War Museum as complete as possible.

Readers of THE AEROPLANE who have interesting trophies are asked to assist.



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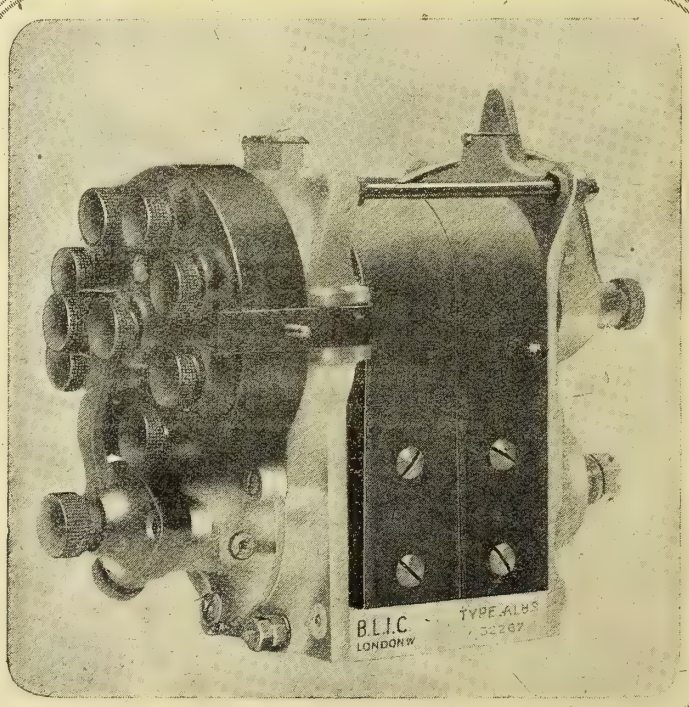
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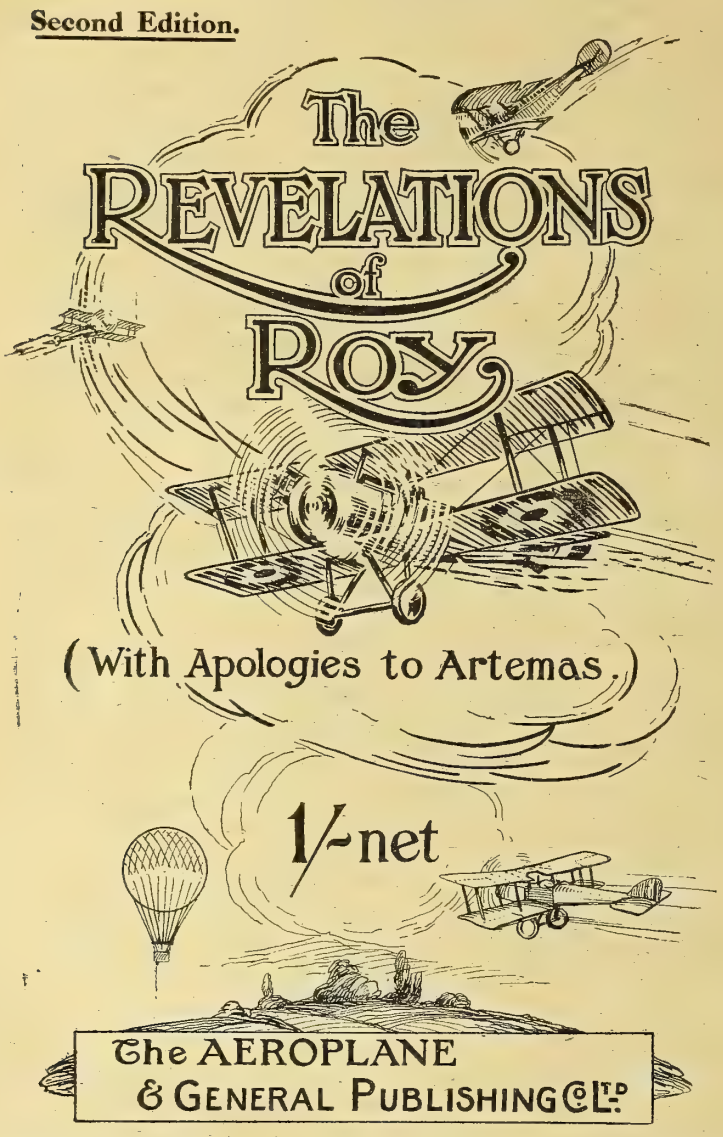
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Extract from Chap. II.

1. And when he was come unto Farn, Roy was compassed about by a great multitude.

2. And he beheld winged chariots of divers designs; thus, there were the Scout, and the Dolphin, and the Martinsyde, and the Camel, even that which produceth the hump.

3. And a man beckoned unto Roy; and on his arm he bare three stripes.

Extract from Chap. XXI (& last).

17. And in all thy ways consider this, that there be two things greater than any other in forming the character of him that flies; and the one is Energy and the other, it is Enthusiasm.

19. And take thou a pride in being an aviator; for hath not the great Hender said, These young men are the salt of the Earth.

20. Go thy way in courage and good cheer; and greet the Great Adventure with a song.

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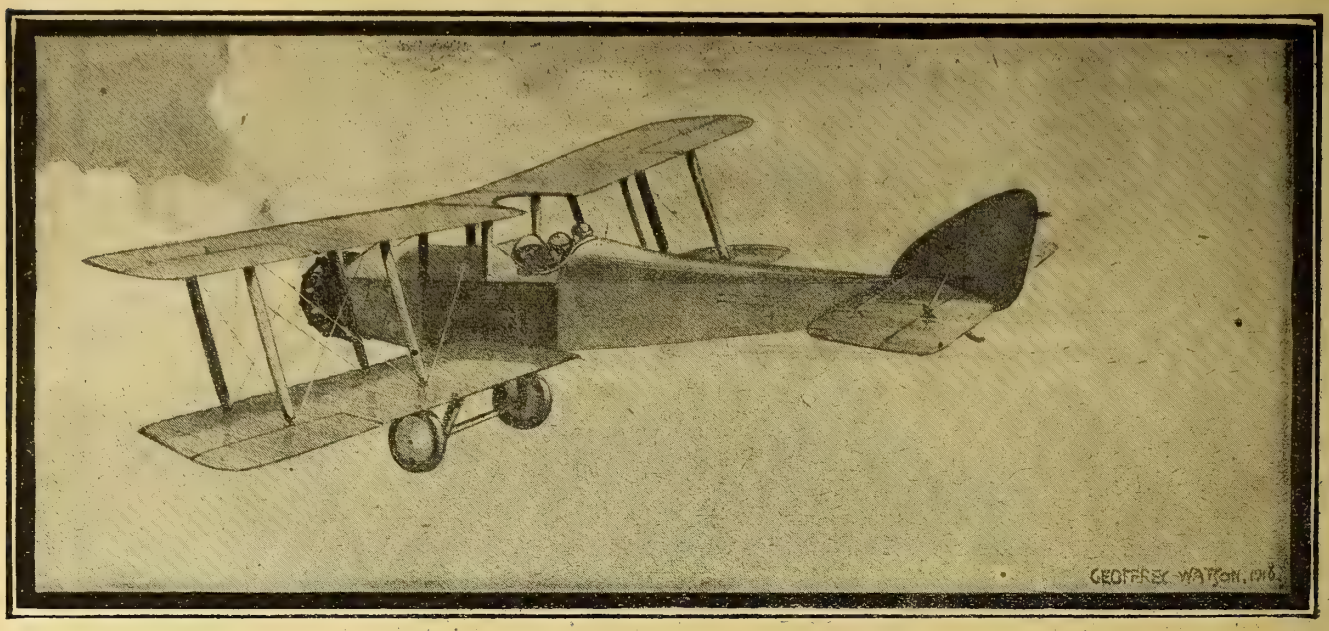
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THE WEEKLY COMMENTARY.

In this week's issue a description of the American version of the Bugatti aero-engine is given.

This engine is designed on extremely unusual lines; it is in essence four four-cylinder engines coupled together. Extremely regular turning effort should be obtained, and the engine should be fairly well balanced.

The arrangement gives a much narrower engine than does the usual V arrangement, with a considerable saving in body head resistance.

It is said that the American type engine has given excellent results on the test bed, but no information has been obtained of any flying tests. Curiously enough, the weight of the engine is nowhere given in the American paper from which the description has been taken.

Captain Sayers has given in this week's issue an interesting comparison as between a conventional type two-seater of normal type and a proposed four-seater of the same overall dimensions.

If the author's claims as to the possibility of using wings which will give the performances that he estimates with the loading specified are substantiated, there appears to be very good reason for using wings of this type for commercial purposes.

The advantages which can be obtained from such heavy loading, and from the consequent reduction in the overall size and the first cost of machines, appear to show that his claims are well founded.

COMMERCIAL AIRCRAFT DESIGN VIII.

SMALL PASSENGER MACHINES.

By Capt. W. H. Sayers, late R.A.F.

The types of machines dealt with so far have all been of very small size and power, and although two of them should be flyable in almost any weather, both the two-seaters would be too lively in bad weather to please the average traveller.

Such machines would therefore be of very little use as commercial passenger carriers for anything but fine weather pleasure work.

There seems fairly good reason to believe that one of the most favourable openings for early commercial aerial transport business will be that of carrying business men in a hurry over distances of from 50 to 500 miles.

For such work an all-weather machine which shall not be too lively in bad conditions is desirable.

Were it possible to obtain the opinion of every one who has had a fair amount of all-weather flying, it is probable that a very large majority would describe an aeroplane very similar in most respects to the one shown in Fig. 14 as the most suitable type for such a purpose.

A very large amount of experience has shown that a machine of roughly the overall dimensions, weight, and general arrangement there shown can be made very comfortable to fly and very easy to fly in all weathers.

Probably a large number of modifications would be proposed to fit the machine for the special purpose.

Many people would suggest a totally enclosed body—say, of the type used by Mr. A. V. Roe in his 1912 Military Trials machine.

Such a body can be built at little extra weight, and even less additional head resistance, but the pilot must also be totally enclosed, and his landing view will be spoilt.

If a hole is cut in the body, allowing the pilot to protrude, the large body then becomes considerably worse in head resistance.

Many would prefer a stationary engine to a rotary. Unless the stationary engine were of the radial type there would be some difficulty in obtaining the disposition of weights which largely help to make this type so comfortable to fly.

But, generally speaking, it is believed that this sketch represents fairly accurately the present-day ideal of a safe and comfortable all-weather machine.

Considered as an aerial "taxi," the type has many good points and a number of drawbacks.

It carries one, or at a pinch two, passengers besides the pilot. A larger machine on the same lines can be made; but if the dimensions are much increased, its qualities of handiness will vanish.

The type of engine generally associated with this class of machine is expensive to build, and requires careful maintenance. It is generally extravagant in fuel and oil, and, although some rotary engines have an excellent reputation, the reliability of such motors is under suspicion.

It would seem that the machine which is required for aerial taxi work should attempt to combine the following features:—

(1) The overall dimensions should not greatly exceed those of the type illustrated in Fig. 14, nor should it differ very widely therefrom in general proportions.

If this condition can be fulfilled, it may be expected that somewhat the same quality of comfort can be secured.

(2) Provision for enclosing the passengers should be integral in the design.

(3) Accommodation for as many passengers as possible should be provided, so that if more than one passenger wishes to make the same journey at the same time the fewest possible machines shall be needed for the purpose.

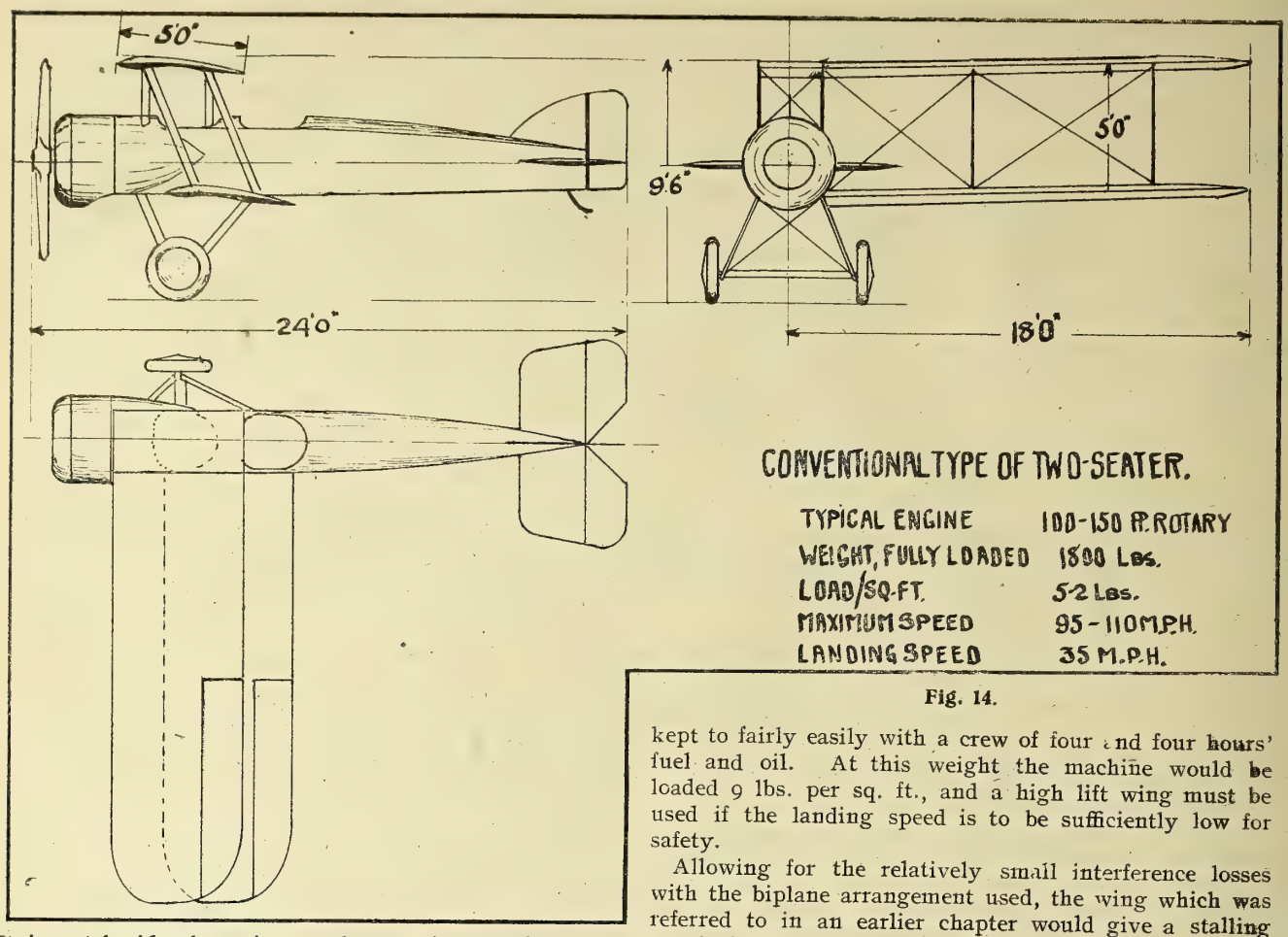


Fig. 14.

It is not beside the point to observe that London taxi-cabs are seated for four in addition to the driver.

(4) The machine should be fitted with a stationary engine of an economical type.

Fig. 15 shows the general arrangement of a machine whose overall dimensions are identical with those of Fig. 14.

The design is based on a 200-h.p. water-cooled 8-cylinder "V" engine, corresponding roughly with the Hispano-Suiza in its dimensions and weights.

The upper wing, of 36 ft. span by 6 ft. chord, has a centre section which runs into the top of the fuselage. The lower wing (30 ft. by 4 ft.) is fitted at the bottom of the fuselage, which is of a depth equal to the gap (4 ft.).

This use of a top plane of large chord, and a lower one of distinctly smaller dimensions in all respects, deserves a word of explanation. Using the same span and the same total surface, the author has found that it is generally impossible to obtain quite such a low total weight of wing spars with equal top and bottom wings as this arrangement allows.

In addition, the small bottom wing naturally interferes less with the air flow round the upper wing than does that of the equal biplane. A smaller gap is therefore permissible for the same aerofoil efficiency, and a considerable saving in the weight of interposed struts can be obtained.

The pilot is seated high up in the fuselage, between the spars of the upper centre section, from which position a very fair view can be obtained. There is room in the pilot's cockpit for a passenger beside him.

Behind the rear spar is an enclosed cabin seating two passengers side by side, fairly low in the fuselage.

In all other respects the machine calls for little comment as to its arrangement.

The estimated full load weight of 3,000 lbs could be kept to fairly easily with a crew of four and four hours' fuel and oil. At this weight the machine would be loaded 9 lbs. per sq. ft., and a high lift wing must be used if the landing speed is to be sufficiently low for safety.

Allowing for the relatively small interference losses with the biplane arrangement used, the wing which was referred to in an earlier chapter would give a stalling speed of 40 m.p.h. at the loading, and a maximum speed of 110 m.p.h.

The initial climbing speed would be about 650 ft. per minute at 55 m.p.h., with a ceiling of not less than 15,000 ft.

The greater total weight, as compared with Fig. 14, would tend to make this machine slower to answer to both bumps and controls. As against this, the wing arrangement used gives less damping than does the equal biplane, and tends to make a livelier machine fore and aft. A considerably larger tail plane is required for stability as compared with Fig. 14, because the larger total weight and a slightly greater effective movement of the centre of pressure require greater stabilising moments, and because the tail lever arm is shorter.

On the whole, this machine would be rather heavier to control than Fig. 14, but lighter than a scale enlargement of Fig. 14 to carry the same maximum load.

It would be rather less lively fore and aft, and rather more lively laterally, in bumpy weather.

It would be in rather better aerodynamical balance than a machine of the conventional type, because the arrangement gives a nearer approach to coincidence between the axes of thrust and centre of resistance and the centre of gravity.

The cost of the machine need not very greatly exceed that of the conventional type. The 200-h.p. stationary engine should cost little more than would a 150-h.p. rotary.

The aeroplane structure of Fig. 15 would weigh about 1,200 lbs. as against about 800 for Fig. 14; but in the main this extra weight would be due to the greater dimensions of all the members, and the total amount of labour required for manufacture would be very little greater.

In all probability the first cost would not exceed that of the conventional type by more than 25 per cent.

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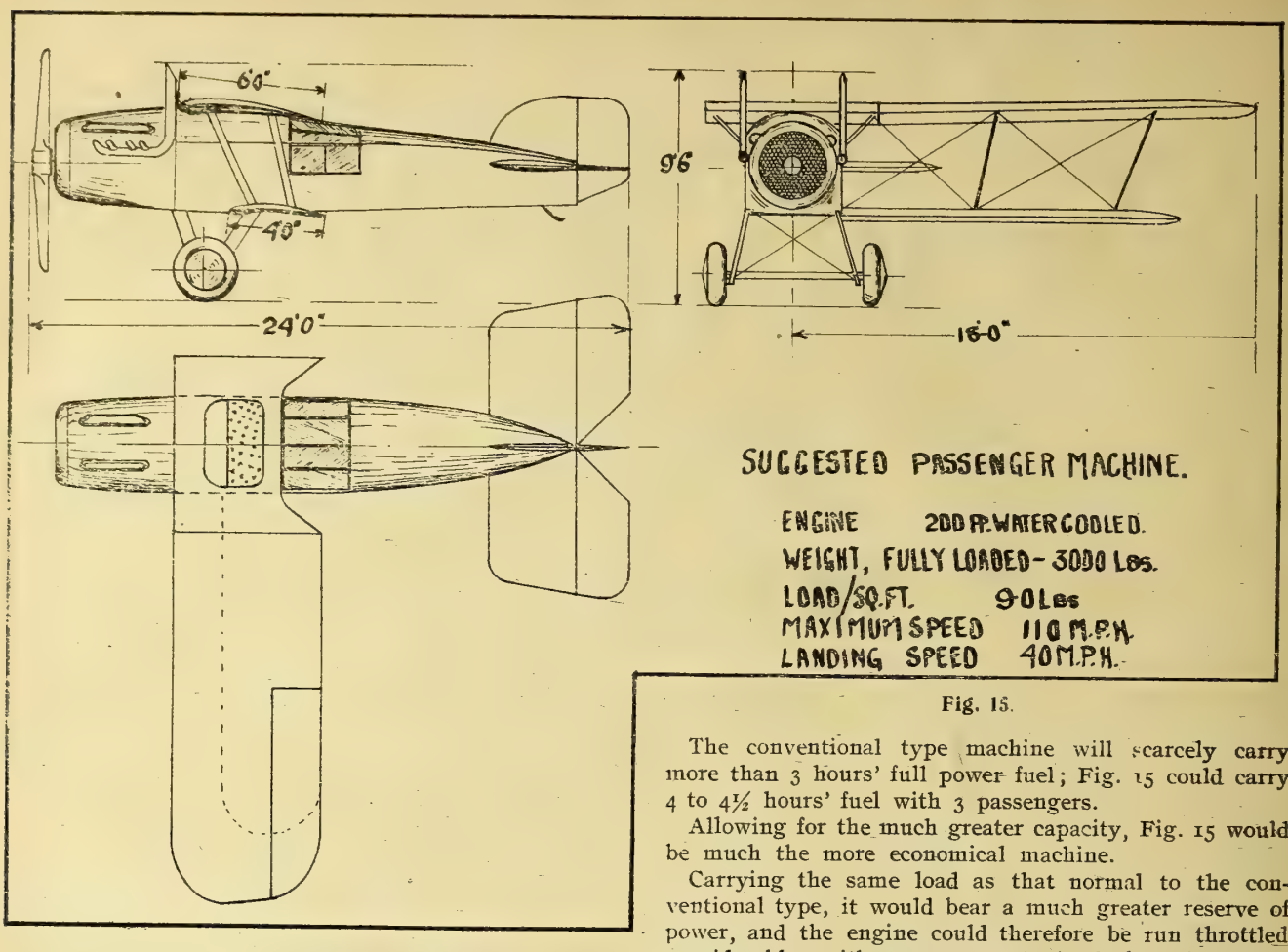


Fig. 15.

The housing space required is identical.

Running costs would differ very little. With a rotary of 150 h.p. the fuel power consumption will be about 12 gallons of petrol and 1 of oil per hour for 110 miles with Fig. 14. The 200-h.p. water-cooled engine of Fig. 15 should not consume more than 13 gallons of fuel and ¼ gallon of oil for the same mileage.

The conventional type machine will scarcely carry more than 3 hours' full power fuel; Fig. 15 could carry 4 to 4½ hours' fuel with 3 passengers.

Allowing for the much greater capacity, Fig. 15 would be much the more economical machine.

Carrying the same load as that normal to the conventional type, it would bear a much greater reserve of power, and the engine could therefore be run throttled considerably, with some economy in fuel, and a great saving in engine maintenance costs.

The whole structure would be much more robustly built to fit it for the greater loading, and the machine suggested would have a longer life, and would keep in truth more certainly than does the conventional type.

(To be continued.)

AN INTERESTING COMBINATION.

It is now possible to announce that following his demobilisation from the Royal Air Force, Major F. B. Halford, the co-designer of the 6-cylinder B.H.P. engine, has joined the staff of Engine Patents, Ltd., 21, Suffolk Street, Pall Mall, S.W.1, and left for America on their behalf on the 29th ult for a tour which will last a few months.

Engine Patents, Limited, under the very able technical direction of Mr. Harry R. Ricardo were responsible for the design of the "Ricardo" engines fitted exclusively by the Mechanical Welfare Department in the British Tanks.

The initial secrecy enforced on the subject of these engines has resulted in the light of this company having been somewhat hid under a bushel. Ricardo engines adapted were designed to suit special requirements, and embodied several new features which proved entirely successful. Some thousands of engines were built, and it is fortunate that the experience gained is directly applicable to peace designs. Mr. Ricardo's chief technical co-director is Mr. H. A. Hetherington; the chairman is Mr. A. A. Campbell Swinton, F.R.S.; the managing director, Mr. Campbell Farrar, who is strongly supported on the board by Mr. F. C. Goodenough, chairman of Barclay's Bank; and Mr. Stuart de la Rue, managing director of De La Rue and Co., Ltd.

One associates Major Halford's name with the B.H.P. engine, for the design and development of which he was responsible, in collaboration with Sir William Beardmore and Mr. T. C. Pullinger. This engine, which was built in thousands by Siddeley, Deasy and Co., Ltd., of Coventry, was the lightest six-cylinder engine used by any belligerent, and was largely responsible for the successful bombing of Rhine towns by the Independent Force, R.A.F.

But for the Armistice, the 12-cylinder B.H.P., i.e., the "Pacific" of 550 h.p., would have been produced in very large numbers as one of the standard bombing engines, some thousands having already been ordered.

Engine Patents, Limited, whose operations cover the whole range of internal combustion engines are, one understands, now engaged in designing engines of all kinds—car, lorry, bus, electric light, etc.—for important firms in this country, and they have also already prepared several aero-engine designs for commercial purposes, particularly one of high power for airship work, which is being developed by one of the well-known aero-engine builders, and one awaits with interest the contributions to engine development which such a combination is bound to produce.

AN UNNECESSARY RISK.

A correspondent in the R. A. F. writes:—

"I have come across more than one instance of accident occurring through the practice of propeller-swinging, and I have witnessed quite a number of similar cases during the past two years. Don't you think this is a point which could advantageously be brought to the notice of manufacturers of the present day high-powered aero-engine—especially with commercial aviation so much in the foreground?

"A device which would obviate the 'sucking-in' or 'swinging' of aero-engines does not seem to present a very difficult problem, and, I believe, such an article has been in existence in more than one form for some considerable time. I think that manufacturers should now consider the fitting of what must in future be a component part of every aero-engine. Anyway, I think it is a point worth the consideration of the people concerned, even if they have not had sufficient opportunity of considering its merits during the war."

[This is a matter which engine-makers and others should study. The Napier "Lion" method of starting, as described last week, is neat and light and simple, but not applicable to existing engines. The compressed-air bottle is heavy and clumsy and unreliable. Starting by electric motor from an accumulator is neat but heavy. The method of starting by means of an auxiliary "donkey engine" on a trolley is effective, but only usable on an aerodrome. Therefore, there is much to be done in this direction.—Ed.]



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THE 410 H.P. AMERICAN BUGATTI ENGINE.

The following particulars of the Americanised version of the 400-h.p. Bugatti aero engine are due to the "Aerial Age Weekly," of New York.

The article from which they have been extracted deals much more extensively with the alterations introduced into the design by Mr. Charles B. King than it does with the actual engine, and this description applies in its entirety only to the American type.

It is only fair to Mr. King to say that, so far as can be discovered, the original engine sent to America was an experimental and incompletely-tested type, and that he appears to have made rational alterations.

Generally speaking, the main features and dimensions of the American engine and of the original appear to be very similar.

The cylinders are in two vertical rows, each of eight cylinders, each row driving a separate cranshaft revolving in the same direction. Each crankshaft drives through a pinion at its end a spur-wheel on the common airscrew shaft.

The crankshaft of each row of cylinders is made in two halves, each half being of the standard type for a four-cylinder vertical engine. That is to say, the two central crank-pins of each set of four are in line one with the other, and the two outer crank-pins are also in line with each other, but displaced 180 deg. from the two central pins. The pair of four-throw shafts for each line of eight cylinders are coupled together 90 deg. out of phase, and the two lines are geared together with an angular displacement between them of 45 deg.

The engine is, therefore, so far as regularity of turning movement is concerned, equivalent to four four-cylinder engines coupled together with a displacement of 45 deg. between each crankshaft, and gives eight equally-spaced impulses per revolution.

It is an interesting commentary upon American journalistic methods that, although seven pages of letterpress and diagrams are devoted to the details of the alterations due to Mr. King, the above essential features of the Bugatti design are nowhere stated in the whole of the fifteen pages devoted to the engine, and that the relative timing of the two crankshafts is only referred to casually in a note on assembly towards the end of the article. This is more noticeable because of the particular emphasis laid upon the importance of an improved accuracy in the timing of the crankshafts alleged to have been introduced by the American re-designer.

The following general specification is given by the "Aerial Age" :—

GENERAL DATA.

Number and arrangement of cylinders	16 vertical, 2 rows of 8 in blocks of 4
Material	Cast iron
Bore	4.33 in. 110 mm.
Stroke	6.3 in. 160 mm.
Stroke-bore ratio	1.455 : 1
Area of one piston	14.725 sq. in.
Total piston area	235.6 cu. in.
Swept volume of one cylinder	92.768 cu. in.
Displacement of motor	1484.288 cu. in.
Compression ratio	5 : 1
Normal brake H.P.	416 at 2,000 R.P.M.
Ratio propeller to crankshaft speed	2 : 3

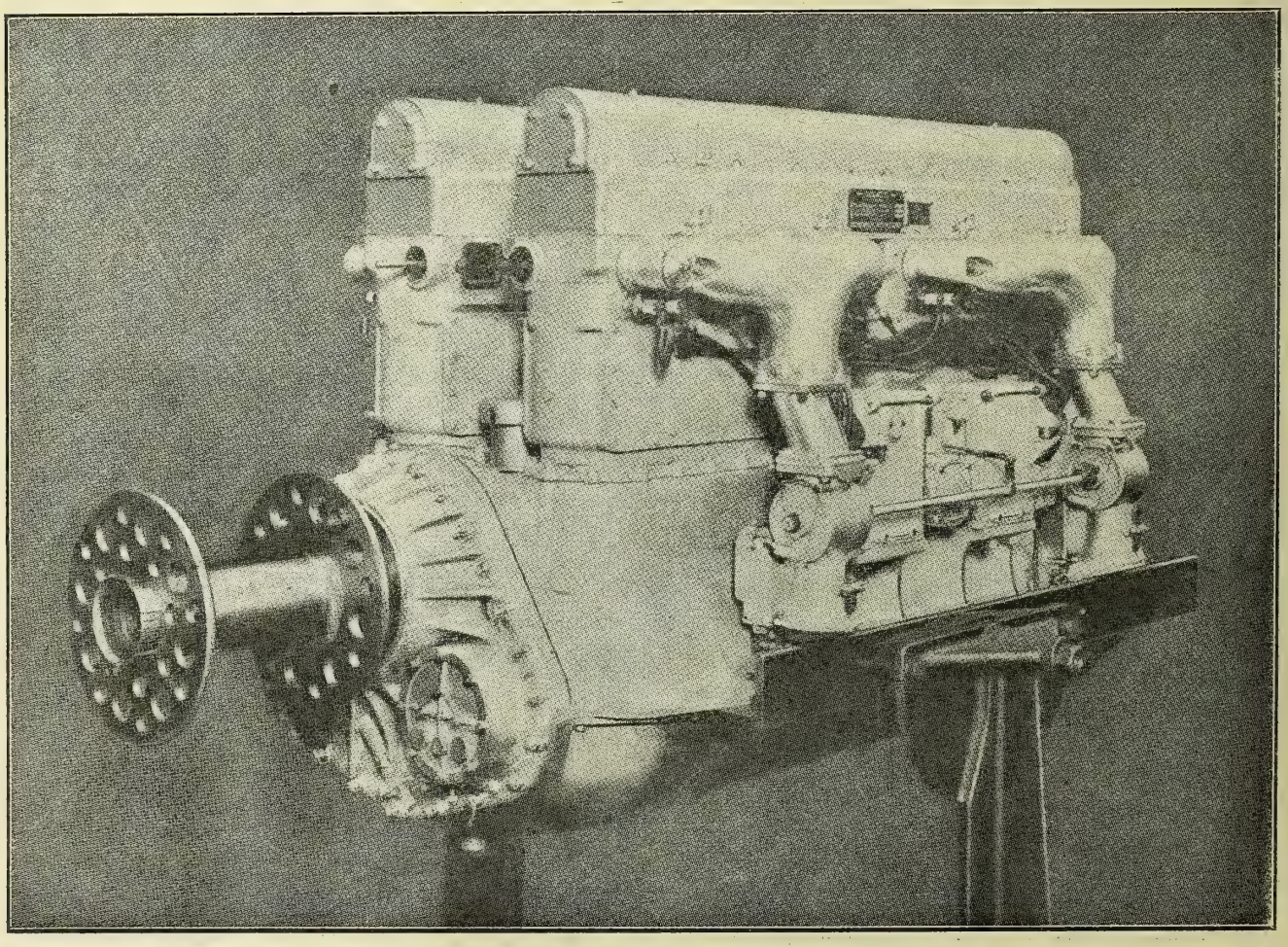
VALVES.

Number per cylinder	Two inlet and one exhaust
Outside diameter, inlet	1.535
Outside diameter, exhaust	2.263
Port diameter, inlet	1 27/64 in.
Port diameter, exhaust	2 3/64 in.
Angle of seat	10 deg.
Valve lift, inlet	.653 in.
Valve lift, exhaust	.700 in.
Number of springs per valve, inlet and exhaust	2 concentric
Length of spring in position, inlet (small)	2 7/64 in.
Length of spring in position, inlet (large)	2 15/64 in.
Length of spring in position, exhaust (small)	2 27/64 in.
Length of spring in position, exhaust (large)	2 27/64 in.

Valves parallel to centre line of cylinder bore.

CYLINDERS.

Overall height of cylinders	10 27/64 in.
Length of projection in crankcase	3 1/16 in.
Thickness of flange (base)	7/16 in.
Number of studs per block of four cylinders	20
Diameter of stud	5/16 in.
Thickness of water jacket wall side and head	5/32 in.



Three-quarter view from Airscrew end, 410-h.p. Bugatti Engine.

Thickness of combustion chamber wall ..... 13/64 in.
Thickness of cylinder barrel, above flange at water jacket ..... 3/16 in.
Thickness of cylinder barrel, above flange below water jacket ..... 7/32 in.

PISTONS.

Length ..... 4 1/16 in.
Length to diameter ratio ..... 0.938 : 1
Width of rings ..... 1/8 in.
Distance from bottom to centre of gudgeon pin ..... 2 1/6 in.
Thickness of head at centre ..... 1/4 in.
Thickness of head at edge ..... 3/8 in.
Thickness of wall at bottom ..... 1/8 in.

GUDGEON PIN.

Diameter of gudgeon pin ..... 1 5/64 in.
Thickness of wall 0.164

CONNECTING ROD.

Length between centres ..... 10 7/16 in.
Ratio length to crank throw ..... 3.313 : 1
Width ..... 5/8 in.

CRANKSHAFT.

Number of crankshafts 2
Number of bearings (Plain) per crankshaft 9
Number of bearings (Ball) per crankshaft 1
Cylinder centres (in block) ..... 4 17/32 in.
Cylinder centres (between blocks) ..... 7 15/32 in.
Crank pins, outside diameter ..... 2 3/16 in.
Inside diameter ..... 1 1/8 in.
Length ..... 2 11/64 in.
Main Bearings :
Outside diameter Nos. 1, 2, 3, 4, 6, 7, 8, 9 ..... 2 3/16 in.
Outside diameter No. 5 ..... 2 5/8 in.
Inside diameter, Nos. 1, 2, 3, 4, 6, 7, 8, 9 ..... 1 1/8 in.
Length, Nos. 1, 2, 3, 4, 6, 7, 8 Bearing Bushings ..... 1 9/16 in.
Length No. 9 Bearing Bushing ..... 2 19/32 in.
Length No. 5 Bearing Bushing ..... 1 31/32 in.
Ball Bearing ..... Hess-Bright Monarch No. 6211
Crank Webs :
Width ..... 3 17/32 in.
Thickness ..... 43/64 in.
Radius of fillets ..... 3/32 in.
Weight of one complete shaft, for 8 cylinders, with propeller drive gear bolts and nuts, bevel gear and oil passage shells ..... 96½ lbs.

CAMSHAFT.

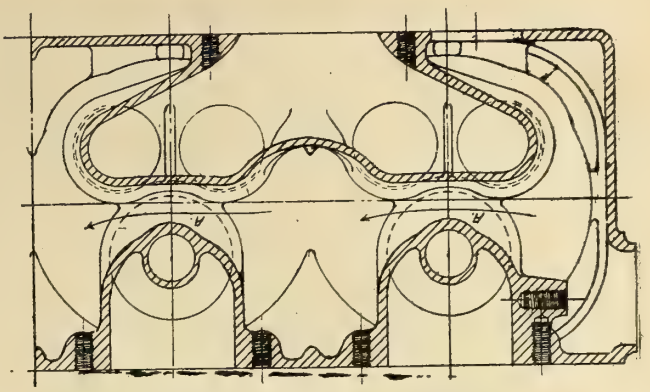
Diameter of shaft ..... 1 in.
Inside diameter ..... 11/16 in.
Number of bearings 10
Number of cams per cylinder 3

CAMSHAFT BEVEL GEAR.

Pitch diameter ..... 3 3/4 in.
Number of teeth 30
Pitch 8
Width of face ..... 3/4 in.

CAMSHAFT DRIVING SHAFT.

Diameter ..... 3/4 in.
Wall thickness ..... 1/8 in.



Section through cylinder head, showing valve ports.

CRANKCASE UPPER HALF.

Material ..... Aluminium
Thickness of wall ..... 3/16 to 5/16 in.
Thickness of supporting flange ..... 3/8 to 7/16 in.
Centre distance of support bolts ..... 24 3/4 in.
Number of support bolts 12
Diameter of support bolts ..... 3/8 in.
Centre to centre of crankshafts ..... 10 1/4 in.
Height of case ..... 9.055 in.

CRANKCASE LOWER HALF.

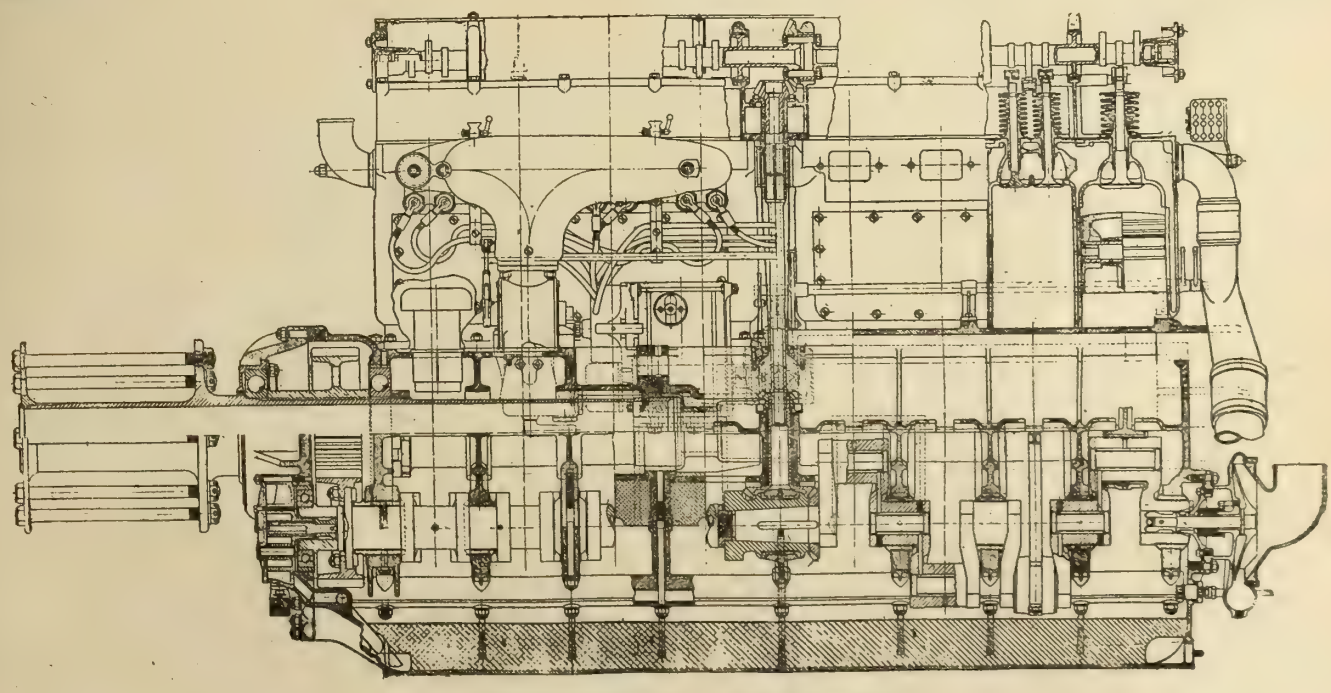
Material ..... Aluminium
Thickness of wall ..... 3/16 in.

IGNITION.

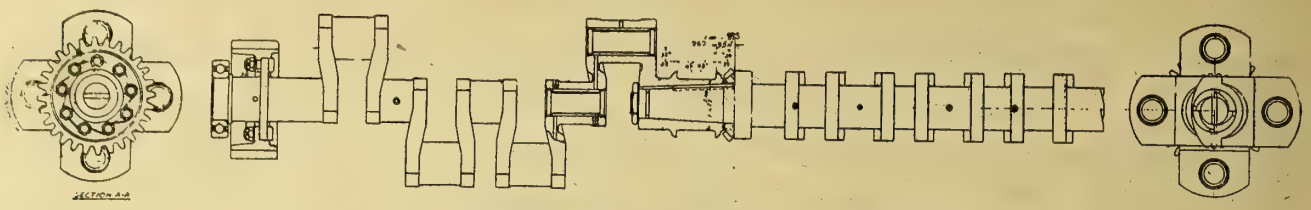
Type ..... Magneto
Number 4
Make ..... "Dixie 800"
Firing order 1L, 7R, 5L, 4R, 3L, 8R, 7L, 2R, 4L, 6R, 8L, 1R, 2L, 5R, 6L, 3R
Advance ..... 38 deg.

REDUCTION GEARS.

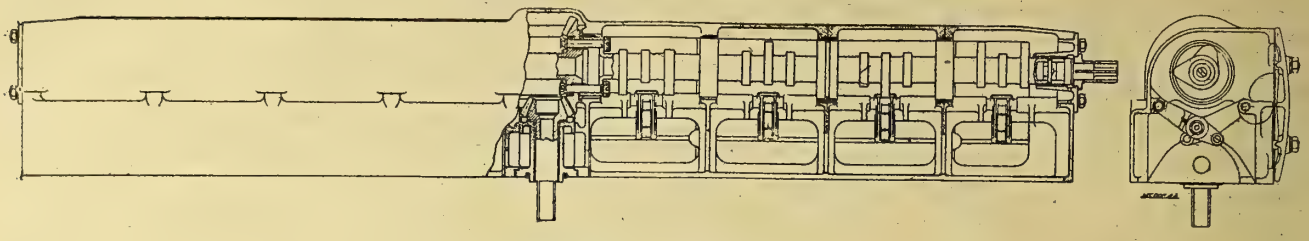
Crankshaft airscrew drive gear :
Pitch diameter ..... 5.6 in.
Pitch 5
Number of teeth 28
Width face ..... 2 3/8 in.
Diameter bolt circle ..... 3 17/32 in.
Number of bolts 9
Diameter of bolts ..... 7/16 in.
Airscrew shaft gear :
Pitch diameter ..... 8.4 in.
Pitch 5
Number of teeth 42
Width face ..... 2 3/8 in.
Number of splines 8
Width of splines 0.405
Height of splines 0.094



Longitudinal Section, the American Bugatti.



Crankshaft assembled, 410-h.p. American Bugatti.



Camshaft and Casing Assembly.

PROPELLER SHAFT.

Number of bearings	3
Type of bearings	Two ball, one plain
Plain bearing	Bronze babbitt lined
Outside diameter at gear (over splines)	3 3/4 in.
Outside diameter at rear end	3 5/16 in.
Outside diameter at propeller	3 31/64 in.
Inside diameter	2 61/64 in
Diameter airscrew flange	9 3/4 in.
Diameter of bolt circle	7 7/8 in.
Diameter of bolts	5/8 in.
Number of bolts	8

The following further details have been extracted from the same source :—

Cylinders.

The cylinders are of cast iron in blocks of four. The water jackets are integral with the cylinder blocks, but open on each side below the inlet and exhaust ports. These openings are covered by screwed-on aluminium plates.

Three vertical valves (according to the source of information, two outlet and one exhaust) are used per cylinder. The relative positions of these valves are shown in a figure, from which it is seen that each of the large exhaust valves is provided with a separate port, and that the four inlet valves of each pair of cylinders have a common inlet port.

All valve stems and seatings are amply water-jacketed.

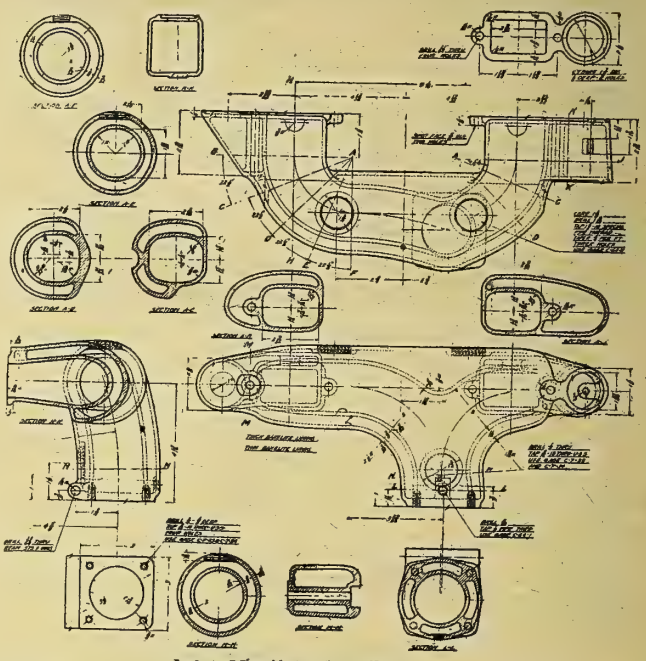
Two ignition plug sockets are fitted to each cylinder in the side of the combustion chamber on the inlet side.

Valve Gear.

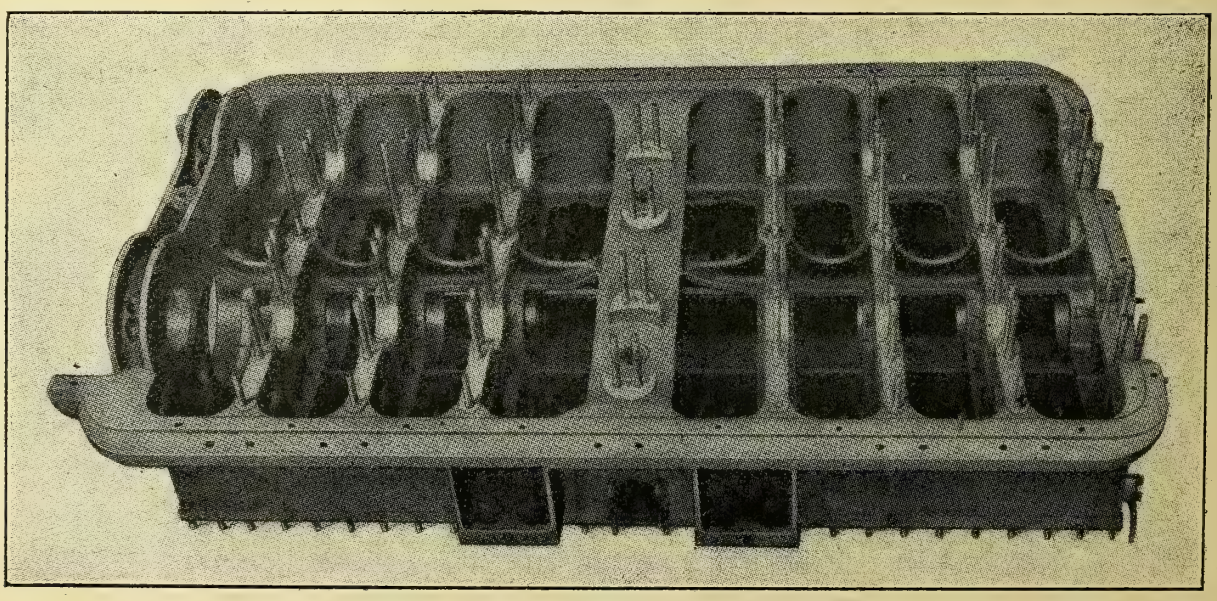
The valves are driven through rocking levers by overhead camshafts, one centrally over each row of cylinders.

Actually there are four separate shafts, one for each block of four cylinders, but the pair of camshafts for each line of cylinders are coupled together between the two cylinder blocks.

At this coupling a bevel wheel is attached, which engages with a gear at the head of a vertical shaft, which is in turn driven the centre of the crankshaft.



Inlet Manifold Details.



Upper half of crankcase, American Bugatti Engine.



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Each camshaft with its gear and the attendant rocking levers is carried in a cast aluminium housing, which completely encloses the valve gearing.

Pistons.

These are aluminium castings, with cut-away skirts, as shown in an accompanying figure. This also shows the original Bugatti piston, which has been departed from widely in redesigning.

According to the letterpress, the gudgeon-pins are free to turn in both the pistons and the connecting rod ends. This does not agree with the stress laid on the ease of inserting the locking wire into the gudgeon-pin securing set-pins in the figure.

Connecting Rods.

The connecting rods are steel forgings of I section, machined all over. The small ends have bronze bushes pressed in. The big ends are bronze-bushed and white metal lined.

Crankshafts.

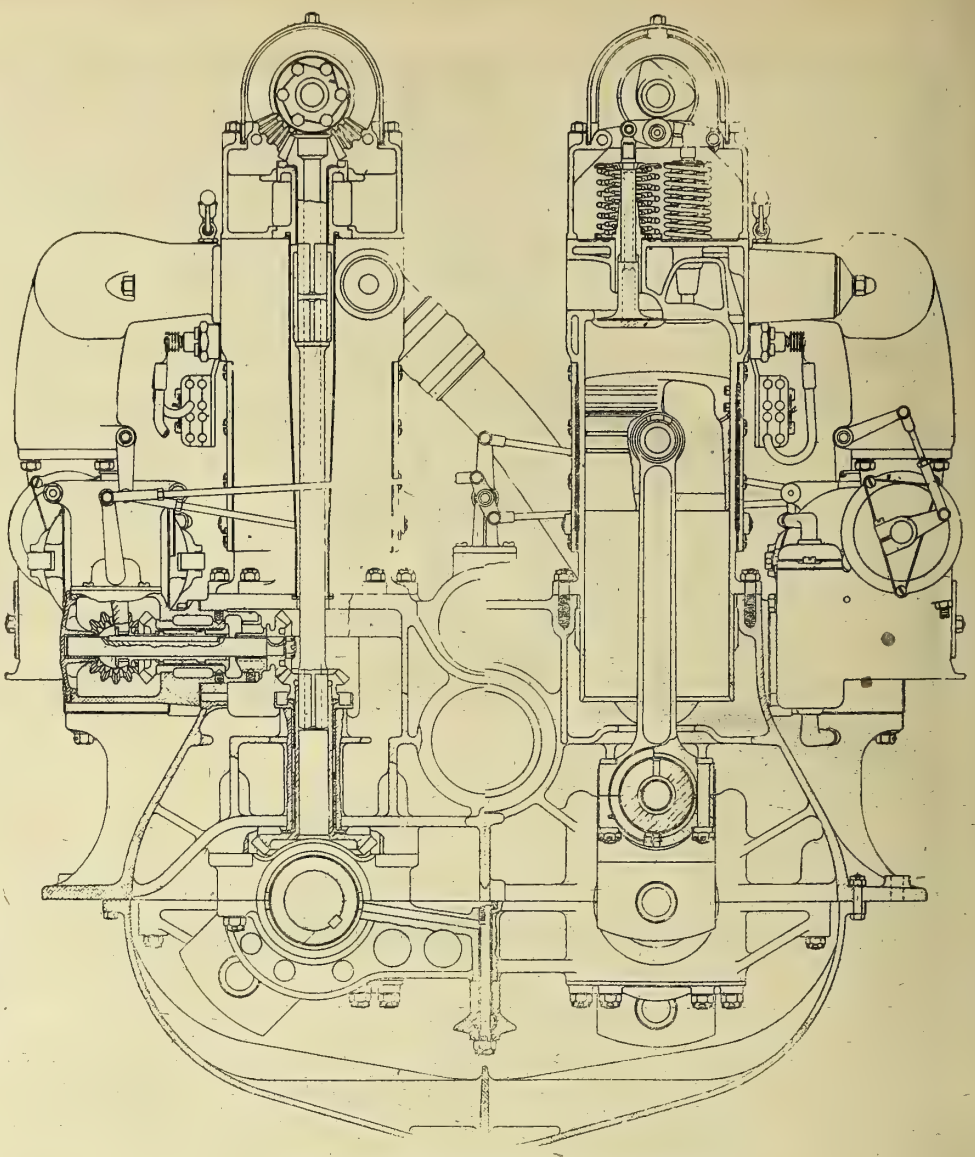
As has already been stated, each of the two crankshafts is made in two pieces coupled together.

The junction is a fine taper cone, keyed and held tight by a nut on the small end. At this junction is a bevel wheel which drives a vertical shaft from which the magnetos and the camshaft of that line of cylinders are both driven.

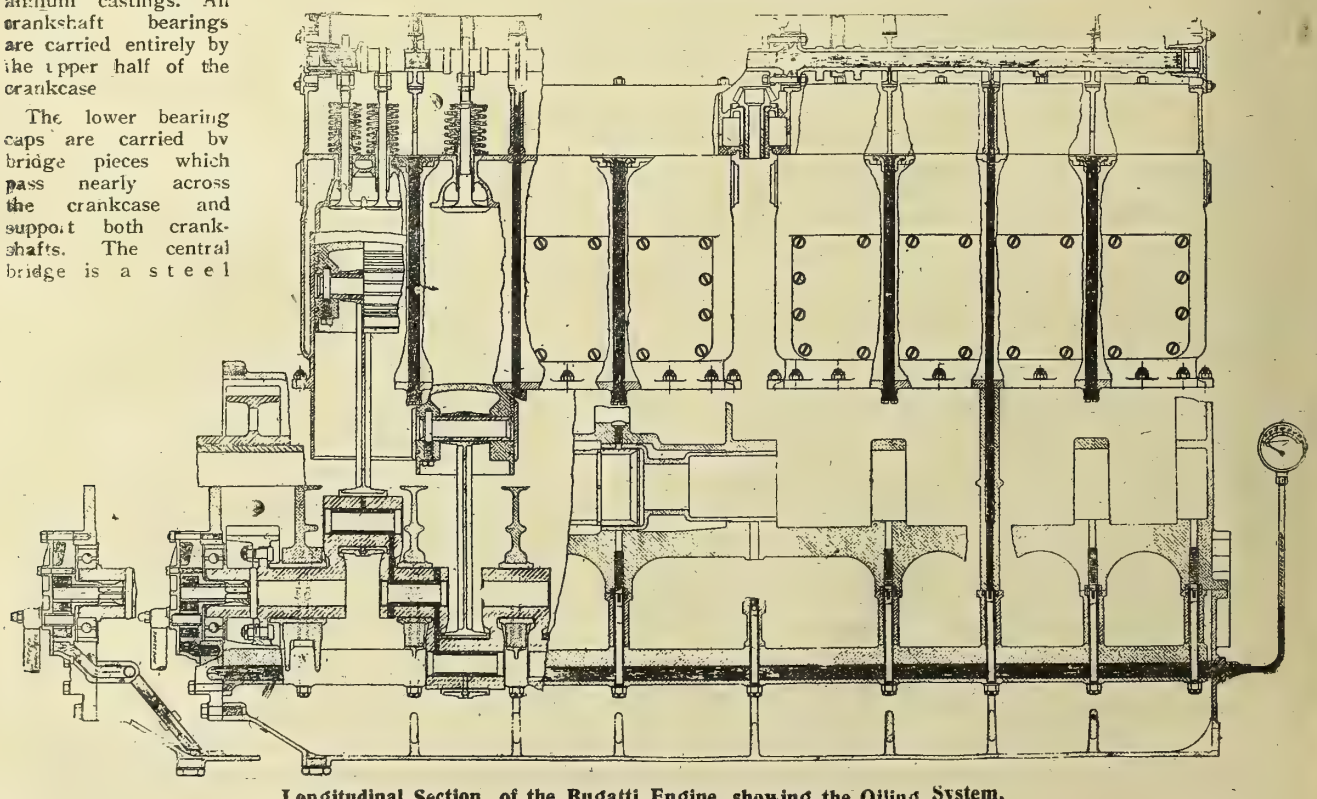
Crankcase.

Both upper and lower halves are aluminium castings. All crankshaft bearings are carried entirely by the upper half of the crankcase

The lower bearing caps are carried by bridge pieces which pass nearly across the crankcase and support both crankshafts. The central bridge is a steel



Sectional End View American Bugatti Engine.



Longitudinal Section of the Bugatti Engine, showing the Oiling System.



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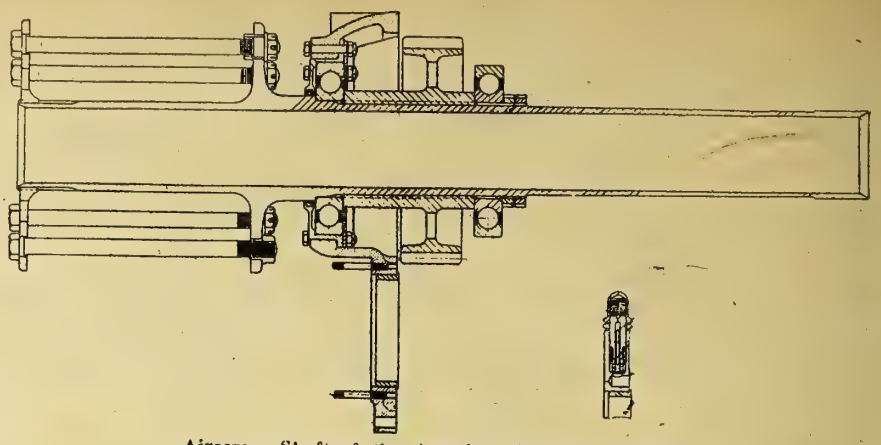
forging, as the bearings at this point are arranged to take any end thrust which may come on the crankshafts. All the other crankshaft bearings have end play, and the corresponding bridge pieces are aluminium castings.

All the main bearings are plain, bronze-bushed and white metal lined, but at the airscrew end of each shaft, beyond the pinion for the airscrew drive one ball-race journal is used.

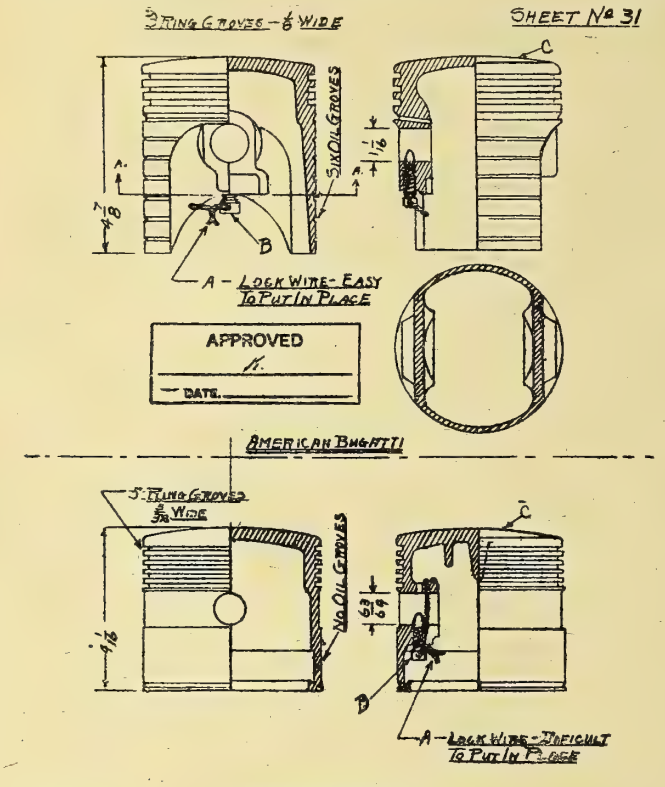
The Airscrew Shaft.

This is a steel forging, with one airscrew hub flange solid with the shaft.

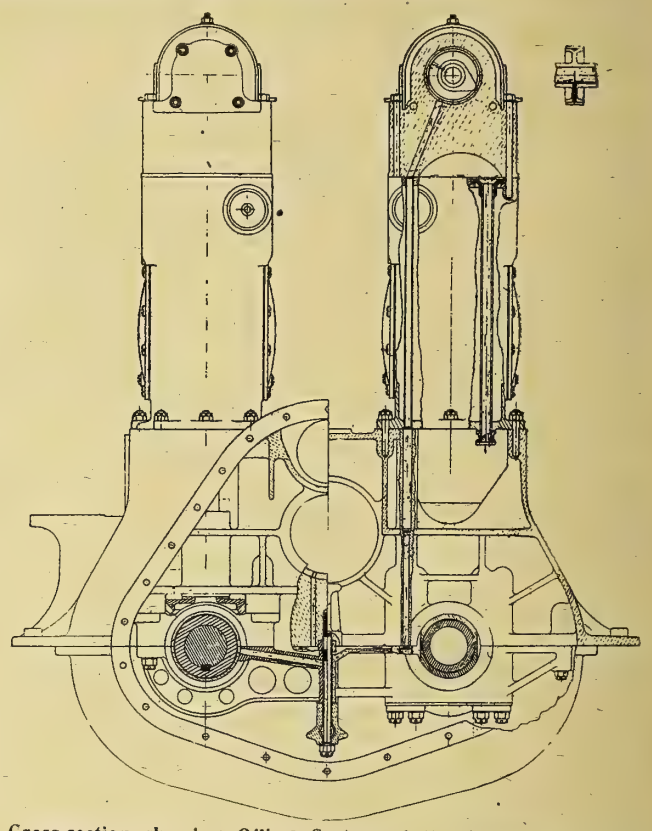
This shaft is bored out to a sufficient diameter to permit of firing a 37 m/m. Q.F. gun through it, and a clear passage through the crankcase in line with it is provided for the same purpose.



Airscrew Shaft of the American Bugatti Engine.



The Pistons of the American—(Top) and of the French (Bottom) —Bugatti Engine.



Cross-section showing Oiling System of the American Bugatti.

The spur wheel through which the shaft is driven from the crankshafts is carried by 9 bolts passing through a flange on the shaft.

Deep grooved ball-races support the shaft on each side of the spur wheel, and these races take the whole of the airscrew thrust.

Ignition.

Four magnetos, each firing eight cylinders, are fitted. Two are placed on each side of the engine between the carburetters, with their shafts parallel to the crankshafts. Upon the vertical shaft driving the camshaft a bevel wheel is mounted inside the crankcase, and this drives a horizontal shaft at right angles to the crankshaft, passing out through the side of the crankcase. At its outer end this shaft carries another bevel wheel which drives the two magnetos on its own side of the engine. The magnetos appear to be fitted with an advance and retard mechanism of the spiral coupling type, which secures maximum spark intensity at all magneto timings.

Lubrication.

The oiling system is arranged on the dry sump system, with one pressure and one scavenging oil pump. One of these pumps is driven from the airscrew end of each crankshaft.

Oil from the oil tank is forced by the pressure pump along an oilway in the centre of the crankcase. This oilway appears to be a separate aluminium casting secured by studs to the under side of the bridge pieces "carrying" the crankshaft-bearing caps. These studs are reduced in diameter to less than the bore of the holes through which they pass, and thus an annular oil passage is provided to each bridge piece. Oilways are bored from each bearing-cup through the bridge piece to the passage so left.

Holes in the crankshaft register with the oil-hole in the bearings twice in each revolution, and oil is fed through these and the hollow crankshaft to the crank-pin.

From the oilways to the crankshafts, a series of vertical oilways, the upper parts of which are copper tubes passing through the water-jacket space, lead to the camshaft housing, and to one bearing in each half of each camshaft. At each of these bearings oil is admitted to the interior of the camshaft and led along to the remaining bearings.

Vertical drains through the water-jacket space return the used oil to the crankcase.

Used oil in the crankcase is removed and returned to the oil tank by the scavenger pump.

Both oil-pumps are of the usual spur-wheel type, and differ only in that the scavenger pump has a greater width of tooth face.

Carburation.

A separate carburetter is provided for each block of four cylinders. Gas is led to the inlet ports through water-jacketed manifolds, of which a figure is given.

The carburetters are of the Miller, multijet type and are illustrated in section.

So far as can be ascertained, of the features described above, only the lubrication system and the type of carburetter employed are confined to the American engine.

The modifications from the original model are otherwise solely to points of detail design, the most important probably being an alteration to the cylinder head, providing freer water circulation, better valve cooling, and a slight increase in the distance between valve centres.

The original engine was fitted with an overhung airscrew shaft, with bearings inside the spur gear only, and the adoption of bearings on both sides of the gear should undoubtedly improve the engine.

THE AIRCRAFT TRADER

MARKET TOPICS.

Prices are for Quantities on Usual Terms.

COPPER.—This market has been fairly steady, but there has not been much activity, this has been chiefly due to the extreme cautiousness on the part of consumers. Very few orders are being placed for manufactured Copper, and this does not occasion any surprise when it is considered that the price of Copper Tubes, for instance, is in the region of £150 per ton, compared with the price of B.S. Copper Ingot at £76 for forward delivery. There are good stocks of Copper in the country, but buyers are exercising great care, as the market is a little sensitive when interest is shown by buyers. Present conditions indicate the possibility of a reaction in prices and little possibility of a further decline.

Comparative Prices.

	Per Ton.
Standard. To-day, March 26th	£79 10s. od.
Last week	78 10s. od.
Last month	74 10s. od.
Lowest price, 1918	100 0s. od.

TIN.—There has not been much activity recently and the market is in a rather unsettled condition. Consumers continue to buy hand to mouth, and this is not only due to the present unrest prevailing here, but is also probably due to the opinion that prices cannot be maintained at their present inflated level. The recent report to the effect that the F.M.S. Government intended fixing a minimum price of £242 on the Tin they hold has not been officially confirmed. Another rumour has just been circulated to the effect that when the blockade is lifted Germany will be supplied with Tin out of the stocks of Straits Tin held in the East. If this is so, the available world's stocks will be reduced; at the same time these rumours should be received with caution. Their only object may be to try to stir up buying interest.

Comparative Prices.

	Per Ton.
Standard. To-day, March 26th...	£240 10s. od.
Last week	237 5s. od.
Last month	210 15s. od.
Lowest price, 1918	240 0s. od.

LEAD.—Although there is an apparent tendency on the part of buyers to cover their requirements, the present price is considered unreasonable, and the stocks held by the Government are viewed with much apprehension, and the Labour unrest has also created a certain amount of nervousness. The price at present is £27 10s. average.

STEEL.—At the time of writing the labour situation is not definitely settled, and this continues to affect the demand. It looks as though there will not be any stocks, but it is not quite certain whether there will be a further advance in the price of coal, and if there is, it is not likely to be as large as was generally expected. There is hardly any demand for Aircraft Steels or H.S. Steel.

The question of price is also very unsettled; in fact, certain makers refuse to quote a definite price for delivery after April 30th, 1919. The demand for certain industries is fairly good.

TIMBER.—The position of the Timber market is very uncertain. In the first place, the Government hold huge stocks of all kinds of wood, and, although the Controller has stated that this material would be disposed of at the current market price on the date of sale, this statement does not help matters very much. This is one of the factors which are causing a certain amount of uncertainty. The other factors which enter into the matter are the uncertainty in prices and labour. There has been a fairly good demand for Mahogany, and buyers are not scarce.

The Plywood position is creating a great deal of interest, and it is not yet clear what the Air Ministry intend doing with the huge stocks which they hold.

The question was recently raised in the House on March 13th by Sir Herbert Neill, when he asked the Chancellor of the Exchequer if he will state who is responsible for the regulations considered to be necessary for the realisation of the stocks of aeronautical Plywood in this country at the date of the armistice or contracted to be purchased by His Majesty's Government at that time; whether he will cause inquiries to be made of the S.M. 7 Department (Aircraft Supplies) as to whether any and what offers were received by that Department for the purchase of the entire stock referred to; whether, on January 28th last, a firm offer extending over three weeks was received at 47s. 6d. per 100 square feet for the purchase of such entire stock; if he will state whether, on the intervention of the Timber Controller, or that of some other, and which, Controller, the provisional arrangements made by the S.M. 7 Department (Aircraft Supplies) to accept the offer above referred to were overruled; if he will state whether 2,500,000 square feet were placed by the Timber Controller with Foy, Morgan and Co., timber brokers, for disposal; whether Foy, Morgan and Co., in the absence of any adequate accommodation for the storage of the Plywood at Liverpool, stacked the same in open sheds, and that, consequent on weather conditions, the value has deteriorated; and if he will likewise state the amount of loss occasioned to the Treasury consequent upon the cancelling of the provisional order previously referred to?

Mr. Bridgeman: I have been asked to take this question. The Ministry of Munitions is responsible for regulating the disposal of surplus aeronautical Plywood, which is being carried out under the Timber Controller, who is also Controller of Surplus Timber Disposal under the Surplus Government Property Disposal Board. Certain offers were received for the purchase of the entire stock referred to, including an offer in the terms mentioned in the question, but no provisional arrangements were made by S.M. 7 Section of the Aircraft Production Department to accept that or any other offer. With regard to that offer, the Timber Controller was consulted, and, as the price offered was less than half the c.i.f. cost to United Kingdom port, he considered that it would be unwise to accept the offer before asking other manufacturers and dealers to tender for the Plywood. The Aircraft Production Department agreed, and the offer was refused. Considerable quantities of Plywood have been placed with Foy, Morgan and Co. as brokers, and have been stored in Liverpool and London. A representative who has just returned from Liverpool states that the goods have been properly stored in dry warehouses, and have not deteriorated in any way. No loss has resulted from the refusal of the offer referred to. I may add that it has been decided that publicity should be given in every case as to the disposal of surplus Government Timber, and that, where possible, sales should be by public auction or public tender.

Generally speaking, consumers are holding their hands, and will not enter the market until the position becomes more stable.

LOVE STORIES ON AEROPLANE CONTROLS

Aircraft manufacturers owe much to inventors, who, years ago, turned their attention to the improvement of the pedal cycle. Many of the problems of combining strength with lightness had been solved when aeroplanes only existed in the imaginations of writers of fiction. Twenty-one years ago Bowden Wire was first introduced for actuating brakes on cycles; to-day this useful method of controlling mechanism is in use in every type of aircraft. Quite recently Bowden Wire, Ltd., invited the Press to a view of their new works at Willesden. The building was erected between June and December, 1915, to provide accommodation for the new plant that was necessary to cope with the enormous demand for Bowden Wire caused by the war. It was required by all the Allies in ever-increasing quantities. The new buildings now cover two acres, and are splendidly equipped.

It is an interesting experience to watch the process of manufacture. Here are machines winding the wire into the familiar spiral casing, elsewhere others consisting of bobbins jazz dancing at dazzling speed as they knit a cotton covering over the bright metal. Other machines coat the cotton with a black waterproof material made in witches' cauldrons, the black depths of which are somewhat shuddersome, and the aroma reminiscent of German gas attacks.

The base of this waterproof coating is celluloid obtained from old cinema films, of which countless hundreds of miles are stored in a fireproof building. A misogynist member of the staff was once in charge of this mortuary of films that had lived their limeless lives. He was found one slack day looking through spool after spool with an expression of fathomless depression. One of the managers asked if he had found anything interesting. The answer, given with deep disgust, was:—

"No—usual sloppy love."

Strange that the "sloppy love" films that were the delight of flappers should have been used to cover wires that controlled the aeroplanes which fought on all the Fronts through the war!

THE USE OF

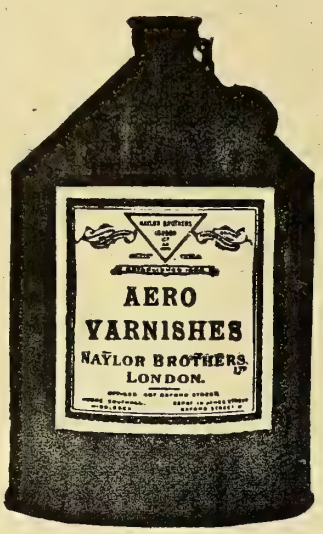
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PLATES

COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

STUNTS OR BUSINESS?

By "Medway."

If we are to believe everything that appears in the papers, North America is at present principally inhabited by people who are firmly determined to make the first successful Atlantic flight. Crowds of private speculators anxious for fame or notoriety stand cheek by jowl with the representatives of Government organisations, equally anxious to "get in or get over." Uppermost in all minds is the desire to do it first, and so score off others of similar aspiration.

Public Interest in the Atlantic Flight.

Now I suggest with all modesty that the thing is being overdone. We know perfectly well that it is possible for an aeroplane to fly the distance. Unless we depend on a complex organisation, success or failure is more a matter of luck than anything else. The public interest is much the same as that of a crowd that goes to watch the lion-tamer, rather hoping that the lion may prove to have been insufficiently tamed. It is a dull business if the first attempt proves successful. One series of glaring headlines, and the whole thing is over. The only result is that the world discovers something which it knew already—namely, that an Atlantic flight is possible.

The bulk of the interest focusses on the fact that it is also dangerous, and will remain so until a perfect organisation has been created. I cannot imagine business men financing a regular Trans-Atlantic service by aeroplane for some time to come. If there was ever a job for the airship as against the aeroplane, surely this is it. Personally, I class the Trans-Atlantic aeroplane flight with the escapades of people who go over the Niagara Falls in barrels, or do tight-rope performances across the top. A serious attempt certainly means personal courage of a rather foolhardy character. A few failures would do an immense amount of damage to commercial aeronautics for years to come. Success could not lead to the establishment of any regular safe service at an early date.

There are evidently two ways of tackling the stunt. One is that of the individual who gets a good machine, tunes it up until he believes it to be perfectly reliable, and then trusts to luck.

The other method is what may be called the departmental one. Thus we are told that the United States Navy is organising an attempt. Now, if we put the whole naval resources of a great nation behind a venture of this kind, and if we prove successful, then the pilot who brings the trip off is certainly not the sole claimant to any honour accruing from the success.

"Ground" Organisation.

We simply get back to the old fact that long-distance aeroplane journeys are more dependent on what is commonly called ground organisation than on anything else. We might string out all the ships of the British Navy and the British Mercantile Marine at short intervals across the Atlantic, and then we could choose a fine day and start upon a flight. If anything went wrong, the aeroplane—it would, in fact, presumably be a flying boat—could flop into the water somewhere near a ship, and the occupants could be got on board. If we were determined to bring off the stunt, we should provide not one but ten or twenty large flying boats, which might start at the same time or at short intervals. Many, perhaps the majority of them, would fail to reach the other side, but the odds are that somebody would get across. The others would run little or no more risk than is encountered on a long overland journey upon a route properly provided with landing stations.

As I have already said, all we should know after the stunt would be what we know already—namely, that the thing is mechanically possible. I take it that no one would advocate going to the extremes advocated above, and holding up the greater part of the ocean trade of the world for a few days so as to provide an almost continuous system of landing stations. Presumably, the United States Navy would propose to do the same thing on a smaller scale. The smaller the number of vessels used as lightships or refuges, the greater the risk to the occupants of the aeroplane. The private individual with no organised assistance runs the greatest risk of all.

Notoriety and Personal Gain.

It is no affair of the business community if a certain number of men like to take big personal risks of any kind. The instinct which makes men keen on climbing the aeroplane—it would, in fact, presumably be a flying same place safely by another road, makes them also enjoy personal danger of other kinds. There are a great many feats which, though we may admire in the individual, we must recognise as not business from the point of view of the community. To the individual they may be quite good business. Success means personal notoriety, and notoriety may mean big financial gain.

I have no quarrel with people who like the idea of flying the Atlantic, but I feel that some protest is needed against any silly contention to the effect that a NATION can in any way improve its reputation by doing it first. The time and thought which must be given to creating an organisation sufficiently complete to absolve a nation from the charge of having wilfully risked the lives of valuable citizens means a great deal of good value wasted. The organising brain needed would be much better applied to the scheming of routes along which regular services can reasonably be operated on a sound business basis in the near future.

There are some things which must be done in order to prove that they can be done. This is not one of them. We could prove the possibility of flying the Atlantic quite easily without doing it, if any such proof were needed. We know the distance, and that same distance could be flown by journeying a certain number of times—say, from London to Paris and back without stopping.

Airships as Trans-Atlantic Mail Packets.

It has been suggested that for many years to come the aerial journey between Europe and America will be performed by large airships, aeroplanes being merely used as tenders to bring passengers to the point of departure and to convey them from the point of arrival to their destinations.

If we realise that this is the proper method, why should we waste valuable time in trying to do something which we know to be inherently unsound as a practical proposition? If we want to demonstrate the fact that a motor-lorry is a useful thing for carrying goods along roads, we need not ask it to make good its case by crossing the Sahara. If we want to prove that a bicycle is a useful and cheap means of locomotion, there is no need to hire a tramp cyclist to detach the handle-bars and the pedals while sitting on the back wheel, and to perform other music-hall tricks of the kind. We know fairly well what are the legitimate spheres of the aeroplane and the airship in the form in which they are found at present, and will be found in the near future. We do not have to prove the case of either of them by making it do the other one's job.

I dare say some of my readers, if any of them have got so far, will accuse me of being altogether lacking in enterprise and ambition. My point is, however, that I want to see commercial aeronautics recognised by the public as being a means of travel not abnormally dangerous or experimental. The organisation of big experiments is likely to give exactly the opposite impression, and therefore I think it should be depreciated, and that we should leave fancy exhibitions to individuals who, for their own private reasons, are prepared to risk their lives on the off-chance of bringing off a big publicity stunt.

POST-BELLUM POLICIES.

By The Special Commissioner of "The Aeroplane."

MR. OSWALD SHORT.

I got a preliminary idea of Messrs. Shorts' visions of the future when I saw their works at Rochester, more particularly the big seaplane shed still to be finished.

Here certainly there is no indication of arrangements for decreased output, and it gave me quite an optimistic feeling in spite of my being very cold after a run down in a car.

Mr. Oswald Short tells me that he is going to build various types, but at present does not intend to construct anything gigantic in the way of land machines, though he has arrangements for a six-passenger machine completed.

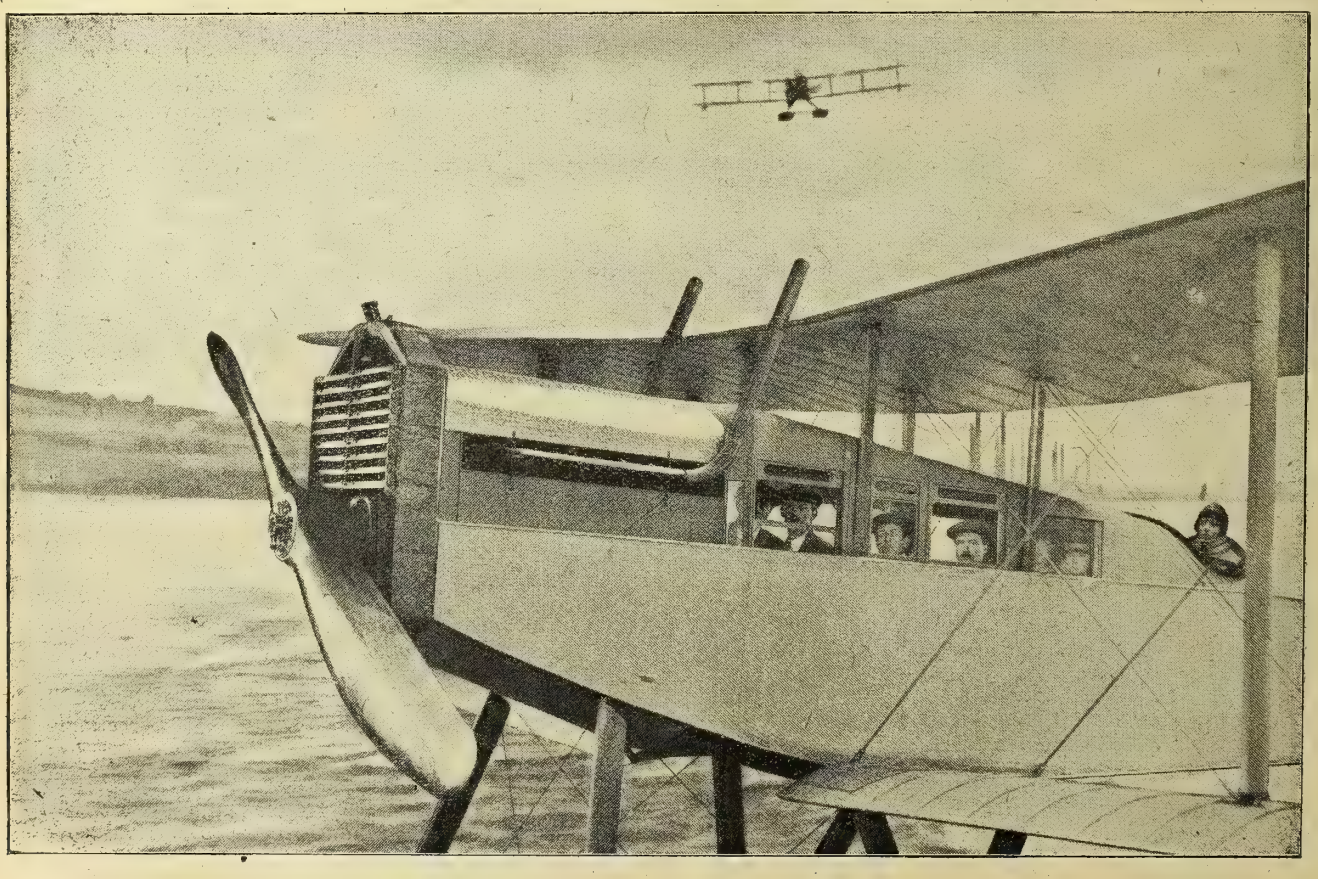
As might be expected by anyone who has followed Messrs. Shorts' war career, new types of seaplanes will form a large part of the new programme. In fact, I gathered the impression from Mr. Oswald Short that the firm will devote more attention to amphibious machines, both boat and float type, than to future land machines, although he believes in a very large variety of the latter. Mr. Short is very much against land machines flying over the sea habitually. He does not, for example, consider that the Channel should be regarded as a prohibited area for such machines, but where long overseas flights are projected he is most emphatic. He further told me that the hull of the large boat, although of course heavier than the undercarriage of the large land machine, does not weigh anything like so much proportionately as is generally imagined. This I confess was a fact that was unknown to me.

Other advantages he claims for the large boats are that passengers' comfort is very much more easily obtained, and that the expense of numerous intermediate landing stations is done away with, sheltered repair and petrol depots only being required, also the cost of purchasing and keeping up large tracts of land being obviated. In Mr. Short's opinion the claims of the large boat for recognition have not received sufficient attention.

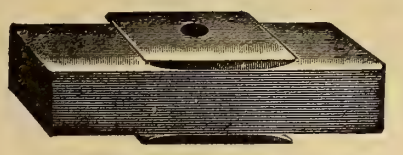
On the life of the machine question Mr. Short put a minimum of four years, which seems to be a favourite figure with builders. Naturally this does not apply to the fabric and incidental repairs, and it is well to remember that cars require overhaul and painting, ships refitting, locomotive boilers changing, and so on, and that aeroplanes are in no way different from these, and must be properly looked after to ensure safety and long life. An old yachting friend of mine once said to me, "If ever you let a boat get ahead of you in her need for repairs you will never catch up." This is a good maxim for aeroplane owners as well.

On details of performances to be aimed at Mr. Short considers that low landing speeds are essential, that a ceiling of 12,000 feet is quite sufficient, as also is a speed of 100 miles per hour. He thinks a good gliding angle important, and points out that it can easily be obtained at a very slight loss in performance.

He is anxious that stringent legislation shall enforce owners not to exceed the maximum load specified by makers, as overload-



A Post-Bellum Short Passenger-Carrier (260-h.p. Sunbeam "Maori" Engine).



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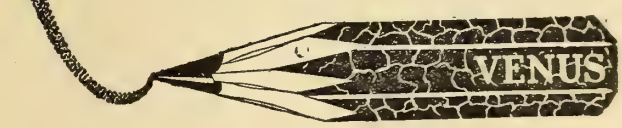
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ing will have a very detrimental effect on machines, especially as to performance. He also favours light loading.

The firm's competition policy will consist of confining itself to those that serve useful purposes. They will not build or enter aeroplanes for any freak competitions.

In common with other manufacturers the firm is paying special attention to the comfort of passengers and pilot. Asked his idea of the future pilot, Mr. Short, I am glad to hear, considers it of importance that he should be well paid. I expect there are others who will welcome this opinion, for the more manufacturers who hold this belief the more likely is it that public opinion will follow the lead and provide a livelihood for out-of-work pilots.

On the airship question Mr. Short believes in the large ships of three or four million cubic feet at least, and tells me he has had complete drawings, of his own design, for such a ship for three years.

Of course, one of the difficulties in the way of rapid developments in ships is cost, as private companies cannot afford to saddle themselves with a heavy loss caused through initial experimental work, and it is questionable if the Government will spend sufficient money for this purpose. It will be very interesting to see what funds will be allocated for these experiments, but it is more than likely that the amount will be disguised in a comprehensive vote of credit to the Service.

In conclusion my thanks are due to Mr. Oswald Short for his kindness and courtesy, and the free expression of his views. Many of the more intimate and therefore the most interesting cannot be published at present.

COMMERCIAL FLYING.

In an editorial article which deserves more than cursory notice—if only on account of the standing of the paper itself—"Engineering," of March 21st, expresses its opinion upon "Commercial Flying." Quotation from the article will perhaps give a better idea of the trend of the whole than would any attempt to produce a précis. The following excerpts are therefore given :--

" It needs but little study of some organs of the Press, and one may see visions of pantechnicon vans careering overhead between London and Brighton, and the baker, for some inscrutable reason, delivering his goods to the householder by aeroplane—presumably dropping them into the back yard. All this sort of thing is very pretty and very exciting, but it sounds a little uncommercial, not to say unnecessary. In suggesting the value of a little cold water on some of the present enthusiasm we are not losing sight of the fact that it is less than ten years since Blériot flew across the Channel, and that the art of flying has since then shown a rate of advance which it would be difficult to parallel in the history of the mechanical arts. This, however, is no proof that flight is to be the method of travel and transport par excellence of the future.

" . . . What one can do, however, is to attempt some estimate of the commercial possibilities of flying from the point of view at which we now stand. Some assistance in this task is, we think, likely to be given by a consideration of the relative merits of the present forms of transport—the merits which have raised each to the position it now holds. The railway beat the pack-horse, the wain and the canal because it was more speedy, and could deal with enormously greater bulk and weight of material expeditiously and at reasonable cost. In that it is tied to a definite track the railway is inferior to the pack-horse and to a less extent to the wain.

" . . . The motor vehicle now to some extent menaces the railway. It has equal and sometimes superior speed and is not tied so rigidly to a track. At sea the situation is simpler; one has but the sailing vessel and the steamship. Speaking quite generally the steamer has beaten the sailing vessel on speed and on freedom of movement, since in its dependence in many trades on prevailing winds the sailing ship is tied to a definite track.

"Into this arena of competitive transport methods the aeroplane and airship are now introduced, and one may ask what their peculiar qualifications are as compared with existing services. In that they have superior speed over all existing transport methods and are not tied to definite routes they are apparently superior to all. . . . If one considers the aeroplane from the point of view we are now taking, it may fairly be looked upon as an example of a glorified motor vehicle.

" . . . Concerning the value of the aeroplane for administrative and other work in far countries, General Seely made the interesting statement that our Political Officer at Baghdad reported he found he could in two days carry out inspections and other work which previously had taken him two months. This is a field which one may expect to see greatly extended in less-developed countries and those of large area, but scattered population.

" . . . In addition to those types of commercial aeroplane service referred to by General Seely we have also mentioned pleasure traffic as a likely field for immediate development. . . This class of work is, of course, again an example of extension in a field already served by the motor vehicle, and it is interesting and suggestive that all the commercial aeroplane service in being or apparently likely to be in being in the near future is an extension of services already covered by the motor. We do not suggest that the aeroplane may not ultimately force its way into entirely new fields, but clearly its immediate development lies in the greater exploitation of fields already partly worked by the motor-car, which from an abstract traffic point of view it may be looked on as a development of. Before leaving the matter we should perhaps mention express passenger services between important centres as a reasonably likely development of aeroplane service. In this work the aeroplane would appear to be entering the field of the railway rather than that of the motor-car.

" When one attempts to look at the possibilities of the airship from the same point of view . . . it is less easy to determine its position in respect to other modes of transport. Considering oversea service . . . one would naturally look upon the airship as a development of the steamer rather than the sailing vessel. None the less, in its regard for prevailing winds the airship has perhaps more in common with the sailing ship than the steamer. . . . Heavy storms, fogs, etc., affect all shipping to some extent, but will probably affect the airship to a greater extent than the steamship.

" . . . Even as things are a greater regard for the weather is not likely to prevent the airship from competing with the steamer in certain fields. In spite of its dependence on the weather the sailing vessel has made a good fight against the steamer, and in view of the rising costs of fuel there would be nothing surprising in a great revival of the sailing ship in certain trades. The immediate commercial field for the airship would appear to lie in the development of long-distance passenger services. Such remarkable improvement over existing times could be shown that high fares could without a doubt be obtained. Of the desiderata towards putting the airship on a commercial basis the most important at the moment is probably the starting of a service in some form, in order that the public may have practical demonstration of its possibility and gain confidence in its safety.

" We have attempted so far to refrain from dealing with the commercial possibilities of flight in terms of unknown developments of the future. What the art now requires is application of what we know, not speculation about what we do not. None the less, progress there will be, particularly in our opinion in the next few years in respect to the airship rather than the aeroplane. . . . It would not be surprising if the aeroplane proved to have already settled down to approximately its final form, and if developments for many years were restricted to engine and other details.

" The airship, however, is in a somewhat different position. Its development was not assisted by the enormous body of workers and the quality of war stimulus which had so much to do with the amazing progress of the aeroplane. The airship, moreover, to give its best efficiency, must be very large, and, consequently, experiment has been more difficult and costly. Without carrying speculation between fast passenger services and the carrying of light but valuable cargoes, it is clear that with a development in size and a falling running cost, great progress may be made with airship services. It is well, however, for the present to assume that the services would be relatively costly and that passengers would be prepared to pay for the great time-saving."

Generally speaking, there is little need for The Aeroplane to emphasise the accord between its own views and those of its distinguished contemporary.

If there is a point upon which one is inclined to disagree with "Engineering," it is in its opinion that development in the future will be largely confined to the airship.

It is difficult to believe that this is the case, because, apart from purely structural design, the possibilities of airship development are definitely limited by the density and viscosity of the air.

That is to say, one cannot, by any conceivable means, lift more than the weight of one cubic foot of air, by displacing that cubic foot. And, although possibly no airship has yet attained it, there seems reason to suppose that the form of airship opposing minimum air resistance for any given displacement has been closely approached, and that there is in fact some definite limit to what may be achieved.

But in the design of aeroplanes, though there are doubtless limitations of a somewhat similar nature, the aerodynamic problems involved are much more complicated, and are very much further from having been even approximately solved.

Consequently one feels that the aeroplane still offers a much wider field for research and development than does the airship.

Nevertheless the airship probably offers more immediate prospects of useful commercial development than does the aeroplane.

EY "PUMA" ENGINE

Its origin; the work it has done and is doing.

THE Royal Flying Corps having decided in 1916 to adopt a six-cylinder water-cooled engine entitled "B.P.H.," the experimental running of which had given excellent results, entrusted its manufacture to the Siddeley-Deasy Motor Car Co., Ltd. Further experimental running of the engine showed the necessity for its being re-designed; this work also was entrusted to this Company. At a later date the engine was given the nickname of the Siddeley "Puma." In the Services it is colloquially referred to as the B.H.P.

¶ When handed to the Siddeley-Deasy Co. the engine was rated at 200 h.p. The result of the early improvements of design made by the Company called for a rating of 230 h.p. at a comparatively low number of revolutions. To-day the engine is rated at 280 h.p. This shows the remarkable technical developments which have taken place in the Siddeley "Puma."

¶ The Siddeley "Puma"—fitted to the de Havilland aeroplanes used for the main portion of the day-bombing programme of the Royal Air Force—has undoubtedly carried out the most strenuous work which any engine has been called upon to perform. The demands of the Service by constant increases in the military load of the aeroplanes have thereby continuously over-stressed the engine. This fact was particularly emphasised in the Despatch of Major-General Sir H. M. Trenchard, K.C.B., D.S.O., on the work of the Independent Air Force.

¶ Further proof of the high qualities of the Siddeley "Puma" is found in the fact that it has been adopted by the Royal Air Force in its reconstruction programme as the standard vertical six-cylinder water-cooled engine.

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CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

The delay in passing the Air Navigation Bill through Parliament and the many difficulties encountered in drawing up the new air rules will prevent civilian flying for some weeks.

Major-General Sir F. H. Sykes, the new Controller of Civilian Flying, went to Paris on Friday, March 28th, to join in the deliberations of the International Aerial Commission.

It is expected that on May 1st a complete set of interim regulations governing civilian flying in the British Isles will become law.

The licensing of pilots is considered necessary. The standard will be set sufficiently high to safeguard the interests of passengers. In certifying the air-worthiness of aeroplanes the passenger or freight capacity of each machine will be fixed.

The first regular aerial mail service in the British Empire available for other than official letters will shortly be started between Cairo, Karachi, and Bombay.

Postal arrangements are nearing completion, and in due course an announcement as to rates will be made. Letters from Great Britain for the Indian aerial mail service will have to be marked "Express—Air Service," and an express fee, probably of two or three shillings, will be charged.

The likelihood of frequent interruption by fog and other atmospheric conditions is regarded by the postal authorities as a difficulty which is likely to prevent the introduction of any regular aerial mail service in the United Kingdom.

France.

Recently, three aerial postal services have been established, and a certain amount of data has been accumulated. The experience, however, has not been gained without accident. One of the two mail machines which left Paris for Bordeaux on Sunday, March 23rd, effected the out and home journey in excellent time. But the other machine had a forced landing on the way south and the pilot and passenger were severely injured.

The postal service was carried out in two stages, from Paris to Châteauroux and from Châteauroux to Bordeaux. The time-table arranged for the daily service is as follows:—

Le Bourget (the aerodrome for Paris): departure, 10 a.m.; Châteauroux: arrival, 11.55 a.m.; departure with new machine, noon; Bordeaux, arrival, 2 p.m.

Bordeaux: departure, 12.30 p.m.; Châteauroux: arrival, 2.30 p.m.; departure with new aeroplane, 2.35 p.m.; Paris (Le Bourget): arrival, 4.30 p.m.

The distance for the whole journey is 315 miles; from Paris to Châteauroux is 143 miles, and the rest of the journey is 172 miles.

A daily aerial postal service was also started on Sunday, March 23rd, between Avignon and Nice. From now onwards an aeroplane will be ready to carry mails for Nice brought to Avignon by the Paris-Lyons train which arrives at midnight. A machine will also deliver mails from Nice at Avignon in time for the midnight train for Paris.

A regular postal service by aeroplane is also announced between Rabat (Morocco) and Algiers. Letters were carried between these two towns on Sunday, March 23rd.

Germany.

A Berlin telegram states that the regular aerial postal service which has hitherto been carried on by a German Aircraft Company between Berlin, Leipzig, and Weimar, and Berlin and Hamburg, will be extended during April to Hanover, the Rhineland, Westphalia, Frankfort, Breslau and Warnemuende. The service to Warnemuende will be particularly important for passenger and postal traffic to Scandinavian countries. Warnemuende will also be the starting-point for oversea traffic by seaplane.

Italy.

What is probably the longest European regular postal service was started on March 2nd when four Caproni biplanes, piloted by service aviators, under the command of Colonel La Polla, with, among the passengers, Major Voco, who is at the head of an Italian Aeronautical Commission at Vienna, left Padua and arrived at Vienna, after being in the air over four hours. The distance is about 500 kilometres This service will be continued regularly from now onwards, two machines leaving Padua and two Vienna every third day.

On the same day it was announced that the Government has given free passes on the railways to Members of Parliament desirous of using the Rome-Naples Airway. Five of the Deputies have, at the time of writing, taken advantage of the speedier route. Cs. are the machines used.—T. S. H.

Norway.

The Managing Director of a Norwegian Aviation Company, who has just returned from a visit to England, where he conferred with the British Authorities ragarding the future of traffic by air between Great Britain and Norway, has stated that no such traffic can possibly be established this year, owing to the many questions of International Air Laws which have to be settled first, and also to the high prices of aeroplanes.

Peru.

The Posfmaster-General at Lima is asking for offers from European and American firms for establishing an aerial mail service.

Postal Air Services.

A very interesting series of experiments is being carried out now, according to a contemporary, with a view to the reduction of bulk in mails for air carriage. Full details cannot yet be given, but the general principle will be reduction of bulk by photography.

Experiments in cutting down weight of paper, envelopes, sealing wax, etc., were soon abandoned, as they reduced bulk and tonnage so slightly. A bold plan was then suggested, let all letters for air-post be typed or written on a standard size of paper, and the sheets then photographed down to postage-stamp size. The photographs would cross by aeroplane or airship, and be magnified at the other side back to standard sheet size.

Under such a system letters could be either posted open by the public and photographed by P.O. officials sworn to secrecy, and enlarged by officials at the other side before delivery; or, in the case of correspondence of big firms, they could be posted in midget photograph form.

It would pay a big firm with branches in America and Great Britain to have the necessary photographic apparatus at each side of the ocean. With the help of photography what is now a 300-ton mail could be cut down to 30 tons weight. The sentimental love letter could, of course, still go in the old form—if paid for.

One is not so enthusiastic over the scheme as the contemporary. It is, of course, very old, as the system of photographing letters was used in the siege of Paris. One cannot imagine private firms to-day laying down special plants to photograph their correspondence. In fact, the suggestion seems likely to prejudice people against postal air services.

Cosmos Enterprise.

It is frequently alleged, and unfortunately with only too much truth, that the British manufacturer is lacking in enterprise. He is very apt to adopt the "take it or leave it" attitude, and to assume that because he makes good goods everybody in the world must rush to buy exactly what he pleases to offer them.

Sometimes when one asks for information from a British manufacturing firm, one receives an utterly inadequate and unintelligent reply from a mere advertising agent who has no technical knowledge whatever, and at such a time one despairs of one's task, which chiefly consists in these post-bellum days, in doing one's best to help British manufacturers to secure foreign trade. It is therefore all the more pleasing when one comes across a firm which not only conducts its business in a businesslike way, but really goes out of its way to impress people with its up-to-date business methods.

The particular case which one has in mind is The Cosmos Engineering Co., Ltd., Bristol, who are already becoming famous as the makers of the "Mercury" and "Jupiter" stationary radial engines. A request for some information concerning these engines, by a correspondent of this paper, recently produced the most convincing possible proof of the firm's capabilities. Complete specifications of each engine were sent, together with beautifully executed photographs of the engines on quite a large scale. All the information concerning each engine was set out in the simplest, and at the same time fullest, possible manner, and was enclosed, together with the photographs pertaining thereto, in a separate jacket of the Government office type.

The way in which the whole thing was done gives one the impression that the firm is truly an engineering firm and not merely a retail shop, and that the firm is really out after business.

Though The Cosmos Company is a very young company, so far as aeronautical engineering is concerned, it is evident that it is bound to come into the very front rank of engine manufacturers, and those who remember the firm under its former name of Brazil, Straker and Co., Ltd., will need no convincing that its work as well as its methods are of the highest class.

A Works Presentation.

At a concert held in the Town Hall, East Cowes, I. of W., on Wednesday, March 19th, Mr. S. A. Bex, Works Manager of S. F. Saunders, Ltd., was presented by the employees and staff with a silver tea-service, a marble clock and a gold Albert with a medallion suitably engraved.

Mr. Sweetland, the Works Accountant, made the presentation on behalf of the employees. He spoke of the high esteem and respect in which the employees held Mr. Bex, and how much they regretted that he was leaving.

AIRCRAFT FINANCE

THE LIBERATION OF COMMERCIAL FINANCE.

In freeing industry and commerce from official interference in respect of new capital emissions and reorganisations the Government has acted boldly and wisely.

The policy is a brave one, because an adequate supply of money must still be raised to cover the deficiency between national expenditure and revenue. Evidently the Financial advisers do not consider that the superior attractions offered by private borrowers will react seriously on the success of State borrowing.

The Wisdom of the Move.

The policy is a wise one, because industry and commerce of the country will be able to complete more satisfactorily and with less obstacles its post-war development programmes. In this respect the Aircraft Industry is intimately concerned with the new and enlightened policy.

Merits Can Have Full Play.

No longer can the enthusiastic sponsors of the multitude of commercial aeronautic projects conceived to revolutionise the world's transportation facilities from Chili to Peru point with scorn at the narrow-minded, short-sighted officials as the culprits who have frustrated their noble efforts.

The excuse that the official prevention of new capital creations completely nullified the translation of their ideas into facts is no longer valid. They are at liberty to do just what they desire now in the matter of raising the capital necessary for the consummation of their schemes, with the exception of exporting capital for development abroad.

This liberty of action means a great deal to industry as a whole, but one is chiefly concerned just now with these aircraft ventures. How will they stand in the opinion of the speculative investing public? Will they be able to compete successfully with the host of other borrowers whose schemes have been kept in abeyance? What sort of an appeal will they make in order to claim kind consideration? What are their chances of success?

Public Interest in Aerial Matters.

Now, as to the views of the generality of the public, there cannot be any doubt whatever that aerial transport ventures appeal very strongly to their imagination. It is, indeed, widely recognised that the new order of things possesses great profit-earning possibilities, but these possibilities have yet to be demonstrated by actual experience.

Attracted by the novelty, the investor will be tempted to bite, provided there is reasonable proof of the financial soundness of the scheme. The ability to provide such proof will determine whether the requisite money will be forthcoming.

Spurious Statistics and the Promoter.

An elaborate array of statistical matter, "faked" or otherwise, with plausible but gaudily coloured deductions will not suffice to convince the average investor. That is the stock-in-trade of the reprehensible company promoter out on the get-rich-quick stunt, regardless of the consequences, and has worked wonderfully well with the gullible section of the public.

This objectionable financial parasite invariably does a lot of harm, moral and material, to the industry he "promotes." Aircraft cannot afford to watch "wild-cat" promotion.

The High Cost of Finance.

As to the terms aeronautic ventures must offer to compete successfully against the host of industrial borrowers, it is obvious that the experimental character of the business at present would justify the investor in demanding a proportionately higher rate of interest on his money, consonant with the greater risk involved. And the average value of money will be generally high for a long time; for, apart from the colossal amount required for reconstruction and to repair the wastage of war, the industrial fabric of the world as a whole has been living on short rations of money, and must necessarily cover the accumulated deficiency.

Undesirable Types of Capital.

Possibly in order to enlarge the circle of investors, some of the ventures, when they happen to come along with an appeal for capital, will seek to obtain the money in the shape of shares offering a fixed rate of interest, bearing cumulative rights thereto, and a participating privilege in a fixed proportion of profit made over a specified total.

This type has become rather common of recent years. The participating rights to an additional dividend proved an alluring sweetmeat a few years ago; now the bait is no longer so attractive to the average investor, who has begun to recognise the faults of the scheme.

Misnamed Shares.

It is all very well to possess a Preference share with cumulative rights to the fixed dividend; that is to say, when the share is really a Preference share well secured by the earning capacity of the company; but when it is scarcely better in reality than an Ordinary share, as is so often the case, it is a different matter. Investors realise now that in many cases such as this they provide practically the whole of the capital necessary for the development of the business, and the promoters receive as purchase consideration a lump sum in cash from the money publicly subscribed and the whole of the Deferred shares created.

The capital represented by these Deferred shares is very small in proportion to the total capitalisation, but the proportion of the profits divisible among the Deferred shares is by comparison enormous. In plain English, the Deferred shareholders take the lion's share of the profit made, and stake only a small amount of money.

A Faulty Practice.

As these Deferred shares of the nominal value of a few pence each are really Founders' shares, why not be plain and label them as such. Were this to happen, the investor would not be so pleased to provide the money asked for, not because Founders' shares have gone out of fashion, but because the result of experience has proved beyond all question the objectionable and pernicious character, the faults and deficiency, of this type of public company capitalisation.

Fair Treatment for the Investor.

It is greed and selfishness that is responsible for this particular practice of creating Deferred or Founders' shares, which, if the venture is successful, scoop up the lion's share of the profit, and which, if there should not be success, represent only a small loss of capital. It would be infinitely better if shareholders were offered

Ordinary shares with dividends fluctuating according to the success of the business, and the Founders were satisfied with a reasonable payment partly in cash and partly in Ordinary shares. It would be sounder finance.

CURRENT TOPICS.

A New Cellulose Issue Coming.

Arrangements are now being made for placing with the public some capital of the British Cellulose and Chemical Manufacturing Company, whose creation has provided so much discussion. The amount is about £1,250,000, and will take the form of Preference shares with additional participating rights in profits. It is expected that the issue will make its appearance in about a month's time.

The Financial World Regains Confidence.

There is more confidence in the Financial World owing to the more hopeful labour prospects, and if it were not for the uncertainties surrounding the Budget things would be really cheerful. As it is there has been an awakening in oil shares with speculative interest broadening out. Possibly greater things will be witnessed in these shares before long, for the way the commercial possibilities of the liquid as a fuel and the constant increase in the utility of the by-products are being painted augurs well. The oil enthusiasts acclaim that "no home is complete without a few shares."

Prices Maintained.

Aviation and kindred shares are claiming very little interest, though prices are maintained wonderfully, all things considered. People are wondering if there is to be a Napier bonus, and, if so, will it be equal to that of last year. The Dunlop Rubber Co. is issuing £1,150,000 7 per cent. Cumulative "C" Preference shares.

British Aluminium Profits.

The whole output of the British Aluminium Co. since the beginning of 1915 has been used exclusively for military purposes, including aircraft. Last year's trading profit was £351,697, and the extraneous income £68,729, against £368,510 and £55,153 for 1917 and £344,280 and £35,239 for 1916. The net profit at £146,202 compares with £159,324 and £155,171, and the dividend is unchanged at 10 per cent.

English Electric's Aircraft Branch.

Dealings have recently started in the shares of the English Electric Co., the price being about 26s. 6d. This £5,000,000 concern was formed to acquire control, through exchange of shares, of the Coventry Ordnance Works, the Phœnix Dynamo Manufacturing Co., and Dick, Kerr & Co.

Great things are expected of the combine, concerning which a reference was made some time ago, and it is of domestic interest, because all three of the components have been intimately associated with aircraft.

Aviation Insurance Competition.

Competition—that is to say, healthy competition—is good for business, and it was on the cards that the Aviation Insurance Association would not be allowed to scoop up all that commercial aeronautics promises to provide without some struggle from the rest of the insurance world. Over thirty of the leading offices have now elaborated a scheme of aviation insurance. This development will demand a further discussion later on.

A Promoter's Affairs.

The public examination of Robert Taylor, 97, New Bond Street, W., was held last week. Formerly interested in the motor trade, the debtor was more recently intimately associated with aircraft business. His statement of affairs showed liabilities £50,853, of which £7,853 were expected to rank, and an estimated surplus in assets of £32,146. The debtor came from the U.S.A. to this country about 1914, and on behalf of his wife, who possessed separate estate, began a motor and engineering business. She provided all the necessary funds in return for two-thirds of the net profits. For some seven months in 1916 he was in New York acquainting himself with the latest improvements in aircraft designs and engines, and while there registered several provisional patents. Early in 1917 he returned to England and devoted himself to working up aircraft inventions, experimenting, etc., and subsequently registered a number of patents in respect of aeroplane engines, etc., in association with others, with the object mainly of manufacturing and dealing in aircraft and component parts. He formed, or assisted in the formation of, a number of companies, of several of which he was at the date of the receiving order a director. Amongst these were the following:—Wm. King & Son, Patey & Co., Cowper-Coles Aircraft Co., D. & E. Birdwood, Associated Aircraft, Weldon Engineering Co., Draycott Engineering Co., Tooting Aircraft Co., and Engineering Proprietary, Ltd. The causes given for the failure were delay in dealing with an application for sanction to an increase in the capital of a company with which he was associated, and the action taken by a creditor to recover a sum of £5,000. Replying to the Official Receiver, the debtor said he had never previously been in financial difficulties. The petitioning creditor had undertaken to release his claim to enable a scheme for the arrangement of affairs to go through. The examination was adjourned until May 6th upon the application of the Official Receiver.

NEW COMPANIES.

Southern Counties Garage, Ltd.—Private company. Registered March 22nd. Capital £20,000 in £1 shares. To enter into an agreement with the Selsdon Aero Engineering Co., Ltd., and to carry on the business of motor vehicle and aeroplane proprietors and dealers, etc. The first directors are:—G. Campling, Gilba, Godstone Road, Purley, Surrey; C. E. Coleman, St. Maries, Dale Road, Purley, Surrey. Registered office: Brighton Road, South Croydon, Surrey.

Motor Exchange and Mart, Ltd.—Private company. Registered March 25th. Capital £10,000 in £1 shares. Manufacturers of and dealers in electric, steam, gas, oil and other motor vehicles, proprietors of self-starters for motor-cars and aeroplanes, etc. The subscribers (each with one share) are:—J. R. Burton, Upcote, Hammers Lane, Mill Hill, N.W.7; L. Waterhouse, 25, Gloucester Gardens, W2, gentleman. First director: J. R. Burton. Registered office: 30, Highgate Road, N.W.

An Important Amalgamation.

An amalgamation of a number of firms which is of considerable importance to the Aircraft Industry has recently taken place

The combine is now known as the English Electrical Co., Ltd., Among the amalgamated firms are the Coventry Ordnance Works, Ltd., Dick, Kerr and Co., Ltd., of Preston, and the Phœnix Dynamo Manufacturing Co., Ltd., of Bradford.

All of these firms include the manufacture of aircraft among their productions, and it is gratifying to note that they intend to continue concentrating on aircraft work under the amalgamation.

The Coventry Ordnance Works, Ltd., did a considerable amount of experimental work before the war, and, in fact, had two machines entered for the British Military Trials of 1912. Furthermore, they fulfilled a large number of production contracts during the war.

Dick, Kerr and Co., Ltd., have been engaged on the production of flying-boats of the largest types, and are at present building a machine much larger than any yet produced

The work of the Phœnix Dynamo Manufacturing Co., Ltd., is very widely known. They have built flying-boats to official designs, and have also designed their own machines, as, for example, the Phœnix "Cork." In this connection it is interesting to note that all the flying-boats tested and flown from the Marine Acceptance Depot at Brough, which is purely a Government establishment, were built by the Phœnix Company.

It is of interest to note that Mr. W. O. Manning, one of the pioneers of British aviation, who was building aeroplanes in 1908, is the Phœnix Co.'s chief technical official.

The Aircraft work of the English Electric Co. will be done at the Phœnix Works at Bradford. This has several advantages. It combines the efficiency of centralised production with the wide and varied experience of the three firms. The English Electric Co. will, therefore, be in a position to cater adequately for post-war aircraft requirements of all kinds.

The World's First Air Traffic Manager.

The announcement made in certain sections of the Press that the first Aerial Traffic Manager in the world has just been appointed is hardly correct, The Aeroplane is informed.

Mr. Holt Thomas's Company, Aircraft Transport and Travel, has had the services of Mr. A. S. Baxendale, late Manager of the Pacific Cable Board, etc., at its disposal for some time, and for a period of several months Mr. Baxendale has been investigating details and making arrangements generally.

The confidence of Mr. Holt Thomas and General Sir W. S. Brancker, who has lately joined him, is placed chiefly in the carriage of mails by air rather than passengers, although passengers will undoubtedly be carried by the Mail Services.

It is to this point that Mr. Baxendale has specially devoted himself. His experience is a long one. He began his career with the Eastern and Eastern Extension Telegraph Companies, and was responsible later for the organisation of the Postal and Telegraph Departments of the Federated Malay States.

Mr. Baxendale is, therefore, well equipped for examining into Aerial Mail Services—apart from technical flying matters.

A Blackburn in London.

A Blackburn monoplane of an original design will be on view at Harrod's on and from Monday next. It is a side by side two-seater, with a two-cylinder 46-h.p. Gnat A. B. C. engine. The machine is intended for pleasure-flying by people who wish to run their own machines and cannot afford the luxury of big machines of the types used for war flying. The makers claim that the machine has a factor of safety to 7 to 1 with full load, and intend to sell it for £450.

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T 38.

AERONAUTICS AND THE LAW.

COMMON CARRIAGE BY AIR.

By "The Lincoln Imp."

There are carriers and carriers, but a *common* carrier is subjected to peculiar liabilities originating in the custom of the realm and incorporated in common law. They are onerous liabilities.

A carrier of goods may be a common carrier, or may not. If he undertakes to carry for anyone who asks him, he is a common carrier. If he limits his customers to particular persons he is not.

The practical question then arises:—If for hire or reward you undertake to carry goods *by air* for anyone who asks you, are you a common carrier, and therefore, subject to peculiar and onerous liabilities?

Being Robbed by Arrangement.

There is no use turning to the Statute-book to see if the definition of a common carrier is wide enough to include carriage by air. No Statute imposed the liabilities or made a carrier "common." The common carrier, like Topsy, was not made but "growed." He is a child of the common law, and his special liabilities as insurer of the goods he carries may have been laid on his neck because of a little habit he had of being robbed by arrangement and sharing the spoils with the bold highwaymen.

At first blush, then, it would seem absurdly anachronistic to speak of a common carrier by air. Carriage by air, as we know, is a thing of to-day and to-morrow, whereas the ancient common law "in the solemnity of our legal phrase," as Blackstone puts it, is that which has been customary time out of mind, or time whereof the memory of man runneth not to the contrary. How can carriers by air be said to have been subject to any customary liabilities time out of mind?

Laws "Mixed as our Language."

The answer is clearly put by Blackstone:—

"Our antient lawyers, and particularly Fortescue," says he, "insist, with abundance of warmth, that these customs are as old as the primitive Britons; and continued down thro' the several mutations of governments and inhabitants to the present time unchanged and unadulterated. This may be the case as to some: but in general, as Mr. Selden, in his notes, observes, this assertion must be understood with many grains of allowance: and ought only to signify, as the truth seems to be, that there never was any formal exchange of one system of laws for another: tho', doubtless, by the intermixture of adventitious nations, the Romans, the Picts, the Saxons, the Danes and the Normans, they must have insensibly introduced and incorporated many of their own customs with those that were before established: thereby in all probability improving the texture and wisdom of the whole by the accumulated wisdom of divers countries. Our laws, saith Lord Bacon, are mixed as our language: and as our language is so much the richer, the laws are the more complete."

In other words, the common law which is as wide as the realm and in force even in America is also as elastic as the language and the customs of the people, and when new methods of carriage come into existence applies to them as it does to the old.

This is no place for a history of "methods of transport," fascinating subject as it would be, but in tracing the various vehicles used by all types of carriers from Druidical, or even palæolithic times, right down to the present day, it may be doubted if the jump from motors to aeroplanes is greater than other changes which have occurred in the course of the centuries since every man humped his own pack. Yet the liability of the common carrier has endured through them all.

The Railway Analogy.

Take the analogy of railways:—

To Mr. Weller, Senr., railways no doubt were anathema. Noisy and conscienceless competitors. But to the common law of his day the railway company was nothing but another common carrier with the same rights and liabilities as the willing Mr. Barkis or Mr. Cripps the Carrier. Railways must take the law as they found it, and could claim no exemption based on their novel form of traction. The owners of "The Rocket" were not limited in their liability to the exercise of reasonable care, but, with one or two exceptions, had the liability of insurers in respect of the goods they carried.

A carrier may be "common," carry he by land or by sea, by road, rail, river or canal, so why not by air? Clearly one who plies a universal trade of carriage by air is a common carrier at law apart from statutory provision. But here comes the snag—he has not the same statutory protection that other common carriers have.

The liability of common carriers, though not created by statute, has been materially modified by statutory provision. In particular by the Carriers' Act, 1830. This Act extends to all public conveyances by land, including therein railways, which, being as yet novelties, were not expressly mentioned in the Act. The preamble remarks that it is become the common practice of bankers and others to send by the public conveyances "packages containing money, bills, notes, jewellery, and other articles of great value in small compass; and that the result is that common carriers have become exposed to great and unavoidable risk, and have sustained heavy losses."

Articles of Great Value.

We may here interpose that you could not want a neater definition of merchandise which will be stowed in the fuselage of aircraft flying as carriers than "articles of great value in small compass." So that without the protection of the Act common carriers by air will become exposed to great and unavoidable risk and sustain heavy losses. The protection which the Act gives is freedom from liability as a common carrier of such goods exceeding £10 in value unless a declaration of value is made, and an increased charge is paid. But, unfortunately, for the aerial [illegible] Act applies in terms to carriers by land only, and, therefore, affords him no protection.

There is just one qualification which it is necessary to make. Possibly it might be argued that a common carrier by air is a common carrier by land since he does carry the goods by land in taxying, taking off and landing. "The Imp" thinks this argument unsound, but there is some support in the decided cases for the suggestion that an accident to the goods in taxying, taking off on landing would be within the protection of the statute. For it was held in Le Conteur v. L. and S.W. Ry. (L.R. 1 Q.B., 54) that when a carrier makes one contract for carriage partly by land and partly by water, the contract is divisible so as to bring that part which applies to carriage by land within the Carriers' Act, 1830.

The moral of the whole matter is that the point should not be overlooked when legislation is toward (as it has been overlooked up to the present), but the liability of common carriers by air should be carefully defined and limited by Act of Parliament.

Current Cases and Comments.

[The parties in these cases are given imaginary Christian names for clarity of thought and convenience of preference. Thus, a Plaintiff will usually be called Peter, and David will be the name of a Defendant.]

Musgrove v. Pandelis (1919) 1 K.B. 314 and (1919) W.N. 79

Peter lives over a garage kept by David, whose unskilled chauffeur Charles starts up a car in the garage. The carburetter catches fire. It does not occur to Charles to cut off the petrol. Peter's rooms overhead are burnt. Is David liable to Peter?

Once upon a time the common law presumption was that a fire which could not be traced to anybody else was kindled by the householder on whose premises it was started. In the case of accidental fires this presumption was removed by s. 86 of the Fires Prevention (Metropolis) Act, 1774, which enacts, "No action shall be maintained against any person in whose house or other building any fire shall accidentally begin."

David says that the fire in the carburetter was not started wilfully, and could not have been prevented by the exercise of care. It therefore began accidentally, and no action lies. But Peter replies that the fire that burnt down his rooms began through Charles's negligence in not cutting off the petrol. The Court agrees with Peter, and adds that, if a man brings on his premises a dangerous thing which is liable to cause fire, such as a motor-car with petrol in it, the carburetter of which is not unlikely to get on fire when the engine is started, and a fire results, though without any negligence on his part, he must be held liable, the statute notwithstanding, for the rule is that he must keep such a thing under control at his peril. See Rylands v. Fletcher (1868) L.R. 3 H.L. 330 and the article "Trespassers, Beware!" The analogy of aircraft and hangars is obvious.

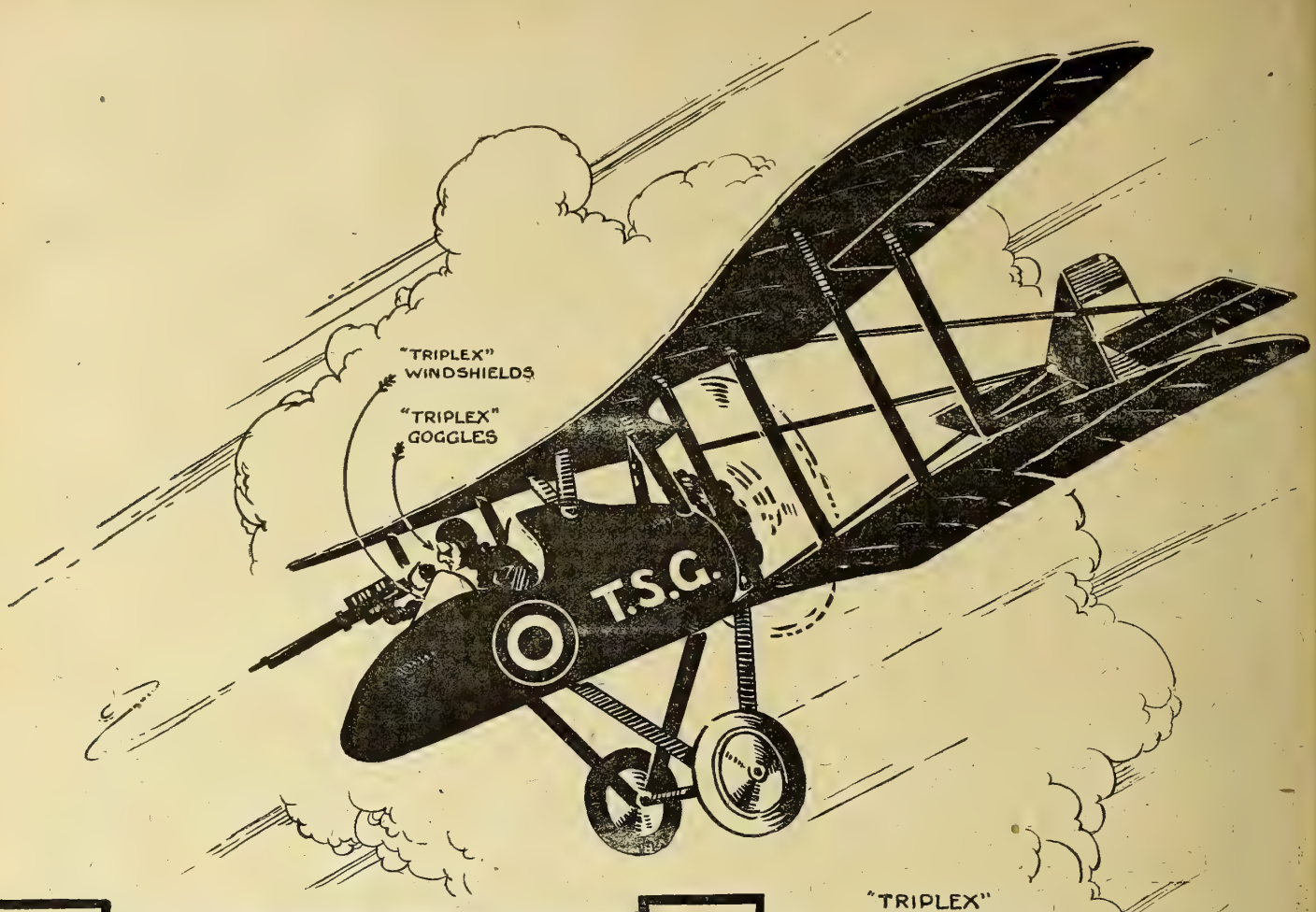
Trinder v. G. W. R. ("Times," March 1st).

David's motor-'bus carries passengers along a country road overhung by trees. David lops the branches by consent of the owners to provide a free passage, but Peter, a passenger, is hit by a branch.

Peter says it stands to reason that David was negligent (*Res ipsa loquitur*). His driver should have avoided the branches.

David answers, "Not so. Peter must prove that my driver knew or ought to have known that there was serious danger of colliding with the branch and did not take reasonable care to avoid a collision." Peter, failing to prove these points, failed in his action.

By analogy a passenger in an aerial 'bus will have to prove more than that the 'bus hit a tree in landing, whereby he was injured. He must prove that the pilot knew or ought to have known that there was serious danger of colliding with the tree and did not take reasonable care to avoid a collision. This will be difficult to prove if the tree loomed up out of a fog. But it seems to be seen if the analogy will in fact be applied when the case arises for decision.—The Lincoln Imp.

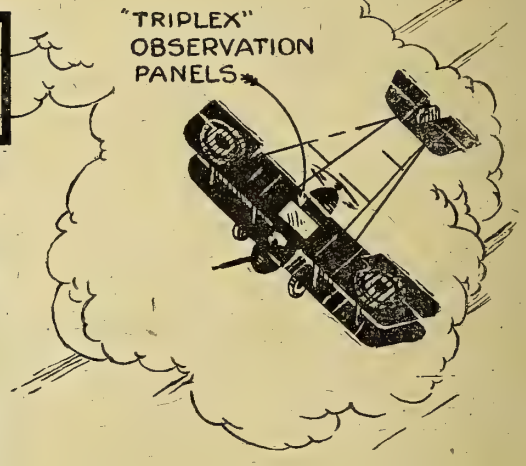


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LIGHTER-THAN-AIR CRAFT.

A lecture on "Lighter-than-Air Craft" was given by Lieut.-Col. T. R. Cave-Browne-Cave, C.M.G., R.A.F., at a meeting of the Royal Aeronautical Society held in the Theatre of the Royal Society of Arts, John Street, Adelphi, London, on Wednesday, March 26th. Brigadier-General E. M. Maitland, D.S.O., R.A.F., presided.

From the lecture the following sections have been selected :—

Since I was asked in September last to read this lecture conditions have so changed that it has been necessary totally to re-cast and re-write what I then proposed to say. A large amount of information as to the actual achievements of airships has been published and also perhaps an even larger amount of speculation as to their future possibilities. What will, therefore, probably be of interest to a technical society such as this is a general outline of the ships as they exist at the stage to which they have been developed during the war.

The extent of the detail which I have been allowed to include in the lecture, although such matters have not been published before, leaves the Society with a very deep debt of gratitude to the Admiralty.

Distribution of Weight and Rigidity of Envelope.

The problem of suspending a weight from the lightest possible gas container is one which involves careful consideration of the ordinary principles used in calculating the distribution of loads and bending movement in ships and similar structures. The rigidity of the gas container may be provided in various ways. The simplest is to make it solely of a perfectly flexible fabric with no rigid stiffening whatever. Such an envelope is referred to as a non-rigid.

An alternative method of maintaining the shape of the gas container is to form the hull of the ship as a rigid structure of sufficient stiffness to maintain its own shape independent of any internal gas pressure.

Intermediate between these two main types there is one referred to as the semi-rigid. This class is provided with a rigid keel of sufficient strength to maintain its rigidity under the action of the various loads of the ship. The keel is carried by the envelope which contains the gas, but unlike the rigid the envelope is dependent for its shape upon the excess of internal pressure.

There is yet another type, one which is extensively used in Italian airship construction, in which the keel is not capable of taking a bending movement but is capable of taking longitudinal compression when held straight by the main envelope.

Of these various types of construction it may generally be said that for small ships the non-rigid arrangement is entirely satisfactory. For very large ships it becomes necessary to divide the gas chamber into a number of compartments. For this reason a rigid structure, which calls for no excess of internal pressure, will almost certainly have to be adopted for airships of the largest class.

The Semi-Rigid Type.

The semi-rigid is a type which has been practically undeveloped in this country. The Italians, however, have done a great deal of work on ships of this description, but it appears very doubtful whether, all other things being equal, there is much to be gained by the addition of a rigid keel to a non-rigid envelope. The keel of a semi-rigid ship has to be sufficiently strong to take the loads of the airship without the assistance of the envelope, because in the event of pressure in the envelope falling the keel would collapse, and the ship could not be restored to her correct shape by making good the pressure in the envelope

The general consideration of the rigidity of an envelope is one of very considerable complexity, and may be most conveniently tackled by arranging a model experiment in which the lift of the gas and the distribution of load is reproduced in a small envelope filled with water and inverted, the weight of the water acting downwards corresponding with the lift of the gas acting upwards in the full-size ship.

The load is taken by a number of wires arranged similarly to the riggings and passing over pulleys which support the equivalent of the load of the airship. The weight of the planes and other envelope fittings can similarly be represented. Pressure in the envelope is maintained through a tube connected to a water reservoir, the level of which can be varied.

Balloons Filled with Water.

The method of carrying out these experiments is a very simple one. The various loads are distributed along the envelope and the pressure is reduced until the fabric begins to pucker at some point. The value of this pressure is noted.

The distribution of load may then be varied in order to reduce the compression in the fabric at this point.

It is desirable to arrange the water model so that the whole system can be inclined up or down at one end in order to reproduce the conditions of the airship pitching. Provision against pitching occasions greater difficulty than the mere satisfactory suspension of the load when the ship is on an even keel. It is not possible to give any simple rules for arranging the rigging of the non-rigid ship, but one system which has been found generally satisfactory is to lead wires from points distributed along the envelope at intervals suitably proportioned to the lift of gas at each section. This provides for the suspension of the load on an even keel.

Independent wires should then be provided to prevent "fore and aft" motion of the airship car when the ship becomes inclined. It will easily be seen that the tendency to deform the envelope very materially reduces as the distance of the load from the envelope is increased and also if the load can be divided into one or more separate units.

The point at which the riggings are attached to a circular envelope is necessarily some distance below the axis. If it is possible to raise the level of these points of suspension to a higher point on the envelope, the height of the ship can be correspondingly reduced.

Further, the direct longitudinal compression due to the riggings is applied at a point considerably above the axis of the ship, i.e., at a point where the difference of pressure and therefore the longitudinal tension of the ship is greater than at the lower levels. This principle was satisfactorily achieved in the system invented by a Spaniard, Signor Torres Quevedo, and subsequently developed by the Astra Company, of Paris.

The Trilobe Cross Section.

The envelope is made of trilobe cross section and the riggings are led into the envelope at the bottom ridge and parted into two fans of strings secured to points along the top ridges.

To constrain the envelope to this trilobe shape, curtains of ordinary unproofed fabric are laced to the ridges. These do not, however, divide the ship into separate gas compartments.

The system adopted by the Parseval Company is to provide a strong rigging band as a kind of girdle on the lower part of the envelope. To this the car is attached. The shape of the envelope is maintained by reinforcing bands of webbing stuck to the surface of the envelope along trajectories, the position of which is determined by experiment.

Both these systems and also the semi-rigid design involve considerable complexities and are only rendered necessary in order to suspend a concentrated weight as close as possible to the envelope. If, however, it is not necessary that the weight should be concentrated and it is possible to distribute the majority of the weight in a number of separate cars or along the envelope itself, these systems and the complexities they involve can be abandoned.

The Structure of Rigid Airships.

The framework of a rigid airship consists of a number of rigid longitudinals connected by a number of transverse members, which form rings at intervals along the length of the ship. Each of these rings is braced in its own plane by a number of radial wires. The gas bags are placed in the compartments between these bulkheads of radial wires. The outer cover is stretched over the outside of the framework.

In order to transmit the upward pressure of the gas bags to the framework, nets are provided and attached to the inner edges of the various rigid members of the framework.

The weights carried by the ship are mostly placed in a strong keel, which runs along the bottom of the ship. The function of the keel is primarily to distribute the load of these weights to the main transverse sections of the ship. The cars which are suspended below the hull of the ship are also attached at points which bring the load on to the main transverse bulkheads. Special lift wires are arranged, in addition to the radial wires, to transmit the load of the keel to the upper part of the framework.

If, for any reason, one gas bag becomes much less inflated than those on either side of it, there will be considerable pressure tending to bulge the radial wires towards the empty bag. Tension in these wires may produce very serious compressive strain in the transverse members; and in order to assist in resisting the bulging action an axial wire is often led along the axis of the ship and secured to the wires of each bulkhead.

Sub-Division of Gas Space in Large Airships.

The necessity for dividing the gas space into a number of separate compartments is not primarily due to the possibility of losing the whole of the gas from one compartment by leakage from external damage to the fabric. As long as an airship remains on an even keel the pressure at the two ends of the ship will be approximately the same, but if the airship be now placed vertically head upwards the excess of the internal pressure at the top of the ship over that in the air outside will be considerably greater than that excess at the bottom of the ship. This is due to the difference in weight of a column of air and a column of hydrogen equal to the length of the ship.

The same variation of internal pressure will obtain in a lesser degree when an airship in ordinary flight has one end raised considerably above the other. It is convenient to remember that this variation of the difference of pressure amounts to 1 mm. for each metre difference in level. In the case of a non-rigid, which has to maintain a minimum difference of pressure between the inside and outside of the fabric of 15 mm., the effect of having the bow of the ship raised considerably above the stern will produce a large increase of pressure difference in the bow and consequently an increase in tension of the fabric at that point.

In a short ship this increase of pressure due to inclination of the ship is small, but in ships of great length the increase would be a serious one. For this reason it becomes necessary to divide a long ship into a number of compartments, but this is only effective if the bulkheads, which isolate one compartment from another, are capable of maintaining difference of pressure between their two sides.

Bow Stiffening for High Speed.

The pressure which it is necessary to maintain in a non-rigid envelope depends upon two things:—Firstly, the pressure which is necessary to prevent the envelope from collapsing under the influence of the rigging tension; and secondly, the pressure which is necessary to prevent the bow of the envelope being blown in, due to the excess of external pressure caused round the bow of the envelope by the motion of the airship forward.

This stiffening of the bow becomes a matter of greater importance as the speeds increase. There is always the possibility in "bumpy" weather, when the height of the ship varies rapidly, that the pilot may let his pressure fall momentarily too low. The bow of the envelope then blows in and forms a curious concave cup shape, in which it remains till the speed is reduced or the pressure is raised. No damage will probably be done so long as the reinforcement of the bow is not of such a nature that it will break and puncture the envelope. It may very probably be necessary to provide a separate small compartment at the bow kept at a higher pressure than that of the rest of the envelope.

This would allow high speeds to be attained without a corresponding increase in envelope tension.

Planes.

In order to stabilise the motion of the ship it is necessary to provide the envelope at the after end with planes. These are provided at their after edges with rudders capable of steering the ship either vertically or horizontally. The construction of these planes somewhat resembles that of the wing of an aeroplane. Fabric is stretched over a framework and is doped in order to render it taut. The surfaces are, however, practically flat and the loading is considerably less than that provided for in an aeroplane.

The planes are supported from the surface of the envelope by guy wires attached to suitable points on the envelope, and are prevented from pushing their inner edges into the envelope by skids or wooden bearers. The maximum intensity of air pressure occurs towards the forward edge of the planes, and it is therefore desirable that the leading edge should be short.

The planes of a rigid ship are attached rigidly to the hull framework. In the latest German ship these planes are made some six feet thick at the root and faired off into the rudder and tapered to the outer edge. They are, therefore, almost totally self-supporting and require no guy wires.

Fabrics.

The fabrics used in airships are of three main types:—

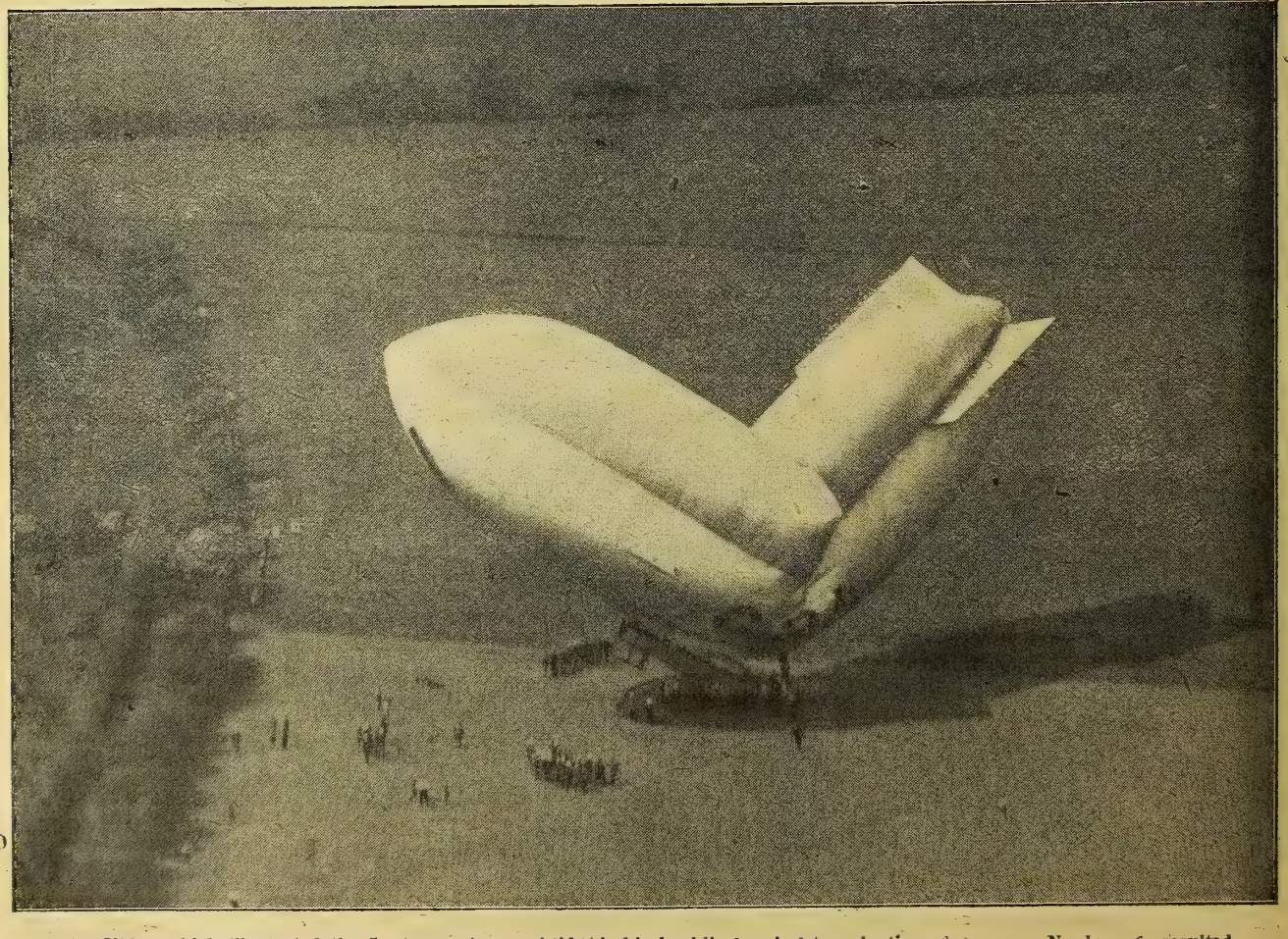
1. Gas-tight fabric, such as that used for gas bags of a rigid ship.
2. Outer cover fabric, of which the principal function is to form a rain and weatherproof outer cover to the ship, both as a fairing to reduce her resistance and to protect her internal bags from variations of temperature, due to radiant heat, and from deterioration caused by sunlight.
3. The envelope of a non-rigid ship requires a combination of both properties.

Gas-tight Fabric.—The lightest method of rendering a fabric gas-tight is the application of goldbeater's skin. This material is a membrane which, although water will easily pass through it, has a very pronounced ability to resist the passage of hydrogen. The skins are obtained from the messentry of a cow, each animal contributing a piece which averages about 8 in. by 20 in. These skins are stuck to the fabric by means of glue or rubber solution, and are varnished to protect them against moisture and damage.

The gas-tightness of a non-rigid envelope is obtained by rubber proofing only. The same fabric has to fill the functions of outer cover, as stated above, and also has to withstand considerable stress produced by the internal pressure of the gas, and by the tension of the riggings attached to it.

In order to obtain the necessary strength—and more particularly strength to resist tearing—a number of plys of cotton fabric are stuck together with layers of rubber solution between them. Fabric for small size ships can be given the required strength by two plys of cotton, the inner one being diagonal. Stronger fabric is usually made of three plys, the middle of the three being diagonal. The diagonal ply is formed by cutting strips of fabric and sticking them to the other ply so that their threads run at 45 deg. to the threads of the main ply, and to the length of the built-up strip of fabric. These diagonal threads have a very pronounced effect in distributing a stress evenly over threads of the main ply.

The rubber is made into a thick solution and spread by a kind of scraping knife on to the layers of fabric before they are stuck together.



One of the Slides which illustrated the Lecture. A non-rigid Airship buckling owing to reduction of pressure. No damage resulted.

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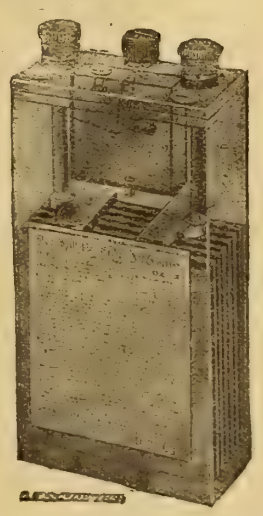
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The rubber on the outer surface usually contains aluminium powder, as this forms a surface that reflects much of the radiant heat, thus preventing rapid temperature change, and is also opaque to the light which would injure the fabric inside. It is usually found that the outer layer of proofing has perished so badly as to be easily noticeable before the strength of the fabric has become appreciably reduced by weathering.

Outer Cover Fabric.—Outer cover fabrics generally resemble the fabric used on aeroplane wings. It is necessary that after the outer cover is placed on the ship a certain degree of contraction should take place in order that the cover may be well tensioned to resist any tendency to flap.

Engine Requirements.

Our very extensive experience of airship flying, extending over nearly 3,000,000 miles during the war, has shown that by far the most fruitful cause of failure is connected with the engines. This is the case although a large proportion of the small difficulties which occur in aero engines are of a type which can be made good in an airship, but not in an aeroplane. The length of time for which an airship's engine is running continuously is very considerably greater than that of an aeroplane. The requirements to be expected from a good airship engine therefore differ from those of an aeroplane engine in several important respects:—

1. The engine must be suitable for running for very long periods without breakdown.
2. All gear on the engine must be arranged so that small defects can be made good in the air, the engine, if necessary, being stopped for a short period.
3. The fuel and oil economy, more particularly at reduced powers, are of far greater importance to an airship than is the initial weight of the machinery.

Useful Carrying Capacity.

The carrying capacity of an airship is perhaps the feature of greatest importance both from a Service and commercial point of view. The weight which is available for bombs, passengers, merchandise, or fuel, depends upon the volume of gas contained by the ship and upon the weight of the ship's structure and all necessary parts. The volume of gas will increase as the cube of the linear dimensions of the ship, and it will be readily understood that the weight of the ship will not increase as such a high power. This indicates that as the size of the ship increases the proportion of her gross lift which is available for lifting capacity will also increase.

The non-rigid ship having no hull structure will for the same size have a considerably greater proportion of available lift. It may be assumed that it is at the present time practicable to design both a rigid ship and a non-rigid ship which will be able to carry as useful load a weight equal to that of the ship, i.e., 50 per cent. of the gross lift of the ship will be available for useful purposes. The size of a non-rigid which will give this ratio is approximately 500,000 cubic feet, and for a rigid approximately two million cubic feet.

For many commercial purposes there is much to be gained by carrying a given weight in several small ships rather than in one large one. For naval purposes, when the airship is used as a cruiser, her function is to carry observers and a W.T. installation for a certain distance at a certain speed, and a ship that will do this with a small crew is as effective as one with a big one. To this it must be added that the small ship can get away on a large proportion of the days when the larger ship would be weather-bound. The best figures which are available as regards the cost of our largest rigid and non-rigid indicate that some six of the non-rigids referred to above could be built for the same price as the equivalent rigid referred to.

An airship which is making a long passage extending over several days has to contend with difficulties due to changes of temperature.

The change of temperature, and more particularly the change in the amount of radiant heat by day and night, is often very great. Let us trace the history of a ship which leaves the ground in the early morning before sunrise.

As the day advances she warms up and her lift will probably increase, due to superheat and the petrol she has burnt. Unless she is prepared to keep herself down by using her elevators and flying nose down, she must rise and lose gas. Later in the day, when the superheat disappears, the ship may become seriously heavy due to the amount of gas she has lost. It is important, therefore, to reduce the gas lost, and this can best be done by avoiding the necessity of allowing the ship to go to a considerable height. For this it is necessary to take weight into the ship. This can be done by picking up water from the sea or by condensing the steam formed in the engine exhaust.

The first method is only possible over the sea and by coming down to a low height. It even then presents considerable difficulty. There is, however, the advantage that a large weight of water can be picked up quickly when required. The weight of water that can be condensed from the exhaust is theoretically more than 20 per cent. in excess of the corresponding weight of fuel burnt, but it is found in practice that to collect more than about 80 per cent. of the petrol weight would necessitate very heavy condensers.

Types of Airships Developed During the War.

(A number of slides were projected on the screen to show the gradual development of the present classes of British airships from the beginning of 1915, when, as the lecturer stated, the interest in airships was revived by Lord Fisher's decision that they might be made to form an important defence against the submarine. The first "S.S." ship was constructed by suspending a "B.E" aeroplane, stripped of its wings and tail, under a suitable small envelope).

The trials of the first ship were made in less than 20 days from the time the instructions to proceed were received. The first flights were so satisfactory that the Admiralty gave instructions that the production of these ships was to proceed at once.

A few cars of the "pusher" type which generally resembled the nacelle of a Maurice Farman, were constructed by a private firm, but although they relieved the pilot of the propeller slipstream, they did not prove as satisfactory as the older "B.E." type.

It soon became necessary to construct a ship of larger size and capable of lifting a greater load and of longer endurance. An envelope of the "Astra" type was obtained from a ship which had been built before the war as a Belgian millionaire's air yacht. A suitable car to take four men was constructed and rigged below it. This, again, proved a satisfactory preliminary experiment and was the beginning of the "Coastal" type. The envelope had to be re-designed, but the modifications made to the car were comparatively small. This class of ship was modified in 1918 to the type known as "C*." which had again a better shaped envelope and slightly better crew accommodation in the car

The Zero Type of Car.

The requirements for the "S.S." ship altered somewhat, and it became desirable that the ship should be capable of landing on the water and also suitable for being towed from a seagoing ship. For this purpose the "Zero" type of car was designed and constructed at the Airship Patrol Station near Dover. No alteration of any importance was, however, made to the envelope.

A ship larger again than the "Coastal" was found to be required for extended cruising in the North Sea and for work with the Fleet, and the "N.S." ship was therefore designed. She marks a distinct departure from the earlier classes. Her machinery is in a unit quite separate from the main car, which latter only carries the crew and navigating party.

Airship Handling.

In many cases wind screens have been erected in order to break the force of a wind across the mouth of the shed, but it appears very probable that the unsteady flow produced by these screens renders the ship more difficult to handle than she would be if no screens at all were provided. In order to decrease the disturbance caused by these screens certain of them have been constructed with large gaps left at intervals, and others have been covered with expanded metal instead of corrugated sheeting. Both these devices tend very greatly to reduce the eddies formed by the screens.

Present opinion appears to incline to a complete absence of wind screens and the provision of side rails and travellers to which the guys of the ship can be attached. The difficulty of taking ships into their sheds must not, however, be unduly magnified. Ships working at patrol stations have frequently been taken into their sheds in winds of 35 m.p.h. Winds such as this would, of course cause considerable risk to a rigid ship of the largest type.

Mooring.

Shortage of materials and the delays in shed construction rendered it necessary that in order to provide the great increase of airship bases required for the anti-submarine campaign, temporary arrangements should be made for mooring out the smaller airships. A very satisfactory means of arranging this was found by selecting suitable woods and cutting in them alleys leading up to small cleared spaces in which airships could be secured and protected from the wind by the trees. As long as trees of sufficient height were available it was found that this system proved most satisfactory, and many small mooring-out camps were established and satisfactorily protected their ships against winds of over 60 m.p.h.

Towing.

The first towing experiment was carried out in 1912 when one airship broke down and was towed home by another. The towing ship landed alongside the disabled one and a wire was taken from her to a suitable point on the latter. The ships then rose and no difficulty was experienced in the towing operations. This operation in itself has not been used since, but it offers attractive possibilities for conveying large weights of material at a comparatively slow speed when the airship tug may tow a number of air barges after her.

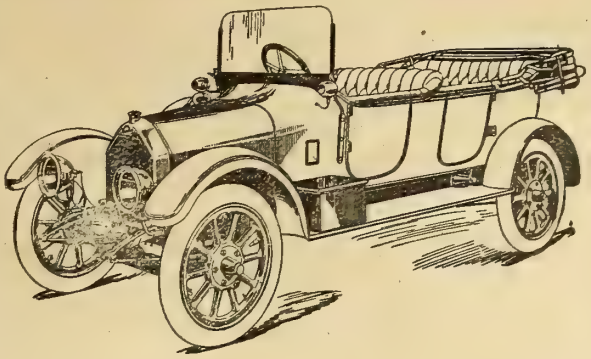
I have tried to crowd into one evening what really requires many very carefully prepared lectures to give a reasonably correct impression of the work which has been done even during the war. You must only, therefore, regard this lecture as a peep into airship engineering, a science which those who have experience of it realise to be at least as complex and involved, but also to have at least as great possibilities, as the corresponding aeroplane work.

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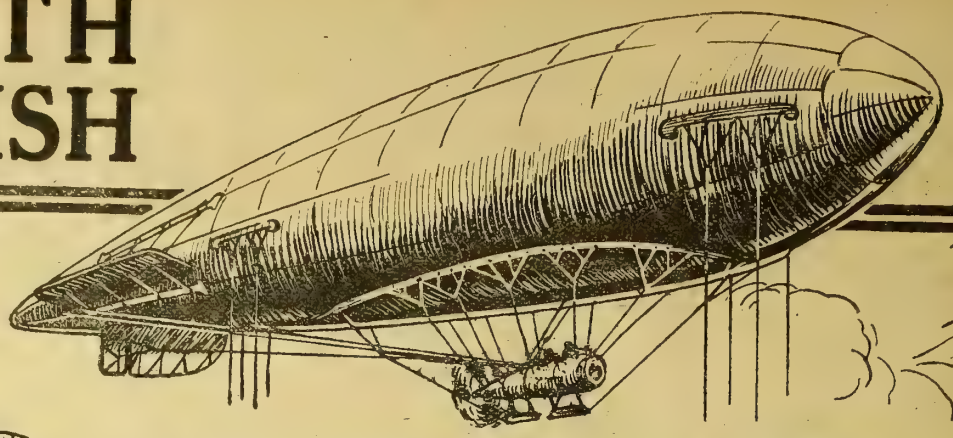
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AIR MINISTRY, MARCH 25TH

R.A.F.—The following temp. appointments are made at the Air Ministry:—Staff Officer, 1st Cl.—(P.)—Maj. F. V. H. Mackenzie, and to be actg. Lt.-Col. while so empld., from Nov. 1st, 1918, to Jan. 31st.

Staff Officer, 3rd Cl.—(P.)—Capt. W. T. Hill, from Nov. 1st, 1918, to Feb. 4th.

The following temp. appointment is made:—Staff Officer, 3rd Cl.—(P.)—Capt. S. F. Ingram, Feb. 24th (T.).—The date of appointment of Lt. A. Graham is July 10th, 1918, and not as stated on page 518 of the "Gazette," of Jan. 10th (substituted for notification in "Gazette," March 14th).

FLYING BRANCH.—Capt. H. D. Williams, M.C., to be actg. Maj. while empld. as Maj. (A.), Oct. 1st, 1918.

Lt. L. H. McRobert to be Lt.-(A.), from (O.), July 26th, 1918.

Sec. Lt. (Hon. Lt.) R. N. Haile to be Lt., Jan. 1st.

The following are granted temp. commns. as Sec. Lts. (O.):—J. Montgomery (Lt., R. Sc. Fus., T.F.), and to be hon. Lt. (substituted for notification in "Gazette," Dec. 17th, 1918); J. Topping (temp. Sec. Lt., R. Highrs.) (since missing, believed killed), Aug. 8th, 1918; A. C. Taylor (Lt., C. Ont. R., C.E.F.), Oct. 15th, 1918, and to be Hon. Lt.; R. H. Skinner (Sec. Lt., R.F.A., Spec. Res.), Nov. 16th, 1918 (substituted for notification in "Gazette," Dec. 10th, 1918).

The following Sec. Lts. (late Gen. Lists, R.F.C.), are confirmed in their rank as Sec. Lts. (O.):—F. Kemp, April 25th, 1918; W. E. Hall, Aug. 8th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. C. B. Clark (Lt., E. Ont. R.), Dec. 7th, 1918; Lt. A. C. Dean (Lt., C. Ont. R.), Jan. 2nd; Lt. J. D. Boyd (Lt., B. Col. R.), Jan. 6th; Sec. Lt. (Hon. Lt.) R. T. Smith (Lt., C. Ont. R.), Jan. 14th; Lt. H. E. Rosborough (Lt., C. For. C.), Feb. 3rd; Lt. F. C. Sawyer (Sec. Lt., York R.), Feb. 12th; Lt. R. V. Hamilton (Lt., R. War. R.), Lt. (Hon. Maj.) A. Clear (Maj., Manchester R.), Feb. 17th; Sec. Lt. (Hon. Lt. E. Cropper (Lt., Alb. R.), Feb. 24th; Lt. N. F. McKela (Lt., Alb. R.), Feb. 25th; Lt. (Hon. Capt.) G. B. Davies (Capt., Alb. R.), March 3rd; Lt. S. T. Wills (Lt., Northamp. R.), March 10th; Lt. E. Alder (Lt., Manitoba R.), March 12th; Lt. (actg. Capt.) H. Axford, D.F.C. (Lt., Manitoba R.), March 15th.

The following are transferred to unempld. list:—Lt. C. H. Sharp, Jan. 9th; Lt. G. Cornwall, Jan. 10th; Lt. (actg. Capt.) A. L. Harrow-Bunn, M.C., Jan. 11th; Sec. Lt. G. E. S. McLeod, Jan. 12th; Lt. M. L. James, Jan. 20th; Sec. Lt. D. B. Thomson, Jan. 22nd; Sec. Lt. R. L. Pallett, Jan. 23rd; Sec. Lt. (Hon. Lt.) J. S. Hunter (Lond. R., T.F.), Jan. 24th; Sec. Lt. E. J. E. Topham, Jan. 25th, Sec. Lt. A. Anderson, Sec. Lt. H. R. Tyler, Jan. 26th; Lt. C. H. Jenkinson, Jan. 27th; Sec. Lt. E. F. D. Gregory, Sec. Lt. A. J. Jones, Lt. B. A. Simson, Jan. 28th; Capt. (actg. Maj.) K. F. Bailmain, Sec. Lt. R. S. Farmer, Jan. 29th; Lt. (Hon. Capt.) R. H. Hawkins (S. Staffs. R.), Lt. J. J. Lister, Lt. A. B. Ollerenshaw, Sec. Lt. D. Oxley, Jan. 31st; Sec. Lt. J. Clark, Lt. S. H. B. Emms, Lt. J. E. S. Jones (North'n R.), Sec Lt. R. Miller, Feb. 1st; Lt. J. Barker, Feb. 2nd; Lt. J. Bennett, M.C., Lt. H. K. Budgen, Lt. F. Fowler, Feb. 3rd; Sec. Lt. A. V. W. Church, Lt. D. MacTavish (Cam. Highrs., T.F.), Lt. J. McL. Pearson (Sco. Rif., T.F.), Feb. 4th; Sec. Lt. H. C. Charnley, Lt. S. L. Hooper (B. West. Ind. R.), Lt. R. V. Jameson, Feb. 5th; Sec. Lt. P. H. Fowler, Sec. Lt. (Hon. Lt.) W. B. Ives, Capt. E. L. Pralle, A.F.C., Sec. Lt. J. G. Webster, Feb. 6th; Lt. G. S. Jones-Evans, D.F.C., Sec. Lt. A. W. Glover, Lt. A. H. Phillips, M.C. (Ox. and Bucks. L.I.), Feb. 7th; Sec. Lt. J. K. McGregor, Lt. R. G. B. Nixon, Sec. Lt. F. C. Randall, Sec. Lt. J. L. Tait, Sec. Lt. C. E. Trippe, Feb. 10th; Sec. Lt. C. E. Goddard, Lt. (actg. Capt.) W. D. Patrick, Lt. W. J. Pearson, Feb. 11th; Lt. T. Ridd, Lt. H. L. Walter, Feb. 12th; Sec Lt. G. H. Ellingham, Capt. G. W. Gathergood, Sec. Lt. R. E. E. Hassell, Feb. 13th; Lt. M. E. Draper, Sec. Lt. H. T. Ebbutt, Sec. Lt. P. J. Gernsbacher, Lt. N. R. Harden, D.F.C., Lt. H. R. Moore, Lt. H. G. Wildbore, Feb. 14th; Lt. E. C. Davies, M.C., Sec. Lt. A. MacInnes, Lt. W. A. Windsor, Feb. 15th; Sec Lt. P. K. Whitehead, Feb. 16th; Sec. Lt. L. E. Jones, Feb. 17th; Lt. A. L. Davies, Lt. M. Lewis, Feb. 18th; Lt. C. F. G. Doran, Lt. G. S. French (Cam. R.), Lt. W. B. Higgins, Sec. Lt. J. W. Longland, Lt. A. E. Watkins, Feb. 19th; Sec. Lt. N. T. Brown, Lt. J. F. Downing, Sec. Lt. A. W. Hardwick, Sec. Lt. J. W. Hawley (York L.I., T.F.), Sec Lt. L. H. Nesbitt, Sec. Lt. C. R. Pickering, Feb. 20th; Capt. A. Adamson, Lt. D. R. Davies, Sec. Lt. T. J. Egan (Mun. Fus.), Lt. P. McAllen, Sec. Lt. R. K. MacKenzie, Lt. R. T. Williams, Feb. 21st; Sec. Lt. P. K. Homer, Sec. Lt. R. E. Wimbush, Feb. 22nd; Sec. Lt. G. E. Moore, M.C., Sec. Lt. L. C. Welch, Feb. 23rd; Sec. Lt. K. R. Goodacre, Capt. W. E. Grosset (High. Cyc. B., T.F.), Lt. A. C. Pepper, Feb. 24th; Sec Lt. D. Boe, Lt. P. H. Clarke (R.G.A., Spec. Res.), Lt. H. W. Frith, Sec. Lt. G. A. Harris, Sec. Lt. C. G. Nettleton, Sec. Lt. G. B. Pike, Feb. 25th, Sec. Lt. L. C. Baker, Sec. Lt. C. V. Carr (W. Rid. R., T.F.), Sec. Lt. W. R. T. Chamberlain, Sec. Lt. H. Lancaster (N. Lancs. R., T.F.), Lt. A. MacDonald, Sec. Lt. J. G. B. McMillan, Sec. Lt. F. W. Paget, Feb. 26th; Lt. H. C. Fulcher (R.E., T.F.), Lt. H. B. Hartland, Sec. Lt. A. Tytler, Lt. A. C. Tremellen, Feb. 27th; Sec. Lt. H. S. Basford, Sec. Lt. F. L. Dawe, Sec. Lt. W. Y. Gothorp, Lt. B. H. McCormack, Sec. Lt. (Hon. Lt.) D. J. C. McCowan (Cam.), Sec. Lt. F. S. Sage, Feb. 28th; Lt. (actg. Capt.) P. Grosset (High. Cyc. B.), Lt. D. B. Hartle, Sec. Lt. A. F. Quittenden, Lt. A. F. Stokes, Capt. R. R. Thornley, D.S.C., March 1st; Sec. Lt. R. F. B. Caukwell, Sec. Lt. E. L. Goulder, Lt. R. Lang, Lt. S. B. Reece, Lt. C. G. Shaumer (Lond. R., T.F.), March 2nd; Sec. Lt. G. R. Hodgkison, Sec. Lt. J. Lumsden, March 3rd; Sec Lt. J. Arnold (L'pool R.), Lt. (actg. Capt.) W. R. Baldon, Sec. Lt. R. Bardsley, Sec. Lt. G. Highton, Lt. R. J. Paterson (Hants. R.), March 4th; Capt. A. E. Davis (Suff. R.), Lt. A. G. Fleming (Sco. Rif.), Lt. A. J. Orr-Ewing (Berks. Yeo.), Maj. F. W. Smith (R.A., T.F.), March 5th; Maj. L. S. 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Swann, Sec. Lt. J. H. C. Wake, March 13th; Sec. Lt. (Hon. Capt.) C. E. Bowden (D.C.L.I., T.F.), Lt. G. J. Gumyon, Sec. Lt. W. N. Scott, Sec. Lt. C. P. Sparkes, Lt. R. A. Vinceberg, Sec. Lt. J. W. Watkins, Capt. J. S. Webb, Sec. Lt. S. C. Worrall, March 14th; Capt. D. C. Bell, M.C. (Middx. R., T.F.), Sec. Lt. W. C. Benson, Sec. Lt. F. S. Gordon, Lt. D. W. MacIntosh (Cam. Highrs.), Lt. G. H. Palmer, Sec. Lt. J. S. K. Warren, March 15th; Capt. E. P. Hicks, Lt. D. F. Woodford, March 16th; Lt. J. T. C. Gray, March 18th.

The following Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank:—H. W. Arnott (contracted on active service), L. F. Francis, March 26th.

Lt. C. J. Wilson relinquishes his commn. on account of ill-health (caused by wounds), March 26th.

The following Sec. Lts. relinquish their commns on account of ill-health and are permitted to retain their rank:—H. Bridger, H. B. Hewat (contracted on active service), B. W. Weight, March 26th.

Sec. Lt. M. P. La Fleur relinquishes his commn. on account of ill-health, March 26th.

Sec. Lt. A. J. Bonella relinquishes his commn., being physically unsuited for the duties of Pilot or Observer, March 20th (substituted for notification in "Gazette," Nov. 5th, 1918).

The Christian names of Sec. Lt. George Egerton Stuart McLeod are as now described, and not as stated in the "Gazette," June 14th, 1918.

The surname of Sec. Lt. H. Oates is as now described, and not Gates as stated in "Gazette," Nov. 22nd, 1918.

The surname of Lt. N. C. Ashton is as now described and not as stated in the "Gazette," Dec. 31st, 1918.

The surname of Sec. Lt. A. E. Browne is as now described, and not as stated in the "Gazette," Jan. 14th.

The initials of Lt. (actg. Capt.) L. C. Pockney are as now described, and not as stated in the "Gazette," Feb. 28th.

The notification in the "Gazette," Feb. 14th, concerning Lt. R. W. Jackson is cancelled.

ADMINISTRATIVE BRANCH.—Capt. H. O'N. de H. Segrave to be Capt. from (S.O.), Dec. 15th, 1918.

Lts. to be actg. Capts. whilst empld. as Capts.:—A. B. Monk, Dec. 30th, 1918; R. C. Vaughan, M.C., March 6th.

Lts. (A.) to be Lts.:—J. K. Line, Nov. 18th, 1918; C. G. Evans, Dec. 12th, 1918; L. Wigley, Dec. 20th, 1918; A. A. Powell, Jan. 6th; M. S. C. Gordon, Jan. 7th; W. H. Gibson, Jan. 17th; O. D. Hay, Jan. 25th; C. Parkinson, Jan. 27th; (Hon. Capt.) J. E. A. O'Dwyer, Jan. 30th; F. C. Rider, Feb. 3rd; O. Pearson, Feb. 10th; E. T. McC. Routledge, Feb. 11th, (Actg. Capt.) J. B. Tait, Feb. 19th, and relinquishes the actg. rank of Capt., E. F. Wright, March 6th.

Lts. (K.B.) to be Lts.:—A. G. Bullock, Oct. 25th, 1918; E. F. Jones, Nov. 29th, 1918; G. T. Dunstan, Dec. 11th, 1918; (Hon. Capt.) B. B. Bishop, Jan. 24th; (Hon. Capt.) N. R. Mossop, Feb. 6th; B. Thomas, Feb. 7th.

Lts. (O.) to be Lts.:—R. C. Jones, Nov. 25th, 1918; W. D. Jeans, Dec. 2nd, 1918; M. V. Stewart, Dec. 6th, 1918; E. C. Batchelor, M.C., Dec. 18th, 1918; R. W. Peat, Dec. 30th, 1918; S. F. Thompson, Jan. 7th; A. S. Hibbs, Jan. 30th.

Lt. T. S. Cowperthwaite to be Lt., from A.P. (T.), March 15th.

Sec. Lt. A. E. P. Smith to be Lt., April 2nd, 1918.

Sec. Lts. to be Sec. Lts., from (A.):—E. N. Allott, Dec. 6th, 1918; A. Brufton, Dec. 18th, 1918; F. D. Butcher, Dec. 30th, 1918; T. K. Bentley, Jan. 3rd; F. F. Anslow, Jan. 10th; H. P. Bell, Jan. 15th; (Hon. Lt.) L. A. W. Knight, Jan. 16th, and to be Hon. Lt.; A. L. Bloom, Feb. 7th; T. Fraser; (Hon. Capt.) A. P. Thompson, and to be Hon. Capt., Feb. 10th; A. A. S. Milne, Feb. 17th; E. J. Lainchbury, Feb. 19th; H. Townley, Feb. 22nd.

Sec. Lts. to be Sec. Lts., from (A. and S.):—(Hon. Lt.) R. J. V. Pulvertaft, Dec. 31st, 1918, and to be Hon. Lt.; G. J. Dickins, Jan. 8th; H. R. Cooke, Jan. 28th; J. G. Dugdale, Feb. 14th.

Sec. Lts. to be Sec. Lts., from (K.B.):—J. H. Gray, Jan. 3rd; F. M. Hawthorn, H. W. Goss, Jan. 15th; A. E. Hopkins, Jan. 31st.

Sec. Lts. to be Sec. Lts., from (O.):—W. H. Gardner, Nov. 21st, 1918; F. F. Crump, Dec. 3rd, 1918; F. Warham, Dec. 6th, 1918; W. G. Brown, Dec. 12th, 1918; Hon. Lt. W. T. Mitchell, Jan. 12th, and to be Hon. Lt.; F. Heath, Jan. 18th; T. Newey, H. S. Mullen, Jan. 21st; (Hon. Lt.) W. L. Kendrick, and to be Hon. Lt., S. Dennis, Jan. 27th; C. W. Newstead, Jan. 30th; A. Johnson, Jan. 31st; N. Butt, Feb. 3rd; L. J. Skinner, [illegible]; (Hon. Capt.) A. C. Talbot, Feb. 7th, and to be Hon. Capt.; H. V. Jeppe, Feb. 10th; E. C. Hayes, Feb. 11th; A. B. Bennett, Feb. 12th; G. C. Russell, Feb. 15th; L. F. Rowsell, W. Cowden, J. N. T. Spence, Feb. 17th; P. I. Holmes, Feb. 18th.

Sec. Lt. A. J. Somers to be Sec. Lt., from (T.), Feb. 24th.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts.:—J. Earle-Wilson, April 1st, 1918; H. Kaye, Aug. 31st, 1918.

The following relinquish their commns. on ceasing to be empld.:—Capt. E. V. Noel (Capt., Lond. R.), Feb. 13th; Sec. Lt. J. Miller (temp. Sec. Lt., D.L.I.), Feb. 21st.

The following are transferred to unempld. list:—Sec. Lt. E. J. Sayer, Jan. 9th; Sec. Lt. A. V. Branson, Feb. 4th; Lt. (actg. Capt.) G. S. D. Page, Feb. 5th; apt. A. G. [illegible] Fisher (Lond. R.); Sec. Lt. J. C. Paterson, Feb. 7th; Sec. Lt. A. Turnbull, Feb. 11th; Sec. Lt. J. Douglas, Sec. Lt. W. Druce, Sec. Lt. C. H. Huntly, Feb. 12th; Lt. F. R. Haggie,

Feb. 21st; Sec. Lt. A. Henderson, Feb. 22nd; Sec. Lt. L. Greatbach, Feb. 25th; Sec. Lt. R. F. Houston, Feb. 20th; Lt. A. W. Robinson (E. Surr. R.), Feb. 27th; Lt. H. N. Giles, Sec. Lt. F. L. Howard, Capt. A. P. A. Larking, Feb. 28th; Sec. Lt. H. B. Elbourne, Maj. W. C. Grant, Lt. H. W. Liversidge, March 1st; Sec. Lt. E. H. Blaxhill; Sec. Lt. F. A. Dinsdale, Sec. Lt. D. J. Evans, Lt. C. Green, Sec. Lt. C. G. Smith, March 2nd; Lt. (Hon. Capt.) (actg. Capt.) S. C. F. Bacon, Lt. K. L. Bulkley (Hants. R., T.F.), Capt. S. J. Smith, March 2nd; Lt. C. Guthrie, Lt. G. T. Learmond (Cav.), March 5th; Sec. Lt. P. F. Ellisdon, Lt. (actg. Capt.) P. C. Hollingsworth, M.C., Lt. A. J. Lucas, Sec. Lt. H. M. Lonsdale, March 6th; Sec. Lt. E. H. Ades, Sec. Lt. P. C. Holloway, March 7th; Capt. W. W. Lendon (Lond. R., T.F.), March 8th; Sec. Lt. R. P. H. Brown, Sec. Lt. M. V. Benham, Sec. Lt. C. R. Jones, Sec. Lt. A. H. Tilbury, March 11th; Lt. M. Besso (Man. R., T.F.), Sec. Lt. N. C. Raffin, Lt. R. S. Rudd, March 14th; Lt. W. G. Hurrell, D.F.C., Lt. J. B. Low (I.L.I.), March 16th.

Capt. J. F. Kerr relinquishes his commn. on account of ill-health caused by wounds, and is permitted to retain his rank, March 26th.

Capt. H. V. Rose is removed the Service, his Majesty having no further use of his services as an officer, March 26th.

The notification in "Gazette," Jan. 24th, concerning Sec. Lt. S. Stevens is cancelled.

The notification in "Gazette," Feb. 4th, concerning Lt. L. T. Lewis is cancelled.

The notification in "Gazette," Feb. 14th, concerning Lt. (Hon. Capt.) S. Snow, M.C., is cancelled.

Technical Branch.—Lt. H. R. Stewart to be Lt. (Grade A), from (O.), May 29th, 1918 (substituted for notification in "Gazette," Feb. 21st).

Lt. E. T. Molyneaux to be Lt. (Grade B), from A.), Jan. 14th.

R. P. Gosnell (Capt., H.A.C.) is granted a temp. commn. at Lt. (Grade A), seny. April 1st, 1918, and to be Hon. Capt., Aug. 5th, 1918.

Sec. Lts. to be Lts., without pay and allowances of that rank:—H. E. Tabor, March 1st; C. J. Polden, March 8th.

Sec. Lt. P. R. Williams to be Sec. Lt. (Grade A), from (Grade B), Feb. 21st.

Sec. Lt. H. F. Hickey to be Sec. Lt. (Grade B), from (A.D.), March 10th.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. A. Campbell (Lt., Suss. R., T.F.), Nov. 28th, 1918; Lt. (actg. Capt.) H. W. Brooks (Lt., York and Lanc. R.), Feb. 14th.

The following are transferred to unempld. list:—Sec. Lt. (actg. Lt.) E. W. M. Tomlinson, Jan. 17th; Sec. Lt. (Hon. Lt.) (actg. Lt.) E. G. Seth-Smith (E. Surr. R.), Feb. 2nd; Lt. A. Dobson, Feb. 4th; Lt. P. G. Edmonds, Capt. J. S. Reid, Feb. 8th; Sec. Lt. (Hon. Lt.) E. R. Parsons (R.G.A., T.F.), Feb. 14th; Lt. A. Henderson (R. Sco., T.F.), Lt. H. Smith, Feb. 19th; Sec. Lt. E. H. Harrison, Feb. 20th; Sec. Lt. (actg. Capt.) H. E. Haddon, Feb. 21st; Sec. Lt. (actg. Lt.) H. F. Wilkins, Lt. B. F. Wood, Feb. 23rd; Lt. C. L. Loyd (E. Kent R., T.F.), Sec. Lt. H. S. Wood, Feb. 25th; Capt. L. J. Jones (Lond. R., T.F.), Sec. Lt. F. Reynolds, Feb. 26th; Sec. Lt. (actg. Lt.) R. J. Tallyn, Feb. 27th; Sec. Lt. S. Calam, Sec. Lt. A. Haigh, Sec. Lt. H. Stuart, March 2nd; Sec. Lt. R. M. Balston, March 3rd; Sec. Lt. E. T. Fountain, Lt. (actg. Capt.) H. E. Hotchin, Lt. E. Tanner (Manch. R.), March 4th; Lt.-Col. T. B. Barrington, Sec. Lt. W. W. Fyfe, Lt. T. B. Glover, Lt. H. W. Wolverson, March 5th; Lt. C. M. Benjamin, Sec. Lt. J. A. Edge, Sec. Lt. W. H. P. Parker, March 7th; Sec. Lt. A. J. Kurn, Sec. Lt. R. U. Nash-Taylor, Capt. W. F. Prentice, M.B.E., Lt. P. S. Taylor, Sec. Lt. J. Wall, March 8th; Sec. Lt. J. A. Cundy, Lt. J. H. Loveridge, Sec. Lt. W. L. Pike, M.C., March 11th; Sec. Lt. E. G. P. Hopkins, Sec. Lt. J. A. Moore, Capt. T. O. C. Pease, Maj. J. O. Ruscoe, March 12th; Sec. Lt. C. G. Massey-Dawson, March 13th; Sec. Lt. (Hon. Lt.) R. D. Wakeham, March 14th; Sec. Lt. R. I. Croucher, March 15th; Capt. C. W. Alexander, March 17th; Lt.-Col. S. E. Smith, O.B.E. (Glouc. R.), March 18th.

Lt.-Col. H. B. Nutting relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, March 26th.

Lt. T. J. Stannage relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 26th.

Sec. Lt. J. P. Haworth relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 26th.

The Christian names of Lt. (actg. Capt.) Joseph Arthur Atkinson are now as described, and not John Abbott, as stated in "Gazette," Feb. 11th.

The initials of Sec. Lt. C. T. Parker are as now described, and not as stated in "Gazette," Feb. 25th

Medical Branch.—G. Dreyer (temp. Hon. Lt.-Col., R.A.M.C.) is granted a temp. commn. as Hon. Lt.-Col., Oct. 2nd, 1918, with seny. from April 1st, 1918.

The following are transferred to unempld. list:—Lt. P. M. Roberts, Feb. 13th; Capt. A. MacLennan (R.A.M.C., T.F.), Feb. 21st; Lt. L. C. W. Balls, Feb. 23rd; Lt. J. J. Savage, March 15th.

The notification in "Gazette," Feb. 24th, concerning Capt. L. G. Davies is cancelled

Physical Training Branch.—Lt. (actg. Capt.) L. E. Cording, M.C., retains the actg. rank of Capt. whilst empld. as Asst. Superintendent of Gymnasia, from (Ad.), Dec. 3rd, 1918.

Memoranda.—F. H. Bramwell is granted a temp. hon. commn. as Maj., April 1st, 1918.

Dattabraya Laxuman Patwardhan is granted a temp. hon. commn as Sec. Lt., March 15th.

The following Hon. Lts. relinquish their commns. on ceasing to be empld.:—Actg. Hon. Capt. F. Gay, C. J. Grierson, Feb. 16th.

Hon. Capt. (actg. Hon. Maj.) F. B. Halford relinquishes his commn. on ceasing to be empld., Feb. 24th.

The following are transferred to unempld. list, from (S.O.):—Capt. N. F. W. Rockey, Jan. 21st; Lt. H. S. Rogers, Feb. 2nd, Lt. (actg. Capt.) R. P. Lamb, Feb. 12th; Lt. H. S. Morris, (C. Gds., Spec. Res.), Feb. 22nd; Capt. (actg. Maj.) F. C. Buck, Lt. H. W. Hern, March 1st; Capt. C. G. Jones, March 4th; Sec. Lt. (actg. Lt.) R. C. J. Hervey, March 5th; Capt. W. A. C. Dicketts, March 7th; Capt. H. M. Ryland, March 11th; Lt. F. R. Richardson, March 15th; Lt. (actg. Capt.) P. J. Cayley, March 17th.

Capt. E. Page (Lt., Midd. R.) relinquishes his commn. on account of ill-health, and is permitted to retain his rank, March 26th.

War Office, March 27th

The names of the under mentioned have been brought to the notice of the Secretary of State for War for valuable services rendered in connection with the war, and, when applicable, an entry will be made in the records of service of officers and other ranks:—

Daniel, temp. Maj. R. M., R.G.A., now Maj. (actg. Col.) R.A.F.

Commonwealth of Australia.

Cooper, Capt. W. J., Aust. F.C.
Manwell, Capt. D. T. W., Aust. F.C.
Matthews, Capt. G. C., Aust. F.C.
Matthews, Lt. R. O. C., Aust. F.C.
Tooth, Capt. E. N., Aust. F.C.

Air Ministry, March 28th.

R.A.F.—The following temp. appointments are made:—Staff Officers, 3rd Cl.—And to be actg. Capts. whilst so empld.:—(P.).—Lt. S. F. Culver, Jan. 20th; (T.) Lt. B. D. Bellamy, March 18th.

Flying Branch.—Maj. J. S. Scott, M.C., A.F.C., to be actg. Lt.-Col. whilst empld. as Lt.-Col. (A.), Sept. 1st, 1918.

Capt. H. A. Westendarp to be Maj., April 1st, 1918, and to take prec. next below Maj. E. L. Miller (substituted for notification in "Gazette," Feb. 14th).

Capt. L. R. Andrews to be actg. Maj. whilst empld. as Maj. (A.), Nov. 1st, 1918.

Capts. to be graded for purposes of pay as Capts. whilst empld. as Capts. (A.):—F. J. Vincent, April 1st, 1918; S. T. Freeman, Aug. 28th, 1918.

Capt. H. D. Hyde to be graded for purposes of pay as Capt. whilst empld as Capt. (K.B.), Aug. 28th, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (A.):—E. L. Lister, May 1st, 1918; H. Wickett, D.F.C., Sept. 1st, 1918; K. G. Withers, Oct 1st, 1918; (Hon. Capt.) A. R. Fairbairn (C. Ont. R.), Oct. 21st 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (A. and S.):—C. Chrimes, D. F. Murray, D.F.C., Aug. 1st, 1918; R. St. H. Clarke, Aug. 28th, 1918.

Lts. to be actg. Capts. whilst empld. as Capts. (K.B.):—A. M. Ross, July 13th, 1918; (Hon. Capt.) J. P. Walters, Aug 28th, 1918.

Sec. Lt. J. Maclelland to be actg. Capt whilst empld. as Capt. (K.B.), July 13th, 1918.

Lt. O. R. Gayford, D.F.C., to be actg. Capt. whilst empld. as Capt. (O.), April 1st, 1918.

Lt. H. E. Haslehurst to be Lt. (A.), from (T.), Sept. 23rd, 1918 (substituted for notification in "Gazette," Oct. 4th, 1918).

Lt. T. W. Kirkpatrick to be Lt. (O.), from (Ad.), Sept. 5th, 1918.

Flt. Cadet 302208 G. A. Hooton is granted a temp. commn. as Sec. Lt. Obsr. Officer, Oct. 19th, 1918.

Lt. D. B. Cumming relinquishes his commn. on reversion I.A.R.O., Nov. 28th, 1918 (substituted for notification in "Gazette," Dec. 31st, 1918).

The following relinquish their commns. on ceasing to be empld.:—Lt. J. A. Anderson (Lt., B. Columb. R.), Feb. 20th; Lt. D. L. Burgess, M.C. (Lt., Sask. R.), Lt. (actg. Capt.) C. E. B. Corbould (Capt., W. Ont. R.), Lt. (Hon. Capt.) G. B. Davies (Capt., Alb. R.), Lt. (actg. Capt.) R. B. Sutherland (Capt., Can. Engrs.), March 3rd; Lt. (Hon. Capt.) H. A. Driscoll (Capt., Manitoba R.), March 5th; Lt. H. S. Whiteside (Capt., W. Ont. R.), March 20th.

The following are transferred to unempld. list:—Sec. Lt. W. H. Abraham, Jan. 2nd; Lt. J. Adam, Jan. 8th; Sec. Lt. R. W. Jones, Jan. 9th; Sec. Lt. (Hon. Lt.) R. W. Jackson, Jan. 11th; Sec. Lt. T. H. Walker, Jan. 12th; Lt. H. G. Frost, Jan. 15th; Sec. Lt. S. W. Jackson, Jan. 16th; Sec. Lt. A. A. Campbell, Lt. H. G. Mackintosh, Sec. Lt. H. H. Jackson, Lt. T. R. Scott, D.F.C., Jan. 17th; Lt. J. W. McKenzie, Sec. Lt. (Hon. Lt.) T. W. Moore, Sec. Lt. D. R. Morgan, Jan. 18th; Sec. Lt. L. W. Marchant, Jan. 20th; Sec. Lt. A. W. Cornforth, Lt. S. V. Cowell, Sec. Lt. F. C. Morgan, Jan. 21st; Lt. A. T. McKay, Lt. R. C. Sillars, Jan. 22nd; Sec. Lt. A. Arnott, Sec. Lt. J. McAuley, Jan. 23rd; Sec. Lt. F. J. Cotsell, Lt. (actg. Capt.) E. H. Marshall, Lt. J. C. Sanderson, Sec. Lt. A. C. Whitney, Jan. 24th; Lt. W. L. Davidson, Capt. A. M. Harding, Sec. Lt. W. Lowe, Sec. Lt. (Hon. Lt.) G. M. McGorrery, Sec. Lt. C. W. Verity, Jan. 26th; Capt. G. R. Marshall, Sec. Lt. R. Mayson, Sec. Lt. A. B. Meller, Sec. Lt. R. J. Siddall, Jan. 28th; Lt. (actg. Capt.) V. Beecroft, Lt. A. F. Kemp, Sec. Lt. A. A. Mound, Lt. J. E. G. Mosby, D.S.O., Sec. Lt. P. E. Richardson, Sec. Lt. J. C. Tyler, a.m. 29th; Lt. A. Blomfield, Lt. R. Calrow, Jan. 30th; Maj. (actg. Lt.-Col.) H. L. Cooper, Lt. L. A. Jessop, D.F.C., Sec. Lt. F. T. Milton, Lt. G. F. Steel, Lt. F. R. Watkins, Lt. C. M. Watterson, Jan. 31st; Lt. T. Aitken, Lt. E. Bell, Lt. L. Childs, Sec. Lt. D. Davies, Sec. Lt. A. T. Dunlop, Capt. C. M. Down (Herts R.), Lt. S. C. Jackson, Sec. Lt. J. McColl, Sec. Lt. E. A. Simpson, D.F.C., Lt. I. B. Wallas, Feb 1st; Lt. D. Alexander, Sec. Lt. J. Jackson, Lt. F. J. Kydd, Sec. Lt. S. A. Marden, Lt. W. C. Watson, Sec. Lt. L. F. J. Wall, Sec. Lt. J. Y. Watson, Feb. 2nd.

Sec. Lt. S. S. Church, Sec. Lt. T. H. May, Feb. 3rd; Sec. Lt. H. J. Collar, Lt.-Col. A. S. W. Dore, D.S.O., Lt. A. C. Hendry, M.C., Lt. T. R. Hatton, Lt. E. A. R. Hills, Sec. Lt. F. Jones, Sec. Lt. G. D. Knighton, Sec. Lt. M. A. Mackenzie, M.C. (R. Scot. Fus.), Lt. (actg. Capt.) D. V. D. Marshall, Sec. Lt. G. B. Mason, Lt. A. T. Miller, Sec. Lt. T. C. A. Meyer, Lt. (actg. Capt.) E. Swale, D.F.C., Feb. 4th; Sec. Lt. W. V. Adams, Lt. D. M. Blaset, Lt. H. K. Cassels, Lt. W. A. Campbell, Sec. Lt. W. T. S. Cairns, Lt. W. G. Hasler, Sec. Lt. C. T. R. Miller, Sec. Lt. W. Stephenson, Lt. L. E. Tyson, Sec. Lt. H. O. Warren, Feb. 5th; Lt. A. W. Archer, Lt. W. R. C. Birney, Lt. R. E. Frampton, Lt. H. Garnett, Lt. S. W. Graham, Lt. (actg. Capt.) H. G. Hegarty, M.C., Sec. Lt. A. J. Midgley, Sec. Lt. H. G. Macklin, Lt. C. H. Smith, Sec. Lt. R. Smith, Lt. B. T. Ward, Sec. Lt. J. C. Watt, Feb. 6th; Sec. Lt. T. K. Bentley, Sec. Lt. F. Christelow, Sec. Lt. G. D. Coates, Lt. T. Marburg, Lt. W. G. D. H. Nicol, Sec. Lt. J. Stephenson, Feb. 7th; Capt. (actg. Maj.) H. H. Balfour, M.C., Lt. W. T. V. Harmer, Sec. Lt. W. F. Marr, Sec. Lt. A. R. Maggs, Sec. Lt. J. Mitchinson, Sec. Lt. J. Sellers, Feb 8th; Lt. H. B. Challen, Lt. A. J. Forbes, Sec. Lt. A. W. Johnston, Sec. Lt. A. G. Marks, Lt. A. E. Smith, D.F.C., Feb. 9th; Sec. Lt. E. Anderson, Sec. Lt. E. C. Collymore, Sec. Lt. B. Hearne, Sec. Lt. S. W. Jackson, Sec. Lt. T. J. Warwick, Feb. 10th; Lt. C. W. Adain, Lt. G. F. C. Caswell, Sec. Lt. H. F. Carpenter, Lt. N. N. Cooper, Sec. Lt. T. Hargreaves, Lt. R. F. S. Johnson, Lt. G. H. Mackrow, Lt. (actg. Capt.) K. B. Montgomery, M.C., Lt. A. E. Turton, Sec. Lt. (Hon. Lt.) J. Wilson (Ayr. Yeo.), Feb. 11th; Sec. Lt. (Hon. Lt.) J. C. Alderton, Sec. Lt. C. M. Allan, Lt. J. C. Bell, Capt. C. Courtneidge, Sec. Lt. W. Coomb, Sec. Lt. W. England, Sec. Lt. P. E. L. Foot, Sec. Lt. (Hon. Lt.) G. M. Knox, Lt. B. S. Lister, Lt. A. D. Martin, Sec. Lt. V. Ross (R. Engrs.), Sec. Lt. L. H. Walker, Sec. Lt. C. D. Thornton, Sec. Lt. E. N. Ward, Sec. Lt. W. L. Walker, Lt. S. Waltho, Feb. 12th; Lt. P. R. Cawdell (Capt., R.A.S.C., T.F.), Sec. Lt. H. Chester-Master, Sec. Lt. S. G. Jary, Lt. W. K. Macfarlane, Lt. N. J. Watson, Lt. A. P. Warren, Feb 13th; Lt. C. G. Baker, Sec. Lt. W. F. Conway, Sec. Lt. A. Fletcher, Sec Lt. P. G. Kew, Sec. Lt. W. R. Midgeley, Lt. R. D. Warren, Feb. 14th; Lt. A. F. Bird, Sec. Lt. L. Beavis, Capt. H. Barker, Capt. J. A. Barton, Lt. F. C. Coops, Sec. Lt. (Hon. Lt.) H. S. Collett, Sec. Lt. J. M. Dunlop, Lt. H. J. Goulding, Lt. I. Jeffreys, Sec. Lt. D. H. Keevil, Capt. A. Lindley, Sec. Lt. R. H. Milner, Feb. 15th.

Lt. L. C. Band, Sec. Lt. W. O. G. Fenton, Sec. Lt. F. J. Fawcett, Lt. A. E. N. Jansen, Capt. E. B. MacManus, Lt. J. A. Scrivener, Feb. 16th; Lt. B. T. Anderson, Sec. Lt. C. F. Ambler, D.F.C., Lt. O. H. Chilton, Sec. Lt. J. R. Colquhoun, Sec. Lt. (Hon. Lt.) R. H. Conran, Sec. Lt. E. I. Dallinger, Maj. R. W. Gow, D.S.O., Capt. W. D. Jackson, D.F.C., Sec. Lt. (Hon. Lt.) M. R. H. Kane, Sec. Lt. H. J. Keddy, Sec. Lt. P. C. S. McCrea, Sec. Lt. H. C. Mann, Lt. P. R. Masson, Sec. Lt. J. M. Scott, Feb. 18th; Sec. Lt. R. H. Armstrong, Lt. B. D. Bate, M.C., Lt. F. G. Baker, Sec. Lt. S. A. Barnes, Sec. Lt. R. M. Campbell, Sec. Lt. W. F. Caldwell, Capt. W. H. E. Campbell, A.F.C., Sec. Lt. J. I. Elliott, Lt. J. J. Fenwick, Lt. R. S. Hitchcock, Lt. W. R. Heaton, Lt. (actg. Capt.) C. C. Hayward, Sec. Lt. J. H. Jameson, Lt. A. O. Lacy, Sec. Lt. H. S. Mantle, Lt. A. McL. Miller, Lt. H. P. Mallett, Sec. Lt. J. S. Stringer, Lt. W. B. Styles, Sec. Lt. E. Singleton, Feb. 19th; Sec. Lt. G. Ballance, Lt. J. L. Davies, Lt. A. P. Fitzgerald, Lt. J. A. A. Ferguson, Lt. H. A. Hallam, Lt. (actg. Capt.) E. D. C. Hearne, Lt. L. B. Helder, Lt. N. McLeod, Sec. Lt. (Hon. Lt.) W. S. B. Walker, Sec. Lt. E. S. Rippon, Feb. 20th; Lt. C. A. Bryant, Lt. O. G. S.

Telegrams "Aerolite, Manchester."

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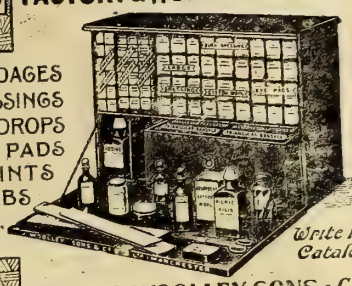
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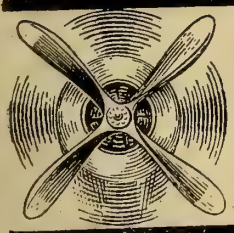


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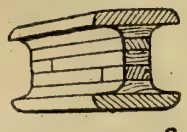
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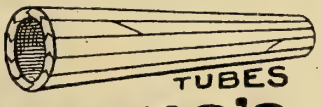
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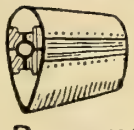


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Lt. A. L. Fleming, Maj. A. Gray, M.C. (M.G.C.), Lt. C. D. Jennery, Lt P. O. Reiss, Feb. 24th; Sec. Lt. C. Alexander, Sec. Lt. L. S. Ferd, Sec. Lt. E. P. Glanville, Lt. D. McC. Martin, Sec. Lt. (Hon. Lt.) A. J. Rose, Lt. R. D. Walker, Feb. 25th; Lt. F. J. Askham, Lt. J. Baird, Lt A. H. Caley, Sec. Lt. A. W. Chamberlain, Lt. H. J. W. Collins, Sec Lt J. H. L. Cowin, Lt. (actg. Capt.) H. C. Haydock, Lt. M. N. Hancocks, Lt. A. Jackson, Sec. Lt. W. F. Jones, Sec. Lt. R. McKinnon, Lt H Mason, Lt. D. M. Rawcliffe, Sec. Lt. H. H. Rofe, Lt. G. G. Robertson, Feb. 26th; Lt. C. D. Bennett, Lt. R. G. Bennett, Lt. F. F. C. Boustead, Lt. R. Chalmers, Lt. W. Jaffray, Lt. C. F. Johnson, Sec. Lt. A. V. Redwood, Sec. Lt. H. H. Reeves, Lt E. C. Rogers, Feb. 27th; Lt. G. R. Baynton, Lt. F. C. Harrison, Lt. (actg. Capt.) S. W. Highwood, Lt. A. G. Kearner, Sec. Lt. L. T. Rennie, Sec. Lt. H. E. Roenisch, Feb. 28th; Sec. Lt. F. Allen, Lt. G. W. P. Avery, Lt. F. Barrie, Lt. F. S. Coghill, Lt. G. H. Collis, Lt. O. Darlington, Sec. Lt. A. C. Faulkner, Lt. N. E. Gwyer, Lt W. A. Hallgren, Sec. Lt. H. H. K. Hanford, Lt. G. T. Harker, Capt. R. E. V. Jolliffe, Lt. J. G. Kerr, Capt. C. McNicoll, D.S.C., Lt. W. J. Pierce (Liverpool R.), Lt. H. Pughe-Evans (Welsh R.), March 1st; Sec. Lt. L. F. Ashley, Lt. W. L. Andrew, Lt. W. Birch, Capt. F. C. B. Douglas, Sec. Lt. R. F. J. Doole, Lt. K. G. H. R. Gunn, Sec. Lt. J. W. Garratt, Capt. W. L. Hay, Lt. T. G. Jackson, Lt. C. W. Lane, March 2nd; Lt. R. B. Beevor, Sec. Lt. F. Dixon, Lt. (Hon. Capt.) R. E. B. Hunt, Lt. C. U. T. Jellings, March 3rd; Sec. Lt. E. O. W. Ayles, Lt. V. C. Blackmore, Sec. Lt. R. E. Chapman, Sec. Lt. M. R. De Miege, Lt. C. R. Dougall, Lt. W. Dobson, Sec. Lt. W. S. Emmott, Sec. Lt. C. M. Fraser, Capt. W. E. Foster, Sec. Lt. J. Franklin, Capt. R. B. Frame, Sec. Lt. N. F. Frome, Sec. Lt. M. Gardiner, Lt. A. S. Hanna, Lt. W. A. Hughes, Sec. Lt. W. U. Jackson, Sec. Lt. R. D. O'Neill, Sec. Lt. D. A. Watts, Lt. H. Wind, Lt. R. Watson, March 4th; Lt. B. S. Alexander, Sec. Lt. S. F. Blackwell, Lt. (actg. Capt.) A. Beck, Sec. Lt. J. A. Callaghan, Lt. V. C. Coombs, Sec. Lt. C. G. Haigh, D.F.C., Lt. C. W. Hayne, Lt. J. P. Huins, Lt. H. M. Haines, Capt. R. W. Hall, M.C., Lt. J. E. Storey, Sec. Lt. G. J. Teather, March 5th; Lt. L. K. Baker, D.F.C., Lt. S. J. Chamberlain, D.F.C., Lt. J. G. Crang, Lt. S. J. Davies, Sec. Lt. P. W. Evans, Lt. H. F. Faulkner, Sec. Lt. B. H. Filkins, Lt. C. B. Fisher, Lt F. R. Gollop (Manc. R., T.F.), Capt. P. H. Hepburn, Sec. Lt. R. G. Harris, Lt T. E. Hearn, Sec. Lt. C. O. L. Jones, Lt. E. R. Jones, Lt. (Hon. Capt.) M. B. Knowles, Sec. Lt. E. R. Stocknort, Lt. D. F. Taber, Sec. Lt G. E. S. Thompson, March 6th; Lt. C. F. Ash, Lt. K. W. Bransby, Sec Lt. W. Cameron, Sec. Lt. E. G. Corey, Lt (actg. Capt.) F. A. V. Cook (Durh. L.I., T.F.), Sec. Lt. G. Davies, Maj. F. T. Digby, D.S.O., Sec. Lt. J. L. Davies, Lt. R. J. Findlay, Lt. R. Foster, Lt. D. G. George, Sec. Lt. C. W. Gracey, Maj. E. D. Horsfall, Lt. A. S. Hett, Sec. Lt. C. E. Jones, Lt. E. C. H. Jones, Sec. Lt F. V. Riley, March 7th; Sec. Lt. H. J. W. Alexander, Sec Lt. D. J. Avery, Lt. E. D. Dalmaine, Sec. Lt. L. Duncombe, Lt. R. H. Dunlop, Lt. R. O. Ellis, Lt. L. R. Felton, Sec. Lt. E. W. Foster, Sec. Lt. E. Grimshaw, Sec. Lt. F. Hamilton, Lt. H. Hartley, Sec. Lt. J. W. Haynes, Lt. V. T. Harwood, Sec Lt. J. R. Hill, Lt. T. R. V. Hill, Sec. Lt F. H. Kay, Sec. Lt. W. W. Pritchard, Sec. Lt. J. O. Smith, Lt E. G. Thomas, Lt. G. F. Warner, March 8th; Sec. Lt. L. W. H. Arnold, Lt. J. F. Bennett, Lt. H. P. Blakely, Sec. Lt. A. J. Broadberry, Sec Lt. P. H. Dixon, Sec. Lt. D. P. Davies, Lt. W. O. T. Tudor-Hart, Capt. S. W. Thompson, Sec. Lt. B. Turner, Sec. Lt. F. H. Thirkell, Sec. Lt. W. H. Thornton, Lt. R. Walmsley, Lt. J. K. Watson, March 9th; Maj. F. W. K. Davies, Sec. Lt. J. R. Hill, Sec. Lt. H. C. Shearman, March 10th; Lt. (actg. Capt.) C. P. Allen, Sec. Lt. F. E. Birkett, Lt. H. Cartwright, Lt F. H. Dormer, Lt. W. J. Downie, Sec. Lt. M. Dean, Lt. W. P. Doyle, Lt. C. S. Emery, Lt. A. Hughes, Sec. Lt. W. A. Harris, Sec. Lt. J. S. Hall, Sec Lt. E. Heyes, Lt. F. T. Jackson, Sec. Lt L. V. Russell, Sec. Lt. (Hon. Lt.) M. C. Tozer, Sec. Lt. C. J. M. Turner, Sec. Lt E. T. Wales, Sec. Lt. J. S. Walthall, March 11th.

Sec Lt. W. Anderson, Lt. G. D. Dodds (Durh. L.I.), Sec. Lt. C. M. Donald, Lt. F. W. Dolman, Sec. Lt. S. Dennis, Lt. R. T. Freeman, Sec. Lt. K. Field, Sec. Lt. W. H. Herd, Sec. Lt. (Hon. Lt.) R. U. Hamilton, Lt. (actg. Capt.) R. Manzer, D.F.C., March 12th; Lt. C. Bettinson, Sec. Lt. E. Cotton, Sec. Lt. F. E. J. Davis, Sec. Lt. J. W. Davies, Lt. R. G. Davis, Lt. H. Dean, Lt. T. C. Danby, Lt. F. J. Davey, Capt. G. Fox-Rule, Sec. Lt. G. E. McKenzie, Lt. E. Tasker, D.F.C., Lt. E. Walker, Sec Lt. D. C. Watson, March 13th; Sec. Lt. J. Andrews, Lt. C. C. Allinson, Sec. Lt. C. K. David, Sec. Lt. A. Demorest, Sec. Lt. J. B. Friend, Sec. Lt A. R. Green, Sec. Lt. J. Hinchey, Sec. Lt. D. F. Harrison, Sec. Lt. J. Hart, Sec. Lt. C. L. Lowe, Lt. C. L. Roberts, Sec Lt C. Stuart, Sec. Lt. (Hon. Lt.) R. Turner, Lt. A. J. Tyler, March 14th; Capt. J. W. Alcock, Sec. Lt E. R. Airey, Lt. R. M. Darney, Sec. Lt. A. S. Evans, Sec. Lt. I. O. Pugh, Sec. Lt. J. C. Regester, Sec. Lt. H. H. Robbins, Lt G. Rose, Lt. W. B. T. Ross, Lt. L. T. Smith, Lt. D. R. Snellgrove, Sec. Lt (Hon. Lt.) F. S. Tooley, March 15th; Lt. (actg. Capt.) P. Ainsworth, Sec. Lt. G. J. Dickins, Sec Lt O. S. Parker, Lt. H. T. Roper, March 16th; Lt. H. G. S. Broad, Sec. Lt. A. E. Hart, Sec. Lt. S. S. Rosenheim, Sec. Lt. J. E. C. Robinson, Sec. Lt. H. Townley, Sec. Lt. M. Thomnson. Sec. Lt. R. Watson, March 17th; Capt. O. M. Baldwin, D.F.C., Sec. Lt. E. W. C. Densham, Lt. R. C. Richards, Sec. Lt. C. Robson, Sec. Lt. L. J. Spence, Lt G. L. Smart, March 18th; Sec Lt. A. C. Davern, Lt. G. H. B. Richards (R. Highrs., T.F.), Lt. R. I. Roe, Capt A. Sparrow, A.F.C., Capt. (Hon. Maj.) E. C. Stonehouse, Lt. G. E. Taylor, March 19th; Lt. H. Tatton, March 25th.

Capt. R. S. S. Brown, M.C., relinquishes his commn. on account of ill-health caused by wounds, and is permitted to retain his rank, March 29th.

Lt. M. Andrews relinquishes his commn on account of ill-health contracted on active service, and is permitted to retain his rank, March 29th.

Sec. Lt. V. T. Lloyd-Davies relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, March 29th.

The notification in "Gazette," Nov. 1st, 1918, concerning Sec. Lt. J. M. Pacon is cancelled.

Administrative Branch.—Capt. (Hon. Maj.) W. B. Crossley to be actg. Maj. whilst empld. as Maj., from (A.), Oct. 21st, 1918.

Lts. to be actg. Capts. whilst empld. as Capts.:—J. W. Langmuir, from (A.), July 1st, 1918; C. A. Howe, Nov. 4th, 1918; J. C. Cantrill, March 20th.

Sec. Lt. (actg. Lt.) A. H. Jones to be actg. Capt. whilst empld. as Capt., Nov. 1st, 1918.

Lts. (A.) to be Lts.:—O. Thamer, Jan. 23rd; E. N. MacDonald, Jan. 31st; (actg. Capt.) R. T. Jones, D.F.C., Feb. 6th, and relinquishes the actg. rank of Capt.

Lts. to be Lts.:—C. Watson, from (O.), Nov. 1st, 1918; A. S. Mills, from (O.), Feb. 18th; W. K. Prendergast, from (A. and S.), Feb. 22nd; R. A. de Sain, from (S.O.), March 15th.

Sec. Lt. A. E. Marks to be Lt., Aug. 6th, 1918.

Sec. Lts. to be actg. Lts. whilst empld. as Lts.:—R. P. Briscoe, June 26th, 1918; T. Surr, Sept. 26th, 1918; F. W. Johnson, Nov. 1st, 1918; C. St. J. Vaughan, Dec. 13th, 1918.

Sec. Lts. to be Sec. Lts. from (A.):—(Hon. Lt.) A. W. Allan, June 4th, 1918, and to be Hon. Lt.; J. A. Shipton, Jan. 31st.

Sec. Lts. to be Sec. Lts., from (O.):—E. Singleton, Feb. 10th; S. F. Blackwell, Feb. 21st; A. B. Henderson, March 21st.

Sec. Lt. L. M. Britten to be Sec. Lt., from (T.), March 1st (substituted for notification in "Gazette," Feb. 28th).

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. D. T. McGuire (Lt., Glouc. R.), Jan. 12th; Capt. A. H. Brucker (Capt., Oxf. and Bucks L.I., T.F.), Jan. 18th.

The following are transferred to unempld. list:—Lt. (Hon. Capt.) J. H. Menzies, Jan. 5th; Sec. Lt. W. J. Gallard, Jan. 17th; Lt. (actg. Capt.) N. B. Morphy, Jan. 20th; Sec. Lt. W. A. Malcolm, Lt. P. H. G. Southwell, Jan. 22nd; Sec. Lt. F. W. Carr, Lt. C. F. Cowper, Jan. 23rd; Sec. Lt. D. A. Boulton, Sec Lt. F. G. Cartman, Captain E. Edwards, Lt. J. W. Jackson, Jan. 28th; Sec. Lt. C. C. L. Marcionni, Jan. 29th; Sec. Lt. J. J. Evans, Jan. 31st; Capt. G. H. Watts, Feb. 1st; Lt. G. J. Frost, Feb. 2nd; Lt F. A Bastow, Lt. G. Feeny, Feb. 3rd; Sec. Lt. J. W. Hill, Sec. Lt. F. M. McNair, Feb. 4th; Sec. Lt C. W. Gordon, Sec. Lt R. C. Smith, Lt. (actg. Capt.) W. Topham, Feb. 5th; Lt. W. D. Kennard, Feb. 7th; Lt. W. Hurst-Barnes, Sec. Lt. C. Moss, Sec. Lt. H. Rodgers, Feb 8th; Capt. J. L. Lewis, Feb. 9th, Lt C W. B. Colling, Lt.-Col. (actg. Col.) V. Henry, Lt. P. G. Matthews, Feb. 12th; Lt. W. L. Coleridge, Lt. H C. G. Warney, Feb. 13th; Lt. A. Miller, Feb. 14th; Lt. A. H. K. Jones, Sec Lt (Hon. Lt.), (actg. Lt.) R. F. Messervy, Feb. 15th; Sec. Lt. C. H. Kendall, Feb. 16th; Sec. Lt. A. P. Mannars, Feb. 18th; Lt. S. Canning, Sec. Lt. S. R. Dickson, Feb. 19th; Lt. W. W. Legg (R.F.A., Spec. Res.), Feb. 20th; Sec. Lt. E. Deekes, Sec. Lt. G. M. Gray, Feb. 21st; Sec. Lt. E. B. Ambler, Lt. V. W. Hatton, Sec. Lt. W. R. Jackson, Lt. A. H. Read, Feb. 23rd; Sec. Lt W. C. Albery, Sec. Lt. C. N. S. Burns, Lt. G. Johnstone, Feb. 26th; Lt. L. W. Elledge, Lt (actg. Capt.) A. McIntosh (Lt., K.O.S.B.), Sec. Lt. B. Rose, Sec. Lt. T. V. H. Richardson, Sec. Lt. J. A. B. Young, Feb. 27th; Sec. Lt. J. A. Black, Lt. G. P. Colin, Lt.-Col. J. Harvey, Sec. Lt. L. I. Jones, Lt. C. C. Matthews, Feb. 28th; Sec. Lt. (Hon. Lt.) J. C. Bain, Lt. P. W. Dyke, Lt. J. V. L. Hall, March 1st; Sec. Lt. L. G. Coxhead, Sec Lt. K. C. Dickinson, Sec. Lt. A. F. Lawry, Sec. Lt. W. G. Stephens, March 4th; Sec. Lt. C. Campbell, March 5th; Sec. Lt. F. G. Brown, Sec. Lt. A. Farrar, March 6th; Capt. R. Dawson, Lt. F. A. George, Sec. Lt. E. J. Harris, Sec. Lt. J. Horton, Lt H. O. Samson, March 7th; Sec. Lt R. W. Simpson, March 8th; Sec Lt. T. Cunliffe, Lt G. H. Davis, Sec. Lt. S. Franks, Capt. Sir A. G. Hazlerigg, Sec. Lt C. W. Johnson, Sec. Lt. J. B. Kidd, Maj. L. Legge, March 11th; Sec. Lt A T Dickinson, Capt. T. M. Gerrard, March 13th; Sec. Lt. G. V. Jennings, Lt. T. A. Lovyridge, Capt. A. B. Walters, March 14th; Lt.-Col. C. M. Daniel, Lt. (actg. Capt) F. W. Romney, March 15th; Sec. Lt. W. S. Scott, March 17th; Sec Lt. R. A Stuart, Sec. Lt. A. A Tabor, March 18th; Sec. Lt. W. Tunnicliffe, Sec Lt. P. P. Thornton, March 19th; Lt. (actg. Capt.) J. A. Stevenson, M.C., March 20th; Sec. Lt. H. Randall, March 28th.

Lt. (actg. Capt.) W. H. T. Collings relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt., Nov. 27th, 1918 (substituted for notification in "Gazette," Nov. 26th, 1918).

Capt. I. E. Egman relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Feb. 12th (substituted for notification in "Gazette," Feb. 11th).

Lt. G. Davidson relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, March 29th.

The surname of Sec. Lt. D. A. Boulton is as now described, and not as stated in "Gazette," Oct. 20th, 1918.

The surname of Sec. Lt. R. H. Mullens is as now described, and not as stated in "Gazette," Feb. 7th.

Technical Branch.—Capt. J. S. Wheelwright, D.S.C., to be actg. Maj. while empld. as Maj. (Grade A), from (A. and S.), July 19th.

G. S. M. Taylor (Capt., R.E.) is granted a temp. commn. as Capt. (Grade A), April 1st, 1918.

Capt. G. L. Watson to be Capt. (Grade B), from (Ad.), Aug. 15th, 1918.

Lt. (Hon. Capt.) S. Smith to be actg. Capt. while empld. as Capt. (Grade A), Dec. 1st, 1918.

Sec. Lt. (actg. Capt.) A. J. Bright retains the actg. rank of Capt. while empld. as Capt. (Grade B), from (Ad.), Oct. 1st, 1918.

Sec. Lt. (actg. Lt.) G. J. Stroud, M.B.E., to be actg. Capt. while empld. as Capt. (Grade A), Oct. 1st, 1918.

Lt. H. Stansfield to be actg. Capt. while empld. as Capt. (Grade B), from (O.), Nov. 2nd, 1918.

Sec. Lt. (actg. Capt.) J. I. Thompson to be Lt., Aug. 9th, 1918, and to retain the actg. rank of Capt.

Lts. to be Lts. (Grade B), from (Ad.):—L. T. G. Jefferson, Nov. 13th, 1918 (substituted for notification in "Gazette," Dec. 13th, 1918; J. T. Titmas, March 20th.

Sec. Lts. to be actg. Lts. while empld. as Lts. (Grade A):—G. J. Stroud, M.B.E., April 1st, 1918; C. W. Whitworth, from (Ad.), Sept. 1st, 1918.

Sec. Lts. (Hon. Lts.) to be actg. Lts. whilst empld. as Lts. (Grade B):—E. A. Bradshaw, J. C. Sydgreave, April 1st, 1918; P. Rourke, July 1st, 1918; F. J. Magee, Nov. 1st, 1918.

Sec. Lts. to be Sec. Lts. (Grade B), from (Ad.) (substituted for notification in the "Gazette," March 18th):—C. H. Bunn, Dec. 1st, 1918; J. L. Ingham, F. H. Swoffer, J. Tunbridge, Jan. 4th; C. F. Easton, Jan. 14th; L. J. Slack, Jan. 18th; C. M. Byham, Jan. 28th; G. H. Stanley, Feb. 25th; H. S. Smith, March 5th.

Sec. Lt. (Hon. Lt.) A. W. Allan to be Sec. Lt., from (Ad.), and to be Hon. Lt., Aug. 11th, 1918.

Sec. Lt. J. T. Brown to be Sec. Lt. (Grade A), from (Ad.), Feb. 1st.

Sec. Lt. J. W. Thomnson (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Grade A), Oct. 25th, 1918.

Sec. Lt. F. Fogg to be Sec. Lt. (Grade B), from (Ad.), Jan. 31st.

J. Johnstone (Lt., Som. L.I.) is granted a temp. commn. as Sec. Lt. (Grade B), Nov. 1st, 1918, seny. April 1st, 1918, and to be Hon. Lt. (substituted for notification in "Gazette," Feb. 18th).

Capt C. Horsfield relinquishes his commn on ceasing to be empld., March 1st.

The following are transferred to unempld. list:—Sec. Lt. P. S. Beaufort, Jan. 10th; Lt. (actg. Capt.) R. W. Mitchell, Jan. 12th; Sec.

Lt. H. R. Moffatt, Jan. 14th; Sec. Lt. (Hon. Lt.) N. W. Watson, Jan. 19th; Lt. Hon. H. G. H. Mulholland, Lt. D. Warneford-Davis, Jan. 25th; Lt. J. H. Dickson, Jan. 26th; Sec. Lt. F. H. Jones, Jan. 28th; Sec. Lt. C. G. Ellis, Maj. T. L. Oliver, Lt. M. Proctor Gregg (N. Lanc. R.), Jan. 29th; Maj. H. Dobell, Capt. B. G. Ludlow, Jan. 30th; Sec. Lt. A. Campbell, Lt. V. L. Fielder, Lt. M. A. Millar, Sec. Lt. (Hon. Lt.) J. Murch, Jan. 31st; Sec. Lt. (actg. Lt.) R. Hall, Lt. L. C. Kemp, Feb. 1st; Sec. Lt. T. Conlan, Feb. 4th; Sec. Lt. H. A. Chapman, Sec. Lt. P. Coombs, M.B.E., Feb. 6th; Capt. A. H. Davies, Sec. Lt. H. G. Wallis, Feb. 7th; Capt. M. F. W. Sampson, Lt. W. J. Walford, Feb. 8th; Lt. H. S. G. Jamieson (E. Surr R.), Lt. J. M. Scott, Feb. 9th, Lt. T. Cooper, Feb. 10th; Sec. Lt. (Hon. Lt.) G. McDonald, Sec. Lt. S. Warburton, Lt. R. Warner, Feb. 11th; Lt. P. Avery, Sec. Lt. (Hon. Lt.) P. Allden, Lt. C. L. Lambert (Lond. R., T.F.), Lt. F. Waller, Feb. 13th; Lt. J. W. Atkinson, Sec. Lt. J. T. Baugh, Feb. 14th; Lt. (Hon. Capt.) K. G. de Jongh (Hamp. R.), Capt. N. Martin, Capt. E. W. Walford, Feb. 15th; Lt. L. W. Wethered, Feb. 17th; Lt. E. R. Atkinson, Sec. Lt. (Hon. Lt.) A. J. D. Henry (R.F.A.), Sec. Lt. S. Kendall, Capt. C. G. McCann, Feb. 18th; Capt. S. C. H. Davis, Sec. Lt. (Hon. Lt.) C. Keith, Feb. 19th; Sec. Lt. J. H. Jones, Lt. (actg. Capt.) F. H. M. MacIntyre, Sec. Lt. A. Matthews, Feb. 20th; Capt. W. G. Aston, Lt. L. F. Bishop, Sec. Lt. (actg. Capt.) W. H. D. Chamberlain, Sec. Lt. B. E. Harris, Lt. B. S. Higgs, Capt. (actg. Maj.) H. W. Mills, Sec. Lt. J. Marra, Feb. 22nd; Lt. S. F. Barton, Sec. Lt. (Hon. Lt.) H. G. Hall, Lt. W. H. Jones, Lt. R. N. Rowell, Feb. 23rd; Sec. Lt. A. J. Barnes, Feb. 24th; Maj. F. R. E. Davis, Sec. Lt. R. E. H. Heenan, Lt. (actg. Capt.) W. L. Hill, Capt. J. Richmond, Lt. J. Watson, Feb. 25th; Sec. Lt. W. Foster, Sec. Lt. R. A. Leahy, Feb. 26th; Capt. H. M. Edwards, Capt. B. Elliott, Lt. B. V. N. Roweroft, Feb. 27th; Lt. J. E. Jones, Sec. Lt. T. M. F. Tamblyn-Watts, March 1st; Lt. B. E. C. Davis, Sec. Lt. E. Hattemore, Sec. Lt. B. F. Warburton, March 2nd; Lt. (actg. Capt.) R. M. Armfield, Sec. Lt. (actg. Lt.) E. S. H. Corbett, Lt. V. B. Learoyd, March 4th; Sec. Lt. F. Cade, Sec. Lt. H. S. Downs, Lt. D. W. Dron, Capt. R. Donald, Sec. Lt. A. E. Firth, Capt. J. W. Griffith, Sec. Lt. H. T. Savage, March 5th; Sec. Lt. D. O. Cochrane, Capt. J. B. Crabbs, Sec. Lt. H. L. Doherty, Sec. Lt. G. R. Hanson, March 6th; Lt. D. Dougall, Capt. W. J. F. Dutson, Capt. A. B. Hatton, Sec. Lt. S. E. Knight, Lt. W. J. Watts, March 7th; Sec. Lt. J. A. Atkinson, Lt. R. W. Anderson, Lt. B. V. Brown, Sec. Lt. C. G. Foster, Sec. Lt. (Hon. Lt.) G. W. Robinson, Lt. E. H. Watson, Sec. Lt. C. W. Waitt, March 8th; Sec. Lt. F. Dugdale, Lt. J. P. White, March 9th; Maj. R. Waddell, March 10th; Lt. H. L. Billington, Lt. Hon. F. S. G. Calthorpe, Capt. P. J. Jones, Sec. Lt. J. Keyte, Lt. R. Knott, March 11th; Lt. (actg. Capt.) M. A. Chappell, Sec. Lt. (Hon. Lt.) (actg. Capt.) A. L. Cockburn, Sec. Lt. A. T. Griffith, Sec. Lt. A. Randle, March 12th; Sec. Lt. F. S. Armbister, Capt. A. C. Baker, Lt. F. A. Thomas, March 13th; Sec. Lt. H. C. Bell, Lt. W. E. Bousfield, Capt. G. E. Johnson, Sec. Lt. H. A. Kelly, Sec. Lt. P. E. Towler, Sec. Lt. E. F. Warner, Lt. H. E. Ward, March 14th; Sec. Lt. (Hon. Lt.) S. G. Hewitt, Lt. J. B. Pugh, March 15th; Lt. A. C. B. Hanbury, Sec. Lt. P. C. Martin, March 16th; Sec. Lt. G. S. Adams, Lt. B. Humphrey, Capt. M. F. L. Selby, March 18th; Maj. G. H. Abell, March 19th; Maj. (actg. Lt.-Col.) E. W. Stedman, March 21st.

Capt. S. N. Cooke relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, March 29th.

The notification in "Gazette," Dec. 17th, 1918, concerning Lt. (actg. Maj.) H. Stansfield is cancelled.

The notification in "Gazette," Jan. 31st, concerning Lt. J. W. Thomson is cancelled.

Medical Branch.—The following are transferred to unempld. list:—Lt. W. A. Cooper, Jan. 24th; Capt. W. A. Simpson, Feb. 4th; Capt. E. P. Carmody, Feb. 11th; Lt. H. McP. Cargin, Feb. 12th; Capt. H. R. Carter, Capt. (actg. Maj.) L. Hooper, Feb. 22nd; Capt. J. P. J. Harty, Capt. J. P. Walker, M.B.E., March 1st; Lt. R. Malcolm, March 4th; Capt. B. E. Amoot, March 13th.

The date of relinquishment of his commn. of Capt. H. Greenwood is Jan. 19th, and not as stated in "Gazette," Jan. 21st.

Dental Branch.—Capt. T. F. Healey is transferred to unempld. list, Feb. 27th.

Physical Training Branch.—Capt. (actg. Maj.) B. T. Metcalfe is transferred to unempld. list, Feb. 16th.

Chaplains Branch.—The following temp. appts. are made:—Principal Chaps. for Presbyterians.—Rev. W. Moffat (A.C.D.) is granted a temp. commn. as Chap. with the relative rank of Capt., and is granted the relative rank of Col. whilst empld. as Principal Chap., Jan. 1st (substituted for notification in the "Gazette," Feb. 4th).

Asst. Principal Chap. for United Board.—Rev. J. Firth, M.C. (Chaplain, 4th Cl., A.C.D.), is granted a temp. commn. as Chap. with the relative rank of Capt., and is granted the relative rank of Maj. whilst empld. as Asst. Principal Chap., Feb. 28th.

Capt. W. G. Carpenter is transferred to unempld. list, March 7th.

Memoranda.—Capt. F. J. Hooper is confirmed in the rank of Capt.

Sec. Lt. (actg. Lt.) J. W. Huthwaite to be Lt., March 16th.

The following are transferred to unempld. list, from (S.O.):—Capt. T. L. Tillie (Sco. Rif., T.F.), Jan. 19th; Capt. A. W. Dods, Feb. 14th; Maj. (actg. Lt.-Col.) Visct. G. M. G. F. H. Maidstone, D.S.C., Feb. 16th; Capt. (actg. Lt.-Col.) B. J. Wolfe-Barry, Feb. 28th; Capt. (actg. Lt.-Col.) J. F. Hawkins, O.B.E., March 1st; Sec. Lt. (actg. Capt.) R. Hely, March 5th; Maj. K. T. Dowding, Capt. P. M. Davson, Lt. (actg. Capt.) H. Fletcher, March 13th; Sec. Lt. (actg. Lt.) (Hon. Capt.) A. H. Fynn, March 17th; Maj. M. H. P. Allen, March 18th, Capt. A. E. Hartley, March 24th.

War Office, March 31st.

Regular Forces—Establishments.—Royal Regiment of Artillery, R.H., and R.F.A.—Maj. (temp. Lt.-Col.) J. C. G. A. Hankey, M.V.O., O.B.E., Res. of Off., reverts to unemployment, April 1st, and retains rank of Lt.-Col.

War Office, March 31st.

The services for which the Victoria Cross was awarded by His Majesty to the undermentioned officers were performed at the places and on the dates mentioned:—

Lt. (T./Capt.) A. Ball, D.S.O., M.C., late 7th Bn. Notts and Derby R., and R.F.C. France (distinguished flying servs.). ("Gazette," 8/6/17.)

Capt. W. A. Bishop, D.S.O., M.C., Can. Cav. and R.F.C. Nr. Cambrai, France (distinguished flying servs.). ("Gazette," 11/8/17.)

2nd Lt. (T./Capt.) J. B. McCudden, D.S.O., M.C., M.M., Gen. List, and No. 56th Sqdn., R.F.C. Distinguished Flying Services, France, 25/12/17, 30/1/18. ("Gazette," 2/4/18.)

1396 Serjt. T. Mottershead, late 20th Sqdn, R.F.C. Nr. Ploegsteert Wood France, 7/1/17. ("Gazette," 12/2/17.)

Capt. (T./Maj.) L. W. B. Rees, R.A. and R.F.C. Double Crassieurs, France, 1/7/16. ("Gazette," 5/8/16.)

Lt. W. L. Robinson, Worc. R. and R.F.C. Cuffley, Hertfordshire, England, 2-3/9/16. ("Gazette," 5/9/16.)

FROM THE COURT CIRCULAR.

Buckingham Palace, March 27th.

The following were severally introduced into the presence of the King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

The Distinguished Service Order and the Military Cross and Bar.—Capt. Peter Carpenter, R.A.F.

The Most Excellent Order of the British Empire.—Members—Military Division.—Capt. Alexander Smith, 12th Lancers, attd. R.A.F.

The King then conferred decorations as follows:—

The Military Cross.—Capt. Horace Haycock, R.A.F.; Capt. Ernest Peacock, R.A.F.; Lt. Haddon Adams, R.A.F.; Lt. Frank Dear, R.A.F.; Lt. Harry Wisnekowitz, R.A.F.

The Prince of Wales, accompanied by the Prince Albert, and attended by Captain the Hon. Piers Legh and Major Louis Greig, visited the Handley Page Works at Cricklewood this morning.

In the afternoon the Prince of Wales, accompanied by the Prince Albert, and attended by Major-General Sir Charles Harington, Captain the Hon. Piers Legh, and Major Louis Greig, were present at the Army Command Cross-Country Championships at Kenley Aerodrome.

Buckingham Palace, March 29th.

The following officers were severally introduced into the presence of the King, when His Majesty invested them with the Insignia of the respective divisions of the Order into which they had been admitted.

The Most Honourable Order of the Bath (Military Division)—Companion.—Brig.-Gen. Oliver Swan, R.A.F.

The Most Distinguished Order of St. Michael and St. George—Companions.—Brig.-Gen. Hugh Dowding, R.A.F., and Col. Reginald Armes, R.A.F.

The Distinguished Service Order.—Col. Wilfred Freeman, R.A.F., and Major Charles Darwin, R.A.F.

The Most Excellent Order of the British Empire—Officer.—Major Francis Davis, R.A.F.

The King then conferred decorations as follows:—

Bar to the Military Cross.—Capt. William Fielding-Johnson, R.A.F.

The Military Cross.—Capt. Frederick Mathias, R.A.F.; Capt. Frank Taylor (Cent. Ontario Regt., attd. R.A.F.); Capt. Hugh Walmsley, R.A.F.; Capt. Frederick Williams, R.A.F.; Lt. Henry Maingot (British West Indies Regt., attd. R.A.F.).

St. James's Palace, April 1st.

The King has been graciously pleased to give orders for the following promotions in and appointments to the Most Excellent Order of the British Empire in recognition of valuable services rendered in connection with the War:—

To be an Officer of the Military Division of the said Most Excellent Order.

Lieut.-Commdr. Henry Douglas Capper, R.N. For valuable services in connection with the R.N. Anti-Aircraft Corps at Dover.

THE CASUALTY LIST.

MILITARY.

Reported, March 31st.

Released Prisoners of War from Germany arrived in England:—Joubert d'ela Ferté, Sec. Lt. J. C., R.F.C.; Meakin, Sec. Lt. G. E. R., R.F.C.; Prichard, Capt. F. H., R.F.C.; Trulock, Sec. Lt. J. C., R.F.A., attd. R.F.C.

Australian Imperial Force.—*Previously Reported Missing, now Reported Killed*:—Jack, Capt. T., M.C., A.F.C.

Jeffers, Lt. J. P., A.F.C.

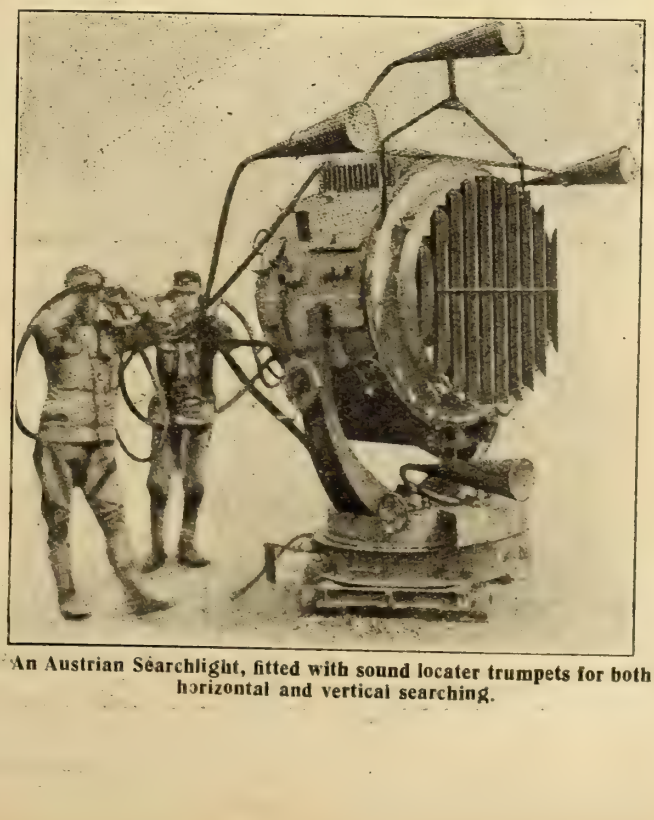
Peel, Sec. Lt. J. C., A.F.C.

PERSONAL NOTICES.

NAVAL.

Marriage.

RATHBORNE—RAINES.—On March 29th at St. Paul's, Hammersmith, Lieut.-Col. C. E. H. Rathborne, D.S.O., R.A.F.,



An Austrian Searchlight, fitted with sound locater trumpets for both horizontal and vertical searching.

late R.N.A.S., son of the late H. H. Rathborne, Esq., and Mrs. Rathborne, of Cheltenham, was married to Olive Alice, elder daughter of the late H. H. Raines, Esq., of The Moorings, Woking, and Mrs. Raines, 5, Digby Mansions, W.6, by the Rev. Kennedy Cobb.

BIRTH.

EDMONDS.—On March 28th, 1919, at 1, Drayton Terrace, S.W., the wife of Lieut.-Col. C. H. K. Edmonds, D.S.O., O.B.E., late R.A.F., of a son (stillborn).

MILITARY.

ENGAGEMENT.

WILSON—COOK.—The engagement is announced between Capt. W. H. Sugden Wilson, West Somerset Yeo., attd. R.A.F., second son of Mr. W. H. Wilson and the late Mrs. Wilson, of Hexgreave Park, Southwell, and Lena, widow of Mr. L. A. N. Slocock, 10th King's Liverpool (Scottish) Regt., and third daughter of Mr. and Mrs. Arthur Cook, of Oaken Grove, Marlow, and of Liverpool.

MARRIAGE.

JAMES—GUTHRIE.—At St. Margaret's, Westminster, on March 27th, the marriage took place of Lieut.-Col. A. James, M.C., Hussars and R.A.F., and Bridget, elder daughter of the late Mr. Murray Guthrie, M.P., and Mrs. Guthrie, Stirling. The Archbishop of Armagh and the Sub-Dean of the Chapels Royal, Canon Edgar Sheppard, officiated.

BIRTHS.

BARBER.—On March 20th, at 12, Keats Grove, N.W., the wife of Horatio Barber, late R.F.C., of a son.

EVANS.—On March 24th, at 1, Rockville, Tenby, the wife of Capt. W. Sandford Evans, the Welch Regt. (attd. R.A.F.)—a son.

* * *

Information is wanted as to the fate of Lieut. R. E. Bion, 20th Hussars, attd. R.A.F., No. 40 Squadron, who took part in an attack on April 18th, 1918, near Lacon, and who fell and was presumably taken prisoner, but from the moment of the attack all trace of him has been entirely lost. His relatives, who are in India, are anxious to hear of his fate, and hope that this will catch the eye of some of his fellow officers. Communications will be gratefully received, addressed to "Secretary to Headmaster, Clayesmore School, Winchester"

AIR FORCE.

DEATHS.

MARCHANT.—Lieut. Clarence Henry Marchant, Croix de Guerre et Palme, R.A.F., who was accidentally killed whilst instructing in aerial fighting in Egypt, was the second son of the late W. W. and Mrs. Marchant, of "Tickners," Hartshurst, Kent. He was 25 years of age.

RAW.—Lieut. Wilfrid Addison Raw, R.A.F., who died on March 16th after an accident while flying at Hornchurch, was the eldest son of Robert Raw, of Pretoria, S. Africa. He was 19 years of age.

ENGAGEMENT

WETHERBY-WILLIAMS—STOMPH.—A marriage has been arranged, and will shortly take place, between Mr. Arthur Wetherby-Williams (late R.A.F.), only son of Thomas Wetherby-Williams and Mrs. Wetherby-Williams, of Mount Pleasant, Ilfracombe, and Helene Sonia Raymonde de Stomph, only child of His late Excellency General Baron Antoine de Stomph and of Baronne Sophie de Stomph, née Comtesse Zyndram Kovstialkovsky.

MARRIAGES.

HEWITT—WOODHOUSE.—On March 25th, at St. Mark's, Farnboro, Lieut. Edward Norman, R.A.F., son of Mr. and Mrs. Edward Hewitt, Swinton Park, Manchester, was married to Cecilia Ruth, daughter of Major-General Sir T. P. Woodhouse, K.C.M.G., C.B., and Lady Woodhouse, Fairfax House, Farnboro, Hants, by the Rev. Basil Phillips.

TIDEY—GOODALL.—On March 25th, at Holy Trinity Church, Bembridge, Isle of Wight, Capt. A. Mansfield Tidey, R.A.F., was married to Luisita Mary Goodall, by the Vicar, the Revd. E. C. Usherwood.

BIRTHS.

BALLARD.—On Jan. 20th, at Cottenham Park, S.W., to Betty, wife of Capt. Maurice Ballard, R.A.F., a daughter (Valerie Louise).

GRENFELL.—On March 28th, at a nursing home in London, the wife of Colonel G. P. Grenfell, D.S.O., R.A.F., of a daughter.

NEWSOME.—On March 23rd, at The Glen, Joppa, Edinburgh, the wife of Lieut. Tom Newsome, jun., R.A.F., of a son.

* * *

Capt. and Flight Commander Sydney Philip Smith, R.A.F., of the 46th Squadron, France. Last seen April 6th, 1918, over Lamotte, on "Camel" Plane D.6491. Will repatriated officers and men (and those flying with him at the time) who can give information write Mr. Arthur H. Smith, Morningside, Aldershot?

The Atlantic Fleet.

It is announced that the following vessels are included in the provisional composition of the Atlantic Fleet:—

Seaplane Carriers: "Furious," "Vindictive," "Argus," "Pegasus" and "Nirvana."

Demobilised Airmen.

The Air Ministry states that in future a demobilised airman may retain his greatcoat and forfeit £1 of his war gratuity. In such a case shoulder-straps, service buttons, and badges of rank must be removed. The greatcoats may be dyed.

Owing to temporary dearth of materials, it will not be possible to forward within 28 days a civilian suit to every airman who has elected to take plain clothes in lieu of £2 12s. 6d. In cases of delay the airman will be given the option of waiting or of receiving £2 12s. 6d.

Complaints regarding non-receipt or misfit should be addressed to the Officer in Charge, Discharged Soldiers' Clothing Section, Battersea Park, S.W.11.

No man is permitted to wear uniform on expiration of his 28 days' furlough, but khaki clothes may be worn, provided shoulder straps, service buttons, and badges have been removed. In this case the field service cap will not be worn.

Athletics in the R.A.F.

At the meeting of the Royal Air Force Recreational Council, which was held at the Air Ministry, it was announced that the King would present a challenge cup to the Royal Air Force. The cup will be competed for at the annual athletic meeting to be organised by the Royal Air Force Athletic Association.

Despite very wet and windy weather the members of the R.A.F. at Elsham Aerodrome held a successful gymkana on Wednesday, March 19th. There were numerous competitors for the many events. The subsequent concert and dances were greatly appreciated.

On Wednesday, March 26th, the R.A.F. Association Football Team played the Cambridge University eleven at Stamford Bridge. A fairly evenly-matched game was witnessed, which finished with the R.A.F. the losers by 3 goals to 2.

On the same day the R.A.F. (Roehampton) Team met the Grenadier Guards eleven for the second time in the semi-final round of the Bulldog Cup competition. The game ended in a draw, both sides having scored one goal each.

The Royal Air Force Rugby Football Team beat the Australian fifteen at Gloucester on Saturday, March 29th. This was another one of the matches arranged for the Inter-Service Rugby Tournament, and the first the R.A.F. have won.

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ON "WHAT SHALL WE DO WITH OUR BOYS?'

Years ago, when most of our beribboned heroes of to-day were little boys in short frocks, there arose in the daily news-sheets, during the contemporary sea-serpent and giant gooseberry season, a violent controversy which raged for weeks under the standing heading, "What Shall We Do With Our Boys?" This question as to the future destinies of the youth of Great Britain—excluding the Irish Republic, which can look after itself—seems more urgent to-day than ever it was, for some hundreds of thousands of our boys are in a very peculiar position.

For the past four and a half years every lad on attaining the age of eighteen has been drafted into the Army unless he has elected to go into the Navy—excepting those who for a year past have entered the Air Force, and those who have been sufficiently skilful (as wanglers, if not as tradesmen) to get themselves retained as munition-makers, members of the Amalgamated Society of Engineers, and so forth. The result is that, despite the casualties of war and the successes of the influenza microbe, we have in the British Isles an enormous population of able-bodied young men who went straight from school into the King's Services, and who are now about to be turned adrift on an unsympathetic world without any knowledge of how to make a living.

They vary greatly in age, for at one extreme we have the University man of twenty or so, who joined the Army in 1914, and is now twenty-five or twenty-six years of age. We have the lad who joined at the minimum age of seventeen-and-a-half just before the Armistice, and is now barely eighteen. Also we have the enthusiast who joined in 1914 or early 1915 at the age of seventeen or even less, patriotically lying that he was nineteen, and who is now somewhere between twenty-one and twenty-two, a battle-scarred veteran (please avoid a misprint here, friend Printer), possibly with rank as captain or even major, with an excellent education in war, and no other knowledge which will help him to earn a living—except, perhaps, an intimate acquaintance with the arts of wangling and scrounging.

So far as those who are still under nineteen, or even twenty, are concerned, there is little need for anxiety. The officers can go back to the University, or the medical school, or the engineering college, or the theology factory, or the suburban polytechnic, or whencever they came, and continue their studies, or begin to study at such institutions. Thousands have been already demobilised as "students." The N.C.Os. and men can become, or go back to their work as, apprentices in the great industries.

The Middle-Aged Boy.

Those who are a little older, say between twenty-one and twenty-two, and have three or four years' service behind them, are much more difficult to fit into any working scheme of things, for they are rather old to start a schoolboy's work over again, and, though they may be very amenable to discipline under a man whom they respect, they are hardly likely, after years of experience of the realities of life and death, to be easy material for worn-out theories on education as held by the common or classroom pedagogue. There is here, however, the saving clause that many teachers from universities, public schools, and the lesser educational establishments have themselves served the King and have become men instead of merely sententious schoolmasters.

Still one can scarcely expect, say, an officer of the Flying Services who has slain his dozen Huns or so with his own little gun, besides acquiring a nice taste in midday cock-tails and post-prandial port, to become a Sandford or a Merton.—For the benefit of those who are young enough to have been spared the affliction of reading about Sandford and Merton one had better interpolate the information that they were two model students, worse even than Eric or Julian Home, and would have regarded Stalky and Co. as brands prepared for the burning.

One knows cases in which these middle-aged boys, as one may call them, have been demobilised as students, and after a hectic period of attempting to study—or "having a look to see what studenting was like"—as one of them put it—have rushed back to their old C.Os. or to their depots and have clamoured to go "back to the Army again," or to the R.A.F., as the case might be. Some have been successful, but some have not. Those who have drawn their gratuities, have spent the money on having a post-bellum burst, and have been allowed to rejoin are the lucky ones.

The Will and the Way.

Those who have kept their gratuities as a nest-egg and have set out to seek for work are perhaps less lucky. One has heard of a case, for example, of one earnest lad whose tastes run to science, and whose chief desire is a B.Sc. degree. He applied to the Appointments Department of the Ministry of Labour—an excellent institution worthy of all support from employers who want men of the right stamp—but, having had no specialised education, could find no job which would provide him with a living and allow him time for study.

The only marketable knowledge which he had acquired in the R.A.F. concerned the running of internal-combustion engines, and the only job which the Appointments Department had available at that moment wherein such knowledge could be used was that of chauffeur to a wealthy man who offered a decent wage. Being an eminently sensible lad, the young officer took the job, arguing that while he would be sitting around waiting for his employer he would have plenty of time for reading.

The idea has much to commend it. One can imagine many worse studies than the interior of a lordly limousine.

Appointments for All.

Therefore, one would like to draw attention to the fact that officers and men of the R.A.F. who are looking for jobs ought to use the machinery set up by the Government to help them in their quest, in the hopes of finding appointments for all. The mere name "Ministry of Labour" is admittedly enough to put one off any desire to use that machinery, for it conjures up visions of Labour Exchanges as they were some years ago—or may be to-day, for all one knows.

These were horrible institutions, generally occupying derelict shops or dismantled factories. They were run by ignorant and supercilious bullies (male and female) who traded on their positions as Government officials and made themselves as offensive as possible to the less fortunate members of their own class. And they were haunted by queues of odorous individuals who gave one the impression that the places were the casual wards of workhouses invaded by "bread-lines" from the Embankment.

It is necessary to overcome this idea and to realise that the Appointments Department has been established for the express purpose of helping those who want an "appointment" and not merely a "job." As a matter of fact, the differentiation is just plain straightforward snobbery, and would never have been necessary if the Labour Exchanges had been properly run, and if they had been called Employment Bureaux, or some such elegant name.

Distinguishing between appointments and jobs is simply encouraging the "Class War" of which we hear so much and see so little. In fact, the Appointments Department district headquarters might well become recruiting depots for the "White Army" and the Labour Exchanges might do likewise for the "Red Army" if and when the promised outbreak of British Bolshevism blazes upon us—as it probably will not, thanks to British love of respectability.

To Help the King's Servants.

Be that as it may, the fact remains that the Appointments Department is a thing in being, and in it exists a special organisation to find employment for officers and men of the King's Services. This is a wholly praiseworthy institution in which every employer should take the keenest interest, and should assist in every possible way. And the best way of assisting it is by applying to the Appointments Department whenever an employee is wanted. Also, those who want employment should apply there, stating their special qualifications.

With that curious lack of intelligence which is characteristic of so many well-meant Government efforts, nobody seems to have taken any particular trouble to tell the world at large the particular addresses of the various District Headquarters of the Appointments Department. At any rate, one does not recall having seen the addresses in the daily papers. Possibly one might acquire them by application to the nearest Post Office, Police Station, or Labour Exchange. But the simpler way seems to be to write to the Appointments Department, St. Ermin's Hotel, London, S.W.2., and ask for the address of the nearest local H.Q.

Applications for appointments should be made, in the first instance, to District H.Q., because the people there may have on the spot the precise job which would fit the applicant. But if there happens to be nothing doing locally, or if there seems to be any doubt or delay, then the applicant should write direct to St. Ermin's Hotel.

The R.A.F. Department.

Officers and airmen of the R.A.F. will be glad to know that a special sub-department has been opened for their benefit at St. Ermin's, at Room 238, to which applications should be addressed *after*—not *before*—communicating with the District H.Q. This special department has been placed by the Air Ministry in charge of an R.A.F. officer who has not only a fine record as an organiser at home, but a distinguished career as an active-service aviator.

If anybody can make a success of the work of finding the right men for the jobs and the right jobs for the men, one feels sure that he can, and one bespeaks on his behalf the cordial co-operation of all readers of this paper.

One does not expect that he will be able to find jobs in the Aircraft Industry or in Commercial Aeronautics for all, nor indeed any, of those who want them. The aircraft factories are demobilising all their personnel much quicker than the Services are doing so, and it will be some years before many jobs will be going in that direction.

But, just as there are millionaires in a poverty-stricken country like Italy, so there are jobs of sorts opening up from time to time in the Aircraft Industry, so one hopes that the Society of British Aircraft Constructors will enjoin upon all its members the soundness of the policy of communicating with Room 238, when any jobs are on offer.

Outside the Industry.

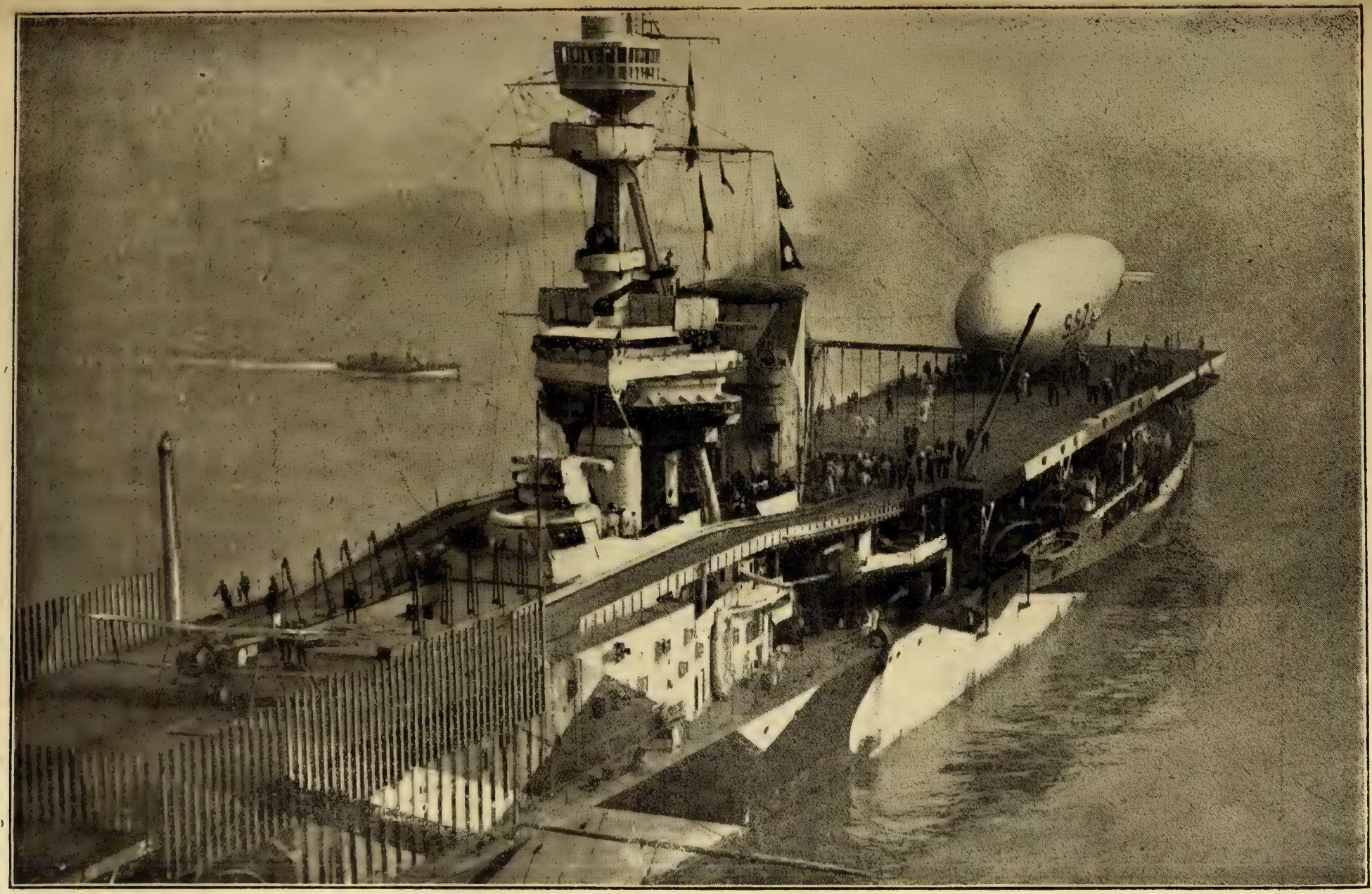
There are, however, very many readers of this paper who are quite outside the Aircraft Industry and certainly want men and women of intelligence. To them also one commends the idea of communicating with Room 238 when they have jobs to offer.

One is not quite sure whether the R.A.F. Department also deals in W.R.A.Fs., but no doubt if jobs are offered for intelligent women it will find women of the right sort among the W.R.A.F. personnel. The R.A.F. can supply trained engineers of the highest class, experienced business men, draughtsmen, designers, farmers, horsemen, fighting men, even so low down the social scale as journalists, in fact practically people for any sort of job, from those who know all about it to those who know nothing but are willing to learn.

On Behalf of the Untrained.

And it is on behalf of the latter that one would particularly appeal to employers, for the untrained are the people who have the strongest claim on our sympathies. The years in which they should have been learning how to make a living have been spent in defending those of us who were too old or too physically unfit to take a hand in "The Greatest Game of All," and it is up to us to help them to learn a trade. Therefore one hopes that any reader who knows of a vacant job which will afford a decent living wage for one of our middle-aged or elderly boys (between 19 and 25 years of age) will communicate with Room 238, St. Ermin's Hotel.

There is a great need to-day that we should keep the best of our youth in this country instead of allowing them to emigrate to foreign nations, or even to our own Colonies, for during the next years we shall want all the energy and brain which we can produce if we are to recover from the effects of the war and are to avoid becoming the financial vassal of the United States. The fact that a youngster joined the R.N.A.S. or R.F.C. in the early days of the war shows that he has energy and initiative, and probably brains. Therefore there is particularly good reason why all who have the interests of the Empire at heart—which in its lowest degree means



A SEAPLANE-CARRIER IN BEING.—The Photograph reproduced above is exhibited in large size, and coloured, at the R.A.F. "War in the Air" Exhibition at the Grafton Galleries. It shows H.M.S. "Furious," originally intended to be an Ultra-high-speed Light Cruiser, which, for various reasons, did not quite come up to Admiralty intentions, and is now rigged up as a Seaplane-Carrier. On the Left of the Picture may be seen a "One-and-a-half strut" Sopwith Biplane on the Launching Deck. The Vertical Posts round and across the Deck form a Wind Screen. It is found that Posts placed at short distances apart in this way actually break the Force of the Wind almost as much as a Solid Screen. Moreover, they appear to have the advantage of not causing a Curl-over Eddy behind the Screen as would a Solid Sheet. On the After Deck of the ship is seen one of the small "Zero" Submarine-Searcher Airships. This Deck is of particular interest in that it is rigged up to afford a Landing Place for Aeroplanes. The Cross-Bar with Vertical Cables, just abaft the Funnel, is a Screen to prevent the Aeroplanes from overshooting their mark and falling over the Edge of the Deck. This Deck has also been arranged with a kind of Wire Mattrass of Wires stretched fore-and-aft and horizontally so that the Machine, on landing, slides on its Axle along these Wires, which are so arranged as to act as Brakes on the Under-Carriage. Good results were obtained with Machines fitted with Skids designed to grip the Wires instead of using Wheels.

their own self-interest—should endeavour to provide decent jobs for the youths who are now leaving the Flying Services, frequently much against their will.

Moreover, for the future safety of the British Isles it is of the utmost importance that all who have had to do with flying should remain in these Islands, so that we may have on the spot a big ready-made Air Force Reserve in training for the next war. Here the Air Ministry—by leave of the Treasury, *bien entendu*—can do much to settle for the moment the question of What To Do With Our Boys. And of that one hopes to discourse next week.—C. G. G.

The Prince of Wales Over London.

H.R.H. the Prince of Wales, K.G., visited the Handley Page aerodrome at Cricklewood, on April 7th, and made a flight in a Handley Page machine, type O/400, with two Rolls-Royce engines. The pilot was Lieut. Carruthers, R.A.F., and the other passengers were the Lady Joan Mulholland, the Lord Claud Hamilton, and Vice-Admiral Mark Kerr, R.N.

The flight lasted about one hour, and the machine passed over Buckingham Palace, the Houses of Parliament, Fleet Street, and St Paul's Cathedral. During the flight Mr. Carruthers and Admiral Mark Kerr changed places and the Admiral piloted the machine for a time.

On landing the Prince said it had been a very wonderful flight, and expressed a desire for a flight on another occasion in the V/1500 type of machine, which is fitted with four Rolls-Royce engines. The Prince spent some time with Mr. Carruthers, and the whole mechanism was explained to him.

A Forgettable Anniversary.

In reply to those who have remarked that last week's issue of The Aeroplane omitted any allusion to the fact that April 1st was the first birthday of the Royal Air Force, one merely suggests that they should remember that there are some things which are better forgotten.

The Canadian Air Force.

It is announced in the daily Press that Canada is to have an Air Force. The subject is now being discussed by the Canadian Government and the British Air Ministry. Col. Mulock, of the Canadian Overseas Ministry, is leaving for Canada to assist the Canadian Government in regard to the establishment and personnel of the new force. Two Canadian squadrons of the R.A.F. at present training in England are to be sent to Canada as complete units.

The International Aeronautical Commission.

The following official communiqué, dated March 31st, 1919, has been received from Paris and is passed to the Press for publication :—

The Fourth meeting of the Aeronautical Commission was held on Monday, March 31st, at 3 p.m., in order to receive and consider the reports of the Sub-Committees on military, legal, and commercial and technical subjects respectively. At this meeting, in addition to the representatives of France, Great Britain, the United States, Italy and Japan, representatives of Portugal, Belgium, Brazil, Roumania, Greece, Serbia, and Cuba were also present.

The work of the Sub-Committees was not complete, but the Commission approved of the interim reports submitted. The Commission agreed to put forward to the Supreme Council proposals to be finally submitted at their next meeting by the joint military and legal Sub-Committee.

In other directions good progress was made and substantial agreement arrived at on important points in connection with the future of commercial aviation.

The next full meeting of the Commission was fixed for April 4th at 3 p.m., when it is expected that the general principles and much of the detail of an inter-Allied convention may be finally settled.

The following official communiqué dated April 7th, 1919, has been received from Paris :—

The fifth and sixth meetings of the Aeronautical Commission of the Peace Conference were held on April 4th at three p.m. and April 5th at eleven a.m.

The Commission received reports from the Joint Military, Legal, Commercial, and Financial Sub-Committee, and decided to include the substance of these reports in a report to be made to the Supreme Council early in the following week. The Supreme Council had requested the Commission to report as early as possible upon any matters which might have relation to the conditions of the Preliminaries of Peace.

The Commission further considered and provisionally approved a report of the Technical Sub-Committee. This report contained recommendations of that Sub-Committee as to the technical articles which are to be included in the International Convention and as to the regulations to be contained in annexes to the Convention upon the following matters :—(a) Marking of aircraft ; (b) Certificates of airworthiness ; (c) Log-books ; (d) Rules as to signals, rules of the air, regulations for air traffic on and in the vicinity of aerdromes.

With regard to the marking of aircraft the Sub-Committee have recommended a system of marking by capital letters, of which the first letter will represent the national mark of the country and will be followed by a group of four capital letters pronounceable if possible, each group containing at least one vowel. A complete group of five letters is to be used as a call sign in making or receiving signals by wireless.

In the case of aeroplanes the marks are to be painted once on the lower surface of the lower main planes and once on the upper surface of the top main planes, and also along each side of the fuselage. In the case of airships and balloons the marks are to be painted on both sides. The height of the marks must be equal to four-fifths of the width of the wing in the case of aeroplanes, and in the case of airships at least one-twelfth of the circumference at the maximum diameter, but they need not exceed 2½ metres in height. They are to be painted or affixed in black on a white ground.

The main conditions governing certificates of airworthiness include approval of design, flying trials of the first of the type, approval of workmanship and materials, and equipment with suitable instruments.

The recommendations as to log-books contemplate four different kinds of log-books—viz., journey log, aircraft log, engine log, and a signal log. The first of these must be kept for all aircraft and is to contain particulars of the crew and passengers and a description of the journey, but need only be kept in the case of international flights. The last three are only obligatory in the case of commercial aircraft and are to contain entries of a technical character ; the aircraft and engine log including a record of the life of the aircraft and engine.

The rules as to lights are modelled to a certain extent upon similar rules in use at sea, and there are detailed rules as to signals in the case of aircraft wishing to land at night and in the case of aircraft in distress. These include the use of Véry's Lights and certain visual or wireless signals.

The rules of the air follow the rules of the sea in many respects, especially in the case of the passing rule when two aircraft are meeting. In that case each must alter its course to starboard.

Regulations for air traffic on and in the vicinity of aerodromes contemplate the use of coloured flags indicating whether the circuit which an aircraft about to land may find it necessary to make should be clockwise or anti-clockwise. There is also a valuable provision for dividing every aerodrome into three zones when landing upwind. The right-hand zone is to be the taking-off zone, and the left-hand zone the landing zone, and between the two there is to be a neutral zone into which, after its landing run, an aeroplane will immediately taxi.

In the general provisions at the conclusion of this code there is a rule providing for every aircraft which manœuvres under its own power on the water conforming to the regulations for preventing collisions at sea.

The Industrial Reconstruction Council.

The Rt. Hon. J. H. Whitley, M.P., has accepted the office of president, and Lieut.-Col C. L'Estrange Malone, M.P. the office of chairman of the executive committee of the Industrial Reconstruction Council.

The Industrial Reconstruction Council, which was founded by Mr. Ernest J. P. Benn, is a propagandist body having for its object the awakening of national interest to the need for a complete system of Industrial Self-Government, based on the principles of the Whitley Report.

The Royal Aeronautical Society.

At the annual meeting of the Royal Aeronautical Society, which was held at 7, Albemarle Street, Piccadilly, Major-General R. M. Ruck, who presided, said that this would be the last occasion on which he would address the annual meeting from the chair.

The recognition of their work by His Majesty, who had conferred on the Society the dignity of "Royal," was deeply appreciated. Their membership, which now reached 1,100, had increased five-fold, and their income ten-fold. They had striven to promote the cause of civil aerial transport, and welcomed the advances which had been made during the war in aeronautical science. The council strongly urged the foundation of local branches.

The ballot for 10 vacancies on the council resulted in the election of Mr. A. E. Berriman, Lieut.-Colonel A. Burgoyne, M.P., Lieut.-Colonel T. R. Cave-Browne-Cave, Sir M. D. Chalmers, Sir R. Hadfield, Lieut.-Colonel A. Ogilvie, Lieut.-Colonel M. O'Gorman, Mr. F. Handley Page, Mr. G. Holt Thomas, and Lieut.-Colonel H. T. Tizard.

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SAMSON versus "THE AEROPLANE."

On April 4th there was heard before Mr. Justice Darling and a special jury an action brought by Capt. William Leopold Samson, D.F.C., R.A.F., brother of Col. C. R. Samson, D.S.O., the famous aviator, to recover damages for alleged libel against the publishers, printer, and editor (C. G. Grey) of THE AEROPLANE. Defendants denied that the statements complained of were libellous or that they referred to the plaintiff.

Sir E. Marshall Hall, K.C., and Mr. H. Cassie Holden (instructed by Mr. G. R. Cran), for the plaintiff; Mr. Lewis Thomas, K.C., and Sir Hugh Fraser (instructed by W. W. Box and Co.), for the defendants.

Sir E. Marshall Hall said the plaintiff was 37 years of age, was a member of the Bar, had a high reputation as an airman, and possessed the 1914 Star. When the war broke out he gave up his Bar practice and obtained a commission in the Royal Naval Volunteer Reserve. He was attached to the Royal Naval Air Service, and was engaged with them at Ostend in 1914. After the evacuation of Ostend he took part in several armoured car engagements.

Returning to England in 1915, he in March of that year went to the Dardanelles, and took up a position as observer in the Air Service, doing important work bombing the enemy. At Smyrna his plane was wrecked, and he and the pilot were not rescued until after some hours. He was injured and went to a military hospital and was then invalided home. In October, 1915, he returned to the Dardanelles, and remained there till the evacuation. In November, 1915, he went to Adrianople, and took part in bridge bombing, flying 180 miles, of which 60 miles were over the sea. From April to September, 1916, he was in German East Africa. In October, 1916, he joined the ship "Ben-my-Chree," and was engaged in Egypt, Palestine, and Syria, taking part in daylight raids. In January, 1917, the "Ben-my-Chree" was sunk by shell-fire in harbour, he being on board at the time.

In February, 1917, he came back to England, and was stationed at Eastchurch, and took a qualifying course as observer. In March of that year he was gazetted, and a letter was sent from the Admiralty thanking him for distinguished services. In June, 1917, he joined No. 6 Wing of the R.A.F. in Italy, and took part in the expedition for bombing the Austrian fleet, when six planes were damaged and two were sunk. He was picked up in the sea. Later in 1917 he went to Corfu for the French Government, and in July, 1918, he was attached to the Royal Air Force headquarters staff at Felixstowe. He then took part as an observer in attacks upon submarines.

Early in October he accompanied Capt. Webster, a pilot from Felixstowe, in a Porte flying-boat, and an extraordinary thing happened. Although he had been continually flying, on this flight he suffered for the first time from air-sickness. But in spite of that, when the pilot called his attention by the prosaic method of kicking him in the back to the presence of submarines, he pulled the lever which fused the bombs, and released the bombs, and it was confidently believed, although there was no actual proof, that a submarine was sunk. When he mentioned the incident of his sickness on returning to Felixstowe it caused a good deal of chaff in the mess. On January 1st he was gazetted for the Distinguished Flying Cross, which was only given for acts of valour in face of the enemy.

Then, on Jan. 15th, there appeared in THE AEROPLANE the libel complained of, under the headline "The Porte Boats."

It was as follows:—

EARNING A DECORATION.

Incidentally the big boat people tell a delightful story of an R.A.F. staff officer who much desired a decoration of some sort. Although he scrupulously avoided active service of the more dangerous kind, he regarded the big boats as safe enough even for him. So he went forth bravely as an observer to search for submarines. Now be it noted, for all its size, a big boat can roll and pitch at times in a manner disconcerting to one of delicate stomach. So it came to pass that when, after some time, a real Hun submarine was sighted, the gallant officer was in the preliminary agonies of air-sickness, and did not observe it as a good observer should. The pilot, being an old hand at the game, spotted the submarine, and jerked the elevator controls to attract the observer's attention. Unfortunately, the observer, being so intent on his own internal affairs, did not recognise the signal, and regarded the jerk merely as another unkind stroke of fate. The pilot steered skilfully for the submarine, and, when almost in position, again jerked his controls, this time more forcibly, to signify that it was about time for the observer to get busy. Again the jerk merely aggravated the observer's discomfort, and nothing happened.

By this time the pilot realised that the observer was not paying proper regard to his commanding officer, and to secure his prompt attention gave a mighty heave at the elevator, which swung the big boat up and down like a rocking-horse. That did it. The cataclysm befell. In his paroxysm the observer clutched at the first thing near him. It so happened that the something which he gripped happened to be the bomb-release lever. And as his soul was rent within him two hefty bombs whistled through the air and deposited themselves on or near the submarine. Things spread themselves over the surface of the water, and were duly certified as evidence that an enemy submarine had been sunk. Things also spread themselves over the interior surface of the boat, but that is another affair. It suffices to say that the boat duly returned, and that in due official time the observer mounted the blue-and-white ribbon of the D.F.C. "for gallantry in the face of the enemy." Officially, one gathers, the top of a submarine commander's head is the face of an enemy for purposes of donating decorations.

Commenting on the article, Sir Edward said its offensiveness and intention were beyond question. The plaintiff said that he was the "observer" in question, and that the words meant that he was a coward and a shirker and unfitted to hold His Majesty's commission, and that he had been brought into public ridicule and contempt.

EXCERPTS FROM THE EVIDENCE.

Captain W. L. Samson was sworn, and was examined by Sir E. Marshall-Hall.

After some evidence concerning Captain Samson's service, Sir Edward Marshall-Hall continued:—

Now, in 1918, were you attached to the staff of the No. 4 Group at Felixstowe?—Prior to that I was on the "Campania" for six months.

Did you make a number of anti-submarine flights as observer in bombing machines?—I did.

I am coming particularly to an occasion early in October, 1918. Did a squadron go out?—Yes, of five boats.

Were you in the leading boat?—Yes.

Did you have sole control of the bombs?—Yes.

Were you sitting in front?—Yes, in the cock-pit.

During all the years you have been flying, have you ever suffered from air-sickness before?—Never.

On this occasion were you seized with a violent attack of air-sickness?—I was.

Is the pilot above you or below you: is his line of vision above or below yours?—I think a little above if anything.

How can he communicate with you?—Kicking me is the simplest thing.

That would attract your attention?—Yes.

Would he get a better chance of seeing a periscope before you or not?—It depends upon where it was.

If it was straight in front?—He might, because he is looking straight ahead along the horizon the whole time.

While you were air-sick, was your attention attracted by the pilot?—Yes.

Did he, in fact, call you?—Yes.

Will you tell the story exactly of what happened?—The pilot kicked me. I presumed he was trying to attract my attention to something. I looked about and saw the periscope of the submarine. I knew what was wanted. I prepared to bomb the thing when we got over it.

What did you do?—I adjusted the sight over the front of the machine. It was a complicated bombing sight. I also fused the bombs. There is a lever inside the boat to fuse the bomb, and there is a plug to release them afterwards. I fused the bombs and got ready to bomb when in a position to do so. When I got the sight which I considered bearing on the thing, I dropped both the bombs. I saw them drop. I believe we hit it, but I will not be sure. Both the bombs exploded.

As a matter of fact, was there any evidence on the surface of the water that you had successfully bombed the submarine?—I could not see anything; it was a rough day.

Although you were air-sick, did that interfere with the discharge of your duties?—Not in the least.

When you came back, of course this matter became the subject of conversation?—Yes.

Did you yourself tell your friends that you had been air-sick?—Certainly.

Was the story so far as your air-sickness was concerned known in the mess?—Yes, known everywhere.

Who was your commanding officer?—My brother.

Who was under him?—Lieut.-Colonel Wardle.

On January 1st, were you gazetted and awarded the Distinguished Flying Cross?—I was.

Did you see Mr. Grey when he was down there?—Yes. I was staying at the same hotel. I live there.

Did he come to the mess?—I do not know. I did not go often to the mess. I was a casual visitor.

Whilst he was there, was this story current or not?—It had been current all the time. Everyone knew it.

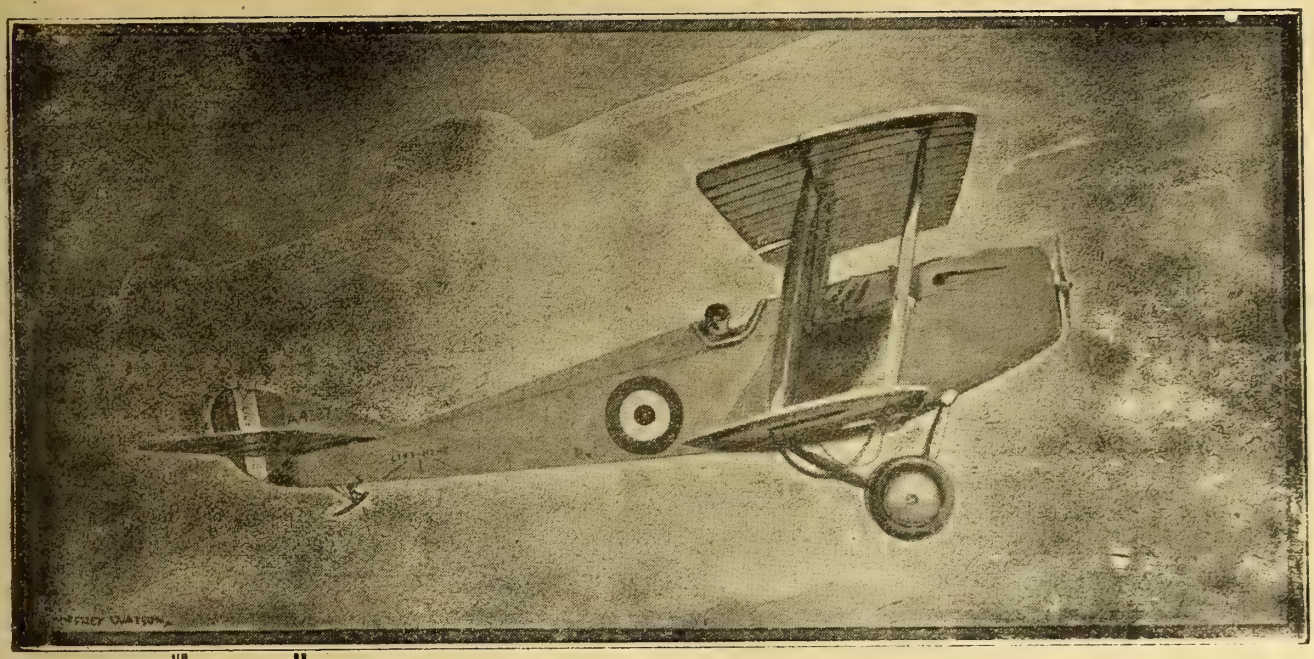
Mr. Justice Darling: When did you say he was staying at Felixstowe?

The Witness: At Christmas.

Sir E. Marshall-Hall: December 21st to 28th, 1918. Is the paper, THE AEROPLANE, always taken in at headquarters?—Yes.

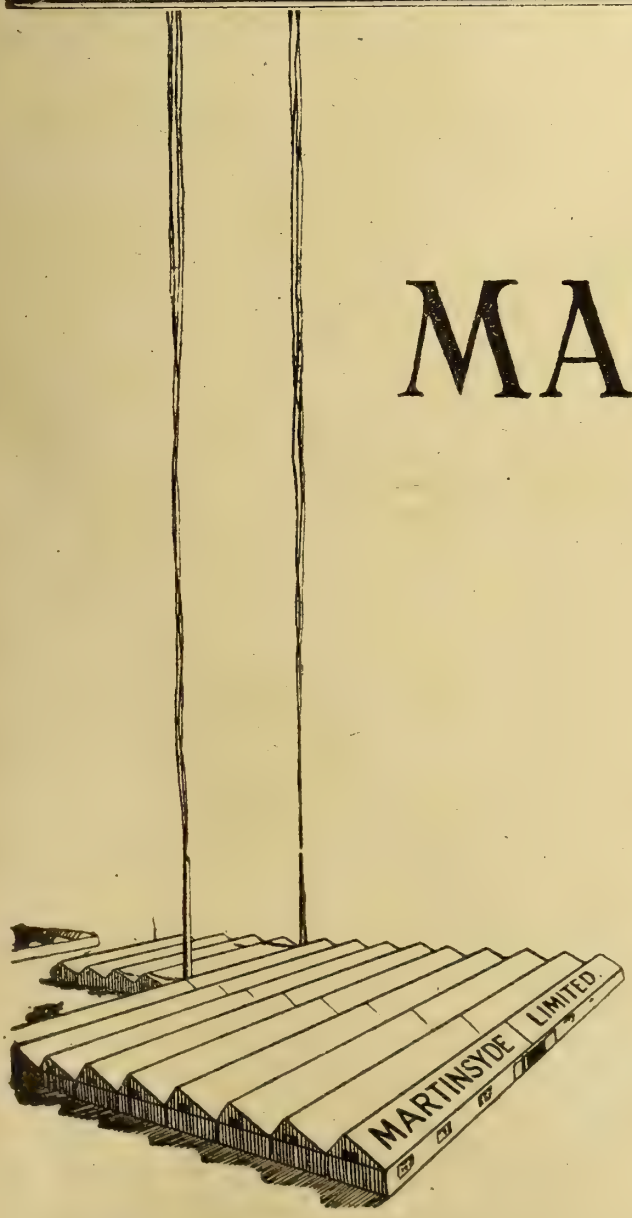
Is a copy put on the table?—Yes, on every table. Every officer has one.

On January 15th was your attention called to this paragraph?—I picked up the paper and read it myself.





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WOKING, Surrey.

So far as you are concerned, did you take it as applying to you?—Certainly.

Did it cause you considerable pain?—It made me very angry indeed.

Incidentally, the big-boat people tell a delightful story of an R.A.F. Staff Officer." First of all, was this Porte known as a big boat?—Yes.

Are you an R.A.F. Staff Officer?—I was attached to the Staff.

And you instructed your solicitors to issue a writ for libel?—Yes, almost as soon as I read the article.

Cross-Examination by Mr. Lewis Thomas.

You read the article on the 15th?—I do not know what day it was. It was the day we got the paper.

It is issued on the 15th, and you would get it on the 15th?—I do not know. It is posted to us, and we get it every week.

Did you ever write a letter to the proprietors of The Aeroplane saying that you thought it applied to you and would they put the matter right?—I did not.

You fired away and issued a writ at once?—Certainly.

Did you think that was a proper thing to do?—I had only two things to do.

Did you think that was a proper thing to do, as a member of the Bar—as your learned counsel has referred to it?—Certainly.

If the other side were wrong, do you not think it would have been a reasonable thing to have given them an opportunity of putting the matter right if they were wrong and it did apply to you?—I do not know about that.

Do you not think it would have been fair to write and say, "If this applies to me, I must ask you to express your regret and retract"?—I did not think so at the time.

You did not do so?—I did not.

The article itself contains no name whatever of Captain Samson?—No.

Your name is not mentioned?—No.

You know that the people who read this paper, even if it could apply to you—not that it did apply to you—unless they knew you, could not connect you with the article, could they—Oh, yes!

What! If they did not know you?—Certainly. The thing was common talk.

I will deal with common talk in a moment or two. As a matter of fact, was your experience of air-sickness in the first half of October, 1918?—This was the first time I had been sick in the air.

I am not putting it offensively. I am not suggesting there is anything which reflected upon you.—I am not ashamed of being sick at all.

I do not see why you should. I do not see why you should have complained if it was mentioned by name that you were air-sick.—I am not complaining of that, but of the first part of the article.

I was asking for the date. I asked you whether it was the early part of October, 1918.—I think this occasion was the 10th or 11th.

Then you agree with me?—Certainly.

The first half of October?—Yes.

When you came down, is it true that you told every one in your Mess?—We have not got a Mess. I told them in the Headquarters. I came straight back and I told them all that I had been sick.

Did you regard it as a joke?—I do not know about a joke.

Did you regard it as a joke?—I cannot answer that at all. I mentioned as a fact that I had been sick. There is nothing disgraceful in saying it.

There was nothing disgraceful in being air-sick?—Certainly not.

Some people have passed across the Channel (they are going by tunnel now) who have been sea-sick. You would not think them discreditable because they had that misfortune?—No.

You would not necessarily think them cowards?

Mr. Justice Darling: I think you may take it that probably Julius Cæsar and William the Conqueror were sea-sick when they crossed the Channel.

Mr. Lewis Thomas: I understand William the Conqueror was so knocked up that when he got to land he fell down. I understand that whenever Lord Nelson went to sea he was sea-sick and it was not discreditable to Lord Nelson.

Before October 10th or 12th, what were your duties in the Felixstowe command. Were you Law Officer and Recreation Officer?—Yes, and physical trainer.

I am not depreciating your services, but, as a matter of fact, before October 10th, you had not been up for some little time, had you?—I had been up in July.

Therefore, there was nothing very surprising if you went up after some interval without having been up, that you should be air-sick?—I believe I am the only person who has been known to be sick in these boats.

But you have heard of other people being sick?—I have not heard of anyone being sick in these boats.

I did not ask you that. You have heard of other people being air-sick.—Yes.

You told people when you came back to Headquarters. Did you regard it as a joke?—I cannot say I regarded it as a joke or not.

Mr. Justice Darling: He said he was a Recreation Officer (To the witness). You said you were Law and Recreation Officer. Was it a combined post, or is Law different from Recreation?—I combined the two.

Mr. Lewis Thomas: (To the Witness). I got to the date of about October 10th. Before the beginning of December, had whatever incident had happened been weaved into what one may call a yarn?—I do not know.

Had you not regarded it as a joke that you dropped two bombs even when you were air-sick, and told it as a yarn and spread it about the place?—Even if I had——

Let us have, Yes or No.—I do not know.

Mr. Justice Darling: Did you hear people laughing about it down at Felixstowe?—Yes.

Mr. Lewis Thomas: It is so easy to say, Yes.

Mr. Justice Darling: It depends upon how you ask him.

Mr. Lewis Thomas: I will try and emulate my Lord. You will feel that I am not hostile to you?—Quite.

The article says that there was a yarn going about there?

Sir E. Marshall-Hall: "A delightful story," they call it.

Mr. Lewis Thomas: My friend and I do not think the story so delightful, but you were the author of it. Had you known sometimes a little grousing at Headquarters there about the Staff Officers?—I did not personally.

No, not you—you would not "grouse."—I did not know there was any.

Has there been, probably quite unjustifiably, comments that Staff Officers got soft billets?—Quite likely.

And that they got honours with less difficulty than other people?—It is quite possible.

Mr. Justice Darling: Honours easy, do you mean?

Mr. Lewis Thomas: We will cut again, my Lord.

You have heard comments, I suppose, of Staff Officers getting things more easily in the way of decorations than the hard-working observer captains?—I have heard comments and grousing about Staff Officers all over the world the last four-and-a-half years.

Mr. Justice Darling: Were you a Staff Officer or not?—I was attached to the Staff.

Mr. Lewis Thomas: Think before you answer my Lord, if you will forgive me. Are there only two Staff Officers with the Distinguished Flying Cross? You are not one. Be careful.

Capt. Samson: I cannot tell you how many there are. I cannot tell you how many there are. I am not in the Air Force List as a Staff Officer. I am only attached.

Mr. Lewis Thomas: Then you are not a Staff Officer?—No, I am attached to the Staff.

The Adjutant of the regiment is attached to the regiment, and he is, so to speak, part of the staff of the regiment, but he is not a Staff Officer?—Quite so. I am not a Staff Officer.

And throughout the monthly Air Force List, you are put down as Captain Observer, and not as a Staff Officer at all?—Yes.

So that when this article begins, "Incidentally the big boat people tell a delightful story of a R.A.F. Staff Officer," anyone who knew you would know you could not be the Staff Officer referred to?—That is nonsense. Everyone down there regards me as a Staff Officer. I am a Staff Officer except——

Except you are not?—Yes, except I am not.

You have admitted twice you are not a Staff Officer.—I admit that, but I am attached to the Staff, and in the eyes of the ordinary person I am a Staff Officer. It is the same thing.

The ordinary person outside may be ignorant, but the people in the No. 4 Headquarters Group would know you were not a Staff Officer?—If you ask any one in No. 4 whether I am a Staff Officer they would say, yes.

And say so wrongly?—Yes, but they would say yes.

It could not apply to you?—Of course it would apply to me; it could not apply to anybody else.

It would be untrue to suggest you had not had considerable foreign service?—Yes, I think so.

You had had considerable foreign service?—Yes, nearly four-and-a-half years.

You had actually been mentioned and commended for your conduct when the "Ben-my-Chree" was sunk by shell-fire, were you not, in 1917?—Yes.

You had actually taken part in the night-bombing expeditions in Turkey?—Yes.

You had been present when the bridge at Adrianople was bombed?—Yes.

You had taken part in other night-flying, had you not?—Yes.

Therefore you could not have been described as a person who had avoided foreign service?—I was described as such.

But you could not have been described as such?—No; it was a lie.

And therefore anyone who knew you would know it could not apply to you if it was a true story?—No one who was with me throughout the war and knew that, but other people could not have known it.


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You, as a matter of fact, got the Distinguished Flying Cross for bombing at Adrianople and your other foreign service.—I do not know actually what I got it for. I believe the original recommendation is there.

It is for service in the face of the enemy?—Yes.

As distinct from what I may call good service in the Air Force, but not in the face of the enemy. There is another thing for that?—Yes, the Air Force Cross.

Mr. Lewis Thomas: You were not gazetted for the Distinguished Flying Cross until January 1st?—No.

And you say that Mr. Grey, the editor of the paper, was at Felixstowe up to December 28th?—I am not certain of the date. He was there over Christmas. I actually saw him leave the hotel in a motor on the 28th, I think, but I do not know.

That is near enough for my purpose. Did you read this article at page 203 yourself?—I did. I read the paper every week.

And did you see the earlier part of the observation in the paper my friend read: "Certainly the fights they put up against superior numbers were among the great performances of the war, and their crews thoroughly deserved the comparatively few D.F.Cs. distributed among them"?—I read the whole number.

So that there was no attack upon the Air Force or upon people who use these particular flying-boats, the Porte boats?—No.

Then there are these differentiations that you are not a Staff Officer——?—I am a Staff Officer to all intents and purposes.

Would you wait for the question? Why, if there are these differentiations, you not being a Staff Officer and you having been commended for foreign service and having got your D.F.C.——?—Sir E. Marshall-Hall: The word is not "foreign" but "active" service.

Mr. Lewis Thomas: Active service is the more dangerous sort.

If you knew those differences showed it could not be you, why did you put the cap on your head?—Because one does not always believe true things. If a thing is untrue, it does not always follow it does not refer to one.

Why did you put the cap on your head?—Because there was no one else it could refer to in my mind.

Mr. Lewis Thomas: When you were gazetted, were there 100 others gazetted at the same time?—Just about, I think.

On the very same date, January 1st?—Yes.

Re-examined by Sir E. Marshall-Hall.

I think your brother wrote this letter: "Dear Grey,—I have just been shown The Aeroplane of January 15th, page 203, which talks about 'Earning a Decoration.' This cannot refer to anybody else except my brother, W. L. Samson, who is a proper qualified observer and has served since August, 1914. I think your article is rather unfair and that you have got a distorted account. My brother was awarded the D.F.C. on January 1st, 1919, for the following:—'For his continuous long service as an observer and for carrying out the second Boat attack at low altitude against very heavy anti-aircraft fire on the Railway Bridge over the Mantze River, near Adrianople.' On June 23rd, 1918, when carrying out a reconnaissance in the Mediterranean in the Gulf of Aivali in an aeroplane the machine came down in the sea through engine failure and he and the pilot were 1½ hours in the water. He went through the Dardanelles and took part as observer in many flights. He also served in many fights in armoured cars in Flanders. He took part as observer in December, 1916, in a seaplane in a very low and successful bomb attack against heavy fire on the Chikaldere Railway Bridge in Asia Minor. In 1917 he started as observer in a seaplane carrying a torpedo in an attack on Cattaro. In 1917 when H.M.S. 'Ben-my-Chree' was sunk by gun-fire he received a letter from the Lords Commissioners of the Admiralty commending him for the gallantry he displayed. He has since taken part in very long sea patrols in 1918 as observer in the Grand Fleet. So altogether you can see that you have cast aspersions on an officer who has done continuous good work and has not been an office-wallah. I hope that you will without mentioning names publish an apology, stating some extracts out of this letter. I am yours, C. R. Samson.'" This was his reply: "Dear Samson, I'm sorry if your brother identifies himself as the hero of the flying-boat story. There are heaps of flying-boats all round the coast, and heaps of Staff Officers who have got D.F.Cs., which heaps of them don't deserve, so why fasten the yarn on to him? It was told me as a yarn, and it was much too funny to be confined to private circulation. Any effort to explain things would probably make it worse, but if you can suggest anything I shall be glad to hear it. Hoping all is well with you, Very truly yours, Charles Grey," and you issued your Writ two days after that?—Yes.

Only one other question. Were you to all intents and purposes a Staff Officer at this time?—I was.

Lieut.-Colonel Charles Edward Wardle, in reply to Mr. Cassie Holden, said he remembered Mr. Grey, being at Felixstowe just before Christmas and giving him an invitation to visit the station, which he did. Witness had read the article in The Aeroplane, and considered it referred to the plaintiff.

In cross-examination, the witness agreed that a yarn was being told in the station of some one having been air-sick, and that it was more or less treated as a joke, and as being nothing discreditable. He saw nothing to make him think that Mr. Grey disliked any member of Group 4. Re-examined by Sir E. Marshall-Hall, the witness said the story of air-sickness was circulated with regard to Captain Samson. Captain Samson was not on the Staff, but was attached to the Staff of No. 4 Group.

Major Arthur Thomas Barker, Squadron Commander, Felixstowe, said he had been pilot on occasions when the plaintiff had acted as observer. He was a regular reader of The Aeroplane, and considered that the article in question referred to Captain Samson. He knew of no other officer to whom the article could refer, and had always regarded the plaintiff as a Staff Officer until that afternoon.

In reply to Mr. Lewis Thomas's questions in cross-examination, the witness had thought worse of Captain Samson after reading the article. He had read the story, and he would not like it circulated that he himself had been sick in the air, although he might have told such a thing about himself.

Re-examined by Sir E. Marshall-Hall: My friend asked you whether you thought any worse of him. Would you have thought worse of a man who was said to have scrupulously avoided active service while anxious to gain a decoration?—I certainly would.

Captain Alexander James Barber, Captain and Quartermaster of Headquarters, No. 4 Group, gave evidence that in his opinion the article referred to Captain Samson.

Captain James Grimaldi, an R.A.F. doctor, having given evidence to the same effect, the depositions of Col. C. R. Samson, D.S.O., taken on commission were read.

Extracts from Counsels' Speeches.

This concluded the evidence for the plaintiff and, no evidence being called on behalf of the defendant, Sir E. Marshall-Hall addressed the Jury on behalf of the plaintiff. He said:—The defendant refuses to go into the witness-box and tell us to whom it (the article) did apply. We are not bringing an action for libel because The Aeroplane published a story that Capt. Samson had been air-sick. That is not a libel. That is not the libel that is complained of. Once you admit that this refers to Captain Samson, it becomes a most serious libel, because it says that the man who is referred to in the libel was a Staff Officer who was desirous of getting a decoration of some sort: that he had scrupulously avoided active service of the more dangerous kind: that he thought the big boats were safe enough even for him, and he went forth bravely to search for submarines. The suggestion is that the man was a coward: that he "wangled"—my Lord has reminded us of the expression which has now become current—a decoration which he never deserved, and it is a disgraceful thing. You have a racy story, too good for private circulation. It may be a good story, but why, regardless of a man's feelings, should you put that in your paper? Once you admit, as you must admit, that this story was about Captain Samson, the mere fact that Captain Samson had told the story of his being air-sick, and had treated that lightly does not justify them in saying the man who was air-sick was absolutely deprived of his power of dealing with the bombs. I do not want to read the libel again.

We all want to get the case finished. It is a dastardly libel. If Mr. Grey had had the courage to go into the witness-box, and say, "I did not mean to refer to Captain Samson," it would be another matter, but he knows he cannot do that. Having brought us to trial here, he does not go into the witness-box. We know, as a matter of fact, that he was at Felixstowe between December 21st and 28th. Do you not think he got this story as part of an excellent story told at the Mess, and for some reason best known to himself he decided to publish it? Take his own explanation, if you like: the story was too racy to be kept for private recollection, and he puts this story into his paper to help to sell the paper, and which contains the grossest possible innuendo on an officer and a gentleman.

It is a dirty story to tell at any time—it is a nauseating story to talk of a man being sick on the head of a submarine commander.

Mr. Lewis Thomas: It does not say so.

Sir E. Marshall-Hall: No, it does not cross the i's and dot the t's. My friend says it does not mean that. What does it mean? "Officially one gathers the top of a submarine commander's head is the face of an enemy for the purpose of donating decorations." What does that mean? It means he was sick upon the top of the commander's head. It is a somewhat dirty suggestion.

Mr. Justice Darling: I must say, before you say that, that I think you should see they do say he was sick, but I think they limit his vomiting to the inside of the boat. He released the bombs. I suppose that if they fell on the head of the commander

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of the submarine, technically the top of his head would be his face. That says the top of the commander's head is his face.

Sir E. Marshall-Hall: Then that is the face of the enemy. What was supposed to hit the German commander was not what I suggested. However you wrap up the pill with the sugar around it, there is the nasty stuff inside. Here is this man who writes a racy story, as he calls it, but it is a serious libel upon the plaintiff. It is said that he has "wangled" a decoration he does not deserve.

Gentlemen, I do not ask for vindictive damages—I do not want to make money out of this, but I suggest you should award some such sum of money in the way of damages as will show your disapproval of this class of literature, and show the public that whatever suggestion or innuendo was contained in that libel with regard to Captain Samson's cowardice or fear on active service was entirely without foundation.

Mr. Lewis Thomas: I submit to you that this is one of those actions that ought never to have been brought if the ordinary course had been taken by the plaintiff in this case of writing to the editor of this paper and saying, "I am taken to be the hero of this story. If that is so, I want you to apologise and say I am not and make a suitable apology in the paper." He does nothing of the sort, but what takes place is this. On January 15th this journal is published; the story is read on the 16th.

The plaintiff's brother writes the letter which my friend has read, setting out what everyone admits—the good service on the part of the plaintiff in this case, Captain Samson, and saying to the editor of the paper that it was not fair in substance to put this story so that it falls upon the plaintiff. What does Mr. Grey, the editor of the paper, do? He receives a letter from the plaintiff's brother, addressing him, "Dear Grey." He writes back to Colonel Samson, the brother of the plaintiff, "Dear Samson"—so that they are on friendly terms—and says in substance, "It could not be taken to be your brother. If I were to put anything in the paper now it would make it worse and fix it upon him. What do you suggest I should do?"

That letter is written on the Saturday. No answer was sent by the plaintiff, or his brother, but he issues his writ. That is the only answer to the letter that Mr. Grey got explaining that he would do anything in reason, and asking them what they suggested he should do. So that, gentlemen, if Captain Samson had thought or had felt that his honour had been attacked in any way, he could have had it rehabilitated immediately. But the true position is that his honour never has been attacked, and it all occurred as the writer of the article, Mr. Grey, says. He had been spending his holiday down at Felixstowe, and, being the editor of The Aeroplane, an influential journal dealing with aeronautical matters, he was therefore busying himself on matters of aeronautics and aeroplane construction and flying and so on. He is invited by Captain Wardle over to the Air Station. He is taken over with two other gentlemen and entertained to tea at the Air Station, and it is admitted that this story or yarn was being told about the place with regard to somebody who had been air-sick and who had "wangled" or suggested an honour out of it. The story apparently was that this gentleman (the plaintiff) had been air-sick when out on an expedition. No one suggests that this article applies to him.

Mr. Grey, through me, is prepared to submit, and always has submitted, that it did not and was not intended to apply to Captain Samson. My friend asks why did we not put Mr. Grey in the box. I will tell you why. It was because the issue in a case of this sort is not whom the writer in a journal, if he makes a statement, intends to hit, but it is, who is hit by it, and who in substance the reader surmises it was intended to hit? If I put one hundred editors into the witness-box to say it was not intended to hit a particular man, it would not have advanced the case a bit, because it is no answer to say you did not intend to hit that particular man.

My learned friend talks about it being a nasty story. All I can say, gentlemen, is that my learned friend cannot have read the article. It says that the person in question got a D.F.C. for gallant service in the face of the enemy, and when a man drops a bomb on the head of a German submarine commander we now know that is the face of the enemy, as the article says. It may be a cheap joke, but my learned friend, having so weak a case here, has to distort it, and to suggest that it was a vulgar way of insinuating that this man referred to in the article had been sick on the head of the German submarine commander. Nothing of the sort, gentlemen.

The defence from first to last has been that it does not apply to the plaintiff, and we do not suggest that, even if the story were true, it could apply to the plaintiff, and, even it if could apply to the plaintiff, we do not suggest that the words are true. It is a boiling together of two yarns. What is the meaning now? It is admitted now that Captain Samson is not a Staff Officer. The article speaks of a Staff Officer who in the colloquialism of the Army, Navy, and Air Forces, had been "wangling" an honour, although he was afraid to go on active service of a dangerous sort in the face of the enemy. If I could say it in more handsome terms, I would. I say that no one is entitled to cast the slightest aspersion on the plaintiff in this case, and no one has done it, or to say that he has not done good service for his country in Egypt and Italy and the Dardanelles and been commended for it and got his D.F.C. for active service in the face of the enemy and for his bombing exploits at Adrianople Bridge. All that is known, and everybody at that Air Station knew it.

What do we find? There is a story going about with reference to somebody being sick in a flying-boat—the usual story about Staff Officers "wangling" decorations for themselves. Everybody at that Air Station knew perfectly well that this gentleman, Captain Samson, was not a Staff Officer. Everybody knew on January 15th that this man had got his honour for distinguished service in the face of the enemy, for low flights at Adrianople and other places, and his bombing exploits on the enemy. Everybody who knows Captain Samson knows that, and knows that this article could never have applied to him.

But if he picks up a paper and, being a barrister, thinks it right to bring an action for libel without even writing first of all a letter before action, and goes about interviewing his friends and asking them "Have you seen this about Joe, or Tom, or Dick, or Harry? Just read that?"—it is not very difficult to get them to say to him, "Oh, yes, this applies to you." But, gentlemen, you have not had called before you Captain Webster, the pilot who was in charge of this particular flying-boat on this occasion, and who is supposed to have kicked Captain Samson. He is not called to tell you what took place, but other people have been called. I do not know why they have been called. It is not for me to comment upon it possibly, but we have not seen Captain Webster.

Those being the facts, what has Captain Samson got to complain of? This article speaks of a Staff Officer of the Flying Service. In the first place, there are two Staff Officers of the Flying Service who have got the D.F.C., and Captain Samson is not one of them, and as regards this gentleman, I say it could not have applied to him. It is irrelevant that it was not intended to apply to him, but it could not apply to him and did not apply to him, and the cap, I submit to you, does not fit his head, although he is apparently so anxious to put it on.

You have seen people who knew it could not be true about him called, and you have heard the evidence they gave. But who is there who has ever heard of Captain Samson and read that article who could have fitted the cap on to Captain Samson's head? Gentlemen, we know why actions are brought without any letter at all before action being sent. It is because if a letter is sent before action, the plaintiff then meets his adversary personally, and if his adversary finds he has made a mistake and that he is wrong, an apology is at once tendered and published, and there is no action ever brought, and no damages, and no bill of costs for the plaintiff's solicitor.

No one but Captain Samson, through his solicitor, fits the cap on his head. He fits the cap on himself, and he says, "Here is a gross outrage on me." Nothing of the sort, gentlemen. This is an attack upon the theory which is criticised as being in practice, that Staff Officers may get a better amount of decorations than other people who are not Staff Officers.

The second point is, that this gentleman has heard between December 21st and 28th of the story of someone being air-sick when he is dropping bombs on the top of a German submarine, and he fits the two together. Notice this significant fact, that my friend says that it must and could only have applied to the plaintiff. This story is heard on December 28th, and this gentleman is not actually gazetted to the D.F.C. until January 1st. How therefore could this have applied to him, when the story which has been built up is a story which is current on December 28th? I repeat, although Captain Samson got the D.F.C., he was not gazetted for it until January 1st. and I submit to you, gentleman, that this is one of those cases which ought never to have been brought.

Even if you think it does refer to the plaintiff, gentlemen, what harm has been done to him to tell a story of this sort? No one has ever imputed any want of gallantry to the plaintiff, and if he wanted to resume his practice at the Bar, and to come and put on a wig and gown, and practice in these Courts, there is nothing to prevent his doing so. No one has ever suggested it, and no one but a perverted mind would have read any such thing as that it could possibly have applied to Captain Samson.

If you think there is something which my client is responsible for, what damage has the plaintiff sustained? None, except by bringing this action, and getting the publicity of it, and putting the cap on his own head. If you think he is entitled to damages, I will not say a single word on it, because my case is that he is not entitled to damages, for the reason, as I submit to you, that people of ordinary intelligence who knew him never could have thought that this story referred to him.

The Finale.

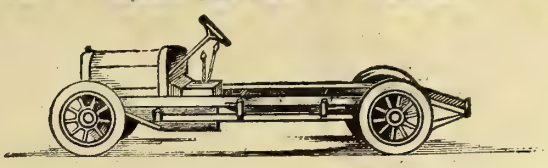
His Lordship, in summing up, said that the defendants stated that the story did not refer to any particular individual, but if they published a defamatory statement, which people who knew a certain person thought was applicable to him, they were, in law, guilty of libelling that person.

The jury found for the plaintiff for £200 damages, and judgment for that sum and costs was entered accordingly.

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NEWS OF THE WEEK FROM ALL QUARTERS

Mr. Bonar Law's Flight to France.

On April 7th, Mr. Bonar Law flew to Paris on a Handley Page biplane, type O/400 (Rolls-Royce engines).

The Federation Aeronautique Internationale.

According to the correspondent of the "Daily Telegraph" the first meeting of the Fédération Aéronautique Internationale since the war will be held shortly, probably at Amsterdam, although Madrid has also been mentioned in this connection. Germany, and possibly Austria, will be represented. The principal subject for discussion will be the position, as regards aeronautics, of the Central Powers. Government restrictions on flying, tests for pilots' certificates, and aviation sporting events will also be discussed.

The last meeting of the F.A.I. was held on May 5th, 1914, in Paris, and the subject under discussion was the limiting of restricted areas.

An Aero Union for the Transvaal.

A meeting, at which the Mayor of Johannesburg presided, on March 28th, decided to form an Aero Union of the Transvaal, the objects of which are "The education of the people in the development and possibilities of aeronautics; to encourage the establishment of aerial services of all kinds; to foster under its auspices the formation of aero-clubs in different centres; to associate itself with similar institutions throughout the country, and generally to promote the interests of aviation in this country."

Lord Buxton was elected honorary president. An administrator, a vice-president, and a representative committtee were appointed. Mr. Sturrock, President of the Chamber of Commerce, was elected chairman.

The Scandinavian Flying Exhibition.

At the forthcoming flying exhibition which is to be held in the Tivoli at Copenhagen, this month, one of the attractions will be a competition called "Star-flying," in which the entrants will be required to fly from a central point to various outlying points. Reuter states that Swedish, Norwegian, and Danish aviators, both military and civil, have entered for this event.

Apparently "Star-flying" is not to be confused with stunt flying, as the entrants are to travel merely from point to point.

Landing in Streets.

According to a United States Wireless message, the Aero Club of America has announced that Captain D'Annunzio, son of the Italian poet aviator, is manufacturing aeroplanes with a wing spread of less than 20 ft., capable of landing in streets. They are to sell at £240 each

The new machines, which Captain D'Annunzio has designed, are guaranteed to fly 2½ hours at 50 miles an hour, carrying a man weighing a maximum of 165 lbs. It is announced that members of the Aero Club have ordered several of these new machines.

It is presumed that the ability to land in streets is the chief attraction to the members of the Aero Club of America, but one expects trouble if they use those fly-abouts for shopping excursions in New York. It might surprise the American journalist who wrote the paragraph to know that machines with a span of less than 20 feet have been flown successfully, but the builders did not advertise them as suitable for landing on what our cousins call the "sidewalk."

Propellers Covered with Aluminium.

According to the "Scientific American," a waterproof coating for aeroplane propellers, which incorporates thin aluminium leaf in the finish, was developed by the Forests Products Laboratory at Madison, Wis., and placed in production by the War Department. The process is practically 100 per cent. effective in preventing absorption of water, particularly in the storage stage. A French authority states that 80 per cent. of the French propellers produced are rejected by the pilots mainly because they are out of balance. This difficulty is due largely to unequal absorption or distribution of moisture, and can be greatly reduced by an effective waterproofing.

One has doubts about the statement that 80 per cent. of propellers are rejected. It suggests that some people must have been abnormally fond of streamline walking-sticks or that the anonymous "French authority's" mentality suffers from the same defect as the condemned propellers. For the credit of French manufacturers one prefers the latter explanation.

Bombarding Non-Combatants with Gold.

It is reported by U.S. Wireless that a Curtiss aeroplane carrying Miss Molly Pearson, an English actress in "Pennywise," now playing in New York, flew over the city distributing 10,000 two-cent pieces and nine gold pieces.

One wonders what would be the effect of a gold piece dropped from a height of, say, 10,000 feet upon the face of a non-combatant who might happen to be looking up at the aeroplane. As the coin would arrive at a speed approaching that of the muzzle-velocity of a rifle bullet, it appears doubtful if the consignee would be grateful. The aeroplane has been put to some strange uses, but this bombardment of (it is hoped) innocent citizens appears to be the most insane performance yet accomplished.

Caribou Hunting by Aeroplane.

The following letter appeared in the "Times," of April 2nd:—

"Sir,—I have been hoping to see a pronouncement by some well-known or recognised sportsmen banning the hunting of game by aeroplane. To my mind, the use of an aeroplane in the pursuit of game is many degrees worse than the 'crime' of shooting a fox would be to a follower of the Quorn or Cotswold. The suggested wholesale slaughter of caribou by means of aeroplanes must make all true sportsmen shudder, and if this example were followed it would aid in the decreasing herds of antelopes, giraffes, buffaloes, etc., not to mention elephants in Central Africa, being speedily exterminated.

"The prospect fills one with horror, and not a moment ought to be lost in formulating the use of aeroplanes in sport. Otherwise our beautiful world may present the disgusting spectacle of being only inhabited by degraded humanity.—J. Lister Wright, Capt., R.A.M.C. (T.)."

The correspondent omits to mention the reprehensible sport of herring-hunting with H.E. dropped from seaplanes, but, nevertheless, he makes out a strong case. It would indeed be lamentable if all the cultured buffaloes and elephants were exterminated and only degraded humanity left.

But, seriously, is it to be believed that there is danger of game-hunting by aeroplane becoming popular? One has a higher opinion of Britishers, at any rate.

One certainly remembers the story of the Cockney who was told not to shoot at a running bird, and his reply: "I'm not going to. I'm waiting for it to stop." This person's idea of sport was crude, but barbarians of his type are not likely to fly over Central Africa in search of elephants or buffaloes.

The Bolo Riddle.

Recently, as recorded in these pages, the "Daily Mail" arranged to have a special edition carried from London to Bournemouth in an aeroplane. It was a Service machine that conveyed the papers, and a few days later Lieut.-Col. Malone asked in Parliament whether this was in accordance with the regulations.

Major-General Seely replied that it was not, and stated that the firm in question had been informed that the Air Ministry could not permit such action pending the re-opening of civil aviation.

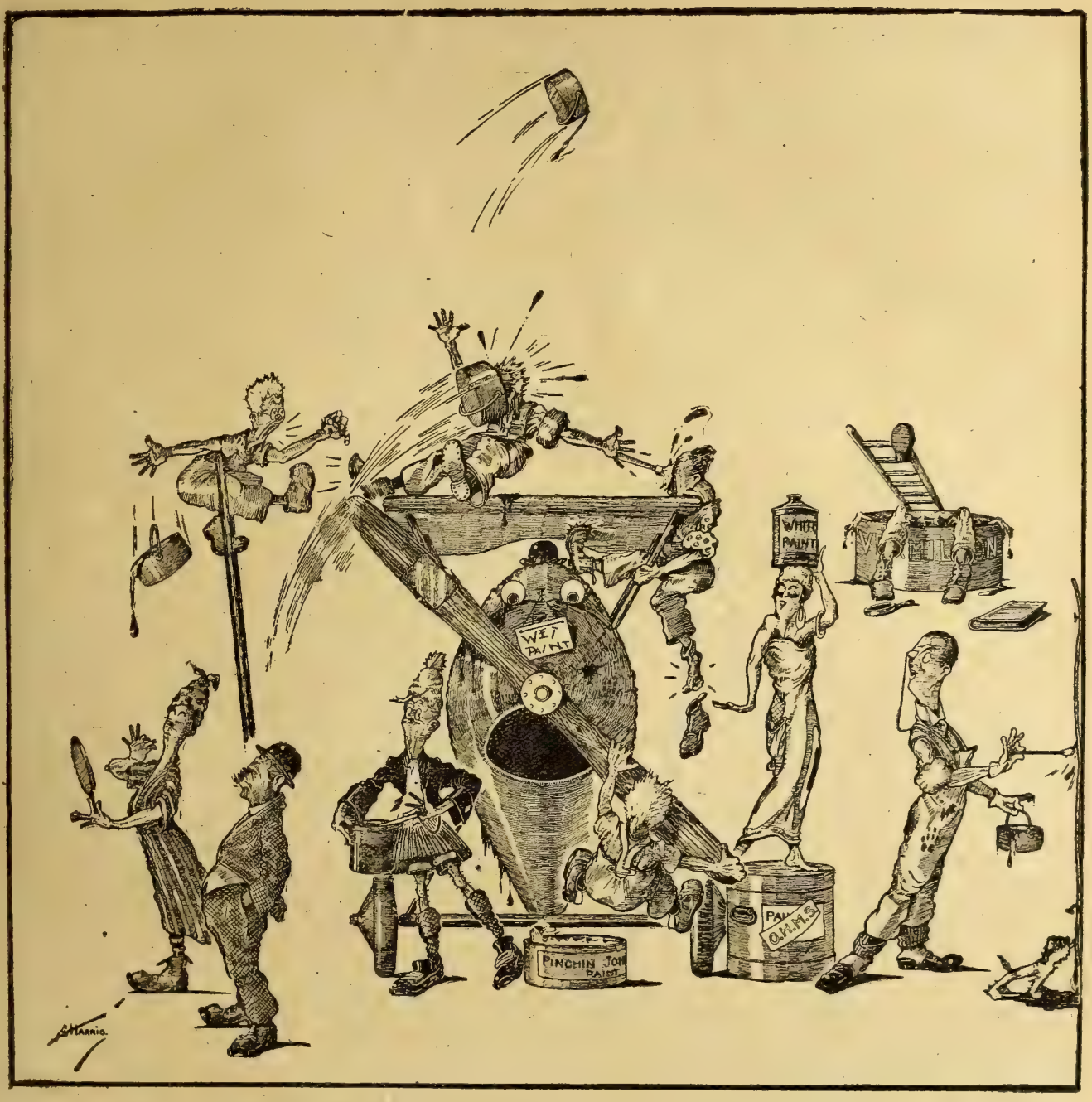
It appeared, therefore, that commendable enterprise had been crushed to the satisfaction of the House, and that everything possible was being done to delay the development of vulgar commercialism.

But now, with inconsistency characteristic of the Bolo, a Bristol Fighter machine is being lent to a cinematograph company till the end of May for the purpose of distributing films which show H.R.H. the Prince of Wales taking a part in a picture drama.

Truly, those are things no fellow can understand! Why should newspaper distribution by aeroplane (an extremely effective method of proving to business men the commercial possibilities of aerial transport) be discouraged, and the carriage of cinematograph films (that appeal chiefly to juvenile minds enthroned in persons of various ages) be given official sanction?

In trying to discover the essentially Bolological methods of reasoning by which such decisions are obtained one is reminded of the child who asked the riddle: 'What animal is it that has fur, four legs, and that quacks like a duck?" As no one could guess, the youthful interrogator gleefully said the answer was "a dog," and, when it was objected that a dog rarely quacked, remarked, with maddening placidity, that the quack had been put in to make the riddle more difficult.

Apparently, the Air Ministry has "put in" this aeronautical-cinematograph stunt to make it more difficult for anyone to guess what are the intentions regarding the immediate future of commercial aviation.



THE ADVENTURES OF "CYRIL" IN THE AVIATION WORLD

No 11 In the Paint Shop

A larger impression of the above drawing, suitable for framing, will be sent post free upon request to:—

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The WORLD of AERONAUTICS (continued)

An American Service Aviation Trophy.

The New York "World" has offered a trophy to be competed for annually by military, naval and marine aviators. The first contest will be held at Atlantic City in May, and the trophy will be awarded to the aviator who makes the longest non-stop flight over land or water from Atlantic City to any other point.

Perhaps later we shall be enlightened as to the meaning of "marine aviators."

The London Flying Club.

The building for the London Flying Club at Hendon is now nearly completed. It is a large red brick structure near the entrance to the aerodrome. On the ground floor there are a dining-room, anteroom, and lounge, a ladies' boudoir, and an American bar. There is also a hall 130 ft. by 80 ft., with a large stage. On the first floor, in addition to 80 bedrooms and bath rooms, with showers, there are to be a library, with books of reference on flying matters, and a card-room.

The main object of the enterprise is to provide all the attractions of a first-class club with facilities for flying. In the hall there will not only be dancing and theatricals, but lectures and cinematograph exhibitions dealing with air matters.

Members will also be able to hire machines, and arrangements are being made for the exchange of facilities with the Sussex County Air Club at Shoreham, so that members will be able to fly down to Shoreham, spend a day by the sea, dine at the local club, and fly back to town.

For the first 500 members the rate will be ten guineas a year for men and seven for women, with no entrance fee

Italian Aviator's Death in the Alps.

The inquiry held into the death of the Italian aviation officer Palli, who was carrying to Paris a message from D'Annunzio to the French people, has thrown some light on the tragic adventure. It appears that Palli had crossed the Alps near the Little St. Bernard, when a storm arose which caused his machine to crash in the district of Sainte Foy, at the foot of Mount Pourri, at a height of 3,237 metres, where the ground is covered with perpetual snow. Marks found in the snow extending over a distance of 1,500 metres show that Palli was still alive after the crash. His injuries appear to have been slight, and it was in the storm which raged at the time of the accident that he met his death. The machine has not been found.

A French Aerial "Ambulance."

A Red Cross aeroplane named the "Aerochir" was tested recently at Issy-les-Moulineaux. It is a "pusher" Voisin machine, and the ambulance part was designed by MM. Nemirowsky and Tilmant. All the surgical apparatus for operations and dressings, as well as an X-ray outfit, and the personnel required, including pilot, surgeon, and radiographer, are carried. The total weight of the machine does not exceed 1,540 lbs

An American Aircraft Deal.

According to the New York "World," 25 American aeroplanes have been sold to the Czecho-Slovak Army.

The Royal Aero Club Subscription.

In accordance with the resolution passed unanimously at the annual general meeting of the Royal Aero Club on March 31st, 1919, the subscription for members elected on or after May 31st, 1919, shall be £7 7s. per annum and the entrance fee £5 5s.

The R.A.F. in Russia.

Concerning the recent withdrawal of the Allied troops from the region Shenkursk, it is announced officially that during the operations, although the temperature made aerial reconnaissance extremely difficult, valuable assistance was given throughout by the R.A.F.

To 55 Squadron, R.F.C.

It is announced that a history of the work of No. 55 Squadron, R.F.C., is in preparation. All officers of the squadron, both as an R.F.C. and as an R.A.F. squadron, are invited to communicate with Captain L. Miller, R.A.F., Headquarters, R.A.F., B.E.F., so that they may assist in the compilation of the history of the squadron.

The 84th Squadron Dinner

The final dinner of the 84th Squadron will be held at the Criterion on Saturday, April 12th. All desirous of attending, should communicate with Lieut.-Colonel W. S. Douglas, M.C., D.F.C., R.A.F., Cranwell, Lincs, or Captain G. Aste, R.A.F., 13, Bruton Street, W.

The All-Steel Aeroplane.

The lecture on the "All-Steel Aeroplane," which Dr. A. P. Thurston was to have given before the Royal Aeronautical Society, has unfortunately been postponed, as, following an attack of influenza, Dr. Thurston has been suffering seriously from pneumonia. It is pleasing to know that the lecture will be given as soon as the state of his health permits.

In the meantime a member of the C.A.T. Committee has been inspired by Dr. Thurston's remarks to indite the following :—

SONNET.

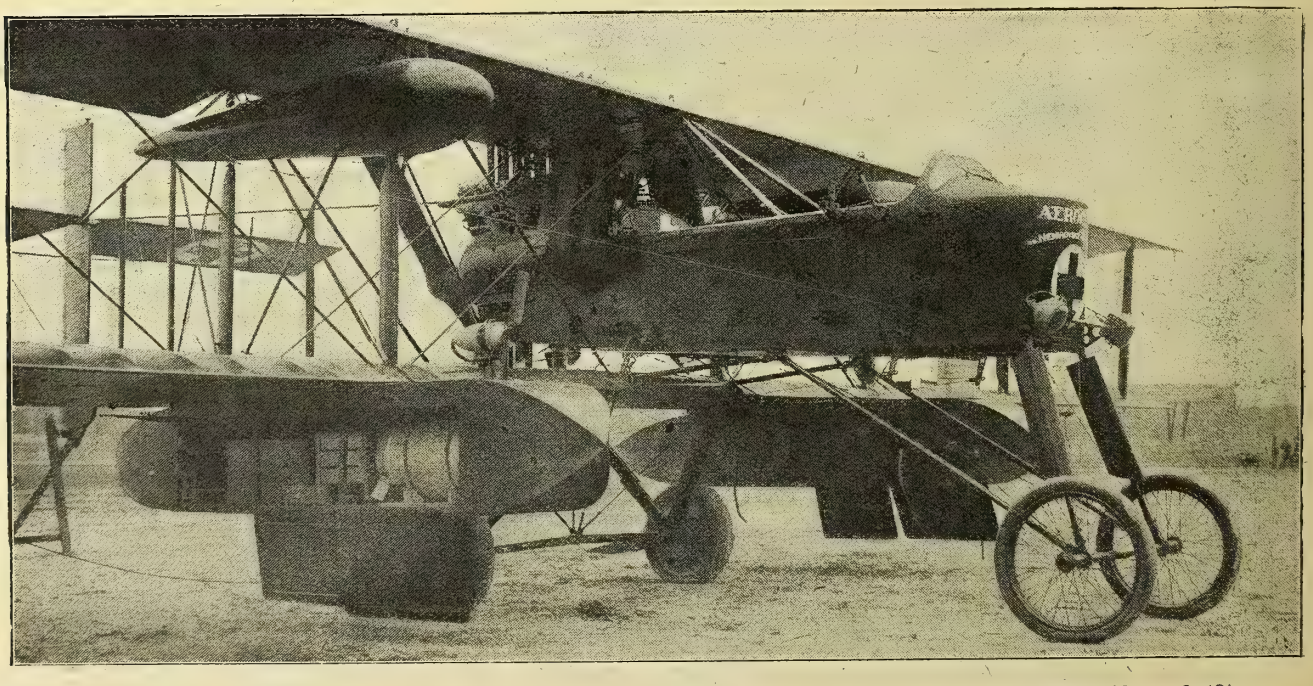
By a Member of the C.A.T. Committee.

Dedicated to the Timber Committee: Being an Argument in favour of the All-Steel Aeroplane.

Oh we who do with cunning infinite
And nightly lamps, burnt to the ambient air,
Devise vast schemes of traffic and of flight
And routes and marts for argosies prepare,

Dream we of cargoes borne upon the wind
And spirit-burning engines whirring loud
Whereby the fruits of Afric and of Ind
Shall fall dew-laden from each wandering cloud.

Enough! Each tree that blooms within the scene,
Each Dryad fluttering in her robes of green,
Resents our conquest of her ancient ease,
Shall she, bird-haunted, yield her feathered brood
And bear instead of songsters, birds of wood?
If they are wood, What, then, the heads of these!



The "Aerochir," which carries all the Surgical Apparatus for Operations and Dressings, and a Complete X-ray Outfit.

YORKSHIRE STEEL Co., Ltd.

SOLE LICENCEES OF THE HOLT PATENTS
in connection with Aircraft and Munitions.

The following are specially adapted for Civilian Aviation use:

THE HOLT LANDING LIGHT.

The Standard Equipment for all night-flying machines in the British, Belgian and American armies.

THE HOLT PARACHUTE FLARES.

Various sizes from 6 lbs. to 100 lbs. weight. The only flares made in which no portion falls independently of the parachute, and therefore without risk of injury to people or property below. Also fitted with shades which screen the light from the observer and increase the value of the light many times.

THE HOLT AUTOCHUTE OR LIFE-SAVING PARACHUTES.

The only system that can be relied on equally whether the aeroplane is falling, or on a level keel.

ORA ANTI-FRICTION METAL.

Specially for Aeroplane Engines.

Works: SHEFFIELD & HUDDERSFIELD.

Head Office - - 30, Holborn, LONDON, E.C.1.

PARIS NOTES

Many years ago, in 1911, I believe, the "Journal" organised a most successful circuit, aiding at the time an industry as impoverished as our own, and drawing the attention of all Europe to the potentialities of the newest means of locomotion and the fifth arm.

It was subsequent to this that official Germany took an ever increasing interest in the military side of aviation. This week, however, the "Echo de Paris" has taken a leaf out of their book and announced the preliminary details of a competition to be organised to assist the progress of commercial and touring aviation. £12,000 is to be divided between the successful competitors. The competition will be divided into two distinct parts :—

1. An eliminating contest, consisting of a circuitous journey of about 4,000 kilometres, in twenty stages, passing the largest French towns en route, and touching all adjacent foreign countries with the exception of Germany.

2. A detailed examination of the performances and characteristics of machines having fulfilled all the conditions of the first contest, and to be judged with special regard to security, comfort, commercial speed (average taken over the whole course between departure and arrival), maximum speed, load carried, and cost per kilometric ton.

The contest is open to :—

(a) All machines carrying four or more passengers ;
(b) The aviation industries of France and her Allies ;
(c) Single, twin, or multi-engined machines.

A Criticism of the French Aviation Vote.

On Saturday, March 29th, the Chamber of Deputies had an all-night sitting. The séance did not terminate till 3.35 a.m. owing to the discussion of the Aviation vote, the budget for which is about £40,160,000.

M. P. E. Flandrin drew attention to the fact that the reserve stocks of spares were not up to establishment, citing the case that only 800 cellules were in stock at that date, whereas there should be 4,000. He was also persistent in his demands to know what had become of the large number of German machines which were to have been surrendered in accordance with the conditions of the Armistice, pointing out at the same time that only 600 avions had taken part in the provisioning service for the liberated regions, and transporting an average of 137 kilos per voyage. For these reasons M. P. E. Flandrin asked for a reduction of £560,000 on the estimates.

Replying for the Administration, Col. Dhé, Director of Aeronautics at the War Ministry, said that French Aviation was passing through a very difficult period in passing from a war industry to a peace industry. It was above all necessary that civilian aviation should benefit in every way possible by the resources of the military side.

Replying to the alleged non-utilisation of the Boche machines, Col. Dhé explained that the requirements of civil aviation were not those of the military side, consequently some time had to elapse in order to allow the necessary modifications to be made.

In support of the authorities' policy in asking the Chamber for such a large amount, Col. Dhé pointed out that the cost of such services per kilometric ton was ten francs. It was therefore imperative that the Aeronautical Industry receive State subsidisation.

Finally, agreement was reached between the Budget Commission and the Government. A reduction of £420,000 was made.

Reduction of nearly £700,000.

The Senate approving the conduct of the Lower House further reduced the amount by £240,000, making a total reduction of nearly £700,000. Nothing daunted, however, the War Minister formulated a request for a supplementary credit of £173,000 to defray the expenses of different aeronautical missions in foreign countries, the objects of such missions are :—

1. To sell under favourable conditions the surplus stocks of raw and finished aeronautical products.
2. To create new trade outlets for the aeronautical industry.
3. To prepare the establishment of international aerial lines.

Scathing Comments.

M. P. E. Flandrin passed many scathing comments on the administration of Military Aviation. He strongly opposed the continuance of the policy which allowed the Civil Aviation Administration to be attached to the Military, and pointed out that the British and the Italian possessed a greater technical efficiency, inasmuch as they both had given much study to the type of machine that had a large carrying capacity. He said that it had been a struggle to induce the Aviation H.Q. people to approve the construction of the giant machines.

In his opinion, Commercial Aviation would not be self-supporting for at least ten years, therefore it was necessary to cut down ruthlessly all superfluous expenditure and organisation on the military side.

M. Flandrin emphasised the point that orders for military machines must stop some day, and asked why they should not cease now, as five-sixths of the machines ordered were single-seater scouts or two-seater reconnaissance machines—useless in competition with foreign (presumably British) civil and commercial aeroplanes.

The Military Authorities Supported.

Colonel Dhé made a most excellent reply to M. Flandrin's charges against the policy of attaching the Civil Aviation Administration to that existing for the Army. He pointed out that the Military Authorities alone could provide the technical resources necessary to the early development of Commercial Aviation, such as the technical personnel, aerodromes, training schools, hangars, wireless stations, meteorological observatory, and so forth.

Erstwhile Heroes.

Eight or nine years ago the man who flew an aeroplane, in however suicidal a manner, was a hero. If he descended in the main street of the capital he was received by the President. The man who does the same thing to-day should be regarded as a criminal.

During the past week an aviator flying a Nieuport single-seater has been employed in throwing overboard announcements of a new revue to be produced shortly. The pilot gave a wonderful exhibition of clever flying, reminding one of a dragon-fly or a big bumble-bee, as he buzzed backwards and forwards, ten feet or so from the chimney-tops. One hopes that such exhibitions will in future be forbidden.

The Goliath's Weekly Trip to Brussels.

The Goliath made its weekly trip to Brussels and back without any untoward incident. The passengers meet at 10, Rue Auber, Paris, and are taken by car to Toussus-le-Noble, which is the Parisian terminus.

A New Height Record.

On April 1st the Goliath made an attack on the height record with five passengers. The pilot, Bossoutrot, took up with him the following mechanics :—Mathé, Feron, and Mulot, and a brother aviator named Muller. The machine rose to 6,200 metres (about 20,150 feet) in an hour and a quarter, and undoubtedly would have gone much higher had not the controls frozen. The lowest temperature recorded was 40 deg. Cent. (72 deg. Fahr. of frost). The record was officially registered by M. Dollfus, of the Aero Club.

The previous record for five persons was set up by Poirée in 1916.

A King's Flight to Paris.

For the first time in history a King has arrived in Paris by air. One is aware that it is not by any means the first time the King of the Belgians has flown, yet one may still be pardoned a little quiet reflection on the effects this break with precedent will have in the future.

At the moment, anyhow, a King cannot fly en suite, neither can he take much with him in the way of personal baggage. The flight took place on April 1st, and the pilot was Crombez, a well-known Deperdussin pilot in pre-war days.

A Giant Hydravion.

Further details are now available anent the "Orion," a new giant hydravion constructed at Lorient. The dimensions are : Span, 32 metres ; length, 16 m. 50 ; height, 6 m. 50 ; chord, 3 m. 80 ; gap, 3 m. 60 ; weight, 4,150 kilos ; surface, 212 m. 2. Three 400-h.p. Lorraine-Dietrich engines are fitted, actuating three air-screws, one tractor and two pushers. Two large fuel tanks are fitted, each containing 1,000 litres of petrol. Each engine is provided with an automatic starter worked by compressed air. The pilot will be Master-pilot Jean Le Borque.

The Wings of Peace.

M. Clemenceau has paid a curious compliment to the work of the French Flying Corps in allowing both officers and men, who have belonged to the "Navigating personnel" of a squadron at the Front, to wear the French equivalent of our "wings" on their return to civil life.

More Aerial Posts.

April 1st saw the inauguration of an aerial post serving Nancy-Briey-Longwy. The journey took three hours ; four mail-bags were carried. It is said that passengers will be taken on this route shortly.

There is also to be a lateral postal service across France soon, from Nancy to Bordeaux *via* Dijon and Chateauroux, thus obviating the useless transference of mails at Paris. The approximate distance, return, is 1,500 kilometres.

F. T. N.

THE TRANS-ATLANTIC COMPETITION.

The following is the text of a statement issued by the Air Ministry :—

Within the next few weeks, perhaps within the next few days, an effort will be made to cross the Atlantic by aircraft. The accomplishment of this feat will mark a new and historic advance in the development of aviation. Longer flights have already taken place by lighter-than-air-craft, but these were mainly over land routes. The attempt to fly the Atlantic, involving an oversea passage of over 1,900 statute miles, is a much more serious and difficult feat than is a similar trip over an all-land route.

The Air Ministry, recognising the difficulties to be overcome, and the importance of securing successful flights by British machines, have placed their information, knowledge, and resources at the disposal of the aircraft firms, and the pilots who have decided to attempt the flight for the "Daily Mail" £10,000 prize.

List of Entries.

The list of entries for the flight as given by the Royal Aero Club is as follows :—

Machines.	H.P.	Speed.	Pilot.
Martinsyde	285	100	Mr. F. Raynham.
Fairey	375	120	Mr. S. Pickles.
Short	350	95	Major J. C. P. Wood.
Sopwith	350	100	Mr. H. G. Hawker.
Whitehead	1,600	115	Captain A. Payzo.
*Seaplane	440	—	Captain H. Sundstedt.

* This machine is reported to have been damaged, but the entry has not been withdrawn.

The first five machines are of British design and manufacture. Most of them are types which have rendered good service during the war, and it would be but fitting that one or all of them should accomplish this new record in a more peaceful field. These machines will not start together, and it lies with each pilot to set out on his venturesome journey on his responsibility as soon as his own plans are completed.

The arrangements for carrying out the flight are necessarily prolonged and arduous. Some firms desiring to compete were without machines owing to their whole output being under contract to the Government, and the Air Ministry has released machines where necessary. Other firms were without the necessary engines, instruments, wireless telegraph apparatus, etc., and the same facilities have been afforded to secure these.

Owing to meteorological consideration it has been generally decided to start from the American side of the Atlantic, and the Ministry has endeavoured to secure shipping priority both for machines and pilots in order to facilitate the arrangements for making a start at the earliest possible moment.

An aerodrome has been under construction by the Air Ministry in Newfoundland, and has been cleared sufficiently for the use of machines as a starting base. The competing firms, however, must make their own arrangements for sheds and accommodation for *personnel*.

An R.A.F. officer has been placed at the disposal of the Royal Aero Club to act as official starter, and he will also be responsible for placing identification marks on the machines.

The moon will be full on April 15, and it is probable that the first attempt will be made by Mr. H. G. Hawker, flying the Sopwith machine, on or about this date. He is expected to start about 2 a.m. Newfoundland time (about 10 p.m. British time). He would thus fly through the night, and if his venture succeeds should arrive between 4 and 5 o'clock the following afternoon. (The approximate starting dates of the other competitors is not yet known.)

The Navigator's Work.

The navigator's duties in a flight of this length are extremely important, and much will depend on his calculations.

It may, therefore, be of interest to detail some of the apparatus which the navigator will use for attaining the successful accomplishment of the flight. A good compass is essential, and also

a drift bearing plate,
a course and distance calculator,
a chronometer watch,
a sextant,
a navigating machine, and
a protractor.

With these instruments at his disposal and with the meteorological information and directional wireless available to him the navigator should be able to keep a correct course for the British Isles.

Three methods of navigation can be used :—

Direction finding by wireless telegraphy.
Astronomical observations.
Dead reckoning.

The first method consists of flying on a bearing of a known wireless station, the wireless apparatus where carried being designed to enable bearings to be taken on the Marconi Trans-Atlantic station at Clifden in Ireland, or Glace Bay in Nova Scotia. The bearing will not give the pilot his distance from the station, and is, therefore, only useful for showing whether he is keeping his approximate course. As this method of navigation is inadequate owing to the lack of wireless stations to the north and south of the course across the Atlantic the second method may have to be used in conjunction with it. An observation by sextant of sun or stars taken from time to time renders it possible for the navigator to fix his position within about 20 miles. Again, there may be a space towards the centre of the flight in which the machine will be out of wireless range from either side, and here observations by sextant may have to be depended upon. The third method—dead reckoning—is used in conjunction with direction finding by wireless and astronomical observations. It consists of calculating the position of the machine from time to time according to its airspeed, and the estimated force and direction of the wind.

On this flight further assistance may be obtained by the navigator by means of wireless communication with passing ships which may be able to give him their position. With this end in view ships have been asked to assist in every possible way, and the Marconi Company are also instructing their ship operators to render every assistance. Ships which hear aircraft during the night have been asked to fire lights to attract the airmen's attention. Should a vessel, however, sight an aeroplane and receive no wireless signals she will send her position by wireless three or four times in case the aeroplane's transmitter may have broken down.

An aeroplane in distress will fire a series of white Vérey lights at short intervals or will send an S.O.S. call. Ships have been warned that if such signals are observed or received or if an aircraft is seen to be in difficulties every endeavour should be made to go to the rescue.

During April the prevailing winds over the greater part of the Northern Atlantic are westerly, and have a surface velocity of 15 to 20 miles an hour. On the north of the direct lines between Ireland and Florida from 10 to 20 per cent. of the prevailing winds are of gale force. South-east of Newfoundland is a region where fog is prevalent on 40 per cent. to 45 per cent. of this month; east of this region there is a gradual decrease of fog, until in mid-ocean south of latitude 40 deg. north it is rare.

During this flight, therefore, the winds may be of great assistance if the start is carefully timed. To assist in this, and in order that the fullest possible information may be available, arrangements are being made for frequent weather reports to be furnished by day and by night to the competitors both before starting and also during the flight. These reports are being obtained by the Air Ministry from the U.S. Weather Bureau, the Canadian Meteorological Office, Newfoundland, home stations, and ships along the route, and efforts are also being made to secure regular weather information from the meteorological stations at the Azores and Lisbon. The Air Ministry Meteorological Staff will forward special reports, based on the information obtained from these sources to the R.A.F. Meteorological Officer at Newfoundland and the U.S. Weather Bureau, which will keep in close touch with the competitors before the start, and will forward all weather information to them as soon as it is received.

Competitors starting from this side will receive weather forecasts direct from the Air Ministry.

As the competitors' machines are fitted with wireless apparatus for short-wave messages only it is impossible to communicate forecasts or warnings direct from land stations during the flight, and the method of transmission must therefore be *via* ships along the route. The necessary arrangements have been completed for forwarding this information *via* land stations to shipping, which will communicate it to the competitors. These vessels will also report surface weather conditions in their own neighbourhood when they are able to get into touch with passing aircraft.

The Marconi Company is helping in collecting and transmitting this information from land stations and ships free of charge during the competition.

For the convenience of competitors who may desire to land in Ireland, the Air Ministry has arranged for an R.A.F. aerodrome at Fermoy, County Galway.

ADMIRALTY NOTICE.

The following is the text of the notice issued by the Admiralty to mariners :—

North Atlantic route.

Instructions to vessels with regard to aircraft.

The following instructions, which are promulgated with a view to assisting aircraft attempting trans-Atlantic flights when out of sight of land, should be observed by all vessels employed on the North Atlantic route until further notice :—

(1) Should a vessel receive a request from aircraft for her position the reply should be sent at a Morse speed of not greater than 12 words per minute.

(2) Should a vessel sight an aircraft and no wireless signals be received from it, the vessel should transmit her position by wireless three or four times, without waiting to be requested to do so, as the aircraft wireless transmitter may have broken down. The position is to be transmitted in words and not in figures, thus—latitude fifty thirty, longitude thirty twenty.

(3) British commercial aircraft on trans-Atlantic flights will, for the present, use call signs of three letters (D K A to D M Z). The usual international procedure should be employed for inter-communications.

(4) Should an "S.O.S." call from aircraft be received, or aircraft be seen in difficulties, every endeavour possible should be made to rescue the occupants.

(5) Great assistance will be given to aircraft in sighting ships at night if ships on hearing aircraft overhead will fire any form of pyrotechnic lights to attract attention. This will, if possible, be replied to by the aircraft firing one coloured Verey light or on her wireless.

(6) An aircraft in distress will fire a series of white Verey lights at short intervals. Any ship in the vicinity should then indicate her presence and endeavour to rescue the occupants.

NOTE.—Aircraft attempting Trans-Atlantic flight will be equipped with wireless telegraph apparatus capable of transmitting and receiving on a 600 metre wave (spark).

THE PROGRESS OF COMPETITORS.

So far as the British entries are concerned, the preparations for making an early attempt on a trans-Atlantic flight are nearing completion. The U.S. Navy and Army are both entering a machine, but there is no definite information about them.

The Sopwith machine has arrived at St. John's, Newfoundland, whence a start will be made, and the assembling was begun on Friday, April 4th. It is, however, unlikely that the flight will be attempted during the next fortnight, as the starting ground is very wet and will require many days to dry.

In order to make a start as quickly as possible, Major J. C. P. Wood, R.A.F., the pilot of the Short machine, intends to attempt a flight from this side of the Atlantic. Stores of petrol are being collected at Limerick.

It is stated by officials of the U.S. Navy Department that British destroyers are to co-operate with American Naval vessels in patrolling the course which is to be followed.

According to the present arrangements, there will be from 50 to 60 American destroyers patrolling the course from Newfoundland to the Azores, the stations being at less than 200 miles' distance from each other, and from 40 to 50 British destroyers will be on duty between the Azores and the British Isles. Along the greater part of the course there will also be a large number of Army transports going to and returning from France.

Besides these destroyers, it has been decided to have a fuel-ship, probably the "Melville," stationed on the route.

At the moment of going to press it is announced that a Handley Page machine with four Rolls-Royce Eagle engines of 350 h.p. has been entered for the Atlantic Flight.

The Trial of an American Aviator.

On April 2nd, Captain E. G. Chamberlain, U.S. Marine Corps, was brought before a Court Martial sitting at the American Naval Headquarters, 30, Grosvenor Gardens. He was charged with "Scandalous conduct tending to the destruction of good morals," in that after an unofficial attachment to a Royal Air Force Squadron on the Western Front in July last he prepared a series of reports dealing with his exploits in which truth was not a notable factor.

Capt. Chamberlain is as well born as is possible in the United States, and has parents in Texas. His record in the American Service is good, and in the inter-tribal squabble with Mexico he showed prowess and initiative.

The reports on which action is being taken purported to be signed by Capt. C. M. Lowe, R.A.F., and Major D. M. Vaucour, M.C., R.A.F., the former of whom says he signed no report. The latter died last summer, a fortnight before the date of the report which he is said to have signed.

Capt. Chamberlain was unable to describe the appearance of the British squadron commander with whom he alleged he flew, and he knew nothing of the topography of the country and other points which he should know if his report were true.

It was stated that General Salmond had caused an inquiry to be made as to the alleged exploits, but nothing had been discovered in support of Capt. Chamberlain's claims.

The case is still proceeding.

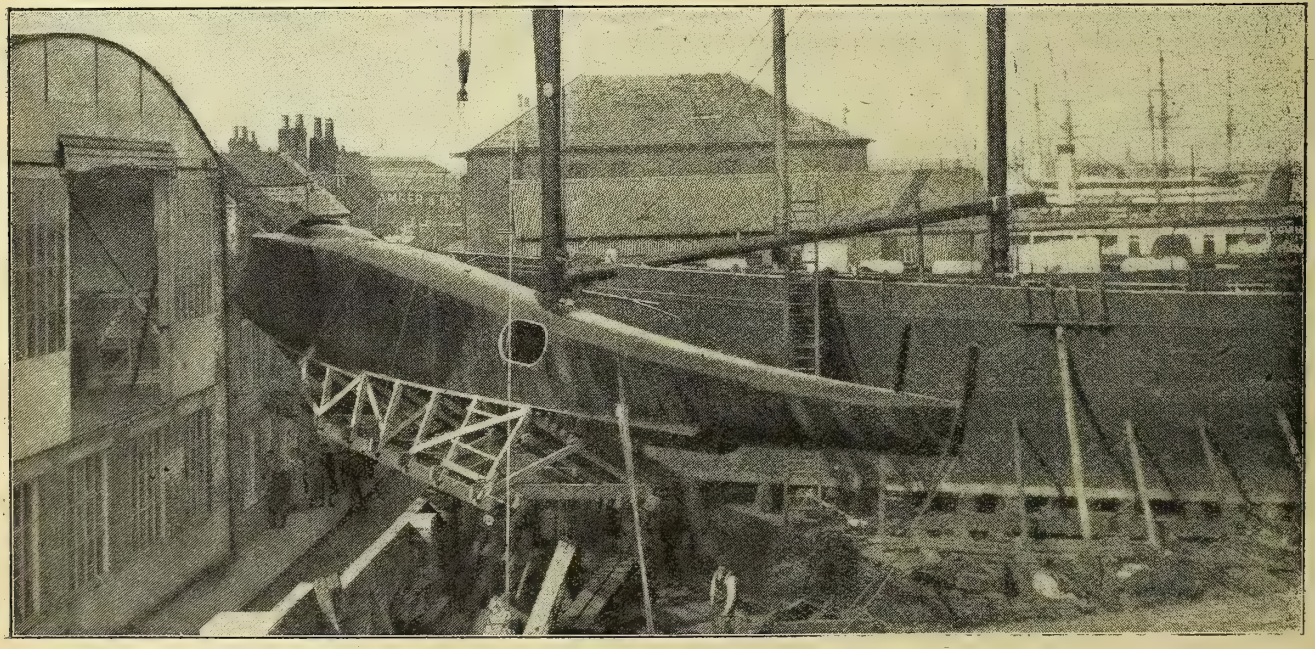
The reports in question were forwarded through his Commanding Officer to American Headquarters, and in view of their contents and of the misguided enthusiasm of the daily newssheets it was desired to decorate him in a manner suitable to the work he claimed to have done.

The reports stated that he had eliminated a train by means of a well-dropped bomb, had joined in a "dog-fight," in which the Germans had 12 aeroplanes and the Allies three, seven enemy machines crashing to earth during the mêlée, and had landed on the field of battle under heavy fire and captured a German by pretending that his compass was a bomb. The story in this part of the report reads as follows:—

The enemy could not see anything but the top wings of my machine, but they began to shell it, so I tore out the round iron compass and maps, and tried to burn the machine with the maps. . . . On the other side there were three Huns crawling my way. I was unarmed, but remembering my compass looked like a grenade, I hauled back as if to throw it. Two of them jumped and ran, the third yelled "Kamerad," and threw down his rifle. I got to that rifle, and then took his pistol and ordered him to crawl ahead. . . .

In the middle of the woods there was a stream. As we came to it I heard a whispered groan in French, so I crawled up a few yards, and there lay a wounded Colonial hit in the leg and neck. I gave the African a drink and washed his wounds, so he could move. Then I picked him up and ordered the German to wade across with his hands up (all this whispered).

Some German snipers took three shots at me, but they only splashed about us. I had to drag the Colonial, with the German helping, through the thicket. Then suddenly we were fired on and then a challenge in French.



THE BIGGEST FLYING-BOAT HULL.—The Photograph above shows what is at present believed to be the Biggest Flying-Boat Hull in the World. It was built by the Gosport Aircraft Company, and is shown being hauled out from their Works for Transport by Road. Very great interest attaches to the picture, in that in the right-hand top corner, there appears Admiral Lord Nelson's old Flagship, "The Victory," in her day the most famous sea-going Craft, just as it is hoped that the new Big Flying-Boat may be the most famous sea-going Craft of to-day. Further interest is given to the Photograph by the fact that, in the centre of the Picture, may be seen a part of the Works of Messrs. Camper and Nicholson, the famous yacht builders, Mr. Charles Nicholson being a founder and director of the Gosport Aircraft Company.

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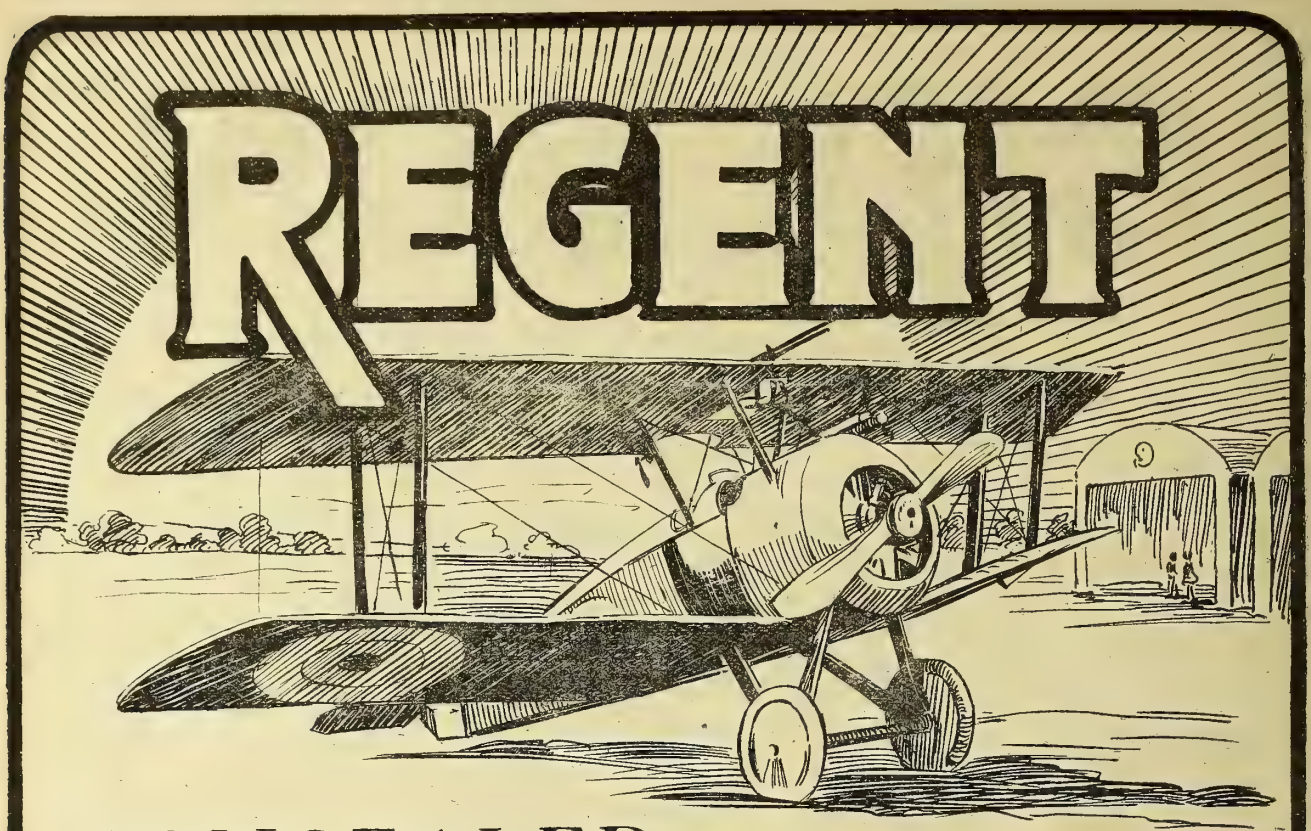
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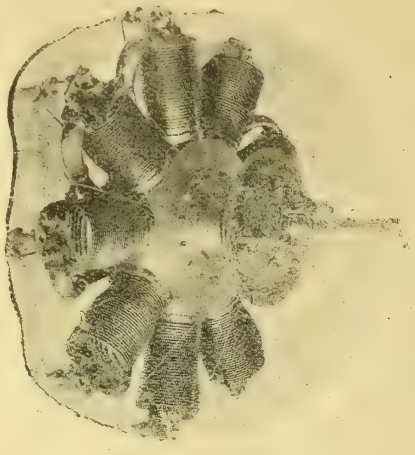
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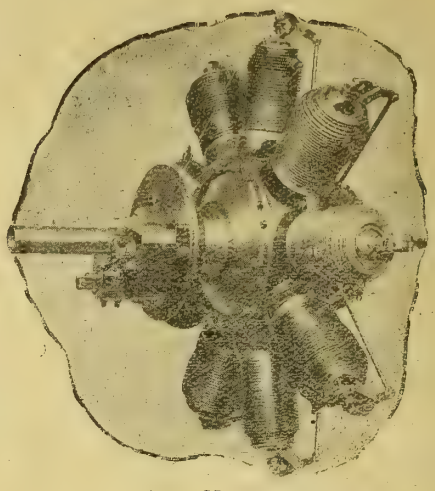
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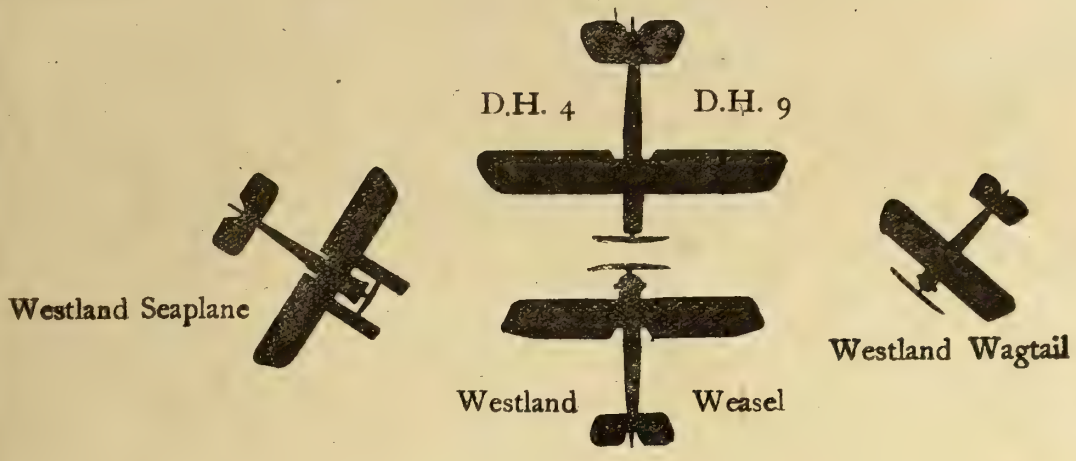
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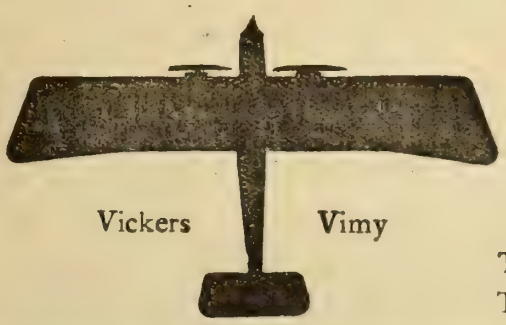
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225 HP. Sunbeam



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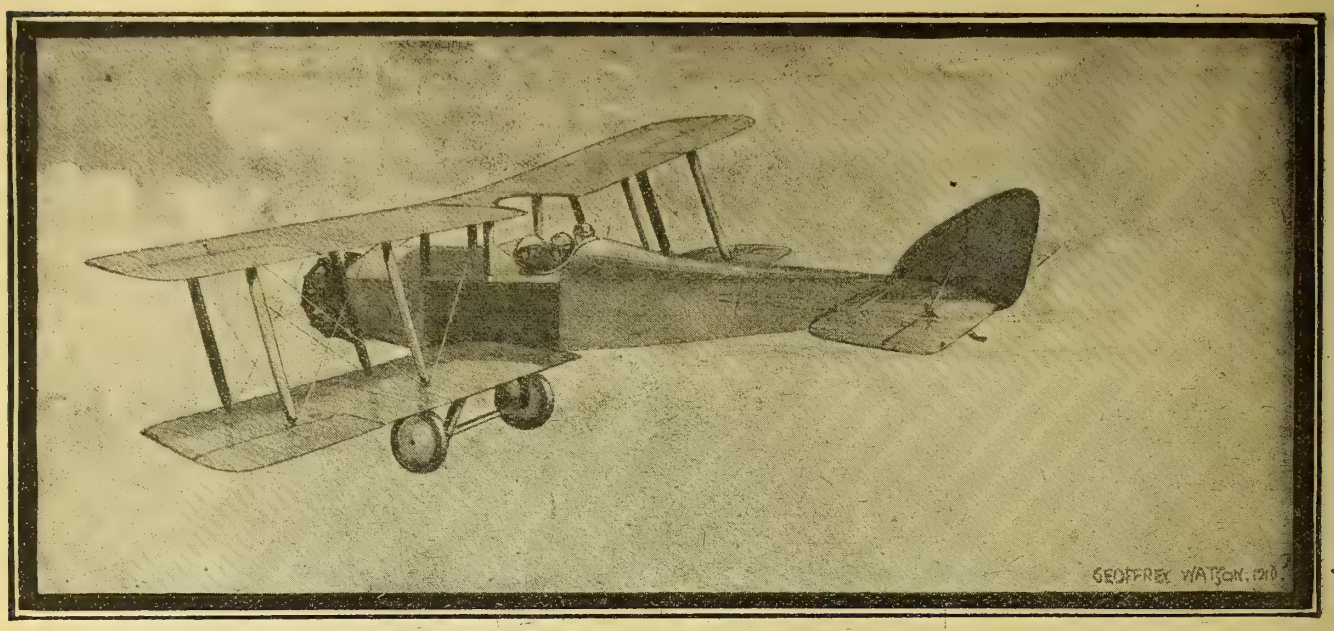


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THE WEEKLY COMMENTARY.

In the ninth instalment of the article on "Commercial Aircraft Design" the effect of different classes of loads on machine design is considered by Capt. Sayers.

His argument that mail aeroplanes are unlikely to carry passengers because the provision of accommodation for such loads will seriously interfere with their efficiency as mail carriers is worthy of attention, and seems to be reasonable.

The official description of the German Bassé-Selve engine, which is published this week, is a striking case of the Teuton method of improvement in detail while retaining the essential features of well-tried design. There can be very little doubt that by sticking very closely to a standard type of engine our enemies secured very important advantages under war conditions.

On the other hand, they are very likely to find that the small diversity of engine types which they now have available will form a serious handicap to the development of aircraft for peaceful purposes.

It has to be admitted, however, that the type upon which they have concentrated is one which, on the scores of simplicity, economy, and reliability, is of very great all-round utility.

COMMERCIAL AIRCRAFT DESIGN.—IX.
ON THE DISTRIBUTION OF LOADS.

By Capt. W. H. Sayers, late R.A.F.

It is a fairly well-known fact that in any aeroplane which may have to carry a variable load it is desirable that the changeable part of the load should be carried as nearly as possible at the centre of gravity of the whole machine, in order that the balance of the machine may be altered as little as possible by changes in that load.

It is also fairly well known that by the use of such expedients as a tail plane fitted with mechanism whereby its angle of incidence may be varied whilst in flight, it has been found possible to carry such variable loads as bombs at some considerable distance from the centre of gravity, and still keep the machine in balance under all loading conditions, in spite of the fairly large movement of the centre of gravity which occurs.

It must not be assumed that, because such changes in position of the centre of gravity can be compensated for, they are unimportant.

For any aerofoil arrangement there is some optimum position of the centre of gravity which will give a minimum value to the size of tail plane, and the length of tail lever arm, which will secure any desired degree of longitudinal stability.

This position of the centre of gravity is usually fairly far forward, at about 0.3 of the chord of the monoplane equivalent to whatever aerofoil arrangement is employed, and any departure from this position of the C.G. will call for either a larger tail plane or a longer fuselage.

In a machine with a variable position for the centre of gravity, if the tail plane area, angle of incidence, and lever arm are determined for the best position, it will not be found possible to obtain the same degree of longitudinal stability with any other position of the C.G. by merely altering the tail setting. Therefore the tail area of such a machine must be determined for the worst conditions, and it will necessarily be larger, and therefore heavier and of greater resistance, than would be needful could the C.G. remain always at the optimum position.

On general principles it would appear desirable to keep variable loads, if they cannot be placed on the C.G., ahead of it, and to arrange for the C.G. to be at its optimum position under full load conditions.

This would tend to give the machine a maximum of stability when fully loaded, and would reduce the extra size of tail plane required under less advantageous conditions to a minimum.

Where the variable load in question consists of passengers, it is often difficult to arrange for this.

Passengers unfortunately require an inordinate amount of room, as compared with both their total weight and their actual cubic capacity.

Standing, one can pack six average humans into a square yard of floor space, but it is difficult to seat two in reasonable comfort in the same area, because legs are so badly designed for packing purposes.

If, therefore, one attempts to seat passengers ahead of the C.G. in an ordinary single engine tractor, it is necessary to place the engine sufficiently far forward to give leg room to the passengers.

This in turn calls for the fixed loads—such as the pilot—being placed very far aft to balance the engine, resulting in a machine with a great longitudinal moment of inertia, which itself will call for a larger tail plane, and thus defeat the object of placing the passengers in this position.

Where the load to be carried can be packed into a small space, this difficulty vanishes. Half a ton of man—roughly 8 persons—might be seated in a compartment 8 ft. long by 3 ft. wide, and at least 4 ft. high. They will not be very comfortable if so confined for any time.

The same weight of gold could be packed into a 15-in. cube, whilst even mails, if properly packed under slight pressure into crates, will go into one quarter of the space occupied by an equal weight of passengers.

When fairly compact loads are in question it is fairly easy to place the load on or about the centre of gravity,

or to divide it into equal parts and place the halves equidistantly fore and aft of the C.G.

For this reason it may be expected that, when commercial aeroplane mail services become an accomplished fact, the machines employed for such services will not carry passengers as a side line.

A False Analogy.

It has often been argued, on the analogy of the mail steamer, that aeroplane mail and passenger services will be carried out in conjunction and by the same machines. It has been conveniently forgotten that a high-speed ocean-going mail steamer must of necessity possess a large amount of surplus space over that which can be occupied by cargo, and that passengers can be accommodated without any serious addition either of weight or of resistance.

The airship, which depends for its lift upon the displacement of air, as a ship depends for its buoyancy upon the displacement of water, is nearly parallel to the mail steamer in this respect, and with airships the two classes of traffic will almost certainly be combined, because the space required for passengers will always be small as compared to the bulk of the whole ship, and the distribution of loads presents less difficulty than in the aeroplane.

Both in the aeroplane and in the airship distribution of load about the lifting organs has the effect of reducing the stresses in the lifting structure.

Ideal Load Distribution.

In the aeroplane this advantage is only to be obtained by distributing loads along the span of the wings, and from the purely structural point of view the ideal conditions will be secured if the loads are distributed over the wing surfaces in exact accordance with the air pressure distribution when in flight.

Obviously it is impossible completely to distribute loads along the wing span in such a way. A partial distribution is possible, and is normal practice in multiple engine machines.

Generally such a distribution of load has been confined to placing the power plant, or some considerable proportion of it, on the wings—in two equal units, one on each side of the centre line.

The removal of engines, radiators, fuel and oil tanks to some position outside the central fuselage renders it easier to arrange accommodation for passengers at or about the centre of gravity, and the difficulty of putting variable passenger loads in their right place is considerably reduced by this arrangement.

At first sight there appear to be certain advantages to be gained by centralising the power plant and dividing the load and distributing it on the wing span.

Generally, in order that the centre of gravity may be suitably far forward, it is desirable that the engines should be ahead of the wing surfaces. Therefore engine nacelles on the wings usually project forward with the engines overhung from the wings. If all the power plant is carried in the fore end of a straight-through fuselage, a better structure can be obtained, and if the cargo load is carried in side nacelles on the wings these loads will be balanced about the centre of gravity, and no overhanging structure is needed at these points. The whole power plant is then concentrated in the central fuselage, and may be made accessible to a single engine-room staff.

Unfortunately, there are drawbacks to this method of distributing the loads. If the machine is flown with no load in the side nacelles, it is in no better case than is a purely centrally loaded machine, and such a machine empty may actually be more severely stressed than if it were fully loaded.

Not only is this the case, but very great care would be required in any case to ensure that the two side loads were equal, otherwise the machine would be seriously out of balance sideways.

If a fairly uniform and predetermined load can be relied upon for every journey, the advantages to be obtained by centralising the power plant and distributing the cargo load might be a sufficient excuse for this procedure, but under normal conditions it is believed that the usual method of distributing the power plant weight and concentrating the cargo load will be found preferable.

Determining Considerations.

It is extremely difficult to determine with any exactitude when and to what extent it is desirable to distribute load along the span of the wings.

Such distribution of load can always be used to effect a saving in the weight of the structure.

On the other hand, small power plant units are usually heavier, for equal power, than are large units, and one may lose more in total weight by using two small units, instead of one large one, than can be saved in structure weight by the load distribution obtained with them.

The centrally loaded machine with the whole of its cargo enclosed in a single well faired-off body should always score on head resistance over the machine with divided loads, and will be easier to control and generally more stable laterally.

The relative importance of these points will vary with the exact requirements from each machine.

When very high speeds are required the centrally loaded machine will have a greater advantage than it will for medium speeds.

The effect of distributed loads on lateral control and stability will be more important in machines of small span than in those of large span, because with a large span the rolling period will be long, and there will be more time for controls to produce their effect.

Practical Limits.

Very roughly, however, it will rarely be found worth while, unless reliability is the overwhelming requirement, and the machine is to be designed to fly with either of its power units out of action, to divide the power units unless either the total horse-power of the machine exceeds 400 h.p., or unless the span exceeds 80 ft.

At the present moment 400 h.p. is about the limit for a single power plant, because no proved motor of much larger output is known to exist.

The possible total weight for a 400-h.p. machine will vary from about 10,000 lbs. for a slow seaplane (maximum speed 70 m.p.h. about), through 5,000 lbs. for a fairly high-speed machine (120 m.p.h. with a moderate climb and ceiling), down to 3,000 lbs. for a high-performance machine up to modern war requirements.

The 10,000-lb. seaplane could be made with a loading of roughly 8 lbs. per sq. ft., on which a low landing speed and a fairly quick "get-off" and a reasonable initial climb could be attained, using a "high lift" wing. This would call for a biplane of roughly 75 ft. span by 9 ft. chord, and the heaviest practicable machine on this power would be just on the border line at which the twin-engine arrangement probably is justifiable.

Using the usual type of high-speed wing, with so high a weight to horse-power ratio, it would be difficult to design a machine with a much higher surface loading than 5 lbs. per sq. ft. This calls for 2,000 sq. ft. of aerofoil surface and a span of 95 ft. with 11 ft. chord, and for such a machine the twin-engined arrangement probably would be justified.

(To be continued.)

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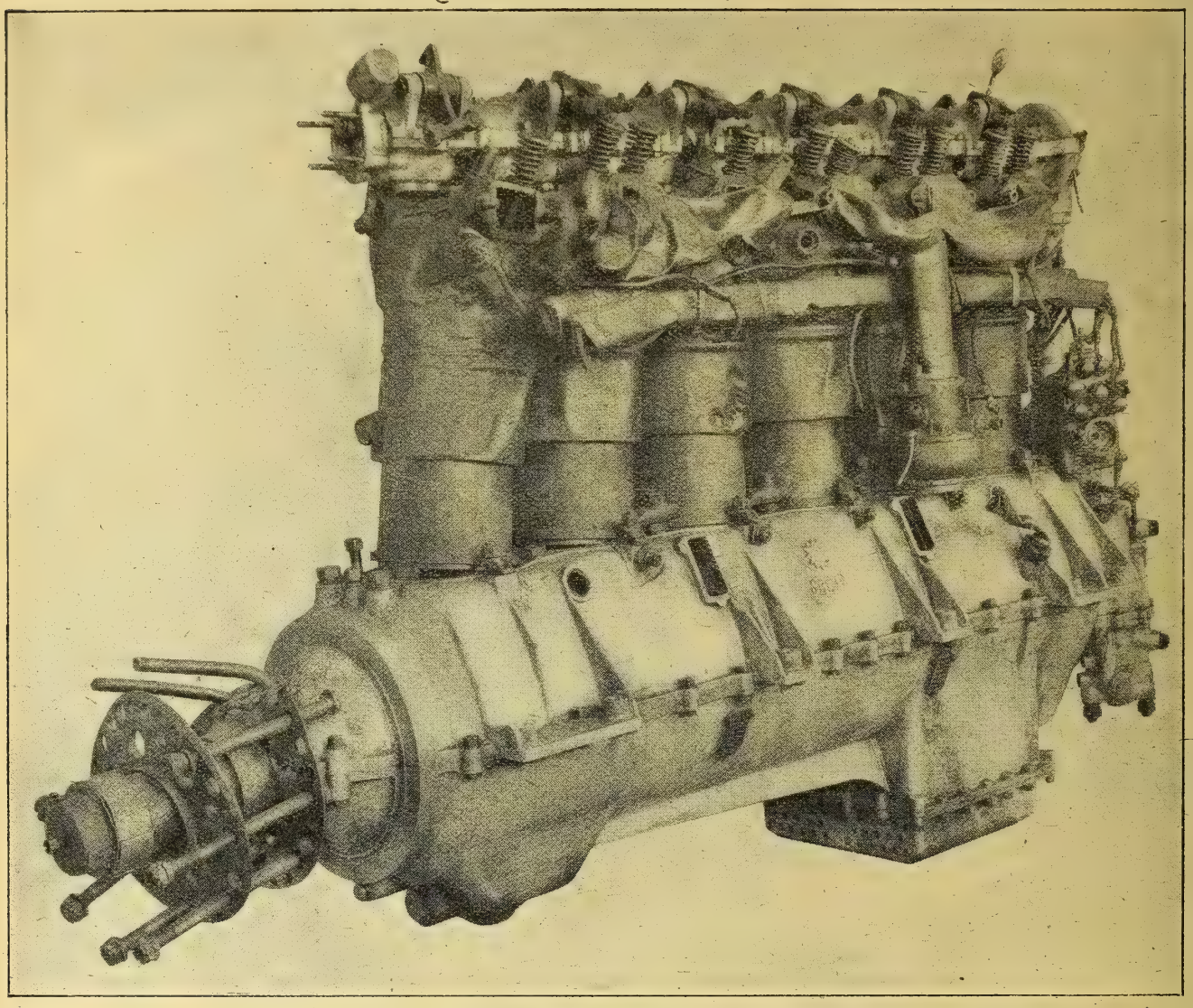
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THE 270-300 BASSÉ-SELVE AERO ENGINE



The Bassé-Selve Aero-Engine. Three-quarter View from Airscrew End.

(This Report is published by courtesy of the Controller, the Technical Department, the Dept. of Aircraft Production.)

INTRODUCTORY NOTE.

The following report on the design of the 270 h.p. Bassé-Selve engine is based on a detailed examination of the engine (No. 550) taken from the remains of a German Rumpler two-seater biplane (R.A.F. identification No. G/5BD/14), which was shot down and destroyed in France on May 31st, 1918.

Unfortunately, this is the only engine of its type which has been captured up to the time of writing, and as it was seriously damaged, it was impossible to carry out any power and consumption tests of the engine: consequently, the following report deals with design and construction only. Certain figures connected with the performance have, however, been calculated by assuming the engine speed and Brake Mean Effective Pressure to correspond approximately with those of other German engines of about the same capacity. The figures adopted for these items are as follows:—

Normal engine speed ..... 1,400 r.p.m.
Normal B.M.E.P. at 1,400 r.p.m..... 110 lbs. per sq. in.

All the figures in the data at the end of this report, which are based on the above assumption (and therefore only to be accepted with reserve) are marked with an asterisk. Actual figures and test reports on the running of these engines will be issued as soon as an engine of this type is obtained in good condition.

GENERAL DESCRIPTION.

These engines, manufactured by Bassé and Selve, Altena, Westphalia, have but recently appeared in the field. In most of their leading details of construction they closely resemble both the 260-h.p. Mercédès and 230-h.p. Benz engines, on which the design is evidently based. Markings on the engine indicate the year of manufacture to be 1917, the crankshaft being marked "A.G. Krupp, Essen, 1917." The nominal rating of the engine according to a cast plate on the crankcase is 270-h.p., and the normal engine speed would probably be about 1,400 r.p.m. Assuming the B.M.E.P. to be 110 lbs. per sq. in. at 1,400 r.p.m., the power developed would be approximately 269 b.h.p.

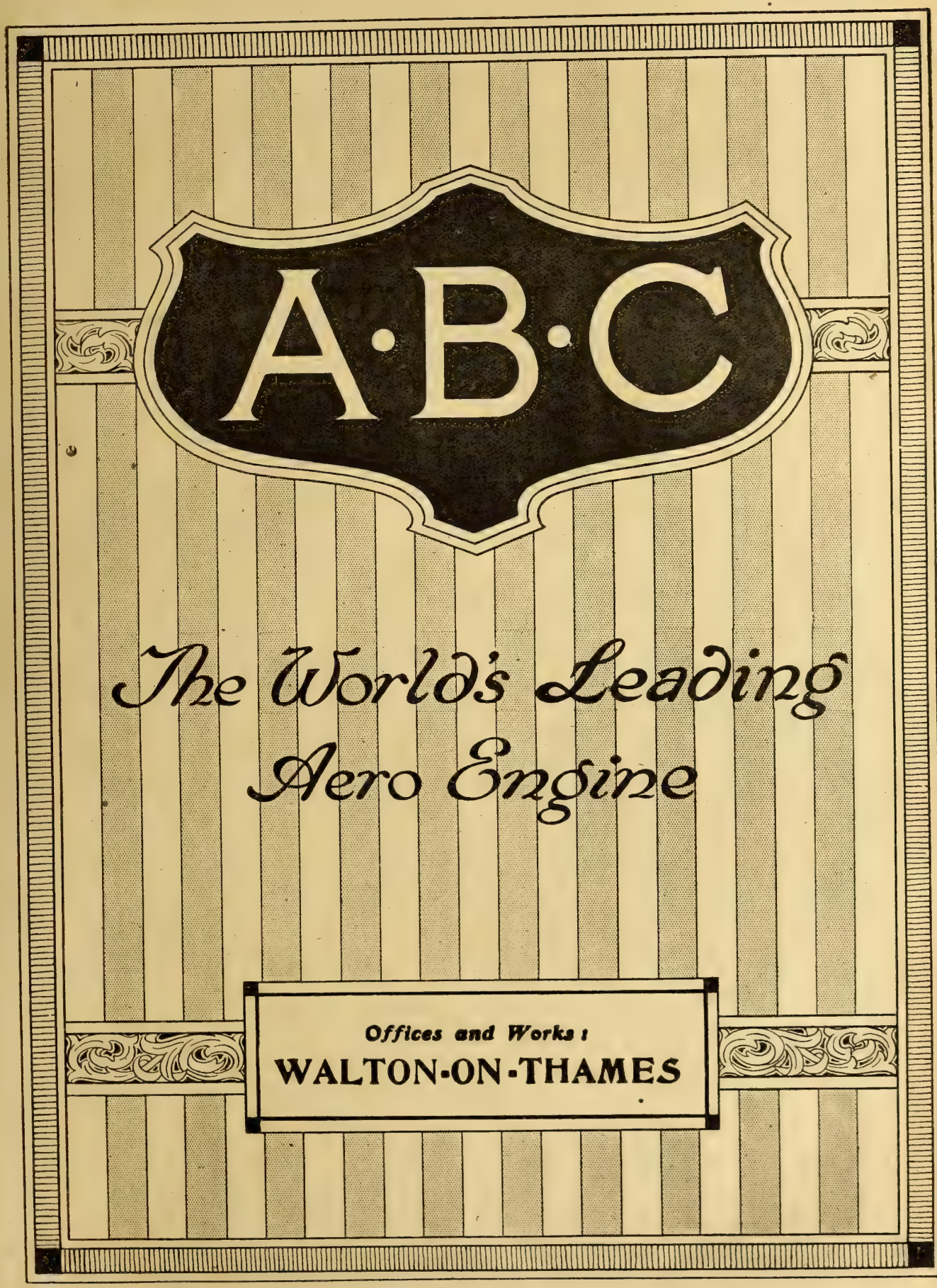
The accompanying photographs show the engine to be of the usual six-cylinder water-cooled type, the bore being 155 mm. and the stroke 200 mm., i.e., 5 mm. less in the bore and 20 mm. longer in the stroke than the 260 h.p. Mercédès engines.

Owing to the damaged condition of the cylinders and pistons it has been difficult to ascertain the exact clearance volume. This is approximately 1,130 c.c., giving a compression ratio of 4·34:1, which is lower than any of the previous enemy engines.

Twin inlet and exhaust valves are fitted in the head of each cylinder, and the method of water cooling the exhaust valve stems by an annular passage, which completely surrounds the valve stem guides, is a novel detail of construction in enemy engines.

The valves are operated by an overhead camshaft, running in bronze bearings in a cast aluminium casing; the design of the valve rockers and valve gear is worthy of notice.

An unusual type of compression release gear is used, which is of remarkably simple construction. Aluminium pistons are fitted. These are machined all over, inside and out. The slightly convex crowns are supported by conical pillars which bear upon the centre of the gudgeon pins through the slotted small ends of the connecting rods. This construction, together with the design of the tubular connecting rods, is essentially


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Benz practice, whilst the construction of the steel cylinders is taken from the 260 h.p. Mercédès design, but incorporates several improvements.

A large oil-cooling radiator is attached to the bottom of the crankcase, and is used in conjunction with a new design of duplex-plunger oil pump, which works vertically at the rear end of the crankcase. The design of the oil pump is somewhat similar to that now used on the new 200-h.p. Austro-Daimler engines.

Two separate two-jet carburetters fitted with annular floats are employed. These are apparently equipped with some form of altitude adjustment. Unfortunately, only one incomplete carburetter was found on the engine.

No details can be given of the construction of the water pump, as this component was missing from the engine.

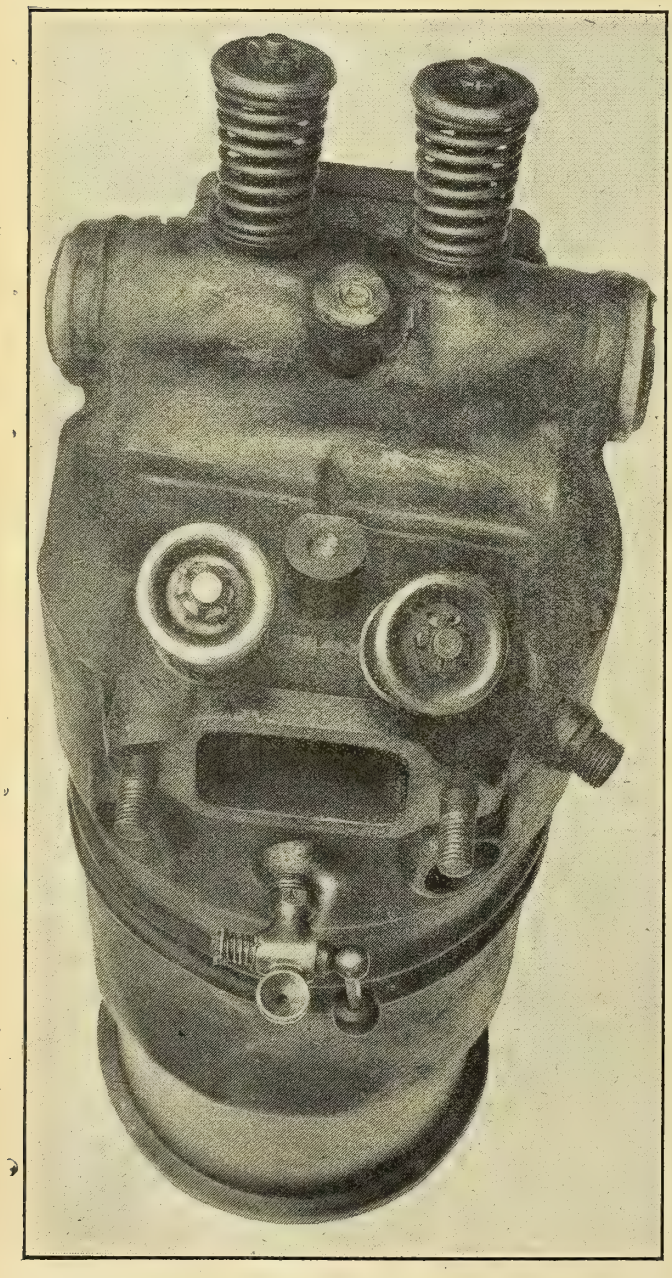
The crankshaft is of ordinary, but exceptionally heavy design. The main journal bearing shells are machined with a screw-thread bedding for the white metal linings in a similar manner to the 300-h.p. Maybach engines. The propeller hub is fitted to a detachable tapered extension piece, which is bolted by a flange to the end flange of the crankshaft.

Further details of the design are given in the following description, and the leading particulars of the engine are shown in the accompanying data, which are as complete as the condition of the engine allows.

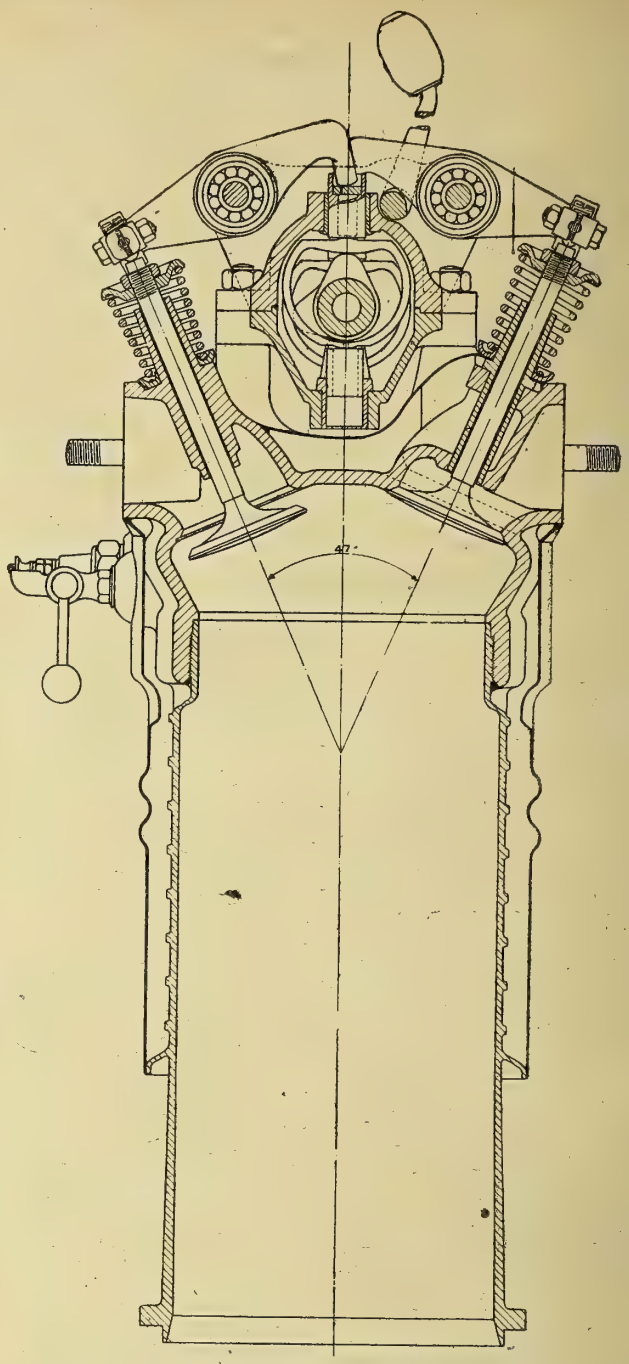
DETAILS OF CONSTRUCTION.

Cylinders.

A sectional drawing showing most of the construction of the steel cylinders is given.



View of a Complete Cylinder, from Exhaust Side. The curious gargoyle-face effect of this View is interesting.



Section of one Cylinder, Bassé-Selve Engine.

The cylinder barrels are screwed into the heads and welded in position. This construction is similar to the 260-h.p. Mercédès, as also are the eight ribs machined on the outside of the barrels.

The cylinder heads are of cast steel, and the four valve pockets in each cylinder are cast integrally with the head. The formation of the combustion chamber and the unusual inclination of the valves at 23.5 deg. to the vertical axis of the cylinder are interesting points. The formation of the water passages in the heads and the construction of the water jackets have evidently received the most careful consideration in this engine, especially in the cooling of the exhaust valves. The cylinder water jacket capacity is remarkably high, and the water passages through the cylinder heads are exceptionally good. The water connections between the cylinders are all on the exhaust valve side, and are of large diameter. The water connections in the cylinder heads are arranged as close up to the exhaust valves as possible.

The construction of the valve stem guides is as follows:—

The valve guides are steel tubes lined with phosphor bronze; they are pressed into the valve pockets, and are acetylene welded in position top and bottom; an annular passage cast in the exhaust valve pocket entirely surrounds the central portion of each exhaust valve stem guide for a distance of 35 mm. The water jackets are of pressed sheet steel, with two annular corrugations, and the bottom joints of the water jackets are welded to bevelled flanges turned on the outside of the cylinder barrels. This joint is of the same design as is now used in the 200-h.p. Austro-Daimler engines.

A water passage is cast in the cylinder heads between each pair of exhaust valves, which allows of water circulation completely around the head of each exhaust valve, and the exhaust valve stems are completely water cooled.

The cylinders are bolted down to the crankcase by steel dogs, which clamp the base flanges of the cylinders at six points. The cylinders are registered in the crankcase by spigots extending 8 mm. below the base flanges.

Each cylinder is held down at six points by means of dogs which clamp the cylinder base flanges on each side. These dogs are secured by studs screwed into the top half of the crankcase.

The main journal bearing bolts, which pass through the top half of the crankcase, are also used to hold down the cylinders by bridge clamps between each pair of cylinders, as shown in a photograph.

The lower halves of the main bearings are integral with the bottom half of the crankcase. Locknuts are screwed on the upper ends of the main bearing bolts beneath the cylinder holding-down dogs, so that the cylinders can be removed without disturbing the main bearings.

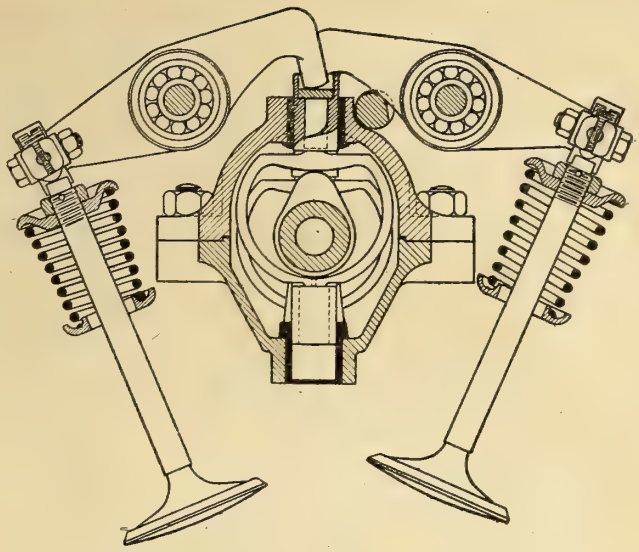
Valves.

The inlet and exhaust valves are of the same diameter in the heads and stems, and of similar section. The valves measure 61.0 mm. across their slightly convex heads. The effective diameter of the valves at the valve seatings is 56 mm. The valve seatings of each pair of valves merge into single inlet and exhaust ports in the cylinder heads. These are rectangular, and the passages are remarkably short and free.

Single valve springs are fitted to each valve, and the wire for the springs is of light gauge (approximately 4.0 mm. diameter). The same design of valve spring is used for both inlet and exhaust valves, but the exhaust springs are more compressed. The ends of the valves stems are screwed to take the spring collars, which are locked by a plain castellated locking nut and split pin.

Valve Gear.

The general layout of the valve gear is shown in the cross-sectional arrangement drawing, and presents some interesting details of design. The camshaft runs in eight comparatively short plain bearings of phosphor bronze, which are held in split aluminium housings of hollow section and large diameter. These are carried in the halves of a cast aluminium camshaft casing, and are located by dowel pegs in the usual way. The camshaft is made in two parts, joined together at the centre by two flanges and four short bolts. This valve gear



Arrangement of Valve Gear.

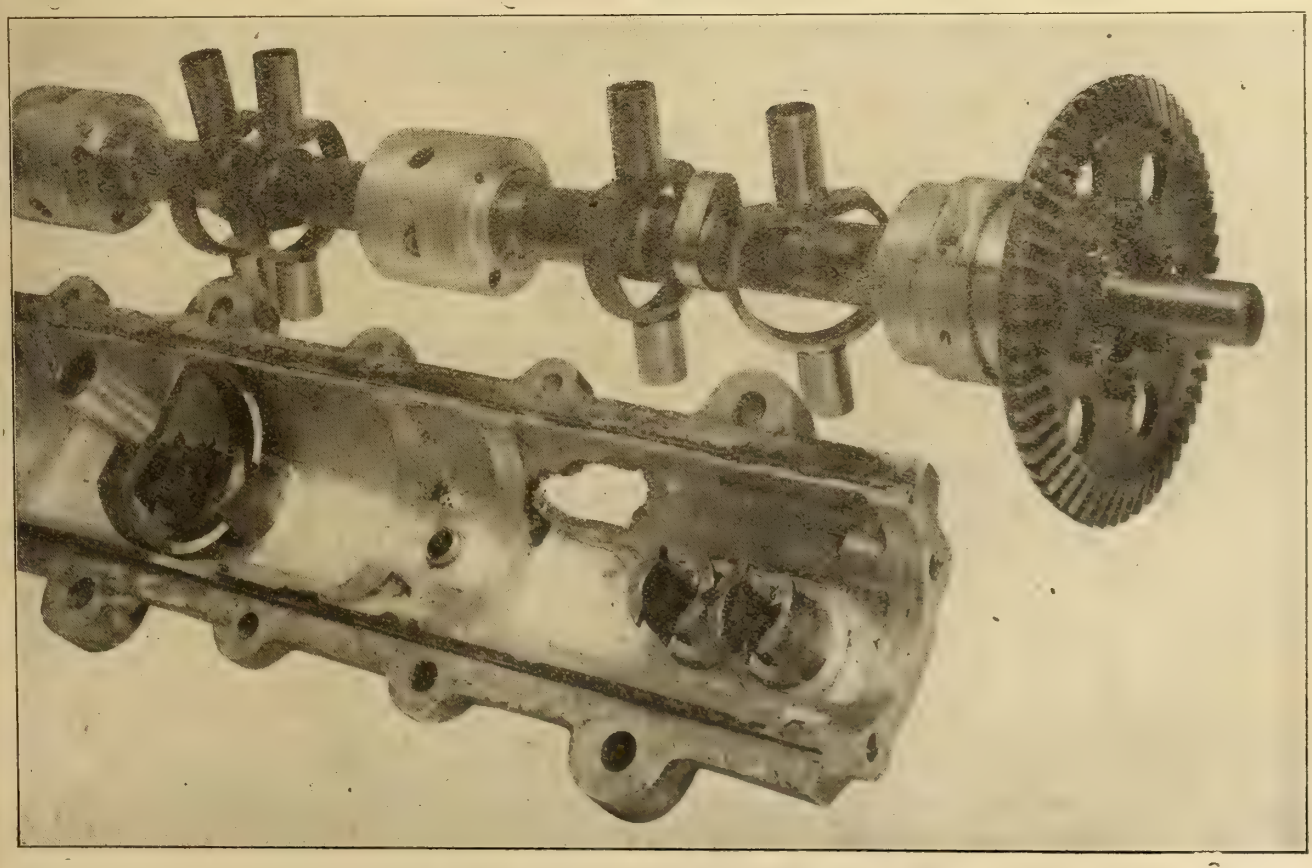
is very similar to that used on the Peugeot racing cars (four valves per cylinder) about seven years ago.

Each pair of valves is depressed by a rocker lever mounted on ball bearings. The inner arm of each rocker lever is operated by its cam through a tappet in the top half of the camshaft casing. The design of these tappets is clearly shown in a cross-sectional drawing, and in a sketch.

The tappets are made in the form of stirrups which encircle the cams, and are supported in bronze bushes at the top and bottom ends. The cams and their tappets are case-hardened, and the camshaft bearings and tappets are lubricated under pressure through the hollow camshaft.

Compression Release.

A simple form of compression release gear is used in place of the usual half compression cams and mechanism. This is operated by means of a rod which lies horizontally along the outside of the camshaft casing directly underneath the exhaust valve rocker arms. This rod has slots cut in it (as shown in a photograph) which lift the exhaust valve rockers when the rod is partially rotated by means of the hand-lever fixed to the



View of part of Camshaft and Casing. Bassé-Selve Engine.

rear end of the horizontal rod. The purpose of this compression release is apparently to facilitate swinging the propeller.

Pistons.

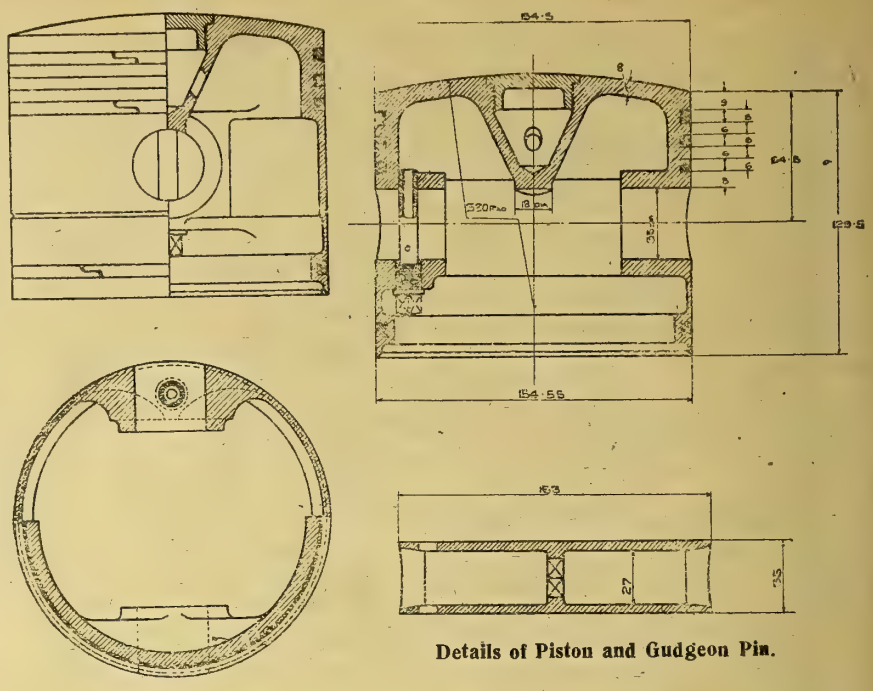
The aluminium pistons are illustrated.

The crowns are considerably domed and the pistons are machined all over, both inside and out. Both the material and the machining are excellent.

No ribs are formed on the inside of the pistons, the crowns being supported by a hollow conical pillar which bears on the centre portion of the gudgeon pin, as in the Benz and other engines. This conical pillar is integral with the piston crown. The inside of the pillar is machined through a hole in the centre of the crown which is afterwards plugged with a flanged cap screwed into the centre of the crown, as shown in the drawing. Three cast-iron compression rings are provided above the gudgeon pin and one at the bottom of the skirt, all with stepped joints. The machining processes of this type of piston are obvious from the illustrations.

No bushes are provided as liners in the gudgeon pin bosses. The gudgeon pin is fixed in position by a large hollow set-pin which passes through both sides of the boss and gudgeon pin as shown.

The weight of each piston complete with rings is 5.18 lbs.



Details of Piston and Gudgeon Pin.

Connecting-Rods.

These are of tubular section, and closely resemble the Benz connecting rods in design, but are of considerably larger proportions throughout. The inner surfaces of the big-end shells are machined with a fine pitch screw thread to take the white metal liners as in the 300-h.p. Maybach engines. The crankshaft journal bearings are machined in a similar manner. Other details of the connecting rods may be seen in the photographs reproduced. These rods are particularly heavy, the weight of the complete connecting rod being 9.0 lbs.

Crankshaft.

The crankshaft is of normal design, and, apart from its massive proportions, requires no special description. All the hollow crankpins and journals are of the same internal diameter (40 mm.), and are plugged with gunmetal discs expanded into grooves.

All the crank webs are drilled for lubrication with oil passages connecting the hollow crankpins and journals.

A large double-thrust ball-race is fitted to the front end of the crankshaft by means of a shoulder machined on a flange just behind the propeller hub; the thrust races are threaded on over the cranks, and are secured by a large screwed collar and spring locking ring. The main distribution bevel gear floats on the splined rear end of the crankshaft, and is fitted with a thrust ball race between the bevel and the rear end of the journal bearing.

(To be continued.)

A Distinguished Company.

It is announced that Lieut.-Col. Alec Ogilvie, C.B.E., F.R.Ae.S., has relinquished his appointment with the Technical Department, Air Group, and is resuming his professional duties as consulting aeronautical engineer, at Gwydir House, 104, High Holborn, W.C.1.

He is associating himself, under the style of Ogilvie and Partners, with the following, who were lately in the same department:—Lieut.-Col. W. A. Bristow; Major R. H. Mayo, O.B.E., Mr. A. J. Sutton Pippard, M.B.E., A.M.I.C.E., F.R.Ae.S., Mr. F. P. Walsh, A.F.R.Ae.S., and Mr. H. C. Watts, M.B.E., F.R.Ae.S.

Colonel Ogilvie himself will be remembered as one of the earliest pioneers of British Aviation, having experimented with a Wright biplane at Camber, near Rye, Sussex, in the Autumn of 1909. He brought the machine from the United States after having visited the Wright Brothers there.

He represented the Royal Aero Club in the Gordon-Bennett Race at Eastchurch in 1911, on a racing Wright of his own building, and fitted with an N.E.C. two-stroke engine. Later he visited the Wright Brothers again, and made a world's record for gliding by remaining in the air for 9 minutes, soaring in an up-current from a sand-hill at Kitty Hawk, U.S.A.

Late last year he had a serious accident, being the sole survivor of a crash of the first four-engined British machine. He joined the R.N.A.S. early in the war, and saw much active service in France. During the last year of the war he was in charge of Applied Design at the Technical Department, Air Group, Ministry of Munitions.

The Ricci Seagull.

Mr. John Wilmot writes:—

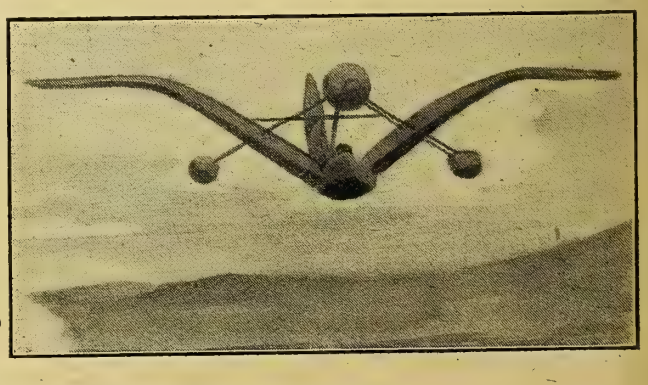
"A certain unnamed correspondent in the issue of March 12th, with his statements about 'impossible machine,' and the position his wing-tip floats are slung from, has fired me both to spoil your eyesight (however good it may be) with my sketch, and to try your patience still more.

"In my feeble opinion, the machine possesses undoubted advantages, both in aerodynamic design and also in strength and easiness of construction. Firstly, the struts connecting the engine-cowl would have to be widened considerably, and be provided with an extension to which streamline 'wing-tip' floats would be fixed. This construction, coupled with the depth of the wing section, is bound to be abnormally strong, and if the remaining wing structure were folded back on either side, the housing space need not be very large.

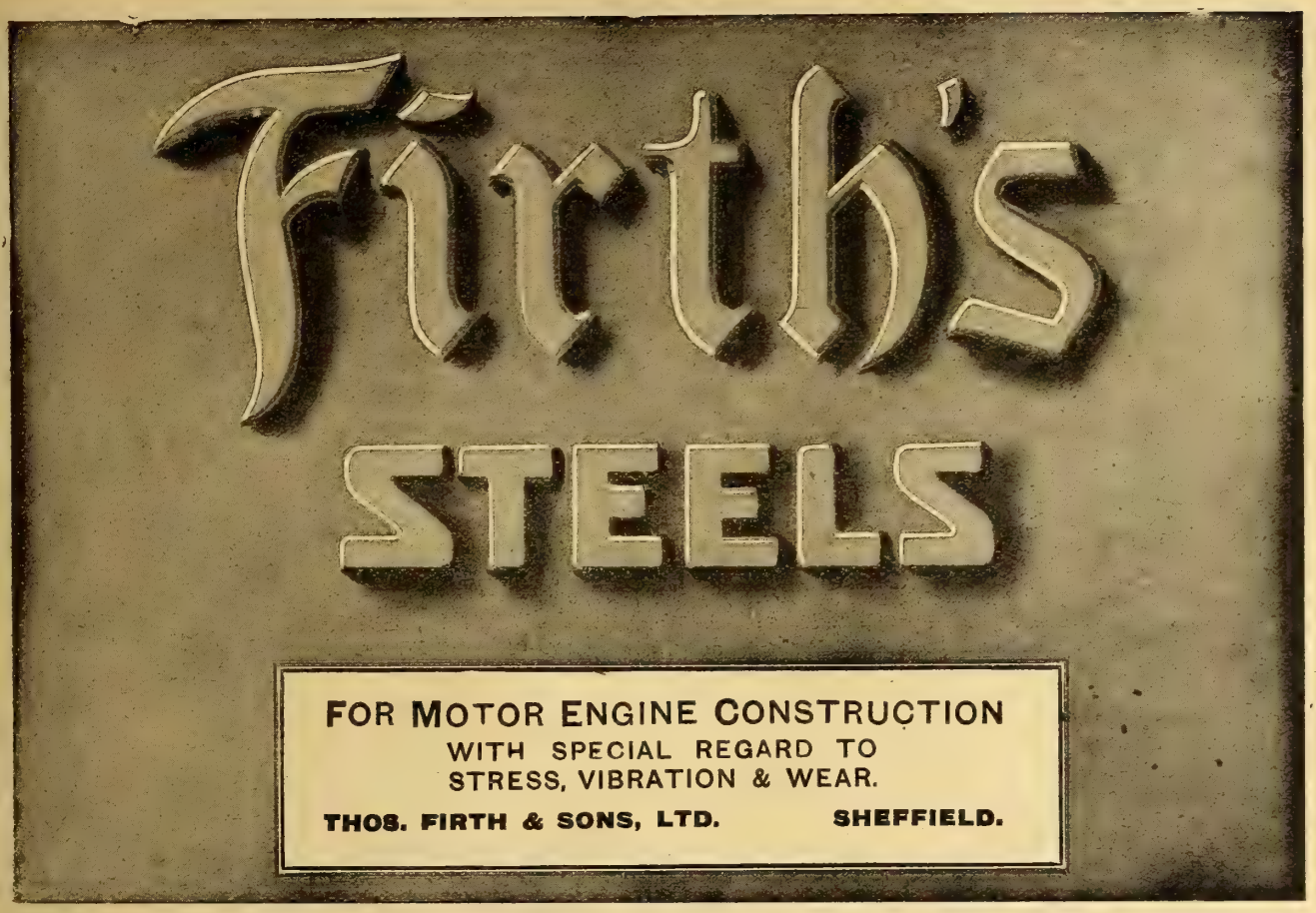
"Again, the unknown's statement about the essence of lift in the strongly 'dihedraled'—and, of course, highly cambered—portion of the wing. A seagull, at any rate, gets a tremendous amount of lift out of it. Also the wind thrown out by this dihedral must naturally be 'cupped' at the curve, thus exerting a good deal of extra pressure and lift under the wing-tips.

"Most likely the foregoing is absolute rot, but I would sooner have the 'wing-tip' floats as per my own sketch than dangling gracefully from the weakest part of the wings, as they would prevent the machine rolling overmuch, while the height of the wing-tips themselves would prevent them going anywhere near the water.

"Anyhow, I should think the machine could be made very compact and neat, with steel tube spars and almost complete absence of wing-bracing, while the speed should be tremendous."



Mr. Wilmot's Sketch for an Improvement on the "Seagull."



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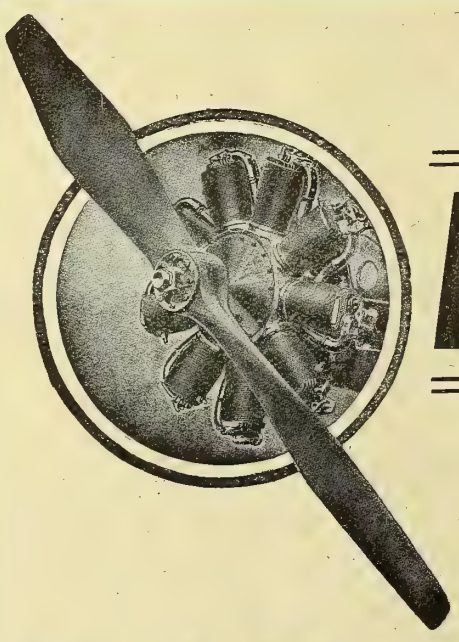
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NEWCASTLE-UPON-TYNE.

TELEPHONE:- 500 GOSFORTH.
TELEGRAMS:- ARMSTRONG AVIATION,
NEWCASTLE-ON-TYNE.



AERO ENGINES

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BEDFORD, ENGLAND.

PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the current Official Patents Records :—

Patents Applications.

Alden, F. Airships. No. 5222. March 3rd.
Badger, L. Brake for air- and seaplanes. No. 5359. March 4th.
Bettica, A. Multiple bomb for aeroplanes. No. 5506. March 5th.
Birkbeck, T. E. Dirigibles. No. 5763. March 8th.
Brown, F. A. Level-indicating device for aircraft. No. 5186. March 3rd.
Cramp, R. Aviation. No. 5373. March 4th.
Davies, T. E. Parachute attachments for aeroplanes. No. 5532. March 6th.
Gaynor, T. F. Aircraft ground contactor. No. 5680. March 7th.
Henderson, G. L. P. Aeroplane hangars. No. 5666. March 7th.
Hines, W. P. Level-indicating devices for aerial machines, vessels, etc. No. 5254. March 3rd.
Orfeur, J. H. Clinometers for aircraft. No. 5491. March 5th.
Orman, F. R. Aeroplanes. No. 5653. March 7th.
Pecknold, H. Appliance for inflating airships with hot air. No. 5517. March 6th.
Pidcock, C. W. Airships. No. 5820. March 8th.
Ricci, E. Waterplanes or hydro-aeroplanes. No. 5364. March 4th.
Sayers, W. B. Method of forming sheet metal structures for aircraft, etc. No. 5447. March 5th.
Appelbee, G. P. Control of aircraft. No. 7228. March 22nd.
Batchelor, J. H. Aeroplanes. No. 6875. March 19th.
Blackburn Aeroplane and Motor Co. Maintaining contents of cases, reservoirs, etc., carried by aircraft at any required temperature. No. 6966. March 20th.
Bonnard, L. H. Aeroplanes. No. 6792. March 18th.
Boothby, F. L. M. Airships. No. 7025. March 20th.
Burns, W. A. Airships. No. 7097. March 21st.
Caproni, G. Flying machines. No. 6635. March 17th
Caproni, G. Flying machines. No. 6636. March 17th.
Cawdery, J. W. Parachutes. No. 6562. March 17th.
Fairey Aviation Co. Hydro-aeroplanes. No. 7101. March 21st.
Green, F. M. Fittings for metal framework of aeroplanes, etc. No. 6976. March 20th.
Gearins, A. J. E. Two-stroke radial aero engine. No. 7085. March 21st.
Lobb, H. B. Toy aeroplanes. No. 6991. March 20th.
Low, A. M. Aeroplanes. No. 6877. March 19th.
O'Gorman, M. Motive-power installations for aircraft. No. 6874. March 19th.
Prendergast, G. M. Propellers. No. 6750. March 18th.
Motte, R. C. Sheet metal bodies for aeroplanes, boats, floats, etc. No. 7076. March 21st.
Ridgway, A. E. Weight-supporting parachutes. No. 6973. March 20th.
Sherrin, G. C. Air-speed indicators. No. 7133. March 21st.
Slingo, C. W. Brakes for aircraft, etc. No. 7165. March 22nd.
Slingo, C. W. Surface for landing-grounds of aircraft, etc. No. 7166. March 22nd.
Tarrant, W. G. Elevator planes of aircraft. No. 7103. March 21st.
Theodorescou, A. Road for aero transport. No. 6989. March 20th.
Bijur Motor Appliance Co. Starting-apparatus for aeroplane engines, etc. No. 7301. March 24th.
Blackburn Aeroplane and Motor Co. Aircraft fuselages, hulls, etc. No. 7438. March 25th.
Blackburn, H. Release hooks for parachutes, etc. No. 7564. March 26th.
Constable, T. Airship shelters and stations. No. 7437. March 25th.
Croxon, W. Toy parachutes. No. 7360. March 24th
Gibson, T. S. Means for cleaning wind-screens and windows of motor vehicles, aircraft, etc. No. 7285. March 24th.
Gillespie, B. Aeroplanes and submarines. No. 7262. March 24th.
Goodwill, G. Instruments for ascertaining speed of aircraft. No. 7310. March 24th.
Goodwin, H. A. C. Means for indicating course, linear velocity, bearing, and ground range of aircraft and for fuse-predicting. No. 7627. March 26th.
Hill, F. W. Clinometers for aircraft. No. 7903. March 29th.
Hooper, F. J. Swivelling brackets for mounting electric generators on aircraft. No. 7316. March 24th.
Hunnable, A. Airships. No. 7813. March 28th.
Janson, E. C. Aero-motors. No. 7957. March 29th.
Luboshez, B. E. Device for obtaining lateral control and stability of aircraft. No. 7424. March 25th.
Pearce, J. T. Aeroplane propellers. No. 7969. March 29th.
Phillips, J. S. Aeroplanes. No. 7372. March 25th.
Pickles, S. Radiators for aircraft. No. 7963. March 29th.
Pickles, S. Garments for use in rarefied atmospheres. No. 7964. March 29th.
Pointing, A. G. Aeroplanes. No. 7495. March 25th.
Vickers, Ltd. Fabrics for airships. No. 7465. March 25th.
Vickers, Ltd. Cars for aerial machines. No. 7487. March 25th.
White, J. W. Launching and landing heavier-than-air craft. No. 7886. March 29th.
Wilson, H. H. Device for radiator-warming of motor-car and aeroplane bodies. No. 7388. March 25th.
Wood, B. G. Aeronautics. No. 7506. March 26th.
Worman, W. M. Aeroplanes, etc. No. 7926. March 29th.
Worman, W. M. Aeroplanes, etc. No. 7927. March 29th.

Complete Specifications Accepted, prints of which can be obtained on and after March 27th, 1919.

23,502. Dec. 3rd, 1914. Molesworth. Means for directing the dropping of bombs or projectiles from aeroplanes or airships.
23,790. Dec. 9th, 1914. Edwards. Guns on aeroplanes.
24,351. Dec. 19th, 1914. Wells. Sighting-device for use on aircraft.
704. Jan. 16th, 1915. Jeffries, E. H. Line-travelling mines or torpedoes and the like.
3009. Feb. 24th, 1915. Molesworth. Means for directing the dropping of bombs or projectiles from aeroplanes or airships.
3428. March 3rd, 1915. Bradley. Sighting-apparatus for dropping bombs from aircraft.
3867. March 11th, 1915. O'Gorman, Waters and Vessey. Apparatus for supporting and releasing bombs or other bodies from aircraft.
3887. March 11th, 1915. Barr and Stroud. Sighting-apparatus for use in dropping bombs from aircraft.
5608. April 14th, 1915. Temple. Instrument for determining the speed of aircraft and the proper moment for dropping bombs therefrom.
5750. April 16th, 1915. Cowey. Sighting-devices for use in dropping bombs or other missiles from aircraft.
5915. April 20th, 1915. Wheatley and North British Rubber Co. Fabric for balloon envelopes and the like, and the method of manufacturing and after-treating same.
6698. May 5th, 1915. Portadown Weaving Co., and Greeves. Fabrics applicable for aeroplane and other purposes and aeroplane wings and planes.
6967. May 10th, 1915. Barr and Stroud. Pilot steering-indicators for aircraft.
8438. June 7th, 1915. De Havilland, and Aircraft Manufacturing Co. Gun mounting for use on aircraft.
102,620. Dec. 6th, 1915. Curtiss Motor Co. Hydro-aerial machines.
123,564. Feb. 21st, 1918. Morch, J. J. Propulsion and control of aeroplanes.
123,565. Feb. 21st, 1918. Morch, J. J. Propellers for aerial and other machines.
123,603. March 5th. 1918. Poulsen, C. M. Planes of aeroplane flying-machines.

Complete Specifications Accepted, prints of which can be obtained on and after April 10th, 1919.

13689/15. Sept. 27th, 1915. Williams, and North British Rubber Co. Balloon fabrics, and the like.
13690/15. Sept. 25th, 1915. Williams, and North British Rubber Co. Manufacture of balloon fabrics, and the like.
14060/15. Oct. 4th, 1915. Molesworth. Means for directing the dropping of bombs or projectiles from aeroplanes or airships.
14577/15. Oct. 15th, 1915. De Havilland and Aircraft Manufacturing Co. Means for controlling aeroplanes.
14695/15. Oct. 18th, 1915. Short. Explosion engines particularly applicable to aircraft.
15123/15. Oct. 26th, 1915. White (Curtiss Motor Co.). Flying-boats.
154/65/15. Nov. 2nd, 1915. Peters and Co., and Hibberd. Aerial screw propellers, and the like, and the method of manufacturing the same.
154/99/15. Nov. 3rd, 1915. Hutchins. Apparatus for aiming and dropping or firing projectiles from aircraft.
15625/15. Nov. 5th, 1915. Avery, Ltd., and Gibbs. Instrument for ascertaining the tensional stress in flexible members, such as aeroplane stays, or other like stressed members
124,012. Feb. 11th, 1918. Valdes y Cortes, S. Driving of ships, boats, windmills, flying machines, and the like.
123,996. March 20th, 1918. Darwin, H. Aeronautical instruments.
124,067. March 21st, 1918. Russell, J., and Kennedy, R. Internal-combustion turbine engines for aeroplanes, seaplanes, airships, and the like.
124,081. April 5th, 1918. Robertson, W. Inclinometers particularly adapted for aircraft.
124,093. April 24th, 1918. Jackson, W. J. Mellersh-. Aeroplane structural elements.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER APRIL 17TH, 1919.

16445. Nov. 22nd, 1915. Blackburn Aeroplane and Motor Co., and Blackburn. Devices for use in the manufacture of propellers, more particularly aircraft propellers.

17141. Dec. 6th, 1915. Sage and Co., and England. Manufacture of certain parts of aircraft.

17385. Dec. 11th, 1915. Vickers, Ltd., and Challenger. Bullet deflectors for the propellers of aeroplanes and similar aircraft provided with guns.

17528. Dec. 15th, 1915. Short. Mounting of guns on aeroplane flying-machines and other aircraft.

124225. April 20th, 1917. Laws, F. C. V. Photographic cameras of the type employed on aircraft.

124280. March 21st, 1918. McDonald, T. F., and Naseby, T. W. Device for indicating the backward, forward, and sideward inclination of aircraft and aeroplanes, and for similar purposes.

124286. March 22nd, 1918. Done, J. S. Appliance for lifting and moving aeroplane cases and similar large packages.

124293. March 27th, 1918. Burn, L. Devices for minimising the effects of acceleration upon compasses and inclinometers.

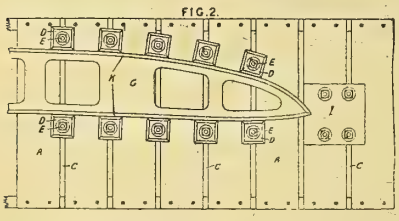
124355. July 11th, 1918. Channon, F. W. Aerial propellers.

124363. July 28th, 1918. Walsh, F. F. P. (Swan, P.). Aircraft control.

ABRIDGMENTS OF RECENTLY PUBLISHED SPECIFICATIONS.

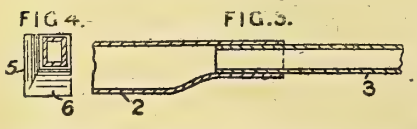
122,060 Jigs for making aeroplane ribs, etc. LIGHTMAN, L., 89, Harehills Avenue, Leeds.

A jig, particularly for use in securing edge frames to the ribs of aeroplanes, comprises a base having a series of parallel cross slots over each of which is a pair of plain square blocks carried by bolts passing through the slots so that the blocks may be adjusted to suit ribs of different contour. The base may be of wood and comprise separate strips A spaced apart to form the slots C, or may be of cast iron and provided with slots extending only part way across it. A templet of the rib is placed on the base and the blocks D adjusted to its periphery and secured by the bolts E. The templet is then removed and the rib G with the glued edge frames K placed on it is pressed down by hand between the blocks and the frames K are then screwed or nailed to the rib. Blocks I may be provided to engage the ends of the ribs and the lower face of the blocks is preferably covered with sand-paper.



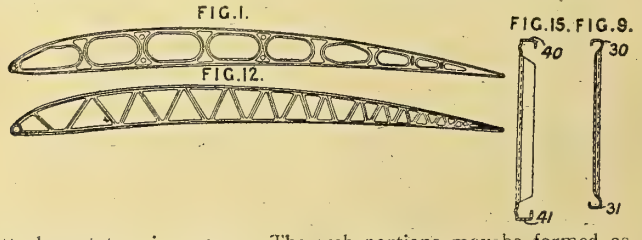
122,647. Aeronautics. RAPP, J. W., College Point, New York, U.S.A.

CARS; FRAMEWORK.—The fuselages of aeroplanes are composed of steel tubular longerons of rectagular cross-section connected together by cross-stays and struts of similar tubes. The longeron tubes are made of sections of tubing of different dimensions telescoped and welded together. Figs. 3 and 4 show a joint for two sections of longeron tubing, the larger section 2 being reduced at the end for welding to the next section 3. The reduction of the section 2 is effected only on the two inner sides 5, 6, so as to retain the external contour.



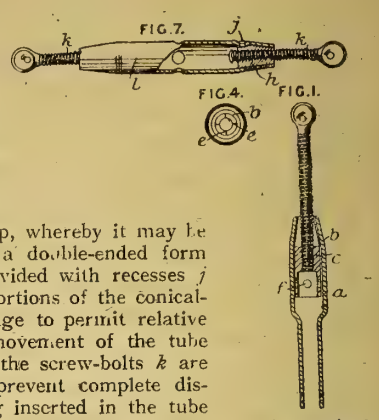
122,649. Aeronautics; girders. RAPP, J. W., College Point, New York, U.S.A.

Aeroplane ribs are formed from a single sheet of metal and comprise beads 30, 31, Fig. 9, with intermediate web parts cut and embossed into truss formation. Lugs also are provided for attachment to wing spars. The web portions may be formed as shown in Fig. 1, of W-section, or as shown in Fig. 12, of V-section, with beads 40, 41, Fig. 15.



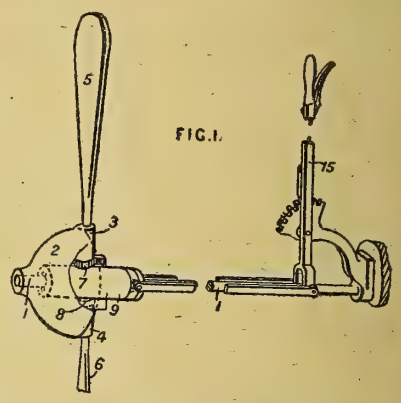
122,325. Wire and rod strainers. FRANCE, A. G., 64, Chancery Lane, London.

Relates to screw turn-buckles, applicable for straining aircraft stay-wires, and consists in effecting the locking of the screw by means of co-operating conical surfaces. In the form shown in Fig. 1, the attachment stirrup *a* is formed with a hollow conical sleeve *b*, and the nut *c*, situated within it, also is made taper and has radial slits *e*, Fig. 4, enabling it to be sprung slightly. The nut has a square aperture for the insertion of a rotating-tool, and tommy-holes *f* for a like purpose. Alternatively, the nut may have a squared, etc., part projecting beyond the conical portion of the stirrup, whereby it may be rotated. Fig. 7 illustrates a double-ended form wherein the nuts *h* are provided with recesses *j* with which punched-down portions of the conical-ended straining-tube *l* engage to permit relative axial, but prevent rotary, movement of the tube and the nut. The ends of the screw-bolts *k* are preferably riveted over to prevent complete disengagement, the nuts being inserted in the tube before the ends of the latter are swaged or rolled to the conical shape.



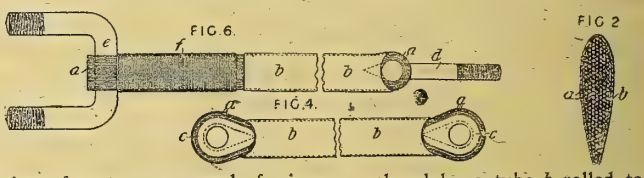
122,302. Screw propellers. THOMPSON, J. E., Paisley, Ontario, Canada.

In an aeroplane propeller, the blades are journaled in radial sleeves 3, 4 carried by a cone-shaped bearing member 2 secured at its apex to the propeller shaft 1. A sliding sleeve 9 on the shaft 1, and operated by the lever 15, has tangential racks which gear with corresponding pinions 7, 8 on the blades 5, 6.



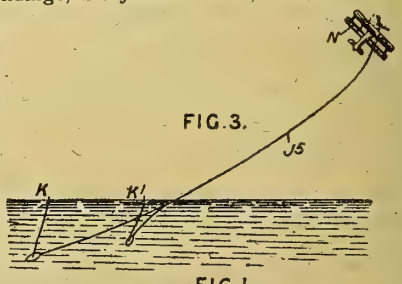
122,506. Stays for aircraft framing, etc. SAUNDERS, LTD., S. E., and THOMAS, H. H., Columbine Works, Medina Road, East Cowes, Isle of Wight.

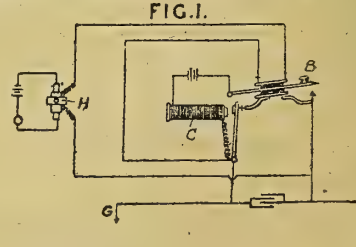
Stays or tension members for use in aircraft, bridges, or other structures are constructed of several wires laid parallel to one another within an outer covering, the whole being subsequently drawn or rolled to the desired section. Fig. 2 shows a cross section of a stay composed of wires *a* enclosed by a tube *b* rolled to streamline form. Fig. 4 shows such a stay formed with end fittings, by wrapping the wires round eyes *c*; or the end fittings may comprise a stirrup bolt *e* and a T-bolt *d*, Fig 6, the ends of the wires *a* being secured by wire binding *f*. The wires *a* may be treated with bitumen, paraffin, etc., which fills the interstices.



122,657. Signalling to and from aircraft. HARVEY, T., 10, Newton Terrace, Sauchiehall Street, Glasgow, and TULLOCH, T. G., Bank Buildings, St. James' Street, London.

For communicating to and from aircraft flying over the sea, two earth plates spaced apart are suspended in the water from the aircraft by an insulated cable or cables. Fig. 3 shows an aeroplane N from which the earth plates K, K¹ are suspended by a double-core cable J⁵. The double-core cable may be replaced by two separate cables. The transmitting and receiving apparatus shown in Fig. 1 comprises a sending-key B and a make-and-break switch C arranged to send impulses to the circuit connecting the earth plates G, E.





THE AIRCRAFT TRADER

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

COPPER.—The general position of this market is fairly good and consumers are showing more interest, and prices are becoming firmer; this alteration in the position may be due to alteration in the American Exchange, higher freights, and the possibility of a huge demand on the signing of Peace.

The prices of Electrolytic, B.S., and Standard are now fairly safe, and if anything values will harden. In some quarters it is expected that the prices of manufactured Copper and Brass will shortly advance. It is difficult to see how manufacturers can justify such an action; in fact, as pointed out in these columns previously, even the prices ruling at present are out of all proportion with the prices ruling for ingot Copper after allowing for dearer fuel, increased wages, etc.

COMPARATIVE PRICES.

	Per Ton.
To-day (April 2nd)	£81 0 0
Last week	79 10 0
Last month	75 0 0
Lowest price, 1918	100 0 0

TIN.—There has not been any definite change in this market during the past week. Further supplies have been received recently, but even after taking these into account the available stocks cannot be considered very large. Although consumers are showing a little more interest in the market, there are no signs of real activity.

The position in U.S.A. does not even show signs of improvement, and very little business is being transacted. It is stated that it is intended to supply Germany with Tin when the blockade has been lifted, and should this be done, the supplies sent to this country are likely to be affected.

Speaking generally, the position is rather obscure, and does not encourage confidence.

COMPARATIVE PRICES.

	Per Ton.
To-day (April 2nd)	£220 0 0
Last week	240 10 0
Last month	229 10 0
Lowest price, 1918	240 0 0

LEAD.—Although the stocks held here are still very large, the interest shown during the past week has been fairly good, and at one time there were more buyers than sellers. It cannot be said that there has been keen activity, at the same time there are good indications that the demand will continue to increase with the settlement of the labour unrest. There has recently been some interest shown in forward Lead, and this would indicate that some speculators have an idea that the position of the Government will be weaker about June or July.

The average price at present is £27 15s. cash. Forward Lead has been quoted at June £26 10s., May £27, and one seller even quoted £26 June/July.

STEEL.—Although certain sections of the Steelmakers are busy on Home Trade orders, the position generally is very unsatisfactory. Consumers are simply buying hand to mouth, and on the other hand makers are not anxious to make contracts owing to the present uncertainty, and they will only accept business with all kinds of protective clauses.

It is also understood that they have applied to the Ministry for permission to increase their prices as from April 1st, on the grounds that the shorter working day has considerably increased their costs. This news has caused much concern among buyers, especially when it is considered that Americans have only just made a reduction in their prices, and it is practically certain that if the advance is allowed our export trade will suffer very badly.

In the meantime, although inquiries for Home Trade are very large, they do not mature into definite business, and the position generally could not be worse.

TIMBER.—This market is now entirely free from control, and there is already a fair amount of interest being shown. Prices have declined very considerably during the past month, and it is thought that the extreme limit of the fall in prices has now been reached. The only factor which is still causing anxiety amongst buyers is the huge stock which is held by the Controller, and until it is definitely seen that the market will not be flooded with this Timber the activities of buyers will be to a certain extent hindered.

It is now expected that the demand for Timber of all kinds for Peace trade will begin to increase, and once consumers get into their stride the demand will be very large indeed, and everything points to values hardening.

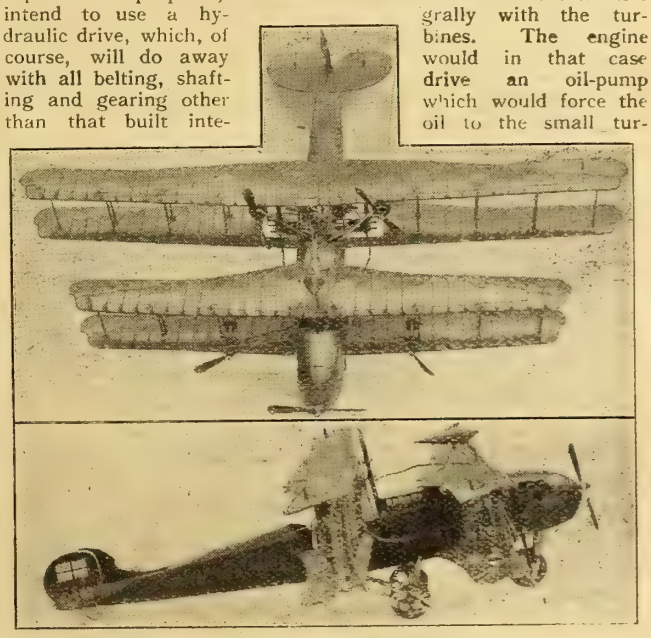
FABRIC.—No definite announcement appears to have been made with regard to the disposal of the nuge stocks of Linen Fabric which are held by the Air Ministry. The demand, of course, for Aircraft work is very small indeed, and it looks as though it will be necessary to dispose of the material at a huge loss.

At the same time it is doubtful if prices of Linen Fabric will decline in future as the increase in wages and raw materials indicate that prices will be higher, and those manufacturers who anticipate a fair demand for their aeroplanes will certainly not be unwise in seeing that they hold fair stocks. Some of the stocks held by the Ministry are of very inferior quality, and extreme care is necessary before purchases are made.

An Interesting Experiment.

The accompanying illustration shows a model of a tandem biplane designed and built by the Regent Carriage Co., Ltd., of 126, New King's Road, Fulham, S.W.

The model has a span of about 4 feet with a fuselage length of 3 feet 6 inches. For experimental purposes it has been fitted with a small twin-cylinder double-opposed petrol engine, giving about ¾ h.p. The five airscrews are driven off one shaft with belts for experimental purposes, but in the full-sized machine the makers intend to use a hydraulic drive, which, of course, will do away with all belting, shafting and gearing other than that built integrally with the turbines. The engine would in that case drive an oil-pump which would force the oil to the small turbines attached to each airscrew and there would be special cut-outs so that each screw could be stopped as and when desired.



A Tandem Biplane Model.

The model actually flew on Wimbledon Common and hit the branch of a tree, breaking the screws, but otherwise it suffered little damage. The Regent Carriage Co., Ltd., have taken out patents for various parts of the machine and are prepared to negotiate with any large manufacturer who would care to investigate the proposition which they have to offer.

A Test Flight.

It is announced that during the recent trial flight of R.34, from Glasgow over the Irish Channel and back *via* the Midlands, the airship was fitted with five Sunbeam-Coatalen "Maori 4" aircraft engines, which it is said ran continuously for 19½ hours without giving trouble. Very severe weather was experienced during the trip.

Triplex Safety Glass and Motoring.

It is interesting to note that the new Enfield-Allday light cars are now all fitted with Triplex Safety Glass windscreens as a standard portion of their equipment. This precaution has been taken for the safety of the drivers and passengers, and although it adds slightly to the factory cost, it constitutes a distinct factor in increasing the value of the car.

It is also worthy of note that insurance companies take the fitting of Triplex Safety Glass into consideration by lowering their premiums for road risks when it is employed.

'SHELL'

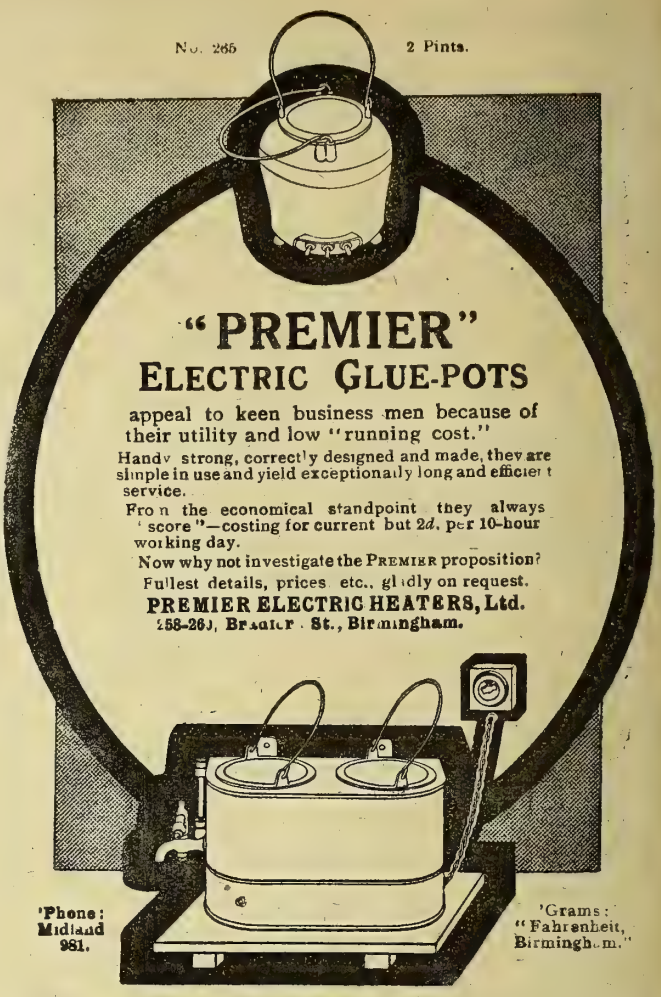
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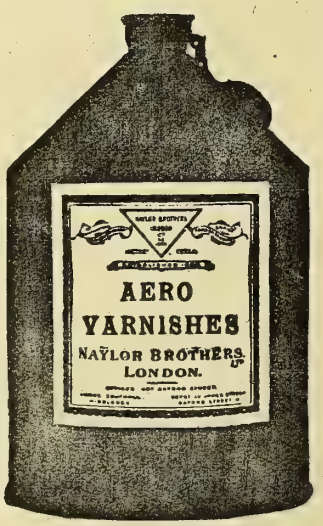
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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

FICTITIOUS FIGURES ON FLYING.

By "ENGINEER OFFICER."

In view of the many inflated statements at present made regarding the cost of flight, I send the following figures, deduced from nearly four years' experience of war, as pilot, engineer officer, and technical officer.

It might appear that the views expressed are pessimistic; but I can only say that I have experimented with models since 1896, made a first hop in 1908, exhibited a model in the Aero Show of 1910, wrote on the future of flying in 1918, and have the fullest confidence in the future. The actual cost must be faced, however, and not camouflaged as at present.

The journey contemplated in the following figures is to a point 5,000 miles away, and the out-and-home route is on one line. The journey is to be done in 500-mile stretches, with a complete aerodrome with workshops, wireless, etc., at the end of each 500-mile stretch, and the machines are to be four-engined biplanes, capable of carrying three-quarters of a ton, by day and night, on 300 days in the year.

Postulated Principles.

Journey.—5,000 miles out and 5,000 miles return.

Speed.—100 miles per hour.

Time for Journey.—4.16 days per round trip, flying day and night.

Flying Days per Year.—300.

Machine Endurance.—One machine does a stretch of 500 miles, and its load is then transferred to a fresh machine.

Machines Required.—Ten actually employed, ten more actually ready for flight in case of breakdown, five extra as spares. Total, 25.

Life of Machine.—One year.

Life of Engines.—180 hours. [Running time, before being rebuilt.—Ed.]

Cost of Machines per Year.—One machine during one year makes a trip every 4.16 days = 72 trips per year = 36,000 miles = 360 hours. This entails two sets of engines per machine per year. The cost of machine is estimated at £10,000, and engines at £2,000 each, making a total of £26,000 for complete machine. The total cost of 25 machines is £650,000, and it is assumed that 10 per cent. may be deducted from this total for value of spare machines left over from previous year, making grand total £585,000.

Average Load.—¾ ton.

Miles Flown per Year.—720,000.

Ton-Miles per Year.—540,000.

Petrol Used.—One gallon per mile at 2s. 6d. per gallon = £90,000.

Oil Used.—One-tenth gallon per mile at 5s. per gallon = £18,000.

Pilots.—Two pilots per machine are allowed for, this number being taken to include for sickness, etc. Each pilot is reckoned at £500 per year, making a total of £25,000.

Aerodromes.—One is required at every 500 miles, and each aerodrome must include shed for three machines, workshop, living quarters, wireless, landing, lighting, etc. The cost of each is taken at £10,000 per year = £100,000.

Insurance.—This is taken at 20 per cent. of cost of machines, wages of pilots, and cost of aerodromes = £132,000.

Offices.—A manager and office are required at each stopping-place, and the yearly cost is estimated at £3,000 = £30,000 total.

Engineers, Riggers.—These are reckoned at 20 per machine, at an average wage of £200 per year, making a total of £100,000.

Car Services.—Reckoned at £2,000 for each stopping-place = £20,000 total.

Total Costs.

Machines	£585,000	= 53%	of total costs.
Petrol	£90,000	= 8%	,, ,,
Oil	£18,000	= 1%	,, ,,
Pilots	£25,000	= 3%	,, ,,
Aerodromes ...	£100,000	= 9%	,, ,,
Insurance	£132,000	= 12%	,, ,,
Offices	£30,000	= 3%	,, ,,
Engineers	£100,000	= 9%	,, ,,
Cars	£20,000	= 2%	,, ,,
	£1,100,000		

Which is £2.04 per ton-mile.

Assuming that a profit of 30 per cent. is required, the cost of flight per ton-mile amounts to 53s. = 0.28d. per pound-mile = 0.018d. per ounce-mile.

Damning Deductions.

It would cost, therefore, 3s. 9d. to send a half-ounce for 5,000 miles. Therefore, transport of a 200-lbs. man over the same distance would amount to £1,150.

The former is a reasonable figure, and comes within commercial possibilities at once; the latter is impossible except for occasional stunts.

One sees figures quoted daily in the Press, and even in books, and these figures vary from 9d. to 4s. per ton-mile. How such figures are arrived at is beyond me, but their effect on the general public cannot fail to damage aviation.

If, as seems possible, a large company were floated in the near future, with prospective profits based on the 9d. to 4s. figures, the general public would subscribe with war-time enthusiasm, and the final results would be comparable to those that occurred at the start of the motor-car industry. Such results would be absolutely disastrous to commercial flying for many years.

Mails can be carried to-day, with reasonable chance of success, *if*, but only *if*, the Government guarantees a daily load (or its equivalent in cash) for a given period of time.

Poor Passenger Prospects.

I can foresee the time when mail aeroplanes, as mail steamers, may carry passengers as extra cargo, but I cannot see a pure passenger service paying at all, unless the world conditions completely alter. A rich man's car, run in a rich man's style, costs some 4s. 6d. per mile to run, and flying, as a mere mechanical problem, costs some 20 times as much as ordinary slow transport.

COMMERCIAL AERONAUTICS.—*(cont.)*

So it must always be—action and reaction are equal—speed has to be paid for—but the future of flying is assured, for light valuable cargo, as aerial transport possesses the quality of speed in a larger degree than any other form of transport.

EDITORIAL NOTE.

[The foregoing article is published because it gives the reasoned and calculated opinions of a very experienced officer, whose faith in aviation is in no way dimmed by his discouraging figures. One believes that in some ways he is over-optimistic—as in his estimate of 300 flying days (and nights) per annum. In other ways he is over-pessimistic—as in his estimate of costs of machines, engines, and aerodromes.

Possibly the truth lies somewhere between his 53s. per mile and super-optimist's 9d. per mile. One would therefore welcome the opinions and estimates of others who are interested in this subject and who have worked out figures on similar lines.—ED.]

Stunts or Business.

To the Editor of THE AEROPLANE.

Sir,—If the article entitled "Stunts or Business" contributed by "Medway" to the issue of THE AEROPLANE dated April 2nd is intended as an irritant, the author is to be congratulated upon his success. Briefly, his contention appears to be that the attempts to fly the Atlantic are foolhardy "stunts" which even if successful would prove nothing and would bring no immediate financial gain to the community.

He states that the public interest in these attempts "is much the same as that of a crowd that goes to watch the lion-tamer, rather hoping that the lion may prove to have been insufficiently tamed." Later he says that he classes the "Trans-Atlantic aeroplane flights with the escapades of people who go over the Niagara Falls in barrels, or do tight-rope performances across the top."

Ye Gods! One wonders if future historians will class these short-sighted views with those of that writer of feeble wit who in the days of our foolish forefathers wrote in the "Times" that he would as soon expect the public to trust themselves to Mr. Congreve's rockets as to tempt Providence by riding in Mr. Stephenson's railway train which was said to attain the appalling speed of 25 or 35 miles per hour.

There might be some excuse for the unenlightened writer living in the turgid atmosphere of an almost barbaric age; there is none for your contributor "Medway," and his remarks deserve the derision that they will receive from posterity.

Imagine a writer in the year 2019 (when ten hour flights from the Old to the New World will be as commonplace as railway journeys to-day) quoting these remarks from the time-yellowed pages of THE AEROPLANE. How his readers, who have experienced the luxury of travelling in the great Atlantic aerial liners, will chuckle over the comment of this journalist who in the dim ages classed trans-Atlantic flying with tight-rope performances.

Through the centuries the world has been cursed with saddle-bag-chair critics who carp at everything that more energetic folk attempt.

"Medway" says:—"There are some things which must be done in order to prove that they can be done. This is not one of them. We could prove the possibility of flying the Atlantic quite easily without doing it, if any such proof were needed. We know the distance, and that same distance could be flown by journeying a certain number of times—say, from London to Paris and back without stopping."

To Hades with such puerility! As well say that in the early days of motor-cars it would have been as effective to run them up and down Brighton front as to organise those wonderful road races from Paris to Berlin, and to other Continental capitals—races that forced the world to realise the possibilities of the then novel "horseless carriage" which had been derided by interested people.

Let me tell "Medway" that the world realises that the crossing of the Atlantic by an aeroplane will be a great human triumph. To bracket brave men who are willing to risk their lives in the attempt with the mountebanks of a country fair will not alter the world's view.

If everyone thought only of immediate gain we should indeed be a poor-spirited and degenerate race. Thank heaven, there are some who can still appreciate the true spirit of the old R.F.C. motto "Per Ardua ad Astra" without asking if there is any commerce to be opened up with the stars!

(Signed) CAPTAIN, R.A.F.

Small Parts Makers and the S.B.A.C.

The following letter has been received:—

Sir,—Following some correspondence recently between ourselves and the Society of British Aircraft Constructors, on the subject of that body approving factors in the Aircraft Industry, also the question of a separate Sectional Committee being appointed, to consider the matters in connection with the manufacturers and suppliers of small parts, we are pleased to note that the Secretary of the S.B.A.C. has now circularised a letter to all members of that body asking their views on the formation of a special Sectional Committee to consider matters particularly touching the interests of the manufacturers and suppliers of small and other parts, i.e., people who undertake repetition work, and do not make or assemble either complete components or complete machines.

I hope that the majority of firms will take the opportunity of seriously considering this matter, because, up to the present time, the Committee of the S.B.A.C. has chiefly been engaged upon considering matters affecting only aircraft manufacturers. They undoubtedly have their hands full with these considerations, but, so far as we know, the part manufacturer or supplier is not represented on the Committee.

It has been suggested that the formation of a special section should be left until a later date, as many firms who, during the war, have been making small parts are reverting to their peace-time trades or going in for manufactures outside the Aircraft Industry. But, on the other hand, in view of the progress which will, I believe, be made in Civil Aviation, during the coming summer, I think that the formation of the section, as suggested now, will give such a Committee time to consider matters and get settled down before the part manufacturers get busy again on aircraft work.

There are many ways in which a Sectional Committee could be of assistance to the members of this branch of the Aircraft Industry, and although during the war a great deal of assistance and information was rendered by the Air Ministry, I believe many difficulties which existed during the war might have been overcome had such a Sectional Committee been in existence to deal with matters which touched the part manufacturers as a whole.

Another point which I would like to mention is that quite a number of firms, who in the past have specialised in the manufacture of metal fittings or parts for the Aircraft Industry, are not at present members of the Society of British Aircraft Constructors, and, in a conversation with one or two such firms, who are certainly not unimportant, they have expressed the opinion that they thought that the S.B.A.C. was really only for Aircraft Manufacturers. Therefore, I hope that some of these firms may take the opportunity now of writing to the Secretary of the Society of British Aircraft Constructors, at 1, Albemarle Street, W., intimating their wish to join the Society if a Sectional Committee is formed, as suggested.

For the Motor and Aircraft Supplies Co., Ltd.,
(Signed) G. H. MANSFIELD (Managing Director).

A Severe Test.

One learns with interest that the "Phœnix Cork" flying-boat of the latest type was put through an unusually severe test at the No. 2 Northern Marine Acceptance Depôt at Brough one day last week. She was flown through a gale which was then raging and was afterwards moored out in the open for the three following days and nights, and it was not until 10 p.m. on the fourth night that it was possible to bring her ashore.

During all this period there were snowstorms and heavy rain and a wind which varied between 35 miles and 50 miles an hour, so it is a striking testimony to the soundness of the design that the boat satisfactorily outrode the weather. Not only was the machine quite undamaged when brought ashore, but no water had been shipped although heavy seas were running, caused by the combined effect of the storm and an 8 to 10 knot tide down the Humber.

The experiment proves conclusively the usefulness of the flying-boat from the point of view of its independence of landing grounds, for such a machine can be satisfactorily moored out in the open in weather when it would be extremely difficult to prevent a land machine from being damaged in an aerodrome.

Incidentally, the name of the "Phœnix Cork" seems to have been amply justified, so it may be of interest to explain how the name came to be adopted. The boat was designed and built by The Phœnix Dynamo Manufacturing Co., Ltd., of Bradford, and in arranging the type-names for this class of aircraft the Air Ministry decreed that a name must be adopted by the firm, which name should pertain to some maritime town or city in the British Isles. The Phœnix Company, with a proper sense of the appositeness of things, promptly chose the name "Cork" as representing at once an important maritime city and a sea-going quality eminently desirable in a flying-boat. Apparently the sea-worthiness of the boat has fully justified her name.

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COMMERCIAL AERONAUTICS—(*cont.*)

POST-BELLUM POLICIES.

By The Special Commissioner of "The Aeroplane."

MARTINSYDE, LTD.

On reflection and reviewing my conversation with Messrs. Martin and Handasyde on this subject, I cannot but regret that I was unable to see them separately. I feel I should have got more from them had I seen them individually. Also it would have been of a certain diabolical interest to see if their ideas of the future clashed in any way.

Really, however, it was neither Mr. Martin or Mr. Handasyde whom I saw, but "Martinsyde," which is in all probability as it should be. I hope I have not conveyed any impression of ingratitude to these two gentlemen; if so, it is erroneous, as I am very grateful for the time they spared me. To return to the point, however, it is as "Martinsyde" that I will refer to them, abandoning all attempts to attribute separate statements to either of them. As they are apparently in complete agreement on all points under discussion, at any rate when seen together, it seems only fitting and is so much simpler.

The Finance of Aeronautics.

The conversation began on financial lines, which is of course the basis of commercial aeronautics, and it was from the financial standpoint of the manufacturer it goes without saying. As this affects the production of the aeroplane most suited to commerce, adversity results from the prevention of experimental work owing to heavy taxation. This is not an article on the excess profits tax, but it is evident that if by harsh administration builders and designers are deprived of the wherewithal to risk launching out into new ideas the commercial machine will suffer. Messrs. Martinsyde point out that the excess-profit tax bears hardly on the aeroplane manufacturer, as before the war such things as profits for them did not exist. Therefore, one of the essentials for the successful development of commercial aeronautics is a sympathetic attitude on the part of the Treasury.

The Development of the Large Aeroplane.

With regard to this development the firm, who believe in the large machine, are of the opinion that there is an immense amount of experimental work to be done on this type, and they do not consider that the progress made in the design and manufacture of large machines is in proportion to the amount of work of that nature so far carried out, and that the large machine has really yet to be evolved.

On the multiple engine question they are against the idea of planting engines more or less indiscriminately where they will fit, but regard it as a problem involving an engine-room where it will be possible to cut out an engine which is giving trouble and effect repairs without interfering with the flying of the machine. Gearing of some sort of course would be used, and more than one engine to a propeller.

Flying Clubs.

With regard to the small machine for the owner-pilot, or machines of that nature, Martinsyde's consider that the development of low-powered types is essential to overcome the cost of upkeep, though they suggest a solution to this by the formation of flying clubs, the club to own an aerodrome and a number of machines for the use of members, the club also to provide pilots to take up those who, although not pilots, wish to go for flights. That relatively small machines will be used for mail carriers they also believe, although they do not think that Great Britain is a very suitable country for this work owing to the shortness of the distances and the competition of the existing excellent system of mail trains, or rather the pre-war standard of that service.

They do not fear the competition of airships as they consider the expense involved in the initial cost and maintenance of such debar them from attempting to compete with land and sea forms of transport. In fact, from the freight carrying point of view, they are not optimistic, considering bulk and expense as the chief factors against it. They except the circumstances of the transport of precious stones or metals from inaccessible points, where it might be economically achieved, of course.

Commercial Uses of Aircraft.

Their belief in the commercial value of the aeroplane is undoubted, but they look mainly to passenger and express parcel carrying for revenue. On the question of the use of seaplanes, they consider that with large, multi-engined machines reliability will be so much a feature that floats will cease to be necessary, and that the land machine will entirely supersede the water variety, and that the pilots of the large types will be in much the same position as captains of ships.

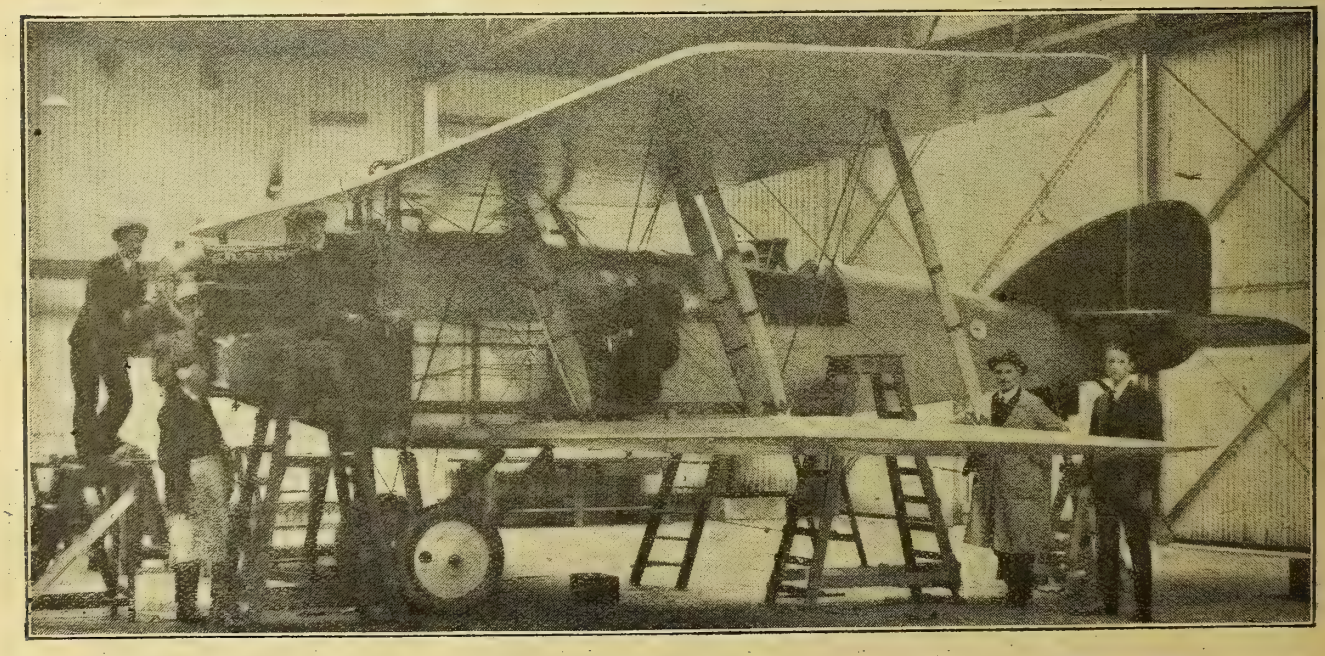
They point out that the war trend of design has not favoured the construction of commercial machines, and that they do not consider war machines to be suitable for commercial work. This really amounts to belief in the necessity for designing and building special machines for trading, whether with passengers or parcels.

Competitions.

That they will enter for competitions that are reasonable I am assured; indeed, I saw the fuselage of one machine which I am inclined to think is intended for that use. Before concluding, I should like to add that the factory over which I was shown is remarkably equipped in every way; indeed, it is most impressive, and shows no sign of being built to cope with war necessities only. It is really a kind of monument to their faith in the future of the industry. Most people connected with aerial matters know the work turned out by the Martinsyde Company, and here one sees how the finish and excellence are obtained. I like to see these good, solid factories; they do more to impress one with the stability of the future of the aeroplane and its possibilities in commerce than anything else.

A New Central Commercial Department.

The firm of Sir W. G. Armstrong, Whitworth and Co., Ltd., has formed a Central Commercial Department with headquarters at 8, Great George Street, Westminster, S.W.1, and this Department will from now and onwards control the commercial handling of the engineering products manufactured by all departments.



THE TRANS-ATLANTIC MARTINSYDE.—Assembling the "Raymor" in the Martinsyde Works at Woking.

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CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

The Bournemouth Aviation Company intend to extend their summer coastal flying service to Weymouth, and probably to Torquay.

It is proposed to establish an aerial service between London and Harrogate in May. The service will be extended subsequently to Scotland, and the journey will be made in two stages and by two machines.

Mr. F. J. C. Broome, the general manager of the wells and baths at Harrogate, who has been negotiating with the Aircraft Travel and Transport Co., is arranging for London evening newspapers to be sold in Harrogate on the day of publication.

The Mayors of Hastings and Trèport are endeavouring to organise a seaplane passenger service between the two towns.

France.

The aerial postal service which was established between Paris and Bordeaux on March 23rd is working satisfactorily, in spite of occasional unfavourable weather. On one occasion the journey of 500 miles was covered in a non-stop flight of three hours and 25 minutes.

On April 6th, when the Farman passenger-carrying aeroplane was leaving Paris for Brussels, the passengers were examined, for the first time, by the customs officials. The officials were French agents acting on behalf of the Belgian Government, as that Government has not yet organised an aerial customs service.

Italy.

On April 6th an airship of a large type began a regular passenger service between Rome and Naples. The ship carries 36 passengers.

The preparation of the C. triplanes for commercial use is apparently a rather radical matter. I understand that four motors are considered necessary, two of them working together in couples for balancing reasons, the need for more than one reserve engine being also a reason for the change.

On March 16th one of Caproni's Mail Packets, carrying a King's Messenger and five other men back from Vienna, had to choose between alighting in the Isonzo and landing between two trees. This latter alternative saved a complete crash, though all the passengers were more or less injured. The King's Messenger was, however, able to proceed next day.

Switzerland.

Apparently, Germany, like a river damned, seeks an outlet elsewhere, because the Swiss Authorities are almost daily the recipients of offers from German companies of their machines and their pilots.

I have already reported the activities of two groups, one German and the other Swiss, relative to the establishment of passenger services. The crisis seems to be the lack of Swiss machines. There is talk of constructing them in a State factory, but it is not probable that this will be done.

One private constructor is making some twin-engine machines to serve as passenger-carriers, whilst M. Georges Schule, a pilot, is constructing a single-engined biplane.

The Postal Authorities are studying the question of Aerial Posts, but the short distances to be covered, the frequency of fogs, and the relatively small quantity of mail, are arguments against its adoption.

However, in order that Swiss Aviation Industry shall not perish, and in order to rekindle the waning interest of the public in this form of transport, the Authorities have sanctioned a rather extraordinary procedure. Military aeroplanes are allowed to take civilian passengers. All flights commence at Dubendorf. The minimum rate is 50 fcs. for a quarter of an hour's flight, but if over 12 kilometres it is 75 fcs., and the same sum is charged for flying over the region situated south of the line Rohrschach-St. Gall - Jonschwil - Wattwil - Uznach - Einsiedeln - Lucerne - Napi-Thoune-Guggisberg-Bulle-Dent de Jaman-Bex-Monthet.

Each landing made at the request of the passenger will cost him 25 to 100 fcs., and a supplement of 5 fcs. for each quarter of an hour the machine is kept waiting. A flight from Dubendorf to Lucerne, without any intermediate stops, will be 300 fcs. From Thoune-Jungfrau and return is 500 fcs., whilst the flight Lausanne-Avenches-Neuchatel costs 150 fcs. single.

The Authorities are taking no undue risks. Payment must be made in advance and should the passenger wish to take a camera or cinema-camera with him he must pay another 50 fcs. for each quarter of an hour. Minors must, in the absence of their parents, have a certificate showing their parents' consent to the flight.

In general, all persons under 18 or over 60, or who suffer from heart trouble, anæmia, epilepsy, and other nervous maladies are not to be allowed the privilege of flying.

Aircraft at Harrod's.

Reference was made in The Aeroplane some weeks ago to the sporting model two-seater which was to be put on the market by the Blackburn Aeroplane and Motor Co., Ltd., at a price of £450. The first machine of this type is now on view at Harrod's showrooms in Brompton Road.

The machine is a side by side two-seater monoplane, 27 ft. 3 ins. span and 20 ft. 6 ins. long overall, and is fitted with a 45-h.p. two-cylinder "Gnat" A.B.C. engine. The fuselage is of triangular section, built of spruce with diagonal spruce bracings forming a lattice girder of each of the three sides. The fuselage is very deep beneath the cockpit, and the lift wires for the planes are attached directly to the bottom of the fuselage. To the same member, and at the same place, the axles for the landing wheels are hinged.

Above the fuselage a fairing is built up, forming a shield for the crew. The landing wires for the wings are attached at the top of this fairing to a specially constructed member, which also serves as a dashboard.

At the rear end of the fuselage a balanced elevator and a balanced rudder are fitted. Both these tail organs are built on steel tube spars, with spruce and three-ply ribs, and steel tube edging.

The chassis is of the "V" type, attached to the two upper fuselage longerons beneath the planes. The forward member of the "V" consists of two steel tubes, one behind the other, both enclosed in a single fairing of veneer. The hinged axle is slung between these two by rubber cords. The after member of the "V" is a single tube.

The wings are built on spruce boxspars, with spruce drift struts and spruce and three-ply ribs. Leading and trailing edges are of flattened steel tube. All the wing bracing, both external and internal, is of cable.

Lateral control is secured by ailerons, which are positively pulled down only—balanced by elastic springs.

A petrol tank with a capacity of 14 gallons, estimated to be sufficient for four hours' flight, is carried beneath the seats.

Petrol is pressure-fed to the carburetter, a windmill pump and a hand-pump supplying the necessary air pressure.

The cockpit is very roomy and should be comfortable and fairly free from draught.

With full tanks, crew of two, and 55 lbs. of luggage, the machine is said to weigh about 850 lbs.

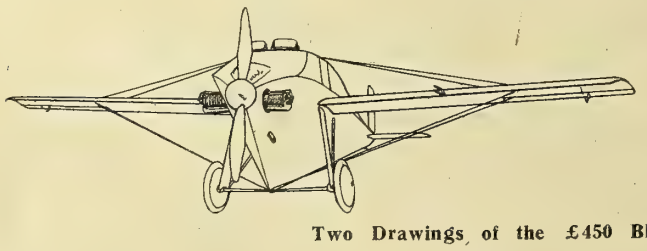
The makers hope that the machine will reach a top speed of 83 m.p.h., and will have a landing speed of 48 m.p.h. with this load.

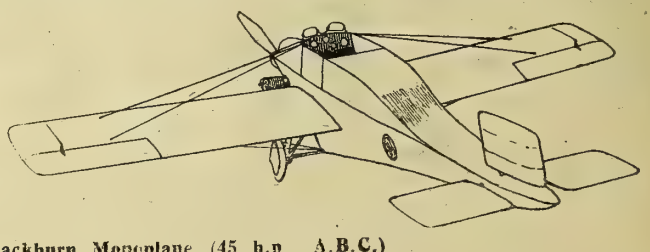
Very great attention appears to have been paid in this design to producing a machine as simple and as cheap to construct as is possible. It may be questioned whether this effort has not been carried too far.

It would perhaps be a little more costly to have faired off the fuselage to a cleaner and more eyeable form, but—apart from the probable gain in performance—a more pleasing appearance might have a considerable effect upon sales.

It is also doubtful whether the attempt to make a two-seater with a two-cylinder engine of this power is wise. With a loading approaching 20 lbs. per horse-power, one cylinder cutting out will almost certainly force an immediate landing. Nevertheless, the test results of this machine will be awaited with interest.

Harrod's, Ltd., also have a two-seater flying-boat of the Norman-Thompson design, built by Handley Page, Ltd. This machine is of the well known N.T.2b type fitted with a Beardmore engine of 120-h.p., and is to be sold for £1,500.





Two Drawings of the £450 Blackburn Monoplane (45 h.p A.B.C.)

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AERO ENGINES.

100	90 h.p. Curtiss Engines.	New.
20	80 h.p. Le Rhone Engines.	New.
100	" " "	Repaired and ready for use.
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40	160 h.p. Sunbeam. Amazon.	New.
100	275 h.p. Rolls-Royce.	Various conditions.

Engines will be sold singly or in small lots to suit Purchaser.

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New Aero wheels complete with Tyres and Tubes. Various sizes passed by A.I.D.

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Aircraft Disposal Department,
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Tenders must be received not later than April 19th, 1919.

AIRCRAFT FINANCE

THE GREAT INSURANCE AWAKENING.

The Aircraft Industry ought to feel very flattered by the present activity in the insurance world. There is to be rivalry in the competition for aviation risks. Over thirty of the big offices, being seriously perturbed by the plan elaborated by Lloyd's underwriters, together with the Eagle, Star, and British Dominions and the Excess Insurance Companies are now inaugurating a scheme for the acceptance of risks associated with aeronautics.

A Hopeful Confession.

Frankly, this is an admission on the part of the Tariff Offices that aviation has great commercial possibilities, and consequently the insurance world as a whole must prepare to assist in the realisation of such possibilities for the benefit of the commerce of the country and their own individual profit in particular.

The necessity for the provision of adequate insurance facilities has been emphasised in these pages more than once within recent weeks. The difficulties have now been almost entirely removed, and one should be able in a very short time to cover any risks associated with commercial aviation with almost the same ease as one purchases a theatre ticket: it is coming to that.

No Monopoly.

The awakening, on the part of the insurance companies generally, as distinct from the Aviation Insurance Association of Lloyd's, has been somewhat abrupt: they have, no doubt, rubbed their eyes and shivered at the prospects of what they stood to lose if they had allowed the pioneers associated with Lloyd's to create a monopoly of the business which would necessitate a fight in the not distant future.

The Disadvantages of Pioneering.

However, to the pioneering instincts of those sponsors of aviation connected with Lloyd's and the two offices that joined together for the creation of the Aviation Insurance Association must the credit for the present auspicious development be bestowed.

They were prepared to work alone, without even that dole from the Government which was suggested a week ago, for the furtherance of aviation projects by providing the essential benefits of insurance facilities. Doubtless they stand to gain in the long run, but pioneering work is invariably costly, and involves hardship and exceptional risk.

The Pioneer Spade-Work.

In all probability the Aviation Insurance Association will still be obliged to do most of the pioneer or spade-work necessary for the completion of an efficient and standardised scheme of aviation insurance. Being a specialist in the business, it will doubtless prove more considerate, and will progress more determinedly than the combination of other offices with which aviation is only to be a side-line, designed for the purpose of attracting other classes of business.

It is useless to expect the two separate entities to work in close association or to harmonise their businesses. Such a combination would be in the true interests of aviation, because the division of expense incidental to experimentation and the elaboration of a perfect scheme would mean so much.

Healthy Competition to be Welcomed.

On the other hand, the absence of co-operation or mutual understanding means competition, and healthy competition will accomplish a great deal that could otherwise not be expected to happen. Regarded from that standpoint, the advent of the new scheme is to be welcomed with enthusiasm.

But it must be healthy competition, not a cut-throat struggle simply for show purposes with premiums down to zero; that would react disadvantageously on the industry when the time came to recoup losses from fundamentally unsound business.

The Security of Combination.

By the way, while the offices associated in the new plan will act independently, and each will issue its own policies, the assured will have, in addition to the security of the individual office concerned, the combined security of all the companies participating.

In the case of the Aviation Insurance Association it must be understood quite clearly that about two hundred and fifty members of Lloyd's are participants, and that in respect of each policy issued the liability is accepted as to 65 per cent. by these members of Lloyd's, as to 25 per cent. by the Eagle, Star, and British Dominions Insurance Company, and as to 10 per cent. by the Excess Insurance Company.

Third Party Risks.

In an interesting discussion of the legal problems of commercial aviation by Lieut.-Col. T. W. C. Carthew, D.S.O., R.A.F., it was remarked that unless the question of aerial trespass be approached in a broad-minded way infinite harm might be done to an epoch-making industry. Supposing an aeroplane came down in Piccadilly and killed someone, how would it be possible to prove fault or negligence with the pilot's head on the pavement of Piccadilly and his legs in Ludgate Hill?

A Novel Suggestion?

Is there to be right of action for trespass against every aeroplane that crosses a person's property? Industrial aviation companies, he remarked, could not generally be their own insurers, and, if Third Party Risks are too heavy, Lloyd's cannot undertake them. A practical solution of this difficulty might be found by charging 6d. or 1s. a flight, and thus forming an Indemnity Fund under the control of the Civil Air Ministry, which could meet liabilities above a certain amount. By limiting the loss on one particular machine, aviation could be assisted as a commercial proposition.

Present-Day Premiums.

This suggestion is interesting, but, though the charge specified may seem trivial, it would be equal to a very considerable premium when compared with that now being charged to cover such risks.

CURRENT TOPICS.

New Capital Issue Regulations.

What the Financial World needs is a tonic and a respite from labour trouble. Things would probably be vastly improved thereby, and there would be less of that nervous suspicion which now keeps business near zero. The appointment of the Committee to regulate with more enlightened views the issue of new capital and the reorganisations of capital during the reconstruction period is a hopeful sign.

Vickers-Petters Big Deal.

Petters, Ltd., of Yeovil, formerly concerned with gas and oil engines, have concentrated their energy on aircraft during the

war. Large and important extensions have been carried out with that object, including the Westland Aircraft Works. Now a deal with Vickers has been completed for the formation of an auxiliary to develop the business of the Petter Semi-Diesel Oil Engines.

This will be called Vickers-Petters, Ltd., the capital being £500,000, divided into 320,000 £1 ordinary, and 180,000 £1 6 per cent. cumulative preference shares, Petters and Vickers being the sole shareholders, the former receiving 159,000 ordinary and 55,000 preference shares. The manufacture of these crude oil engines, which have reached a stage of great perfection, is to be concentrated at works in Ipswich provided by Vickers, Petters transferring to them all patterns, designs, special tools, etc. The Yeovil business, including the Westland Aircraft Works, etc., remain a separate and independent unit as Petters, Ltd.

Considerable activity and strength has been shown by the shares of Dennis Bros. It originates in the rumour, recorded here some time ago, that Dennis Bros. and White and Poppe may amalgamate. The latter have been intimately concerned with aero-engines during the war. Possibly, it will be found that some scheme of "melon-cutting" has more to do with the present movement in the shares.

Dame Rumour is very busy just now in the Stock Exchange. The latest report is that Siemens Bros. and the English Electric Co., which, as mentioned last week, is largely concerned with flying-boats, are to join forces. It may be right: it is probably wrong. Aircraft Manufacturing shares show little movement nowadays, there are a fair number of transactions in the short-term Notes. Little interest is taken in Whitehead Aircraft shares.

Whitehead Aircraft Action.

The action of the Whitehead Aircraft (1917) Company against the Fulham Small Arms Company was mentioned to Mr. Justice Astbury on a motion for a receiver and manager. Mr. Russell, K.C. (for the plaintiff company), said this was a debenture action. Plaintiffs' predecessors in title, Whitehead Aircraft, Ltd., had agreed to sell their small arms business to the defendants, and in respect of that transaction a debenture had been given by defendants. There was a dispute as to how much of the purchase money was really due. The defendants had paid £20,000 into court, and he proposed to take an order to the effect that, the plaintiffs delivering up the debenture, the Court declared they were entitled to a first charge on the £20,000 for all moneys found due in respect of the purchase. Mr. Micklem, K.C., for defendants, said they had paid the money into court, and he did not see the necessity for an order. His Lordship thought an order was necessary, and he requested counsel to agree as to the terms of it.

Hispano-Suiza.

The French Ballot Co. announces a dividend of 30 francs, against 25 francs, and shows a net profit of 3,041,624 francs, compared with 2,517,233 francs. The sum of 1,350,000 francs is reserved for war taxes. It is remarked that the business benefitted considerably from the French and American Government orders for 1,000 Hispano-Suiza (200/300 horse power) engines. The company commenced the construction of this class of business towards the middle of 1917.

Shell and the Mexican Eagle.

It is now officially announced that the Shell Transport and Oil in conjunction with the Royal Dutch Petroleum Co. has secured a controlling interest in the Mexican Eagle Petroleum Co. through a purchase of shares held by Pearson and Son, Ltd. The acquisition will increase the oil production controlled by the Shell interests by fully 50 per cent.

Sunbeam Motor Car Shares.

The Sunbeam Motor Car Company announce that the 250,000 Bonus £1 Ordinary shares were allotted on the 1st inst. An interim dividend of 2½ per cent., free of tax, on the ordinary shares, including the newly-allotted shares, is also declared.

Petrol Supplies.

Speaking at the annual luncheon of the Commercial Motor Users' Association, Sir Marcus Samuel, Bart., who is intimately associated with the great Shell Combine, said the question of the supply of petrol to motorists and other users was of more interest to him than anything else they could speak of.

He had always been an optimist in regard to oil supplies for the country, and there was not the slightest danger of a failure of supplies, no matter how great the demand might be. The storage depots were so full that it was almost impossible to land additional charge. The supply to-day was in excess of the demand, and it was important to realise that in the opinion of those best able to judge—those who controlled most oil fuel and were large producers—that even if the U.S.A. supply stopped there was enough petrol from British sources to meet the demand.

Lower Prices.

In the matter of prices he quite believed there was a chance of immediate relief. The present prices of petrol were not the fault of the producers, but of the Government control. There were the shipping and insurance departments which considered they ought to make profits in addition to the tax of the Treasury. He thought the time had come for all Government control to cease. He wished he could bring home to the users of petrol how much the interests of the producers were in common with those of the users. It had been his ambition to supply this country with the best and cheapest motor spirit.

It was important that the excess profits tax should be removed, because it made it impossible for British companies to trade in other countries, and foreign competitors had the advantage through not having such a tax imposed upon them. Motorists must co-operate with the oil producers to get all Government restrictions removed to ensure cheaper supplies.

The pooling of the oil reserves of the great producing companies had undoubtedly tended towards cheapening the price, and immediately the restrictions ceased the horrible stuff they had been compelled to supply to the motor trade would be replaced by the better quality of motor spirit they were accustomed to use.

NEW COMPANIES.

Metal Airscrew Co., Ltd.—Private company. Registered April 2nd. Capital £50,000 in 35,000 7½ per cent. cumulative preference participating shares of £1 each, and 300,000 deferred ordinary shares of 1s. each. To acquire from H. Leitner, M.I.E.E., certain patents for a metal propeller for aeroplanes and airships, etc. First directors:—N. Chéreau, Crockford Park Road, Addlestone, Surrey, managing director of Air Navigation Co., Ltd. (of French nationality), G. H. Veitch, Hill Place, Crawley, Sussex, managing director of Anglo-Scottish Investment Trust, Ltd., and H. Leitner, 64, Redington Road, Hampstead, electrical engineer. Registered office:—38-9, Threadneedle Street, E.C.

Adams Bros. and Burnley, Ltd. Private company. Registered April 2nd. Capital, £10,000 in £1 shares. To acquire the business carried on as Adams Bros. and Co., and to carry on the business of manufacturers of and dealers in aeroplanes, balloons, aircraft, automobiles, cycles, etc. First directors—W. T. Adams, 44, Cautley Avenue, Clapham, S.W.4; R. G. Adams, 141, Elms Road, Clapham, S.W.4; A. C. Burnley, The Holt, Ashstead, Surrey, advertising agent, director of Maypole Co. (1899), Ltd. Registered Office, Donington House, Norfolk Street, W.C.

Bankruptcy.

Stevenson, Walter James, patentee, Charing Cross Hotel, W.C.—This debtor, who is the inventor of a chemical compound for use in the construction of aeroplane wings, attended at the London Bankruptcy Court, before Mr. Registrar Mellor, on Tuesday, for public examination. His statement of affairs showed liabilities £1,496 13s. 4d. and assets consisting of a patent, the value of which was unascertained, and a bad book debt of £861 17s. He had been engaged on the above-named invention since the outbreak of the war. He had patented it, but, owing to lack of capital, had been unable to manufacture the compound, an acetate cellulose, his failure being due to ill-health and to the expenses connected with his invention, which had compelled him to have recourse to professional moneylenders. With the exception of £160 for law costs, the unsecured indebtedness related to borrowed money. A proposal had been brought in for the payment to the unsecured creditors of a composition of 10s. in the £.

The examination was concluded.

American Acceleration.

Few matters connected with Aeronautics have attracted so much attention during the last few months as the immense progress which has been made by our American friends in the direction of improving the performance of their indigenous Aircraft.

This improvement has been so great that many doubts have been expressed on this side of the Atlantic as to their actuality.

One is therefore glad to have this opportunity of indicating one of the methods employed by our rivals in arriving at the astonishing results of which so much has been heard.

In a description of the "Christmas" Bullet published in the "Aerial Age," of New York, this interesting little machine—fully loaded—was stated to have achieved a speed of 170 m.p.h. when driven by a Liberty "umpteen" and a ceiling of 14,700 feet.

A week or so later the same periodical announced that 14,700 feet was not the ceiling, but the height to which the machine would ascend without any fall in its climbing rate, and that the absolute ceiling was nearer 34,700 feet. This by way of a start. In the same journal, of March 3rd, the following appear:—

I. Page 1193A.—Advertisement by the manufacturers.—"Speed over 180 miles per hour."

II. Page 1233.—News page.—Photograph inscribed: "Makes a speed of 170 miles per hour."

III. Page 1238.—News page.—Photograph inscribed: "Has attained a speed of 175 miles per hour."

IV. Page 1271.—Advertisement by maker of varnish used on the machine.—"A speed of 197 m.p.h. was made by this plane."

Obviously item I was displaced in the "make up" of this issue—the advertisement from which it is taken should have followed the reading matter instead of preceding it.

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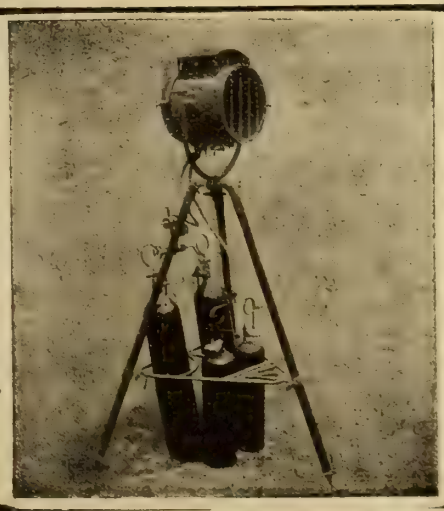


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AIRCRAFT IN PARLIAMENT

The following oral answers were given on March 31st:—

AIR SERVICE.—STORE DEFICIENCIES.

Mr. RAPER asked the Under Secretary of State to the Air Ministry how much has been written off as a charge against the public for stores deficiencies of squadrons stationed in Great Britain since the war began; and what percentage of this amount has been recovered from the officers responsible for such deficiencies?

Mr. PRATT (Lord of the Treasury): These squadrons served with the Navy or Army until April, 1918, when they were transferred to the Air Force, and the value of the stores written off could only be ascertained by much labour on the part of the local and headquarter staffs of the three forces. The results of the inquiry would be misleading, since the write-off did not always represent actual deficiencies, but sometimes represented discrepencies due to defective accounting during war pressure. The money recovered from officers responsible bears no direct ratio to the value of the stores deficient.

AERODROME ACCOUNTS (PUBLIC AUDITOR).

Mr. RAPER asked the Under Secretary of State to the Air Ministry what were the exact reasons given by a public auditor for resigning at the end of last year from his position as voluntary auditor of aerodrome accounts?

Mr. PRATT: The specific grounds stated were: (1) That no attempt was made to provide the auditors in question with necessary staff; (2) that the highest salary paid in the Department responsible for passing bills was £250, and very few of the staff had any knowledge of the work prior to engagement; and (3) that several members of the staff were highly dissatisfied as to their future, and it was a matter of extreme urgency that something should be done in that respect. Various matters were referred to in general terms, but these were the only specific reasons given.

Sir E. CARSON: Were these reasons true reasons?

Mr. PRATT: Oh, no, Sir, I could not answer that question.

AIR MINISTRY ORGANISATION.

Mr. RAPER asked the Under Secretary of State to the Air Ministry if he will appoint a small but permanent Committee, composed of two or three hon. Members of this House and two or three gentlemen outside the House who have a knowledge of commercial organisation, to assist the Air Ministry authorities in finance and business matters generally?

Mr. PRATT: My hon. friend's suggestion is noted and will be borne in mind as the organisation of the Air Ministry develops. The principle underlying it has already been accepted by the approval of a Standing Committee with outside representation to watch the working of the orders regarding civil aviation shortly to be issued under the Air Navigation Acts.

Mr. RAPER: Can the hon. gentleman say who are the members of the Committee?

Mr. PRATT: Perhaps my hon. friend will put that question down on the paper.

DIRECTOR OF PRODUCTION AND RESEARCH.

Mr. RAPER asked the Under Secretary of State to the Air Ministry what are the duties of the Director of Production and Research; and is this officer under General Sykes or General Trenchard?

Mr. PRATT: My hon. friend no doubt refers to the Director-General of Supply and Research. General Ellington is a member of the Air Council of equal status with Generals Trenchard and Sykes. His duties are to control the Departments of Supply, Inspection, and Research in the Air Ministry.

Mr. RAPER: Has General Ellington had any business or scientific experience qualifying him for the position?

Mr. SPEAKER: The hon. Member had better give notice of that question.

AIR STATIONS.

Sir ARTHUR FELL asked the Under Secretary of State to the Air Ministry how many of the existing Air stations have been closed down since the Armistice; and how many stations it is proposed to maintain permanently after the peace is signed?

Mr. PRATT: It is estimated that 40 stations will be required permanently for Royal Air Force purposes. When the Armistice was concluded the policy adopted was to abandon landing grounds and stop work on stations under construction wherever possible. Work has been stopped on 128 stations. In arriving at this figure account has been taken of requirements for temporary storage and for civil aviation as well as of permanent Royal Air Force requirements.

ATLANTIC (SUGGESTED FLIGHT).

Sir ARTHUR FELL asked the Under Secretary of State to the Air Ministry if the Government is taking any part in the preparations for the suggested flight of aeroplanes across the Atlantic; and, if so, what limit is put on the expenses to be incurred on this account?

Mr. PRATT: The various problems connected with the Atlantic flight have received and are receiving the close attention of the Air Ministry in consultation with private persons and companies interested. The question of direct Government participation has not been finally settled.

Sir ARTHUR FELL: Is any sum to be devoted to this attempted Atlantic flight?

Mr. PRATT: Perhaps the hon. Member will give notice of that question.

DEMOBILISATION.

Sir ARTHUR FELL asked the Under Secretary of State to the Air Ministry what is the present position of the demobilisation of the Air Force, and if it is being carried out as rapidly as that of the Army?

Mr. PRATT: Up to the 26th of this month, 8,544 officers and 160,222 other ranks had been dispersed from the Royal Air Force. The answer to the second part of the question is in the affirmative.

The Naval, Military, and Air Service Bill passed the Third Reading on March 31st.

* * *

The following oral answer was given on April 1st:—

AIR MINISTRY (CONTRACTS).

Mr RAPER asked if the Break Clause has been imposed in the case of all contracts which were in force when the Armistice was signed for the supply of aeroplanes, engines, and spare parts; and whether in any case the imposition of this Break Clause has been subsequently varied?

Mr HOPE: The Break Clause has been imposed on all contracts for aeroplanes, seaplanes, engines, and spare parts, in force at the date of the Armistice, with the exception of contracts for certain of the latest types of machines and engines, which the Ministry of Munitions was requested by the Air Ministry to complete, and of contracts for obsolete types where it has been thought preferable to stop work rather than to incur expenditure during the Break period. The quantities to be delivered under the Break Clause have, in many cases, been varied, after investigation of the work in progress, in order to secure the greatest economy, having regard to the expenditure already incurred, and the value of the articles when completed.

Mr. RAPER: Will the hon. gentleman give particulars of the contracts which have been varied?

Mr. HOPE: I think that would be too long. Perhaps my hon. friend will communicate with me on that matter.

Mr. RAPER asked why the system which was adopted of allowing contractors a certain profit on materials supplied to them by the Government was made retrospective?

Mr. HOPE: From the form of the question it is not possible to identify the system to which my hon. friend refers. If he will supply me with further particulars I will have inquiries made.

* * *

The following oral answer was given on April 2nd:—

DEMOBILISATION.—ROYAL AIR FORCE.

Major HENDERSON asked the Secretary of State for War whether he is aware that men of the Royal Air Force are being offered early demobilisation provided they accept a scheme of deferred payment; if he will state when this scheme was introduced; and whether he is aware that this system lays itself open to the argument that a man must accept the scheme, whether he likes it or not, unless he wishes his demobilisation to be delayed?

The SECRETARY OF STATE FOR WAR (Mr. Churchill): I am aware of this scheme referred to by my hon. and gallant friend. It was introduced about the end of January last solely with the object of suiting the convenience of men who were in a hurry to take up jobs in civil life. It has the effect of enabling men who voluntarily adopt it to be demobilised more speedily than would otherwise be possible. No man who refuses to accept the scheme loses his turn for ordinary demobilisation, which goes on continuously at a fixed rate. I may add that the adoption of the scheme reduces the expenditure incurred. From every point of view the scheme is much to be commended.

* * *

The following written answer was given on April 2nd:—

CIVIL AVIATION (STANDING COMMITTEE).

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry if he will state the names and qualifications of the Standing Committee which has been appointed to watch the working of orders regarding civil aviation?

Major-Gen. SEELY: The Committee has been approved as stated in a reply to the hon. Member for East Islington on the 31st ultimo. Its constitution is under consideration.

* * *

The following oral answers were given on April 3rd:—

AIRCRAFT CONVEYANCE OF LETTERS.

Mr. GILBERT asked the Postmaster-General if any licence or permit has been given to any private aircraft company to convey letters from this country to France; and, if so, if he can state the name of the firm and the conditions on which they have been granted?

Mr. ILLINGWORTH: The answer is in the negative.

AIR MINISTRY.—LINEN (PURCHASES).

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry the names of the firms of contractors from whom linen was purchased during the War; the price per yard at which it was purchased; and what arrangements are being made for its disposal?

THE DEPUTY-MINISTER FOR MUNITIONS (Mr. Kellaway): I have been asked to answer this question. Linen was purchased from 137 contractors, whose names I shall be glad to send to my hon. and gallant friend if he should desire me to do so. The price per yard varied with the price of flax. At the time of the Armistice the price ranged from 1s. 8d. for spaced fabric to 3s. 0½d. for solid fabrics. A considerable quantity of linen is being disposed of in this country in small lots by public tender after advertisement, and arrangements are being made for meeting the demands in foreign markets.

Mr. MacVEAGH: How many millions of yards of linen are now being treated as scrapped by the authorities?

Mr. KELLAWAY: None of it is being treated as scrapped.

Mr. MacVEAGH: How many millions of yards were over-ordered?

Mr. KELLAWAY: The probable surplus is something like forty million yards.

Lieut.-Col. MALONE: And what price is being obtained for it?

Mr. KELLAWAY: I cannot give the figures off-hand, but the contractors offered a shilling a yard.

COMMERCIAL ORGANISATION COMMITTEE.

Mr. RAPER asked the Under Secretary of State to the Air Ministry when he will give a definite reply as to whether or not he will appoint a small but permanent Committee, composed of two or three hon. Members of this House and two or three gentlemen outside the House who have a knowledge of commercial organisation, to assist the Air Ministry authorities in finance and business matters generally; and whether such a Committee is specially desirable during the present reorganisation of the Air Ministry and in view of the admitted defective accounting in the past?

Mr. CHURCHILL: I refer my hon. friend to the answer given to him on the 31st ultimo.

Mr. RAPER: Are we to understand that the Committee does actually exist? Can we have the names of the members?

Mr. CHURCHILL: No, Sir, that is not to be deduced from my answer. But there are certain competent men who are associated in an important way with the work of the Air Ministry.

Lieut.-Col. MALONE: Can their names be supplied?

Mr. CHURCHILL: They are men from the Army Council who are associated with the Air Ministry in an advisory capacity.

Mr. RAPER: Will the right hon. gentleman consider the desirability of appointing a committee such as I have suggested?

Mr. CHURCHILL: I will, indeed.

HENDON AERODROME.

Mr. RAPER asked the Under Secretary of State to the Air Ministry if he is aware that about twenty Handley Page machines, some with engines and some without, have been left uncovered in the wet at Hendon for periods varying from one to three months, all through the recent bad weather, with the result that practically all of them are only now fit to be written off; whether the reason put forward for their being there is that there was no accommodation to house them; is he aware that the Kite Balloon Department offered to lend the Aeroplane Department portable sheds, originally built for the housing of kite balloons, but which would have accommodated the Handley Page machines quite comfortably, with their wings folded, and is he

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aware that these Handley Page machines cost the country something like £20,000, that they are still standing out in the open, rotting, and that the said kite balloon sheds are all carefully stored away in their folded-up condition, being eaten by rats?

Mr. PRATT (Lord of the Treasury): The aeroplanes in question are constructed to withstand exposure without permanent damage, and none of the Handley Pages at Hendon have rotted in any way. Of the number stored there temporarily to await accommodation becoming available, the majority have now either flown away or are stored under cover at Hendon. Eight machines still remain in the open, and will be flown away as soon as circumstances permit.

The proposal to erect kite balloon sheds would have evolved an amount of labour not justified by the requirements of the case.

Mr. RAPER: May I take it that every one of these machines is in perfect order?

Mr. PRATT: I am sorry that I cannot add anything to the answer I have already given my hon. friend.

CIVIL AVIATION.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether he can now make a statement as to the staff and work of the Controller of Civil Aviation?

THE SECRETARY OF STATE FOR WAR (Mr. Churchill): The Controller-General of Civil Aviation is the member of the Air Council responsible for the executive work falling to the Air Ministry under the Air Navigation Acts, 1911-1919, and for carrying out the accepted policy of assisting the development of civil aviation. It is proposed that he shall be assisted by four heads of Departments who will take charge of planning, information, communications, and aerodromes, respectively. Provision will also be made for meteorological services. Terms for the heads of Departments have been approved, appointment of staff is proceeding, and the Department is being formally constituted as from April 1st, being the beginning of the financial year.

Mr. JOYNSON-HICKS: I do not want to press the right hon. gentleman unduly, but perhaps he could mention a date when he will be able to make a full statement as to the appointment of the staff and the allocation of the work?

Mr. CHURCHILL: I think that in the next few days I can mention the principal office holders, but I really think it would be a pity to hurry the selection of the filling of the positions of second rank.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether he can give an assurance that the Royal Air Force is not in any way to be brought under the control of the War Office and that civil aviation will not in any way be placed under the control of the Minister of Ways and Communications?

Mr. CHURCHILL: There is no intention of bringing the Royal Air Force under the control of the War Office or of placing civil aviation under the control of the Miinstry of Ways and Communications. Cabinet decisions in this sense have been definitely obtained.

DIRECTOR-GENERAL OF SUPPLY AND RESEARCH.

Mr. RAPER asked the Under Secretary of State to the Air Ministry where the Director-General of Supply and Research acquired the necessary business and technical experience to qualify him for the post?

Mr. CHURCHILL: The Director-General of Supply and Research is an officer who rendered brilliant war service in the Army and in the Air Force, and was for a considerable period Controller-General of Equipment in the Air Ministry. I am satisfied that he is well qualified for the appointment which he holds.

AERODROME CONSTRUCTION.—(CONTRACTORS' PROFITS.)

Mr RAPER asked the Under Secretary of State to the Air Ministry why the system which was adopted of allowing contractors for the construction of aerodromes a certain profit on materials supplied to them by the Government was made retrospective?

Mr. PRATT: Under the original War Office contracts for aerodrome construction the contractors did not receive commission on materials supplied by the Government, but at that time the actual control of materials by Government was small. When the Air Ministry took over the contracts the situation in regard to Government control of materials had entirely changed. In order to expedite progress on the aerodromes modifications in the contracts were made, and it was decided that it would be fair as part of these arrangements to allow a commission on all materials actually handled by the contractors as from the date of the original contract.

Mr. RAPER: Is it not the fact that this is being made retrospective and applied to contracts already completed?

MISS VIOLET DOUGLAS-PENNANT.

Lieut.-Col. MALONE asked the Secretary of State for War whether a *prima facie* charge has now been received on behalf of Miss Violet Douglas-Pennant; and whether he will now carry out his pledges given on March 13th to constitute a full inquiry into the circumstances surrounding her case?

Mr. CHURCHILL: The answer to the first question is in the negative. The second question accordingly does not arise.

Lieut.-Col. MALONE: Is it the fact that no communication has been received?

Mr. CHURCHILL: No, Sir. Communications have been received but they do not fulfil the condition which I made in the House and of which the House generally approved.

PUBLIC AUDITOR (RETIREMENT).

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether he is prepared to make any further statement as to the grounds for retirement of the public auditor; and if he will say what steps have been taken to deal with the situation created by his retirement?

Mr. CHURCHILL: As at present advised, I have nothing to add to the answer given to the hon. Member for Islington East on the 31st ultimo.

The following written answer was given on April 3rd:—

AIR MINISTRY (STAFF).

Viscount WOLMER asked the Under Secretary of State to the Air Ministry whether he is aware that several disabled and demobilised officers who have been employed in the Air Ministry have recently had their services dispensed with, while women are being retained in the Air Ministry at exactly the same work as these officers performed; and whether it is the intention of the Ministry to give preference to civilians over officers who have become disabled during the War?

Major-Gen. SEELY: I am aware that a number of disabled officers who have been employed in the Air Ministry have recently had their services dispensed with, but women are not being retained in the Air Ministry on exactly the same work as these officers performed. It is not the intention of the Ministry to give preference to civilians over officers who have become disabled through the War, though in filling up the establishment of the Ministry the principles laid down for the Civil Service as a whole must be maintained.

More Grievances of Cadets.

To the Editor of THE AEROPLANE.

Sir,—Re your report and comment on the benefits to be conferred on the Colonial Flight Cadets, insomuch as they are to be granted Temporary Commissions, together with the £50 kit allowance.

I am writing to you as an Englishman only, but I should like to protest (if an Englishman is considered to have the right to protest in this matter) against the injustice of this arrangement to Overseas English Flight Cadets.

I enlisted in 1914, and have spent 14 months in the Infantry in France. I was admitted to the R.F.C. as a Cadet in Feb., 1918, and since June, 1918, have been in training as a pilot at various aerodromes. I have done about 60 hours' flying, but owing to bad luck, time wasted through having to change aerodromes, and the easy going system of my last instructor, I was not able to graduate "B."

Were I a Canadian, I should benefit by the above arrangement Had I been a South African, I should have been gazetted when I passed the Course at the School of Aeronautics (June, 1918). But, no, an Englishman is, apparently, either not worth this consideration, or it is thought that he will take anything lying down. The South Africans made their Government take action for them, and the Canadians have evidently done the same, but who will speak for the Englishman? He has not yet entered the limited vision of the politicians.

I am not an isolated case, Sir; thousands have been demobilised; we think that although the Colonials, Serbians, Belgians and Americans may have won the war—we helped!

"M. M."

Sir,—In recent issues of THE AEROPLANE I have noticed a space allotted to "Cadets' Grievances," and I am wondering if this grievance, which is a common one on this particular aerodrome amongst Flight Cadets, could find its way into your paper at an early date

After making numerous applications to get some definite understanding as to what eventually is to become of Flight Cadets, who are, in Army parlance, "Time-serving," completed their training, categoried as "Service Pilots, wearing wings, etc., we have met with absolutely no success at all. The idea of obtaining a commission (other than honorary without pay, gratuity or allowances) is a thing remote.

The hopes of being demobilised are the same, irrespective of the fact that quite a number of us were students before the war, and who were neither "Derby" nor "Military Service Act" men, but 1914 men, who have sacrificed nearly five years of valuable time to the "cause," and all whom have seen service overseas.

It was no fault of ours that we were not commissioned on leaving the School of Aeronautics in 1918, not one of us had to take a "course" again, the first one finishing a few days after the R.A.F. came into existence, neither were we informed that we should have to go through a ground gunnery school and graduate "A" as it was in those days, before receiving the elusive "pip." We were then and ever since have been kept going hard at it with very vague promises, while the R.N.A.S. cadets or P.F.Os, were automatically made Sec. Lieuts. The R.F.C. cadets got nothing, only the pleasure of being told some time later by a certain Gunnery official that they were "less than a blur upon the horizon until they justified their existence"; and being merely cadets, wearing the white band of a blameless life, had to take gross injustices of everything that concerned them sitting down, because if one attempted to stand up, the ever-menacing sword of Damocles in the form of "R.T.U." would surely and swiftly fall.

What we wish that Air Ministry would do is to grant the usual temporary commission to Flight Cadets who have graduated "B" with the usual £50 kit allowance and the first year's gratuity, and to cadets "A" commission with kit allowance, and a smaller gratuity, and to the cadets in the S.M.As., etc, honorary commissions and enough kit allowance to cover their own expenses, which, we think, is the least the Air Ministry could do, and let us get back to civilian life with thoughts of the fact that our labours have not been in vain.

"PLEBEIAN."

Clearing the Seas.

The "Naval Experts" of the "Daily Express" have suggested in that paper that airships should be used for mine-sweeping in the North Sea. While advocating the use of airships on this work, the experts agree that difficulty would be found in the method of attaching the hawser for sweeping, owing presumably to the weight thereof. The experts claim, as the great advantage of this method, that the airship could never be harmed by the explosion of a mine beneath her. The idea somehow appears to be based on several fallacies.

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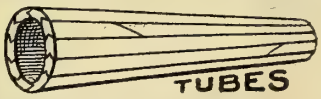
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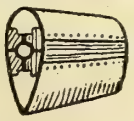


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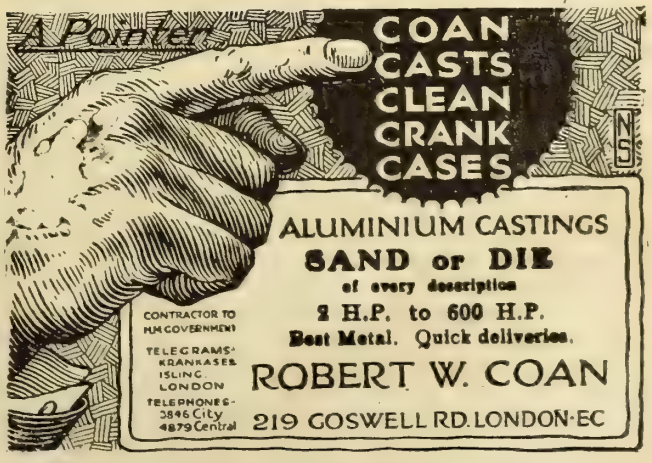
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NOTES ON PARACHUTES AND PARACHUTE FLARES.

By Lieut.-Col. H. S. HOLT.

I.

The Single Parachute System.

Parachute designing is not yet an exact science and more data will be required before this stage is reached. The following notes pretend to no exact scientific accuracy, they are merely rough data and conclusions resulting from 5 or 6 years' experiments with parachutes.

Most of the experimental work has been carried out in connection with the writer's own special parachute system, but the data obtained as to strength of fabrics and what he terms the "imperence" (resistance to the passage of air through the meshes), and so on, apply to all parachute construction. The parachute has received a great deal of attention lately owing to the demand for a reliable life-saving device to enable an aviator to escape from a damaged aeroplane or airship.

Quite early in the war the writer schemed out a device of this kind for use on aeroplanes, but the idea of such a device was not smiled on by the Authorities in those days, and having other more pressing work in hand, he put the subject on one side.

Use of Parachutes by German Aviators.

When, however, in the summer of 1918 it became known that German aviators were escaping from their machines by means of parachutes, the cry from the Allied aviators for some similar equipment became insistent.

Parachute Committees were assembled hastily by the Allies, and experiments were being rushed through when the Armistice intervened and gave pause to what might have been over-hasty decisions. A proportion of the different Allied Committees, or Sections, were officers who had done pioneer work as actual parachutists, but so far as the writer knows few had any practical knowledge of parachute construction.

Under the circumstances it is hardly to be wondered at if some of the experimental work merely afforded information that could have been got from any practical parachute maker, while, on the other hand, probably from lack of time, experiments were omitted which should have been made before decisions were taken.

The Six Axioms.

There are six axioms that may be predicated safely with regard to parachutes:—

1. The better the design, or theoretic contour of a parachute, the better it will maintain this contour when dropping under load. The worst form of parachute is that which opens to a saucer shape (Fig 1) and then assumes the shape of Fig. 2 as it begins to drop under load. It puts an unnecessary and severe strain on the fabric of the parachute, and, in the case of a life-saving parachute, it will give a maximum of shock to the passenger.

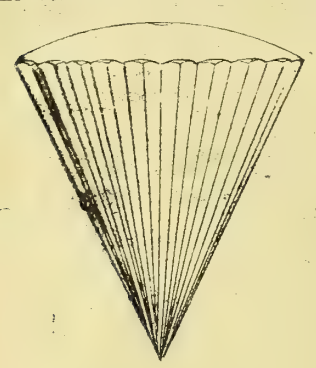


Fig. 1.

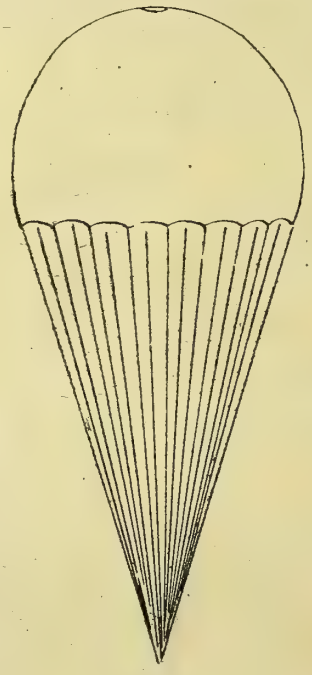


Fig. 2.

2. So long as a good "Air pocket" is maintained in the parachute, the fewer lines and bridles employed the better. The more lines the more chance of a tangle.

3. The better the design the less "bellying" or "panelling" there will be at the circumference.

4. A practical parachute should not require skilled labour to pack it, nor should the process take an undue amount of time. This does not apply to parachute flares which are necessarily packed in the factory; but it is of considerable importance in Life-Saving Parachute Systems. The writer believes some parachutes take as much as three hours to pack. Forty minutes should be ample time for this process, even with unskilled labour.

5. A good parachute is a compromise of various attributes or qualities.

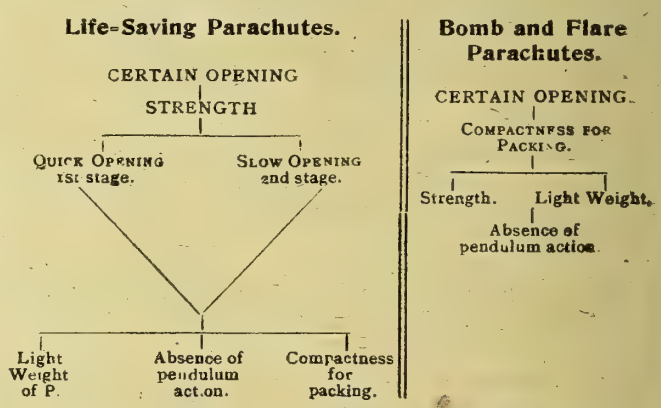
6. The nature of this compromise depends on the nature of the work that the parachute is intended for.

Attributes of a Good Parachute.

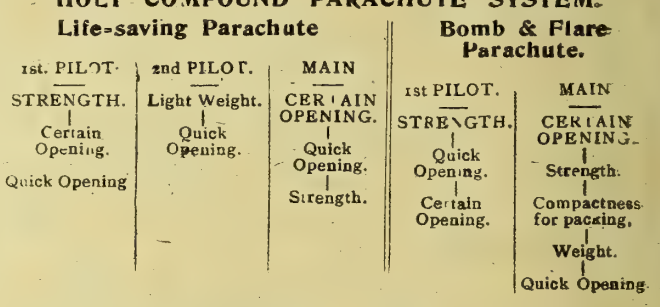
It follows that the term "efficiency" when used in the ordinary loose way in connection with parachutes may have various different significations. Assuming that it gives the desired velocity of descent, the writer has endeavoured below to set out diagrammatically the various attributes of a good parachute, placed in order according to the degree of attention and care required to attain each quality.

Thus in the Holt Pilot Parachute the writer places strength first and certain opening second. This does not mean that a strong parachute is any use if it does not open, but merely that owing to the small diameter of a pilot parachute it can be made to open with certainty without any special precautions, whereas great care must be taken to ensure it being strong enough for the maximum strain it may ever have.

SINGLE PARACHUTE SYSTEM.



HOLT COMPOUND PARACHUTE SYSTEM.



Quickness in Opening.

One sometimes reads in a report on life-saving parachutes that a certain type was bad because it opened too slowly, and later on possibly in the same report that another was bad because it opened too quickly. This is due to the loose way in which the term "opening" is used. In large parachutes such as are used in life-saving, there are really two stages in the opening process.

The first stage is that when the air begins to get in between the adjoining surfaces and folds of the parachute and separate them. The quicker this happens after the parachute is withdrawn from its case the better. The second stage is when the parachute commences to expand to its full diameter. The slower this process takes place the better. If it expands too quickly it imparts a serious shock to the passenger at the instant of attaining its full diameter, and, besides, puts a very severe strain on the fabric and rigging.

Life-Saving Parachutes.

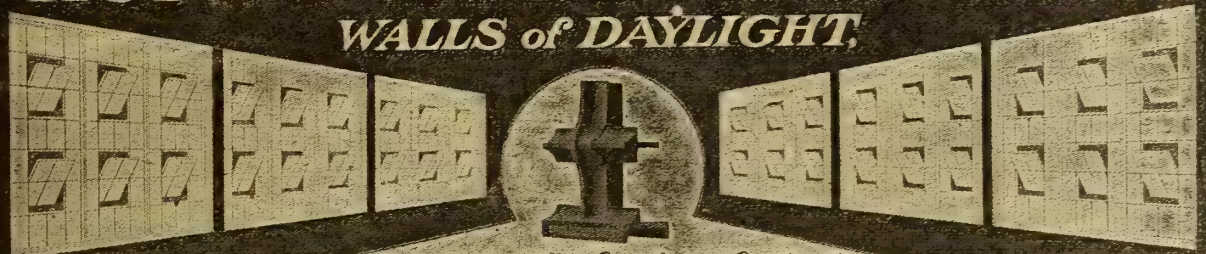
Of the life-saving, or, as they are usually called, "man-dropping" parachutes, there are two well-known British makes—the Spencer and Calthrop—which have done useful work from airships and observation balloons during the war, and the very ingenious Mears, also British, now just emerging from the experimental stage.

The best known foreign makes are the German of two or three different types, the French Aviation and Balloon Parachutes, and the "Robert."

It is not within the province of these notes to describe in detail any of these systems most of which are well known, but, speak-

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ing generally, one may say that most types of life saving parachutes, except the "Robert," function on the same general principle, viz., that the withdrawal of the parachute from its case is brought about by the difference in degree or direction of motion as between the aircraft and the passenger.

Thus, when an observation balloon is set on fire the passengers jump overboard immediately while there is still enough gas to keep the balloon from falling, and the man falling away below the balloon pulls the parachute out of its case and it opens above him. Similarly, if the passenger jumps off a travelling airship or aeroplane his parachute will be drawn out by the resultant forces of the machine in a horizontal direction and the force of gravity acting on the passenger.

During the war there were numerous cases when the machine was set on fire by the enemy, and the passengers could have escaped while it was still on a level keel. If, however, a machine suddenly collapses through something giving way, or gets out of control and crashes to the ground, the conditions are entirely different.

Most parachute systems require a pull of some pounds to withdraw the parachute from its case. If when the passenger jumps overboard he falls at the same speed as the machine, or if the initial difference is so small as to be insufficient to overcome the resistance of the parachute in its case, the parachute will not be withdrawn at all, and passenger and machine will crash to the ground together.

A Sporting Chance of Escape.

If the man falls so much faster than the machine that the parachute is withdrawn the passenger may have a sporting chance of escape, provided that the parachute does not become entangled in the machine. If the machine were falling in a spinning dive, or rolling over, this would almost certainly happen, and it is difficult to believe that any man could possibly escape under those circumstances.

Again, suppose the machine is falling absolutely "end on," that is, with the body vertical, and faster than the passenger, the difference in speed being sufficient to withdraw the parachute, then it is almost a certainty that the parachute will become entangled in the tail.

If, however, the machine is falling with the body at a slight angle and there is a strong wind blowing in the right direction, it is possible the parachute may keep clear of the machine and also of the passenger; because it must be remembered that in every case when the machine is falling faster than the man the parachute will be withdrawn below the man.

If the machine is falling at an angle as before but the wind is in the wrong direction or not sufficiently strong to overcome the suction of the falling machine, the parachute will be drawn into and entangled in the machine.

If the machine is falling as before and there is no wind and no suction, the parachute will be withdrawn in a vertical line below the man and he will fall on to it and almost certainly get entangled in the lines. These are self-evident facts and no amount of ingenious theorising will get over them.

The Moral of the Pilot.

What is going to be the effect of this knowledge on the moral of a pilot? Knowing that with the parachute system he carries, his only real chance of escape lies in jumping overboard while the machine is still on an even keel, he will be tempted to leave the machine at the first hint of trouble, and when, if he had stuck to it, he would possibly have brought it safely to earth.

In peace conditions, there will be few cases of machines catching fire and giving the passengers a chance to escape while it is still on a level keel. Accidents will be mostly by machines suddenly crashing owing to some part giving way, or the machine getting out of control, and obviously no parachute system can be of much value, unless it can be relied on in these conditions.

The French "Robert" parachute functions on an entirely different principle. The parachute is carried in a sack on the back of the passenger and is operated by the passenger after he has jumped overboard, pulling a lanyard which releases springs which expel the parachute.

Provided the passenger has sufficient coolness and self-possession to do this while he is falling, this system should enable him to escape from a falling machine. So far as the writer knows it has only been tried on dummies, and in the early trials in France it was found to give a very severe shock as recorded by the dynamometer.

Apart from the principle on which they function, all "single" parachute systems such as those described above have serious drawbacks when used for life-saving. Owing to the uncertainty as to how far the passenger may drop before the parachute opens, an enormous factor of safety has to be allowed for in constructing the parachute. This means excessive cost and weight. Until recently all life-savers were made of very costly China silk, and had the war gone on there would not have been enough of this silk in the world to equip the Allied Air Forces with parachutes for all their machines.

When a Parachute Falls 600 Ft. before Opening.

A parachute should open in 40 to 80 feet, but instances are quite common where it has fallen 300 or 400 feet and occasionally much more before opening. It is easy to imagine the strain put on a parachute which falls 600 feet before opening, easier perhaps than to picture the feeling of the passenger falling at a terrific speed and doubting whether his parachute is going to open at all.

The problem is further complicated when the parachute is withdrawn from a machine travelling at 80 or 100 miles an hour. At first sight it would seem that then the strain on opening would be much greater than if it were used from a kite-balloon, but, in practice, it is found that this is not so, necessarily, although there has been at least one case in England where the parachute has burst on opening, when released from a machine travelling at 90 m.p.h.

A severe strain on the parachute fabric means a correspondingly severe shock to the passenger, and it has been found necessary to introduce shock absorbers on these single parachute systems. The problem is very complicated. Experiments made so far have given very conflicting, sometimes wholly irreconcilable results, even when the conditions were apparently the same.

Released from a Machine Travelling at 90 m.p.h.

For instance, a parachute loaded with 180 lbs. has been released from a machine travelling at 90 miles per hour. It has apparently functioned normally and opened in three seconds, yet the dynamometer registers a shock of 1,500 lbs., though in a similar trial made on the same day, and under the same conditions, the dynamometer then indicated 600 or 700 lbs. It is found in the single parachutes that the shock varies between 250 and 1,750 lbs. with a load of 180 lbs.

Again, in single parachute systems the parachute is drawn out from the circumference instead of from the centre. This tends to keep the mouth closed and to start suction through the centre hole, thereby keeping the inner surfaces of the fabric together and preventing ingress of air and consequent inflation. This may be aggravated if tapes instead of cords are used, as they may range themselves flatwise and effectually prevent air entering.

The Autochute.

In the next article the writer will describe his "Autochute," or life-saving appliance. This is constructed on what he terms the "Compound" or "Pilot" Parachute System. His claim for this is that (1) from a kite-balloon or from an airship or aeroplane travelling on a more or less level keel, it will give at least as good a chance of escape as any of the single parachute systems.

(2) It will give a fair sporting chance of escape, no matter what the airship or aeroplane is doing when the passenger leaves it.

(3) It will permit of realistic tests being made from machines flying at steep angles, which could not be attempted with the ordinary parachute systems.

(4) It will allow a man to make trial or practise descents with a minimum of risk.

(5) Various other qualities such as instances of uncertain and excessive shocks to the passenger and strains on the fabric; absence of suction and consequent certainty of opening.

These qualities are partly inherent to the nature of the "Pilot" parachute system, partly to the special construction the writer employs for his parachute.

"The Revelations of Roy."

To those who appreciate the humour of one Artemas, and who are not worried by anachronisms, one may recommend the little book which is frankly stated to be in the manner of Artemas, and is entitled "The Revelations of Roy." Roy was an Air Mechanic, R.F.C., and afterwards became a commissioned officer. He has a distinct humour of his own, and those who can read between the lines as well as comprehending what is directly in front of their noses will find that there really are some revelations concerning the inwardness of the Air Force in the book or, perhaps, one should call it the brochure in question.

It is sold at the moderate price of 1s., and can be obtained post free for 1s. 2d. from The Aeroplane and General Publishing Co., Ltd., Union Bank Chambers, 61, Carey Street, W.C.2.

A Flight from Lyons to Rome.

On April 6th, M. Roget, the French aviator, accompanied by a mechanic, left Lyons 9.16 a.m. for Rome. He arrived at Centocelle Aerodrome, near that city, at 4 o'clock the same afternoon, having covered a distance of approximately 500 miles.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

AIR MINISTRY, April 1st.

R.A.F.—The following temp. appointments are made:—Staff Officer, 2nd Cl.—(T.) Capt. F. H. Tyas, and to be actg. Maj. while so empld., Jan 14th.

Staff Officers, 3rd Cl.—(Q.) Capt. A. Warnock, Oct. 18th, 1918.

FLYING BRANCH.—Capt. C. H. Elliott-Smith to be actg. Maj while empld. as Maj (A.), Sept. 12th, 1918.

Lt. G. S. O'Brien (Can. Cyc Corps) to be actg. Capt while empld. as Capt. (A.), Oct. 1st, 1918.

Lt. (Hon. Capt.) S. J. Read to be actg. Capt while empld. as Capt. (A. and S.), July 1st, 1918.

Sec. Lt. C. Turner to be actg. Capt. while empld. as Capt. (A. and S.), Nov. 1st, 1918.

V. L. Watts (temp. Sec. Lt., Essex R.) is granted a temp. commn. as Sec. Lt. (A.), Sept. 8th, 1918.

Cadet 137533 W. V. Leftley is granted a temp. commn. as Sec. Lt. (Observer Officer), Oct. 3rd, 1918.

F. L. Barlow (Lt., Quebec R., C.E.F.) is granted a temp. commn. as Sec. Lt. (Observer Officer), Nov. 9th, 1918, and to be Hon. Lt.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. (Hon. Lt.) G. F Davies (Lt., Can. F.A.), Dec. 12th, 1918; Sec. Lt. (Hon. Capt.) C. E. S. Dobbs, D.S.O. (Capt., R.A.S.C.), Jan. 4th; Sec. Lt. (Hon. Lt.) R. Andrews, M.C. (Lt., Quebec R.), March 4th; Lt. W. A. Benn (Lt., Alb. R.), March 7th; Lt. C. A. Howse (Lt., B. Col. R.), March 13th; Lt. H. P. Illsley (Lt., Quebec R.), March 14th; Sec. Lt. H. G. Little (Sec. Lt., S. Afr. Heavy Art.), March 22nd.

The following are transferred to unempld. list:—Lt. K. S. Kirkaldy, Jan. 10th; Sec. Lt. W. R. Tope, Jan. 13th; Sec. Lt. W. J. Burns, Capt. I. M. Davies, Jan. 14th; Sec. Lt. J. Cooke, Sec. Lt. H. M. Turner, Jan. 16th; Capt. S. Burton, Lt. D. J. Rollo, Sec. Lt. A. R. Robb, Sec. Lt. T. Wallis, Lt. B. N. Willis, Lt. (Hon. Capt.) S. W. Williams, Jan. 17th; Lt. W. C. Ingleby, Lt. H. G. Kirk, Jan. 18th; Sec. Lt. J. Willson, Jan. 19th; Sec. Lt. (Hon. Lt.) G. Best. Sec. Lt. E. L. Roberts, Lt. R. P. Romer, Jan. 20th; Sec. Lt . G. King, Capt. C. R. Rischbieth, Sec. Lt. H. N. Tiplady, Jan. 21st; Lt. T. C. Gordon, Lt. C. A. W Thompson, Sec. Lt. W. A. S. Whalvin, Jan. 22nd; Lt. R. N. H. Hughman, Lt. N. Roberts, D.F.C., Capt. A. M. Wynne, A.F.C., Jan. 23rd; Sec. Lt. C. H. Coggins, Lt. C. G. Lindley, Lt. G. F. Turberville, Sec. Lt. R. S. Willis, Jan. 24th; Sec. Lt. R. C. Davies, Sec. Lt. J. E. Russell, Lt. H. H. Reade, Sec. Lt. H. J. E. Whitfield, Jan. 25th; Sec. Lt. J. Derbyshire, Sec. Lt. L. F. Henry, Sec. Lt. (Hon. Lt.) S. H. Joelson, M.C., Lt. R. T. Langdon, Lt. D. R. Tullis, Sec. Lt. E. J. Taylor, Sec. Lt. S. Whitehead, Jan 26th; Lt. R. Brown, Lt. T. A. Killingsworth, Lt. H. O. Thornton, Capt. (actg. Maj.) B. C. Windeler, A.F.C., Lt. E. Wornum, Jan. 27th; Sec. Lt. A. C. B. Ferguson, Sec. Lt. H C. T. Gompertz, Lt. W. Howarth, Sec. Lt. S. P. Ryder, Lt. J. Tennant, M.C., Sec. Lt. H. H Thompson, Sec. Lt. E. Wood, Jan. 28th; Sec. Lt. C. E. Gregory, Lt C. S. Ramsay, Jan. 29th; Sec. Lt. (Hon. Lt.) A. K. Boning, Lt. J Drew, Lt. A. N. Leckler, Lt. W. E. Rothwell, Sec. Lt. F. H. V. Wood, Jan. 30th; Sec. Lt. G. F. Holford, Lt. J. J. Lister, Lt. J. H. Latchford, Lt. A. A. Robinson, M.C., D.F.C., Sec. Lt. A. Randall, Sec. Lt R. I. Richards, Sec. Lt. (Hon. Lt.) F. I. Rogers, Lt. R. H. Trelease, Jan. 31st; Sec. Lt. A. W. Buck, Sec. Lt. K. D. Foster, Sec. Lt. J. Jackson, Lt. (Hon. Capt.) J. Line, A.F.C., Sec. Lt. M. Marks, Lt. B. Mansfield, Sec. Lt. J. A. Murray, Sec. Lt. W. Mottershead, Lt. (Hon. Capt.) E. L. Moxey, Sec. Lt. J. W. Reid, Sec. Lt. J. C. Roadhouse, Sec. Lt. A. F. Taylor, Sec. Lt. B. A. Tussand, Sec. Lt (Hon. Lt.) A. West, Lt. C. E. V. Wilkins, Lt. H. W. Underhill, Sec. Lt. R. Wilson, Feb. 1st; Lt. B. Claxton, Sec. Lt. W H. A. Moncton, Capt. J. Mitchell, M.C., D.F.C., Sec. Lt. J. Rathbone, Sec. Lt. C. V. Wood, Feb. 2nd; Sec. Lt. E. R. Lawson, Lt. J. B. Roberts (substituted for notification in "Gazette," of March 4th), Feb. 3rd; Sec. Lt. E. H. Cooke, Lt .A. Clarke, Lt. T. W. L. Dickson, Sec. Lt. H. Dobing, Lt. J. Hirst, A.F.C.; Sec. Lt. N. H. Howe, Lt. R. W. Hobbs, M.C., Lt. F. V. Kidson, Lt. L. G. Laws, Sec. Lt. A. B. Rattray, Sec. Lt. P. W Robinson, Lt. K. H. G. Tilley, Sec. Lt. (Hon. Lt.) G. J. Williams, Lt. H. S. Wilcox, Lt. A. D. Wright, Feb. 4th; Sec. Lt. P. Bolton, Lt. (actg. Capt.) R. Bolton, D.F.C., Lt. N. A. J. Ewen, Sec. Lt. O. D. Horton, Lt. H. A. V. Kirk, Lt. E. C. Middleton, Sec Lt H. A. Murton, Lt. C. R. Mason, Sec. Lt. A. J. Newnham, Sec. Lt. H. Randle, Sec. Lt. A. J. H. Thornton, Lt. A. R. Tipton, Lt. M. G. Taylor, Sec Lt. R. D. C. Vincent, Lt. (Hon. Capt.) P. K. C. Wright, Feb. 5th; Lt. C. L. W. Brading, Lt. H. F. Gaynor, Sec. Lt. W. G. Landon, Sec. Lt (Hon. Lt.) D. Millar, Sec. Lt. C. Norton, Lt. R. G. G. Nairn, Lt. (actg. Capt.) N. F. Northam, Sec. Lt. T. F. Reading, Sec. Lt. W. R. H. Robinson, Sec. Lt. H. T. Taylor, Lt. G. H. Williams, Lt. M. T. Wright, Feb. 6th; Lt. H. J. Bailey, Lt J. R. Cudemore, Lt. J. Glover, Maj. L. W Learmouth, D.S.O., M.C., Lt W. C. Kidd, Lt. T. A. Lidstone, Lt. D. A. J. Monro, Lt. R. Watson, Capt J. H. Woolner, Feb 7th; Sec. Lt. H. B. Barwise, Sec. Lt. T. E. W. Browne, Sec. Lt. E. S Cook, Capt. C. L. Newman, Sec. Lt. W. F. Noble, Sec. Lt. S. H. Tirrell, Sec. Lt. J. Wallace, Feb. 8th; Sec. Lt. F L. Roberts, Feb. 9th; Lt. H. D Crofts, Sec. Lt. C H. A. Collyns, Lt. S. J. Charles, Sec. Lt. A. W. Mumford, Sec. Lt H. Newsham, Capt. M. G. F. Richardson, Feb. 10th; Capt. O. C. le Boutillier, Lt. W. A. Cooper, Sec. Lt. D .C. Childs, Lt. H. B Clifford, Lt. C. A. Jordan, Capt. M. R. Kingsford, Lt. T. I. L. Lloyd, Capt. C. O. F. Modin, D.S.C., Lt (actg. Capt.) H. L. Murphy, Capt. G L. Nicholls, Lt. C. B. Naylor, Lt. H F. W. Robinson, Sec. Lt. O. L. Rogers, Lt. T. N. Robinson, Sec. Lt. H. D. V. Read, Lt. G. M. Robertson, Lt. A. T. Reeve, Lt. W Ronald, Lt. D. I. B. Rock, Sec. Lt. J. A Tomlinson, Lt. A. W. Tutt, Sec. Lt. F. J. Turvey, Sec. Lt. C. M. Thompson, Sec. Lt. J. B. Vickers, Feb. 11th; Sec. Lt. (Hon. Lt.) (actg. Capt.) H. C. Beeston, Sec. Lt. (Hon. Lt.) E. M. Bates, Lt. S. A. C. Bartlett, Sec Lt. R. A. Crandall, Lt. P. H. Cleave, Lt. F. P. Critchley, Sec. Lt. L. E. Glover, Sec. Lt. H. W. Goss, Lt. S. Graham, Sec. Lt J. M. Holling, Sec Lt. H. C. R. Holden, Lt. M. A. Lovell, Sec. Lt. N. H. Midgley, Sec. Lt (Hon. Lt.) A. Mills, D.F.C., Lt. C. Miller, Lt. (actg. Capt.) W. E. Nicholson, A.F.C., Sec. Lt. E. L. Rees, Sec. Lt. A. C. Roberts, Sec. Lt. J. B. Richardson, Lt S. W. Rochford, Lt. (actg. Capt.) R. W Rose, Sec. Lt E. G. Turner, Sec. Lt. M. Wallace, Lt. C. C. White, D.F.C., Feb. 12th; Lt. R. H. Burrows, A.F.C., Lt. B. Instone, Lt. W. J. Hooke, Lt. T. Johnson-Gilbert, Lt. T. H Lines, Lt. (actg. Capt.) E. Mycock, Sec. Lt. H. A. Morton, Lt. C. W. Mercer, Lt. W. S. Rope, A.F.C., Sec. Lt. W. Reader, Sec. Lt J. H. Ratcliff, Sec. Lt D. G. Rogers, Lt. W. R. Tate, Lt T. H Timmis, Sec. Lt. D. M. Thomas, Sec. Lt. A. V. W. Williams, Sec. Lt E. S. Willis, Feb. 13th; Lt. W. E. Bardgett, Lt. E. V. Bond, Lt. W. D Cullen, Sec. Lt. A. Clavton, Sec. Lt. R. H. Craig, Sec Lt. A. Fairhurst, Lt. Count L. T. B. De Baline, Sec. Lt. F. D. Kilby, eSc. Lt. (Hon. Lt.) D. C. Lockwood, Lt. P. H. Redmayne, Sec. Lt. W. A. Tagg, Sec. Lt. R J. Tucker, Sec. Lt. A. A. Turvey, Lt. J. H. M. Yeomans, Feb. 14th; Lt. R. C. S. Bowker, Lt. H. F. Blackborrow, Lt. H. R. P. Callett, Sec. Lt J. O. Claxton, Lt. (actg. Capt.) H. M. Golding, Sec. Lt. F. G. Moore, Lt E. E. Morgan, Lt. N. Rycroft, Lt. E. G. Richardson, Sec. Lt. W. T Rees, Sec Lt. G. Read, Sec. Lt. M. F. M. Wright, Lt. R. S. White, Feb 15th; Lt. J. R. Booth, Sec. Lt. G. Crocker, Sec. Lt. G. S. Holroyd, Lt. R. I. V. Hill, Sec. Lt. R. B. Moore, Sec. Lt. D. L. Melvin, Lt. E. A. F. Reeve, Sec. Lt. E. W. Tatnall, Lt. R. C Taylor, Feb. 16th; Sec. Lt. B. L. M. Bunting, Lt. A. Feilding-Clarke, Sec. Lt. D. Lewis, Sec. Lt. G. G. Travis, Sec. Lt. K. L. Turnbull, Lt. N. B. Wells, Feb 17th; Sec. Lt. M De W. Bamberger, Capt. A. J. Bott, M.C., Lt. W. M. Crabbie, Sec. Lt L. G. Cocking, Lt. C. D. Grierson, Sec. Lt. G. K. Green, Sec. Lt. (Hon Lt.) C. T. Linford, Capt. H. M. Morris, D.S.C., Lt W. J. Morgan, Lt G. D. H. Ross, Lt. W. Taylor, Capt G. E. Williamson, Sec Lt. N Weatherley, Lt. C. J. Winstanley, Feb. 18th; Sec. Lt. G. Crowther, Sec Lt. A. T. Guy, Lt. F. Holroyd, Lt. D. Hamilton, Lt J. A. Inman, Lt P. G. Kelsey, Lt. T. G. Kent, Lt. (Hon. Capt.) N. R Mossop, Lt. J. McK Nish, Lt. J. F. Nunn, Lt. G. G. Newbury, Lt. P. J. W. Reeves, Sec. Lt. F. D. Robinson, Lt. L. A. Rivers, Lt. D. Vaughan, Lt. C. E. Wharton, Sec. Lt. R. T. Worrall, Feb. 19th; Lt. N. Boucher, Sec. Lt. F. D Butcher, Lt. C. E. Bramhall, Lt. C. H. Clarke, Sec. Lt. H. R. Cooke, Lt N. D. I. Gavin, Lt. M. S. C. Gordon, Sec Lt. J. H. Lea, Sec. Lt. R. E Linder, Sec. Lt J. A. Munn, Lt. H. V. Northam, Lt. W. Ross, Sec. Lt A. Rankine, Lt. J. T. Richardson, M.C., Sec. Lt. G. Riley, Sec. Lt. J S. D. Taylor, Lt. N. H. Thackrak, Lt. T. W G. Thomson, Capt. B. A Trochmann, Lt. K. R. Unger, Sec. Lt. F G. Urmston, Lt. H. W White, Lt. M. J. Watson, Feb. 20th; Lt H. A. Boyle, Sec. Lt. J. J V Barlow, Sec. Lt. A. M. Brown, Lt. J. D. Currie, Lt. J. W. Gibson, Sec Lt. H. S. Hind, Lt. T. Ivison, Lt. G. G. Jackson, Lt. F. Kemp, Lt. E C. S. Ringer, Lt. H. S. Redpath, Sec. Lt. (Hon. Lt.) H. H. Thomas, Lt J. Taylor, Feb. 21st; Sec. Lt. (Hon Lt.) W. Black, M.C., Sec. Lt. A. L Bloom, Lt. R. G. Frith, Sec. Lt. E. A. Grant, Sec. Lt. C. R. Gage, Sec Lt. J. Huntley, Lt. W. Laidler, Sec. Lt. C. S. Muir, Sec. Lt. J. S. Monteith, Sec. Lt. J. Morton, Sec. Lt. S. C. Thornley, Sec. Lt. (Hon. Lt.) R L. Tilly, Lt. C. G. Vandyk, Lt. (Hon. Capt.) O. L. Whittle, Lt. (actg Capt.) W. Wallace, Feb. 22nd; Sec. Lt. F. Bower, Sec. Lt. (Hon. Lt.) H. E. A. E. Bolton, Sec. Lt. T. D. Brotherstone, Lt. W J. Cockburn, Sec. Lt. J. Hunter, Lt. H. Illingworth, Lt. E. C. Hoar, Lt. H. G. L King, Sec. Lt. J. F. Kinloch, Lt. A. J. Kilpatrick, Lt. C. W. J. Leng, Sec. Lt. E. H. Leavers, Sec. Lt. G H. Murray, Sec. Lt. D. J. B. Monro, Lt. W. C. M. McMurray, Sec. Lt. A. B. D. McConnell, Lt. V. C. E. Martin-Gwilliam, Sec Lt. T. Newey, Lt. L. G. Radcliffe, Sec. Lt. D. H Tyler, Sec. Lt. C. Thomas, Lt. H. H. Tait, Sec. Lt. J. T. Whitney, Feb 23rd; Lt. F. P. Brown, Lt. W. M. Graham, Sec. Lt. S. H. Hughes, Sec Lt. T. Jamieson, Lt. H. M. Lewis, Sec. Lt. H. A. Nestor, A.F.C.; Lt J. C. Nuttall, Lt. T. M. Webster, Lt. F. L. B. Wood, Feb. 24th; Sec. Lt. (Hon. Lt.) H. Beckett, Sec. Lt. J. M. Bacon, Lt. A. C. De Fleury, Capt. R. Gondie, Sec. Lt. C. Greaves, Sec. Lt. H Hitchen, Sec. Lt. J. B. Lacey, Sec. Lt H. F. Lumb, Sec. Lt. M. P. H. Liddy, Sec. Lt. C. W. Newstead, Sec. Lt. E. A. Thomas, Sec. Lt. H. R O. Tubbs, Sec. Lt. V. C. Turner, Lt. H. S. Wellby, Sec. Lt. G. W. A. Webb, Lt J. Wingate, Feb. 25th; Lt. C. H. Crosbee, Sec. Lt. (Hon. Lt.) R. A. S. Howes, Lt. V. W. H Hillyard, Capt. W. Huggan, Sec. Lt. J. B. Isaacs, Sec. Lt. F. A. Ledgard, Sec. Lt. J. W. Robertson, Sec. Lt J. A. Robb, Lt. A. Thompson, Sec. Lt G. Wignall, Sec. Lt. W. S. Woodall, Feb. 26th; Lt. R. F. Boyd, Sec. Lt B. Ibison, Lt. W. D. Jeans, Sec Lt. H. G. Lewis, Sec. Lt. W. J. E. Lane, M.C., Sec. Lt. G. W. Moir, Sec. Lt. J. C. Marlton, Lt. E. N. MacDonald, Lt. J. C. R. Manning, Sec. Lt. J. M. MacKinnon, Sec. Lt. L. F. Thurlow, Sec. Lt. H. E. Twaits, Lt. T. W. White, Capt. W. A. Wright, Sec. Lt H. L. Wortley, Sec. Lt. F. Wright, Feb. 27th; Sec. Lt. E. T. Brant, Lt J. V. R. Brown, Lt. T. H. Clarke, Sec. Lt. R. Fletcher, Sec. Lt. A. Goulding, Capt. D. M. B. Gilbraith, D.S.C , Sec. Lt. J. T. Hunter, Sec. Lt. J Hills, Lt. A. L. Kidd, Capt. R. K. Kirkman, M.C., Sec. Lt. S. Kennan, Sec. Lt. R. Massey, Lt. J. W F. Neill, Sec. Lt. T. M. Ritchie, Sec. Lt A. V. Redwood, Sec. Lt. (Hon. Lt.) L. D. Rosewell, Lt. C. B. Ridley, Lt. C. C. Robson, M.C., Lt. H. G. Tambling, Sec. Lt. W. A. Vallance, Sec. Lt. (Hon. Lt.) W. Willmer, Feb. 28th; Lt. L. A. Burns, Sec. Lt. R O. Hughes, Lt. J. Handley, Sec. Lt. T. L. Heasman, Capt. E. J. B. How, Lt. D. M John, Sec. Lt. C. S. Leslie, Lt (actg Capt.) C. B. J. Lancaster, Lt. A. A. Miles, Lt. D. P. McDonald, Lt. (Hon. Capt.) J. H. F. McEwan, Lt. R. J. Marshall, Lt. C. E. Mayer, Lt. C. G. Madous, Lt. W. G. Norden, Sec. Lt. R. N. Richards, Sec. Lt. (Hon. Capt.) A. C. Rankin, M.C., Sec. Lt. (Hon. Lt.) R. Tully, Maj (actg. Lt.-Col.) G. L. Thompson, D.S.C., D.F.C., Lt. C. E. Tylor, Lt. J. H Thompson, Sec. Lt. H. D Wright, Lt. J. Webster, M.C., Lt. H. E. A. Waring, Lt. W. K. Wilson, Lt. (Hon. Capt.) J. G. Young, March 1st; Lt A. E. Crisp, Sec Lt. F F Crump, Capt. W. B. Ives, Lt. J. C. Lees, Lt. W. T. Lewis, Lt H. L Leroy, Lt. R. G. Lawson, Sec. Lt. J. McAlsan, Lt. L. H. Raybould, Lt M. C Radford, Lt. G. A Rose, Sec. Lt. H. Tannenbaum, Sec. Lt. E. A F. Wilding, Lt. M. E. Woods, Lt. G. F. Westcott, Lt F. H. Wilson, March 2nd; Lt. H. G. Buckley, Lt. W. R. L. Jenkins, Sec. Lt. P. U Keeney, Lt. H. G. Kirkland, Sec Lt. W. H. Lange, Lt. O J. Lange, Capt. H. A. Mumford, Lt. H. Naylor, Lt. R. B. Thompson, March 3rd; Sec. Lt. F. Collins, Sec. Lt. A. E. Doncaster, Sec. Lt. A W. Fisher, Sec Lt. R. B. Hyslop, Sec. Lt. C. J. H. Holmes, Lt C. B. Holland, Sec. Lt J. E. Lowdon, Sec. Lt. (Hon. Lt.) W. T. Mitchell, Sec. Lt. G. W Mitchell, Lt. O. D. Maxted, Lt. C. H. March, Sec. Lt. C. W. Noel, Lt. R P. Nowell, Lt. R. A. Roth, Sec. Lt. G. G. Ross, Lt. W. O. Russell, Sec Lt. A. J. D. Rowan, Sec. Lt. G. E. A. Rice, Sec Lt. R. Rathbone, Sec Lt. (Hon. Lt.) H. Reddaway, Sec. Lt. G. C. Russell, Sec. Lt C. L. Talmadge, Sec. Lt. P. McL. Wallace, Sec Lt. G. H Waddup, Sec. Lt. J. B Young, March 4th; Sec. Lt. W. H. Brown, Sec. Lt. A. G. Currington, Sec. Lt. G. C. Crookshanks, Lt. F. T. Collins, Lt. H. Constant, Lt. G Gibbs, Lt. D. G. Gold, Sec. Lt. H. G. Goddard, Sec. Lt. F. M. Honore, Sec. Lt. (Hon. Lt.) H. W. Holland, Sec. Lt. D. Keiller, Sec. Lt. T. Lees, Sec. Lt. E. Leicester, Lt. L. C Lane, Sec. Lt. S. M. Morris, Lt. E. S Moore, Lt. R. W. B. Matthewson, Lt. L. Marsh, Sec. Lt. S. B Taylor, Lt. F. Weston, Sec Lt. A. C Weeks, Lt. J. G. Wilson, Lt. G. M. C. T Whitehead, Lt. R. C. Williams, Lt. A. E. Webber, Lt. (Hon. Capt.) C B. Wilson, Lt. J. R Wilson, Lt. J. B. H. Wyman, May 5th; Sec. Lt E. T. Adams, Sec Lt P. H. D Blackman, Lt F. G Browne, Lt (Hon

Capt.) O. L. Beater, D.F.C., Sec. Lt. H. L. Cross, Capt. L. B. P. Davis, Sec. Lt. A. E. Filby, Sec. Lt. N. Johnson, Sec. Lt. S. E. King, Lt. J. F. Lloyde, Capt. B. A. Milson, D.S.C., Sec. Lt. A. L. Muir, Sec. Lt. J. Myers, Lt. H. M. Myers, Sec. Lt. (Hon. Capt.) K. C. Norris, Lt. J. M. Nichol, Sec. Lt. G. Nicholls, Sec. Lt. H. C. J. Routledge, Sec. Lt. J. J. Rollason, Lt. J. Rachie, Lt. J. F. Reed, Sec. Lt. A. Rose, Lt. F. Whiteley, March 6th; Lt. A. E. M. Coombes, Lt. G. De Gex, Maj. J. B. F. Fellows, D.S.O., Sec. Lt. W. M. Merriot, Lt. (actg. Capt.) B. H. Hunt, Sec. Lt. N. D. Hume, Lt. G. H. Ingram, Capt. F. K. Johnson, D.S.C., Lt. F. A. Johnson, Sec. Lt. W. S. B. Kinsey, Sec. Lt. V. Lees, Sec. Lt. C. G. Martin, Sec. Lt. A. G. Marshall, Sec. Lt. A. Nixon, Sec. Lt. G. H. New, Lt. E. B. Robinson, Sec. Lt. H. T. G. Robey, Capt. H. S. Robertson, Sec. Lt. C. J. Ralph, Lt. H. T. Rawlinson, Lt. D. Ransford, Sec. Lt. L. K. Robins, Lt. E. H. Tredcroft, D.F.C., Lt. A. E. Thompson, Lt. S. F. Thompson, Sec. Lt. W. R. Vale, Capt. F. W. Whitehouse, Sec. Lt. C. J. Wilcox, Lt. F. Whiteley, Sec. Lt. (Hon. Lt.) F. A. W. Wills, Sec. Lt. J. C. Wilson, Sec. Lt. (Hon. Lt.) C. B. O. Walker, March 7th; Sec. Lt. C. R. Boyd, Lt. K. G. Cummings, Sec. Lt. L. Cuthbert, Sec. Lt. T. A. Coud, Lt. L. S. Collins, Lt. H. G. Dugan, Sec. Lt. W. E. Framann, Lt. A. F. Goodenap, Lt. H. C. Grimes, Sec. Lt. C. K. R. Horton, Capt. J. F. Horsey, Sec. Lt. C. Hansen, Sec. Lt. M. P. Lafleur, Sec. Lt. G. A. Mann, Sec. Lt. J. Muller, Lt. R. V. Nalder, Sec. Lt. A. H. Rose, Lt. A. W. Robertson, D.F.C., Sec. Lt. P. J. Swan-Taylor, Sec. Lt. C. C. Williamson, Lt. W. Wild, Sec. Lt. E. G. Woods, Sec. Lt. S. K. Wells, March 8th; Sec. Lt. R. H. Ash, Lt. A. L. Baker, Lt. J. A. Cairns, Sec. Lt. J. F. Christopherson, Lt. A. T. Daw, Lt. S. J. Davies, Sec. Lt. L. Goater, Lt. G. Howe, Lt. W. W. Jones, M.C., Sec. Lt. N. A. McIntosh, Capt. E. A. McKay, M.C., D.F.C., Sec. Lt. A. C. MacLean, Lt. C. McEvoy, D.F.C., Lt. E. A. Manley, Lt. J. Rees, Lt. (actg. Capt.) E. J. Webster, Sec. Lt. L. F. Wilson, March 9th; Sec. Lt. G. T. Coles, Sec. Lt. L. L. Chapman, Sec. Lt. C. K. Gladish, Sec. Lt. W. R. Kempson, Sec. Lt. (Hon. Lt.) K. D. King, Sec. Lt. A. C. Marsh, Lt. G. B. McMichael, Lt. K. A. Nicholson, Sec. Lt. J. MacIntyre, Sec. Lt. J. A. Ritchie, March 10th; Capt. H. H. Arundel, Capt. J. W. Alcock, D.S.C., Sec. Lt. E. Everington, Lt. L. F. Gilliard, Lt. R. R. F. Gill, Sec. Lt. H. G. Holmes, Sec. Lt. E. W. King, Lt. K. H. Loosemoor, Sec. Lt. T. C. Lewis, Lt. W. McIntosh, Sec. Lt. C. S. D. McLeod, Lt A. M. Morgan, Sec. Lt. W. Knock, Lt. K. Retherdon, Sec. Lt. G. Turner, Sec. Lt. H. Vost, Sec. Lt. A. H. Williams, Sec. Lt. C. Wright, Sec. Lt. A. B. Whiteley, Sec. Lt. S. Whitehouse, Capt. K. F. E. Wickham, Lt. (Hon. Capt.) A. B. Yuille, D.F.C., Lt. (actg. Capt.) E. L. Zink, March 11th; Lt. E. Adlington, Lt. F. G. Ashford, Sec. Lt. A. Blackwell, Sec. Lt. L. A. Clark, Lt. W. F. Crundall, Sec. Lt. C. J. De Lapplante, Sec. Lt. S. W. Heugcock, Sec. Lt. R. I. Hulley, Lt. H. Hoyle, Sec. Lt. J. E. Jackson, Sec. Lt. R. Lane, Lt. C. G. Lush, Lt. H. G. B. Linnell, Lt. A. W. Manby, Lt. R. K. McConnell, D.F.C., Sec. Lt. J. G. McIntyre, Lt. R. A. Martin, Lt. E. G. Rummit, Lt. F. C. Russell, Sec. Lt. (Hon. Lt.) N. Riddell, Sec. Lt. H. R. McL. Reid, Sec. Lt. (Hon. Lt.) T. P. Robinson, Sec. Lt. J. M. Russell, Sec. Lt. V. A. Tozzi, Lt. F. G. Taylor, Capt. G. T. Wilcox, M.C., Sec. Lt. H. Wittup, March 12th; Sec. Lt. C. F. Arthur, Lt. (actg. Capt.) L. C. Burcher, Lt. R. B. Carey, Lt. T. T. Cumming, Sec. Lt. J. C. S. Calder, Lt. E. O. Cudmore, Sec. Lt. A. W. Forsyth, Sec. Lt. G. Geuge, Lt. M. Goudie, Sec. Lt. D. R. Goudie, Capt. M. G. Gill, Sec. Lt. E. B. Hubbard, Sec. Lt. C. Hargreaves, Capt. S. E. Hoblyn, Lt. R. W. Kerr, Sec Lt. (Hon. Lt.) J. B. Kemshall, Sec. Lt. J. C. Lewis, Lt. W. G. Latham, Capt. I. McDonald, A.F.C., Lt. (Hon. Capt.) H. H. de B. Monk, M.C., Capt. F. G. Marr, Lt. W. F. Scott-Kerr, Lt. C. V. Wheatley, Lt. E. J. Whyte, D.F.C., March 13th; Sec. Lt. C. B. Branson, Lt (actg. Capt.) C. W. Cudemore, Lt. E. R. Farmer, Lt. D. W. Kent-Jones, Lt. N. H. Kilby, Lt. (actg. Capt.) A. S. Kelly, Sec. Lt. (Hon. Lt.) A. R. Lett, Lt. S. Leslie, Lt. H. R. Marshall, Sec. Lt. C. H. Thompson, Lt. A. E. Withers, March 14th; Lt. R. S. Barbour, Sec. Lt. G. L. Button, Lt. D. R. Cameron, Sec. Lt. G. L. W. J. Finch, Sec. Lt. F. E. Finch, Sec. Lt. W. E. Grainger, Lt. R. C. Husband, Lt. G. R. E. Hayter, Lt. W. Jack, Lt. E. A. W. Kent, Lt. C. T. Mansell, Capt. D. C. Miller, Sec. Lt. J. McCullum, Lt. W. F. Russell, Lt. (actg. Capt.) W. E. Reed, March 15th; Lt. (actg. Capt.) H. P. Chubb, Lt .W. W. Frederickson, Sec. Lt. C. S. Frost, Lt. C. G. D. Gray, Sec. Lt. M. I. Hough, Sec. Lt. A. R. Hedgcock, Sec. Lt. J. G. Hall, Lt. W. Ingleson, Sec. Lt. E. E. James, Sec. Lt. A. W. Kilpatrick, Capt. D. B. King, Sec. Lt. M. H. Molyneux, Lt. J. G. Richards, Lt. W. M. Worrman, March 16th; Lt. C. H. L. Bartrum, Sec. Lt. G. S. Bragg, Sec. Lt. (Hon. Lt.) E. H. Cook, Sec. Lt. W. Forbes, Lt. E. T. Hendrie, Sec. Lt. W. Jackhn, Lt. H. T. Kemp, Sec. Lt. V. Lockey, Sec. Lt. T. L. Lysaght, Sec. Lt. C. F. Lamb, Sec. Lt. C. H. Long, Lt. D. M. Lees, Lt. N. Ramsden, Capt. A. C. Reid, D.F.C., Sec. Lt. A. Whichelow, Sec .Lt. A. T. Williams, March 17th; Sec. Lt. F. R. Brown, Lt. (actg. Capt.) F. C. G. Broome, Lt. H. L. Button, Sec. Lt. R. D. Clerk, Lt.-Col. H. Delacombe, Sec. Lt. H. Dodd, Lt. (actg. Capt.) R. N. C. Fenton, Sec. Lt. (actg. Capt.) M. Forsyth, Lt. G. W. Ferguson, M.C., Lt. E. G. Gilder, Lt. E. W. Hellier, Sec. Lt. W. W. Ingram, Capt. G. D. Kirkpatrick, Lt. R. A. Maddock, Lt. C. T. V. Marshall, Lt. R. F. Mullins, Sec. Lt. H. McLean, Lt. W. P. Watt, Lt. J. B. Welman, March 18th; Sec. Lt. J. L. Bullard, Sec. Lt. P. Bolland (L'pool R.), Sec. Lt. A. P. C. Bruce, Lt. G. J. Cooper, Sec. Lt. T. R. G. Cooke, Lt. W. H. Clarke, Lt. T. G. Deason, Sec. Lt. R. H. Dunn, Sec. Lt. G. Hall, Sec. Lt. A. V. Hale, Lt. C. F. Halford, Lt. F. B. Jones, Sec. Lt. J. W. Johnson, Lt. C. Kerr, Sec. Lt. L. W. Luce, Sec. Lt. W. Meredith, Lt. W. A. Tait, Lt. S. W. Watson, Sec. Lt. R. P. Whyte, March 19th; Sec. Lt. F. J. H. Bacon, Sec. Lt. W. J. Bedworth, Captain W. H. Demel, Lieut. A. J. Dunton, Lieut. C. E. Hurst, Sec. Lieut. (Hon. Lieut.) A. Holland, Lieut. C. R. Hurst, Sec. Lieut. A. A. Jackson, Lt. A. E. King, Lt. C. W. Lewis, Sec. Lt. J. C. C. Lovelace, Sec. Lt. J. H. Lorrimer, Sec. Lt. R. Logan, Sec. Lt. A. H. Wilson, Lt. P. S. Williams, March 20th; Lt. G. Colledge, Sec. Lt. B. O. Davis, Lt. H. E. Galer, Sec. Lt. F. W. Gordon, Lt R. F. B. Hall, Sec. Lt. H. Warburton, Lt. W. H. McF. Watt, Sec. Lt. A. G. H. Williamson, March 21st; Sec. Lt. J. F. Foggo, Lt. N. H. Witter, March 22nd; Lt. J. Boyd, Sec. Lt. G. R. Marsh, March 23rd; Lt. R. O. Hobhouse, Lt. J. G. Hamilton, Sec. Lt. K. G. Welch, March 25th; Capt M. G. Dover, March 26th; Lt. W. F. Long, March 28th.

Capt. W. P. C. Chambers resigns his commn., April 2nd.

Lt. W. S. Berkett relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, April 2nd.

Sec. Lt. R. W. Brigstock relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, April 2nd.

Sec. Lt. G. H. E. Roxburgh (High. L.I.) relinquishes his commn. on account of ill-health, April 2nd.

The surname of Lt. (actg. Capt.) G. B. Gates is as now described, and not Bates as stated in "Gazette," Sept. 3rd, 1918.

The Christian names of Sec. Lt. James Wilfred Sykes are as now described, and not as stated in the "Gazette," Sept. 3rd, 1918.

The notification in "Gazette," May 17th, 1918, concerning Sec. Lt. F. J. H. Bacon is cancelled.

The notification in "Gazette," March 18th, concerning Lt. K. P. McGowan is cancelled.

Administrative Branch.—Maj. M. Marsden to be Maj., from (S.O.), March 25th.

Lts. to be Lts. :—A. N. Jenks (Quebec R.), from (O.), Dec. 13th, 1918; H. C. Rylands, from (A.), Jan. 3rd.

Sec. Lt. E. O. Johnson to be Lt., Jan. 13th.

Sec. Lts. to be Sec. Lts. :—C. Wright, from (O.), Feb. 8th; B. M. Prichard, from (A.), Feb. 20th.

Lt. F. C. Lynch-Blosse (Lt., Ir. Gds.) relinquishes his commn. on ceasing to be empld., Feb. 15th.

The following are transferred to unempld. list :—Sec. Lt. E. Albert, Jan. 10th; Sec. Lt. F. H. Wrigley, Jan. 13th; Sec. Lt. H. E. Larsen, Sec. Lt. W. C. Rose, Sec. Lt. E. S. Ruddle, Jan. 17th; Sec. Lt. C. W. Curtis, Lt. F. A. Rudd, Jan. 18th; Sec. Lt. (Hon. Lt.) (actg. Capt.) I. P. Venner, Jan. 19th; Sec. Lt. F. Newton, Sec. Lt. A. R. Tarte, Jan. 21st; Sec. Lt. F. W. K. Jonnson, Sec. Lt. F. H. Lythall, Jan. 22nd; Sec. Lt. S. E. Arridge, Jan. 24th; Lt. K. M. Grahame, Sec. Lt. T. E. Read, Sec. Lt. R. B. Wightman, Jan. 25th; Sec. Lt. J. H. P. W. Hither, Sec. Lt. J. P. Robertson, Sec. Lt. R. J. Woods, Sec. Lt. R. Wilson, Sec. Lt. F. J. T. Woodard, Jan. 26th, Sec. Lt. H. A. Winter, Jan. 29th; Sec. Lt. (actg. Lt.) G. R. Neal, Sec. Lt. A. E. Turner, Jan. 30th; Capt. (actg. Maj.) D. B. O. F. Lord Redesdale, Jan. 31st; Sec. Lt. A. C. Muirhead, Lt. (actg. Capt.) C. F. Upton, Sec. Lt. W. W. Rae, Feb. 1st; Sec. Lt. A. E. P. Cole, Sec. Lt. W. Johnstone, Feb. 3rd; Sec. Lt. S. G. Minchin, Lt. (actg. Capt.) F. Robinson, Sec. Lt. L. E. Tutt, Feb. 4th; Capt. W. H. Rodd, Feb. 5th; Sec. Lt. J. F. George, Sec Lt. H. Hood, Lt. V. F. Long, Sec. Lt. (actg. Lt.) R. Needham, Feb. 6th; Sec. Lts. D. A. J. Buxton, J. Curdie, Feb. 8th; Capt. J. W. Moore, Feb. 9th; Sec. Lt. (actg. Lt.) D. A. Recordon, Feb. 10th; Sec. Lt. D. T. Garland, Sec Lt. B. S. Thomson, Feb. 11th; Lt. E. Butler, Sec. Lt. H. W. Homer, Sec. Lt. R. S. Roberts, Lt. T. Rawsthorne, Sec. Lt. J. F. Young, Feb. 12th; Sec. Lt. J. Rothera, Feb. 13th; Sec. Lt. A. F. Batchelor, Sec. Lt. R. J. Gregory, Sec. Lt. A. W. Murray, Sec. Lt. E. W. Tucker, Sec. Lt G. D. Thomas, Sec. Lt. J. W. Welch, Capt. J. M. St. J. Yates, Feb. 15th; Sec. Lt. E. J. Gallagher, Sec. Lt. V. F. Wilkins, Feb. 16th; Sec. Lt. C. H. Bartlett, Sec. Lt. (actg. Lt.) W. E. Lambert, Feb. 17th; Lt. E. G. Roberts, Sec. Lt. F. G. Robinson, Sec. Lt. R. Trueman, Capt. F. Wilkinson, Sec. Lt. H. W. Weedon, Feb. 18th; Sec. Lt. F. E. Dow, Lt. H. G. Lyne, Sec. Lt. I. R. R. Mellish, Lt. (actg. Capt.) H. P. Tate, M. B. E., Feb. 19th; Sec. Lt. (Hon. Lt.) E. R. Brydges, Sec. Lt. A. B. Clay, Sec. Lt. C. H. Leland, Sec. Lt. B. A. Ross, Lt., (Hon. Capt.) (actg. Capt.) R. F. Wills, Sec. Lt. A. Wilkinson, Feb. 20th; Sec. Lt. W. R. Butler, Sec. Lt W. H. Munns, Sec. Lt. S. W. Tinham, Feb. 21st; Lt. E. Colman Brown, Feb. 22nd; Sec. Lt. J. M. Holloway, Sec. Lt. H. Hodgson, Sec. Lt. A. Mackie, Sec. Lt. R. W. Murdoch, Feb. 23rd; Lt. (actg. Capt.) G. C Cheshire, Sec. Lt C. E. Hughes, Sec. Lt. A. L. Kent, Feb. 24th; Sec. Lt. F. Crawford, Capt. (actg. Maj.) H. Jullerot, A.F.C., Lt. A. G. R. Mackenzie, Lt. (actg. Capt.) T. H. Nesbitt, Feb. 25th; Sec. Lt. E. H. Church, Sec. Lt. R. H. A. Nayler, Sec. Lt. G. F. Wilson, Feb. 27th; Capt. H. J. Evans, Sec. Lt. E. Rendle, Sec. Lt. J. Whitteridge, Feb. 28th; Lt. W. G. Little, Sec. Lt. E. V. Wheeler, Maj. (actg. Lt.-Col.) R. F. Williams, Sec. Lt. R. S. L. Worsley, March 1st; Lt. M. Bridgewater, March 2nd; Capt. (actg. Maj.) S. S. Macaskie, March 3rd; Sec. Lt. D. J. Brooks, Capt. G. G. Fiddes, Lt. (actg. Capt.) R. H. Gray, Sec. Lt. J. C. Gordon, Lt. W. J. Keene, Sec. Lt. J. H. McKenzie, Sec. Lt. (Hon. Capt.) E. N. Thomas, Capt. F. D. Taylor, Lt. G. A. P. Upston, March 4th; Sec. Lt. H. E. Miles, Sec. Lt. T. S. Millar, Sec. Lt. S. Nicholson, March 5th; Lt. A. B. Bullock, Lt. H. F. J. Capelli, Lt. E. M. Letts, Lt. P. Maggs, Lt. S. Rodgers, Lt. R. Temple, March 6th; Sec. Lt. R. H. Abell, Sec. Lt. A. J. Coxon, Sec. Lt. N. O. W. Lucas, Sec. Lt. G. G. O. Manton, Sec. Lt. W. E. Randall, Sec. Lt. H. T. Robinson, March 7th; Sec. Lt. J. J. Cryan, Sec. Lt. H. Chadwick, Lt. J. F. Fielding, Sec. Lt. H. W. Moore, Capt. C. A. McInroy, Sec. Lt. G. S. Rowley, March 8th; Lt. (actg. Capt.) R. C. Clements, March 9th; Lt. (actg. Capt.) H. Jackson, March 10th; Lt. L. H Colman, Sec. Lt. C. S. Colman, Sec. Lt. L. W. Foot, Lt. J. K. Line, Sec. Lt. C. Rockliff, Maj. G. B. Rickards, M.C., Sec. Lt. (actg. Lt.) E. A. Woods, March 12th; Lt. G. M. Atkinson, Lt. T. M. Golding, Sec. Lt. H. A. Lambert, March 13th; Lt. L. J. Gavin, Lt. P. C. O. Riddell, Sec. Lt. V. R. Roberts, March 13th; Sec. Lt. (Hon. Lt.) A. Chalk, Sec. Lt. R. E. E. Humble, Sec. Lt. K. T. Irwin, Sec. Lt. F. D. Johnson,, Sec. Lt. J. C. McNaught, March 14th; Lt. H. Castle (L'pool R., T.F.), Sec. Lt. (Hon. Lt.) (actg. Lt.) J. S. Craig, Capt. L. Lanchester, Lt. W. Luke, Sec. Lt. (actg. Lt.) R. E. G. MacMaster, March 15th; Lt. (actg. Capt.) A. W. Brittain, Capt. F. Fernihough, Sec. Lt. J. M. C. Lawson, Sec. Lt. H. S. Reddick, March 16th; Sec. Lt. A. Cowan, Sec. Lt. A. J. Crook, Sec. Lt. W. V. J. Delenhaun, Lt. C. R. Grace, Sec. Lt. G. A. R. Gregory, Capt. E. L. Haslett, Sec. Lt. J. L. Hodgetts, Sec. Lt. A. H. Jarman, Sec. Lt. H. S. Mahoney, Lt. R. G. Robson, Sec. Lt. J. H. Weir, Sec. Lt. G. Wolstenholme, March 17th; Sec. Lt. L. H. Jones, Sec. Lt. S. G. Larrard, March 18th; Sec. Lt. G. W. Habell, Sec. Lt. L. S. Harvey, Sec. Lt. A. R. Knowles, Sec. Lt. (actg. Lt.) (Hon. Capt.) W. L. Brum, Sec. Lt. R. H. Malt, Sec. Lt. Windsor, March 19th; Lt. G. Carruthers, Sec. Lt. G. Crusoe, Capt. H. W. Guy, Capt. E. W. Gregory, Sec. Lt. H. L. Roper, March 20th; Sec. Lt. R. M. Ferguson, Sec. Lt. A. E. Walker, March 21st; Capt. H. Batsford, Sec. Lt. C. H Dickins, Capt. G. Haslam, Lt. T. W. Kirkpatrick, March 2nd; Sec. Lt. M. Worms, Lt. N. J. Wenger, March 23rd; Capt. V. Finnigan, Sec. Lt. F. G. Laight, March 25th.

The surname of Lt. (actg. Capt.) J. G. Ryrie is as now described, and not as Pyrie as stated in "Gazette," Feb. 21st.

The notification in "Gazette," March 14th, concerning Lt. T. L. Green is cancelled.

The notification in "Gazette," March 25th, concerning Sec. Lt. H. B. Elbourne is cancelled.

Technical Branch.—Maj. (actg. Lt.-Col) H. R. Vagg to be Maj. (Grade A), and relinquishes the actg. rank of Lt.-Col. on ceasing to be empld. as Lt.-Col., March 12th.

Lt. T. C. Penna to be actg. Capt. whilst empld as Capt. (Grade B), Aug. 12th, 1918.

Sec. Lt. (actg. Lt.) A. C. F. Hill to be actg. Capt. whilst empld. as Capt. (Grade B), from (Ad.), Sept. 14th, 1918.

Lt. S. Symonds to be graded for purposes of pay as Lt. whilst empld. as Lt. (Grade B), Oct. 22nd, 1918.

Sec. Lt. A. V. Baker to be actg. Lt whilst empld. as Lt. (Grade B), Dec. 16th, 1918.

Sec. Lt. (Hon. Capt.) C. C. Clark to be Sec. Lt. (Grade A), from (Grade B), and to be Hon. Capt., March 4th.

Sec. Lt. H. B. Chorley to be Sec. Lt. (Grade B), from (Ad.), Dec. 11th, 1918.

Capt. W. B. Daniels (Lt., R.N.V.R.) relinquishes his commn on ceasing to be empld., Dec. 30th, 1918.

The following are transferred to the unempld. list :—Lt. C. Clayden, Jan 11th; Sec. Lt. G. P. Richards, Jan. 13th; Lt. F. T. Russell, Jan. 16th; Sec. Lt. A. E. Allen, Capt. A. D. Lang, Jan. 17th; Sec. Lt. W. Griffiths, Jan. 23rd; Lt. H. Gray, Jan. 25th; Sec. Lt. H. Linfield, Sec. Lt. J. Norman, Jan. 26th; Sec. Lt. (actg. Lt.) F. P. Lambert, Jan. 27th; Lt. (actg. Capt.) H. J. Taplin, Jan. 28th; Sec. Lt. A. Newbury, Jan. 29th; Lt. T. E. H. Bristow, Lt. N. W. Rostron, Sec. Lt. J. D Robinson, Maj. C. C. Turner, Maj. (actg. Lt.-Col) W. Wright, D.S.O., Jan. 30th; Maj. E. G. L. Roberts, Maj Hon. W. T. Whiteley, Sec. Lt. F. Williams, Jan. 31st; Sec. Lt. N. G. Cox, Lt. S. D. Claris, Lt. R. V. Middlemost, Sec. Lt. (Hon. Lt.) G. W. G. Tucker, Sec. Lt. A. D. Tyler, Sec. Lt. (actg. Lt.) W. W. Winterbottom, Sec. Lt. R. B. Winyard, Feb. 1st; Lt. H. P. Reid, Feb. 3rd; Sec. Lt. J. F. Crichton, Sec. Lt. C. Marley, Lt. L. J.

Wood, Feb. 4th; Sec. Lt. A. Laurie, Lt. (actg. Capt.) F. E. Reiss, M.C., Sec. Lt. P. J. Rixon, Feb. 7th; Lt. D. A. Lewis, Feb. 8th; Sec. Lt. C. Lewis, Capt. W. G. C. Munsie, Feb. 9th; Sec. Lt. C. S. Armishaw, Capt. A. A. Bryce-Burden, Feb 10th; Sec. Lt. (Hon. Lt.) B. H. Lodge, Lt. A. C. Nixon, Sec. Lt. C. W. Raymond, Lt. C. Woodall, Feb 11th; Lt. J. P. Burden, Sec. Lt. E. M. S. Levin, Lt. M. Myers, Sec. Lt. C. S. Richards, Feb 12th; Sec. Lt. (actg. Capt.) L. M. Nava, Lt. H. C. Toye, Lt. A. A. D. Toolis, Sec. Lt. W. G. Walker, Feb. 13th; Capt. F. W. Musson, A.F.C., Lt. (actg. Capt.) E. A. Richards, Maj. H. R. Raikes, A.F.C., Sec. Lt. H. A. Welch, Feb. 14th; Lt. H. Bateman, Lt. H. Churchman, Lt. C. H. Gardner, Capt. P. M. E. Impey, Lt. (actg. Capt.) D. H. Moore, Sec. Lt. P. W. Rowe, Lt.-Col. (actg. Brig.-Gen.) J. G. Weir, C.M.G., Feb. 15th; Sec. Lt. G. Colbert, Lt. (actg. Capt.) L. Taveyner, Feb. 16th; Sec. Lt. J. J. Clennell, Capt. J. C. Rennie, Capt. C. L. Robinson, Lt. D. R. M. Wright, Feb. 18th; Lt. R. A. Raleigh, Sec. Lt. W. E. Truman, Lt. P. K. Turner, Lt. J. H. Valentine, Feb. 19th; Capt. J. Hibbert, Sec. Lt. J. F. Hurst, Sec. Lt. S. G. Tackaberry, Feb. 20th; Capt. (actg. Maj.) F. A. Bumpus, Feb. 21st; Lt. R. N. K. Jones, M.C., Lt. (actg. Capt.) C. R. Lodge, Sec. Lt. R. B. Whittick, Feb. 22nd; Sec. Lt. O. J. Toynes, Feb. 23rd; Sec. Lt. (Hon. Lt.) (actg. Capt.) R. T. Lattey, Capt. P. Young, Feb. 24th; Capt. L. H. Clifford, Lt. (actg. Capt.) H. Jones, Sec. Lt. (Hon. Lt.) C. L. Loyd, Sec. Lt. (actg. Capt.) W. R. Munro, Sec. Lt. H. S. Wood, Feb. 25th; Sec. Lt. T. D. H. Bruce, Sec. Lt. C. R. Holmes, Maj. T. G. Hull, Sec. Lt. E. Mathias, Lt. (Hon. Capt.) C. H. Murland, Capt. R. A. Tanner, Feb. 26th; Maj. C. G. Martyn, Capt. A. Mackay, Lt. (actg. Capt.) P. B. Moxon, Feb. 27th; Sec. Lt. R. W. P. Murch, Feb. 28th; Lt. H. Best, Capt. E. W. Keesey, Sec. Lt. (Hon. Lt.) L. E. Lomas, Lt. H. Lloyd, Capt. G. D. Lanyon, Lt. R. R. Macgregor, Capt. Sir C. C. Mansel, Bt., Lt. S. H. Roberts, Capt. H. D. Teage, Lt. (actg. Maj.) R. Thynne, Lt. C. B. Willcocks, March 1st; Capt. C. Lightfoot, March 2nd; Sec. Lt. D. G. Robinson, Lt. E. V. White, March 3rd; Lt. R. F. Cook, Sec. Lt. (Hon. Lt.) G. Craig, Capt. G. E. Liggs, Lt. (actg. Capt.) G. F. Lucas, Lt. T. H. Levett, Lt. C. J. Mahony, Capt. M. G. Millar, Sec. Lt. D. H. S. Reid, Sec. Lt. S. J. Wise, March 4th; Lt. (actg. Capt.) C. Curwen, Lt. C. A. Elliott, Lt. F. O. Gibbon, March 5th; Lt. W. R. Bridgens, Sec. Lt. E. J. H. Bluett, Sec. Lt. W. T. Bodger, Sec. Lt. A. E. Cowling, Sec. Lt. G. D. Jones, Capt. I. S. Mathias, Capt. F. C. Mears, Lt. C. B. Newman, Sec. Lt. S. R. Winkworth, Lt. (actg. Capt.) H. Wing, March 6th; Sec. Lt. R. Blaine, Lt. P. V. Brown, Sec. Lt. (actg. Lt.) L. Barwell, Lt. G. S. George, Sec. Lt. (Hon. Lt.) G. Moon, Sec. Lt. W. Tomson, March 7th; Sec. Lt. E. E. Brightman, Maj. A. Landells, Lt. B. Rotherham, Sec. Lt. T. W. Vanderpump, March 8th; Sec. Lt. A. M. Godfrey, Sec. Lt. W. J. Rose, March 9th; Lt.-Col. A. Ogilvie, C.B.E., Lt. R. E. Threlfell, March 10th; Sec. Lt. C. H. Bull, Capt. A. N. Robinson, Lt. H. F. Unwin, March 11th; Lt. C. Brown, Lt. L. A. Clayton, Lt. W. G. Cullen, Sec. Lt. (actg. Lt.) W. D. Corse, Lt. R. S. Howard, Sec. Lt. P. O. Lovett, Sec. Lt. W. S. Vipond, Sec. Lt. A. J. Winter, March 12th; Lt. G. T. C. Gunn, Sec. Lt. (actg. Lt.) H. de S. Hodson, Sec. Lt. C. W. P. Harvey, Sec. Lt. A. B. Redstone, Sec. Capt.) L. G. Cloete, Maj. A. Congreve, Lt. (actg. Capt.) J. G. Connell, Lt. C. A. Weston, Lt. C. H. Whitehouse, March 13th; Sec. Lt. (Hon. Sec. Lt. J. G. F. Moore, March 14th; Sec. Lt. J. O. Clover, Lt. E. J. Girdler, Lt. G. Gilbert, Capt. L. Leoffler, Capt. L. R. Kerridge, March 15th; Maj. D. C. Willock, March 16th; Sec. Lt. A. Dalziel, Lt. J. S. Franklin, Sec. Lt. R. V. Hart, Capt. (actg. Maj.) G. Ralston, Sec. Lt. V. A. F. Whitehead, March 17th; Lt. E. W. Edwards, Sec. Lt. H. Grant, Capt. D. A. B. Hill, Sec. Lt. E. B. Hodgkinson, Sec. Lt. R. L. T. Latour, Sec. Lt. R. P. McDougall, March 18th; Sec. Lt. (Hon. Lt.) W. F. Baker, Sec. Lt. (actg. Capt.) R. Bonser, Sec. Lt. (actg. Capt.) H. D. Barry, Sec. Lt. (Hon. Lt.) (actg. Lt.) R. A. Carswell (Sco. Rif., T.F.), Capt. A. H. Dungay, Capt. L. V. Drake, Sec. Lt. L. Hawes, Sec. Lt. W. W. McDowell, March 19th; Lt. (actg. Capt.) H. S. Hewitt, Sec. Lt. A. Kennish, Capt. A. H. Peake-Jones, March 20th; Lt. N. L. Godber, Sec. Lt. A. J. Higgins, March 21st; Sec. Lt. R. W. Atchley, Capt. (actg. Maj.) J. H. Banks, Lt. M. B. Cole, Maj. J. R. Elsden, Maj. E. A. Falconer, Maj. A. C. Hartley, Sec. Lt. (Hon. Lt.) W. J. Rice, March 22nd; Capt. (actg. Maj.) C. H. T. Alston, Capt. F. A. Cobb, Lt. C. L. Cliffe, Capt. J. R. Gibb, Capt. C. A. Higgins, Sec. Lt. H. A. Ward, Lt. G. W. Wilkin, Lt. H. B. Wakefield, March 23rd; Maj. T. R. H. Garrett, Capt. A. G. Ionides, March 24th; Capt. F. M. Harding, Sec. Lt. E. R. W. Lincoln, March 25th; Sec. Lt. J. Imber, Sec. Lt. A. M. Layfield, March 26th; Lt.-Col. C. F. Jenkin, M.B.E., March 31st.

Lt. J. P. Rowell resigns his commn., April 2nd.

Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—G. J. Cannon, C. F. Murrin, contracted on active service, April 2nd.

Medical Branch.—Lt.-Col. C. B. Heald, C.B.E., to be Lt.-Col., from (S.O.), Feb. 10th.

The following are transferred to unemplд. list:—Capt. Ff. Roberts, Feb. 5th; Lt. K. Batten, Feb. 9th; Lt. P. Ashton, Feb. 11th; Lt. C. A. E. Cook, Feb. 16th; Lt. G. A. Roper, Lt. A. Read, Feb. 19th; Capt. (Hon. Lt.-Col.) J. MacLaughlin, Feb. 22nd; Capt. A. A. Wilkinson, Feb. 25th; Capt. (actg. Maj.) A. A. Bisset, March 1st, Capt. E. W. W. Jones, March 4th; Capt. E. P. Chenneils, March 9th; Capt. T. E. Regan, Capt. L. C. Rivett, March 11th; Capt. A. B. Bradford, March 13th; Lt. J. D. George, Capt. N. F. Lloyd, Lt. H. T. Rymer, Capt. A. H. L. Thomas, March 14th; Capt. H. P. Helsham, Lt. J. S. Harbinson, March 19th.

Dental Branch.—Lt. H. N. Hillier is transferred to unemplд. list, Feb. 21st.

Physical Training Branch.—Capt. V. C. Hollender is transferred to unemplд. list, March 6th.

Memoranda.—Lt. H. J. S. Ferry relinquishes his commn. on ceasing to be emplд., Jan. 18th.

The following are transferred to unemplд. list, from (S.O.):—Sec. Lt. (actg. Capt.) A. W. Rippon, Jan. 24th; Capt. (actg. Maj.) H. Welch, Jan. 25th; Capt. (actg. Maj.) J. G. Howell, M.C., Jan. 28th; Lt. St. B. Goldsmith, Jan. 31st; Maj. L. W. W. Lees, Lt. (actg. Maj.) F. J. Lees, Capt. (actg. Maj.) A. A. Nathan, Feb. 1st, Maj. Hon. M. Baring, O.B.E., Feb. 13th; Capt. J. D. Greenwood, Feb. 17th; Lt. (actg. Capt.) A. Cunningham-Reid, Feb. 18th; Lt. (actg. Maj.) P. C. Hoyland, M.B.E., Feb. 27th; Maj. D. Illingworth, Lt. (Hon. Capt.) (actg. Capt.) P. E. Tickler, March 1st; Capt. H. P. S. Clogstoun, M.B.E., Capt. C. K. Jupp, March 2nd; Lt. A. G. O. Ellis, Capt. G. M. Gibbs, March 5th; Maj. C. R. Abbott, M.B.E., March 6th; Maj. E. E. Robb, March 8th; Capt. P. L. R. Fraser, March 14th; Maj. (actg. Lt.-Col.) S. S. Kennedy, O.B.E., March 15th; Capt. H. B. Dresser, March 10th; Maj. S. Flower, Sec. Lt. (Hon. Lt.) (actg. Capt.) C. Trenchard, Capt. (actg. Maj.) Ward-Browne, O.B.E., M.C., March 21st; Lt. (actg. Maj.) C. C. Hansford, March 23rd; Maj. F. A. Forde, Lt. (actg. Capt.) A. H. King, March 25th.

Air Ministry, April 4th

R.A.F.—The following temp. appointments are made:—Staff Officers, 2nd Cl.—And to be actg. Majs. whilst so emplд., if not already holding that rank. (Air).—Maj. A. B. Ennis, Feb. 6th. (Q).—Sec. Lt. (actg. Capt.) W. G. Webber, Nov. 29th, 1918; Capt. R. D. Seddon, March 12th.

Staff Officers, 3rd Cl.—And to be actg. Capts. whilst so emplд. (O).—Lt. H. Pallett, Dec. 21st, 1918. (T.)—Sec. Lt. (Hon. Lt.) G. A. Tilly, March 4th.

Flying Branch.—Lt. G. N. Trace to be actg. Capt. whilst emplд. as Capt. (A. and S.), March 7th; Sec. Lt. L. J. Betts (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (A.), Oct. 26th. (Substituted for the notification in "Gazette," Feb. 14th; F/Cadet 110288 E. H. Simmons is granted a temp. commn. as Sec. Lt. (A.), Sept. 12th, 1918; S. F. Parker (Lt., Midd'x R., Spec. Res.), is granted a temp. commn. as Sec. Lt. (Observer Officer), July 1st, 1918, and to be Hon. Lt.

The following relinquish their commns. on ceasing to be emplд.:—Sec. Lt. I. K. Bell (Can. Engrs.), Dec. 11th, 1918; Sec. Lt. J. Collins (Rf. Bde.), Feb. 16th; Lt. (actg. Capt.) F. V. Robinson, D.F.C. (Sask. R.), Feb. 28th; Lt. H. W. Higham (Lt., Notts and Derby R.), Lt. R. A. Varley (Lt., N. Staffs R.), March 3rd; Sec. Lt. (Hon. Lt.) C. H. C. Cook (Lt., D. of Corn. L.I.), March 7th; Lt. B. H. Smyth (Lt., Glouc. R.), March 8th; Lt. O. A. Rowan (Lt., R. Col. R.), March 27th.

The following are transferred to unemplд. list:—Sec. Lt. A. Schofield, Jan. 8th; Lt. R. E. Money-Kyrle, Jan. 13th; Sec. Lt. R. F. Stewart, Jan. 14th; Sec. Lt. H. A. O'Donnell, Jan. 15th; Lt. D. L. N. Eskell, Sec. Lt. P. S. Parkin, Sec. Lt. L. G. Stockwell, Jan 17th; Sec. Lt. G. Parsons, Lieut. A. Pickin, Lieut. L. W. B. Parsons, Lieut. J. S. H. Pile, M.C., Sec. Lieut. W. H. Samuel, Jar. 18th; Sec. Lieut. G. A. King, Jan. 19th; Sec. Lt. H. W. Symes, Jan. 20th; Sec. Lt. J. Smith, Jan. 22nd; Capt. R. M. Wynne-Eyton, Jan. 23rd; Sec. Lt. J. A. Sweetlove, Lt. J. W. Turner, Jan. 24th; Sec. Lt. P. F. R. Tapley, Jan 25th; Capt. R. J. Paull, Sec. Lt. E. A. Powrie, Sec. Lt. T. H. Southern, Jan. 27th; Sec. Lt. S. S. Snelling, Lt. C. W. Smith, Lt. F. M. Squires, Jan. 28th; Sec. Lt. H. Oates, Lt. H. K. Spoonley, Lt. W. K. Swayze, Sec. Lt. N. V. Scott, Jan. 29th; Capt. J. W. Pain, Jan 30th; Sec. Lt. (Hon. Lt.) R. J. V. Pulvertaft, Jan. 31st; Lt. C. A. Pike, Sec. Lt. E. V. Smith, Feb. 1st; Lt. (actg. Capt.) E. J. Smith, Lt. C. Saunders, Lt. J. A. Strugnell, Feb. 2nd; Lt. L. H. Sutton, Sec. Lt. T. H. Seymour, Feb. 3rd; Sec. Lt. G. A. King, Lt. A. A. Powell, Lt. (actg. Capt.) W. T. Price, M.C., Lt. H. F. Stevens, Lt. J. A. Stronach, Sec. Lt. J. A. Watt, Feb. 4th; Lt. W. Atkinson, Sec. Lt. G. A. O'Sullivan, Sec. Lt. A. G. Pryke, Lt. W. B. Pilling, Sec. Lt. J. Shaw, Lt. J. S. Snedden, Capt. G. J. Scott, D. F. C., Sec. Lt. C. Stark, Lt. H. C. Stephens, Feb. 5th, Sec. Lt. W. G. Olding, Lt. W. R. F. Stokes, Sec. Lt. T. Stockdale, Lt. W. T. H. Shutt, Feb. 6th; Lt. A. F. T. Ord, Lt. J. C. Thompson, Sec. Lt. L. J. Skinner, Lt. J. D. Scott, Feb. 7th; Lt. R. H. Gast, Sec. Lt. R. C. Hatcher, Sec. Lt. C. S. Scobie, Capt. A. M. Swyny, Lt. J. E. Sitch, Sec. Lt. S. A. Slater, Lt. R. H. Saundy, Lt. W. E. Watt, Feb. 8th; Lt. S. L. Symondson, Sec. Lt. H. R. Watterson, Feb. 10th; Lt. J. P. Y. Dickey, Sec. Lt. J. A. Porter, Sec. Lt. F. Powell, Lt. (actg. Capt.) A. C. Sharwood, Sec. Lt. A. T. Streeter, Sec. Lt. T. McC. Scott, Sec. Lt. J. A. Simson, Sec. Lt. W. A. Scarlett, Feb. 11th; Lt. D. H. Ogden, Sec. Lt. F. N. Pickford, Lt. W. M. Pierce, M.C., Sec. Lt. F. L. Strangward, Feb. 12th; Lt. L. H. Pearson, Lt. H. Steed, Capt. (actg. Maj.) H. V. Stammers, Sec. Lt. G. H. Steels, Lt. J. C. P. Sibbering, Feb. 13th; Sec. Lt. N. F. S. Hubbard, Sec. Lt. C. Polk, Sec. Lt. J. T. Sorley, Feb. 14th; Sec. Lt. A. Bent, Lt. R. J. Donaldson, Sec. Lt. C. M. W. Elliott, Lt. J. S. Geddes, Sec. Lt. J. G. Osborne, Lt. H. O'Connor, Sec. Lt. R. K. Pollard, Sec. Lt. T. D. Shaw, Lt. B. Smith, Sec. Lt. H. J. Smith, Feb. 15th; Lt. W. J. D. Porritt, Sec. Lt. T. H. Pyke, Lt. H. L. Stevens, Sec. Lt. W. Southworth, Sec. Lt. A. Sorley, Sec. Lt. E. A. Wadsworth, Feb. 16th; Lt. D. H. King, Sec. Lt. P. H. Perkins, Lt. E. Scadding, Feb. 17th; Sec. Lt. F. R. Eveleigh, Sec. Lt. C. A. Overbury, Sec. Lt. C. H. Phillips, Lt. J. S. Smith, Lt. T. M. Sturgess, Sec. Lt. J. Seed, Lt. J. D. M. Stewart, Sec. Lt. C. O. Shelswell, Sec. Lt. J. R. Sleight, Lt. (actg. Capt.) M. G. W. Stewart, D.F.C., Sec. Lt. A. K. Smith, Feb. 18th; Sec. Lt. E. Archer, Sec. Lt. J. B. Edwards, Lt. F. Scarborough, Capt. C. H. Saunders, Sec. Lt. C. G. Strange, Lt. V. N. F. Surtees, Capt. G. G. Speight, Lt. (actg. Capt.) H. Slingsby, A.F.C., Lt. L. H. Streten, Sec. Lt. J. Smethurst, Feb. 19th; Sec. Lt. L. V. Evans, Sec. Lt. C. H. Kincaid, Lt. (actg. Capt.) A. C. Kiddie, Lt. (actg. Capt.) S. N. Pike, D.F.C., Lt. P. W. Plant, Sec. Lt. C. J. Shutz, Lt. A. Shallcross, Lt. C. N. Silvester, Lt. C. P. Stewart, Feb. 20th; Lt. C. A. Sutcliffe, Sec. Lt. J. M. Sleigh, Feb. 22nd; Lt. A. A. Shaw, Lt. S. E. Storrar, Lt. A. E. Simpson, Feb. 22nd; Lt. J. L. Ellis, Lt. R. I. Kirkland, Capt. D. Plaistowe, Sec. Lt. J. F. J. Peters, Capt. H. E. Scoones, Sec. Lt. H. F. Shrimpton, Sec. Lt. A. G. Squire, Feb. 23rd; Sec. Lt. (Hon. Lt.) (actg. Lt.) H. S. Starkey, Lt. D. G. Powell, Lt. D. T. Steeves, Feb. 24th; Lt. H. E. G. Bowen, Sec. Lt. G. T. Porter, Lt. R. F. Power, Sec. Lt. J. C. Sanders, Sec. Lt. W. R. Souter, Lt. (Hon. Capt.) J. R. Stewart, Lt. M. W. B. Stead, Lt. C. H. Stafford, Sec. Lt. H. C. Shires, Sec. Lt. H. J. Tinker, Feb. 25th; Lt. C. Evans, Sec. Lt. M. Owen, Sec. Lt. S. J. Osborne, Sec. Lt. C. W. Phillips, Sec. Lt. A. Shrives, Feb. 26th; Sec. Lt. J. Pugh, Lt. D. D. Phillips, Sec. Lt. (Hon. Lt.) P. Pickering, Sec. Lt. C. Sunderland, Lt. F. J. Suckling, Lt. L. C. Sheffield, Lt. C. M. Shilcock, Sec. Lt. (Hon. Lt.) N. A. Smith, Feb. 27th; Sec. Lt. J. P. Elliott, Maj. H. B. Pryor, Sec. Lt. F. Pyle, Sec. Lt. F. H. Symon, Lt. T. H. Scanlon, Sec. Lt. O. M. Smith, Lt. J. V. Southon, Feb. 28th; Sec. Lt. J. N. Kier, Lt. (Hon. Capt.) G. H. Pitt, Sec. Lt. A. R. Pratt, Lt. (actg. Capt.) R. O. Purry, Sec. Lt. R. D. Stewart, Lt. T. S. Seymour, Lt. (actg. Capt.) W. E. Shields, D.F.C., Lt. L. Wigley, March 1st; Sec. Lt. E. H. G. Cornes, Lt. H. G. Freeman, Sec. Lt. H. Knight, M.C., Sec. Lt. E. F. Oakes, Lt. G. J. Partington, Lt. R. W. Peat, Lt. G. L. Pollard, Lt. L. A. T. Strange, Lt. A. M. Sutherland, Lt. W. A. Strickland, Lt. W. V. Skall, March 2nd: Sec. Lt. T. S. Benson, Sec. Lt. A. H. Murison, Lt. D. H. Morris, Sec. Lt. S. B. Perry, Sec. Lt. J. P. Sharp, Sec. Lt. S. G. Shand, Lt. (Hon. Capt.) G. N. Wales, Welsh R., T.F.), March 3rd; Sec. Lt. L. J. Betts, Lt. A. Boldison, Sec. Lt. L. R. Harvey, Sec. Lt. A. M. Murray, Sec. Lt. A. E. Potter, Lt. I. A. Peers, Capt. F. Sharp, Lt. J. R. Samuel, Lt. J. L. Smith, Lt. H. S. Selves, Sec. Lt. (Hon. Lt.) H. G. Strange, Sec. Lt. T. H. Shield, Sec. Lt. L. R. Somerville, Lt. E. A. Stewardson, Sec. Lt. (Hon. Lt.) G. J. Williams, March 4th; Lt. R. M. Burnand, Lt. K. F. Berry, Sec. Lt. J. G. Barrett, Capt. C. C. Brill, Sec. Lt. G. W. Moore, Lt. P. C. Michell, Lt. H. Mitchell, Sec. Lt. J. C. Paterson, Lt. J. R. Piggott, Sec. Lt. R. W. Payne, Capt. T. S. Sharpe, D.F.C., Lt. (Hon. Capt.) O. T. Sloan, Lt. H. Soulsby, Sec. Lt. H. V. Stevens, Sec. Lt. G. P. Seeley, March 5th; Lt. (actg. Capt.) D. Coates, Sec. Lt. E. H. Firth, Lt. T. G. Fawcett, Sec. Lt. E. F. Gowing, Lt. L. J. F. Muncey, Sec. Lt. G. K. Mills, Sec. Lt. G. C. Mitchell, Lt. L. Murray-Stuart, Lt. H. C. Orpen, Lt. L. T. Onslow, Lt. L. B. Palmer, Sec. Lt. K. H. Paine, Sec. Lt. L. C. Pitts, Sec. Lt. E. M. Patterson, Lt. A. Priestman, Sec. Lt. E. B. Saunders, Lt. E. S. Smithyes, Sec. Lt. (Hon. Lt.) A. G. Smalley, Lt. F. Tattersall, March 6th; Lt. T. F. N. Alexander, Lt. G. M. Bennett, Lt. A. J. Court, Lt. S. G. Ford, Lt. H. W. Found, Sec. Lt. D. W. Giles, Sec. Lt. W. M. M. McNeill-Hamilton, Lt. (Hon. Capt.) V. Mellard, D.F.C., Lt. H. Owen, Sec. Lt. C. Potter, Sec. Lt. E. P. M. Pearson, Sec. Lt. W. J. W. Potter, Sec. Lt. J. Pratt, Sec. Lt. H. Ricketts, Sec. Lt. C. F. Sutton, Lt. J. H. Solomon, Sec. Lt. W. A. Smith, March 7th; Lt. C. D. Bremner, Sec. Lt. T. G. Bird, Sec. Lt. P. G. G. Bacon, Sec. Lt. A. R. Ellwood, Sec. Lt. P. King, Sec. Lt. R. L. Kingham, Sec. Lt. W. R. Kelley, Lt. G. Peach, Lt. R. C. Spence, D.F.C., Lt. A. G. Storey, Sec. Lt. J. R. Stewart, Maj. S. V. Sippe, D.S.O., O.B.E., March 8th; Capt. (actg. Maj.) O. M. Ayrton, Sec. Lt. J. V. Blandford, Sec. Lt. W. Blackhurst, Lt. B. C. Pearson, Lt. J. G. Sharp, M.C., Lt. (actg. Capt.) W. A. Southey, D.F.C., March 9th: Lt. H. Kirby, Lt. S. H. P. Masding, Lt. (actg. Capt.) F. Smethurst, March 10th; Lt. E. Biggs, Lt. H. J. Greenwood, M.C., Lt. E. L. Gilshenan, Sec. Lt. T. D'A. Nassau, Lt. H. W. Oliver, Sec. Lt. W. N. Parkin, Sec. Lt. A. D. Patton, Sec. Lt. A. L. Price, Sec. Lt. W. Sanders, Sec. Lt. G. E. Steele, Sec. Lt. A. E. Shirley, Capt. K. M. Smith, Lt. C.

B. Spurgeon, March 11th; Sec. Lt. B. L. Cook (substituted for notification in "Gazette," Feb. 28th), Lt. E. T. Molyneux, Lt. E. R. Owen, Sec. Lt. W. A. R. Pepper, Sec. Lt. H. H. Palmer, Sec. Lt. C. F. Steventon, Lt. M. N. F. Smith, March 12th; Lt. A. Buchanan, Sec. Lt. J. K. Best, Sec. Lt. J. C. Gunn, Lt. C. A. K. Shum, Sec. Lt. (Hon. Lt.) F. W. Smith, D.F.C., March 13th; Sec. Lt. A. W. C. Bayes, Sec. Lt. J. W. Brown, Sec. Lt. C. W. Binet, Lt. G. Dymore-Brown, Sec. Lt. J. G. Dugdale, Sec. Lt. R. P. Dennistoun, Sec. Lt. H. H. Lewis, Lt. (actg. Capt.) R. McLaughlin, D.F.C., Lt. G. H. Patman, Lt. R. T. Pink, Sec. Lt. G. R. Schooling, Sec. Lt. T. W. Sheppard, Lt. H. G. Spearpoint, Sec. Lt. A. Sculthorpe, Lt. W. C. Taylor, March 14th; Lt. A. Binnie, M.C., Lt. L. J. Bennett, Sec. Lt. W. G. A. Freke, Sec. Lt. C. W. Miller, Lt. T. H. Newsome, Sec. Lt. C. Parker, Capt. C. E. Roach-Smith, Sec. Lt. C. J. Swatridge, Lt. W. J. Saunders, March 15th; Sec. Lt. F. E. Donkin, Lt. J. E. Philpott, March 10th; Lt. J. Bradbury, Lt. A. E. Evans, Sec. Lt. T. S. Mobey, Lt. C. M. Moore, Sec. Lt. A. J. M. Ozmond, Lt. E. P. Pycroft, Sec. Lt. G. F. Sharp, Lt. W. H. Shrimpton, Sec. Lt. H. W. G. Triggs, Lt. H. B. Turner, Lt. H. E. Wood, (Bord. R.), March 17th; Sec. Lt. F. Buckle, Lt. J. H. Curtis, Capt. D. H. Dabbs, Lt. W. F. Ogilvy, Sec. Lt. J. W. Richards, Capt. C. B. Sproatt, D.S.C., Sec. Lt. (Hon. Lt.) R. F. Shutes, March 18th; Lt. A. E. Gardiner, Sec. Lt. S. V. Pearce, Sec. Lt. E. Priest, A.F.C., Sec. Lt. A. C. Pring, Sec. Lt. A. R. Rimmer, Sec. Lt. E. C. Roberts, Sec Lt. W. L. Roblon, Sec. Lt. G. H. Stephenson, Sec. Lt. F. Smith, March 19th; Sec. Lt. M. I. Ashley, Lt. F. A. Baker, Sec. Lt. D W. Bridge, Sec. Lt. (Hon. Capt.) R. S. Hellier, D.F.C., Lt. L. Nicholson, Lt. W. J. Pullen, Sec. Lt. G. E. T. Payne, Sec. Lt. E. C. Robbins, Lt. O. Sherwood, Sec. Lt. H. Saunders, Lt. (actg. Capt.) I. Welby, M.C., March 20th; Lt. F. C. Auglagnier, Lt. W. A. Ashworth, Lt. H. G. Bradshaw, Sec. Lt. F. N. Brace, Sec. Lt. V. C. S. Bach, Sec. Lt. J. C. Bowie, Sec. Lt. H. N. Davis, Capt. D. W. Forshaw, Capt. (actg. Maj.) W. S. Huxley, Sec Lt. H. V. Irving, Lt. A. J. Jewell, Sec. Lt. P. James, Lt. J. A. Manners-Smith, Sec. Lt. H. G. Marsay, Lt. J. Milton, Sec. Lt. A. R. A. Millar, Lt. N. A. MacFarlane, Sec. Lt. F. B. Peacock, Sec. Lt. L. F. Rowsell, Sec. Lt. M. W. C. Ridgeway, Lt. J. N. Rookledge, Lt. L. G. Ward, March 21st; Sec. Lt. R. Baird, Lt. S. R. Coward, Lt. J. H. Calvert, Lt. C. G. Clark, Sec. Lt. B. Heaton, Maj. (actg. Lt.-Col.) G. L. P. Henderson, M.C., Sec. Lt. J. H. L. Kerby, Capt. (actg. Maj.) J. G. Struthers, D.S.C., Sec. Lt. A. Syddall, Sec. Lt. R. Scarterfield, Sec. Lt. H. D. Thornton, Sec. Lt. G. K. Wood, March 22nd; Lt. T. Aldons, Lt. W. S. Joel, Lt. V. F. A. Rolandi, March 23rd; Sec. Lt. S. Brierley, Lt. I. G. Fleming, Sec. Lt. W. M. Hodgson, Lt. A. W. Miller, March 24th; Sec. Lt. N. G. Breeze, Lt. E. A. V. Ellerbeck, Lt. G. E. Francis, Sec. Lt. D. McKellar, Lt. V. G. Snyder, Lt. G. M. Smith, Sec. Lt. W. H. Tresham Lt F. O Woodman, M.C., March 25th; Sec. Lt. R. N. Bell, Sec. Lt. G. W. Hills, Sec. Lt. (Hon. Lt.) F. J. Lain, D.F.C., March 26th; Lt. J. F. Foster, Sec. Lt. J. F. Gaffrey, Capt. H. M. Goode, Lt. R. H. Stone, March 27th; Sec. Lt. J. A. Addison, March 29th; Sec. Lt. L. C. Battle, April 4th.

The following relinquish their commns. on account of ill-health caused by wounds, and are permitted to retain the rank of Capt.:—Capt. J. S. Dunkerly, Lt. (actg. Capt.) F. J. Davies, D.F.C., April 5th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—J. S. Abel (contracted on active service), C. H. Brown (caused by wounds), A. T. Croucher (contracted on active service), C. N. Hosken, April 5th.

The following Lts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank:—R. W. Brigstock, W. T. Davies, April 5th.

Sec. Lt. J. L. Boyd is antedated in his appointment as Sec. Lt. (A.), Aug. 23rd, 1918.

The antedate of Sec. Lt. W. R. Allison is May 10th, 1918, and not as stated in "Gazette," March 7th.

The initials of Capt. (actg. Maj.) C. J. Clayton, D.F.C., are as now described, and not as stated in "Gazette," March 11th.

The surname of Lt. T. S. Millar is as now described, and not as stated in "Gazette," Dec. 31st, 1918.

Administrative Branch.—Maj. (actg. Lt.-Col.) F. V. H. Mackenzie to be Maj. from (S.O.), and relinquishes the actg. rank of Lt.-Col., Feb. 1st.

Capts. to be actg. Majs. whilst empld. as Majs.:—W. R. C. Dacosta, from (A.), Oct. 30th, 1918; C. Hodgkinson-Smith, from (S.O.), March 10th.

R. G. Staveley-Dale (temp. and actg. Capt., R.A.) is granted a temp. commn. as Capt., Oct. 21st, 1918, seny. from April 1st, 1918.

Lts. to be actg. Capts. while empld. as Capts.:—H. F. J. Capelli, Sept. 30th, 1918; N. M. Hoskins, from (K.B.), Feb. 13th.

The following Lts. (actg. Capts.) relinquish the actg. rank of Capt.: H. D. Duncan, L. H. Hall, D. E. B. Shipwright, C. H. Stonham, March 1st.

Lts. (A.) to be Lts.:—A. Dawes, A. B. C. Harrison, M.C., Nov. 1st, 1918; W. A. Brown, Nov. 3rd, 1918; T. M. Nicholl-Carne, Nov. 12th, 1918; W. Green, Nov. 19th, 1918; J. B. Lawton, Dec. 14th, 1918; G. L. Du Cros, Jan. 4th; M. J. J. G. Mare-Montembault, Jan. 5th; J. L. Des Lauriers, Jan. 6th, J. H. Baring-Gould, Jan. 16th; J. Bremner, Feb. 1st; E. M. Milling, Feb. 11th; G. A. Kinmont, Feb. 27th.

Lt. W. E. Giffard to be Lt., from (K.B.), March 1st.

Lts. (O.) to be Lts.:—O. I. Norton, Nov. 1st, 1918; V. C. Baker, Jan. 2nd; C. E. B. Binns, Jan. 9th; R. B. Lane, Feb 10th; A. Impey, Feb 24th; C. B. Holland, March 1st.

W. Blake (Lt. and Qmr., Gen. List) is granted a temp. commn. as Lt., April 1st, 1918.

Sec. Lt. W. L. Roblon to be actg. Lt. while empld. as Lt., from (A.), Dec. 6th, 1918.

Sec. Lts. to be Sec. Lts., from (A.):—W. Schaefer, Jan. 21st; L. C. Phippen, Jan. 29th; G. Lovett, Feb. 12th; F. G. Urmston, Feb. 10th; C. E. Thorpe, Feb. 24th; R. J. Searle, Feb. 25th; J. B. Raymond, March 3rd; A. E. Buckingham, March 5th.

Sec. Lt. A. A. J. Poole to be Sec. Lt., from (A. and S.), Jan. 6th, and to be Hon. Lt.

Sec. Lt. S. V. Annis to be Sec. Lt., from (K.B.), March 3rd.

Sec. Lts. to be Sec. Lts., from (O.):—N. F. Penruddocke, Dec. 30th, 1918, and to be Hon. Lt.; B. Shaw, Jan. 22nd; W. Hagan, Feb. 25th; A. B. Poel, Feb. 26th; B. Tooth, W. Haviland, Feb. 27th.

Sec. Lt. (Hon. Lt.) C. C. Duffield to be Sec. Lt., from (T.), Oct. 2nd, 1918, and to be Hon. Lt.

Sec. Lt. L. P. Kirk (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., May 8th, 1918.

Lt. F. Dransfield (R.N.R.) relinquishes his commn. on ceasing to be empld., Jan. 24th.

The undermentioned are transferred to unempld. list:—Capt. (actg. Maj.) C. G. Tosswell, Jan. 2nd; Lt. (actg. Capt.) E. A. Phillippi, Jan. 11th; Sec. Lt. (actg. Lt.) W. I. Prothero, Jan. 13th; Capt. C. J. Temperley, Jan. 17th; Lt. F. G. Steel, Jan. 18th; Sec. Lt. J. W. Pegg, Jan. 22nd; Lt. J. H. Thorpe, Jan. 23rd; Sec. Lt. J. E. Prize, Jan. 24th; Lt. A. G. Platt, Sec. Lt. (Hon. Lt.) A. G. Thomson, Jan. 25th; Sec. Lt. A. Egerton-Savory, Lt. D. F. Stiven, Jan. 26th; Lt. H. Morley, Sec. Lt. (actg. Lt.) F. V. Plant, Capt. G. J. Pickthall, Sec. Lt. C. C. Pilkington, Lt. A. Swinglehurst, Jan. 29th; Sec. Lt. F. A. Owgan, Sec. Lt. W. H. Osborne, Lt. (actg. Capt.) J. M. Ogden, Sec. Lt. J. Sadler, Jan. 30th; Sec. Lt. H. Seely, Feb. 1st; Lt. C. B. Stenning, Feb. 2nd; Capt. G. R. Pollard, Sec. Lt. C. M. Tregurtha, Feb. 3rd; Sec. Lt. (Hon. Lt.) C. S. Preston, Sec. Lt. P. C. Stewart, Feb. 4th; Sec. Lt. J. R. Stamp, Sec. Lt. J. P. Smith, Lt. F. L. Simmons, Feb. 5th; Lt. J. A. Stedman, Maj. W. Stormont, Feb. 6th; Sec. Lt. (actg. Lt.) C. M. Oram, Sec. Lt. A. Piercy, Sec. Lt. H. C. Stanley, Feb. 8th; Sec. Lt. C. R. B. Ogden, Sec. Lt. (actg. Lt.) G. F. Peirson, Sec. Lt. J. P. Pile, Sec. Lt. S. McL. Sclanders, Feb. 11th; Sec. Lt. W. L. Pinder, Sec. Lt. J. H. G. Pycroft, Sec. Lt. W. Scott, Sec. Lt. J. P. Smith, Capt. R. H. Stainforth, Feb. 12th; Sec. Lt. E. L. Reynolds, Feb. 13th; Lt. H. Beer, Sec Lt. E. B. Pym, Sec. Lt. B. T. Piper, Sec. Lt. H. L. Smith, Feb. 14th; Lt. (Hon. Maj.) C. W. Soden, Sec. Lt. A. Sommerfelt, Feb. 15th; Lt. G. W. Powell, Sec. Lt. C. Sugarman, Sec. Lt. H. B. Stubbs, Feb. 16th; Lt. K. G. Sampson, Feb. 18th; Sec. Lt. (actg. Lt.) W. Spink, Feb. 19th; Sec. Lt. R. P. Squire, Feb. 20th; Lt. D. M. Pinkerton, Sec. Lt. L. D. Russell, Feb. 23rd; Sec. Lt. R. J. Kirby, Feb. 25th; Sec. Lt. F. W. Purnell, Sec. Lt. (actg. Lt.) R. Swan, Feb. 26th; Sec. Lt. (actg. Lt.) H. W. J. Stone, Sec. Lt. R. E. Southcott, Feb. 27th; Lt. C. B. Millett, Lt. E. J. Stedman, Feb. 28th, Sec. Lt. R. A. Smith, Lt. (actg Capt.) D. W. Small, March 1st; Sec. Lt. E. O. Byam, Sec. Lt. G. F. Baker, Sec. Lt. (actg. Capt.) O. G. Pike, March 4th; Sec. Lt. C. Oakley, Sec. Lt. A. B. Stanley, Lt. (actg. Capt.) R. G. Tudor-Jones, March 5th; Lt. J. Powell, Sec. Lt. R. F. Sheldrake, March 6th; Sec. Lt. H. L. Pitt, Sec. Lt. W. J. Scaplehorn, Sec. Lt. W. P. Sutherland, Lt. J. W. Shaw, March 7th; Lt. C. W. Pallister, Lt. G. K. D. Simmons, Lt. H. Slaney, March 8th; Lt. H. A. Byway, Sec. Lt. C. E. Jones, Sec. Lt. H. E. Shaw, Sec. Lt. D. W. J. Swainston, Sec. Lt. H. C. Stevens, March 9th; Sec. Lt. J. B. Donaldson, Sec. Lt. W. M. Mullins, March 10th; Sec. Lt. J. Oakes, Sec. Lt. J. Potts, Sec. Lt. P. A. Shaw, March 11th; Sec. Lt. W. A. Booth, Sec. Lt. S. Beaumont, Sec Lt. A. C. Bishop, Sec. Lt. T. M. O'Neill, Sec. Lt. S. Y. Proudfoot, March 12th; Capt. N. J. Bell, Sec. Lt. A. A. R. Pilcher, Lt. R. Speirs, Lt. G. P. Scammell, March 13th; Sec. Lt. V. M. Evans, Sec. Lt. W. C. Griffiths, Sec. Lt. R. P. Smillie, Sec. Lt. (actg. Lt.) H. S. Snead, Sec. Lt. K. E. Tulloch, March 14th; Lt. N. M. Smith, March 15th; Lt. J. L. Batstone, Sec. Lt. H. Entwistle, Maj. G. F. Herron, Capt. S. E. Ould, Lt. (actg. Capt.) W. C. Short, Sec. Lt. D. Taylor, Sec. Lt. P. Turner, Lt. (actg. Capt.) A. McC. Wilson, March 17th; Sec. Lt. F. P. Miller, Lt. B. H. Rook, Lt. (Hon. Capt.) H. C. Stanley, March 18th; Sec. Lt. J. Nelson, Sec. Lt. H. R. C. Piercy, Sec. Lt. E. Rose, Sec. Lt. R. T. Raw, March 19th; Sec. Lt. D. S. Carrie, Lt. J. R. Fuller, Sec. Lt. H. G. Holman, Sec. Lt. A. A. Hoffman, March 21st; Sec. Lt. W. A. Catford, Sec. Lt. C. R. Clarke, Lt. H. L. Dawson, Sec. Lt. V. W. A. Harsent, Sec. Lt. E. R. Law, March 22nd; Lt. P. L. Bolton, M.C., Lt. W. G. Breen-Turner (R. Wel. Fus.), Sec. Lt. A. N. Berry, Sec. Lt. (Hon. Lt.) (actg. Lt.) R. L. Hubball, Capt. W. O. Thomas, M.C., March 23rd; Sec. Lt. W. A. Marshman, Lt. C. T. Richards, March 24th; Sec. Lt. L. J. Edwards, Lt. (actg. Maj.) R. H. W. Hope, M.C., Sec. Lt. T. K. Russell, March 25th; Sec. Lt. W. Farquharson, March 26th.

Sec. Lt. A. J. F. Critchel relinquishes his commn. on account of ill-health and is permitted to retain his rank, April 5th.

Technical Branch.—Capts. to be Capts. (Grade A.)—F. R. Arthur, from (Ad.), April 1st, 1918; E. Cox, from (S.O.), March 16th.

Granted temp. commns. as Capts. (Grade A.) with sen. from April 1st, 1918:—L. H. M. Bennett (Lt. R.N.V.R.), July 24th, 1918; A. Richard (Lt. R.N.), Jan. 6th.

Lt. S. J. Gardiner to be Lt. (Grade A.) from (A.), March 14th.

Sec. Lt. C. C. Parrott to be Lt., but without pay and allowances of that rank, Jan. 29th.

Sec. Lt. C. F. Ambler, D.F.C., to be actg. Lt. (Grade A.) from (O.), whilst empld. as Asst. Instr., Oct. 28th, 1918 (substituted for notification in "Gazette," of Feb. 14th.

Sec. Lt. J. J. Shuley to be Sec. Lt. (Grade B.), from (Ad.), Oct. 1st, 1918.

Sec. Lt. C. H. Bunn (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Grade A.), Dec. 1st, 1918 (substituted for notification in "Gazette" of March 18th).

The following are transferred to unempld. list:—Sec. Lt. G. S. Orr, Jan. 15th; Lt. A. Pratt, Jan. 23rd; Lt. J. P. Sadler, Jan. 24th; Sec. Lt. (Hon. Lt.) T. Parker, Sec. Lt. E. Sparshott, Jan. 25th; Sec. Lt. A. H. Bull, Lt. E. C. Pole, Lt. R. F. Sinclair, Capt. A. Sowden, Jan. 26th; Sec. Lt. (actg. Lt.) D. Oliver, Jan. 27th; Lt. J. L. Smith, M.C., Jan. 28th; Lt. A. C. Sturney, Sec. Lt. A. C. Smart, Jan. 29th; Lt. L. W. Osman, Sec. Lt. A. E. C. V. Squire, Capt. W. S. Stacey, Feb. 1st; Sec. Lt. (Hon. Maj.) (actg. Capt.) H. P. Coles, Lt. E. Piggott, Feb. 2nd; Capt. M. Stansfield, Lt. (actg. Capt.) H. N. Stradling, Feb. 3rd; Capt. A. Kennedy, Capt. E. S. Perrin, Capt. (actg. Maj.) W. W. Stenning, Lt. C. H. O. Stanton, Lt. C. E. Tebbs, Feb. 4th; Lt. C. W. Surman, Feb. 5th; Sec. Lt. A. H. Opie, Feb. 9th; Sec. Lt. A. F. Potter, Feb. 11th; Sec. Lt. W. W. Pope, Lt. A. D. Simmonds, Feb. 14th; Sec. Lt. (actg. Lt.) W. H. Spann, Feb. 15th; Sec. Lt. A. E. Simmonds, Feb. 16th; Sec. Lt. R. L. T. Latour, Sec. Lt. A. R. Powis, Sec. Lt. (Hon. Lt.) D. G. Prentice, Sec. Lt. W. T. Sharp, Feb. 18th; Lt. V. W. Pearson, Feb. 19th; Sec. Lt. A. Stevens, Sec. Lt. (Hon. Lt.) F. N. Singleton, Capt. W. H. Sayers, Sec. Lt. (Hon. Lt.) M. D. Scott, Feb. 20th; Sec. Lt. A. E. Kitsell, Sec. Lt. H. T. See, Sec. Lt. W. O. Spinks, Feb. 21st; Sec. Lt. A. O'Sullivan, Lt. H. W. L. Poole, Lt. R. N. Rowell, Feb. 23rd; Sec. Lt. (Hon. Lt.) C. J. Silverston, Feb. 24th; Capt. C. J. Procter, Sec. Lt. (actg. Lt.) J. Smallbone, Feb. 26th; Capt. E. P. Smyth, Feb. 28th; Capt. S. E. H. Orde, Lt. B. J. Parkes, Lt. L. R. B. Pearce, Sec. Lt. A. Pollock, Sec. Lt. (Hon. Lt.) M. A. Shepstone, Lt. (actg. Capt.) G. M. Wingate (Essex R.), March 1st; Sec. Lt. (actg. Lt.) R. T. Sault, March 3rd; Sec. Lt. (actg. Lt.) S. Mills, Capt. R. C. Philpott, Sec. Lt. (actg. Capt.) F. H. Sandy, March 4th; Sec. Lt. H. S. Shaw, March 5th; Capt. J. C. Mitchell, Lt. (actg. Capt.) R. Perrin, Sec. Lt. V. C. Sykes, March 6th; Capt. (actg. Maj.) C. H. Morgan, March 7th; Lt. (actg. Capt.) P. A. Barron, Lt. W. Burnside, Sec. Lt. A. R. Deacon, Sec. Lt. R. W. Ellis, March 8th; Sec. Lt. E. Selley, March 9th; Lt. D. Ottewell, Capt. W. H. Smith, March 10th; Maj. B. J. Ellis, Lt. W. F. Mytton, Lt. B. Paterson, Capt. R. Spickernell, Lt. G. Shanks, Sec. Lt. E. W. Shaw, March 11th; Lt. G. E. Osmond, Sec. Lt. E. P. Proud, Sec. Lt. (actg. Lt.) W. Searle, March 12th; Sec. Lt. J. Brereton, Sec. Lt. (Hon. Lt.) G. R. Simpson, M.C., March 13th; Capt. S. A. Bevington, Sec. Lt. (Hon. Lt.) (actg. Lt.) J. P. Bown, Maj. V. W. Eyre, Sec. Lt. E. E. Frankis, Sec. Lt. (Hon. Capt.) L. J. J. Murfin, March 14th; Lt. J. Booth, Sec. Lt. (actg. Lt.) W. P. W. Smith, March 15th; Lt. F. J. Farlow, Lt. D. A. Parsons, Lt. G. H. Stocking, Capt. H. H. Stone, March 16th; Maj. J. Craig, Sec. Lt. H. Samuels, March 17th; Lt. J. Armes, Sec. Lt. H. A. Blaquiere, Sec. Lt. R. D. Clerk, Sec. Lt. R. Neill, Capt. J. R. Sharp, Sec. Lt. L. H. Skelton, March 18th; Sec. Lt. (actg. Lt.) J. V. Cook, Sec. Lt. A. R. Matthews, Maj. R. V. Southwell, Capt. H. L. Saunders, March 19th; Sec. Lt. A. R. McI. Carse, Sec. Lt. A. Kennish, Sec. Lt. S. A. Millard, Lt. (actg. Capt.) F. E. H. Paget, Lt. J. Pearson, Lt. S. P. Stocks, March 20th; Lt. G. A. Lush, Sec. Lt. (actg. Capt.) A. G. F. Nash, Maj. E. B. Palmer, Maj. T. E. Robertson, O.B.E., March 22nd; Sec. Lt. W. C. Dowen, Sec. Lt. A. F. C. Lewns, Lt. (actg. Capt.) W. J. Palmer, Sec. Lt. J. C. Sword, Lt. B. Taplin, March 23rd; Sec. Lt. D. D. Lockwood, Capt. D. A. B. Tonks, March 24th; Capt. R. W. B. Billinghurst, Capt. R. G. Fyfe, Capt. F. Shepherd, Lt. T. D. F. Scott, March 25th; Sec. Lt. E. C. Aslen, Capt. J. E. Blair, Capt. E. S. McDonald, Sec. Lt. (Hon. Lt.) A. R. Rouse, Lt. H. D. Spratt, March 26th;

Lt. R. C. Crawley, Maj. A. S. Hellawell, O.B.E., Lt. J. McD. Horobin, Maj. B. T. Hamilton, Sec. Lt. G. W. Stephenson, March 27th.

Capt. T. Ridge (R.E.) relinquishes his commn. on account of ill-health, April 5th.

The surname of Sec. Lt. (actg. Lt.) J. Rollo is as now described, and not as stated in "Gazette," March 4th.

The notification in "Gazette," Feb. 7th, concerning Sec. Lt. (actg. Lt.) L. B. Clarkson is cancelled.

Medical Branch.—J. Kyle is granted a temp. commn. as Lt., April 2nd.

The following are transferred to unempld. list:—Lt. G. A. Simmons, Feb. 27th; Capt. T. E. Mulvany, March 3rd; Capt. W. L. Scott, March 15th; Capt. A. S. Clegg, March 15th; Capt. (actg. Maj.) H. Stedman, March 20th; Capt. R. G. MacLone, March 21st; Capt. A. L. Dykes, March 25th.

Capt. J. W. Brash (R.A.M.C., Spec. Res.) relinquishes his commn. on account of ill-health, March 1st.

The notification in "Gazette," Nov. 26th, 1918, concerning Capt. H. H. Gellert is cancelled.

Dental Branch.—Lt. D. H. W. Williamson to be Capt., Nov. 12th, 1918; Lt. A. E. F. Peaty is transferred to unempld. list, March 11th.

Memoranda.—Lt. W. B. Gullen relinquishes his commn. on ceasing to be empld., March 16th.

Lt. R. N. Ball is transferred to unempld. list, March 20th.

The following are transferred to unempld. list from (S.O.):—Lt. C. T. S. Mendi, Feb. 11th; Maj. W. E. Plaisier, M.B.E., Feb. 21st; Capt. (actg. Maj.) C. B. Krabbe, March 2nd, Capt. H. Spink, March 6th; Capt. W. A. Daft, Lt. G. Purvis-Russell-Balfour-Kinnear, Maj. Hon. J. H. B. Rodney, M.C. (Rif. Bde.), March 11th; Maj. S. O. Everitt, Lt. (actg. Capt.) L. R. Neville, March 15th; Lt. (actg. Capt.) T. A. Peddell, M.B.E., March 20th; Capt. (act. Maj.) A. H. Parker, M.C., March 21st.

The name of Miss Annie O'Donoghue is as now described, and not as stated in "Gazette" of Feb. 28th.

Corrections.—Lt. E. P. Kenny, D.F.C., 1st Sqn., Australian Flying Corps, and Royal Air Force (Egypt), awarded the Distinguished Flying Cross in the "London Gazette," of Feb. 8th. The note therein referring to the Military Cross is cancelled, Lt. Kenny has not been awarded that distinction.

Capt. (actg. Maj.) H. I. Hanmer, D.F.C. (S. Staff. R.) (Egypt), awarded the Distinguished Flying Cross in "Gazette" of Jan. 1st, the announcement in "Gazette" of Feb. 8th (award of Distinguished Flying Cross) should accordingly read Bar thereto.

Lt. G. Davis, D.F.C., awarded the Distinguished Flying Cross in "Gazette" of Feb. 8th is now correctly described (53rd Squadron, France).

Capt. A. G. A. Davis, A.F.C. (Devon R.), awarded the Air Force Cross in "Gazette" of Jan. 1st, is now correctly described.

No. 19061 Flt. Sgt. T. Nicoll, Royal Air Force, awarded the Albert Medal for gallantry in France on Feb. 26th, 1918, as announced in the "London Gazette" of June 7th, 1918, is now correctly described.

Lt. (actg. Capt.) A. R. Brown, D.F.C., (Aust. F.C.), awarded the D.F. Cross in "Gazette" of Feb. 8th, is now correctly described.

Lt. P. J. McGinness, D.F.C., D.C.M., (Aust. F.C.), awarded the D.F. Cross in "Gazette" of Feb. 8th, is now correctly described.

Lt. C. E. Channing, A.F.C. (formerly Gunner, R.G.A.), awarded the Air Force Cross in the "Gazette" of Nov. 2nd, 1918, is now correctly described.

War Office, April 5th.

His Majesty the King has approved of the award of the Military Medal for bravery in the field to the under-mentioned air mechanic:—

No. 124850 1st Air Mech. James Pierpoint Glasscock, R.A.F. (Croydon), formerly attd. Headquarters 77th Brigade, R.F.A., France.

Air Ministry, April 5th.

His Majesty the King has been graciously pleased to confer the under-mentioned rewards on officers and other ranks of the Royal Air Force in recognition of gallantry in flying operations against the enemy:

Awarded the Distinguished Service Order.

Capt. (actg. Maj.) Frank Lubbock Robinson, M.C. (R. Innis. Fus.) (Mesopotamia.)—A very gallant and able squadron commander who, by his fine leadership and personal example, has raised high the morale of his command. By his untiring energy he has rendered most valuable service on reconnaissance duty and bombing raids. (M.C. gazetted Sept. 6th, 1915.)

Awarded a Bar to the Distinguished Flying Cross.

Capt. Ronald Davidson Simpson, D.F.C. (A.S.C.). (Mesopotamia.)—An officer conspicuous for his gallantry and devotion to duty. He has rendered exceptionally valuable service when on contact patrol with cavalry, furnishing most important information. He has carried out numerous bombing raids at low altitudes under heavy hostile fire. (D.F.C. gazetted Jan. 1st, 1919.)

Awarded the Distinguished Flying Cross.

Lieut. John Leslie Walter Bacon (Ches. R.). (Mesopotamia). During the last part of the operation this officer displayed marked gallantry and determination, never hesitating to descend to a low height to locate the position of our troops, frequently in face of severe hostile fire. On one occasion he carried out four bombing raids in one day on an objective seventy miles distant.

Lieut. (acting Capt.) Eric Morrell Colfs. (France.) This officer has taken part in over one hundred successful bombing raids, and has carried out most valuable photographic and reconnaissance work. He has also crashed two enemy aircraft. At all times he displays conspicuous gallantry, and an utter disregard of danger.

Sec. Lieut. (Hon. Capt.) Henry Wynn Deacon (Roy. Arty.). (Mesopotamia.) This officer has shown marked courage and devotion to duty in carrying out reconnaissances of our advanced positions and those of the enemy, often under heavy fire. His reports have invariably been most accurate and detailed, containing most valuable information.

Lieut. (actg. Capt.) George Jones (Aust. F.C.). (France.) A most daring and gallant leader in aerial fighting, in which he has destroyed seven enemy aircraft. Captain Jones has always displayed marked ability in all his duties.

Lieut. (actg. Capt.) Andrew MacGregor (Arg. and Sutherland Highrs.). (France.) This officer has accounted for five enemy aircraft and has proved himself an exceptionally capable leader of patrols, notably on August 14th, when his formation of five machines were attacked by eight enemy aircraft. By his skilful leadership five of the latter were brought down without his own formation sustaining a single casualty.

Sec. Lieut. George Robertson Moffoot. (Murmansk.) Sec. Lieut. Robert Bisset Gordon. (Murmansk.) These officers displayed conspicuous gallantry in a recent bombing raid. While so engaged their engine was hit and the machine eventually crashed. Climbing out, they removed the Lewis gun and set fire to the machine. Before they could make sure that the machine was fully alight they heard parties of the enemy approaching, and they escaped into the woods. After wandering about for two days they met a friendly hunter, who conducted them to our outposts. On reaching our lines these officers had to be admitted to hospital suffering from frost-bitten feet. A fine example of courage and determination.

Capt. (actg. Major) Francis Steele Moller, M.C. (Murmansk.) A Wing Commander of outstanding merit who, by his fine leadership, personal disregard of danger, and splendid example has, since he took over the command of his Wing (composed of one British and two Russian Squadrons) worked marvels in raising its morale and efficiency. His personal influence was very marked on a recent occasion when, owing to heavy casualties, the morale of the pilots had suffered; he took charge, and by his example and leadership restored confidence, and successfully reduced the enemy's artillery fire. (M.C. gazetted Nov. 14th, 1916.)

Lieut. (actg. Capt.) Arthur Newman, M.C. (4th Batt., Essex R., T.F.). (France.) A gallant and determined officer who has carried out over one hundred most successful bombing raids, frequently in face of severe hostile fire. He has also destroyed two enemy aircraft, and rendered valuable service on reconnaissance and photographic patrols. (M.C. gazetted June 3rd, 1916.)

Awarded the Meritorious Service Medal.

(For Services in Mesopotamia.)

28007 Flt. Serjt. J. J. Chester (London, W.).
26251 Serjt. J. Noye (Whitstone, Devon).
16528 Serjt.-Clk. T. H. Tollfree (Putney, S.W.).
2835 Serjt.-Maj. W. Wood (Dukinfield, Cheshire).

Awards of Foreign Decorations.

His Majesty the King has granted unrestricted permission for the wearing of the under-mentioned decorations, conferred on the officers and other ranks indicated, for valuable services rendered in connection with the war:—

Conferred by the President of the French Republic.

Croix d'Officier, Legion d'Honneur.

Col. (actg. Brig.-Gen.) Lionel Evelyn Oswald Charlton, C.B., C.M.G., D.S.O. (Lanc. Fus.).

Croix de Chevalier, Legion d'Honneur.

Maj. (actg. Lt.-Col.) Jack Armand Cunningham, D.S.O., D.F.C. (R. Art.).
Capt. (actg. Maj.) Henry William Mouerieff Paul, O.B.E., M.C. (Middx. R.).
Maj. John Percy Claude Sewell.
Lt.-Col. George Eardley Todd (Welsh R.).

Croix de Guerre.

Sec. Lt. William Henry Bland (with Bronze Star).
Sec. Lt. (Hon. Lt.) Fernand Charles Butler, M.B.E. (with Silver Star).
Sec. Lt. William Sheriff Campbell (with Palm).
Maj. Hugh Vivien Champion de Crespigny, M.C., D.F.C. (with Bronze Star).
Sec. Lt. John Raymond Chisman (with Bronze Star).
Maj. (actg. Lt.-Col.) Jack Armand Cunningham, D.S.O., D.F.C. (with Palm) (R.A.).
Lt. the Hon. John Ernest de Grey Henniker-Major (with Silver Star).
Lt. (actg. Capt.) Francis Ernest John (with Silver Star).
Capt. Arthur Gordon Jones-Williams, M.C. (with Palm).
Sec. Lt. Joseph George Kershaw (with Bronze Star).
Lt. (actg. Capt.) Claude Louis Morley, D.F.C. (with Bronze Star).
Lt. (actg. Capt.) Maurice Ashdown Newnham, D.F.C. (with Palm).
Maj. Ernest William Norton, D.S.C. (with Palm).
Sec. Lt. Donald Oxley (with Bronze Star).
Sec. Lt. George Brooke Pike (with Bronze Star).
Sec. Lt. Horace George Pope (with Bronze Star).
Lt. George Richardson, 65th Wing (with Palm).
Lt. (actg. Capt.) Thomas Roberts (with Silver Star).
Sec. Lt. (actg. Capt.) Richard Russell (with Silver Star).
Capt. Richard Rivers Laneslow Thom (with Silver Star).
Lt. (actg. Capt.) Otto Ludwin Vetter (with Silver Star).
Lt. (actg. Capt.) Joseph Leonard Maries White, D.F.C. (with Bronze Star).
11720 Serjt.-Mech. Patrick Hoolihan, 108th Sqdn. (with Bronze Star).
11940 Serjt.-Mech. Edgar Edward Yardy, 38th Sqdn. (with Bronze Star).

Decorations Conferred by His Majesty the King of Italy.

Cavaliere of the Order of St. Maurice and St. Lazarus.

Maj. (actg. Lt.-Col.) Ronald Dockray Waterhouse.

Officer of the Order of the Crown of Italy.

Maj. (actg. Lt.-Col.) Edward Raymond Peal, O.B.E., D.S.C.

Cavaliere, Order of the Crown of Italy.

Capt. (actg. Maj.) Archibald Winter Crombie.

The Croce di Guerra.

(Awarded for services rendered in the Mediterranean Area.)

Capt. Sydney Ernest Ball, D.F.C.
Lt. David Royds Birkbeck Bentley.
Capt. (actg. Maj.) Harold John Thomas Berryman.
Lt. Leonard de Ville Chisman.
Lt. Charles Chrimes.
Sec. Lt. Ernest Richard Hiscocks.
Lt. Sidney Knight Forbes Phillip Humphrey.
Lt. (actg. Capt.) Basil Graham Humphrey Keymer, D.F.C.
Lt.-Col. (actg. Col.) Arthur Murray Longmore, D.S.O.
Sec. Lt. James Alexander Munn.
Lt.-Col. Douglas Austin Oliver, D.S.O.
Lt.-Col. Richard Edmund Charles Peirse, D.S.O., A.F.C.
Sec. Lt. Hugh Randle.
Lt. Edmund Guy Spooner.
Capt. Raymond James Filmer Sulivan.
Lt. Gerald Ingram Thorman.
Lt. Frank Wood (225 Sqdn., Adriatic).
No. 268273 Serjt. Kenneth Edwin Dawson.
No. 210629 1st Air Mech. Frank Roland Heckford.

Bronze Medal for Military Valour.

Lt. Basil Townley Anderson.
Lt. Eric Lowe Bragg.
Capt. Edmund Parfitt Hardman, D.F.C.
Lt. Archibald Leslie Huether.
Capt. (actg. Maj.) Reginald Frederick Stewart Leslie, D.S.C., D.F.C.
Lt. Philip Edward Lindner.
Capt. (actg. Maj.) John Stanton Fleming Morrison, D.F.C.
Lt. Grant Raney.
Lt. Cecil Spencer Sivil.
Lt. Stephen Charles Strafford, D.F.C.
222466 Cpl. Frederick Thomas Wallace, D.F.M. Canning Town, E.

CONFERRED BY HIS MAJESTY THE KING OF THE BELGIANS.

Ordre de la Couronne, Commandeur.

Col. (actg. Maj.-Gen.) Charles Lavcrock Lambe, C.M.G., D.S.O.

Croix de Guerre (Belgian).

Lt (actg. Capt.) Norman Leslie Garstin, 102 Sqdn.
Lt. Stanley Wightman Mountain, 16 Balloon Sec.

CONFERRED BY HIS MAJESTY THE KING OF THE HELLENES.

Grand Commandeur de l'Ordre de St. Saveur.

Maj.-Gen. William Geoffrey Hanson Salmond, C.B., D.S.O., (R.A.).
Lt.-Col. (actg. Brig.-Gen.) Philip Lee William Herbert, C.M.G. (N. and D. R.).

Officier de l'Ordre de St. Saveur.

Lt.-Col. Carlos Bovill (R.A.).
Lt.-Col. Cecil Fraser, O.B.E., M.C. (N. Staffs.).

Chevalier de l'Ordre de St. Saveur.

Lt. (actg. Capt.) James John Williamson, A.F.C.

Officier de l'Ordre de Georges 1er.

Maj. Keith Riddell Binning, M.C.
Capt. (actg. Maj.) Chaplin Court Treatt (N. Lancs. R.).
Maj. Arthur Claud Wright.

Chevalier de l'Ordre de Georges 1er.

Sec. Lt. Harold Hudson.

CONFERRED BY HIS MAJESTY THE KING OF SERBIA.

The Order of the White Eagle, 4th Class, with Swords.

Lt.-Col. George Eardley Todd, 16th Wing (Welsh R.).

WAR OFFICE, April 7th.

The names of the under-mentioned officers are brought to notice for gallant and distinguished service rendered in connection with the military operations at Aden during the period from August 16th, 1917, to Jan. 31st, 1918:—

ROYAL AIR FORCE

Mann, Lieut. (actg. Capt.) L. J., M.C.
Owden, Lt. J. S.
Stodart, Major D. E., D.S.O., D.F.C.

The names of the undermentioned officers are brought to notice for gallant and distinguished service rendered in connection with the military operations at Aden during the period from Feb. 1st, 1918, to August 31st, 1918:—

ROYAL AIR FORCE.

Knight, Lieut. H. F.
Sherwin, Capt. C. E., M.C.

CORRECTION.

The following names were omitted in error from the Air Ministry "Gazette" of March 28th:—

The following are transferred to unemplyd list:—Sec. Lt. T. S. Miller, Jan. 25th; Sec. Lt. R. Sharrock, Sec Lt. D. C. Thomas, Jan. 26th.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, April 3rd.

The following were severally introduced into the presence of the King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE (MILITARY DIVISION).—Commanders.—Brig.-General Christopher Courtney, R.A.F. (also received the Distinguished Service Order), and Brig.-General Cecil Whittington, R.A.F.

THE DISTINGUISHED SERVICE ORDER.—Major Charles Wynne-Eyton, R.A.F.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE.—Officer.—Military Division.—Major Stamford Raffles, R.A.F.

The King then conferred decorations as follows:—

THE MILITARY CROSS.—Capt. Charles Cudemore, R.A.F.; Capt. Ignatius Welby, R.A.F.; Lieut. Ernest Lindup, R.A.F.

BUCKINGHAM PALACE, April 5th.

The King held an Investiture at 11 o'clock this morning.

His Majesty decorated the following with the Victoria Cross:—

Lieut. ALAN JERRARD, R.A.F. When on an offensive patrol with two other officers, he attacked five enemy aeroplanes and shot one down in flames, following it down to within one hundred feet of the ground. He then attacked an enemy aerodrome from a height of only fifty feet from the ground, and, engaging single-handed some nineteen machines, which were either landing or attempting to take off, succeeded in destroying one of them, which crashed on the aerodrome. A large number of machines then attacked him, and whilst thus fully occupied he observed that one of the pilots of his patrol was in difficulties. He went immediately to his assistance, regardless of his own personal safety, and destroyed a third enemy machine. Fresh enemy aeroplanes continued to rise from the aerodrome, which he attacked one after another, and only retreated, still engaged with five enemy machines, when ordered to do so by his patrol leader. Although apparently wounded, this very gallant officer returned repeatedly, and attacked single-handed the pursuing machines, until he was eventually overwhelmed by numbers and driven to the ground. Lieut. Jerrard had greatly distinguished himself on four occasions, within a period of twenty-three days, in destroying enemy machines, displaying bravery and ability of the very highest order.

The King then conferred decorations as follows:—

THE DISTINGUISHED SERVICE CROSS.—Capt. Edward Maitland-Heriot, R.A.F.

THE MILITARY CROSS.—Capt. Robert Durno, R.A.F.; Lieut. Sydney Harper, Cheshire Regt., attd. R.A.F.; Lieut. Owen Tudor-Hart, R.A.F.

ADMIRALTY APPOINTMENTS.

The following appointments have been made:—

April 3rd.—Surg. Lieut.-Commr.—R. H. W. W. Biddulph, to "Argus," April 2nd.

PAYR. LIEUTS.—G. KYRKE (temp.), to "Vindictive."

THE CASUALTY LIST.

MILITARY.

Reported April 1st.

RELEASED PRISONERS FROM GERMANY ARRIVED IN ENGLAND.—Prichard, Capt. F. H., R.F.C.; Trubck, Sec. Lt. J. C., R.F.A., attd. R.F.C.; Joubert de la Ferte, Sec. Lt. J. C., R.F.C.; Meakin Sec. Lt. G. E. R., R.F.C.

AUSTRALIAN IMPERIAL FORCE.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Jack, Capt. T., M.C., Aust. F.C.; Jeffers, Lt. J. P., Aust. F.C.; Peel, Sec. Lt. J. C., Aust. F.C.

AIR FORCE.

Reported April 3rd.

KILLED.—Ayles, Sec. Lt. W. M. W.
DROWNED.—Gallant, Sec. Lt. F. J.
DIED.—Atkinson, Capt. R. N. G.
Fisher, Maj. H. F.
Tratman, Lt. L. W. D.
REPATRIATED.—Davies, Lt. G. L.; Prichard, Capt. F. H.; Richardson, Lt. G. T.

Reported April 4th.

KILLED.—Adams, Capt. A. P.
Allen, Sec. Lt. C. A.
Kellough, Sec. Lt. W. R.
Kennedy, Sec. Lt. W.
DIED OF INJURIES.—Raw, Sec. Lt. W. A.
DIED.—Moore, Lt. W. V.
Payne, Maj. S. J.
Sinclair, Lt. R. B.

CASUALTIES AMONG AIRMEN. THE DATES ARE THOSE OF THE OFFICIAL LIST.

KILLED.

April 1st.—Youngs 51048 AC/2 H. W. (South Norwood).
April 2nd.—Sparrow 50160 AM/3 A. E. (Accrington).

DIED.

April 1st.—Arniel 406781 AC/1 D. (Dunfermline); Bailey 89313 L/AC E. (London); Bain 119639 AC/1 R. T. (Dundee), Curran 291713 AC/2 M. (Waterford); Franklin 97952 AC/2 W. P. D. (Plaistow); Goulding 220851 Cpl. G. M. (Addlestone); Herriott 5245 L/AC F. (Brighton); Hiatt 268377 AC/2 T. (Smethwick); King 10350 Sjt. G. T. (Walworth); Kransgrill 168313 AC/2 F. A. (London); Marshall 290244 AC/2 J. (Drumguin); Pilborough 219057 AC/1 A. H. (Walthamstow); Shaw 19149 Sjt. F. W. (Cambridge); Walker 208018 Sjt. H. (Newtown); Walls 283856 AC/2 T. (Lancaster Gate); Whilton 142412 AC/2 E. R. (Hednesford); Whiteside 277698 AC/2 A. (Bothwell); Williamson 75785 AC/1 H. (Wolverhampton); Woodland 5114 L/AC P. H. (Aylesford).

April 2nd.—Alexander 62741 AC/1 D. W. (Beccles); Bent 8970 Serjt. W. E. (St. John's Wood, London); Brookes 5487 L/AC A. (Dartford); Bunning 4052 Cpl. F. B. (Droxford); Cheadle 20250 L/AC E. (Burston); Cowell 291526 AC/2 G. B. (Old Kent Road, London); Dickinson 21630 AC/1 E. (Wigan); Drinkwater 45499 AC/2 N. (Timperley); Hallam 2447 Serjt. E. L. E. (Sheffield); Hinton 403707 AC/1 W. (Birmingham); Hodges 304951 AC/2 A. J. (Twyford); Lucas 19179 L/AC S. (Worcester); Nalder 55928 AC/1 W. A. (Wolvercote); Osborne 16117 Flt. Serjt. A. C. (Golden Square, London); Smith 4037 L/AC B. W. (Farncombe); Smith 144565 L/AC W. (Liverpool), Stiff 79267 AC/1 G. H. (Bristol); Taylor 97029 AC/1 J. (Pendleton); Trusler 143120 AC/2 G. (Northampton); Webster 29590 L/AC A. E. (Reading).

REPATRIATED.

April 1st.—Johnston 2458 Cpl. R. (Tillicoultry); Summers 13598 Cpl. W. (Harlesden, N.).

ENLISTMENT IN THE R.A.F.

The Air Ministry forwards the following for publication:—

ENLISTMENT OF DEMOBILISED SOLDIERS IN THE ROYAL AIR FORCE.

1. A demobilised soldier, who is desirous of enlisting in the R.A.F., should, in the first instance, apply in writing to the nearest R.A.F. Reception Depot, stating:—

(a) Regimental number. (b) Rank (substantive or acting, as the case may be) he held in the Army immediately prior to demobilisation. (c) Name in full. (d) Corps in the Army. (e) Trade and other qualifications, if any, in the Army. (f) Trade or calling in civil life. (g) Medical category. (h) Home address. (i) If still on demobilisation furlough, date of expiration of furlough.

The following is a list of R.A.F. Reception Depots:—No. 1—40, Upper Brook Street, Mayfair, London, W.1. No. 2—Tyndall's Park Road, Clifton, Bristol. No. 2 (b)—12, Newport Road, Cardiff. No. 3—Carlton Chambers, Paradise Street, Birmingham. No. 3 (a)—George Street, Nottingham. No. 3 (b)—12, Abercromby Square, Liverpool. No. 4 (a)—The Mount, Springfield Mount, Leeds. No. 4 (b)—10, Sydenham Terrace, North Road, Newcastle-upon-Tyne. No. 5—9, Somerset Place, Souchiehall Street, Glasgow.

In the case of a soldier living in Ireland, he should address his application to O.C. No. 3 (b) Reception Depot, Royal Air Force, 12, Abercromby Square, Liverpool.

2. If considered suitable, the applicant will receive a free railway warrant, and orders to report to the Reception Depot named, on a specified date. His final acceptance will be dependent on his passing a medical examination.

In the case of a demobilised soldier who held W.O. or N.C.O. rank, no guarantee can be given him that he will be given corresponding rank in the R.A.F., but everything will depend on R.A.F. requirements, vacancies in establishment, and the man's own suitability for promotion. If he possesses any trade qualifications, he will be permitted to undergo a trade test, and will be mustered to that trade if successful.

3. *Terms of Enlistment in R.A.F.*—The following are the various terms for which demobilised soldiers may at present enlist in the Royal Air Force:—

(a) Approximately two years with the colours—i.e., from date of enlistment to any date between Jan. 1st, 1921, and June 30th, 1921, according to R.A.F. requirements then existing. (b) Approximately three years with the colours—i.e., from date of enlistment to any date between Jan. 1st, 1922, and June 30th, 1922, according to R.A.F. requirements then existing. (c) Approximately four years with the colours—i.e., from date of enlistment to any date between Jan. 1st, 1923, and June 30th, 1923, according to R.A.F. requirements then existing. (d) Four years with the colours, and eight years with the reserve, reckoned from date of enlistment. (e) Six years with the colours, and six years with the reserve, reckoned from date of enlistment. (f) Eight years with the colours, and four years with the reserve, reckoned from date of enlistment.

Those enlisting for either (a), (b), or (c) must do so on or before June 30th, 1919, after which date enlistments may only be for (d), (e), or (f).

4 Demobilised soldiers enlisting in the R.A.F. will be eligible to draw the bonus authorised under A.M.W.Os. No 163 and No. 164 of 1919, with effect from date of enlistment into R.A.F., in addition to ordinary R.A.F. pay and allowances. Separation allowance will be paid under existing rules and regulations until further notice.

PERSONAL NOTICES.

NAVAL.

Engagement

WHIDDINGTON—GRANT.—The marriage arranged between Major R. Whiddington, D.S.C., M.A., R.A.F. (Fellow of St. John's College, Cambridge), son of Richard Whiddington and Mrs. Whiddington, of 8, Bigwood Road, N.W.4, and Kathie, eldest daughter of Alexander Reoch Grant and Mrs. Reoch Grant, of 3, Bigwood Road, N.W.4, will take place on April 9th.

Marriage.

WRIGHT—COWLES.—On April 5th, at Christ Church, Woburn Square, Major Maurice Wright, R.A.F. (late R.N.A.S.), elder son of Mr. and Mrs Arthur Wright, of 3, Addison Road, Kensington, was married to Winifred May, younger daughter of the late Charles Holford Cowles, of Southport, and of Mrs. W R. Waller, of "Lugano," Buckhurst Hill.

MILITARY.

Engagement.

EYCOTT-MARTIN—HORNER.—A marriage has been arranged, and will shortly take place, between Capt H. R. Eycott-Martin, R.E., R.A.F., elder son of Mr. Eycott-Martin, late O.S. of British Bechuanaland, and Mrs. Eycott-Martin, of Lindfield, Sussex, and Muriel, only daughter of Mr. and Mrs. F. H. Horner, of Putney.

Birth.

GOODALE.—On March 28th, at St. Edmundsbury, Royston, Herts, the wife of the late Lieut. W. H Goodale (Canadians), attd. R.A.F., of a son.

* * *

Information is wanted as to the fate of Lieut. R. E. Bion, 20th Hussars, attd. R.A.F., No. 40 Squadron, who took part in an attack on April 18th, 1918, near Laeon, and who fell and was presumably taken prisoner, but from the moment of the attack all trace of him has been entirely lost. His relatives, who are in India, are anxious to hear of his fate, and hope that this will catch the eye of some of his fellow-officers. Communications will be gratefully received, addressed to "Secretary to Headmaster, Clayesmore School, Winchester."

* * *

Sec. Lieut. Hubert W. Ransom, R.F.C., 70th Squadron, has been missing since March 27th, 1918. He was last seen flying Sopwith Camel No. C/8234, in the Albert area. Any information will be gratefully received by his father, Mr. F. Ransom, The Chilterns, Hitchin.

* * *

Lieut. J. A. Ponchet, D.C.M., R.A.F., of the 56th Squadron, R.A.F., was reported missing on Oct. 5th, and has since been reported killed, whilst engaged on patrol with nine other officers, over Cambrai. He was flying S.E.5a 5708. Any information or details will be gratefully received by Miss K. Spikins, C.T.B., Parc du Cinquantenaire, Bruxelles.

AIR FORCE.

Death.

BAINBRIGGE and OTTEWELL.—An inquest was held at Bournemouth on April 4th on the bodies of Capt. Arthur de L. Y. Bainbrigge, R.A.F., aged 32, and Lieut. John Hiller Ottewell, R.A.F., aged 43, who were killed near Bournemouth on April 2nd in an aeroplane accident. They had only left an aerodrome about five minutes when the machine crashed to the ground from a height of 500 ft. Mr. Ottewell was picked up dead, and Capt. Bainbrigge died whilst being conveyed to hospital.

The Air Force authorities said they were satisfied that the machine was in perfect order, and that the accident was caused by an error of judgment on the part of the pilot.

Medical evidence was that death was due to injuries received, and a verdict was returned accordingly.

Capt. Bainbrigge had seen active service at the Dardanelles and at Salonica.

Marriages.

CAREY—REYNOLDS. — On April 1st, at Christ Church, Crouch End, Major Gordon Vero Carey, R.A.F., (late Rifle Brigade), younger son of the late Francis Carey, of Burgess Hill, Sussex, and Mrs. Carey, of 85, St. Mark's Road, W.10, was married to Eila, only daughter of Mr. and Mrs. G W. Reynolds, of Upcote, Shepherd's Hill, Highgate, by the Rev. R. N. Pyke.

Engagements.

ARTHUR—ELLIOTT.—A marriage has been arranged, and will take place on April 12th, between Captain Frederick Russell Arthur, R.A.F., eldest son of Mr. and Mrs. Frederick Arthur, of Surbiton, Surrey, and Alice Mary, daughter of Paymaster-Captain Stanley E. Elliott, R.N., and of Mrs. Elliott, of Sherwood, Saltash, Cornwall.

CULLINAN—LEAVER.—The engagement is announced between Lieut. Roland Vivian Cullinan, R.A.F., second son of Sir T. M. Cullinan, D.S.O., and of Lady Cullinan, of Johannesburg, and Sylvia Kathleen, youngest daughter of Mr. and Mrs. Frank Leaver, of Lisnamoe, Cheltenham.

GARNETT—DAWKINS.—A marriage has been arranged between Major W. H. S. Garnett, R.A.F., only son of the late Mr Frank Garnett and Mrs. Garnett, of Wood End, Wickham, and Enid, widow of Lieut. C. R. Dawkins, B.A., LL.B., 9th Welch Regt., of The Bungalow, Haverfordwest.

KITSON—SACKVILLE.—A marriage has been arranged between Capt. Robert Graham Kitson, R.A.F., son of the late Rev. John Francis Kitson, vicar of Antony, and Mrs. Kitson, Bibridge, Brixton, near Plymouth, and Mabel Elizabeth Sackville, second daughter of the Rev. G. E. F. Molineux, vicar of Colyton, Devon.

SALWAY—MORGAN.—The engagement is announced between Serjt.-Pilot C. Salway, R.A.F., son of Mr. and Mrs. G. Salway, of Somerset Hotel, Port Talbot, S. Wales and Ivy, younger daughter of Mr. and Mrs. W. Morgan, of 12, Richmond Street, Neath, S. Wales.

TOTTENHAM—PERKINS.—The marriage arranged between Mr. Harold Loftus Tottenham (late Rifle Brigade and R.A.F.), and Miss Veronica Bowen Perkins will take place on Wednesday, April 30th, at St. Mary's Church, Cowbridge, Glamorganshire, at 2 p.m.

Births.

CLARKE.—On March 25th, at 7, Grosvenor Square, Southampton, the wife of Lieut. P. H. Clarke, R.A.F.—a daughter.

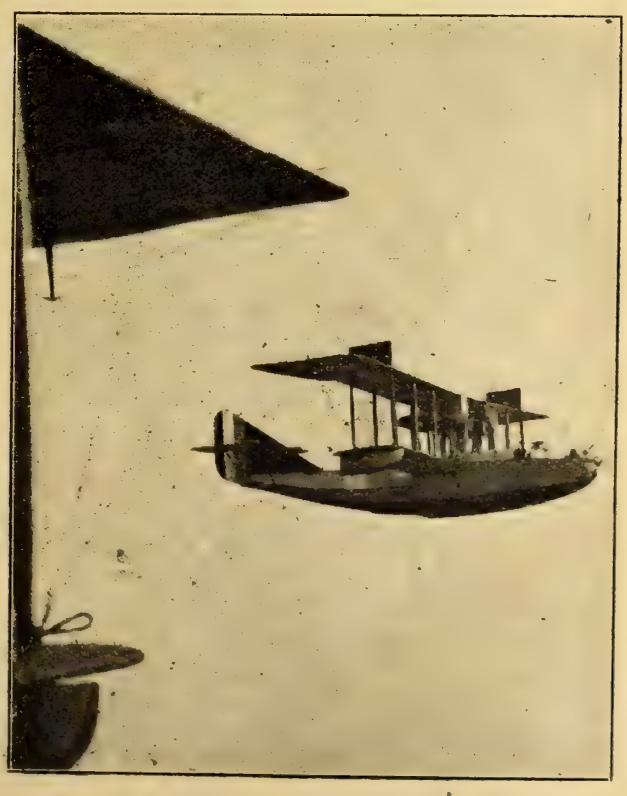
HARRIS.—On April 4th, at The Gables, Highland Road, Purley, the wife of Lieut.-Colonel S. H. B. Harris, R.A.F., of a daughter.

HOLMAN.—On March 26th, at White Lodge, Canterbury, the wife of Capt. C. E. Holman, R.A.F., of a daughter.

SWAN.—On March 29th, at West Bank, Esher, Surrey, to Maria (née Albenga), wife of Capt. J. Barye Swan, R.A.F.—a son.

R.A.F. Cadets—Outfit Grant.

The Air Ministry have issued an Order (No. 409) stating that Cadets and Flight Cadets (including those already demobilised) will be granted, on application, certain outfit allowances. Full particulars of the allowances are given in Form F.S. 751, copies of which can be obtained on application to the Clerk-in-Charge, Air Ministry Publications Depot, 45, Belvedere Road, S.E



ON PATROL.—An F.2 Flying-Boat (two Rolls-Royce engines); A Photograph at the R.A.F. "War in the Air" Exhibition.

Athletics in the R.A.F.

On Wednesday, April 2nd, the R.A.F. (Uxbridge) were beaten by the R.A. (Woolwich) by seven goals to nil in a hockey match at Woolwich.

The semi-final of the Bulldog Cup Competition was replayed on Wednesday, April 2nd, for the third time, when the R.A.F. (Rochampton), holders of the cup, met the Grenadier Guards. After a well-matched game the R.A.F. team finished winners by one goal to nil. They will play the Scots Guards in the final round at a future date.

The R.A.F. Rugby football team beat the Gloucester fifteen on Saturday, April 5th, by a goal, a dropped goal, and three tries (18 points) to a goal and a try (8 points).

Alcohol and Aviators.

The following letter has been received:—

Sir,—In your leader of April 2nd, on "The Selection of Aviators," I am unintentionally misquoted as regards my views on the question of alcohol. I am reported to have said at the Institute of Actuaries that "Other things being *equal*, the fact that a man is a teetotaler would go against him."

Such a statement is calculated to give offence where none is intended. What I actually said was that in the examination of a candidate "Other things being *doubtful*, the fact that a man was a teetotaler would go against him." In other words, the teetotaler about whose temperamental or physical efficiency (particularly temperamental) there is any doubt, is, in my opinion, not calculated to withstand the strain of flying.

The point under discussion was the granting of preferential policies to total abstainers, and I expressed my personal opinion that such discrimination in favour of the teetotaler might be carried too far as against the fit moderate drinker, and cited the above example.

As many hundreds of flying officers and cadets can testify, I have consistently drawn attention to the evils of alcohol, particularly when taken before flying.

In my addresses and writings I have also expressed the opinion many times that alcohol is best avoided by the flying man, and that the taking of alcohol, particularly in the form of "steady drinking" insufficient to produce intoxication, cannot, if persisted in, end otherwise than in disaster.

(Signed) Martin Flack. Lieut.-Col.

[One deeply regrets that, as Colonel Flack courteously and correctly interprets it, one should have unintentionally misquoted him on the subject of the use of alcohol. Possibly in discussing the question thereafter, one expressed oneself rather carelessly, for if one examines the matter carefully one perceives that there is really nothing in the misquotation which disagrees in essentials with Colonel Flack's views, though, if anything, his expression is even more inclusive than the misquotation.

What one understood him to mean was that if two men were applying for one job either in the Air Force or in commercial aviation, both equally good or equally doubtful men as the case might be, the choice would be in favour of the moderate drinker as against the teetotaler, a view with which one concurs most heartily. The interpretation of Colonel Flack's own phrase possibly reaches a shade further than that, but here again anybody with a working knowledge of humanity will agree with him entirely, for in the event of a man suffering from any temperamental or physical deficiency, if he is an absolute teetotaler he is very much more likely to collapse under a sudden nervous or physical strain than is the man who is a moderate user of alcohol.

As one has already pointed out, it is recognised in all Colonial Services that the moderate drinker is much better able to stand the effects of an immoderate climate than is the teetotaler, and the same argument would obviously apply to aviators, whose duties in the operation of the big air lines will bring them into direct contest with extreme variations of temperature in very brief periods of time.—C. G. G.]

To Canadian Aviators.

All Canadians of all ranks in the R.A.F. who are interested in co-operation for military, commercial, and social purposes on their return to Canada are invited to write to "Canfly," c/o The Aeroplane, 166, Piccadilly, W.1, giving their names and addresses.

As stated last week, this has nothing to do with any employment agency, nor is it concerned with any register of pilots. It is merely an effort on the part of a Canadian officer, who is returning to Canada, to keep Canadian aviators in touch with developments and with one another.

From "London Opinion."

"The admirers of Flight-Lieutenant Sidney Pickles, who will attempt to fly the Atlantic, make no secret of their belief that he is the best of the '57 varieties.'"

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ON WHAT WE MIGHT DO FOR OUR BOYS.

Last week one put on record the fact that the Appointments Department of the Ministry of Labour (at St. Ermin's Hotel, S.W.2.) is doing its best to find jobs for demobilised officers and airmen of the R.A.F. and that a special sub-department (Room 238) has been established at which those seeking for jobs may perchance find them. Also one appealed to heads of businesses and other employers to notify that department whenever they may have a vacancy. At the same time one pointed out that the Air Ministry itself might do a good deal to induce the youth of this country not merely to stay in the country but to stay in the R.A.F., rather than emigrate, as so many of them apparently intend to do. One proposes this week to discuss this side of the great question, "What Shall We Do With Our Boys?"

It seems to be a fact—lamentable, but a fact none the less—that the Air Ministry is in rather more than an average muddle. As an R.A.F. officer put it, "The Bolo is more Boloish than ever," and, in the expressive phrase of an Anglo-French friend, "It doesn't seem to know whether it is on its topsy or its turvy." Probably the continued absence, owing to illness, of General Trenchard, Chief of the Air Staff, accounts for the fact that everybody in the Air Ministry is completely out of control in a flat spin—if one may use a pilot's simile.

Whatever the cause, it seems to be regrettably true that nobody will give a definite decision about anything that matters. And, unfortunately, this is just the time when quick and yet far-seeing decisions are urgently needed if the best of our young aviators are to be kept in the Air Force, and if those who cannot be given permanent commissions are to be offered some inducement to stop at home, so that we may have a reserve of aviators on hand ready for the next war.

Delaying Developments.

Now it is fairly obvious that so far as the latter business is concerned the best inducement of all to persuade young demobilised aviators to stay in this country is to give them jobs as aviators. And equally obviously they cannot find jobs as aviators unless they are allowed to fly, and unless aerial transport firms are allowed to operate. Therefore the first thing to do is to issue those long-promised Regulations concerning civilian flying. Until they are issued no transport firm can possibly make any considerable arrangements in advance. The announcement that civilian flying will begin on May 1st does not help matters very much.

Even if it were possible to-day to begin to make definite arrangements, such as fixing contracts for the supply of aeroplanes and engines, for the engagement of pilots, ground staffs, and mechanics, for the leases of aerodromes, for the booking of dates of exhibitions and so forth, it would probably be some weeks after the date on which civilian flying is to become legal before everything could be in proper working order. And, as one noted some weeks ago, the longer we have to wait before flying begins, the shorter is the time this year in which aviators and their employers will be able to earn the money necessary to tide them over the winter.

One has every sympathy with Sir Frederick Sykes in his task as Controller of Civil Aviation, and one quite realises that he is up against very great difficulties. The delay is not of his making, for all know his enthusiasm for flying. But there seems to be a hitch somewhere in the chain of responsibility.

A Parable from Thibet.

There used to be years ago a story told of Colonel Younghusband's expedition into Thibet—the story is probably untrue and anyhow it is not libellous, so one feels pretty safe in telling it. Also it may be adapted for the present war and told of the Italian Alpine Front by substituting mules for yaks.

A column of British transport, consisting of R.E. material packed on yaks, or some such prehistoric animals, was toiling in single file up a Himalayan pass at some 15,000 feet, when something blocked the head of the column and it all came to a standstill. A weary transport officer at the tail of the column started upwards to investigate the cause, climbing monkey-wise over crags and squeezing between odorous yaks and the back wall of the precipice.

Some thousand feet or so higher he came upon a phlegmatic Sapper sitting on a crag smoking his pipe, with his feet swinging over hundreds of feet of nothing, and calmly waiting for the traffic to move on. Of him the transport officer inquired what was blocking the column. And the Sapper replied, "Dunno, Sir! I 'xpect some o' the stair-rods 'as come out 'igher up, Sir!"

It looks as if some of the stair-rods at the Bolo House had come out somewhere in the hierarchy of officials, and one suggests that it is the job of Mr. Churchill, General Seely, and Sir Frederick Sykes to put them back or find new ones as soon as possible. One knows that certain of the very best men in the place are leaving it, whether out of sheer disgust or because they can see no future in the Air Force one does not pretend to say. But, if the work of organising the Air Ministry, both on the Military and Civil Service sides, is to progress, the best man ought not to be allowed to leave.

The Need for Tradition.

If the good soldiers with the traditions of the Old Army leave the R.A.F. and only those people remain who cannot find decent jobs outside, it is a precious poor look-out for the future of the Military side of the Air Force. Someone said not long ago that the aim of the R.A.F. should be to become as smart as the Guards

and as handy as the Navy. Such a desirable state of affairs can only be attained by keeping the very best people in the Force, and one fears that the best people will refuse to stop unless the staff of the Air Ministry mends its ways.

Similarly, unless the Civil side acquires a smart, diligent, and intelligent staff, there can be no hope for Commercial Aeronautics. Quick decisions must be given, and there must be very much less of the delay and red-tape methods which are more or less inevitable when the work of a very big war is being run by a small staff of trained officers cumbered by an enormous mass of unskilled civilian assistants.

The Command of the Air.

As Mr. Joynson-Hicks pointed out some few weeks ago, just as we held the command of the sea because we hold the coaling stations of the world, so we can hold command of the air because we hold within the British Empire the landing-places of the world.

Mr. Kipling's prophetically conceived Aerial Board of Control, commonly known as the A.B.C., adopted for its motto the phrase "Transportation is Civilisation." And it must be evident that if the British Empire is to hold together, despite its being the most scattered community in the world, then quick inter-communication and transportation must be the links which will bind together its particular form of civilisation.

Now, just because aircraft are by a good deal the quickest of all vehicles, it is evident that if the British Government honestly desires to maintain the unity of the Empire its first care should be to encourage flying before almost anything else. Also, because flying is primarily a young man's game, the Government should do everything possible to encourage the youth of the nation to fly.

A Counsel of Perfection.

And so, instead of cutting down the establishment of the R.A.F., and thus turning adrift some thousands of young men who possess a more or less intimate knowledge of flying and everything pertaining thereto, the ideal policy of the British Government should be to keep in the R.A.F. everybody who is worth keeping, and to build up an enormous reserve force with an eye to future developments. Every pilot belonging to every licensed Aerial Transport line should be compulsorily a reserve pilot of the R.A.F., and every effort should be made to encourage civilian pilots who fly for pleasure to become members of the R.A.F. Reserve.

That, of course, is a counsel of perfection, for one quite recognises the impossibility of extracting enough money from the Treasury in so-called "Piping Times of Peace," though in fact the way in which the defences of the country are handled in peace-time incline one rather to think that the word "piping" has to do with the ancient Naval expression "piping one's eye" rather than with playing upon the flute or other joyous wind instrument.

The Art of Wangling.

Nevertheless, there are ways of getting things done if an individual or a nation desires them badly enough. Four years and a half of war have turned us into a complete nation of "wanglers," and four months of a devastating peace have demonstrated fairly conclusively that the art of wangling acquired during the war, together with its concomitant art that of "scrounging," are likely to be even more useful in the future than during the war.

If the authorities at the Air Ministry have not learned these two great arts—and, judging by the operations of the Bolo House, one gives its inmates credit for being experienced in the first-mentioned at any rate—it is quite time that they gave place to people who *have* learned the great lessons of the war, and who are able, in spite of Treasury limitations, to run a big Air Service on very little money. One recalls, for example, how Mr. Churchill at the Admiralty before the war, being unable to obtain as much money as he wanted for the R.N.A.S., devoted the Air Service money to things concerned purely with aviation, and paid for the rest out of the vast sums freely voted for the Navy as such.

The Greatest Mistake of All.

A little consideration will show how much might be done for the youngsters who are keen on flying, if the R.A.F. authorities will set to work in the right way. It is fairly generally known that for some months past practically all flying in the R.A.F. has been stopped.

It is true that some few privileged persons are still allowed to fly. For example, Squadron Commanders are still flying on duty, and experimental flights, which unfortunately in these days are few and far between owing to the fact that few experimental machines are being built, are still being made. There are a few communication squadrons employed in transporting officials and documents from London to Paris, and officers and mails from London to France, Belgium, and Germany. But all training has been stopped, and therein lies the greatest mistake of all.

The very people who are most anxious to fly, and who in the future interests of the British Empire ought to be taught to fly, are the very people who are not allowed to fly. The training aerodromes are choked with youngsters who, instead of being allowed to fulfil their hearts' desire and become aviators, are merely kicking their heels in idleness, awaiting demobilisation.

Such aerodromes as are not in this state are practically empty of personnel, because the cadets and young officers of the Army who have been detailed for training as aviators are being demobilised—generally very much against their will.

A Rank Injustice.

Worse still, trained pilots who have had the misfortune to be brought down in Hunland on active service, in very many cases through no fault of their own, but simply because of the defective engines supplied to them by an incompetent Technical Department, are being demobilised. They are being kicked out without being given even the opportunity of qualifying for a permanent commission in the Air Force or for service with the Army of Occupation, and thus all the money which was spent on them in the past in training them to become efficient active-service aviators is being thrown away.

This is obviously a very short-sighted policy from a purely economic point of view, quite apart from the fact that it is a rank injustice to men who have suffered considerably more for their country through their imprisonment in Germany than have those who had the good fortune to escape being captured and have had the honour and intense pleasure of fighting till the end of the war.

What Is the Reason?

It is obvious that the reason for stopping flying is not shortage of machines, nor the cost of petrol and oil necessary to run them, for to use the American metaphor—which seems to be interpreted literally by many people in the R.A.F.—we have aeroplanes to burn. One understands that the burning of aeroplanes is quite an important industry in some places, despite the best efforts of the Salvage Department to economise material, and if we can spare petrol to burn them we

can spare petrol to fly them. Also, the cost of petrol and oil used if training went on as usual would be quite trivial compared with the waste which goes on in other directions.

The real reason for stopping flying seems to be that at most of the aerodromes there are about a dozen officers and cadets for every one air-mechanic, and so there is, in the official view, nobody to keep the machines in proper flying order.

This state of affairs has occurred because the airmen are as a rule of the class commonly called "tradesmen," and in one way or another come under the recent regulations qualifying a man for prompt demobilisation. That is to say, a number of them are over 37 years of age, many of them are in very low medical categories, and a very high proportion are what are known as either key, pivotal, slip, or essential men in one industry or another. In addition, many have been demobilised on compassionate grounds as proprietors of one-man businesses.

Therefore, the Government having once admitted the eminently idiotic principle that we are no longer at war, and that consequently it is no longer necessary to maintain the King's Services at full strength, it is fit and proper that the men who are essential to the operation of the Flying Services should be demobilised.

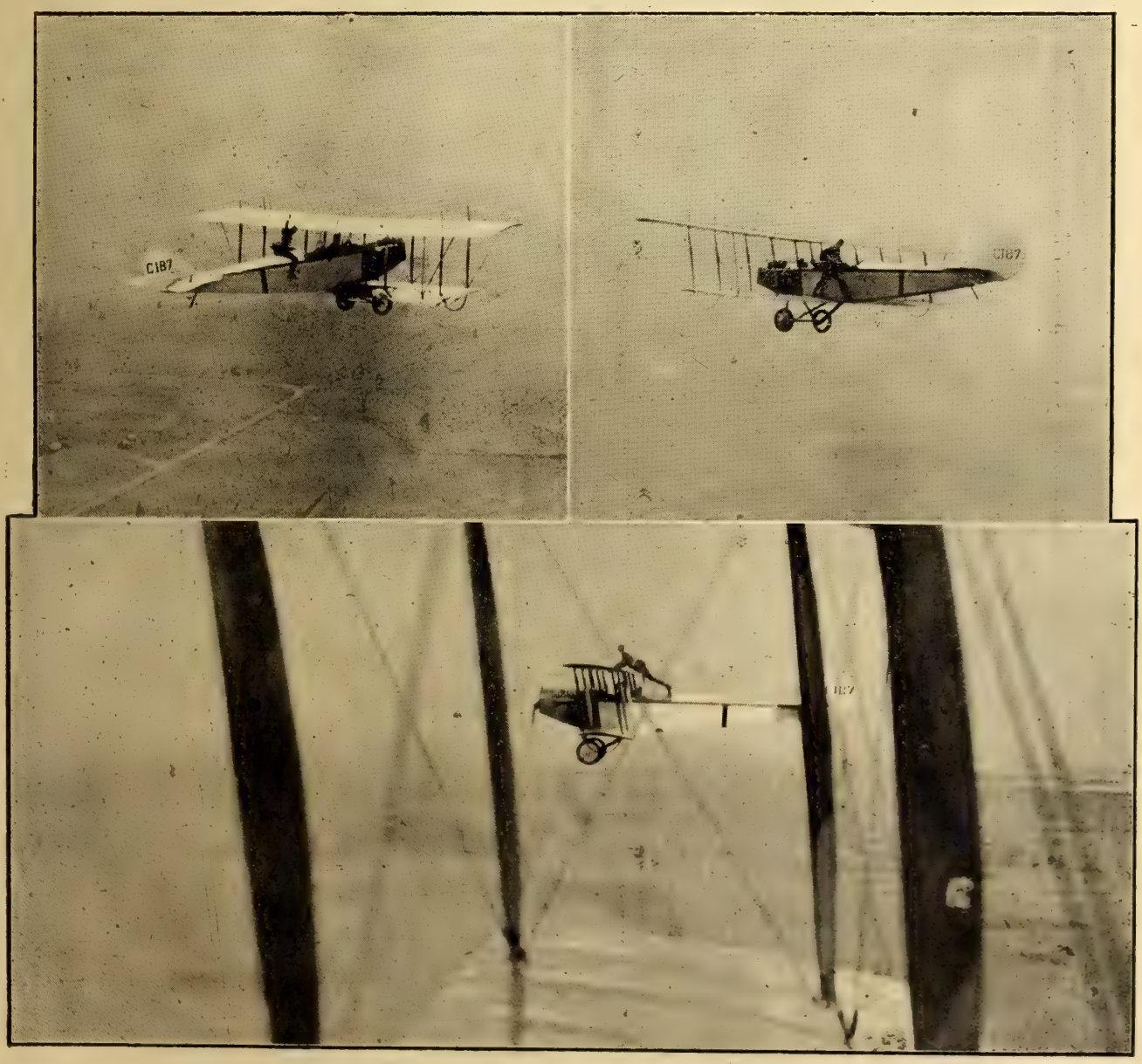
Continuing the Good Work.

Nevertheless, there seems no essential reason why the aeroplanes of the R.A.F. should not be kept in perfect flying condition by the officers and cadets themselves. Any young officer or any cadet who has reached the stage qualifying him to be sent to an aerodrome for training in flying has already had a good many weeks—and in some cases months—of technical training at the R.A.F. Schools of Aeronautics, such as Reading or Oxford, before going to the aerodromes.

Unless the examinations at those Schools of Aeronautics are a perfect farce, which one confidently believes they are not, all those youngsters ought to be perfectly capable of doing the work of any second-class or third-class air-mechanic if supervised by experienced flight-serjeants or workshop officers. Many of the said cadets are, in fact, very much better mechanics than a good many of the first-class air-mechanics in the R.A.F., and they would very soon be fit for promotion to N.C.O. mechanics. Therefore there cannot be any sound reason for stopping flying because of lack of labour.

The Social Objection.

It is true that all these cadets joined the R.A.F. on the understanding that if found suitable they were to be made commissioned officers. But they also did so



IMBECILITY IN EXCELSIS.—An American "Stunt," Photographed by an Accomplice.

on the understanding that if not considered suitable as officers they were to become N.C.O. pilots.

Therefore it would be perfectly fair to them if they were given the choice between doing an air-mechanic's work while being taught to fly, and leaving the R.A.F. at once without any rank at all. Or, in the case of those who have come in from the Army, they would leave with the Army rank which they held before becoming R.A.F. cadets, and would draw the gratuity to which that rank entitled them.

A Fair Choice.

If the Air Ministry is going to demobilise all the cadets against their wills, then it is fair to give them all honorary commissions on leaving and to give to each a gratuity which will cover the cost of the officers' uniform which he has had to buy as a cadet. But one is almost convinced that in the majority of cases if a cadet were given the choice between going back to civilian life with an honorary commission, plus his out-of-pocket expenses, and remaining in the R.A.F. as an air-mechanic on the condition that he was taught to fly, and on the understanding that if he showed the necessary ability he would have at least a sporting chance of obtaining a permanent commission on his merits in the course of the next three or four years, the great majority of the cadets would choose to remain in the R.A.F. and become pilots.

It is fairly certain that most of the youngsters who joined R.A.F. cadet battalions straight from school, or who came into cadet battalions as N.C.Os. or men in the Army, did so because their most earnest desire in life was to become aviators, and one does not for a moment think that they would throw away the chance of learning to fly simply because they cannot be made commissioned officers.

Acknowledging a Principle.

It has for some time been accepted as a principle that in time to come there will be more and more pilots who are airmen and fewer who are commissioned officers, and the present moment seems to be a Heaven-sent opportunity for putting that principle into force. It might even be possible, in view of that famous and much-debated phrase of General Seely's before the war, when he said that the R.F.C. was to be the "*Corps d'élite*" of the British Army, to establish the R.A.F. as a kind of "*Service d'élite*" of the King.

One recalls, for example, that all proclamations to a certain regiment of Household Cavalry begin "Officers and Gentlemen of the Royal Horse Guards," while those to the other regiments begin "Officers and Troopers of the Life Guards." It is quite possible that by a careful process of selection of the whole personnel from top to bottom it might be possible in time to address the R.A.F. as "Officers and Gentlemen of the Royal Air Force" instead of as "Officers and airmen"; and one believes this truly despite the fact that at present one would not even venture in many cases to address the commissioned people themselves as "Officers and gentlemen."

The Supply of Mechanics.

But, be that as it may, the fact remains that, whether the cadets are to be considered as gentlemen or as "fellows of the baser sort," to use an ancient phrase, they are undoubtedly available as mechanics to keep aeroplanes and engines in flying order, so that the process of training may be continued and so that the number of aviators available for future wars in which the Empire will be concerned may be increased.

Any youngster who is too proud to clean his own engine or aeroplane, or to do repair jobs on it, or to work in squadron repair shops, should be ejected from the R.A.F. promptly. Judging by the pleasure which most of us have taken during our youth, and even in our advanced middle age, in delving in the bowels of a car or a motor-cycle, or any other kind of messy mechanism, one fancies that there would be very little trouble on this particular score. Consequently there must be any quantity of mechanical talent available with which to continue the flying training of the Air Force.

The Matter of Cost.

It hardly seems likely that the question of pay and maintenance accounts for the stoppage of flying, because the Air Force authorities are apparently extremely anxious to enlist air-mechanics as fast as possible. And whether they get their air-mechanics or not, the country has to pay and maintain all those thousands of young officers and cadets until they are demobilised.

The process of demobilising the cadets and unwanted officers does not seem to proceed very rapidly, and the result is that there are a number of young and healthy men kicking their heels in idleness about the aerodromes, drinking in the mess, and—one is credibly informed—flirting with W.R.A.Fs., W.A.A.Cs., and W.R.N.S. round the backs of the sheds, which is strictly contrary to regulations. One has even heard that officers borrow jackets from N.C.Os. and men so as to avoid getting into trouble through being caught breaking the regulation against officers talking to the women workers at the aerodromes other than strictly on business.

The Benefit of Hard Work.

If all these youngsters were kept busy working on their machines, or actually learning to fly, all day long, there would be very little chance of their getting into trouble through bad behaviour of any kind. After a busy day's work they would be mighty glad to go to bed early, especially if they had to get up and start flying and working at 5 o'clock in the morning.

So badly does the whole thing seem to be arranged that apparently at some aerodromes the best employment that can be found for the cadets is the job of breaking up perfectly good flying-machines with crowbars and axes. This is euphemistically called "reducing to produce" the machines in question. One suggests that if it is desired to break up machines, those who have already learnt to fly a little might at any rate be afforded the opportunity and pleasure of breaking the machines to smithereens in a really good enjoyable crash from the air rather than be forced to waste their time in hewing them asunder, in the manner of Agag, on the ground.

What Might Be Done.

If the authorities had the sense to do the right thing and continue the training of pilots, when a man had passed as an efficient pilot, he could be relegated to the R.A.F. Reserve if he desired to be demobilised. If he desired to stop in the Air Force and to continue flying, then at any rate he ought to be given the opportunity of remaining as an airman-pilot, even if he could not be given a commission.

If after an adequate course of training he showed conclusively that he would never become a pilot, then he could still be given the choice of remaining as an air-mechanic or leaving the R.A.F. If he elected to leave, then he would be in no worse a position than he would be if he were demobilised to-day without the option of stopping. In fact, he would be in a somewhat better position, because he would have had just that much extra training as a mechanic, and so would be capable of earning a living as such in a factory or garage.

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Anyhow, in common fairness to the cadets and young officers themselves and as a matter of Imperial policy,

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the obviously sensible thing to do seems to be to start flying training again in all the training squadrons. The greater the number of youngsters who are able to fly the greater will be our insurance against another war, for, as General Brancker remarked a year or more ago, our best insurance against another war is to maintain such an Air Force that no other country will ever dare to attack us for fear of invasion by our Air Fleet.

Moreover, the greater the number of youngsters who can fly, the greater will be the demand for aeroplanes in the future, and the stronger the British Aircraft Industry will become. And, as we have so often been assured by various high authorities from Lord Weir downwards, the existence of a strong Aircraft Industry is in itself one of the best possible safeguards against attack by any other Nation.

The Knell of the Navy.

A strong Aircraft Industry is, in fact, as necessary to the safety of the British Empire as is a strong Shipbuilding Industry. Indeed, in the future, the Aircraft Industry must be, from the point of view of national defence, the more important of the two.

If we have sufficient bombing aircraft to make it impossible for enemy nations to operate with submarines, and if we have sufficient torpedo-carrying aircraft to make it impossible for an enemy to operate with surface ships, then we can hold the Command of the Sea from the air without caring whether we have a Navy or not. Our Air Fleet will be capable of guarding our shores and our sea routes against any attack by enemy warships and will assure to our own merchant ships the uninterrupted use of the sea routes, thus assuring the free and uninterrupted import of food and raw material and export of troops and war material.

The Use of Enthusiasm.

The youth of the country to-day is full of enthusiasm for flying. Keen and intelligent boys of all classes are as willing to work at anything concerned with aeroplanes, provided that they are also allowed to fly, as were those enthusiasts at Brooklands and who slaved day and night on a mere pittance, and frequently without wages at all, so long as they were allowed to have a hand in the building of their beloved aeroplanes.

If the young officers and cadets of whom one has written are too proud to do a man's job of work at an aerodrome, then they can very easily be replaced by thousands of youngsters who are only now reaching military age and who are intensely desirous of working on aircraft anywhere, and at any time, so long as they are assured of the chance of flying.

Therefore it is perfectly evident that if we only have the sense to lay ourselves out to encourage aviation sensibly and to make use of the enthusiasm for flying which exists among the rising generation we shall not only do quite a lot for our boys, but we shall do quite as much for ourselves at the same time by providing ourselves with that best of all insurances against future wars, namely, a striking force in being, which will be sufficient to put the fear of God into our enemies.

C. G. G.

THE ROYAL AERO CLUB AND ALTITUDE RECORDS.

A correspondent writes alleging that there is a considerable difference between the methods employed by the Royal Air Force and the U.S. Air Service in computing altitudes reached by aircraft. As is commonly known, the altitude shown on the aneroid carried by an aircraft does not indicate the correct height above sea level, because the aneroid is affected by variations in barometric pressure on the particular day on which a flight is made, and by temperature and density of the air at the altitude reached. Therefore, the figures shown on the aneroid have to be corrected according to these influences before the real height can be found. The correspondent in question states that in making allowances for barometric pressure, etc., the U.S. Air Service deducts more than does the Royal Air Force.

This statement bears very importantly on the existing claims to the altitude record. For example, it is claimed that Major Schroeder, U.S. Air Service, flying an American-built Bristol Fighter with a 300-h.p. Hispano-Suiza engine, reached an altitude of 29,800 feet, and that Captain Lang on an Airco D.H.9 with a Napier "Lion" engine of 450-h.p. reached an altitude which, as corrected, is given as 27,350 feet. It is not as yet known whether Major Schroeder's figure is the corrected figure, or merely the aneroid figure, and the heights claimed are obviously affected also by the question as to whether there is a difference between the British and American methods of computation.

One suggests that this is a matter with which the Royal Aero Club should deal promptly. The R.Ae.C. is supposed to be the body which governs the sport of flying in the British Isles, and is concerned with the verification and passing of all claims for records. So far, the Aero Club has made no statement concerning the record claimed by the makers of the machine and engine flown by Captain Lang, and it is not even known whether a formal claim to the record has been entered either by these firms or by the pilot and passenger.

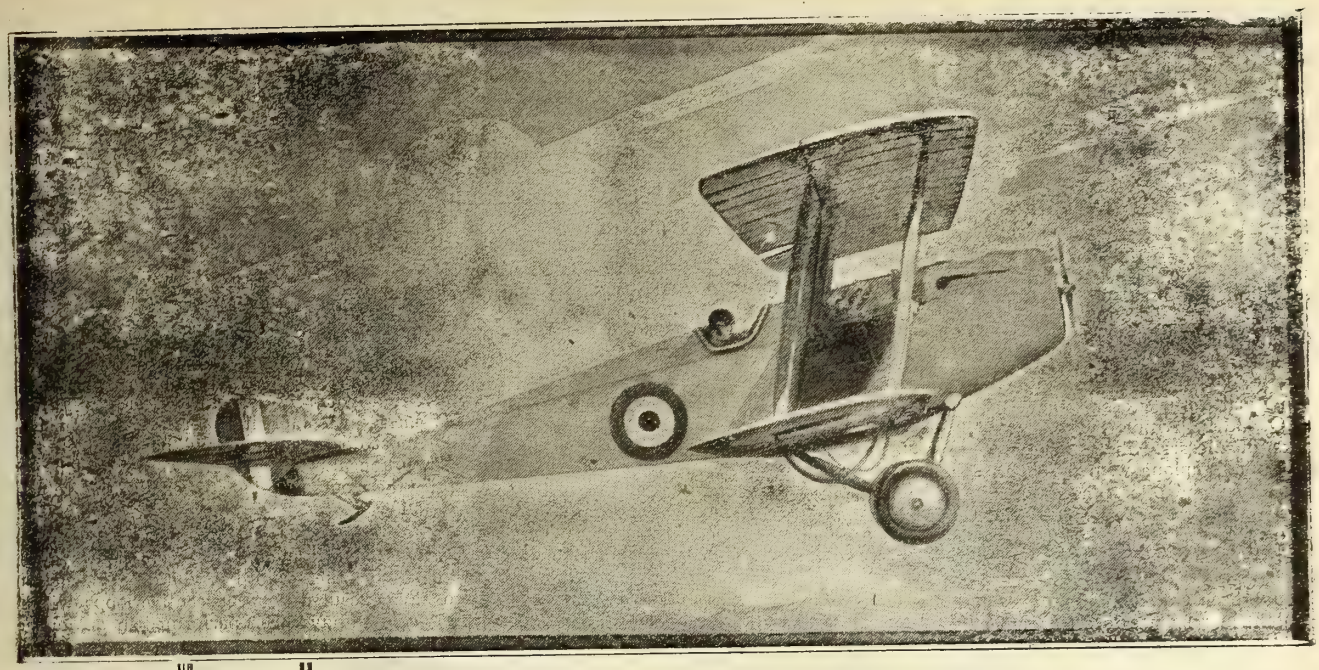
It seems, therefore, that it is very much the affair of the Royal Aero Club to issue a public statement on these figures. If no record has been claimed for the British performance, then the Aero Club's duty is to state that the performance is not officially a record. It is also the duty of the Club to say whether the American record is a record or not.

One can quite understand that owing to the strenuous war work of all the members of the Committee of the Royal Aero Club the functions of the Club as the governing body of the sporting side of aeronautics have fallen into a state of innocuous desuetude, so one desires to draw the attention of the Committee to the fact that in future there is going to be a good deal of work of this nature to which it will be required to attend, therefore it might very well begin on this matter of the claim to the Altitude Record.

The Committee of the Royal Aero Club may very well be heavily occupied in looking after social matters in the Club, but in the interests of aeronautics it seems that the sporting side of the Club's activities are actually of more importance than what may be called, perhaps without offence, the hotel-keeping side.

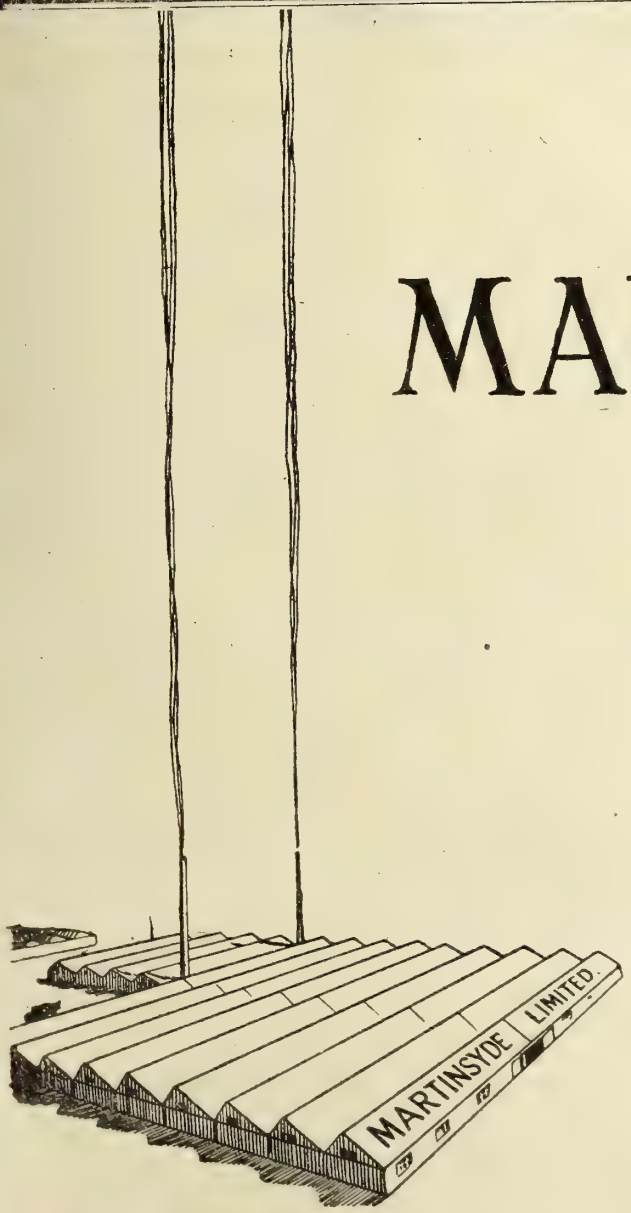
AIRCRAFT SALVAGE.

It appears that a good many people who wish to buy aeroplane salvage material are under the impression that applications for such material should be made to the Air Ministry. Such persons should, therefore, note the fact that the Air Ministry is not at all concerning itself with the disposal of obsolete aircraft and aircraft material. All inquiries respecting complete aeroplanes, engines, component parts, or salvaged raw material should be addressed to the Aircraft Disposal Department, Ministry of Munitions, York House, Kingsway, W.C.2.





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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

A Royal Flight.

H.R.H. the Prince of Wales, K.G., and Captain the Prince Albert, K.G., R.A.F., motored to Wallington Aerodrome on April 8th. The Prince of Wales ascended in an Avro biplane with Major Bird as pilot, and the Prince Albert flew with Lieut. Coryton, his instructor. Both machines flew for about half an hour.

General Seely's Flight to Parliament.

On April 10th, Major-General J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., Under-Secretary of State for Air, flew from the works of Messrs. Short Brothers at Rochester to Westminster in a Short seaplane with a 260 h.p. Sunbeam. Mr. J. Lankester Parker was the pilot, and Major S. V. Sippe, D.S.O., O.B.E., accompanied Major-General Seely. The seaplane left Rochester at 4 o'clock and arrived at the Houses of Parliament at 4.23 p.m. Major-General Seely was taken to Westminster Pier by a motor-launch.

It has been stated in the Press that Major-General Seely made the flight in response to an urgent call to the House, but the fact that Press photographers were present leads one to think that those who were responsible for the arrangements had time to consider the opportunity of gaining publicity. A flight of 23 minutes is not sensational, but it is well to keep the public informed of the practical daily use of aviation.

The New C.T.D.

It is now fairly commonly known that Brig.-General H. R. M. Brooke-Popham, C.M.G., D.S.O., has been appointed Controller of the Technical Department, under the Air Ministry, *vice* Brig.-General J. G. Weir, C.M.G., who has returned to his post with his family's firm, J. and G. Weir, Ltd., the famous makers of pumps for marine work. All who know General Brooke-Popham's great work during the war are glad to see him in so responsible a position.

According to Plan.

The Secretary of the Air Ministry announces that the Adelphi Hotel (which was occupied by a portion of the Air Ministry) and the Covent Garden Hotel (which was occupied by the Headquarters, South-Eastern Area, Royal Air Force) have been given up and are no longer occupied by Air Ministry or Air Force personnel.

A German Aeroplane on View.

A twin-engine German aeroplane, which was brought down on the Western Front, is on view in St. James's Park, opposite the Horse Guards Parade.

A Novel Feature.

The "Scientific American" recently published a description of a machine which appears to have a novel feature. "Known as the K.3 type, the Martin single-seater Biplane," says our contemporary, "includes a two-seater horizontally opposed engine of 45 horse-power." One trusts that the cooling arrangements are adequate.

A Hendon Incident.

At Hendon Police Court on Thursday, April 10th, C. W. Warwick, who has recently been demobilised from the R.A.F., was fined £10 for trespassing on the London Aerodrome, Hendon. Witnesses stated that Warwick was dressed in R.A.F. uniform, and, after speaking to a mechanic, he got into an aeroplane and made a flight which lasted ten minutes.

In defence, the accused said he was very keen on flying, and having been in the Air Force, he thought he would like another flight. Thinking he might not get permission and seeing a machine on the ground, he could not resist the temptation to go for a flight.

One is compelled to admit that the fine was not excessive, but one feels it a pity that such keenness should be wasted.

Philosophic Doubts.

The statements with regard to flights from London to Paris in such short times as 80 minutes and 75 minutes have been causing doubts. Some pilots who were employed upon ferry work, and who therefore know a good deal about cross-Channel flying, are asking how the times are taken. At a club the other day one of these experienced aviators said he saw a machine arrive from Paris and heard someone ask the pilot when he had started. The reply was "*about* 4 o'clock," and as the time was then 5.15 another "speed record" was announced in the daily Press.

One would like to know whether the times of some of the recent remarkable performances have been taken officially.

Forethought.

It is reported from Berne that aeroplanes are in readiness to carry the Hungarian Soviet Government across the frontier to safety in case of sudden danger.

When the Dry will Fly.

The prohibition of the sale of alcohol in America may bring into operation an aeroplane ferry from the coast of Florida to the Bahamas, in order that when in extremis a thirsty person may obtain a ration of snake-juice in British territory. It is suggested naïvely that the most direct route would be taken on the outward journey. There appears to be some subtle reason for making no reference to the course to be steered on the return trip.

The Looping Record.

According to a message from Issoudon, France. Lieut. Joyce, of the testing department of the Third Aviation Instruction Centre, is reported to have executed 300 consecutive loops within 66 minutes. The feat is said to have been performed in a Morane monoplane with a 120 h.p. Le Rhône engine. An average altitude of 2,000 feet was maintained; 24 minutes 30 seconds were required for the first hundred loops, 20 minutes 30 seconds for the second hundred and 20 minutes for the third

Why?

The Enemy Aircraft Department of the Air Ministry has presented four large Zeppelin engines to Leeds. The reason for this donation is not given. One would think that if mementos of the raids are required other places have stronger claims.

The Silent Aeroplane.

During an interview with a representative of the "Daily Mail" on April 14th, Major-Gen. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., is reported to have said:—

"The greatest desideratum now to make flying both practicable from a commercial standpoint and comfortable from the passenger's standpoint is the reduction of noise in an aeroplane. The deafening roar of propellers undermines the endurance of the pilot and detracts from the enjoyment of the passenger.

"The best engineering brains in British air science are now hard at work on the production of a practically noiseless machine. We shall achieve perfection in that respect, I have no doubt, as we have in others.

"I think we have already reached the point where we may claim that flying is about as safe as, let us say, travel in a fast express train. I no longer think of travelling to Paris by any route except air."

The Soliloquy of a Modern Hamlet.

A contributor to the "Brooklyn Eagle" bemoans his own country's lack of enterprise in the development of aeronautics in the following lines:—

To fly, or not to fly—that is the question.
'Tis not befitting that we stand aloof —and
In the aerial fields we pioneered—see
Other nations plunged in contest keen
To wrest the laurels of the skies
That, once, were ours,—to be but cast aside
As trifling baubles nothing worth.
Much better that we gird ourselves anew
And, in the lists, compete for what is but our own
By right of heritage, and in accord
With hist'ry's records of ambitions won and held
In every sphere where skill of men count aught
And Progress holds its sway.

One fain would ask how 'twas we failed
To heed the deeds and pleas of those, our pioneers,
Wrights, Curtiss, Martin,—others who saw,
Writ large on backgrounds of celestial blue,
The warning prophecies of coming days.
Yet we lay dormant. Men of other lands
Foresaw the uses of the bird-like thing
Conceived and born beneath our flag
But fostered 'cross the seas, while we
Inert, supine with smug contemptuous mien
Cared nothing for our passing fancy's child.

There are many more lines in this lament. One remembers a time when writers of America were fond of picturing John Bull as "inert, supine with smug contemptuous mien," and we, on our side, flung charges of boastfulness across the Atlantic. Are we beginning to know each other better at last?


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The WORLD of AERONAUTICS (continued)

An Irishman's Rise.

The title of an article by Major T. Orde Lees in the April edition of "The Quirk" is "The Rise of the Parachute." However, no figures are given to demonstrate the modern parachute's rate of climb.

An Early Attempt to Cross the Atlantic.

According to the "Daily Chronicle" it is now nearly half a century since the first attempt was made to cross the Atlantic by air. For it was in 1873 that a New York newspaper constructed a colossal balloon, in which Mr. Wise, a well-known American aeronaut, might make the journey.

The balloon, however, burst during inflation, and though a start was actually made after its repair, the travellers were forced to descend in Connecticut after a perilous journey.

Holiday Facilities.

A number of aviation companies have decided that it will be possible to arrange for some pleasure flying during the Easter holidays.

Handley Page, Ltd., state that flights will be made in service machines within Government limits from Cricklewood.

The Sopwith Company (Kingston) say that they are quite prepared, but there is a difficulty in finding the pilots. They have got the machines ready, including a two-seater for people who like stunting. Why the difficulty about pilots? London is full of them.

The Grahame-White Company (Hendon) said, according to the "Times":—"We are not organised for the holiday trips. We hope to open to the public shortly after Easter, and then we are to have race meetings, night flying demonstrations, etc., as we did in pre-war days, but on a very much bigger scale. We shall have a machine capable of taking 15 to 20 people. We are not quite ready yet."

The British and Colonial Aviation Company will not arrange special flights during the Easter holidays.

A Flight Across the Alps.

Having obtained passports from the French and Swiss Governments, French aviators, in fourteen machines, flew from Nancy, across the Jura Alps, to Lausanne.

An Accident.

One regrets to hear that an accident has interrupted the attempt of Lieut. Roget to break the Paris, Rome, and back record. On April 12th he arrived at Nice on the return journey, after covering 500 miles in four hours, including 440 miles across the sea, when a windstorm arose as he was about to restart.

The Nice aerodrome is crossed by a small stream, which a sudden gust prevented the pilot from avoiding. One wheel caught in the channel, and the machine overturned, killing a soldier and a boy of twelve. Roget and the mechanic were unhurt.

The 88th Squadron Dinner.

The 88th Squadron's Dinner will be held in London on Saturday, April 26th. Those who wish to be present should communicate with Captain Hepburn, R.A.F., Royal Automobile Club, Pall Mall, S.W.1.

Aircraft and Wireless Telephony.

According to the "Daily Telegraph," while experimental stations of the Royal Air Force in England are engaged upon research work in wireless telephony, out in France the new apparatus is being put to practical use under test conditions in connection with the Folkestone-Cologne aerial mail service. Along this route a chain of call stations is being installed, and the machines engaged in the service are being fitted with both sending and receiving sets.

Already clear voice signals can be transmitted from the aeroplane to the ground and *vice versa* at thirty miles, but as yet the idea has not passed the experimental stage, and the possible range is quite indefinite, and is governed by the powers of the sets employed. A certain amount of voice training is necessary, but compared with the time required to teach Morse this is negligible. What is essential is that the speaking should be clear, deliberate, and pitched in a higher key than the "engine talk," otherwise the voice becomes merged with the engine drone.

The training necessary to enable the fledgling pilot to out-talk a couple of Rolls-Royce engines is a new terror he will have to face. It is presumed that the coiner of the phrase has not been listening to an expert speaking of engine torque.

The Cape to Cairo Air Route.

Major Court Treatt, the officer in charge of the southern survey of the aerial route from Cape Town to Cairo, left Johannesburg on March 27th to inspect the aerodromes on the southern portion of the route. Reuter reports that Major Treatt will visit Chief Khama, who wants one of the aerodromes in his country.

A Good Flight.

A good flight was made recently by Lieut. Gortinez, who, piloting the Bristol aeroplane presented to the Chilian Government by the British Government, flew over the Andes at a height of 19,600 feet.

Another Aviation Prize.

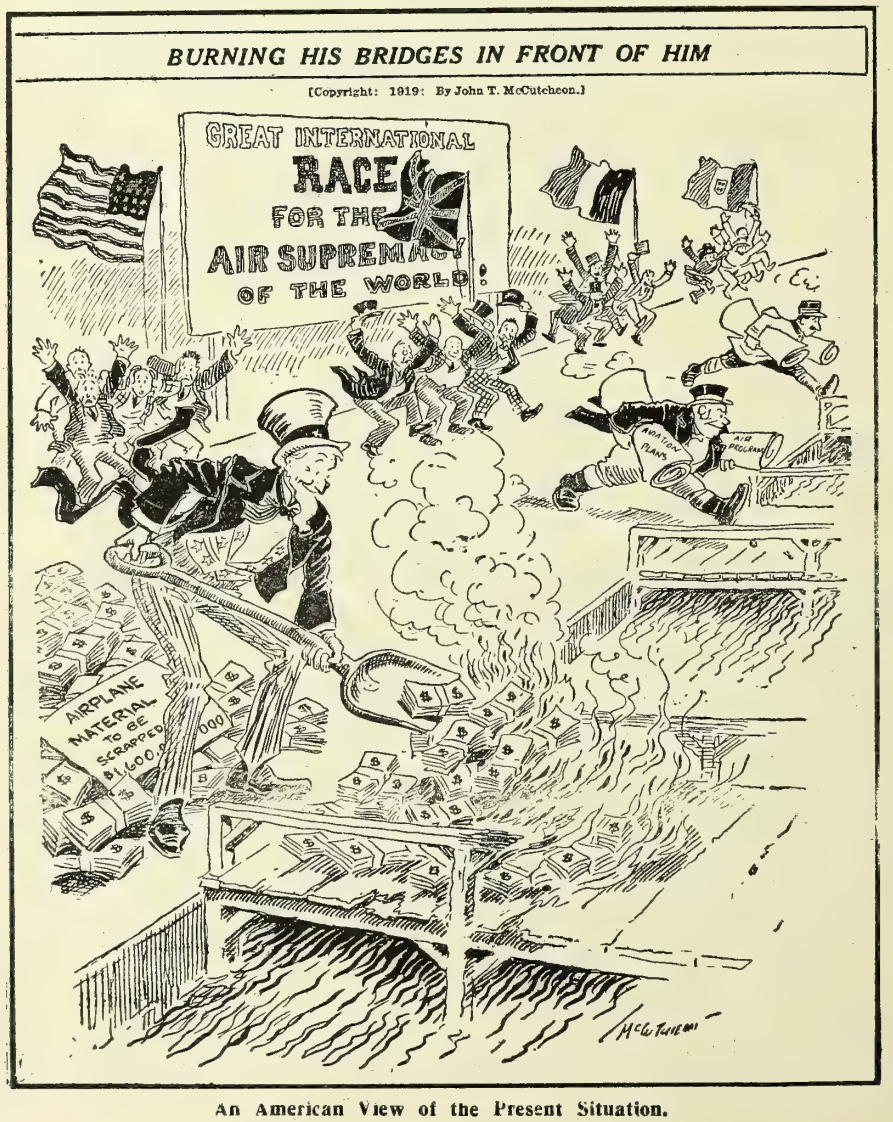
It is stated in Milan that Count Adam Ostaszewski has offered a prize of £4,000 to the first aviator to reach the South Pole.

A Change of Address.

The Air Ministry announces that No. 1 Reception Depot is removing from 40, Upper Brook Street, Mayfair, W.1, to 4, Henrietta Street, Covent Garden, W.C.2, and will be established there as from April 14th, 1919.

The French Aviation Prize.

The British Aerial Transport Company has entered one of its commercial machines for the commercial and touring competition, the winner of which will be awarded a prize of £12,000 by the proprietors of the newspaper "Echo de Paris."



An American View of the Present Situation.

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The WORLD of AERONAUTICS (continued)

The U.S. Aerial Police.

The Aerial police of New York City are to be trained at the Municipal Aviation Field, Atlantic City. The school will be opened in a few days.

The police are to be used to guard the flying routes during the aviation meeting of the Pan-American Aeronautical Exposition in May. This will be the first time in the history of aviation for a racing course to be regularly policed by aeroplanes

An Accident in India.

A message from Calcutta, dated April 2nd, states that eight aeroplanes were leaving Jacobabad for Sibi when one struck a mound and capsized. The petrol tank caught alight and set fire to the machine. The mechanic, William Adams, was burnt to death, but the officers and pilot escaped with slight injuries.

The Return of the Dutch Commission.

The Dutch Commission which has been studying aviation in England left Felixstowe by aeroplane at 2.50 on Saturday afternoon, April 12th, and landed at Amsterdam at 4.23.

This is the first time that an English aeroplane has landed in Holland, apart from forced landings, during the war

A Peruvian Air Service.

It is reported from Peru that Lieutenant Chapman, representing the Nieuport interests, is at Lima awaiting the arrival of the Nieuport Night Hawk scouting aeroplane. He is negotiating for the establishment of a military school and aerial mail service between Lima and Iquitos.

Promotion of Lieut.-Col. de Goys.

According to a Reuter telegram, the promotion is announced of Major de Goys, of the French Air Service, to the rank of lieutenant-colonel.

It was Lt.-Col. de Goys who organised the first bombing group, composed of Voisin machines, and piloted by men whose names rapidly became known as those of crack aviators. He was taken prisoner in the first raid on Ludwigshafen, and escaped after three years' imprisonment, when he again took command of a squadron, which covered itself with glory during the last German offensive and the Allied counter-offensive which followed.

A Use for Salvage Airscrews.

The following letter has been received:—

Sir,—Re your article "On the Salvage of the R.A.F.," I should like to suggest that the airscrews could fairly easily be adapted as fan blades for the electric ceiling fans or "punkahs" which we use out here by the thousand, every flat in Bombay requiring at least three, and many new houses being or about to be built—whilst during the war and since fans have been almost unobtainable.

Most fans have four blades, but I should imagine that two, properly shaped, would be quite as effective.

Bombay. (Signed) K. P. Chenery.

[The idea of using airscrews as "punkahs" really seems to have something to recommend it. As a matter of fact, an airscrew is not the best possible fan, because it is designed to screw its way through the air without throwing the air about. The reader will probably appreciate the difference between it and a fan when one says that it is much the difference between a wood-screw and an auger or gimlet. All the same, airscrews fixed on a bearing and turned with a belt from a crank, probably would act fairly well as "punkahs." The idea is, at any rate, worth mentioning. There are heaps of four-bladed airscrews in this country which could be bought cheap and used for the purpose.—Ed.]

A U.S. Aircraft Change.

It was reported in Washington on April 7th that President Wilson has issued an executive order abolishing the Aircraft Board and placing all aircraft production funds under the control of Major-Gen. Maher, the newly-appointed Director of the Army Air Service.

The "Middle-aged Boy."

The following letter has been received:—

Sir,—Having read with very much interest your article concerning demobilised R.A.F. officers, both young and old, the experiences of one who comes under the classification of the "middle-aged boy" may be of interest to your readers.

I was one of the 1914 veterans to be demobilised last January, having just previous to the beginning of war completed one year at a famous engineering college at South Kensington.

Hearing that a special second year's course was about to be commenced in February, which would cover a year's work in about four months, the temptation to be demobilised proved irresistible.

Here, I thought to myself, is something for nothing. In due course I was demobilised and rejoined the college on the appointed date. I was surprised to find what a crowd of kindred spirits there was, and what a lot of fellows amongst them I had met before.

In about a week we had settled back to work in great style. We were again plunged into the mysteries of the Calculus.

Many of the demonstrators were demobilised officers themselves Those who were not appreciated the circumstances and treated us with all the tact we deserved. For the first week or two the work was a novelty, then there came a period of general fed-upness amongst the students.

However, all felt that there was only one thing to do and that was to plug on. To those who had a sense of humour the mixture of war veterans, from majors downwards, all scratching their heads and nibbling the ends of their pens, proved a source of inexhaustible mirth.

We laughed at ourselves, and the very humour of the situation soon dispelled the gloom. Students became more cheerful, and by this time we have settled down to work in earnest.

I advise those fellows who, like myself, have definitely decided to enter a civil profession and not to stay on in the Army, and who are qualified or half-way qualified, to go ahead or finish off the work they have decided to take up.

They will not be alone in their endeavour, and after a month will become acclimatised to the new conditions.

The following points or arguments in favour are in my opinion worthy of consideration.

1. Once having obtained a University degree or diploma they will never have to pass any further examination in their profession.

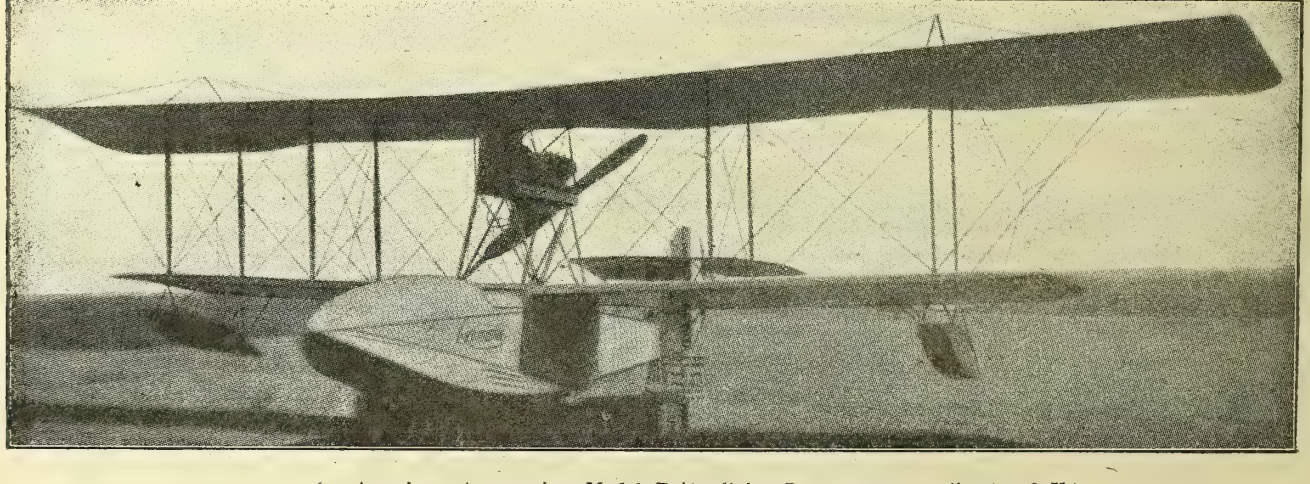
2. They will certainly be in a better position to obtain an appointment having finished their course than they would be if they rushed for a job now.

3. As to expenses:—The Government grant, together with the gratuity, should be sufficient to pay for keep and college fees during the course, provided the "odd noggin" is not too frequently indulged in.

The man who has brought down his dozen Huns should have the "guts" to go through with the hard work necessarily entailed, and should have more self-respect than to dash back to his C.O. and implore for reinstatement after a few days of study.

There is an old Army saying that is still as true to-day as ever before, and that is that God helps him who helps himself. A rider, I think, might be added to the effect,—"Heaven help him who spends his gratuity in trying to find a cushy job and then does not get it!"

C. G. S.



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PARIS NOTES

Aerial Posts.

Week by week it is one's pleasure to record the progress made in the establishment of Aerial Posts. There are at the moment eight different lines in operation, and yet all does not seem to be well. For example, four different organisations share the onus of running eight lines which, on the face of it, points to a dissipation of energy and a lack of governmental co-ordination which is the more deplorable in view of the fact that in the inauguration of commercial or postal air routes the first thing to be avoided is injudicious competition and unnecessary overlapping of Headquarter organisation.

The eight lines are divided between the (1) Civil Aviation Authorities, (2) Postal Authorities, (3) Military Aviation Authorities, and (4) General Headquarters, for example :—

Paris-Lille and Lille-Paris (Military Aeronautics).

Paris-Mauberge-Valenciennes (Civil Aviation).

Paris-Brussels and Brussels-Paris (French and Belgian Military Aviation).

Paris-Strasburg (G.H.Q.) (in bad weather an automobile service is substituted).

Nancy-Longwy-Brie-Nancy (Civil Aviation).

Paris-Bordeaux (non-stop) and Bordeaux-Paris (one stop) at Chateauroux (Civilian Aviation).

Paris-St. Nazaire and St. Nazaire-Paris (relay at le Mans) (Postal Authorities).

Tarascon-Nice and Nice-Tarascon (Postal Authorities)

Le Bourget is at the moment the aerogare of Paris, and, presumably, of the world; for example, every day machines leave the ground from there, for Lille, Brussels, Valenciennes, Strasburg, Bordeaux and St. Nazaire.

A Regrettable Accident.

Unfortunately, for the immediate future of aero-mails, a machine which left Le Bourget at 11.40 a.m. on the 7th inst., caught fire when landing at Bordeaux; machine and mails were destroyed completely, and pilot and passenger burnt. One is loth to record these regrettable incidents, and one wonders whether it is beyond the ingenuity or the acumen of the Authorities to enclose postal packages in fireproof bags so that whatever happened to the machine the mails would be safe.

At 7.30 a.m. on the 3rd inst., Lieuts. Moraglia and Dejobert, of the G.B.5 Squadron left Le Bourget with the object of flying to Bordeaux and back in the same day and on similar machines. Each carried an N.C.O. passenger in his 300 h.p. Bréguet (Renault engine). Dejobert reached Bordeaux, but in getting off again strained his machine, so that the record has still to be made.

The Nice-Tarascon line is running fairly regularly, but the service was interrupted for a short time owing to engine trouble.

March 31st witnessed the inauguration of an aerial post on the Nancy-Brie-Longwy circuit. The journey occupied three hours; four bags of mails were carried. It is intended to open the route for passenger traffic shortly.

When Lieut. Lemaitre made his flight from Toulouse to Casablanca it was hoped that a commercial or postal service would be started forthwith. Not so, however; it appears that France and Spain do not see eye to eye in regard to flying over the latter's territory. Nevertheless, Lieut. Rodier left Toulouse on the 5th inst. in a three-seater, carrying 200 lbs. of mails and two passengers for Morocco. Three hours later he had arrived at Saragosse, having passed over Barcelona on the way.

Aerial Mails to Tunis.

The extreme south of Tunis is to have its aerial post weekly, the service starting each Sunday from Gahès on the arrival of the French mail. The first trial took place on March 30th, and the following were the times :—

Itinerary.	Departure.	Arrival
Gahés	6.30	
Houmtsouk		6.40
Houmtsouk	8.20	
Larzi		8.55
Larzi	9.15	
Ben Gardine		9.30

Aviation and Moroccan Rebels.

Aviation is destined to play a large part in the eventual submission of the Moroccan rebels. In the Ouergla region in the course of a severe engagement between the rebels and the French troops, one of the French posts was surrounded and sustained heavy losses. Soon after, however, 17 Avions bombarded and gunned the rebels who retired giving time for reinforcements to arrive.

Another Possible Entry for the Atlantic Flight.

Lieut. Fontan has just received official permission to attempt an Atlantic flight. With this in view he spent all night on his machine and left Villacoublay on the 8th inst. at 6.1 a.m. for Casablanca, but fog obliged him to stop at Bourges, whence he returned to Paris. Lieut. Fontan hopes to fly from Paris-Casablanca-Dakar, for which the "Daily Mail" has *not* offered £10,000. It would be a bombshell were he to deposit the necessary £100 with the Aero Club and cross the South Atlantic. One presumes that such a flight would be perfectly valid.

The G.3 Caudron.

The little G.3 Caudron, of the same type as that with which Védrines landed on the Lafayette roof, i.e., one fitted with a 100 h.p. Anzani, is very popular just now. Mlle. Jane Hervieu, to whom reference is made elsewhere in these notes, flies one, and M. A. Maicon, a pre-war pilot, has been touring the Midi and the Cote d'Azur in one. He flew 440 kms. in 4 hrs. 20 mins., at 1,200 metres height, stopping for meals at Avignon, Marseilles, and Nice. He is continuing the journey.

Touring by Aeroplane.

Touring the South of France by aeroplane must be very pleasurable on these spring days. M. Galmot, on a Farman F.50 Limousine, fitted with two 275 h.p. Lorraine motors is touring France in company with several friends. Leaving Paris, they followed the course of the Loire until Tours, a voyage of three hours; the next day they "ambled" from Tours to Bordeaux in 2 hrs. 50 mins. The following day they proceeded to Sarlat, from whence they hope to reach Biarritz, returning to Paris through the Gascony country. Certainly, a short journey in an aeroplane gives one ample time to explore a city or its surroundings à terre. Lieut. Constanti is employed as pilot; the day of the aerial chauffeur has surely arrived!

False Rumours.

On two occasions in 10 days the rumour has gone round that the Goliath and its human freight had come to an untimely end, once by fire, and secondly, by crashing; happily, both rumours proved to be canards of the first quality, although, in one case, an evening paper became slightly hysterical over the reported catastrophe. Anyway, nothing could be further from actual fact. Last Saturday 14 passengers were carried from Paris to Brussels, among whom were M. Anglés, a Deputy, and Mme. Merset, wife of the Consul-General of Luxemburg. Mr. Sharp and Captain Clark, two pioneer aerial tourists, also "took the air" for Brussels. Just at starting-time a Customs official, two douaniers and "one douanière" presented themselves, and with hypocritical apologies, requested the passengers to declare themselves and their baggage. On Monday, when the Goliath returned, the process was re-enacted in order to ensure that contraband was not being brought to Paris from Brussels. It is probable that two machines will leave Paris for Brussels three times a week in the near future and *vice versa*. The Customs Authorities are making arrangements to establish a permanent office on the Farman Aerodrome at Toussus-le-Noble, near Paris. The Goliath is to undergo a complete overhaul with a view to attempting a height record with 25 passengers.

Aero Clubs and Model Aero Clubs.

Some years ago in England, certain enthusiasts worked off their surplus energy in forming local Aero Clubs and Model Aero Clubs. Where are they to-day? One has not to ask the same question in France, as those who follow these pages weekly may note. From Nimes comes the news that the Aero Club de Gard, founded in 1909, and affiliated to the Aero Club de France has resumed its pre-war activities.

The Ae.C.F. Roll of Honour.

M. Henri Deutsch de la Meurthe presided at a general meeting of the Ae.C.F. recently, and opened the sitting by saluting the members who had fallen in defence of the Allies cause, and thereafter read out the Roll of Honour as follows :—Killed 82, wounded 34, missing 5, prisoners 24 (of whom 11 escaped during hostilities, and 5 were repatriated).

111 members were promoted in or named to the Legion of Honneur, 21 received the Military Medal, 367 were cited in the order of the day, and 184 members were promoted to superior rank.

Decisions of the French Government.

The French Government has decided to issue a "Livre d'Or" of Aeroplane Squadrons, detailing their records and war honours.

In order to teach the young men of military age a trade, and thus provide the Aeronautical Industry with skilled artisans in increasing numbers in a few years' time—in case the Industry experiences a period of stagnation—the Authorities have announced that youths of the 1919-1921 classes can enlist in the Aviation Corps (as non-navigating personnel) for four or five years. The French Aviation Corps is not composed in the same manner as the Royal Air Force or its progenitors. In France, in general, all men were already in the Army; thus, when it was necessary to increase the size of the Aviation Corps, men were transferred according to need and by their desire. Now, many of them are being returned forcibly to their original units, thus losing their proficiency pay.

F. T. N.

THE WORK OF THE ROYAL AERONAUTICAL SOCIETY IN 1918-19.

(Communicated by the Secretary, Mr. W. Barnard Farraday.)

In presenting the 54th Annual Report, the Council have pleasure in drawing attention to the prosperity and generally improved standing of the Society, which were such marked features of the report last year, and which can again be emphasised. The Society is continuing to grow in numbers and influence, so that every confidence may now be felt that it should have before it a great and prosperous future.

Title.

The Council are glad to have the honour to announce what is already well known to the members, that on June 25th, 1918, Sir William (now Lord) Weir, then Secretary of State to the Air Ministry, conveyed to the Society the information that His Majesty had been graciously pleased to confer on the Society the dignity of being henceforth known as the Royal Aeronautical Society in recognition of the Society's work.

Membership.

In January, 1918, the membership of the Society stood at 690, a considerable advance on the preceding year, but in January of the present year this figure had increased to 1,045. The Council considers that the fact that the membership has reached the figure of one thousand should be commemorated in a suitable manner together with the jubilee of the birth of the Society, which took place during the war. It is therefore proposed that an evening entertainment or conversazione should be given by the Society during the month of June, at a date to be named later.

Branches.

Progress has been made with the organisation of branches of the Society. The branch at Manchester is organised and has already held a number of successful meetings. In connection with this branch the College of Technology (University of Manchester) has arranged a course of lectures on aeronautics, which has been well attended. The Hendon branch has a large membership and is now completing its final arrangements Members are requested to co-operate with the Executive of the Society in forming additional branches where the conditions in their own districts are favourable.

Increase in Council.

In consequence of the greatly increased work of the Society it was found desirable to increase the number of the Council, and accordingly on November 20th, 1918, Rule IV (6) was altered by resolution at an Ordinary General Meeting of the Society, increasing the number of the Council from 16 to 20. The members co-opted to fill the vacancies thus created were Lieutenant-Colonel Alan Burgoyne, M.P., Lieutenant-Colonel F. R. Cave-Browne-Cave, Brigadier-General Sir Capel Holden, F.R.S., and Major R. V. Southwell.

Conjoint Board of Scientific Societies.

In October the Society received an invitation from this Board to become one of its constituent societies. Major-General R. M. Ruck, C.B., C.M.G., R.E., was elected as the Society's representative on the Board for the current year.

The Technical Terms Committee.

This Committee has now completed the present stage of its work and presented its preliminary report. It should be observed that the difficulties of the questions involved was so great, in view of the wide divergencies in terminology existing among the various sections of the aero-technical world, that not only was the labour of the Committee enhanced, but the necessity of their issuing a report, even if only hastily completed, was made evident.

The Committee draw attention to the tentative nature of certain of their proposals. The Glossary prepared by the Committee is therefore issued as a working compromise. The Committee do not regard their work as finished, but will, as occasion arises, issue revised editions. The Committee have embodied in their Glossary a system of notation for use in aerodynamical calculations. This, after submission to the Advisory Committee for Aeronautics, was approved by them for issue as a provisional system on which comment is invited.

The Council desire to express their thanks to Lieutenant-Colonel O'Gorman and the other members of this Committee. The Committee has met weekly for a period of 18 months, and individual members devoted a great deal of time to the consideration of the various problems involved. The task was complicated by the differences of nomenclature which have grown up throughout the world, and as it was desirable to make the Glossary as international as possible much correspondence was involved. The Committee, as appeared in the last report, took its final form as the result of co-operation between the Society, the Engineering Standards Association, the American Advisory Committee on Aeronautics and the International Aircraft Standards Board of Washington.

The Members of the Committee.

The Committee as finally constituted was as follows:—

Chairman: Lieut.-Colonel M. O'Gorman, C.B., R.A.F. (Engineering Standards Association and R.Ae.S.).
L. Bairstow, F.R.S. (Royal Aeronautical Society and Air Ministry, Technical Department, Experiment and Research).
Lieut.-Colonel Briggs, R.A.F. (Royal Aeronautical Society).
W. Cannell (Society of British Aircraft Constructors).
Lieut.-Col. T. R. Cave-Browne-Cave, R.A.F. (Air Ministry, Airship Department).
Major T. G. Clarson (Air Ministry, Aircraft Equipment).
Captain A. C. Day, R.A.F. (Admiralty and War Office).
Captain A. F. C. Pollard, R.A.F. (Air Ministry, Technical Department, Instrument Section).
Captain F. M. Harding, R.A.F. (Air Ministry, Technical Department).
A. Winter-Moore (Air Ministry, Aircraft Equipment Department).
Major W. H. Ewen, R.A.F. (Air Ministry, Aircraft Equipment Department).
C. G. Grey (Royal Aero Club).
Lieut.-Colonel J. H. A. Landon (Air Ministry, Technical Department, Applied Design).
Major A. R. Low, R.A.F. (Royal Aeronautical Society).
R. Borlase Matthews, A.M.I.C.E. (Royal Aeronautical Society and Air Ministry, Technical Department, Applied Design).
Captain J. K. Mountain (Air Ministry, Aircraft Equipment).
Major Myers, R.A.F. (Air Ministry, Aeronautical Inspection).
A. S. A. Ormsby (Patent Office).
R. K. Pierson (Society of British Aircraft Constructors).
W. G. Renals (American Advisory Committee for Aeronautics).
F. J. Selby (Advisory Committee for Aeronautics and National Physical Laboratory).
Sir Napier Shaw, F.R.S. (Meteorological Office).
Captain Waters, R.A.F. (Air Ministry, Technical Department, Drawing Office).

To these individually the Council desire to offer their acknowledgments.

Civil Aerial Transport.

In the last report reference was made to the efforts which were being made by the Society to promote the cause of civil aerial transport. This movement has now attracted considerable attention, and is widely recognised as of the utmost national importance. The efforts of the Society have been continued during the past year, and three public lectures have been delivered on the subject under the auspices of the Society to very large audiences in the Central Hall, Westminster, by Mr. Holt Thomas, Brig.-General Lord Montagu of Beaulieu and Mr. C. Grahame-White.

In the first and last one of these the chair was taken by the Secretary of State to the Air Ministry for the time being, Lord Cowdray at Mr. Holt Thomas' lecture and General Sir John Seely at Mr. Grahame-White's. The Council offer their thanks to both chairmen and lecturers for their valuable help. In dealing with this subject one further remark may be made. For some time it had been feared that the termination of hostilities might be accompanied by a decline in the Society's membership as a natural result of the necessarily restricted output in the Aircraft Industry.

Fortunately this prediction has been falsified. The widespread and well-founded hopes for a great future in civil aerial transport which exist throughout the country have given the Society an increased hold upon the public and its numbers have continued to grow since the Armistice at possibly an enhanced rate. The great advance which took place in aeronautical science and industry is one of the benefits which we may claim from the Great War, and there is some satisfaction for the oldest aeronautical institution in the world in turning to the arts of peace the scientific knowledge which it developed and acquired in the terrible days of conflict

The Council strongly urge the foundation of local branches of the Society in connection with this matter. Much might be done to further the introduction of civil aerial transport in this way by the encouragement of lectures and discussion on the subject.

Popular Lectures.

The Council understand that a certain number of members of the Society hold the view that there has been an undue proportion of popular lectures delivered during the past year. The Council appreciate the fact that there is much to be said in favour of their contention, but would point out that the times were unusual, that owing to the war there was a dearth of interesting technical matter which could be published and that the advent of civil aerial transport requires special attention of a popular nature to be devoted to it. With normal times there will be a return to the proper proportion of lectures, scientific and technical.

(To be continued.)

THE 1919 NEW YORK AERO SHOW.

By "Austerlitz."

The 1919 New York Aero Show—or, to use its full official title, the First Annual Aeronautical Exposition of the Manufacturers' Aircraft Association—which was held in Madison Square Garden and the 69th Regiment Armoury from March 1st to March 15th, was quite a remarkable event on several counts.

To begin with, it was the first aero show organised by the Manufacturers' Association—which corresponds in the U.S.A. to the S.B.A.C.—and this was quite an achievement in view of the sort of monopoly the Aero Club of America had hitherto exercised in such undertakings. It is murmured behind the curtains that this innovation, which it is proposed to continue in the future, was principally due to an aversion of most of the aircraft manufacturers against being dictated to by the Ae.C.A. in the best approved style of an Aeronautical Soviet. The little advance publicity the show received from the Ae.C.A. "authorities"—as they like to style themselves—seems to give some foundation to these gentle murmurs.

Another notable point about the show was that it was organised with a great amount of truly trans-Atlantic "hustle," which resulted in "putting over" the first post-war aircraft exhibition on the brethren in the League of Nations.

The Aerial Ford Pops Out.

However, this is by way of introduction only. The one really outstanding feature of the show was that it harboured four representatives of a type of aeroplane which cannot be more fittingly described than by calling it an aerial Ford. This novel trend in American aeroplane construction seems of more than passing interest, for it may foreshadow the direction which civil flying, as distinct from commercial aviation, will take in the U.S.A. in the near future

The four 'buses referred to are characterised by the smallest size and power consistent with a possible sporting aeroplane, sufficient simplicity of design and the use of specially designed, low-priced petrol engines—which, it is claimed, can be repaired by any half-way intelligent automobile mechanic. Three of these machines, the Gallaudet "Chummy Flyabout," the Sperry "Sportplane," and the Dayton-Wright "Messenger," are land machines; the fourth, the Loening "Kitten," is a ship-plane designed for use on board small naval vessels, such as destroyers. Although the latter has not been designed for civilian use, it is included in this class because it seems to possess distinct possibilities for private flying over lakes, rivers, and the seashore.

In this family of "microplanes" the Gallaudet and the Sperry are undoubtedly the most original. Both proceed from the basic principle that the civilian flier of to-morrow will demand a reasonable amount of engine reliability, so that his power plant will not let him down at the most inopportune moment, say, over a large marsh, or a great wooded area. As a consequence, both 'buses embody the use of two engines; but while the Sperry is a twin-engine folding-wing machine having two airscrews, the Gallaudet has twin pusher screws which can be actuated by either engine or both.

The Gallaudet "Chummy Flyabout"—which a lady visitor to the show called the "cutest thing I have ever laid my eyes on"—is a monoplane of 33 ft. span, 18 ft. 7 in. length, and 5 ft. overall height, which is fitted with two 2-cyl. V-type 18 h.p. Indian motor-cycle engines (air-cooled), mounted in the nose of the fuselage. There is a clutch to each engine and a chain and sprocket transmission is used to carry the power to the two pushers, 48 in. in diameter, by means of a single transverse shaft fitted alongside the leading edge, which engages in its turn with two bevel gear shafts carrying the airscrews. The latter are almost flush with the trailing edge.

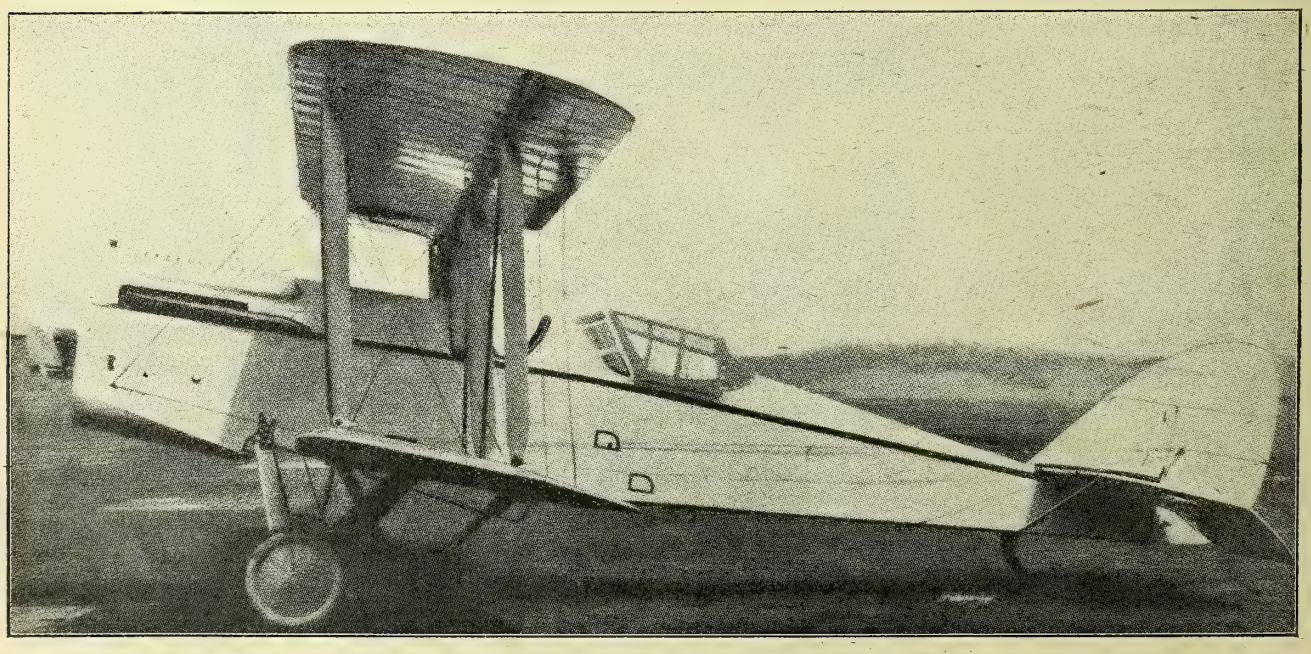
The machine sits very low on the ground, so low indeed that some people have taken the well streamlined body for a boat, and the machine for a seaplane; the belly of the fuselage extends below the wheel axle, and there is really very little clearance to the wheels but one presumes that this "Flyabout" is not supposed to cut capers over any countryside lacking adequate landing facilities. The machine seats two persons side-by-side, and weighs, empty, 600 lbs.; it carries 8 gallons of petrol, which is sufficient for a 2-hours' flight. The speed range is claimed to be 40-80 m.p.h.

The Sperry "Sportplane," which was not exhibited, though tentative wash-drawings were shown to visitors, is briefly an extreme reduction of a Handley Page. The span is 27 ft., but owing to the folding-wing arrangement this can be reduced to 21 ft.—which should prove quite a valuable feature for housing—while the overall length is 13 ft. 4 in. This machine is also a two-seater, and is fitted with two two-stroke 4-cyl. air-cooled De Palma engines which develop 37 h.p. each; the two airscrews are 5½ ft. in diameter. The weight, fully loaded, is 1,050 lb., empty, 576 lb., and the speed range is indicated as 36-88 m.p.h.

The Dayton-Wright "Messenger"—which is the product of the firm that was chiefly responsible for the manufacture of the Liberty DeH4's, on the value of which comment is rather varied, ranging from the "flaming coffin" to a "top-notcher"—is of much more conventional design. The "Messenger" is simply a very small single-seater tractor biplane, fitted with a De Palma 37-h.p. engine, and single landing and flying wires. These are probably its most outstanding features. The span is 19¼ ft., the overall length 17½ ft., the gross weight, 636 lbs., the useful load, 250 lbs. This machine carries petrol for 3 hours' flight, and has a speed range of 38-81 m.p.h.

As to the Leoning "Kitten," this seems to be the smallest seaplane in existence. Two models of this seaplane have been built for the U.S. Navy. The smaller is 19 ft. in span, 13 ft. in length, and is fitted with a 60 h.p. 3-cyl. air-cooled Lawrance engine—reminiscent of Anzani design—which drives a 6½ ft. tractor. Fully loaded the machine weighs only 500 lb., the useful load including, beside the pilot, fuel for 2 hours. The speed range is given as 50-100 m.p.h.

The main point of interest in this machine is that it is a monoplane, with the wings trussed to the undercarriage by means of steel tubes which act at the same time as ties and compression members, and the use of aluminium floats. These have been incorporated for the sake of light weight, and corrosion is prevented by a very copious use of grease. As the Loening 'Kitten" has been built to the designs of the U.S. Navy Department (Aircraft Divison of the Bureau of Construction and Repair) it is at least



AN AMERICAN CIVIL AEROPLANE.—The Dayton-Wright "Honeymoon Express" (400 h.p. Liberty Engine).

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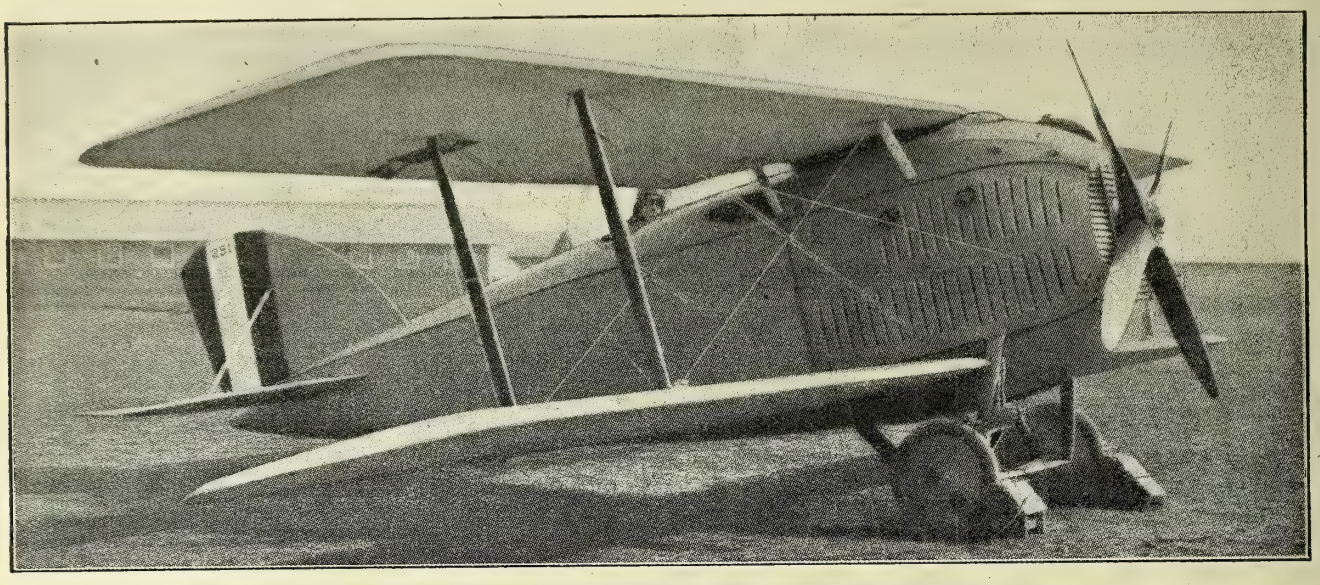


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The Curtiss Model H.A. Biplane (375 h.p. K.12, Curtiss Engines).

interesting as indicating the trend of thought prevailing in those quarters with regard to ship-planes.

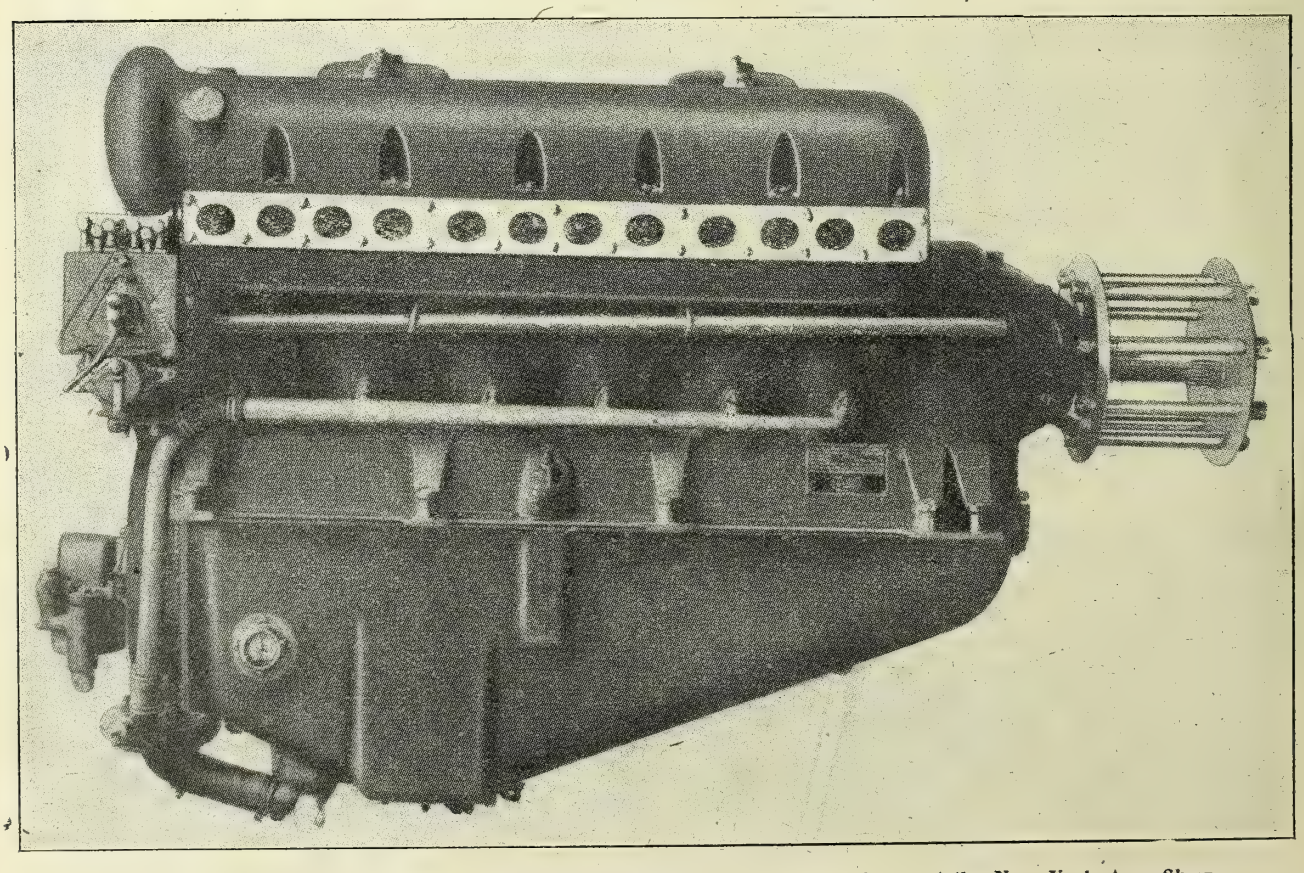
A High-Speed Single-Seater Fighter.

Among the military machines exhibited which display noteworthy performance is the Thomas-Morse model MB3 single-seater fighter, or "pursuit airplane," as the Americans call it; this is 26 ft. in span and is fitted with a model H Hispano-Suiza of 300 h.p., which has given the 'bus an extremely remarkable performance. The high speed, fully loaded, with the exception of 170 lbs. of military load, has in recent tests been 163.7 m.p.h., and the low speed, 55 m.p.h.; an altitude of 1,000 ft. was reached in 20 seconds, and 10,000 ft in 4 minutes 52 seconds. While this performance may be below the best of Europe, it is nevertheless noteworthy because the Thomas-Morse is the first single-seater fighter of original American design to put up a creditable show.

Another single-seater of high performance and most unusual design was exhibited at the show. This was the Christmas "Bullet" (described in the Feb. 19th issue of The Aeroplane), for which a high speed of 175-180 m.p.h. is claimed. Though this machine is undoubtedly very fast, its factor of safety is a matter of considerable conjecture, as the manufacturer has steadily refused to have the "Bullet" tested by sand-loading under the supervision of the Air Service, and has even refused to undergo such a test to ascertain a safety factor of 3 for the benefit of a civilian pilot. Furthermore, as the chief pilot of this company was killed in a test flight owing to one of the wings flying off, serious doubts prevail regarding the safety of the "Bullet." This notwithstanding, the machine was advertised at the show with a great display of flourish as the "fastest, safest, and most efficient airplane in the world," and attention was called to the fact how particularly desirable it should prove for mail carrying.

Pilots, be they military, naval, or postal, however, differ from this view, and have little liking for the lack of external truss which characterises the "Bullet," all the up and down loads being taken by the internal cantilever construction—which brings us back to the stay-less Antoinette monoplane of the French military trials of 1913. All of which goes to show that there is nothing new under the sun.

(To be continued.)



The 375 h.p. Twelve-Cylinder Curtiss Aeroplane Engine, Model K.12, shown at the New York Aero Show.

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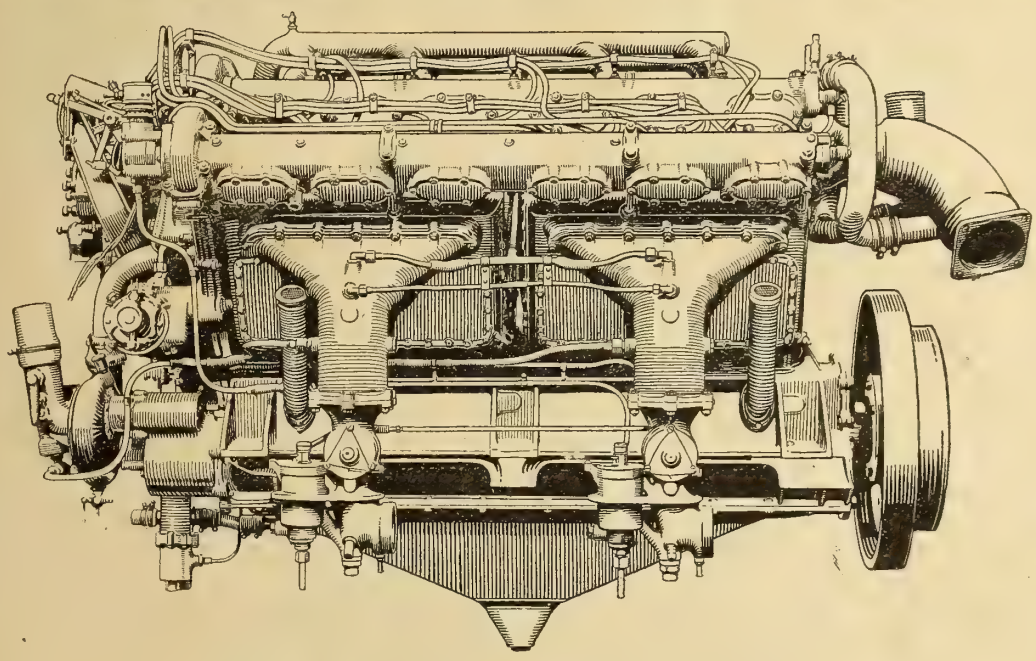
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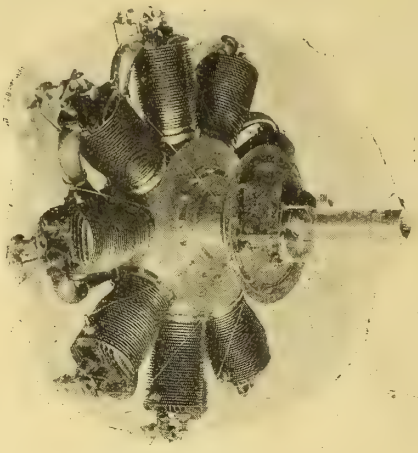


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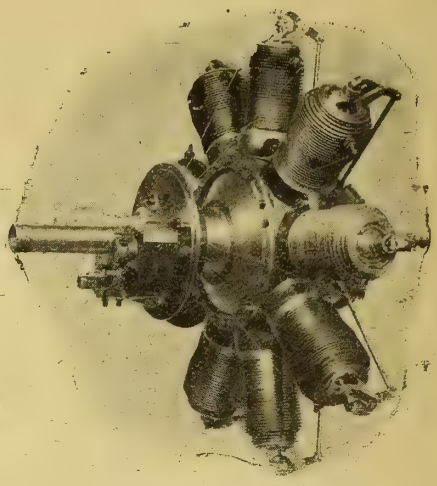
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THE WEEKLY COMMENTARY.

A description of the work of the Gallay Radiator Company in its relation to the development of radiators for aircraft engines will be found below.

Except by those who have carried out experimental work with differing types of radiators on aeroplanes, it may not be recognised how important an item in both the total weight and the total resistance of an aeroplane a badly designed radiator may become.

The description of the Bassè-Selve engine, which was commenced in the issue of April 9th, is concluded in this number.

The lubrication system presents features of considerable interest.

The compactly arranged oil cooler in the crankcase base and the very ingenious valveless oil pump are particularly worthy of attention.

The carburetter is of a type which has not been previously heard of as an aero-engine carburetter, though its general appearance is very similar to the "Pallas" carburetter, which is made by the Pallas-Zenith Company, of Charlottenburg, and is fairly widely advertised in the German Technical Press.

THE BRITISH AIRCRAFT INDUSTRY.—(*Second Series*).

By R. P. HEARNE.

XVI.—THE GALLAY RADIATOR COMPANY, LTD.

Keeping cool in war-time is an important aid to victory; and perhaps in some future war we may have a mechanical device for cooling the brains of politicians and Government officials in addition to the already existing appliances which keep our engines cool. Indeed, if some enterprising man like Mr. L. T. Delaney could supply radiators and cooling fins to the brains of the gentlemen at the Peace Conference they would speed up matters, and I feel sure that really effective cooling is the positive cure for the overheating which we call Bolshevism.

Radiation and Revolutions.

After all, the human machine is an internal combustion engine and the functional derangements which produce fevers, wars and revolutions are largely due to overheating. The human motor is in the main an alcohol motor, and on the day the ill-fated Tsar shut off vodka in Russia I said that there would be trouble. Sudden change of fuel is bad for any engine, and the idea of running a Russian moujik on dirty water is as bad as trying to cool an aero-engine by pumping water into the cylinders. The Russian peasant shied at water, went dry, heated up, seized, back-fired, and became a Bolshevist.

I am reminded that I am not writing a treatise on Bolshevism, and I come back to the theme of radiators, though my little excursion to Russia was merely intended as a demonstration of the importance of efficient cooling for man as well as motor. Temperature must be neither too high nor too low, and the science of radiator design is intended to give our engines greater efficiency. For the present we must leave the more difficult problem of cooling the human motor unsolved.

When the war opened we did not know very much about aero-engines in this country, and we knew still less about their efficient cooling. Our air triumphs would not have been possible if we had not made good these deficiencies, and the progress we have achieved in engine cooling is one of the technical triumphs of the war. Few people will ever realise how difficult the matter was.

Very luckily for us, we had men at hand of the type of Mr. L. T. Delaney, the managing director of the Gallay Radiator Company, which is the pioneer firm in this work. As Mr. Delaney is the brain, heart, and soul of the Gallay Company, I must say something about him first.

A Good Mixture.

I could write the whole article about Mr. Delaney's interesting personality, as may be gathered when I say that he is a Scotsman with an Irish name of French origin. A very rare blend this, and Mr. Delaney is a good testimonial for it. You find in him the shrewd and cool Scottish man of business, and there is also the versatility and sense of humour of the Irishman. From French ancestry he derives inventiveness, daring, and other good qualities.

So far back as 1898 he was busy with motors, and upon comparing notes with him I find that we were both tinkering with belt-driven Benz cars at about the same time. Mr. Delaney eventually went to France, where he obtained a practical training in motor engineering, his chief experience being in the shops of the famous de Diétrich and Delaunay-Belleville firms. He drove racing cars in many big events, including the great Paris-Madrid race of 1903, and his stock of quaint and exciting experiences is considerable.

Skipping the intervening years, we find him at the outbreak of war running armoured-car chassis from Paris to Dunkirk. Soon after that time he was quick to realise that aeroplanes would be needed urgently later on, and his connection with the radiator business showed him that the water-cooling of big aero-engines was a problem which had to be seriously considered. He was greatly interested in the developments already made in that remarkable engine, the Hispano-Suiza, and special attention was given to the study of the radiators fitted to the German aeroplane engines.

His firm was entrusted with the task of carefully investigating the cooling properties, weights, etc., of the Mercédès engine radiator on aeroplanes captured by the French, and as Mr. Delaney had a strong faith that the water-cooled engine was the motor of the future he was soon able to beat the best German radiator in efficiency, strength, and lightness.

Applying his skill and experience to British machines, he afterwards designed the radiator for the Sopwith Dolphin engine, the cooling apparatus of which weighed 21 lbs., and effectively cooled the 200-h.p. Hispano-Suiza motor.

A Practical Inventor.

Further on I shall deal with the work of the Gallay firm, but here I must mention that Mr. Delaney, in addition to his many designs of radiators for aero and car engines, has also taken out numerous patents for change-speed gears, trailers, and other odds and ends, and between whiles he has built up a great industry for the mass production of radiators.

At sundry spare moments he has soothed the fears and doubts of the Air Board and its descendants on cooling difficulties; he has taught not a few young cocksure theorists that experience is the best school; and, hurrying back from some official conference he has tackled the nice problem presented by a deputation of workmen who wanted a barrel of beer installed in the factory!

Diplomacy.

His Irish wit saved the situation here. He listened to the ultimatum—beer or bother. His sympathy inclined to beer, and he suavely agreed to the brewery tap in the works, provided that the men complied with the law and first obtained the Excise licence for the consumption of beer on the premises.

The deputation may have worked very hard with the Excise authorities, but that beer licence had not been obtained when the end of the war came.



MR. L. T. DELANEY.

I could tell several other good stories of Mr. Delaney's ready wit in dealing with obstreperous people, not all of them workers, be it remarked; but to enjoy these tales fully one should have them told by Mr. Delaney himself. How valuable his power of diplomacy is has been illustrated by the big output of radiators maintained by his factory throughout the war.

The First Radiators.

Turning now to the work of the Gallay Company we can trace the evolution of the radiator or water-cooling device. In the early motor-cars the radiator had hardly been thought about, and only a few firms like Panhard-Levassor had given any attention to the matter. The first step was the construction of a coil of light-gauge cycle tubing which was installed in a most inconvenient position underneath the car. This coil did not radically cool the water, but it prevented the fluid from being boiled away as rapidly as in the Benz system, which had only tanks without radiators.

Further progress resulted in gills being mounted on the coil of tubes, and thus we arrived at a radiator which actually prevented the water from boiling except under great stress, such as climbing long gradients.

A similar type holds good to the present day, and, although Messrs. Gallay supplied the Brazil Straker and other well-known firms with gilled tube radiators twelve to fourteen years ago, they are still making similar types with gilled copper tubes for 1919 cars.

For high-powered cars, however, it was obvious that an unsightly coil of tube was hardly the best way of carrying out the job, and the first solution of consequence was the Mercédès radiator of 1902, which revolutionised the cooling practice previously employed. The cost, however, was prohibitive, and in practice it was found that a good quality of light-gauge tube was difficult to obtain.

The Rhomboidal Radiator.

Messrs. Gallay made a careful study of the subject, and evolved a radiator which dispensed with the necessity of using small tubes. This radiator had the appearance of a nest of square tubes. Later developments and improvements resulted in the present Gallay patents for their rhomboidal system.

The measure of success obtained is shown by the Royal Aircraft Establishment report of November 13th, 1917. It is seen from this that one square foot of Gallay section dissipates 1,560 British Thermal Units per minute. The nearest approach to this was the round tube which, according to the Royal Aircraft Establishment report, gave a heat dissipation of 1,400 British thermal units per square foot, and was used as a standard of comparison.

The Useful R.A.E.

I was very pleased to find that Mr. Delaney has a high appreciation of the services rendered to his firm by the Royal Aircraft Establishment, as represented by its technical officers at Farnborough, who gave the Gallay Company every facility in carrying out most exhaustive tests, the results of which were placed at their disposal in order to guide them in their design of aircraft radiators. Mr. Delaney designed the radiators, which weighed only 21 lbs., supplied for Commander Dyott's "pre-Gotha" designs, and the Sopwith Dolphin, and he also carried out the confidential work for the new designs for most of our leading aircraft companies.

Post-Bellum Policy.

Messrs. Gallay were the first manufacturers to use one-piece casings, and he designed a radiator for Messrs. Peugeot which weighed little more than half the weight of their gilled-tube types.

The signing of peace will not interfere with the further progress of this enterprising firm, for with engines growing more and more powerful new problems are arising in radiator design and production.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

An Ambitious Effort.

"A Text-Book of Aeronautics." By Herman Shaw, B.Sc., A.R.C.S., A.F.R.AeS. With a Foreword by Col. The Master of Semphill, R.A.F. Published by Chas. Griffin and Co., Ltd., Exeter Street, London, W.C.2, Price 10s. 6d. net.

Many years ago when—an infant in pants which failed by some inches to meet my socks—I struggled in vain correctly to write in the cursive script the simpler idioms of my native tongue, I was heartened in my endeavours by a sympathetic governess, who recited to me the story of one—long since dead—who had successfully written the Lord's Prayer on the back of a threepenny piece.

I vividly remember the fervid conviction that immediately shaped in my mind—that he had quite possibly made many mistakes—and that even the lynx eye of my governess would probably have failed to discern them all.

And I have even more recent memories of one—not the least of those who have influenced the technical progress of His Majesty's Aerial Forces during the past five years—who has frequently been heard to remark that "All such a one (naming some potent being with at least four gilded stripes) knows about—well, aeronautics, flying, engineering, or such like subject—could be written on a threepenny bit and then leave room for the Lord's Prayer."

Aeronautics on the Back of a Threepenny Bit.

Captain Shaw has not attempted to write all that he knows of aeronautics on the back of a threepenny bit.

But he has compressed considerably more than this into 253 pages of letterpress, plentifully besprinkled with illustrations, and I fear me greatly that my early impression as to the probable inaccuracy of so tightly compressed a transcript was completely justified.

Whether his work has any bearing on my once Commanding Officer's standing criticism of the technical qualifications of some of his colleagues I am not quite so sure—I rather fancy that it is a result thereof, and not to be regarded as an explanation.

In his preface Captain Shaw states that, when lecturing to R.N.A.S. and R.A.F. officers, no text-book of aeronautics was available, and that he was asked to recast his lecture notes into suitable form for the use of students.

The book covers the whole range from an outline of the principles of mechanics, though a brief statement of the general laws of fluid pressures, of air pressures and resistances, of the dynamics, the equilibrium, and the stability of the aeroplane, and finally deals with the construction and the design of aeroplanes.

An Introduction—in the Social Sense.

In dealing with aero-engines an introduction to some of the principles of thermo-dynamics is even attempted. It is, let it be said at once, an introduction in the purely social sense. It may leave the student with a name or two in his head—or it may not.

Aeronautical instruments, aerial navigation, meteorology, and aerial photography are all dealt with, and there is a chapter by Major N. B. Tomlinson, R.A.F., on "Wireless Telegraphy."

Frankly, it is difficult to deal with this work effectively. One is torn between a deep respect for Captain Shaw's industry and a deep distrust of his apparent versatility.

And as has been suggested already one can find quite good reasons for this distrust.

Very early one discovers a looseness of wording and a lack of precision in the exposition of ideas, as, for instance:—

Page 1, line 5, *et seq.*: "'Force' is anything which changes or tends to change the state of rest or of uniform motion of a body.

"(We shall choose as our unit of force the weight of one pound. The unit of force is therefore equal to the force which would just support a weight of one pound when hanging freely.)"

Force Is Anything.

There is a certain fine spaciousness about that opening phrase, "Force is anything," which almost disarms criticism; but really it seems a little confusing, after defining force as emphatically an agent of change, to specify the unit of force in terms of an agent which apparently merely maintains a weight at rest.

Such matters are perhaps of little import. It is at least to be hoped that those who seriously contemplate the study of aeronautics will not proceed far along their path before divining the need for some better grounding in mechanics than Captain Shaw, or even the late Lord Kelvin, could provide in seventeen and a quarter pages.

But when one comes to aeronautics proper it becomes another matter. There is then a risk that he may be taken seriously.

And when one finds that he proceeds—dealing with air pressure—"To prove that pressure is proportional to V^2"—one feels that it is necessary to proceed with caution.

It is true that, having ostensibly proved this very debatable proposition, Captain Shaw qualifies it by the statement that "for very low speeds the variation in resistance is less than this, and for very high speeds it varies according to a higher power of the velocity than the square."

A Warning to the Student.

Conceivably this may be justified as a warning to the student against the fatal facility with which almost anything may be proved by neglecting any inconvenient factors.

Were it so meant, it would surely be better to clarify the exposition by some attempt to point out the incompleteness of the alleged proof.

As it is, it seems an excellent method by which to convince the average individual of the uselessness of mathematical processes. It is at least a partial explanation of the curiously inconsequent nature of the technical knowledge possessed by the average latter-day R.A.F. officer.

Again on page 85:—

"... as the gliding angle of a machine is $\mathrm{Tan}^{-1}\frac{D}{L}$, we see that, other things remaining unaltered, it is independent of the weight, which, at first sight, might appear astonishing.

Presumably by way of emphasising the astonishment on page 121 is the following:—

"In the case of aeroplanes, the need for engines of low weight per horse-power, and at the same time of low fuel consumption, is very pressing. The advantages to be gained from the use of such an engine are:—

"(1) Increased rate of climb.

"(2) Better gliding angle, due to the reduction of weight."!!!

Controversial Points.

Controversial points are disposed of by dogmatic statements—a simple method, but ineffective unless the author can rely on his own memory.

Briefly, one must suggest that, as an elementary text-book, this work is dangerous.

At the same time the author has collected in a small space a large amount of useful data. For those who have enough knowledge of the subject to separate the wheat of fact from the chaff of the author's explanations, the book may have some value, but—for the aeronautical infant—certainly not.—W. H. S.

Aeroplane v. Seaplane.

The following letter has been received:—

Permit me to reply to the letter from "Flight Sub., R.N.A.S.," in your issue of 26th ult.

I duly smiled at the witticism at my expense, and in regard to the question of the longest duration of flight for a freak machine, I thought it was common knowledge that it had been proposed to drop the land wheels, etc., in order to give extra fuel capacity and speed.

Regarding the "cream" of my letter, the question of tropical river transport, I might remind "Flight Sub." that tropical rivers are not only half a mile wide, but they are in some cases 20 miles wide a thousand miles from the sea—at any rate, in the case of the river I had in mind, the Amazon. They are more like a series of lakes.

No fear of side winds need be entertained, since there is usually little or no wind except during the progress of the daily thunderstorm, and in any case the river winds about considerably, as is usual with them. Again, the trees on the banks usually afford great protection from wind.

In my opinion there seems to be a very great future in these regions for aircraft capable of alighting on water, as suitable landing grounds are non-existent, as I said before. I refer to Africa and South America (Tropical).

It might interest "Flight Sub." to know that one firm at least are making arrangements for air transport on a large river, owing to the slowness of water transport, and very great saving will be made. C. W. P.

Floats for River Work.

As the waterplane is likely to become, as I have stated in print before, very successful in Italy, one would like to get a consensus of opinion upon suitable floats for river work. One has heard it said that those very handsome cigar-shaped floats with the two water-rudders at the back and blunt ends fitted to one of the most notable modern machines built here are not popular among pilots, possibly because they are ultra-efficient, so tricky, or because they allow too much lateral rolling.

Commander Mario Calderara, than whom few men here have had more experience of the action of floats, might give us a non-technical précis of the results of his tests. The deductions from some of his experiments, I am told, antedate principles first applied in France about the period when the early Nieuports came into being.—T. S. H.

A New Address.

J. Sagar and Co., Ltd., makers of wood-working machinery, of Halifax, have opened an office at Chamber of Commerce Buildings, New Street, Birmingham.



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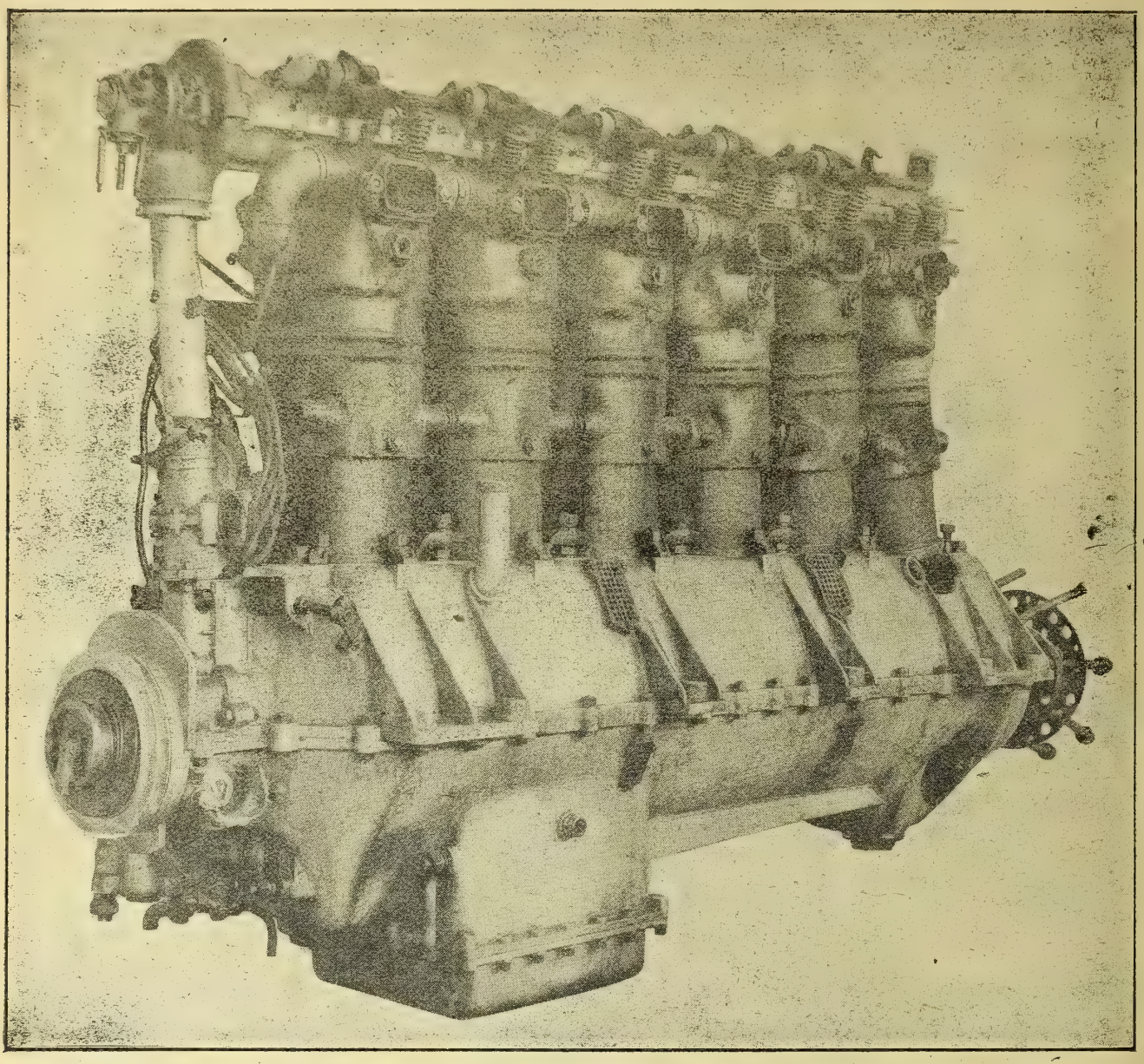
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THE 270-300 BASSÉ-SELVE AERO ENGINE.

(Continued.)



Three-quarter View from Pump End, showing Clutch and Belt Pulley for Wireless Generator.

Propeller Hub.

This is of the standard 260-h.p. Mercédès type, and is fitted to a short tapered extension of the crankshaft. This extension is detachable, being bolted to a flange on the crankshaft; the propeller hub is secured on the tapered extension by a key. The standard Mercédès locking device is used.

Carburetters and Induction.

Unfortunately, only one incomplete carburetter was found on the engine. This is shown dismantled in a figure. The carburetters, which are quite separate, are of unusually light and simple construction compared with previous German design. The floats and float chambers are of the annular type, and encircle the main air intakes directly below the throttles, which are of the ordinary butterfly type. The body of each carburetter and throttle is made of cast aluminium, and the main jet is formed by a hole drilled in a tube which is screwed diagonally into the water-jacketed body of the carburetter, and lies across the choke tube directly beneath the throttle. The jet tube is open at the bottom end, and projects into the bottom of the annular float chamber, which is made of pressed sheet steel of very light gauge.

The pilot jet is formed by a second tube of small diameter inside the main jet tube. This pilot jet tube is also open at the bottom end, and is drilled radially with a small hole, just above the main jet. It communicates with the mixing chamber just above the throttle by a passage drilled in the carburetter body.

An altitude compensating control is fitted. This takes the form of a pipe opening into a passage drilled in the top of the float chamber, and no doubt connected by a rubber tube to a control cock in the pilot's seat.

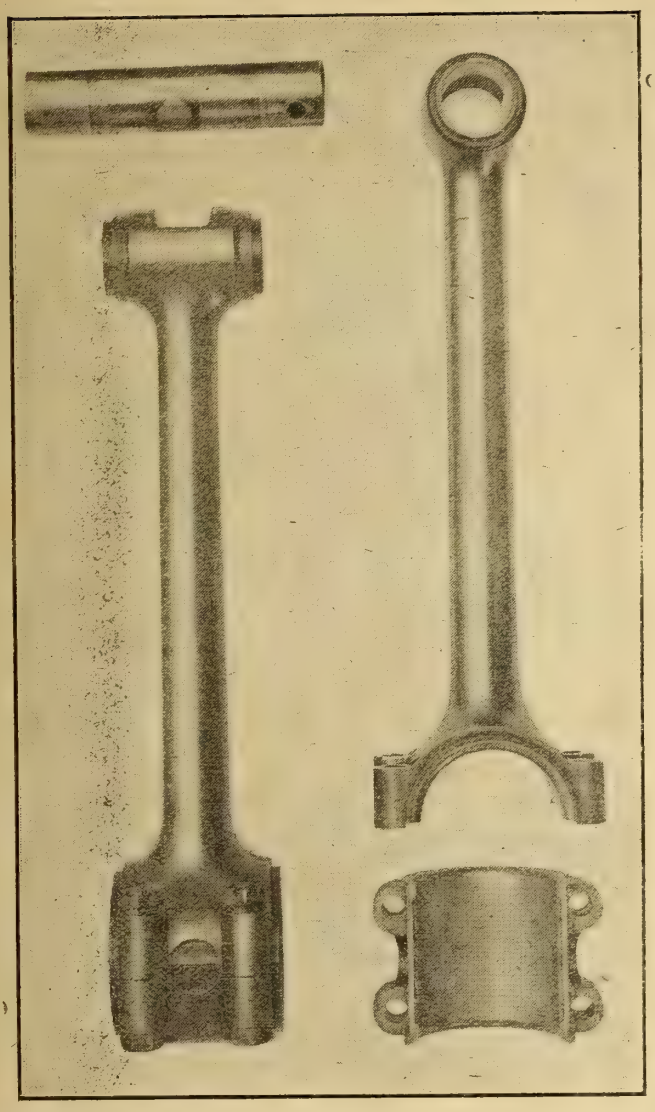
Each carburetter feeds three cylinders through a branched induction manifold, the vertical part of which is water-jacketed.

The total weight of each carburetter complete should not exceed 2 lbs.

Crankcase.

The design of the top half of the crankcase requires no description, being constructed on Mercédès lines; it is shown in the engine photographs. The lower half also closely follows standard Mercédès design, with the exception of the oil reservoir and oil-cooling radiator on the bottom of the rear end. The construction of this cooler may be seen in a photograph. It consists of a cast aluminium oil chamber, having a number of thin aluminium tubes (12 mm. diameter) running longitudinally in three rows, and expanded at the ends. The cooler is bolted to the bottom flange of an oil reservoir below the base chamber, and is not an oil sump, inasmuch as there are no oil connections between it and the base chamber. This oil reservoir and cooler is provided for the purpose of forming the service oil tank, and for cooling the oil on the scavenger circuit; separate oil sumps are provided at each end of the base. (See notes on Lubrication.)

For the purpose of refilling the supplementary oil tank and

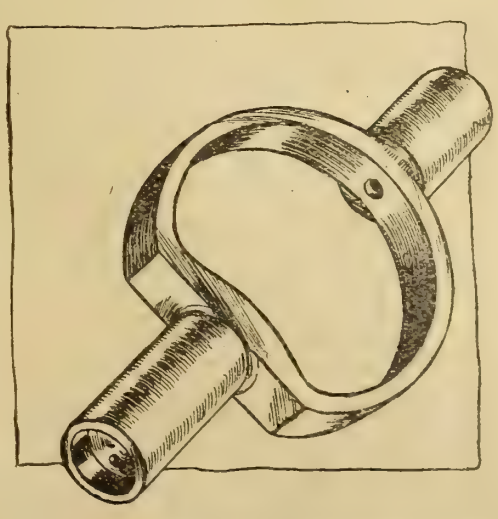


Connecting Rods and Gudgeon-Pin, 270-h.p. Bassé-Selve Engine.

cooler a passage cast in the side of the base chamber communicates with the space between the transverse webs of the main bearing housings.

At the bottom of the crank chamber a trough is formed in the casting. This is semi-circular in cross section, and is provided to take the main oil supply and return pipes.

Two air intake passages are cast on each side of the crank chamber (see photograph); they are arranged to communicate with the carburetter through passages in the top and bottom halves between the transverse box-housings of the main bearings.



Sketch of a Valve Tappet, Bassé-Selve Engine.



The Exhaust-Valve Lifting Gear.

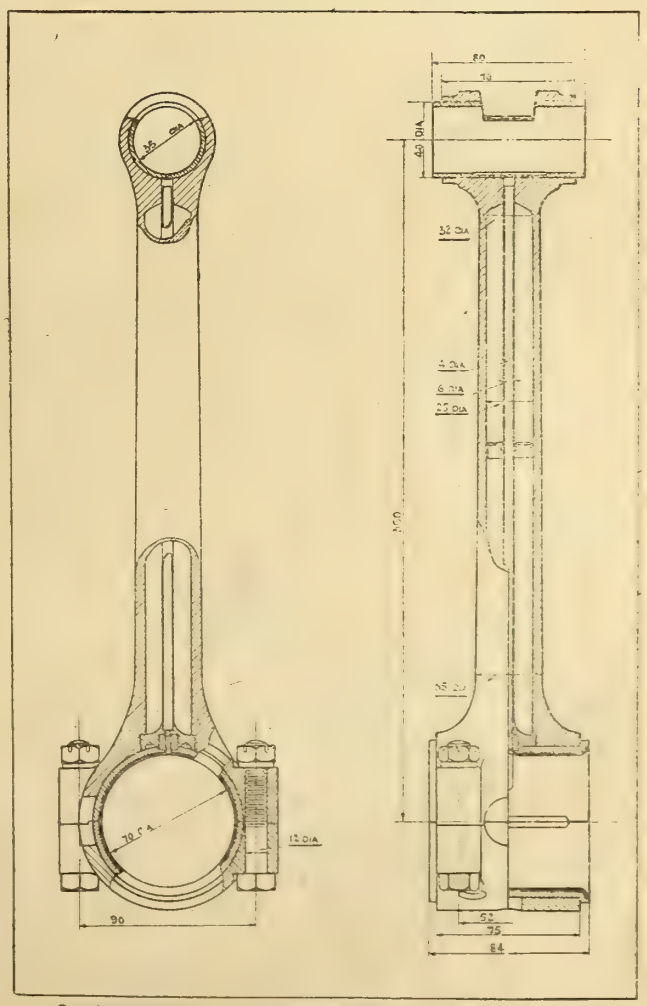
Oil Pump and Lubrication System.

The oil pump is attached to the bottom half of the crankcase at the rear end, and driven by a worm gear off the rear end of the crankshaft through a short transverse layshaft.

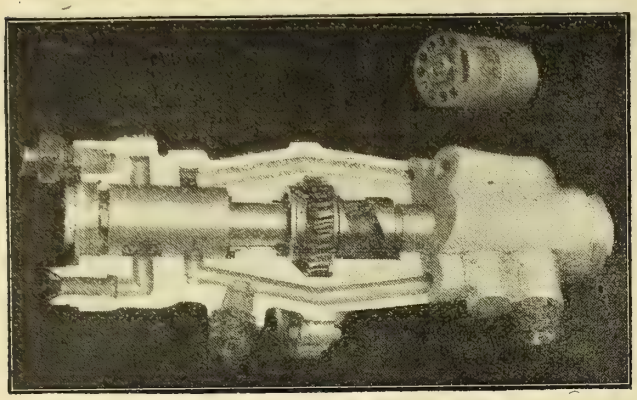
Most of the details of construction of the oil pump may be seen in the photograph of the pump, which has been specially sectioned to show as much as possible of the various oil passages, ports and connections.

The pump consists of two double-acting steel plungers, which work vertically in the barrels formed in the ends of the cast aluminium pump body. In action, the plungers are rotated by means of the worm gear, and are simultaneously reciprocated by the action of the scroll-cam cut in the spindle, and operated by a hardened steel roller working on a pin screwed into the pump body.

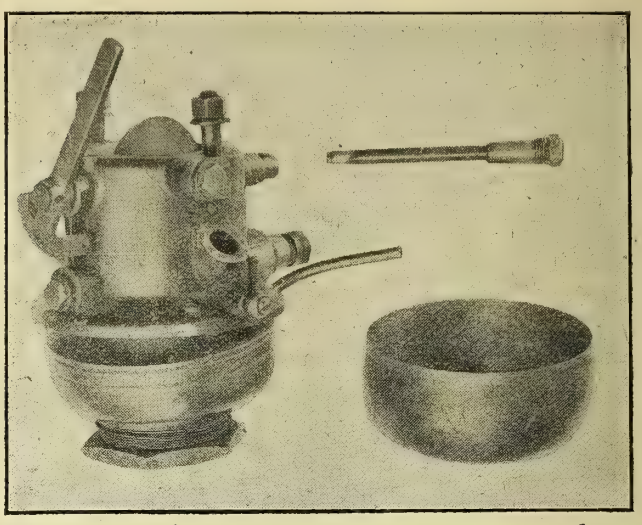
At every stroke of the two double-acting plungers, oil is drawn



Sectional View of Connecting Rod—showing oil passages.



Photograph of the Bassé-Selve Oil Pump sectioned, showing the spiral groove which reciprocates the pistons, and the oil passages in the body.



Photograph of the Carburetter of the Bassé-Selve Engine. This carburetter appears to be of a type known in Germany as the "Pallas" and manufactured by the German makers of the "Zenith" carburetter.

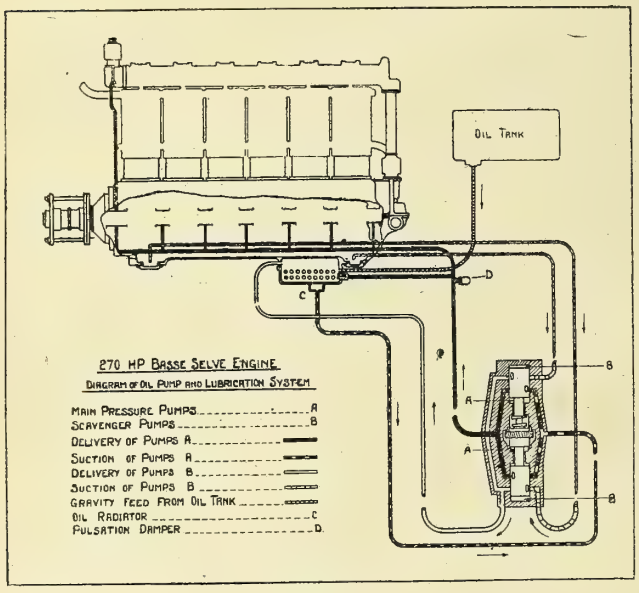
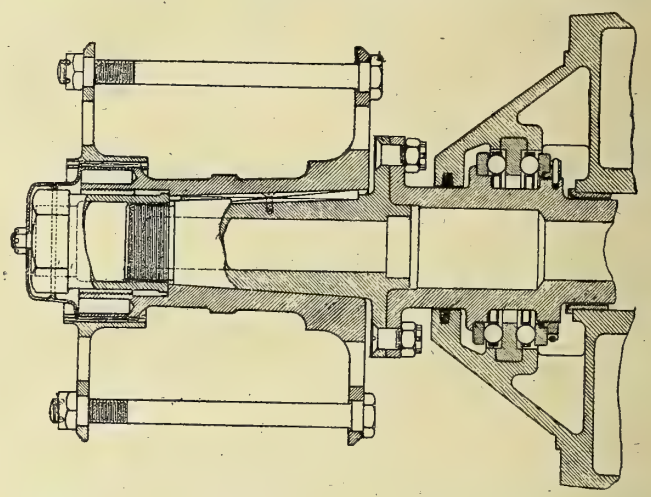
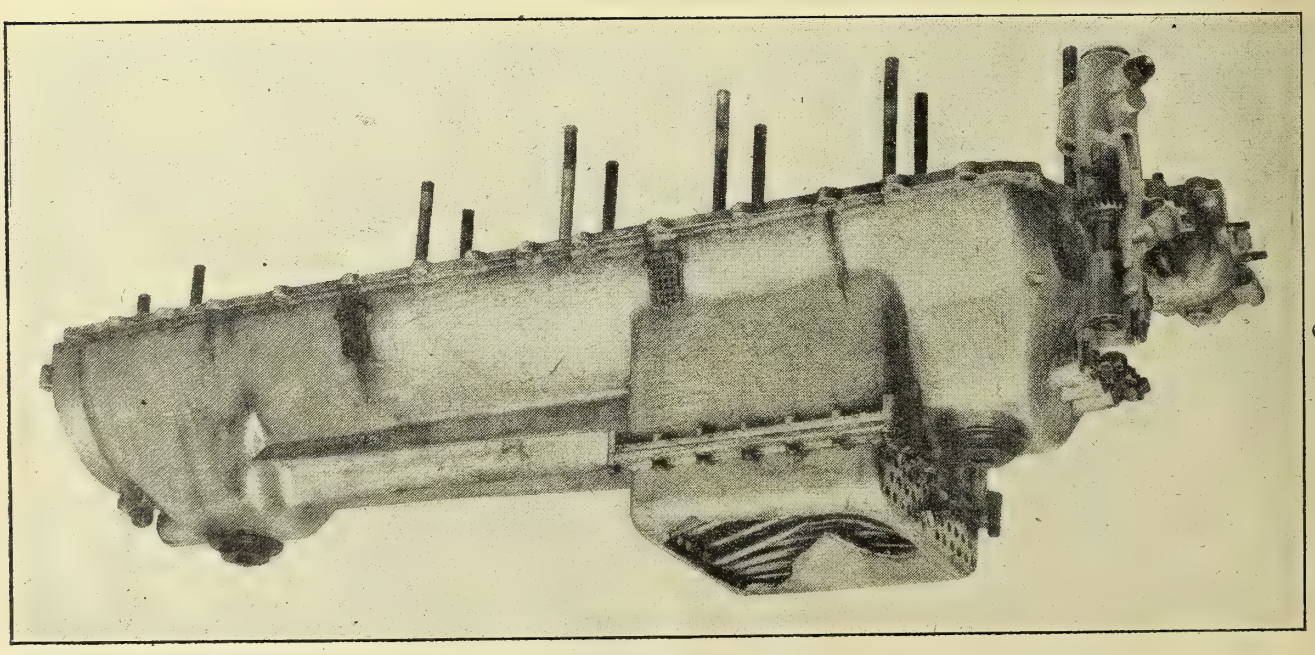


Diagram of the Lubrication System.



Section of the Airscrew Hub, and of the thrust-bearing of the Bassé-Selve, showing clearly the coupling between the crankshaft and the separate nose-piece.



Lower Half of Crankcase, showing the Oil-cooler, Oil-pump in Position, and the Air Vents in Crankcase-side. 270-h.p. Bassé-Selve Engine.



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from the cooler tank and sumps in the base chamber, and is delivered to the main bearings and camshaft or returned to the oil cooler respectively, through the four distributing ports in the pump plungers. These ports when in action coincide with the drilled passages in the body casting of the oil pump, which are connected to the various leads as shown in the lubrication diagram.

The functions of the oil pumps and circuits are as follows :--

1. Main Pressure Circuit, by the two inner pumps to crankshaft and connecting rod bearings and also to the hollow camshaft, returning by gravity to the two sumps at either end of the base chamber. The oil for this circuit is drawn from the supplementary oil cooler tank, which is replenished by fresh oil from the service oil tank.

2. Scavenger Circuit.—Oil is drawn by the two outer pumps from the two oil sumps in the bottom of the base chamber, and is returned to the oil cooler.

The total weight of the oil pump complete is 5 lbs. No details can be given of the construction of the water or air pumps, which were missing from the engine examined. The water pump, however, was evidently driven by the short transverse shaft which drives the oil pump at the rear end of the engine. This shaft is situated directly underneath the floating distribution bevel gear on the rear end of the crankshaft, as shown in the general arrangement drawing of the engine, in which the oil pump, for the sake of clearness, is drawn on the exhaust side of the engine. The air pump, which was driven by a small crank fixed in the front end of the camshaft, was probably similar in design to the 260-h.p. Mercédès, and is shown thus in the general arrangement.

Ignition.

Ignition is by two Z.H. 6 magnetos, which are driven obliquely to the crankshaft axis by bevel gears off the camshaft driving spindle at the rear end of the engine.

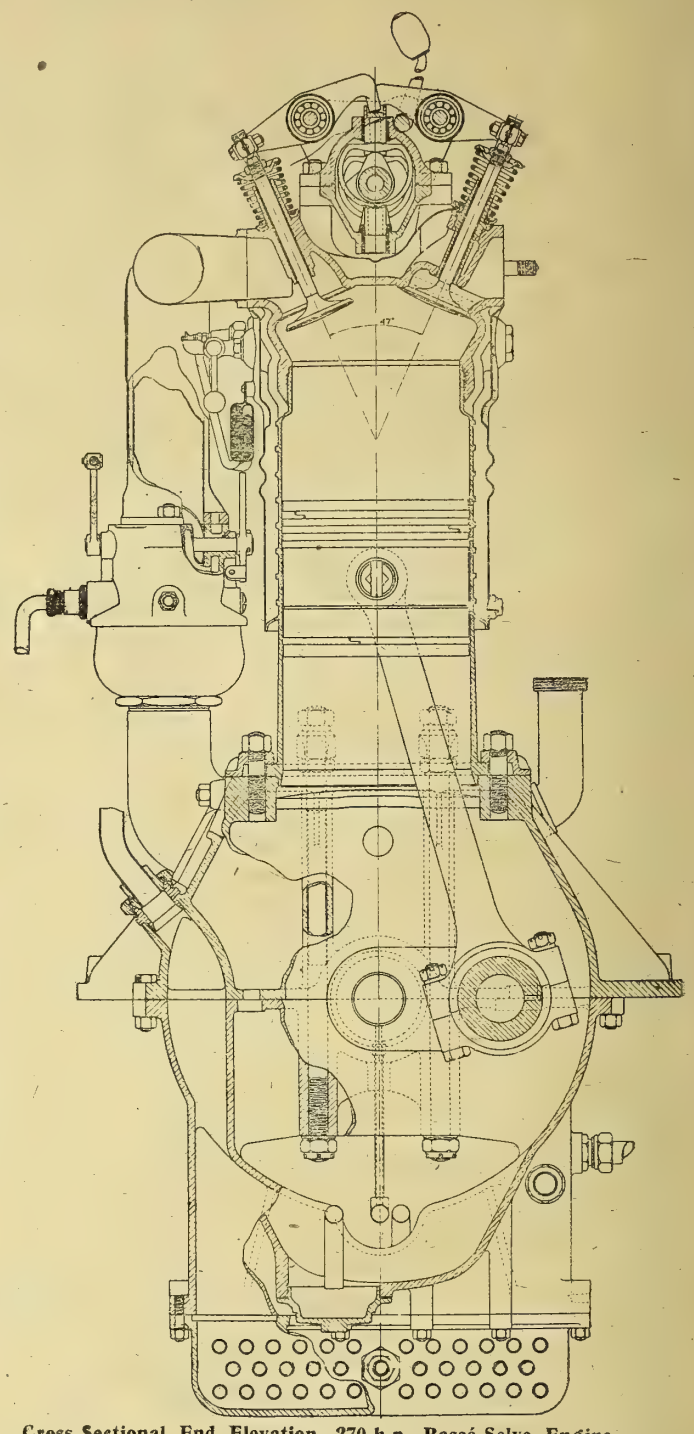
Two Bosch 3-point plugs are fitted to each cylinder, and are situated just below the induction valves. Provision is also made for fitting one sparking plug on the exhaust side of the cylinders, the holes not in use being plugged.

The H.T. cables are carried in fibre tubes attached to the cylinders.

The machine-gun interrupter-gear triple drive is bolted to the camshaft bevel gear case, and is driven off the rear end of the camshaft as shown in Fig. 2. The wireless dynamo is driven off the rear end of the crankshaft by a standard type of friction-clutch belt pulley described in a previous report.

General Analysis of Weights.

Description of Part.	No. per Set.	Average Unit Wt. lbs.	Wt. of complete Set lbs.	Percentage of Total Wt.
Cylinders (bare)	6	35.67	214.05	24.20
Pistons, with rings	6	5.18	31.12	3.51
Gudgeon pins	6	1.00	6.00	0.68
Connecting rods	6	9.0	54.0	6.10
Crankshaft	1	138.50	138.50	15.65
Inlet valves	12	0.50	6.00	0.68
Exhaust valves	12	0.50	6.00	0.68
Inlet and exhaust valve springs	24	0.25	6.00	0.68
Valve collars and locking nuts	24	0.03	0.74	0.08
Valve rockers with bearings	12	1.43	17.22	1.94
Camshaft, with bearings	1	18.75	18.75	2.12
Camshaft tappets	12	0.31	3.75	0.42
Camshaft casing, with air pump and rev. counter drive	1	35.77	35.77	4.04
Vertical shaft driving spindle	1	4.50	4.50	0.51
Ditto, casing	1	2.30	2.30	0.26
Crankcase (top half)	1	97.50	97.50	11.00
Crankcase (bottom half)	1	112.00	112.00	12.67
Propeller hub, complete	1	29.43	29.43	3.33
Carburetters	2	2.00	4.00	0.45
Induction pipes	2	2.00	4.00	0.45
Oil pump	1	5.00	5.00	0.56
Oil leads	1	4.56	4.56	0.51
Magnetos	2	14.37	28.75	3.25
High tension leads and case	2	2.12	4.24	0.48
*Water pump (estimated)	1	8.00	8.00	0.90
*Exhaust manifold (estimated)	1	15.00	15.00	1 70
Miscellaneous parts	1	27.82	27.82	3.15
Total			885.0	100.00



Cross-Sectional End Elevation, 270-h.p. Bassé-Selve Engine.

GENERAL DATA.

Type number	No. 550.
Number and arrangement of cylinders	Six, vertical.
Bore	155.0 mm. (6.10 in.).
Stroke	200.0 mm. (7.87 in.).
Stroke/Bore ratio	1.29 : 1.
Area of one piston	188.7 sq.cm. (29.24 sq.in.).
Total piston area of engine	1132.2 s.cm. (175.44 s.in.).
Stroke volume of one cylinder	3774.0 cu.c. (230.21 cu.in.)
Total stroke volume of engine	22644.0 c.cm (1381.28 c.in.)
Clearance volume of cylinder	1130 cu. cm. (68.96 cu. in.)
Compression ratio (approx.)	*4.34 : 1.
Normal B.H.P. at 1,400 R.P.M.	*269 B.H.P.
Maximum B.H.P. at 1,600 R.P.M.	*302 B.H.P.
Direction of rotation of crankshaft and propeller	R.H.T.
Type of valve gear	Overhead camshaft.
Type of starting gear	Compression release.
Weight of complete engine, dry	*885 lbs.
Weight per normal B.H.P., ditto	*3.29 lbs.
Carburetters	
Number and type of carburetters	Two, 2 jets.
Diameter of choke tube	50.0 mm. (1.96 in.).
Bore of main jets	2.59 mm. (0.0102 in.).
Bore of pilot jets	1.17 mm (0.0046 in.).

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Valve Areas, Gas Velocities, etc.

Diameters :—	
Induction pipe	58.0 mm. (2.28 in.).
Inlet and exhaust effective valve ports (each)	56.0 mm. (2.20 in.).
Cross sectional areas :—	
Induction pipes	H.4 sq. cm. (4.10 sq. in.).
Inlet valve (π dh) and exhaust valve (π dh) (each)	17.6 sq. cm. (2.72 sq. in.).

Mean Gas Velocities (1,400 R.P.M.).

Piston speed	*1837 ft. per min.
Induction pipe	*219 ft. per sec.
Inlet valve	*164 ft. per sec.
Exhaust valve	*164 ft. per sec.

Inlet and Exhaust Valves.

Number per cylinder (each)	Two.
Largest diameter	61.0 mm. (2.40 in.).
Effective valve port diameter	56.0 mm. (2.20 in.).
Angle of seating	45 deg
Lift of valve	10.0. mm. (0.39 in.).
Diameter of stem	11.0 mm. (0.43 in.).
Length of valve guide	90.0 mm. (3.54 in.).
Overall length of valve	146.0 mm. (5.74 in.).
Number of springs per valve	One.
Free length of spring	80.0 mm. (3.14 in.).
Length of spring in position (no lift) inlet	58.0 mm. (2.28 in.).
Length of spring in position (no lift) exhaust	55.0 mm. (2.16 in.).
Mean diameter of coils (top)	36.0 mm. (1.41 in.).
Mean diameter of coils (bottom)	28.0 mm. (1.10 in.).
Diameter of wire	4.0 mm. (0.157 in.).
Ratio, length of spring/lift of valve (inlet)	5.8 : 1.
Ratio, length of spring/lift of valve (exhaust)	5.5 : 1.
Weight of valve complete with spring	0.75 lb.
Weight of spring	0.25 lb.

Inertia Forces, Bearing Loads, etc.

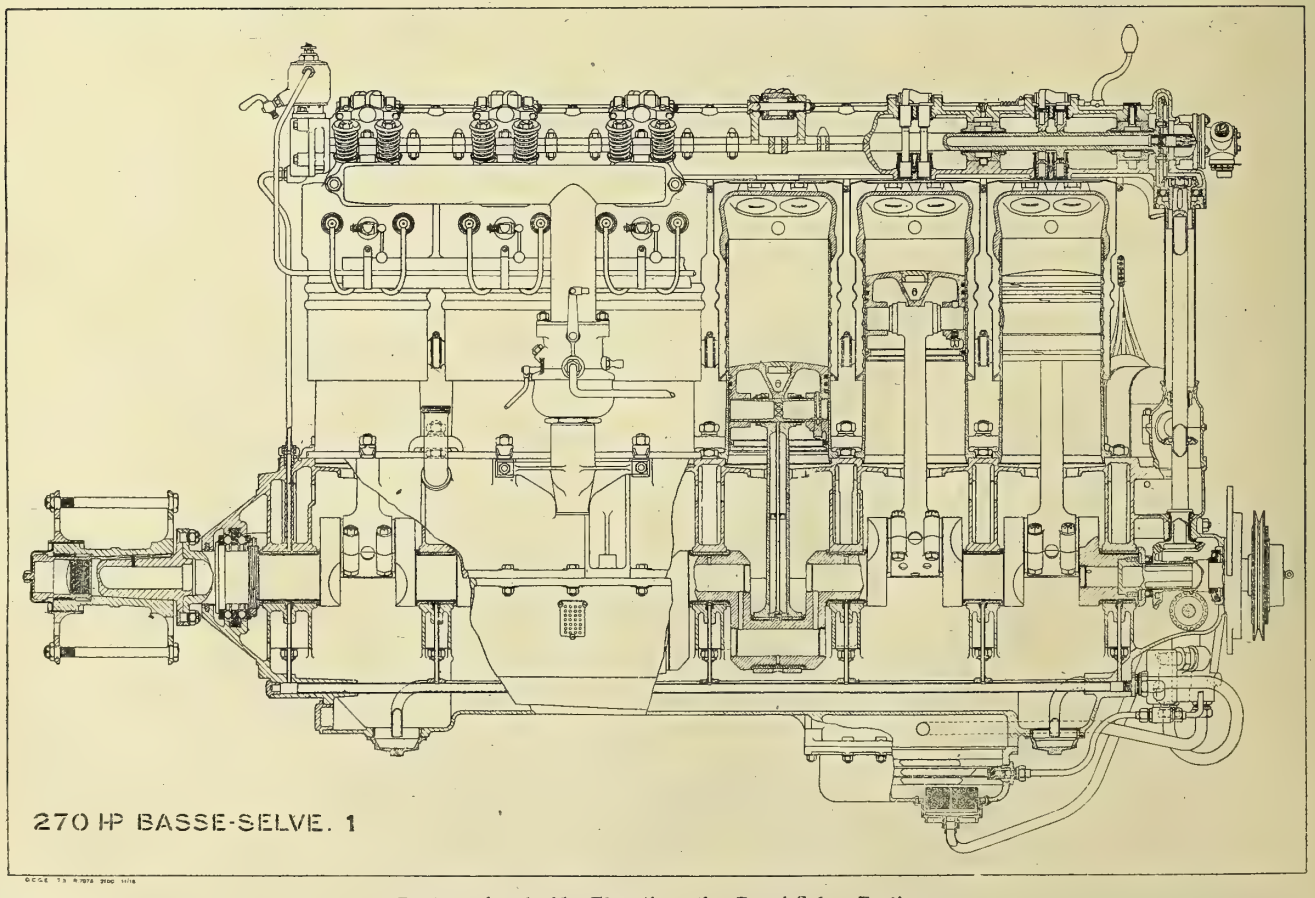
Weight of piston, complete with rings and gudgeon pin	6.187 lbs.
Weight per sq. in. of piston area	0.211 lb.
Weight of connecting rod, complete	9.00 lbs.
Weight of reciprocating part of connecting rod	2.25 lbs.
Total reciprocating weight per cylinder	8.437 lbs.
Weight per sq. in. of piston area	0.288 lb.
Length of connecting rod (centres)	360.0 mm. (14.17 in.).
Ratio, connecting rod/crank throw	3.6 . 1.
Inertia lbs./sq. in piston area :—	
top centre	80.7 lbs sq. in.
bottom centre	45.7 lbs. sq. in.
mean	31.6 lbs sq. in.
Weight of rotating mass of connecting rod	6.75 lbs.
Total centrifugal pressure	1480 lbs.
Centrifugal pressure lbs./sq. in. piston area	50.7 lbs. sq. in.
Mean average fluid pressure, including compression	44 lbs. sq. in.
Mean average loading on crankpin bearing, total from all sources in terms of lbs./sq. in. piston area	115.7 lbs. sq. in.
Diameter of crankpin	70.0 mm. (2.75 in.).
Rubbing velocity	16.8 ft. per sec.
Effective projected area of big-end bearing	53.9 sq. cm. (8.35 sq. in.).
Ratio, piston area/projected area of big-end bearing	3.50 : 1.
Mean average loading on big-end bearing	405 lbs. sq. in.
Load factor on big-end bearing	6800 lbs. ft. sec.

Cylinders.

Depth of spigot at base of cylinder	8.0 mm. (0.31 in.).
Thickness of flange at base of cylinder	10.0 mm. (0.39 in.).
Number of holding-down studs per cylinder	Six.
Diameter of holding-down studs	Four of 16.0 mm. ; two of 14.0 mm.
Thickness of water jacket	1.0 mm. (0.039 in.).
Mean thickness of combustion chamber wall	7.0 mm. (0.27 in.).
Mean thickness of cylinder barrel	3.0 mm (0.118 in.).

Piston.

Types of piston	Aluminium (convex crown)
Diameter of top	154.5 mm. (6.08 in.).
Diameter of bottom	154.75 mm. (6.09 in.).
Length	130.0 mm. (5.11 in.).
Ratio, piston length/cylinder bore	0.838 : 1.
Number of rings per piston	Four.
Position of rings	3 above pin, 1 below.
Width of rings	6.0 mm. (0.23 in.).
Type of joint in rings	Stepped.



Part sectional side Elevation, the Bassé-Selve Engine.



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Connecting Rod.	
Length between centres	360 mm. (14.17 in.).
Ratio, connecting/crank throw	3.6 : 1.
Little-end bearing, type	Phosphor bronze.
Little-end bearing, diameter	35.0 mm. (1.37 in.).
Little-end bearing, length	80.0 mm. (3.14 in.).
Little-end bearing, projected area	28.0 sq. cm. (4.34 sq. in.).
Ratio, piston area/projected area of little-end bearing	6.74 : 1.
Big-end bearing, type	Bronze shell lin'd wh. met.
Big-end bearing, diameter	70.0 mm. (2.75 in.).
Big-end bearing, length (effective)	77.0 mm. (3.03 in.).
Big-end bearing, projected area	53.9 sq. cm. (8.35 sq. in.).
Ratio, piston area/projected area of big-end bearing	3.50 : 1.
Number of big-end bolts	Four.
Full diameter of bolts	12.0 mm. (0.47 in.).
Total cross-sectional area bottom of threads	0.460 sq. in.
Pitch of threads	1.75 mm.
Weight of big-end cap, with two bolts and bearing shell	2.562 lbs.
Total load on bolts at 1,400 R.P.M.	3460 lbs.
Total load on bolts at 1,600 R.P.M.	4530 lbs.
Stress per sq. in. at 1,400 R.P.M.	7500 lbs. sq. in.
Stress per sq. in. at 1,600 R.P.M.	9850 lbs. sq. in.

Crankshaft.	
Number and type of main bearings	7, br ze shell lin'd wh.met.
Cylinder centres	210.0 mm. (8.26 in.).
Crankpins :—	
Outside diameter	70.0 mm. (2.75 in.).
Inside diameter	40.0 mm. (1.57 in.).
Length	85.0 mm. (3.34 in.).
Journals :—	
Outside diameter	70.0 mm. (2.75 in.).
Inside diameter	40.0 mm. (1.57 in.).
Length (propeller end)	60.0 mm. (2.36 in.).
Length (rear end)	95.0 mm. (3.74 in.).
Length (intermediate)	63.0. mm. (2.48 in.).
Webs :—	
Width	84.0 mm. (3.30 in.).
Thickness (front one)	37.0 mm. (1.45 in.).
Thickness (others)	31.0 mm. (1.22 in.).
Radius at ends of crankpins and journals	4.0 mm. (0.158 in.).
Weight of complete shaft	138.5 lbs.
Length of complete shaft	820 mm. (38.28 in.).

Ignition.	
Number and type of magnetos	Two, Bosch Z.H. 6.
Firing sequence of engines	Prop. 1, 5, 3, 6, 2, 4.
Number of plugs per cylinder	Two.
Type of plugs	Bosch 3-point.
Ratio, magneto speed/engine speed	1.5 : 1.

Lubrication.	
Number and type of oil pumps	One, duplex (double actg.)
Bore	45.0 mm. (1.77 in.).
Stroke	12.0 mm. (0.47 in.).

F.G.C., Ap.D. L.

J. G. Weir, Brigadier-General,
October, 1918. Controller, Technical Department.

R.A.E. METALLURGICAL REPORT.

Chemical Analysis.

The chemical compositions of the crankshaft and piston are as follows :—

Crankshaft.		A 1. Piston.	
Carbon	0.48 per cent.	Silicon	0.45 per cent.
Silicon	0.32 per cent.	Iron	1.06 per cent.
Sulphur	0.061 per cent.	Copper	1.90 per cent.
Phosphorus	0.016 per cent.	Tin	Nil.
Manganese	0.32 per cent.	Zinc	15.62 per cent.
Nickel	2.59 per cent.	Manganese	Nil.
Chromium	1.17 per cent.	Aluminium (by diff.)	80.97 per cent
Vanadium	Nil.		

Mechanical Tests.

Mechanical tests on the crankshaft gave values stated below :—

Mark.	A. Web. Longitudinal.	B. Web. Transverse.	C. Pin.
Diameter	.249 in.	.253 in.	.249 in.
Yield Point, Tons/sq. in.	44.6	44.5	46.3
Ultimate Stress, Tons/sq. in.	55.5	54.4	56.4
Elongation on 4 $\sqrt{A}$	19.5 p.c.	12.8 p.c.	20.3 p.c.
Reduction of Area	48 p.c.	24 p.c.	56 p.c.
Impact, ft. lbs.	28	26	41
	25	25	41

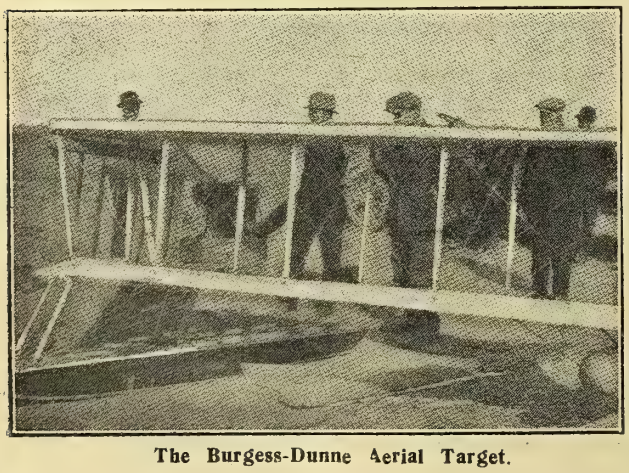
R.A.E., Dec. 5th, 1918.

A True Aerial Target.

The Americans claim another innovation to their credit—namely, a large-scale aeroplane which will fly by itself and can therefore be used as an aerial target.

For a considerable time the Burgess Company has manufactured aeroplanes on the principle evolved by the British aeronautical pioneer, Mr. J. W. Dunne. The Dunne machines were notable for the arrow arrangement of the wings and the absence of a true tail—within the scope of the usual meaning of the term. The machines were, however, eminently stable and could fly indefinitely without assistance from the pilot.

The new target machine produced by the Burgess-Dunne Company is built on this principle, the following being the over-all dimensions :—Span 18 ft. 5 ins., length 9 ft., over-all height 4 ft. 8 ins., and chord of wings 28 ins. The machine weighs 175 lbs., including a 12 h.p. four-cylinder motor-cycle engine, which has been adapted to meet the special requirements. The engine drives a 42 ins. airscrew, which gives the machine a speed of from 40 to 50 miles an hour. It is said that it is capable of carrying the weight of a man.



The Burgess-Dunne Aerial Target.

The apparatus is fitted with a single central float and two wing-tip balancing floats, so that it is started off the water.

Pupils flying ordinary aeroplanes pursue the machine and endeavour to score knock-out hits with machine-guns, a very difficult feat, because the only really vulnerable part of the machine is the diminutive engine and petrol tank. Superficial damage done to planes and structural members is very quickly repaired.

Presumably, also, the machine would form a useful target for practice with anti-aircraft guns from the ground.

Engineers and Demobilisation.

The following letter has been received from the Secretary of the Crystal Palace Old Students Society :—

28, Victoria Street, Westminster, S.W.

Dear Sir,—At the present time a very large number of engineers who formerly held good appointments are looking forward with some anxiety to the time when they will leave the Army, Navy, or Royal Air Force and have to find positions in civil life. Similarly, in view of the great work of reconstruction, employers must know that sooner or later they will be needing competent men, and may have some difficulty in finding them.

I should esteem it a very great favour if you would publish this letter, the object of which is to call together old students of the Crystal Palace Engineering School for co-operation in dealing with the problems of demobilisation as affecting engineers. Over 2,000 engineers have passed through this school, the addresses of many are unknown to me, and they include many men holding the highest positions in the profession. The Council of the Crystal Palace Old Students Society feel that they can do good work in this respect, not only among their own members, but for many others.

May I therefore ask you to insert this letter as an appeal to all old students of the Crystal Palace Engineering School or others interested in the subject to communicate with me by letter.

I would add that this is not an ordinary employment bureau, and that no fees of any kind are to be charged.

I am, yours very truly,

H. C. H. Shenton (p.p. E.), Hon. Secretary.

THE AIRCRAFT TRADER

MARKET TOPICS.

Prices are for Quantities on Usual Terms.

April 10th.

COPPER.—During the past week this market has improved considerably. The general outlook is much better, and it looks as though the clouds of unrest and uncertainty, which have prevailed during the past few months, are gradually disappearing.

It is not advisable to become unduly optimistic, but there are very definite signs of the commencement of an industrial revival, and this is likely to be very marked before the end of the present month. Consequently, values will most certainly harden. So far as Copper is concerned, the market has been very firm, and there should be no barriers in the way of very brisk buying, with the exception of the trade in manufactured Copper, and, as previously pointed out, the prices are not in proportion to those ruling for ingot.

The last report from U.S.A. indicates that business in Copper is fairly brisk, and the immediate prospects of trade revival are very bright.

Comparative Prices.

	Per Ton. £	s.	d.
To-day (April 9th)	78	0	0
Last week	81	0	0
Last month	74	5	0
Average last year	115	10	0

TIN.—Towards the middle of last week, the market was very much affected by a report that Tin had been sold in the East at prices which were lower than the prices for which it is understood the F.M.S. Government Copper is held.

Upon receipt of these reports prices declined to £200; buyers became interested and large purchases were made, with the result that values commenced to harden. The report in question, which may have been accurate, apparently only referred to one isolated transaction, but the incident serves to illustrate the nervousness of this market, and the rapid and violent fluctuations do not encourage confidence.

The stocks at present held here are very large, but it is understood that a fair proportion of the metal has been delivered here on account of America.

Comparative Prices.

	Per Ton. £	s.	d.
To-day (April 9th)	225	5	0
Last week	220	0	0
Last month	238	15	0
Average last year	239	10	0

LEAD.—There has been recently an improvement in this market, and the activity in business gives cause for optimism, and, on this account, there does not appear to be any reason why there should have been a fall in prices towards the end of last week. The stocks held here are, of course, large, but, on the other hand, the demand from consumers is increasing, while production is decreasing. Further, everything indicates the possibility of a still larger demand for Lead in the near future.

Comparative Prices.

	Per Ton. £	s.	d.	
To-day (April 9th)	24	10	0	Average.
Last week	25	15	0	do.
Last month	26	15	0	do.
Last year	30	0	0	do.

STEEL.—The position of this market is not very bright at present. In certain sections there are signs of activity and there are indications that it will increase. The shortage of Coal has had a serious effect upon a few mills, but the situation appears to have improved considerably.

It is now practically certain that there will be an advance in price when the subsidies are withdrawn at the end of this month, and as the mills are only accepting orders with price reservations, buyers have apparently come to the conclusion that nothing can be gained by waiting and are entering the market.

There is, of course, the possibility of keen American competition to be considered and this feature of the situation should be watched very carefully. In some quarters it has been said that American prices are not lower than those of British manufacturers, and one instance of the British makers' price for Plates being about £5 less than U.S.A. for delivery to France has been cited. But it is not clear whether the quotation in this instance specified that the price was subject to alteration should it be higher at the date when delivery is effected. This, of course, is a very important point.

American Steel makers are likely to be very keen competitors, as instanced in the Birmingham Corporation Steel Rail Contract, and only last week the Chairman of the Scottish Tube Company stated that they had been compelled to place orders with U.S.A. for Steel suitable for Tubes at a considerably lower price than British makers.

Many firms are anxious to know what the Ministry intends doing with the huge stock of alloy and other Aircraft Steels. It is understood that there are thousands of tons in stock and it is even asserted that there are sufficient stocks of certain classes of Steel for a fifteen years' war.

Are the Ministry holding their stocks back in order to take advantage of a possible higher market after the end of April? If so, the policy may help some department in the effort to justify excess buying, but it is a very shortsighted one as it is in the meantime creating nervousness amongst consumers who are simply living hand to mouth and will not exert all their efforts on their Peace programme.

The market for High Speed Steel and H.S. Scrap is now entirely free from control and the maximum official prices ceased to operate from April 1st, 1919.

It should have been pointed out previously that the subsidies at present being paid by the Government range from 20s. to 60s. per ton and their removal at the end of April is being watched with much interest.

TIMBER.—The market has not been very active during the past week. At the same time there is a certain amount of firmness visible, and there are very definite indications that the worst has now been passed, and this is particularly the case with Mahogany and Walnut. Buyers are showing much more keenness.

The Government have not indicated the action they propose taking with the huge stocks of Aircraft Timber at present held in the country, and until something definite has been done there is hardly likely to be any activity on the part of buyers of Aircraft Timber.

Of course, the demand at present is very small. Prices at present are still showing signs of declining, but there are indications that they may harden now that consumers are becoming interested in the market.

FABRIC.—There is nothing further to report at present. Several members in the House have been manifesting interest in the huge stocks of Fabric which are held. No definite decision apparently has been made by the Government as to the disposal of the stocks, and some statement is being awaited with interest.

Mr. Coatalen's Post-Bellum Policy.

It is announced that Mr. L. Coatalen, chief engineer and joint managing director of the Sunbeam Motor Car Company, Ltd., Wolverhampton, will, in the immediate future, concentrate his attention solely on the design of cars, aeroplane engines, airship engines and gear, and motor-boat engines.

On account of the increase in the size of the works and volume of business, Mr. Coatalen tendered his resignation as joint managing director to the board of directors, who have agreed with his views that it is wise to dissociate the combined duties of joint managing director and chief engineer, it being found practically impossible for one individual adequately to cover both functions in a works so large as that of the Sunbeam Company.

Mr. Coatalen will therefore become chief engineer of the company, devoting the whole of his time to and being responsible for the design of the Sunbeam Company's productions, thus enabling him to give full rein to his proved engineering abilities. He will, of course, retain his seat on the board of directors.

On April 15th, Mr. Coatalen sailed for America to study the conditions of motor manufacture and production in the United States, and it is hoped also that he will captain the team of Sunbeam racing cars entered in the International Indianapolis Race to be held on May 31st.

It is understood that the two Sunbeam cars are the only British representatives, which fact speaks well for the initiative and progressive policy of the Sunbeam Company. The drivers of the cars are respectively Jean Chassagne and Dario Resta.

Mr. W. M. Iliff, who was the joint managing director with Mr. Coatalen, will take up the reins as sole managing director.

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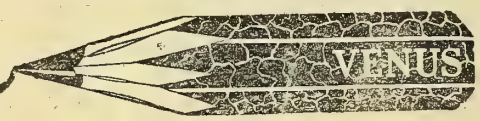
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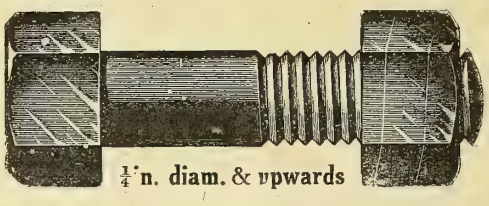
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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

THE ART OF KILLING ENTERPRISE.

By "THE SNIPE."

The distribution of daily newspapers by aeroplane has already been carried out so successfully that the authorities have thought fit to snub officially those super-enterprising folk who made the experiment without waiting for Ministerial sanction.

When M. Clémenceau was the guest of H.M. the King it was a pleasing compliment to the distinguished visitor to have his Paris newspapers brought to London by aeroplane each morning for his perusal. That was kingly courtesy, and the success of the enterprise showed the average man on the ground what could be accomplished.

Rapid Distribution of Newspapers.

But now the opportunity has come to give the people the advantages of the rapid distribution of newspapers which were but a short time ago the exclusive privilege of the great.

When the "Daily Mail" arranged to have a special edition of the paper carried by air to Bournemouth, the hope was expressed in these pages that other towns would be favoured in the same manner, but the effort was crushed, "pending the re-opening of civil aviation," to quote Major-General Seely's answer in Parliament.

One can only hope that, when at long last civil aviation is permitted, Britain will not have lost all opportunity of doing pioneer work in commercial aviation. Week by week there are recorded in these pages successful mail-carrying flights made by the French, who are working practically and enthusiastically, unfettered by restrictions.

One can foresee a time when a Postmaster-General will send a Commission to France to inquire into the practicability of this new-fangled method of carrying mails, about which certain aggressively progressive people show so much vulgar curiosity.

In the distribution of newspapers by air Britain has a magnificent opportunity of proving to the world the value of rapid aerial transport, and it is lamentable that journalistic enterprise should be kept in leash indefinitely.

To Those Who Are Not Heartbroken.

One would suggest to those newspaper proprietors whose hearts have not been broken by official obstructiveness that the chief value of the aeroplane to them is to distribute rapidly editions of evening papers.

The existing organisation for the carriage by train of London's morning papers to all parts of the country is so efficient that journals printed in the small hours of the morning reach the public in practically all parts of the Kingdom by breakfast-time. The time saved by carrying these morning papers by air would not be so noticeable to the public as would the rapid distribution of evening papers.

It has for long been an axiom that the circulation of an evening paper must of necessity be confined to a small area compared to that of a morning journal, because the time available for distribution is so much shorter. The greater part of an issue of any London evening paper is at present distributed in London. Towns only a few miles away from the metropolis have their own evening papers, which are able to publish news before the arrival of the London news-sheets.

But the aeroplane makes it possible for the publisher of a London evening newspaper to distribute his journalistic wares over an area included in a circle with, say, a radius of two hundred miles, and this could be done with such celerity that the circulation of the paper could be increased enormously.

For example, by making use of aeroplanes, London evening papers could be on sale in Birmingham one hour after publication, and within half an hour in towns about the same distance away as Brighton.

It would not be necessary to make landings in order to deliver the loads of papers to their destinations. Packed in oilskin bags, they could be dropped at appointed aerodromes, and thus outlying districts with restricted train services could be served.

Difficulties Caused by Mists.

From the technical point of view the afternoon flights would offer fewer difficulties than those in the early morning during the greater part of the year. Mists are very common in the early hours, but are dissipated later in the day.

There is, therefore, nothing to prevent the scheme from being put to a practical test except the too long continued prohibition of civil flying.

From all quarters one hears of vast numbers of machines being scrapped—machines perfectly well adapted for this work. One is told that aeroplanes of the latest designs are lying in the open, rotting, because there is insufficient space in hangars. One hears of R.A.F. pilots being offered machines for about £60 that have cost the public more than twenty times that sum, and nobody seems to ask why reasonable propositions should not be placed before practical business men with a view to realising the asset the country possesses in the surplus aeroplanes that have been idle since the Armistice.

One has good reason to believe that at one Aircraft Storage Depot alone there have been about 500 machines of the most up-to-date type warehoused since the cessation of hostilities five months ago.

And there are many Aircraft Storage Depots!

This country possesses the greatest aerial fleet in the world. This could be adapted to commercial purposes, but, owing to the dilatoriness of officialdom, this fleet is rendered as useless as were those German ships that lay impotently in the Kiel Canal.

Verbal Fondling.

While our manufacturers are coining happy phrases after expensive banquets and telling highly placed officials with breasts of many colours what excellent fellows they are, the Continent is doing the practical pioneer work of applying aeroplanes to commerce.

We have had five months in which to tell each other what wonderful things we did in the production of aeroplanes during the great war, and while we have been verbally fondling each other the process of destruction has been in operation.

We want civil aviation to be made possible, and we want it to be done now.

COMMERCIAL AERONAUTICS.—(*cont.*)

POST-BELLUM POLICIES.

By The Special Commissioner of "The Aeroplane."

THE FAIREY AVIATION CO.
MR. FAIREY.

Mr. Fairey believes in the seaplane. He considers that the seaplane is capable of very rapid development as a commercial proposition. His reasons for this are that the seaplane may be more heavily loaded owing to having larger alighting areas than are generally obtainable for land machines, also in the event of engine failure the seaplane is assured of a landing place.

The Cost of Seaplane Stations.

Furthermore, the expenses in connection with seaplane bases are lower than is the case where an aerodrome has to be kept in order, to say nothing of the increased taxation payable on the land. By the way, although I have never heard of its being done, I suppose that the harbour authorities will not be likely to overlook harbour dues as a source of revenue, especially with the increasing size of the modern flying-boats. I wonder which will be the first enterprising harbour board to do it, and, at the same time, to make definite rules for the regulation of the flying-machine when water-borne.

However, to return to Mr. Fairey, he says that when one gets to really large sizes the boat has the advantage over the land machine in that its landing gear does not go up in weight proportionately to that of the land machine, also that the mechanical difficulties of the chassis of the latter are considerable, as an instance of this he quoted a large German machine where no less than 18 wheels are used to carry the weight of the machine when on the ground. This, as he pointed out, adds considerably not only to weight but to head resistance. He also said that at the moment the size of the large land machine is limited to the weight which can be carried by the pneumatic tyre; it is therefore to be presumed that the very big machines will be boats. He believes in having them very big, too. He showed me what he called his drawing-board. It consists of a "mock-up" of a large flying-boat, all the details being shown even to instruments and engine controls. In this way, Mr. Fairey obtains the maximum of comfort and convenience for the pilot.

The Pilot of the Future.

His ideas on the pilot subject are original and imaginative, and are much fuller than any I have so far obtained.

The pilot of the future he divides into three classes, military small machine pilots, military large machine pilots, and commercial pilots. The first of the military variety, he thinks, will become like the cavalryman and be led into action much as cavalry are; these, he thinks, will rank as privates. The pilot of the large machine, however, he prophecies, will have a staff working under him, and will be much more like a ship's captain, and will be, so to speak, in command of the machine. The commercial pilot, he thinks, will depend for his value on his reliability.

The Small Aeroplane and a Small Demand.

I asked him of the future of the small land machine. Of these, he thinks, that from the manufacturing point of view, it will only be military machines which will be worth competing for, that there is already a sufficiently large number of firms who have specialised in this branch, and that the market for the owner-piloted machines will be small, owing to the boredom of making long cross-country trips. This last argument appealed to me particularly, as I must say one does get bored to death on such journeys, so much so, that it becomes almost necessary to stunt, even if only a little, in order to break the monotony.

That Mr. Fairey will enter for competitions is obvious from his recent entry for the Trans-Atlantic flight, but I gather that he favours the kind where a number of manufacturers are given certain specifications to build to, and where the prize consists of a Government order. He emphasised the necessity for caution in the education of the public, and for care in the financial arrangements of the future.

The Difficulties of Seaplane Construction.

Mr. Fairey is also of the opinion that the seaplane designers have made greater strides during the war than have their competitors in the aeroplane line, and claims a longer life for the seaplane on account of its stouter construction. He also says that seaplane builders have greater difficulties to contend with in construction, such as folding planes and hoisting gear, than have the aeroplane builders, but that, even so, seaplane performance has advanced to a greater extent proportionately than that of land machines.

As a general impression, I think that Mr. Fairey is likely to devote far more attention to seaplanes and flying-boats, and the development of the colossal type in the last-mentioned. He evidently expects the majority of commercial work to be handled by seaplanes, and will, no doubt, lay his plans accordingly.

His views on the labour question are interesting, too, but are not, perhaps, strictly to the point where the future of commercial aviation is concerned.

The Blackburn Co.'s Banquet.

On Monday, April 7th, The Blackburn Aeroplane and Motor Co., Ltd., gave a banquet at the Savoy Hotel to celebrate what was described as the first practical attempt to bring aviation within reach of the public.

There were present, Maj.-Gen. Sir Frederick H. Sykes, K.C.B., C.M.G., Brig.-Gen. H. R. M. Brooke Popham, C.M.G., D.S.O., A.F.C., Mr. Joynson-Hicks, M.P., Mr. E. J. Westerveld (Director-General for Posts and Telegraphs, Netherlands), and Captain A. C. Dunlop (Naval Attaché, Netherlands Legation).

Mr. Stuart Hirst, the Chairman, proposed the toast of "Civil Aviation." In the course of his speech, he said:—

Directly the bar to civilian flying is removed the North Sea Aerial Navigation Company will begin to operate aircraft between Hull, Esbjerg, and Copenhagen, in Denmark, with three branch services—one north of Gothenburg and Christiania; another north-east and east to Stockholm, Helsingfors, and Petrograd; and the third to Amsterdam and Rotterdam. The company were very interested in the design and construction of the vessels, and believed that in a flying boat of about fifty tons, which they had already under consideration, and which would afford accommodation for several tons of mail and merchandise, they had a sound business proposition.

A Boon to Commercial Men.

"What a boon it will be to many commercial men, when they can attend to their correspondence in their own offices in the morning, get over to Bremen, Copenhagen, or even to Amsterdam, transact in an hour business that hitherto would have required a week to put through, and be back safely in their homes in England for dinner the same day." He prophesied that eventually air travel would be the cheapest, safest, simplest, and most convenient, and one of the natural ways of transport. The little Blackburn machine, the exhibition of which was opened by Lady Drogheda in London that day, marked the crystallisation of the first effort in history to present the civilian public with a machine designed for its particular requirements.

General Sykes' Speech.

Major-Gen. Sir Frederick H. Sykes, K.C.B., C.M.G., said that he was convinced that British aviation would win through faster and better than any in the world. A few days ago a machine travelled from Paris to London in an hour and 20 minutes, which was pretty good.

The postal service to Cologne was providing a great deal of information. They were gradually building a system of signals and a regular chain of services, and so far it had been uniformly successful. There had been no passenger casualties.

A North Sea service was as yet in an experimental stage. During the war flying-boats flew backward and forward across the North Sea, but when such a service was established it must be on a uniform, steady basis.

The danger of the large machine was that they did not want any serious set-back in aviation, and if a large machine crashed with a number of people in it it would have a very serious effect.

Referring to the discussions at Paris as to the International Aerial Convention, General Sykes said that two days ago everything was perfectly clear, and it was being put into a proper legal form. He was returning to Paris on Monday, when he hoped the whole thing would be approved. They had already put the home regulations into draft, and as soon as the international regulations were through they could let loose the home regulations. It would be better if they could have them, as far as possible, on an international solid basis.

A Change of Name.

The British Chuck and Piston Ring Company, Ltd., of Holbrook Lane, Coventry, has had the name changed to the British Piston Ring Company, Ltd., and will continue to carry on business at the same address.

An Aid to Speed.

Major-General Seely states that by covering the passenger cockpit in the D.H.4 machines, in order to make travelling more comfortable, the speed of the aeroplane was increased by 10 m.p.h.



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C.D.C.

CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

Mr. Frank Allen, managing director of Moss Empires, Ltd., has asked a well-known aircraft company to supply him with a machine capable of carrying two passengers and pilot at 100 to 120 miles per hour, for service upon the Moss' Tour throughout the United Kingdom, embracing over 30 variety theatres.

As soon as the official ban upon commercial and private flying is removed an experimental flight will be made.

Australia.

The Commonwealth Government is registering bona fide aerial companies, which, however, will be subject to future legislation and restrictions.

The Australian Aerial Survey party, after surveying large tracts of country, is quite satisfied that there are good landing places in Queensland.

France.

The aeroplane "Goliath" returned from Brussels at 5.45 on the evening of April 7th, accomplishing the flight in two and three-quarter hours. She carried 14 passengers. It is proposed to run a service three times a week between Paris and Brussels.

The Paris-Bordeaux postal aeroplane caught fire on landing on April 7th. The pilot and observer were rather badly burned, and the mails and the aeroplane were destroyed.

Italy.

A mission is expecting to start to Brazil during April to prepare the way for river services with S.I.A.I, Macchi, and other waterplanes. It is composed of four ex-Service men, pilots and organisers. The mapping out of something like 4,000 kilometres of airway is the first task to be accomplished. Also, a governing body has to be organised for the protection of aerial interests when these shall have been propagated. It is obvious that an undeveloped land is that in which aviation can be rendered most lucrative.

The Vickers-Terni firm, of Spezia and elsewhere who are to build the new fastest Italian biplane, the "Marchetti," announce a dividend for 1918 at the rate of 8 per cent. Their capital is 20,000,000 of lire.

The acquiring of the Fiat-San Giorgio works at Turin by Gio. Ansaldo and Co. during the war permitted the firm to fit their SVA biplanes with the Spa motors, which were built in insufficient numbers by the Spa Company at that time. The manufacture of some 3,000 motors in something less than two years was thus accomplished. The Spa firm was engaged chiefly on very important lorry work for the Army.

I learn that the two lower-power motors built by Isotta and Fraschini, of Milan, are to be supplanted by an engine giving nearer 400 h.p., though nominally of only three-quarters that power. It is generally said that these motors will take some heavy machine across the Atlantic.

In an interview to "Il Secolo" the Hon. Conti, who is winding up the war contracts with aviation firms, says that military personnel and materiel is being used freely now to organise routes for civilian flying. Later these will be handed over to firms able to contract for reliable services.

Serjt. Adolf Massei made a fast flight on a SVA from Otranto to Genoa early in March in very bad weather. In spite of a stop at Rome he covered the distance of 1,300 kilometres in about 5 hrs. 5 mins.

The Palermo authorities announce a "Circuit of Sicily" open to seaplanes. As was well known, Sicily was the home of numbers of Allied Squadrons during the war. The Italian Government is taking over the materiel of these stations, which will be useful for colonial expansion schemes. Talking of trade schemes reminds me that Engineer Forlanini considers that the cost of transport by dirigible will work out as only half that of transport by aeroplane.—T. S. H.

Sweden.

A message from Christianstad states that another German aeroplane, intended for the Swedish Government, has been wrecked in South Sweden when starting for a flight. The machine had not yet been delivered to the Swedish Government, so, consequently, the loss is borne by the German owners.

Holland.

The delegation from the Dutch Government which arrived in this country last week to prepare the way, in consultation with British Ministers, for commercial flying between Great Britain and Holland, returned to their own country in a flying-boat from Folkestone on Friday, April 11th. The visit has been highly successful, and many different views of the general question of commercial flying have been discussed, of which not the least interesting is concerned with the formation of plans for providing a port of call in the Dutch East Indies for British aeroplanes flying to Australia.

The members of the delegation are Mr. H. Colyn, ex-Minister of War and member of the Senate; Mr. E. P. Westerveld, Postmaster-General; and Mr. J. J. Stieltjes, ex-Postmaster-General of the Dutch East Indies. Nine days have been spent in consultations with the British Air Ministry and the British Postmaster-General, and in visiting some of the aeroplane works, including those of Mr. Handley Page at Cricklewood and of the Grahame-White Company at Hendon.

The conclusions which have been drawn from these conferences will be laid before the Dutch Government in due course, and the inauguration of a definite North Sea service will have been brought so much nearer.

Portugal.

An aeroplane service will fly this summer between Barcelona and Lisbon via Madrid, Oporto, and Coimbra.

Switzerland.

According to the Italian papers, most of which have efficient Swiss correspondents, the German Elektrizitäts Gesellschaft are dumping metal Aviatik aeroplanes for postal service work in large numbers in that country, to the natural disgust of the firms that hope for Swiss Government contracts for such craft.—T. S. H.

United States of America.

Specifications for postal aeroplanes have been issued to tender by the United States Post Office.

It is stated in Detroit that the first aeroplane salesman arrived there from Syracuse, New York, in a small aeroplane. He sold a large quantity of goods by sample and announced that he would visit other cities by air this week.

The Late O. P. Monckton.

Those who have been much concerned with aero-engines will hear with very deep regret of the death on April 9th of Oliver Paul Monckton, M.A., M.I.C.E., the London representative of the Dudbridge Ironworks Co. During those queer tests for the Naval and Military Engine Competition of 1914, which were brought to an abrupt end by the outbreak of war, Paul Monckton was constantly at Farnborough looking after the Salmson engines which had been entered by the Dudbridge Co., and all who met him recognised his outstanding ability as an engineer.

He was a scientist of considerable attainments besides being a practical engineer with much experience in Africa and India. His work in India seems to have laid the seeds of illness which so weakened his constitution that he was unable to stand the strain of extra labour entailed by the war. The result was that in 1917 he suffered a nervous breakdown from which he never recovered. He was buried at Boscombe on April 12th.

Paul Monckton was a man of somewhat shy and retiring nature, but to those who were privileged to be numbered among his friends he was one of the most charming people imaginable. He was extraordinarily well read, and besides having a very keen and delicate sense of humour, he was in his quiet and unobtrusive way a constructive humorist of a very high order, with a tendency to mathematical jokes rather in the manner of the late "Lewis Carroll." One looks back to many pleasant hours spent in his company, and while one regrets that one has lost a good friend one regrets still more that the country has lost a man who, if he had lived, would have done valuable service to the State.—C. G. G.

An All-Metal Biplane.

In the adaptation of the aeroplane to commercial requirements the wearing capacity of all its parts becomes of prime importance. It is in some of the lesser developed lands where communications are still poor that one may look for a rapid adoption of aerial transport; and it is in such countries which are subject to tropical heat or northern cold the climate may have a detrimental effect on the aeroplane constructed principally of wood.

It is to cope with this difficulty that the British and Colonial Aeroplane Co., Ltd., of Filton, Bristol, have evolved a biplane of all-metal construction. The fuselage itself is a special construction of aluminium and steel, and is in sections which can readily be dismantled for transport.

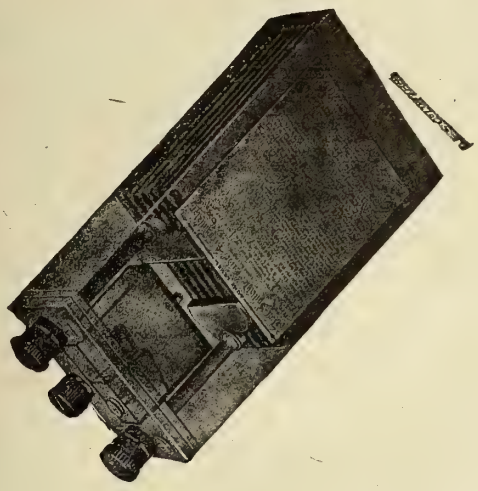
The struts are of high tensile steel throughout, and the wings are made of aluminium and high tensile steel. The performances of this machine, which is fitted with a comparatively low-powered engine (180-h.p. Hispano-Suiza), have proved that the all-metal construction does not adversely affect its speed or rate of climb, whilst its weight (1,700 lbs. with engine) compares very favourably with that of a wood-built machine.

When loaded it can carry 450 lbs. of cargo. At ground level it has a speed of 110 miles per hour, can climb 5,000 feet in 8 minutes, and has a landing speed of 47 miles per hour.

A Change of Address.

The Head Offices of the Thames Aviation Works, Ltd., are being transferred from London Fields Railway Station, Great Eastern Railway, which is now required again for passenger traffic, to the new and fully equipped factory at 30a, Highgate Road, London, N.W. 5.

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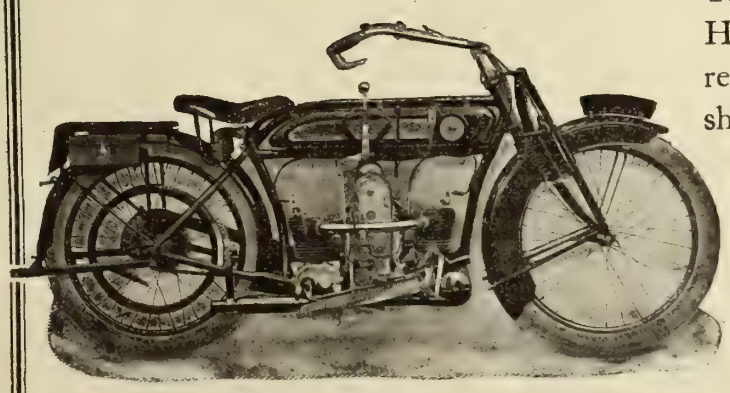
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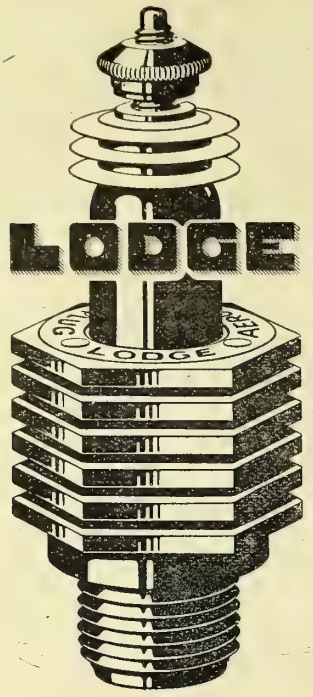
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¶ A Sopwith Aeroplane with ROLLS-ROYCE Engine (entered for the Trans-Atlantic Flight), Piloted by Mr. H. G. Hawker, made a Trial Flight of 900 miles in 9 hours 5 minutes or 100 miles per hour for 9 hours. CASTROL "R" was used throughout.

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C.D.C.

AIRCRAFT FINANCE

DEPRECIATION ALLOWANCES FOR TRANSPORT VENTURES.

It is one of the common faults of most of the calculations of the working costs of hypothetical aerial transport schemes that the vital question of depreciation charges is either completely ignored or referred to cursorily.

Yet it is no exaggeration to claim that the provision of adequate depreciation is one of the determining factors in relation to the successful financial consummation of such commercial ventures. It must be considered rather seriously in connection with some of the budding projects, the sponsors of which are better endowed with optimism than logic.

Wait and Watch.

Certainly the prospectuses of aeronautic transportation companies when they appeal for the consideration and the favour of the investor must provide some illuminating data on the subject of prospective profit-earning capacity *after adequate provision for depreciation.*

The Parallel of Shipping.

If one takes the parallel of the shipping venture, there is interesting evidence to be obtained, but evidence that is scarcely applicable to a totally distinct and unproved enterprise.

Some of the conservatively managed shipping companies may write down the value of the fleet by 10 per cent. annually; some may provide a larger percentage, and others less, after reasonable and actuarially adequate provision for upkeep, renewals, and the like.

Assumed Life.

The assumed life of the asset is, say, ten years, and by that time there will be a sufficient sum provided, before striking the annual profits, to effect the replacement of the constantly wasting assets by something more modern and capable of earning adequate income.

Wear, Tear, and All Costs.

The question is: Would 10 per cent. provision for depreciation suffice to cover adequately the ordinary wastage suffered by aeroplanes on a regularly established service for mail passengers and goods? Perhaps it is a pity that the parallel of the steamship is taken, because the two are dissimilar. Yet it is useless to take the case of a railway, because there is even less similarity.

Even in the case of a railway it would be stupid to elaborate any calculation of net working costs without adequate allowances for wear and tear of rolling stock and permanent way, upkeep of stations, etc., etc., and the other multifarious items comprehended by the expressive commercial term—depreciation.

Capital Outlay, Etc., and Earnings.

Admittedly the original capital outlay involved in the purchase of an aeroplane is comparatively small. But so is the income of a single aeroplane comparatively small. The consideration of the initial capital outlay does not bring one nearer to a solution of the problem.

In comparison with the railway, the aeroplane is as tender as a new-born babe; and a steamship, although experiencing more than an ordinary amount of bad weather and consequent buffeting, requires a lot of knocks before it is put out of action completely. The aeroplane may not be, as it has been erroneously described, essentially a fine-weather craft, nor is it simply a millionaire's toy.

How Long Will They Last?

It will be conceded, however, that the commercial aeroplane, scientifically and soundly built though it may be, will entail a larger allowance for wear and tear and depreciation than most people imagine. A machine that is capable of earning as the result of a year's work on any ordinary commercial service sufficient income to cover its original cost, the expenses of upkeep, renewals, insurances, etc., etc., etc., bear its due proportion of station, etc., etc., outlay, wages, etc., etc., and a reasonable dividend, would not need to be written down by a 100-per-cent. allowance for depreciation. That is obvious.

Replacements.

But if the machine had to be scrapped as no longer serviceable before it attained the goal just outlined, there would be no alternative but to replace it by a new machine, the cost of which would be charged to capital account. The difference between the net loss on the original machine and the cost of the new one constructed and commissioned to replace it would result in so much addition to capital.

Unsound Business Practices.

Obviously it would be unsound and menacingly dangerous to carry on a business proposition on such lines. The time would come when a company conducted on such loose principles would be interviewed by a receiver.—W. J. Davies.

CURRENT TOPICS.

More Capital for Handley Page.

Of considerable interest is the new capital being raised by Handley Page, Ltd. It is the first public issue made by the well-known concern, the capital of which is £650,000, and profits of which for the year to Dec. 31st last are stated to be £224,750. The new issue consists of 500,000 7 per cent. cumulative and participating preference shares of £1 each.

Last December the authorised capitatl was increased to £500,000 by the creation of £350,000 preference and £140,000 ordinary shares; it has since been increased to £650,000.

It is said that these new shares will participate up to a maximum dividend of 14 per cent. The proportion of preference shares with participation rights to the total capitalisation is not so pronounced as in some aeronautical concerns, but it is, nevertheless, quite considerable.

The Triplex Safety Glass Scheme.

There has been some fluttering in the shares of the Triplex Safety Glass Co., based on the knowledge that shareholders are to be offered a new share in respect of every one held at a premium of 15s. At the advanced price of about 43s. for the old shares this would represent quite a profitable turn, but it would be as well to take into consideration the possible effect on dividends of the larger capital.

An Amalgamation.

It is now announced that the contemplated fusion of Dennis Bros. and White and Poppe who have been intimately concerned in the aero-engine business, will be carried through by an exchange of shares.

At the same time some of Dennis Bros. reserve will be capitalised and a bonus thus provided for shareholders.

State's Aircraft Insurance Profits.

A lot of criticism has been directed against the Government's Aircraft and Bombardment Insurance scheme or rather the policy directing it. The return of part of the premium has been advocated in some quarters, but seeing that a bargain is a bargain and that the Government has been over-generous with its expenditures in many directions the claims for rebate ought not to be entertained.

AIRCRAFT IN PARLIAMENT

The following oral answer was given on April 8th :—

AERODROME EXTENSION—(YORKSHIRE).

Major LANE-FOX asked the Secretary of State for War what is the cause of the undue delay in paying the rent admitted by the War Office to be due to the Rev. S. Howard Hall for land at Sherburn-in-Elmet, in Yorkshire, taken over for the extension of the aerodrome early in 1918, and whether he can hurry the payment of this debt, which has been repeatedly applied for?

Mr. FORSTER : I understand that occupation was taken in this case under the Defence of the Realm Act, and therefore rent is not payable, but compensation is awarded in such cases by the Defence of the Realm Losses Commission. As regards the question of delay, I am informed that a claim in proper form was first submitted on Nov. 16th, 1918, and that an amended claim was submitted on March 14th, by the solicitors acting for Mrs. Hall, who is the owner of the land. In forwarding this amended claim the solicitors did not complain of delay on the part of the War Department, but, on the contrary, regretted slight delay in consequence of their client's illness. There is, I gather, every prospect of the claim being settled now very expeditiously.

* * *

The following written answer was given on April 9th :—

ROYAL AIR FORCE.—CASUALTIES DEPARTMENT (LIEUTENANT STEPHENS).

Sir PETER GRIGGS asked the Under Secretary of State to the Air Ministry if he is aware that no definite reply has been given by the officer in charge of the Casualties Department, Royal Air Force, to Mr. E. H. R. Stephens, of 21, Clarendon Gardens, Ilford, respecting the proved death and burial of his son, Second Lieutenant D. E. Stephens, to enable him to settle his affairs, and also not to be in the position of having to continue payment of his life insurance premium, etc., and will he make inquiries into the matter?

Major-Gen. SEELY : In cases where there is no certain evidence of the death of an officer, but where the facts would appear to establish a presumption of death, the regular practice based on legal advice is to forward to the next-of-kin a letter stating that death has been presumed. Such a letter was sent to Mr. Stephens at the address mentioned in the question on February 26th last. I am having the case investigated with a view to ascertaining whether anything further can be done.

* * *

The following written answer was given on April 9th :—

ROYAL AIR FORCE.—OVERSEAS RECRUITS (PASSAGE MONEY).

Lieut.-Col. Sir JOHN HOPE asked the Under Secretary of State to the Air Ministry whether the actual amount paid in passage money by British subjects who came from America to enlist in the Army or Air Force may be refunded; and, if not, what is the limit of the amount which may be refunded?

Major-Gen. SEELY : So far as the Royal Air Force is concerned, the refund which is made is not necessarily the amount actually paid by the individual. The refund is limited to the amount at which a passage of the appropriate class by the most economical route could have been obtained. This amount is £21 for first class and £7 10s. for third class passages from United States or Canadian ports to England.

WIRELESS OPERATOR (N. G. HOLMAN).

Mr. R. McNEILL asked the Under Secretary of State to the Air Ministry if he is aware that N. G. Holman, No. L.Z. 5,793, Royal Air Force, who was formerly a wireless operator in the Royal Naval Volunteer Reserve, received a notice on April 2nd, 1918, that he had been transferred to the Royal Air Force; that on August 29th, 1918, he was sent to England and was in hospital at Llandudno till December 10th, 1918, on which date he received hospital leave for home, where he has been till the present time; that during the whole of this period he has received no pay with the exception of two sums of £5 sent him by the Royal Air Force pay office at Woking, in response to appeals on Holman's behalf by a Staff Captain; that on March 29th, 1919, he received a letter under Reference C.D./M H S./285/5 from the Royal Air Force authorities at Blandford, saying that as Holman had never been transferred and had only been attached to the Royal Air Force, they had no responsibility for him; if he will say whether Holman was, or was not, transferred to the Royal Air Force; and, if so, whether he will now receive all arrears of pay due up to the present date?

Major-Gen. SEELY : I am having inquiries made, and will inform the hon. Member of the result.

NORTH RUSSIA FORCE (EQUIPMENT).

Mr. RAPER asked the Under Secretary of State to the Air Ministry if the Air Force people originally attached to the Northern Russian forces were at first equipped only with seaplanes, and if the pilots in question had to fly seaplanes 40 or 50 miles inland over wooded and hilly terrain; and, when the danger of using seaplanes was apparently realised, were our Air Force people in that district equipped with D.H.6's, which machines have a maximum speed of about 50 miles an hour and are unable to make any headway against anything in the nature of a high wind?

Major-Gen. SEELY : In situations where it is impossible, owing to the nature of the ground, to erect aerodromes, it is found most convenient to employ seaplanes instead of aeroplanes, provided that water is not too far away. Seaplanes alone were at first employed with the North Russia force for this reason, and will continue to be used. No D.H.6 machines have been sent to North Russia for war purposes, though in certain districts it has been found possible to employ aeroplanes of other types.

TECHNICAL OFFICERS (PAY).

Sir F. HALL asked the Under Secretary of State to the Air Ministry whether technical officers are split up into two grades, namely, Category A and Category B; whether the former receive technical pay and whether the latter do not do so; whether the duties of those in Category A include compass officers and inspectors of fire services; whether those in Category B include those qualified in armament, chemistry, metallurgy, and photography; if so, whether the duties of those in Category B entitle the officers therein to the same technical pay as those whose duties are to inspect fire services; and whether he will take steps so that both groups of officers are granted the same technical pay.

Major-Gen. SEELY : The answers to the first four parts of the question are in the affirmative; the answer to the fifth part is in the negative. As regards the last part, the whole question of the future emoluments of officers of the Royal Air Force is now under consideration, and an announcement will be made as soon as a decision is reached.

BRITISH CELLULOSE AND CHEMICAL MANUFACTURING COMPANY.

Lieut.-Col. MALONE asked the Chancellor of the Exchequer whether he was aware that the British Cellulose and Chemical Manufacturing Company are about to increase their capital by approximately £1,250,000 in preference shares; and whether this matter has received a licence under the revised Regulation 30 F of the Defence of the Realm Regulations.

Mr. CHAMBERLAIN : The answer to the first part of the question is in the affirmative. The application of the company for permission to issue fresh capital was granted in January last, prior to the introduction of the Defence of the Realm Regulations referred to.

MUNITIONS.—AIRCRAFT FACTORIES.

Mr. LUNN asked the Parliamentary Secretary to the Ministry of Munitions if he was aware that numbers of men have been discharged from certain aircraft factories within the London area since November 11th last; that discharges are still being made despite the fact that within these factories there are stocks of raw material suitable for being used in the manufacture of doors, cupboards, stairs, wardrobes, and other necessaries in the construction of houses, and the internal fittings of the same, and that the machinery capable of making these useful articles is now standing idle; and whether he will consider the advisability of using this material, machinery, and labour for this purpose within these factories or of its disposal for immediate use elsewhere.

Mr. HOPE : There is only one National aircraft factory in the London area to which the conditions indicated in the question would, in any way, apply, and that factory is engaged on the salvage of aircraft rendered obsolete by the termination of the War. I understand that there is sufficient capacity in the country for the manufacture of doors, cupboards, and other house fittings. Materials and machinery suitable for the purpose and surplus to the requirements of the Government are being placed on the market by the Disposals Board.

Mr. LUNN : Is the hon. gentleman aware that at the Grahame-White factory in Edinburgh there are several thousand cubic feet of wood, all of which is suitable for house building purposes, and, having regard to the Government's programme, is it not desirable that that wood should be used for building purposes instead of men being dismissed and coming on to the unemployment fund as they are doing?

Mr. HOPE : The instance I had in mind was not the one at Edinburgh. I have no knowledge of the wood being stored there.

Mr. LUNN : Will the hon. gentleman make inquiries?

Mr. HOPE : Certainly.

AIR POSTAL SERVICE—EXPERIMENTAL.

Mr. GILBERT asked the Postmaster-General if he has made arrangements for the provision of an aerial post in this country, or between Great Britain and Ireland, or from London to the Continent; if any experiments or trials have been made with the object of setting up such a postal service, and if he can make any statement on the subject.

Mr. ILLINGWORTH : An experimental service has been established between Folkestone and Cologne for the conveyance of Army mails. No other Air mail service has been established in this country, or with Ireland or the Continent.

Sir H. DALZIEL : Does the right hon. gentleman contemplate an early flying service to Scotland?

Mr. ILLINGWORTH : As soon as dirmen can find London in a fog and land in a fog it will be practicable, but at present it is quite impossible, because the efficiency is only about 60 per cent.

CIVIL AVIATION.

The Secretary of the Air Ministry makes the following announcement :—

In order to assist civil aviation and to enable firms interested in aviation more easily to carry out their programmes, it has been decided to release a certain amount of material, particularly engines, and aeroplanes originally ear-marked for the use of the R.A.F.

Civilian firms, therefore, desirous of obtaining aeroplanes, engines or other material, should, in future, apply in the first place direct to the firm concerned in the manufacture of the material required. Should the firm approached be unable to meet the request owing to existing contracts for delivery to the R.A.F. a request for the release of such material will be considered by the Air Ministry. All such requests should be addressed to "Secretary, Air Ministry (C.G.C.A.)," and should state specifically that the firm responsible for the manufacture of the material required has already been approached, but owing to existing contracts, has been unable to supply.

The Air Ministry made the following announcement on April 15th :—

It is intended that civil aviation shall commence, under regulations shortly to be issued, on May 1st. Applications have been received from various companies for permission to carry civilian passengers for short flights during the Easter holidays in anticipation of the issue of the regulations. It has been decided to give permission for this between the dates of April 17th and 22nd inclusive. The flights must be made from an approved aerodrome, subject to an undertaking being given that the rules of the aerodrome will be strictly observed, and will be limited to a radius of three miles from the aerodrome. Service-type machines, which have been built under the supervision of the Aircraft Inspection Department, will alone be used.

Applications for permission to carry out such flights should be submitted, addressed to the Secretary, Air Ministry, marked Controller-General of Civil Aviation, and should contain the following particulars :—

(a) Type of machine, with sufficient particulars to identify it.
(b) Full name and surname of the pilot.
(c) Location of the aerodrome and of the aircraft proposed to be used.
(d) Name of the company or firm making the application.

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AERONAUTICS and The LAW

THE KING'S SKY-WAY.

By " THE LINCOLN IMP."

"The wayfaring men, the fools, shall not err therein."

Coming Legislation.

Whatever may be the law as it stands with regard to the right to fly over other men's land—as to which see the article " Goshawks "—there is common agreement that some right of passage must be conceded in the future and, if necessary, by the legislature. The statement usually made is that a public right of way will be given for aircraft of all descriptions. Will this meet the case?

A Highway Defined.

Public ways or " highways " include all thoroughfares or ways (including culs de sac) which are open to the common use of the King and all his subjects. It may be the King who is the wayfarer or his subjects, or their cattle, or their horses, or their sows, or their hens, or their carts, or their traction engines, or their motor-cars, or their bath chairs, or their scooters, or their ferry-boats, or their steamers, or their sailing vessels, or their rowing-boats, or their other vehicles, or any liege wayfarers whatever.

So, too, the way may lie over land or over water. The right of navigation has been said to be simply a right of way.

No beaten track is essential to a highway, and un haut chemin has been said also to lead from the sea throughout all England, so that no terminus a quo nor terminus ad quem is necessary (Halsey's Case, Latch 183, and R. v. Hammond, 10 Mod. 382). And the sea has been called " the necessary highway of all nations."

The Sky Highway.

There is, then, no incongruity in including in the term " highway " the public right of passage by air over the soil and territorial waters of the realm exercisable by aircraft of all descriptions. For convenience of distinction let us here call it " a sky-way."

May a kite-balloon be moored or an airship or helicopter hover above a private estate? Does the right to use an aerial route confer the right to take photographs from the craft? In fine, what limits, if any, are there on the lawful use of a sky highway?

" Pass Along, Please."

In a case of Goodtitle v. Alker and Elmes (1 Burr. 133), decided in 1757, it was said that the owner of the soil of a highway has a right to all above and under ground except only the right of passage for the king and his people; the decision is founded on old cases in the Year Books (8 Edw. IV. 9, and 2 Edw. IV. 9) which lay down that " En un hault Chimin le Roy nad auter saufque le passage pur luy & les peuple, mes le frantenement & touts les profits come arbers, &c., appertient al seigneur del soile."

In 1795 some cows wandered from a highway through a gap in the hedge, and being " distrained damage feasant " gave rise to legal proceedings reported as Dovaston v. Payne (2 H. Bl. 527). The cows were described in the pleadings as " being in the said highway " instead of " passing along and through the said highway." Three judges agreed in deciding that the cows must be taken to have been trespassing; since cows have no business on a highway unless they are passing along it.

The principle of Dovastor v. Payne is still law, and, by analogy to it, hovering aircraft would seem to be trespassing; unless, indeed, the craft is only hovering for the purpose of loading or unloading or some other reasonable purpose and in a reasonable manner (see Original Hartlepool Colliery Company v. Gibb (1877), 5 C. D. 713), where Sir George Jessel laid down the conditions under which craft may reasonably moor in a public highway such as a navigable river.

That there is no general right to " loiter " on a highway is familiarly brought home to us by the " Pass along there, please," of the policeman. Indeed, it is the foundation of the police method of controlling crowds in the streets by the process of " moving them on."

Modern Views.

The primâ facie right of the public, therefore, is merely to pass and repass along the highway; but as recently interpreted by the Court of Appeal it is " subject to all those reasonable extensions which may from time to time be recognised as necessary to its exercise in accordance with the enlarged notions of people in a country becoming more populous and highly civilised; but such extensions must be such as are not inconsistent with the maintenance of the paramount idea that the right of the public is that of passage."

One of the Lords Justices in this case (Hickman v. Maisey [1900], 1 Q.B. 752 C.A.) said that if a man took a sketch from the highway no reasonable person would treat that as a trespass. Which dictum may be held to cover a photograph from the air. But photographs taken and published on commercial lines will be difficult to distinguish from the commercially valuable notes which were held to make Maisey a trespasser.

The Racing Tout and the Spoil Sport.

The defendant Maisey was a racing tout. He hit on the brilliant and paying idea of watching with the aid of glasses from a highway across the Wiltshire downs the trials of racehorses which used to take place on the plaintiff's adjacent land. His " tips " must have been prime! He claimed the right to do what he did as a member of the public using the public highway.

Nevertheless, he was held a trespasser by all three of the Lords Justices on the ground that noting the horses' " form " in this fashion was not a reasonable or usual mode of using the highway as a highway. In so deciding they followed another decision of the Court of Appeal reported as Harrison v. Duke of Rutland [1893], 1 Q.B. 142 C. A.

Harrison, for some reason, objected to the Duke shooting grouse on the Duke's own moor; so he planted himself on a public highway crossing the moor and by waving his pocket-handkerchief and opening and shutting his umbrella, and by other obvious means, he kept the grouse from flying towards the butts where the Duke and his friends were waiting to shoot them.

This annoyed the shooting party, who caused Harrison to be held down on the highway till the shoot was concluded, which in turn annoyed Harrison, who brought his action for assault, in which he failed on the ground that he himself was trespassing on the highway because of what he did there.

The Sportsman.

In the criminal case of Reg. v. Pratt [1855] (4 E. & B. 860), P., a poacher, was on a public highway in the daytime carrying a gun and accompanied by a dog. B. was the owner of a cover on one side of the road and of the soil of the road itself. P. waived (*sic*) his hand to doggie, doggie entered cover, out flew a pheasant over the road. P. fired at the pheasant and missed it. He was not ostensibly convicted for missing the pheasant, but for trespassing on the highway in search of game.

The Butterfly Catchers.

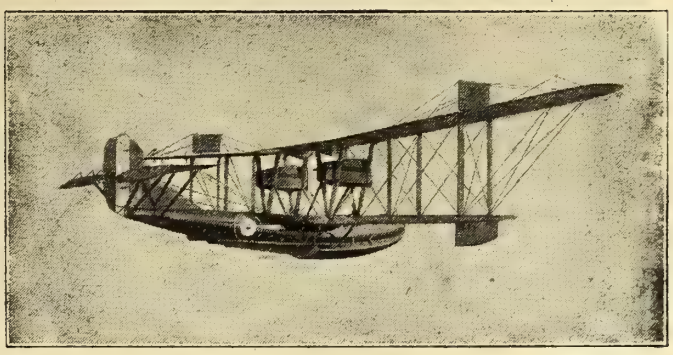
An injunction to restrain butterfly catching on a highway was refused in a case of Fielden v. Cox (22 T.L.R. 411), the facts of which are worth giving rather fully, partly because one of the defendants was a Mr. Rupert Brooke and partly for the unusual humour of the reporter.

In June or July of 1905, Mr. Cox, a medical student and B.A. of Cambridge, aged 22, and three brothers named Brooke, all younger than Cox, were visiting in the neighbourhood of the plaintiff's estate, on which game was preserved alongside a public highway. One of the brothers—apparently Rupert—was only down one day, returning home the following day. As his counsel, Mr. Buckmaster, observed " he went to catch a butterfly and caught a writ."

During their visit the defendants occupied a considerable time in catching moths and other insects; and the principal complaint against them was that they had visited the road and trespassed thereon for the purpose of carrying on their pursuit of attracting and collecting moths or other insects. This " gang of desperate men," as one of their own counsel described them, had, when tackled by a solicitor's clerk in pursuit of their solicitors' names, etc., obtained from the clerk a definition of an injunction and told him that they had no solicitor and would accept personal service.

They had also performed a dance to relieve their feelings, but had ultimately accepted a suggestion from the clerk that they should leave the neighbourhood and give their word of honour not to repeat their acts.

It was not alleged that the defendants, all of whom gave evidence, behaved otherwise than in a civil and gentlemanly manner. One shilling had been tendered before action and was brought into court to satisfy the plaintiff's claim for damages in respect of their trespasses. Buckley, J., refused an injunction, described the action as "oppressive to the last degree," gave the plaintiff the shilling out of court, and made him pay the costs of the defendants.



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This selection of cases is sufficient to show that the grant of a right of way over private property for the passage of aircraft will fall very far short, both in practice and in theory, of achieving the same results as would follow from a decision of the Courts or a declaration of the legislature which negatived the doctrine that the ownership of land extends into the blue infinity of space.

The Usque ad Cœlum Doctrine.

If the usque ad cœlum doctrine is correct, you are inside my park palings when you fly over my land; true it is that you may be there as of right and because you are a liege subject travelling along a public highway; but you must not linger or loiter or circle overhead watching horse races or football matches or shooting at pheasants or wild birds, or firing into the sea, or practising stunts or taking aerial photographs; nor may you disturb me in the exercise of any of my lawful rights as the landowner; nor may you do anything else, however reasonable or otherwise legal, which is not reasonably incidental to your right to pass.

If the usque ad cœlum proposition is too succinctly stated to be an exhaustive exposition of the law on the subject, the position of an aviator may be very different. The skyfarer may be as free in the use of the air as the seafarer is free in the use of the seas.

On principle, on the high seas the rights of navigation and fishing are free to all the world without any restriction or limitation whatever, and one has never heard it suggested that a photograph of the bed of the ocean could infringe anybody's rights of property. But then the bed of the ocean is vested in nobody?

In the racing tout case Lord Justice Romer said: "No doubt if what the defendant did had been done by him on soil which was not vested in the plaintiff, the latter would have had no legal right to complain."

It may very well be found that the supposed right of an individual owner to protect his plot from aerial trespass will prove a jus sine remedio because of the practical impossibility of pinpointing the aircraft in the air at the moment of its alleged trespass. The proposed right of aviation may be conceded as a right of navigation or as a right of way.

In Orr-Ewing v. Colquhoun [1877] (H. L. (Sc.) 2 App. Cas. 839) Lord Hatherley treated these two rights as one and the same. "There are two totally distinct and different things," he said; "the one is the right of property and the other is the right of navigation. The right of navigation is simply a right of way."

But the right of navigation is really more extensive than the other, for it includes rights of fishing and of incidental use of shores and river banks, and sometimes the right of roaming in indefinite directions which cannot be included in a land right of way.

Right of Alighting on the Sea.

If a right of navigation is given to the aviator, it may include a right to land from the air as one may land on the shore from the sea. And that without toll or compensation so long as the right is exercised reasonably. Nor is this as wild a suggestion as it may seem, at least with certain extensive reservations; there are the cases of flying-boats and such craft which may need to land in shallow water and taxi to the shore; there are free balloons which cannot foresee with exactness their landing places; there are waste places on which the landing of aircraft will do no harm; and there is the stress of circumstances to be considered.

In considering the dawning problems involved in the law of aviation, over and over again one is faced with the fact that their solution is the resultant of two forces—the existing law of the land and the existing law of the sea. It is almost as though the sea had flowed over the land, leaving the landsmen alive and squirming on its bed and the seafarers sailing over their heads.

The Humours of R.A.F. Methods.

In a club corner a number of R.A.F. officers were laughing over the story of a bradawl that was being told by one of the party who had been an E.O. in the early days of the R.F.C.

"The most marvellous thing in life to me," he said, "is an ironmonger's shop. You may find in charge a man and a boy who run the business. They order the stock, know where every one of the ten thousand or so items is kept, serve customers, and keep the accounts. If you require, for example, a bradawl, one of them will get what you want in about 30 seconds, and, in a couple of minutes, the transaction will be complete.

"Now, if that shop were dumped down in a muddy patch on Salisbury Plain and called a Technical Store, it would require an O i/c Stores, Assistant O i/c Stores, a Serjeant, a Corporal or two, and a dozen Airmen.

"And to every Airman a W.R.A.F. or two.

"The transaction of supplying a bradawl to an Airman in one of the rigging sheds would give occupation to most of the members of the staff. In the first place the R.A.F. does not recognise such a word as 'Bradawl.' It is a combination of 'Awl, brad, blade, one,' and and 'awl, brad, handle, one.' It must be demanded from the depot by this nomenclature The Airman must make out requisitions for it in the same fashion, and the requisitions must be signed by his Officer.

"In my early days, when my chief idea was to get along with the war, I was severely strafed by a Staff Captain from the Air Ministry for keeping bradawls assembled ready for issue. He explained that 'awls, brad, blades' and 'awls, brad, handles, were entirely different kinds of stores. One was 'A' (i.e., unexpendable), the other 'B' (expendable). He was not sure which was which, but he explained that a special Department had been formed at the Air Ministry to decide these points.

"He put through a Priority Call to the Department and asked for a ruling. I believe a conference was called, and the finding of the Court was that an 'awl, brad, blade,' was an 'A' store, and an 'awl, brad, handle,' was 'B' (expendable).

"How the conference arrived at this brainy decision, I do not know, I presume they argued that the 'awl, brad, blade' being of metal, ought to last longer than the 'awl, brad, handle,' which was of wood. Arguing on the same line, they would have said that a nib should last longer than a penholder.

"However, the ruling was given, and the Staff Captain explaind that if an Airman required a bradawl he must make out one requisition form for an 'awl, brad, blade,' and another for 'awl, brad, handle.' Both forms must be signed by an Officer, and entries must be 'posted' on different Tally Cards and in Ledgers kept to record the receipts and issues of 'expendable' and 'unexpendable' stores.

"If it was found necessary to assemble the bradawls the work of recording and accounting for this engineering feat would offer great fun to the staff. They would take a specially designed voucher and write in triplicate 'awls, brad, blades,' and 'awls, brad, handles' on one side, and 'awls, brad complete' on the other. They would then give a number to the voucher and use the number as a reference to write off the items from the Tally Cards and Ledgers for A and B stores, and open up a fresh Tally Card and Ledger sheet for the 'awls, brad complete.'

"Imagine an ironmonger performing such accounting stunts whenever he sold a twopenny bradawl!

"And we did all this in war-time!

"Later, I believe, the decision of the conference was reversed by a Court of Appeal, and the 'awls, brad, blade' were made B Stores, and the 'awls, brad, handles' A. I have heard rumours since that they have both been made A by a yet higher Court of Appeal, and each time the decision has been altered the clerks have had to open up new Cards or Ledger Sheets.

"Every alteration meant work. Sometimes Ledgers were washed out, sometimes the Cards and the work of altering the system had to be done simultaneously with the daily routine. No wonder we required 250,000 Airmen in the R.A.F."

"There were worse troubles than that," said another Officer. "I once amused myself by counting the number of letters that had to be written in order to obtain a certain engine spare that was not an authorised issue. You know in order to limit the number of spares that had to be stocked at the depots lists were drawn up of the parts home Squadrons might demand when engines needed repairs. If a part required was not on the list the O i/c E.R.S. asked the E.O. to obtain it. The E.O. wrote in triplicate to the Wing E.O., who wrote in triplicate to the Group H.Q., which wrote to the Area H.Q., which wrote to the Air Ministry. The Air Ministry possibly inquired of the Depot, which probably had not got the part, so the Ministry of Munitions had to be approached and requested to place an order with the contractor concerned.

"It is practically certain that in the long chain someone would have forgotten to quote the schedule number of the part required, so that the contractor would pass back an inquiry to the Minister of Munitions, who would notify the Depot, which would inform the A.M., who would request the Area Headquarters to instruct the Group to ask the Wing E.O. to obtain from the Squadron E.O. an explanation as to why the part number was not given.

"By this time the O i/c E.R.S.s if he knew his job would have taken the spare required from a badly crashed engine, a thing he was not supposed to do, and would carefully have forgotten to inform the E.O., who would write to the Wing E.O. to say that he quoted the part number in his original letter. The Wing E.O. would pass this information *via* the Group H.Q., Area H.Q. A.M., Depot, and M. of M. to the contractor, who would reply that he might have done so, but that it was not in the letter he received, so the matter would be referred back again.

"All this might have taken a couple of months. By the time the contractor received the information he required it is probable that the engine had been declared obsolescent, and an order issued that no further spares would be issued."

"And yet we won the war," commented one of the party.

"Not because of, but in spite of, our methods," said the Officer who had started the discussion. "The work of equipment was a tremendous task, but it was over-organised. We were not tied up in red tape, but in sticky adhesive tape."

"What we want to do now in the organisation of the Peace Establishment is to simplify the system. Those who actually did the work know the difficulties, and they are the ones who ought to be consulted. Too much of the organisation has been built up by those who have not been through the mill themselves."

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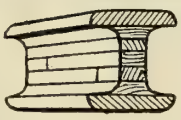
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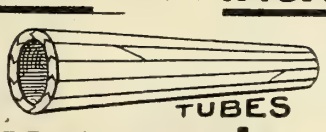
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ON THE REVIVAL OF ROMANTICISM.

Those who see Robert Loraine the actor as Cyrano de Bergerac will understand quite clearly how it came about that the old R.F.C. was divided distinctly between those who thought very highly of Lieut.-Colonel Robert Loraine, D.S.O., M.C., and those who hated him like poison. Probably one can say so much without being libellous or even offensive, for one is in this matter of the party of Le Bret rather than of de Guiche, and is oneself something of a specialist in the gentle art of making enemies.

The difference between Robert Loraine, R.F.C., and the authentic M. de Bergerac of the Gascon Company of the Guard of the King of France is a matter of some three hundred years more or less. *Tempora mutantur* a trifle, but, *mutatis mutandis*, de Bergerac who fought at Arras in Richelieu's day and Loraine who flew over Arras in Lloyd George's day are much of a muchness. It is not that the actor makes them the same, it is merely that they happen to have been born so.

Perhaps the best and briefest criticism of Robert Loraine's acting—*qua* acting—is contained in a letter from a *dégommé* R.F.C. officer who wrote to one the other day thusly:—"Having had Loraine as a superior officer, I hastened me to the Garrick with the idea of being able to hiss one who had been set over me. Not that he had ever done me any harm, just the principle of the thing, as learnt in the Air Force. I am sure he will now step into Tree's shoes. His Cyrano is really a top-hole performance."

There you have the heartfelt opinion of one who came to scoff and remained to praise. And if Robert Loraine does not like being compared to the late Sir Herbert, he must set down the young officer's saying as well intended.

And perhaps the best and briefest criticism of the play is contained in the words of one of our most brilliant aeroplane designers—which is to say, one of our greatest contemporary artists—who remarked with emotion as the curtain fell on the dead Cyrano:—"By God! With one or two little adjustments it would be *great*."

The Terrors of Translation.

It is certain that in the original French Cyrano de Bergerac is a great play. One has not had the opportunity of reading all of it in the original, but one can feel the greatness of the play in spite of the translation. And the genius and personality of Robert Loraine makes it the nearest thing to a great play that has been seen in London—outside the "Old Vic."—for many years. Therefore one has the greater grievance against the translators; or perhaps one should say one has the greater sympathy for them and their *traduction manquée*.

One's chief personal recollection of the original is the classic introduction of the Cadets of Gascoigne to de Guiche, beginning:—

"*Voilá les cadets de Gascoigne.*"

The translators have demoralised this gorgeous line to:—

"Cadets of Gascony are these."

It passes one's comprehension to understand how anybody with an ear for music, or a sense of the eternal unities, could turn so vital a phrase, with its fine swash-buckling flavour, into a line which seems fit only for the mouth of the Fairy Queen in a provincial pantomime. Even the voice of Robert Loraine can do nothing with that horrible pinched English "e" in "these" at the end of a line. It is as bad as the English operatic translation of Lohengrin's Narration which ends (on a big top note) with "And Lohengrin my name," as against the German "*Bin Lohengrin benannt.*" It is impossible to sing "name" or to declaim "these," but the broad "a" of "benannt" sings itself, and "Gascoigne" is itself a declamation, even if one neglects that unpronounceable final French "e."

There are many things that women can do better than men, but translating Rostand is evidently not one of them. The translation throughout lacks robustness, or what one believes is known in the theatrical profession as "guts."

If one had the choosing of translators one would have the job done in the first place by one Rex Hansard Brittain, whose joyous reviews of French flying books in this paper have shown his ability to turn the buoyant French of M. Jaques Mortane into English which holds all its fine French flavour, and then one would turn his translation over to Mr. Ernest Newman, the greatest musical critic in England and a master of English prose, so that the music of Rostand's verse should be re-established where necessary.

Little Adjustments.

As for the little adjustments which are needed, the most evident is that concerned with the scene before Arras. One cannot help feeling that if Cyrano had done less talking over the corpse of Christian and more fighting on the other side of the parapet the Spaniards would not have captured the redoubt so easily. The fault is Rostand's, but Robert Loraine is a big enough man to revise Rostand if so disposed.

One feels also that although Cyrano is justified in being "an unconscionable long time a-dying" he is perhaps a trifle too energetic in the last few minutes for any reasonable concussion case. He might well be helped onto his legs, as a concession to his wish to die standing, but one doubts whether he could spring to his feet under his own power.

The Cyrano Nose.

That, however, is a matter of opinion, and one's only real quarrel with Cyrano de Loraine is touching the delicate point of his nose. The Cyrano nose is purely a convention set up by M. Coquelin. And the nose of Cyrano de Coquelin need not be the nose of Cyrano de Loraine.

Let it be granted at once that the nose of Cyrano de Bergerac was "grotesque," "obtrusive," what you will. So were the honourable noses of the Duke of Wellington and of Mr. Joseph Chamberlain, and of Julius Cæsar and of Publius Ovidius Naso. Given that a Gascon of Cyrano's temperament had a nose such as any of these, one is justified in believing that it would weigh heavily on his soul, and that in moments of despondency he would denounce it as a snout, a trunk, a deformity. Yet it need not be an impossible nose, an example of elephantiasis or of acro-megaly, or some such abnormal development. There is really nothing in the play to show that Cyrano's nose was anything worse than one of such a size as to account for his being a shade touchy about it, whereas the Coquelin convention makes it frankly impossible, spoils the play by attracting one's attention—and the limelight—to it at the wrong moment, destroy's one's feeling for the reality of the whole play, and (worse than all) inflicts on Robert Loraine's splendid voice something perilously approaching a New England accent. One would like to see Cyrano de Loraine defy Cyrano de Coquelin and come forth boldly with a hawk-like Wellingtonian nose, such as befits the character. It is never too late to amend.

A Company of Artists.

Of the rest of the characters one may say that all are of a wonderfully level high quality. Miss Stella Campbell may or may not be a great emotional actress. She has no great opportunity for emotional acting, but as Roxane she does all that can be done with the part. Roxane is so evidently a clever fool that one has no sympathy for her as a heroine.

One longed for more of the fascinating voice and delightful presence of Miss Haidée Wright's Abbess. This charming lady is too frequently absent from the stage.

Mr. Gerald Lawrence as de Guiche is magnificent. He is the villain of the piece, but he remains a gentleman, and has a nice sense of humour.

Mr. Allan Jeayes should practice the declamation of those gorgeous Gascon names, for he loses something of an opportunity when introducing the Cadets de Gascoigne to Roxane at Arras. One needs almost a City toast-master to do justice to "Le Baron de Malgouyre Estressac Lébas d'Escarabiot."

The scene-painters, the costumiers, and those responsible for the training of the stage crowds deserve commendation equally with the members of the enormous cast who play throughout with unwonted skill, intelligence and sincerity.

The Resurrection of Romance.

Truly, here we have at last a play which is worth seeing. It is so nearly the perfect romantic play that one has criticised it somewhat at length because one would like to see it quite perfect.

Compared with the stage trash of the past ten years it is great. And the audiences show that the spirit of romanticism is very much alive.

As one left the theatre one brushed with a cigarette the arm of a complete stranger, a little officer-man, and one apologised as gracefully as possible, assuring him that one did not intend to use him as an ash-tray. With the true Cyrano air he turned and said: "I don't suppose you did. If I had thought so, I should have climbed up and hit you!" Then, realising that he was merely in London, he sighed and added: "Well! It is a great show, and I suppose that after this I shall be dragged off to some 'Hippodrome' or other."

Let it be Robert Loraine's reward that he has revived the true romance. But one does want to see him make those little adjustments.—C. G. G.

The Invasions of England.

The official reports of the London Fire Brigade on the 25 air raids on London between May 31st, 1915, and Whit-Sunday, May 19th, 1918, show that in all 859 bombs were dropped in the London County area, 372 being incendiary and 487 explosive. With these, 473 persons were killed and 1,105 injured. Many of the latter died. In all, 11,194 premises were damaged, apart from those hit by anti-aircraft shells.

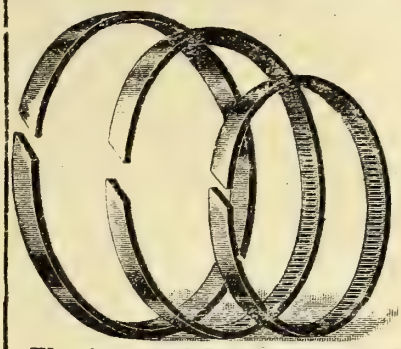
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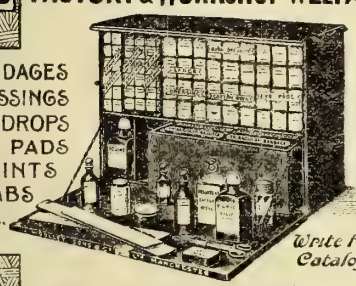
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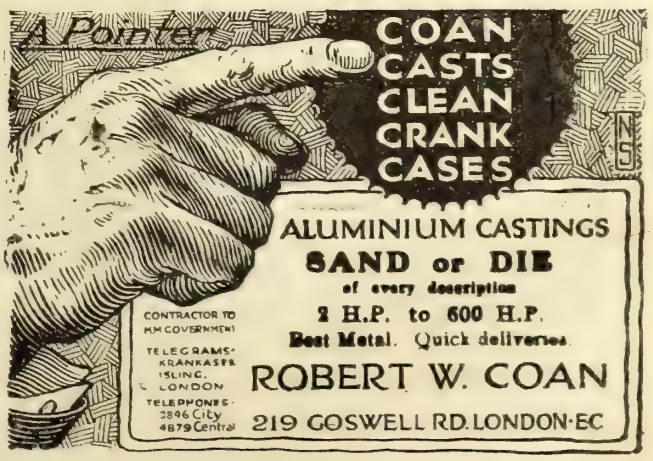
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THE TRANS-ATLANTIC COMPETITION.

During last week two further machines were entered for the "Daily Mail" trans-Atlantic prize. There are now seven British and one American competitors who intend to try for the prize.

Both the British and American Governments have entered machines, but they are not, of course, competing for the "Daily Mail" prize.

The Handley Page Attempt.

Mr. Handley Page entered one of the four-engined bombing machines, which is fitted with Rolls-Royce "Eagle" engines. It has a span of 126 feet and a petrol capacity of 2,000 gallons.

Major Trygve Gran, M.C., R.A.F., a Norwegian naval lieutenant who served with Capt. Scott in the Antarctic and who joined the R.A.F. under the name of Captain Grant, has been nominated as one of the pilots. The names of the other members of the crew have not yet been announced. Major Gran will be remembered for his daring flight from Aberdeen to Norway in 1914.

Boulton and Paul's Entry.

The other entry was made by Boulton and Paul, Ltd., of Norwich. The machine is described as the firm's post-war commercial model, and is fitted with two Napier "Lion" engines. The machine has a span of 59 ft. and is 40 ft. in overall length.

With 800 gallons of petrol, it weighs about 11,500 lbs. It is estimated that the machine will be capable of flying 3,850 miles at 116 m.p.h.

Mr. Hawker's Attempt

Mr. H. G. Hawker, who is piloting the Sopwith machine, is, at the time these pages go to press, ready to make a start. He intended starting on Saturday, but was obliged to postpone the attempt owing to rain and thick mist. A message from New York states that when 100 miles from land Mr Hawker proposes to drop the entire undercarriage into the sea, thereby increasing the speed of the machine by about 10 miles per hour owing to decreased head resistance. This is an American story

Mr. Hawker will carry a letter from the Governor of Newfoundland to H.M. King George, and also various messages to newspaper offices. There has been no acceptance of the offer to carry private mail at £100 a letter, but some special stamps inscribed "First Trans-Atlantic Aero Flight" have been printed in Newfoundland.

The Martinsyde Machine.

Mr. Raynham, his passenger and machine have arrived at St. John's, Newfoundland. The pilot hopes to be able to start before the Sopwith crew, as he considers that the smaller aeroplane can start in worse weather than the larger machine. However, should the present unfavourable weather conditions continue for, say, a week, the Martinsyde machine should then be ready to start at the same time as Mr. Hawker. It will then be not only a test of endurance, but also of speed.

Air Ministry Announcements.

The Air Ministry made the following announcement on April 13th:—

Some confusion appears to exist with regard to the wireless call-signs allotted to aircraft for the trans-Atlantic flight.

Each machine is given a group of three letters (lying within the limits D K A to D M Z) which serve as a call-sign and as a rapid method of establishing the machine's identity

Thus D K A is the wireless call-sign of the Sopwith machine competing in the trans-Atlantic flight.

The Air Ministry made the following announcement on April 13th:—

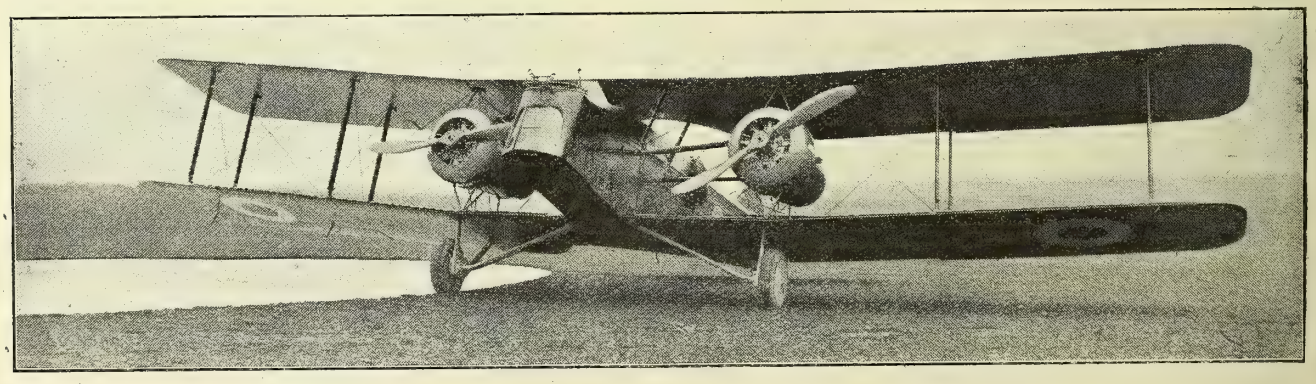
In order that full descriptive reports of the start of Major Wood from Ireland may, if possible, reach London in time for publication in the evening papers of the same day, the Air Ministry has arranged for an aeroplane to be ready to carry any Press accounts, photographs, and films of the start from near Limerick to London.

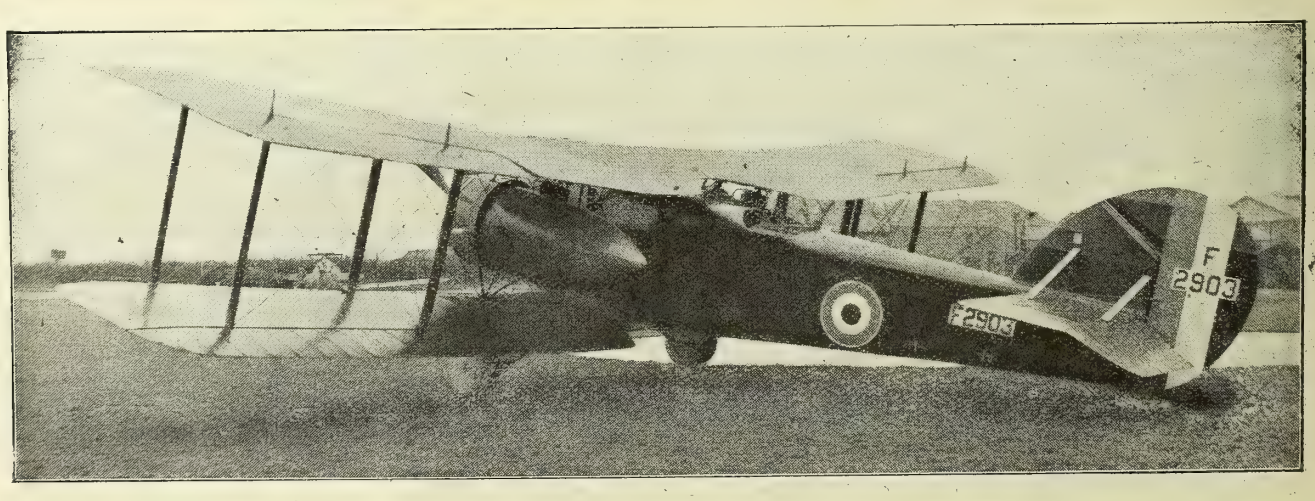
Packages of Press matter should be handed to the pilot addressed to the head offices of the newspapers concerned, by which arrangements should be made to collect them on arrival at Hendon Aerodrome, Headquarters, No. 86 Communication Wing, Royal Air Force.

The American Side.

A message from Far Rockaway, near New York, says that there is no chance of the American Naval machines entering the race this time. The idea seems to be to wait for the experience gained by the British aviators, and then, by hard work, make arrangements to attempt to establish new records

All vessels leaving New York last week were notified to keep a close look-out on the Atlantic route, and to send all news to port by wireless. Some leading American newspapers lament that the first Atlantic flight should be attempted without a serious effort being made by America, and urge Washington to make an effort to stimulate flying by offering big rewards to experimenters.





THE TRANS-ATLANTIC B.P. BIPLANE.—The Type of Machine entered by Boulton and Paul, Ltd. In the Photograph it is shown with rotary Engines, but the Machine intended for the Trans-Atlantic Flight is to be fitted with two Napier "Lion" Engines, each of 450 h.p.

THE R.A.F. PICTURE SHOW.

Those who appreciated the excellent display of coloured photographs made by the Royal Navy some time ago, will appreciate still more the "War in the Air" Exhibition of coloured photographs organised by the Royal Air Force at the Grafton Galleries, Dover Street. No finer Exhibition of enlarged photographs has been seen and the novelty of the subjects, in the majority of cases, gives the Exhibition superiority over all others. Some of the photographs are either the same as, or very similar to, some which appeared in the Naval Exhibition, in that they illustrate war-ships photographed from the air, or are of Naval airships, but these are only a small minority, and, in any case, are well worth seeing again.

The Exhibition even has considerable technical interest in that there are some highly informative pictures of the methods used to allow aeroplanes to alight on, and start from, the decks of seaplane-carriers. Particularly interesting is one which shows an aeroplane fitted with skids instead of wheels which has just come to the end of its run after alighting on the wire mattress arrangement which was tried on "Furious."

One's only quarrel with the Exhibition as an exhibition is that a good many square yards of wall space which might have been devoted to pictures of actual aerial interest are devoted to pictures of grinning young women, who, though perhaps pleasing enough in themselves, are not directly concerned with war in the air and pertain properly to an Exhibition of women's war-work.

The worst part of the show is the catalogue, which appears to have been compiled in strict accordance with the very worst traditions of the cheapest illustrated papers. The wording is in the worst of bad taste, and there are several inaccuracies.

The old silly newspaper story about the German Air Service deliberately bombing hospitals is revived in two pictures which can be equally well explained on quite different hypotheses.

The astonishing statement is made in relation to one picture that Chief Mechanic Newell, who appears in the picture, was the first man to make a parachute descent from an aeroplane. One is under the impression that this feat was first done by M. Pégoud, and, in any case, several descents were made by passengers on aeroplanes with parachutes in France before the feat was attempted in this country.

How little the compiler of the catalogue knew about war in the air is shown by a photograph to which is attached the legend, "Pilots of a gallant R.A.F. Scouting Squadron which has done splendid work in France. They have made secrecy impossible in modern warfare." The picture shows the pilots of a fighting squadron—which is commonly and entirely erroneously called a "scout" squadron, though, in fact, the scout pilots are about the only people in the R.A.F. who do no scouting, and, therefore, do nothing to make secrecy impossible.

If one may accept any statement in the catalogue as being accurate a cherished illusion is destroyed by the statement that, "the splendid coloured enlargements are the work of Messrs. Raines and Co., The Studios, St. Mary's Road, Ealing, W.5." One confesses to having been under the impression that the enlarging and colouring was the work of some real artist in the Photographic section, R.A.F., but, apparently the R.A.F. is only responsible for the taking of the photographs and for the production of the catalogue. On one, at any rate, of these performances, the R.A.F. is to be congratulated. But, undoubtedly, Messrs. Raines and Company deserve the highest possible compliments for their magnificent work.

It would have been quite possible to have done the catalogue in a properly dignified manner, and to have increased the interest of the stories belonging to each picture. The titles of the pictures as given in the catalogue resemble the headlines of cheap newspapers, and the whole production is full of that flag-flapping jauntiness and vulgarity of phrase, which, though it is the hall-mark of the cheaper news-sheets, is the last thing in the world to give a true impression of the atmosphere of the King's Services.

A certain number of the photographs—which are not by any means the most interesting—are published as a souvenir of the Exhibition at the moderate price of 1s., that is to say, the price is moderate for the photographs, though the inscriptions to the photographs are evidently compiled on the same lines as the catalogue, for they contain various inaccuracies, and have the same jaunty vulgarity.

Two interesting photographs show a seaplane stuck to the top of a wireless mast, and the inscription says, that "a R.A.F. man swarmed up and rescued the pilot." As a matter of fact, he was rescued by one R.N. and two R.N.R. ratings, who received the Albert Medal for their gallant act. The R.A.F. did not exist at that time, and, even so, the ratings were not the R.N.A.S. nor were they men of the R.F.C.

In a picture of one of our M Class submarines which carries a 12-in. gun, it is stated that "a battleship of the pre-Dreadnought class did not carry a gun of much larger calibre than this." As a matter of fact neither the pre-Dreadnoughts nor the Dreadnoughts themselves carried a larger gun than a 12-in.

An exceedingly pretty photograph of the Firth of Forth, showing the Forth Bridge and part of the British Fleet is described as "Moonlight in the Firth of Forth." It appears, however, to have been taken in the face of the setting sun, and one fails to see why it was necessary for the compilers of the catalogue thus to mislead the readers.

Be that as it may, barring the wording of the catalogue and the souvenir, the Show is eminently worth seeing.—C. G. G.

The Royal Aero Club.

A Special Meeting of the Committee was held on Tuesday, the 8th inst., when there were present:—Lieut.-Col. F. K. McClean (in the Chair), Mr. Ernest C. Bucknall, Lieut.-Col. Spenser D. A. Grey, D.S.O., R.A.F., Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col J. T. C. Moore-Brabazon, M.P., Lieut.-Col. Alec Ogilvie, R.A.F., Mr. T. O. M. Sopwith, and Mr H. E. Perrin (Secretary).

Chairman.—Brig.-Gen. The Duke of Atholl, K.T., M.V.O., D.S.O., was unanimously elected Chairman for the current year.

Vice-Chairman.—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., was unanimously elected Vice-Chairman for the current year.

Sub-Committees.—The following Sub-Committees were appointed:—

Flying Services Fund Committee.—Mr. Chester Fox, Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. C. E. Maude, R.A.F., Brig.-Gen. R. H. More, C.M.G.

Finance Committee.—Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Lieut.-Col. J. T. C. Moore-Brabazon, M.P., Mr. J. H. Nicholson, Lieut.-Col. Alec Ogilvie, R.A.F., Mr. T. O. M. Sopwith.

House Committee.—Mr. Ernest C. Bucknall, Capt. Ronald L. Charteris, R.A.F., Surgeon Herbert J. Corin, R.N.V.R., Mr. C. G. Greenhill, Mr. Henry Knox, Mr. J. Stewart Mallam, Lieut. N. C. Neill, R.N.V.R., Mr. J. H. Nicholson, Capt. E. V. Sassoon, R.A.F.

"Daily Mail" £10,000 Trans-Atlantic Flight.—The following further entries for the "Daily Mail" £10,000 Trans-Atlantic Flight were reported:—

Handley Page, Ltd.

Federation Aeronautique Internationale.—Resolutions passed by the Aero Club de France regarding the Central Powers were discussed and the delegates of the Club appointed to attend the inter-allied meeting of the Fédération Aéronautique Internationale in Paris on April 11th, 1919, were instructed as to the views of the Committee.

Owing to the inability of Lieut.-Col. F. K. McClean to attend the meeting in Paris, Lieut.-Col. Alec Ogilvie was appointed to take his place.

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Secretary.—H. E. Perrin.

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Subscriptions.

Total subscriptions received to April 1st, 1919	£14,935	5s.	5d.
Balance from Comforts Fund, Sick Quarters, No. 7 O.S.A., Royal Air Force, Bath ...	5	15s.	8d.
Total, April 8th, 1919 ...	£14,941	1s.	1d.

To Canadian Aviators.

Canadians of all ranks in the R.A.F. who are interested in co-operation for military, commercial, and social purposes on their return to Canada are invited to write to "Canfly," c/o The Aeroplane, 166, Piccadilly, W.1, giving their names and addresses.

As stated last week, this has nothing to do with an employment agency, nor is it concerned with a register of pilots. It is merely an effort on the part of a Canadian officer, who is returning to Canada, to keep Canadian aviators in touch with developments and with one another.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

AIR MINISTRY, April 8th.

R.A.F.—The following temp. appointment is made at the Air Ministry:—Staff Officer, 3rd Cl.—(T.) J. B. Walker (temp. Capt., R.E.), and is granted a temp. commn. as Capt, April 1st, 1918.

The following temp. appointments are made:—Staff Officer, 1st Cl.—(T.) Capt. (actg. Lt.-Col.) H. A. P. Disney, and to retain the actg. rank of Lt.-Col. whilst so empld., Jan. 28th to March 31st.

Staff Officers, 2nd Cl.—(P.) Maj. G. R. Moser, Feb. 14th to March 4th; Capt. (actg. Maj.) W. J. C. Kendall, and to retain the actg. rank of Maj. whilst so empld., March 5th.

Staff Officers, 3rd Cl.—And to be actg. Capts. whilst so empld., if not already holding that rank:—(P.).—Sec. Lt. (actg. Lt.) R. Wight, Feb 14th; Lt. J. A. W. Bourne, Feb. 15th; Capt. N. Robertson, Feb. 19th.

FLYING BRANCH.—Lt.-Cols. to be Lt.-Cols. (A):—(Actg. Brig.-Gen.) F. V. Holt, C.M.G., D.S.O., and relinquishes the actg. rank of Brig.-Gen., April 1st; C. H. K. Edmonds, D.S.O., O.B.E., from (S.O.), April 1st; R. Williams, D.S.O. (Lt.-Col., Aus. F.C.), is granted a temp. commn. as Lt.-Col. (A.), June 28th, 1918.

Capt. H. Meintjes, M.C., to be actg. Maj. whilst empld. as Maj. (A.), Oct. 1st, 1918; Capt. G. Donald, D.F.C., to be actg. Maj. whilst empld. as Maj. (A. and S.), Aug. 30th, 1918.

Capt. W. J. de Salis, D.S.C., to be graded for pay as Capt. whilst empld. as Capt. (A. and S.), Aug. 8th, 1918; Lt. (actg. Capt.) J. W. D. Leigh, M.C., retains the actg. rank of Capt. whilst empld. as Capt. (A.) from (T.), March 31st; Lt. E. A. Coghlan to be act. Capt. whilst empld. as Capt. (A.), Dec 1st, 1918; Lt. (Hon. Capt.) R. Lindsay to be actg. Capt. whilst empld. as Capt. (O.), Sept. 26th, 1918.

Sec. Lt. H. Jones (late Gen. List R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (A.). Oct. 27th, 1918; A. A. McConnell, M.C. (temp. Lt., Durham L.I.) is granted a temp. commn. as Sec. Lt. (Observer Officer), and to be Hon. Lt., Oct. 25th, 1918; F./Cadet 178057 D. C. Pollock is granted a temp. commn. as Sec Lt. (Observer Officer), Oct. 31st, 1918.

The following relinquish their commns. on ceasing to be empld:—Lt. F. C. Higgins (Lt., Can. F.A.), Jan. 1st; Lt. R. G. Atkinson (Lt. Quebec R.), Jan. 31st; Sec. Lt. H. Walker (Sec. Lt., Manc. R.), Feb. 24th; Lt. J. F. White (Lt., C. Ont. R.), Feb. 26th; Lt. J. B. Case (Lt., I.A.R.O.), Feb. 27th; Sec. Lt. W. J. Goddard (Sec. Lt., M.G.C.), Sec. Lt. (Hon. Lt.) J. B. Hutcheson (Lt, Sask. R.), March 6th; Sec. Lt. (Hon. Lt.) R. E. Davidson (Lt., Can. F.A.), March 14th; Lt. H. M. Thomas (Lt., B. Col. R.), March 21st.

The following are transferred to unempld. list:—Lt. J. U. McKinnon, Jan. 7th; Lt. A. Bechervaise, Sec. Lt. J. H. Hall, Jan. 15th; Sec. Lt. E. Shufflebotham, Jan. 16th; Lt. (actg. Capt.) A. Sleep, Jan. 18th (substituted for notification in "Gazette," March 18th); Lt. O. F. Meyer, Jan. 21st; Maj. W. H. D. Ackland, M.C. (Devon Yeo.), Jan. 22nd; Lt. (Hon. Capt.) G. H. Simpson, Jan. 24th (substituted for notification in "Gazette," Feb. 25th); Lt. A. E. Ealing, Sec. Lt. A. S. Wright, Jan. 25th; Sec. Lt. J. L. Sleigh, Jan. 26th; Sec. Lt. W. Mackay, Jan. 27th; Lt. D. F. H. Brickell, Jan. 28th; Maj. J. C. Griffiths, Sec. Lt. H. C. Glassford, Jan. 29th; Lt. W. A. George, Jan. 31st; Sec. Lt. W. B. Banfield, Feb. 2nd; Sec. Lt. L. H. Peach, Lt. J. R. Paisley, Sec. Lt. R. F. D. Parker, Feb. 5th, Sec. Lt. A. Peak, Feb. 6th; Lt. C. W. N. Raymond, Feb 7th; Lt. (actg. Capt.) C. Parry, D.F.C., Feb. 8th; Capt. E. G. S. Walker, Feb. 9th; Capt. H. A. Peck, Sec. Lt. G. N. Peck, Feb. 10th; Sec. Lt. C. Fletcher, Sec. Lt. F. Marshall, Sec. Lt. (Hon. Lt.) N. H. N. McLeod, Feb. 11th; Lt. G. H. Wackrow, Feb. 12th; Lt. W. H. McLaughlin, Sec. Lt. J. A. Robertson, Feb. 13th; Lt. (Hon. Capt.) H. C. Atkinson, Feb. 14th; Lt. G. H. Hobson, D.F.C., Sec. Lt. G. A. Hood, Sec. Lt. A. G. McLauchlan, Feb. 15th; Lt. G. G. W. Petersen, Lt. F. M. Panzetta, Feb. 18th; Lt. J. M. Allen, Lt. R. C. Cowl, Feb. 19th; Lt. H. M. Petty, Lt. (actg. Capt.) P. B. Pattisson, Sec. Lt. R. T. Watkins, Feb. 20th; Lt. W. O. A. Young, Feb. 21st; Sec. Lt. G. H. Pearce, Sec. Lt. J. Pate, Sec. Lt. G. E. Wales, Feb. 22nd; Sec. Lt. A. Dewhurst, Lt. O. Pearson, Lt. K. de Pass, Feb. 23rd; Lt. K. W. Payne, M.C., Lt. W. L. Yorath, Sec. Lt. A. J. Young, Feb. 25th; Lt. J. H. Patterson, Lt. A. C. T. Perkins, Sec. Lt. S. D. A. Partridge, Feb. 26th; Sec. Lt. R. R. Parker, Feb. 27th; Sec. Lt. D. Cyran, Lt. R. A. Hamilton, Lt. (actg. Capt.) W. J. Peace, D.F.C., Feb. 28th, Lt. F. Matthews, Lt. H. E. W. MacAndrew, March 1st; Lt. H. J. F. Alexander (R.F.A., T.F.), Sec. Lt. S. Horscroft, March 2nd; Sec. Lt. J. Formstone, Sec. Lt. J. Hamilton, Lt. D. McLaurin, Lt. G. F. Mackay, March 4th; Lt. O. W. E. Crawford, Lt. R. C. Talbot, Sec. Lt. W. E. Whitton, March 5th; Lt. J. F. Read, Lt. L. C. Walker, March 6th; Sec. Lt. J. Royworth Hill, March 7th; Lt. J. F. Drake, D.F.C., Lt. R. H. Gautrey, Lt. (actg. Capt.) J. D. I. Hardman, D.F.C. Sec. Lt. L. F. King, March 8th; Sec. Lt. L. D. Abecasis, Lt. (Hon. Capt.) J. H. S. Alexander (Dev. Yeo.), Sec. Lt. (Hon. Maj.) G. R. Crosfield, D.S.O. (S. Lanc. R., T.F.), Lt. W. A. Merrill, March 10th; Lt. J. F. B. Ewen, Sec. Lt. A. Henderson, Lt. E. T. McC. Routledge, March 11th; Sec. Lt. D. R. Dunn, Lt. R. Hall, Sec. Lt. J. E. Mavity, March 12th; Sec. Lt. H. C. Brown, Sec. Lt. J. C. Lewis, March 13th; Lt. W. H. Boston, Lt. R. J. Baddeley, (Manc. R., T.F.), March 14th; Lt. L. J. Aitken, Lt. D. H. Bevan, Sec. Lt. P. H. Davies, Sec. Lt. S. R. Parker, Sec. Lt. C. A. Stuart, March 15th; Lt. J. H. Bentham, Lt. S. Chadwick (R.A., T.F.), Sec. Lt. A. J. Fryer, March 16th; Sec. Lt. F. Bennett, Sec. Lt. B. A. Levy, March 17th; Lt. F. H. Barton, Sec. Lt. E. W. C. Densham, Capt. A. M. FitzRandolph, Sec. Lt. (Hon. Lt.) C. G. Smyth-Piggott, March 18th; Sec. Lt. G. C. Bull, Sec. Lt. L. A. Combes, Sec. Lt. A. A. Fordham, Sec. Lt. A. Fairley, Sec. Lt. F. Fraser, Lt. E. P. O. Haughton, Lt. J. Johnstone, Lt. F. W. Pearson, Sec. Lt. Courtnay, Sec. Lt. A. J. Ward, Lt. C. S. Whellock, March 19th; Sec. Lt. T. Calvert, Sec. Lt. H. S. Howard, Lt. Hon. A. J. W. Keppel, Sec. Lt. C. H. Metcalfe, Sec. Lt. G. P. Maffey, Sec. Lt. J. C. Urquhart, March 20th; Lt. A. F. Beckett, Sec. Lt. T. Eden, Maj. F. D. Stevens, Sec. Lt. B. H. Wilson, March 21st; Sec. Lt. W. L. Arnold, Sec. Lt. A. J. Ord, Lt. R. A. West, Lt. H. White, Lt. W. I. A. Wilkinson, March 22nd; Sec. Lt. C. A. Begg, Lt. J. M. Bright, Lt. (actg. Capt.) G. Bremridge, A.F.C., Sec. Lt. A. A. Cancy, Sec. Lt. F. M. Clark, Lt. F. V. Chapman, Sec. Lt. R. A. Hawman, Sec. Lt. H. W. Harper, Sec. Lt. J. W. H. Lett, Sec. Lt. L. V. West, March 23rd; Sec. Lt. D. A. Alexander, Lt. (actg. Capt.) E. J. Addis, D.F.C., Lt. G. S. Bennett, Capt. F. P. Collins, Lt. F. L. Morrison, Sec. Lt. N. Purtell, Sec. Lt. J. Tee, M.C., March 24th; Sec. Lt. G. A. Atkinson, Sec. Lt. E. M. Buckley, Lt. E. S. Davidson, Sec. Lt. E. C. Eastwood, Maj. C. T. Freeman, Lt. W. Hart, Sec. Lt. E. A. Kemp, Sec. Lt. J. I. Laing, Lt. E. A. Richardson, March 25th; Sec. Lt. I. F. H. Bird, Sec. Lt. H. A. F. Barker, Lt. J. Chatterton, Sec. Lt. P. Chauncy, Lt. H. J. H. Dicksee, Lt. J. Dale, Sec. Lt. E. M. Hook, Lt. W. Iles, Sec. Lt. C. Kipling, Sec. Lt. F. W. King, Lt. G. J. Lusted, Lt. A. Lilley, Sec. Lt. D. F. Martin-Smith, Lt. (actg. Capt.) A. Rice-Oxley, Sec. Lt. L. L. Veryard, March 26th; Sec. Lt. H. C. Durant, Lt. H. T. Flintoft, Lt. A. W. Gurney, Sec. Lt. L. H. Howard, Capt. (actg. Maj.) L. A. Hervey, Lt. (actg. Capt.) A. S. Hemmings, Lt. H. E. Riley, March 27th; Capt. G. K. Blandy, Sec. Lt. C. C. Davis, Sec. Lt. H. C. B. Freeman, Sec. Lt. L. G. Farraut, Lt. J. J. Gaynor, Sec. Lt. P. Hopkinson, Sec. Lt. R. E. Hagley, Sec. Lt. J. Hackett, Lt. R. C. W. Jervois, Sec. Lt. N. P. Jones, Sec. Lt. E. R. Williams, March 28th; Sec. Lt. F. E. Asboe, Sec. Lt. C. Brears, Lt. S. G. Brown, Sec. Lt. H. Chappells, Capt. P. W. Hawkins, Lt. C. A. Hyde. Sec. Lt. H. T. Hempsall, Sec. Lt. W. F. Jaggs, Lt. L. S. Wooding, March 29th; Lt. A. Critchley, Lt. W. E. Giffard, Sec. Lt. (Hon. Capt.) O. H. Hadley, Lt. G. Henderson, Lt. R. Hunt, March 30th; Capt. D. D. Drury, March 31st; Lt. L. H. Capel, Lt. W. F. Carson, April 8th.

Sec. Lt. E. J. N. Finlayson is dismissed the Service by sentence of a General Court-Martial, Dec. 25th, 1918.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—G. Bryer-Ash (Wilts. R.) (contracted on active service), J. Kyle (contracted on active service), D. W. Lees (caused by wounds), R. G. Pratt, E. H. Penberthy (Lond. R., T.F.), April 9th.

The following Lts. relinquish their commns. on account of ill-health:—A. R. Mann (R.F.A., Spec. Res.) (contracted on active service), S. D. Morrison (Nova Sco. R.), April 9th.

The following Sec. Lts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank:—H. E. Light, C. W. Mann, G. R. Newton-Bridle, L. C. Roberts, April 9th.

The surname of Lt. (actg. Capt.) H. V. Robins, M.C., is as now described and not as stated in the "Gazette," July 12th, 1918.

The Christian name of Sec. Lt. Harry Holsten Wilson is as now described and not as stated in the "Gazette," Sept. 6th, 1918.

The Christian names of Sec. Lt. Gabriel John Erasmus Boyd are as now described and not as stated in "Gazette," Nov. 22nd, 1918.

The initials of Lt. (actg. Capt.) F. D. Grant are as now described and not as stated in "Gazette," Dec. 6th, 1918.

The notification in "Gazette," Aug. 20th, 1918, concerning Lt. A. Sartin is cancelled.

The notification in "Gazette," Jan. 21st, concerning Lt. T. Stewart (E. Ont. R.) is cancelled.

The notification in "Gazette," Feb. 14th, concerning Sec. Lt. S. A. Pindar is cancelled.

The surname of Lt. (Hon. Maj.) E. C. Carver, D.S.O., is as now described and not Carner, as stated in "Gazette," March 18th.

ADMINISTRATIVE BRANCH.—Capt. A. M. Wilson to be actg. Maj. whilst empld. as Maj., June 12th, 1918.

Lts. to be actg. Capts. whilst empld as Capts.:—C. H. Young, July 1st, 1918; (Hon. Capt.) J. F. C. Bennett, Nov. 1st, 1918; C. R. R. Gidney (Hon. Capt.) F. C. McBride, Dec. 1st, 1918.

Capt. C. D. Smart, M.C., to be Lt., from (A), and to be Hon. Capt., June 3rd, 1918 (substituted for notification in "Gazette," Feb. 14th.

Lts. (A.) to be Lts.:—A. Holden, March 4th; H. J. Pole, March 15th.

Lts. (K.B.) to be Lts.:—R. G. C. Pinfield, Nov. 1st, 1918; H. F. Barnes, M.C., March 6th.

C. F. Morris (Capt. and Qrmr., Spec List) is granted a temp. commn. as Lt., April 1st, 1918, and to be Hon. Capt (substituted for notification in "Gazette," Feb. 14th).

Sec. Lt. H. J. Challis to be Sec. Lt., from (A. and S.), Nov. 26th, 1918.

Sec. Lt. F. R. Stewart (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., March 3rd.

N. Bucknall is granted a temp. commn. as Sec. Lt., March 25th.

The following relinquish their commns. on ceasing to be employed:—Lt. R. N. D'O. Earwaker (Lt., Man. R.), Feb. 12th; Lt. J. A. Clarke (R.A.), Feb. 22nd; Lt. W. MacDonald (Lt. R. W. Surr. R.), March 13th.

The following are transferred to unemployed List:—Sec. Lt. S. D. Good, Jan. 25th; Sec. Lt. H. F. Walker, Jan. 28th; Sec. Lt. F. H. Reynolds, Feb. 2nd; Lt. T. D. Penrice, Feb. 5th; Lt. T. Lethbridge, Sec. Lt. W. Pease, Feb. 12th; Sec. Lt. G. H. Green, Lt. V. G. B. Parton, Feb. 13th; Lt. (Hon. Capt.) A. C. Chibnall (Capt, R.A.S.C.), Sec Lt. E. Q. Parr, Feb. 16th; Sec. Lt. H. S. G. Palmer, Feb. 20th; Sec. Lt. A. J. Penaluna, Feb. 21st; Sec. Lt. E. C. Fisher, Sec. Lt. B. E. Hawkins, Lt. R. MacC. Marshall, Feb 23rd; Sec. Lt. (actg. Capt.) F. R. T. Pearson, Feb. 25th; Capt. J. W. Higgins, Lt. A. C. Kiddell. Feb. 26th; Lt. F. R. Pender, Feb. 28th; Sec. Lt. D. S. Horsburgh, March 4th; Sec. Lt. J. W. Mallin. March 10th; Lt. J. Duncan, March 11th; Sec. Lt. E. G. Barratt, Lt. E. A. De Sain, Capt. A. H. Sutton, March 17th; Capt. E. C. Winkley, March 19th; Sec. Lt. J. R. Stovell, March 21st; Sec. Lt. A. Anderson, Sec. Lt. R. Bolton, March 22nd; Sec. Lt. C. G. Kemp, March 23rd; Lt. H. S. Bloodworth, Capt. A. W. W. Groome, Capt. R. A. Wilton, March 24th; Lt. B. R. Apps, Sec. Lt. J. Colquhoun, Lt. (actg. Capt.) A. D. Collins (Capt., Worc. R.); Lt. C. A. Howe, Sec. Lt. V. T. Lloyd-Davis, Capt. J. L. Lucena, Sec. Lt. (actg. Lt.) R. I. Paiba, March 25th; Sec. Lt. C. W. Hewson, Sec. Lt. G. Jones, Capt. C. G. Lord, M.C., Sec. Lt. W. S. Logsdon, March 26th; Capt. R. Dewar, Capt. W. J. Liberty, March 27th; Capt. J. R. Derouet, Sec. Lt. R. Holland, Sec. Lt. W. R. Westland, March 28th; Sec. Lt. W. Lee, March 29th; Sec. Lt. J. J. Brown, April 1st; Lt. J. W. New (Midd'x R.), April 7th.

Lt. (actg. Capt.) F. M. Drake relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt, April 9th.

Lt. A. J. Bird relinquishes his commn. on account of ill-health

contracted on active service, and is permitted to retain his rank, April 9th.

Sec. Lt. H. G. Booth resigns his commn., April 9th.

The initial of Capt. J. Williams is as now described, and not as stated in "Gazette," March 14th.

The surname of Sec. Lt. J. Earle-Willson is as now described, and not as stated in "Gazette," March 25th.

The notification in "Gazette," Nov. 1st, 1918, concerning Lt. P. J. Harris is cancelled.

The notification in "Gazette," March 21st, concerning Sec. Lt. R. C. Dickinson is cancelled.

Technical Branch.—Lt.-Col. A. V. Bettington, C.M.G., to be actg. Col. (without pay and allces.) whilst empld. as Col. from (S.O.), Feb. 3rd.

Capts. to be Capts. (Grade A.), from (Ad.):—A. B. Davies, April 1st, 1918 (substituted for notification in "Gazette," Dec. 24th, 1918; B. H. Brodie, Sept. 26th, 1918.

Capt. W. H. Sharpe to be Capt. (Grade B.), from K.B., Jan. 26th.

To be actg. Capts. whilst empld. as Capts. (Grade A.):—Sec. Lt. (Hon. Lt.) (actg. Lt.) D. L. Hollis, Lt. J. D. Whiteman, Oct. 1st, 1918.

To be actg. Capts. whilst empld. as Capts (Grade B.):—Lt. A. W. Payne (from Sept. 1st, 1918, to Jan. 10th); Sec. Lt. F. G. Murray, Feb. 18th.

V. P. Turner (Lt. Australian Flying Corps) is granted a temp. commn. as Lt. (Grade A.), July 24th, 1918.

Lts. to be Lts. (Grade A), from (Ad.):—N. H. Mackrow, Aug. 18th, 1918; (Hon. Capt.) C. D. Smart, M.C., Feb 10th.

Lts. to be Lts. (Grade B.), from (Ad.):—M. P. Lewis, Dec. 6th, 1918; S. D. Dennis, March 10th.

Sec. Lt. R. M. Duke to be actg. Lt. whilst empld. as Lt. (Grade A.), Oct 1st, 1918.

Sec. Lt. R. M. Brown to be Lt. (without pay and allces. of that rank), Sept. 16th, 1918.

Sec. Lt. (actg. Lt.) H. S. G. Jamieson to be Lt., Sept 23rd, 1918.

Sec. Lts. to be actg. Lts. while empld. as Lts. (Grade B):—(Hon. Lt.) N. W. Walmsley, M.C., from (O.), July 20th, 1918 (substituted for notification in "Gazette," Dec. 17th, 1918); W. H. Saunders, Dec. 20th, 1918.

Sec. Lts. to be Sec. Lts. (Grade A), from (Ad.):—A. J. Brown, M.C., Sept. 1st, 1918; M. Worms, Oct 25th, 1918; W. C. Brown, Feb. 8th; H. F. Hickey, Feb. 10th (substituted for the notification in "Gazette," March 25th).

H. Marsden (Sec. Lt., Manch. R., T.F., is granted a temp. commn. as Sec. Lt. (Grade B), Sept. 19th, 1918 (substituted for the notification in the "Gazette," Jan. 7th).

The following are transferred to unempld list:—Sec. Lt. (Hon. Lt.) J. McChesney (Lt., R. Fus.), Jan. 13th; Lt H. V. Roe, Jan. 22nd; Sec. Lt. J. Armitage, Jan. 23rd; Capt. F. A. Appleby, Jan. 24th; Lt. (actg. Capt.) R. W. Mitchell, Jan. 28th; Capt. (actg. Maj.) J. E. Arrol-Hunter, Sec. Lt. I. A. Carr, Feb. 1st; Sec Lt. W. E. Andrews, Feb. 4th; Sec. Lt. W. Tocher. Feb. 6th; Capt. B. Davies, Lt A. J. Howell, Sec. Lt. F. M. Thomas, Feb. 13th; Sec. Lt. (actg. Lt.) H. S. Askew, Lt. E. Marsden, Sec. Lt J. H. Pattman, Lt. (actg. Capt.) J. Page, Feb. 15th; Capt. S. R. Hibbard, Feb. 17th; Lt. (actg. Capt.) J. W. V. Paul, Capt. W. R. Parsonage, Sec. Lt. A. S. Wall, Feb. 19th; Sec Lt. W. Gardner, Sec. Lt. H. Wagner, Feb. 20th; Sec. Lt. W. F. Wallace, Feb. 23th; Lt. J. H. Chester-Walsh, Capt. J. W. Grundy, Feb. 26th; Lt. F. T. Ashford, Feb. 27th; Lt (Hon. Capt.) C. L. Hardy, Feb. 28th; Lt. E. M. A. Van Der Meersch, March 1st; Sec. Lt. W. le Lorraine, March 3rd; Sec. Lt. F. G. Willis. March 9th; Capt. B. E. Annoot (substituted for notification in "Gazette," March 28th), Lt F. A. Thomas, March 13th; Sec. Lt. V. M. Adamson, Lt. D. F. Winch, March 17th; Sec. Lt. E. H. Edleston, Lt. (actg. Capt.) A. C. Truelove, March 19th; Sec. Lt. (Hon. Lt.) D. R. C. Hunt, Lt. C. H. E. Ridpath, Sec. Lt. V. Smith (R.G.A., Spec. Res.), Capt. L. P. Timmins, March 20th; Capt. G. H. Higginson, March 21st; Sec. Lt. O. Charlton, March 23rd; Lt. S. S. Barber (Devon. R.), Sec. Lt. (Hon. Lt.) C. T. Clarke, Major R. E. Cook, Sec Lt. G. V. Grundy, Capt. W. N. Jones, March 24th; Lt. C. H. Aitken. Lt. (actg. Capt.) G. T. Bridgewater, Lt. (actg. Capt.) J. G. M. Bevan, Sec. Lt. (actg. Lt.) W. G. Horton, March 25th; Lt. P. Craven, Capt. A. E. Holder, Capt. W. M. Jones, Sec. Lt. (actg. Lt.) J. F. Lamonby, March 26th; Sec. Lt. (Hon. Capt.) (actg. Capt.) C. G. Carson, Lt. H. F. Carroll, Lt. A. G. A. Cazabon, Capt. C. A. Crow, March 27th; Sec. Lt. (actg. Capt.) F. R. Brighten, Lt. H. B. Dent, Sec. Lt. W. T. Daniell, March 28th; Capt. A. J. S. Kennett, March 29th; Capt. L. Aitchison, Capt. A. F. Allen, Sec. Lt. B. H. Bayliss, March 31st; Capt. A. D. W. Allen, Sec. Lt. M. C. S. Bowley, Lt.-Col. R. H. Collier, D.S.O., Capt. W. T. Curtis, Lt. (actg. Capt.) J. B. Crabb. April 1st

The initials of Sec. Lt. (Hon. Lt.) (actg. Lt.) W. J. G. Barnes are as now described, and not as stated in "Gazette," July 9th, 1918.

The surname of Sec. Lt. (Hon. Lt.) (actg Capt.) B. L. Blomley is as now described, and not Bromley, as stated in "Gazette." March 4th.

The notifications in "Gazette," March 7th, concerning the following Sec. Lts are cancelled:—H. S. G. Jamieson, T. I. Grimes.

Medical Branch.—W. Tyrrell, D.S.O., M.C. (Capt., actg. Lt.-Col. R.A.M.C.), is granted a temp. commn. as Lt.-Col., Nov. 22nd, 1918, with seny. from April 1st, 1918; Capt. C. F. A. Hereford to be Maj., Dec. 30th, 1918.

The following are granted temp. commns. as Lts.:—R. H. Parry, R. I. Rhys, April 7th.

The following are transferred to unempld. list:—Capt. T. B. Dixon, Feb. 3rd; Capt. P. W. McKeag, Feb. 28th; Capt. D. Guthrie, Mar. 8th; Capt. S. W. Fisher. Mar. 25th; Capt. W. F. Jones, Mar. 27th; Lt. E. L. Bunting, Capt. A. G. H. Smart, M. B., Mar. 28th.

The initials of Capt. J. P. I. Harty are as now described, and not as stated in the "Gazette," Mar. 28th

The notification in the "Gazette," Nov. 26th, 1918, concerning Capt. R. D. Neagle is cancelled.

Medical (Administrative) Branch.—Capt. H. R. B. Hull to be actg. Maj. whilst specially empld., Nov. 18th, 1918.

Chaplain's Branch.—Capt. G. B. Allen, M.A., is transferred to unempld. list, Jan. 5th (substituted for notification in "Gazette," March 4th).

Memoranda.—Lt.-Col. (actg. Brig.-Gen.) G. Livingston, C.M.G., is granted the hon. rank of Brig.-Gen., Feb. 14th.

The following Capts. are confirmed in the rank of Capts.:—P. B. Silk, A. W. Williams, D.F.C., W.F. Cleghorn. D.F.C., A. T. Barker, D.F.C., N. Grabowsky, A.F.C., A. M. Harding, V. E. Sieveking, D.S.C., E. R. Barker, D.S.C., W. O. F. Harding, K. C. Boyd, S. E. Ball, D.F.C., M. Hunter, W. H. Sharpe, B. H. Sisson, D. C. Page, D. C. Woods, W. L. Anderson, D.S.C., J. R. Blunt.

E. G. Knox (Capt., Aus. Flying Corps) is granted a temp. commn. as Capt., Oct. 11th, 1918.

Sec. Lt. B. Tamiriantz to take rank and precedence as if his appt. as Sec. Lt. bore date Feb. 28th.

The following Hon. Lts. relinquish their commns. on ceasing to be empld.:—B. J. Samuels, H. E. White, March 16th.

The following are transferred to unempld. list, from (S.O.):—Maj. (actg. Lt.-Col.) R. W. Roylance, Jan. 27th; Capt. (actg. Maj.) H. F. F. Birch (R.A.S.C.), Jan. 28th; Maj. C. R. Andrews, M.B.E., Feb. 1st; Capt. H. E. Parker, Feb. 5th; Capt. G. Elliott-Lockhart, March 8th; Lt. (actg. Capt.) E. L. Hyde, March 29th; Lt (actg. Capt.) R. E. Johnson, March 31st; Capt. (actg. Maj.) A. Murray, April 1st; Capt. (actg. Maj.) S. C. Raffles, O.B.E. (R. Welsh Fus.). April 9th.

War Office, April 10th.

The Secretary of State for War has received a Dispatch from Field-Marshal Sir Douglas Haig, K.T., G.C.B., G.C.V.O., K.C.I.E., Commander-in-Chief of the British Armies in France. The following extracts dealing with aircraft are taken from the Dispatch:—

I include in this Dispatch a brief review of the chief features of military interest which stand out among the operations of the British Armies on the Western front during the time I have been in command of them. I take this last opportunity also to refer by name to some few of the many able and gallant officers who have assisted me in my task, and to thank them personally.

The development of the Air Service is a matter of general knowledge, and figures showing something of the work done by our airmen were included in my last Dispatch. The combining of their operations with those of the other arms, and particularly of the artillery, has been the subject of constant study and experiment, giving results of the very highest value.

The great development of air photography, sound ranging, flash spotting, air-burst ranging and aerial observation brought counter-battery work and harassing fire both by day and night to a high state of perfection. Special progress was made in the art of engaging moving targets with fire controlled by observation from aeroplanes and balloons.

Under the general control of the Adjutant-General, the Base Stationery Depot, which went to France in 1914 with a personnel of ten, has expanded into the Directorate of Army Printing and Stationery Services, employing over 60 officers and 850 other ranks. In addition to the [illegible] ing and distribution of orders and instructions, it undertook the reproduction on a vast scale of aerial and other photographs, the number of which grew from 25,000 in 1916, to two and a quarter million in 1918.

In his appreciation the Field-Marshal says:—

I recall with gratitude the magnificent work done during the fighting of 1916 and 1917 by Major-General Sir H. M. Trenchard, at that time commanding the Royal Flying Corps. The influence exerted by this able and distinguished officer upon the moral and the development of the British Air Service and in the creation of its splendid traditions can scarcely be exaggerated. Since his transfer to another but kindred field of activity, his work has been most ably and successfully carried on by Major-General Sir J. M. Salmond, commander of the Royal Air Force on the Western front.

War Office, April 11th.

The following is an extract from a Dispatch which has been received by the Secretary of State, addressed to the Chief of the General Staff, India, by Lieut.-General Sir W. R. Marshall, K.C.B., K.C.S.I., Commanding-in-Chief. Mesopotamian Expeditionary Force:—

"In the dispositions for the attack on the Fatha position the R.A.F. were retained to work under the direct orders of the I. Corps."

"On October 24th, * * * the 17th and 18th Divisions followed up the retreating Turks, maintaining a continuous pressure, whilst the R.A.F. co-operated with low-flying aeroplanes which bombed and machine-gunned the enemy columns."

Air Ministry, April 11th.

R.A.F.—The following temporary appts. are made at the Air Ministry:—Staff Officers, 1st Cl.—(T.)—Lt.-Col. R. W. Hogarth, April 1st, 1918.

Staff Officers, 3rd Cl.—(P.)—Lt. (actg. Capt.) E. E. Colquhoun, M.B.E., and to retain the actg. rank of Capt. whilst so empld., March 17th.

The following temp. appts. are made:—Staff Officers, 2nd Cl.—(Q.)—Lt (actg. Capt.) J. S. Goggin, and to be actg. Maj. whilst so empld., Jan 28th.

Staff Officers, 3rd Cl.—(Q.)—Sec. Lt. (Hon. Lt.) (actg. Lt.) J. A. Allen, and to be actg. Capt. whilst so empld, Jan 28th.

Air Attache.—Maj. (actg. Lt.-Col.) Sir N. R. A. D. Leslie, Bt., C.B.E., and to retain the actg rank of Lt.-Col. whilst so empld, Nov. 30th, 1918.

Flying Branch.—Lt.-Col. (actg. Col.) P. B. Joubert de la Ferté, C.M.G., D.S.O.,, to be Lt. Col. (A.), and relinquishes the actg. rank of Col., March 4th.

Lt. W. R. S. Humphreys to be Lt. (A.), from (T.), Feb. 22nd.

Sec. Lts. to be Lts.:—(Hon. Capt.) J. Macfarlane, and to retain his hon rank, E. Nordberg, J. P. Carruthers, (Hon. Lt.) D. R. Sharman, April 2nd, 1918; F. J. Walsh, April 12th, 1918; (Hon. Lt.) J. C. Alderton, April 24th, 1918; (Hon. Lt.) J. C. F. Wilkinson, M.C., April 27th, 1918; (Hon. Lt.) H. W. Hollands, May 3rd, 1918; (Hon. Lt.) C. H. N. Ashlin, May 7th, 1918; (Hon. Capt.) G. S. Grant, and to retain his hon rank, (Hon. Lt.) J. C. Belford, May 10th, 1918; (Hon. Lt.) A. J. Thomas, May 11th, 1918; (Hon. Lt.) J. Glen, May 17th, 1918; (Hon. Capt.) J. Hewitt, and to retain his hon. rank, May 19th, 1918; (Hon. Lt.) R. H. Hampton, May 21, 1918; (Hon. Lt.) R. N. Haile, May 24th, 1918; J. S. H. Willis, May 29th, 1918; (Hon. Lt.) (actg. Lt.) H. S. Starkey, May 30th, 1918; A. L. Jordan, June 6th, 1918; A. M. Pearson, (Hon. Lt.) H. S. Notley, June 15th, 1918; (Hon. Lt.) E. St. H. Davies, June 16th, 1918; W. H. Thompson, June 18th, 1918; (Hon. Lt.) H. G. Strange, June 22nd, 1918; W. W. Mackinlay, July 3rd, 1918; F. S. Smith, July 14th, 1918; (Hon. Lt.) E. L. Trower, Aug. 22nd, 1918; N. H. Jay, Aug. 28th, 1918; S. J. E. Callcott, T. V. Preedy, Sept. 1st, 1918; (Hon. Capt.) D. S. Cumberlege, and to retain his hon. rank, Sept. 2nd, 1918; (Hon. Lt.) E. W. Smyth-Pigott, M.C., Sept. 9th, 1918; (Hon. Lt.) H. A. L. Patiison, Sept. 11th, 1918; (Hon. Lt.) H. Beckett, Sept. 25th, 1918; T. R. G. Cooke, Sept. 28th, 1918; A. R. Turner, D. C. Simpson, Sept. 29th, 1918; (Hon. Lt.) F. J. Hansell, Oct. 1st, 1918; (Hon Lt.) H. L. H. Tate, Oct. 4th, 1918; (Hon Lt.) C. J. Swabridge, Oct 5th, 1918; F. Heath, R. M. Fletcher, Oct. 9th, 1918; J. B. Fletcher, Oct. 11th, 1918; P. R. Ambrose, Oct. 21st, 1918; (Hon. Lt.) J. H. McKellar, Oct. 22nd, 1918; H. M. Smith, J. H. Ball, Oct. 26th, 1918; R. T. Symond, M. C., F. S. Tooley, M.C., Nov. 1st, 1918; A. E. Baxter, Nov. 10th, 1918; R. P. Greey, S. G. Cockburn, J. G. Angus, Nov. 30th, 1918; W. T. Barnes, P. H. Dixon, M.M., Dec. 10th, 1918; H. Haywood, J. R. Williams, Dec. 27th, 1918; F. A. Garwood, H. Laycock, Dec. 27th, 1918; (Hon. Lt.) M. W. Clark, Jan. 1st; G. D. V. Russell, A. B. Fee, Jan. 5th; R. S. Johnston, Jan. 10th J. T. Thursfield, T. M. Cornish, I. C. Spaven, D. E. Buckland, C. T. Perrins, Feb. 1st; R. M. Campbell J. Erskine, G. S. Daniel, Feb. 2nd; W. E. L. Courtney, Feb. 12th; H. Vanstone, Feb. 25th; S. R. Payne, Feb. 28th; J. D. McKeogh, C. H. Rice, B. G. Bowen, J. F. Kidd, F. A. D. Vaughan, J. L. Jones, J. Russell J. J. Birkinshaw, (Hon. Lt.) E. G. Lunn, R. K. Wilson, A. W. Clark, R. L. Paine, L. G. Speck, C. C. S. Preston, A. Miller, W. B. Walker, D.F.C., A. C. Weekes, March 1st; G. H. Clayton, March 2nd; R. C. E. Vernede, March 3rd; H. T. Ayres, March 12th; J. W. Page, March 13th; E. A. Westall, March 17th; A. H. Aitken, March 18th; (Hon. Lt.) G. P. Blake, T. E. Gohl, E. A. Seymour, March 19th; T. H. Forrest, G. L. Rutherford, March 23rd; L. Clark, H. A. Pike, March 25th; W. Allen, A. W. Day, E. P. Hulme, L. G. Bullock, P. B. Spivey, E. P. W. Dyke, J. N. Gladdish, J. W. Patterson, C. Kipling, L. R. G. Langmead, J. Stewart,

A. W. Parr, B. E. Harmer, E. P. Blackmore, H. J. Bristoll, S. Harvey, G. R. Barker, J. N. Ogilvie, March 26th; L. A. Wykes, J. P. Lewis, H. S. Basford, J. Morton, T. W. Sleigh, March 27th; F. R Keen, March 28th; R. C. Wackett, March 29th, W. S. Spark, March 30th; H. W. Minish, April 1st.

The following relinquish their commns. on ceasing to be empld.:—Lt. E. W. J. Cass (Lt., E. Surr. R.), Feb. 11th; Sec. Lt. (Hon. Lt.) W. S. Ross (Lt., Sco. Rif.), Feb. 15th; Sec Lt. F. V. Preston (Sec. Lt., W. Yorks R., T.F.), March 11th; Lt. P. W. Leycester (Lt. (actg. Capt. R.A.S.C.), March 14th.

The following are transferred to unempld. list:—Lt. H. B. Wood, Jan. 14th; Capt. F. B. Towers, Jan. 28th; Sec Lt. C. G. Ellis, Jan. 29th; Sec. Lt. G. B. Gardiner, Jan. 30th; Lt. E. W. Roberts, Jan. 31st; Lt. A. F. Lingard, Feb. 4th; Lt. J. G. M. Mann, Feb. 5th; Sec. Lt. F. R. Witham, Feb. 8th; Sec. Lt. A. Shepherd, Feb. 9th; Lt. R. A. Wingfield, Lt. H. L. Waite, Feb. 11th; Lt. G. F. Hunter, Capt. F. J. Martin, Feb. 12th; Capt. A. R. Stack, Feb. 14th; Lt. H. C. Benstead, Feb. 15th; Sec. Lt. A. Henderson, Lt. G. W W. Walpole, Feb. 16th; Sec. Lt. A. F. Wallace, Feb. 17th; Sec. Lt. J. G. Webster, Feb. 26th (substituted for notification in "Gazette," March 20th); Sec. Lt. J. Kelly, Feb. 27th; Sec. Lt. H. Tannenbaune, March 20th; Lt. (Hon. Capt.) W. L. Lister, March 5th; Lt. F. B. Ransford, March 7th; Sec. Lt. A. E. Durling, March 8th; Lt. A. B. Care, March 9th; Lt. D. N. Brampton, M.C. (Middl'x R.) Lt. N. E. Maitland, March 12th; Sec. Lt. W. Hughes, Sec. Lt. C. D. Metcalfe, Sec. Lt. J. T. Phillips, March 15th; Sec. Lt. (Hon. Lt.) H. McF. Crighton, M.C. (R. Scots, T.F.), March 16th; Sec Lt. H. T. Burt, R.F.A., Sec. Lt. K. S. Laurie, Lt. H. H. Martin, Lt. R. R. Renahan, March 17th; Sec. Lt. B. Green, Sec. Lt. W. Parker, March 18th; Sec. Lt. A. G. Mann, Lt. A. W. Palmer, Lt. A. H. Pownall, March 19th; Lt. C. T. V. Marshall, Sec. Lt. S. J. Saunders, March 20th; Sec. Lt. F. H. Bellinger, Lt. H. P. Maskell, Capt. C. T. Vachell, March 21st; Sec. Lt. (Hon. Lt.) J. C. Batty, Lt. F. H. Marsh (Herts R.), Lt. F. J. E. Willis, March 22nd; Lt. (actg. Capt.) A. F. Peacey, D.F.C., Lt. N. J. Picken, Lt. A. Wright, March 23rd; Sec. Lt. L. W. Pusey, March 24th; Lt. R. F. Bush, Sec. Lt. H. H. Coulson, Sec. Lt. A. E. Gwyther, Sec. Lt. (Hon. Lt.) D. G. Medus, March 25th; Sec. Lt. W D. Allan, Sec Lt. C. H. Booth, Lt. E. H. Dixon, Capt. R. Jarman, D.S.C., Sec. Lt G. E. Reed, March 26th; Sec. Lt. C. S. Dunbar, Lt. A. Farthing, Sec. Lt. S. Medofski, Lt. (actg. Capt.) G. A. E. Norgarb, Sec. Lt. W. Phillip (King's L'pool R.), March 27th; Sec Lt. J. Fulton, Sec. Lt R. Miller-Tait, Sec. Lt. F. J. Sutherland, March 28th; Sec. Lt. J. T. Dupny, Sec. Lt T. E. Foster, Lt. P. W. Inwood, Lt. E. F. Jones, March 29th; Sec. Lt. W. A. Deakin, Sec. Lt. C. Dixon, Sec. Lt. H. Elliott, Sec. Lt. W. J. Humphries, Capt. L. R. Wren, March 30th; Lt. A. S. Cross, April 1st; Capt. C. K. Chase, D.S.C., April 2nd; Lt H. C. Alexander, Sec. Lt. C. W. Duncan, Lt. J. D. Egan, Sec. Lt. L. S. Eckert, Sec Lt. H. E. Gentles, Sec. Lt. R. T. Gummant, April 9th; Lt. H. Y. R. Hill, April 10th; Lt. C. J. Fitzgibbon, Sec. Lt. K. G. M. Galletly, Sec Lt. W. C. Galbraith, Lt. H. W. Halfhide, Lt. F. W. Marshall, Lt. B. Martin, Sec. Lt. J. Paterson, Sec. Lt. C. F. Waudby, Sec. Lt. M. Whitehead, April 11th

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—J. H. Acton (contracted on active service), J. F. V. Atkinson (contracted on active service), K. L. Golding, L. H. Phillips (contracted on active service), April 12th

Lt. W. A. Hunter (K.O.Y.L. Inf.) relinquishes his commn. on account of ill-health, April 12th.

Sec. Lt. (Hon. Lt.) H. V. Drew relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., April 12th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—S. Bennett, July 13th, 1918 (substituted for notification in "Gazette," July 12th, 1918); V. H. Barnfield (contracted on active service), J. H. Hay (contracted on active service), E. A. Homer, W. T. Leonard (contracted on active service), T. Powers, W. L. Vennell, C. Ware (contracted on active service), April 12th.

Sec. Lt. J. N. Holman resigns his commn., April 12th.

The Christian names of Capt. O. A. Westendarp are as now described, and not as stated in "Gazettes," Jan. 17th and March 28th.

The Christian names of Sec. Lt. William George Edwards are as now described, and not as stated in "Gazette," Aug. 6th, 1918.

The surname of Lt. H. S. Davidson is as now described, and not Davison, as stated in "Gazette," March 11th.

The initials of Sec. Lt. H. C. Murray are as now described and not as stated in "Gazette," March 18th.

Sec. Lt. W. Woodstack is antedated in his appointment as Sec. Lt. (Observer Officer), May 22nd, 1918.

The notification in "Gazette," March 25th, concerning Lt. S. H. B. Emms is cancelled.

The notification in "Gazette," Jan. 15th, concerning Sec. Lt. A. R. Giroux is cancelled.

The notification in "Gazette," April 1st, concerning Sec. Lt. (Hon. Lt.) D. C. Lockwood is cancelled.

The notification in "Gazette," Feb. 14th concerning Lt. G. M. Dean is cancelled.

The notification in "Gazette," Feb. 4th, concerning Lt. A. Buckley is cancelled.

The notification in "Gazette," Feb. 14th, concerning Lt. A. A. Campbell is cancelled.

The notification in "Gazette," March 18th, concerning Sec. Lt. N. C. B Carrick is cancelled.

The notification in "Gazette," March 18th, concerning Sec. Lt (Hon. Lt.) C. L. Childs is cancelled.

Administrative Branch.—The following are granted temp. commns. as Capts.:—W. L. Blake (Capt., Norf. R.), T. N. Flatt (Capt., Norf. R.), W. J. May (Capt., Camb. R.), April 1st, 1918

Lt. R. J. L. Gerard to be actg. Capt while empld. as Capt., April 1st, 1918.

The following are granted temp. commns. as Lts.:—E. H. Bushell (Lt., Essex R.), W. H. Peat (Lt., Ches. R.), April 1st, 1918; A. C. Corbetta (temp. Lt., Gen. List), July 1st, 1918, seny. April 1st, 1918.

Lts. (A.) to be Lts.:—(Actg. Capt.) D. H. Robertson, Oct. 30th, 1918, and relinquishes actg. rank of Capt.; C. H. Pownall, Nov. 1st, 1918; R. A. Young, Nov. 6th, 1918; S. H. Wrinch, Dec. 13th, 1918; R. Caldecott, F. W. Doherty, Dec. 16th, 1918; F. W. Mundy, Feb. 3rd; C. J. Stansfield, March 14th.

Lt. E. R. Brown to be Lt., from (K.B.), Jan. 1st.

Lts. (O.) to be Lts.:—J. A. Manners-Smith, Dec. 16th, 1918; F. V. Carpenter, Dec. 18th, 1918; J. W. W. Tregale, Dec. 31st, 1918, D. W. Orr, Jan. 18th; A. W. Rogers, M.M., Feb. 28th; J. Chatterton, M.C., March 4th.

Sec. Lts. to be Lts.:—(Hon. Lt.) (actg. Lt.) T. Hobson, April 2nd, 1918; (Hon. Capt.) (actg. Lt.) H. A. de F. Furber, July 1st, 1918, and to retain his hon. rank; (actg. Lt.) W. H. Nankivell, July 25th, 1918; J. M. Adams, Sept. 1st, 1918; (actg. Lt.) G. E. Tune, Sept. 28th, 1918; (Hon. Lt.) A. R. Barnes, Sept. 30th, 1918; (actg. Lt.) W. H. Botterill, Oct. 5th, 1918; A. E. T. Robinson, Oct. 26th, 1918; V. W. Gill, Nov. 8th, 1918; I. M. Moffat, Nov. 27th, 1918; (actg. Lt.) M. Poole-Conner, Nov. 30th, 1918; A. E. Peel, Dec. 21st, 1918; W. Hopps, Dec. 22nd. 1918; H. E. Gridley, Feb. 5th; F. E. Shersby, Feb. 16th; C. Lyons, March 8th; L. Singer, March 16th.

Sec. Lts. to be Sec. Lts., from (A.):—H. C. Mitchell, Jan. 3rd; A. E. Overton, Jan. 8th, and to be Hon. Lt.; R. J. Tomson, Jan. 9th; R. Logan, March 19th; W. V. Ryan, March 21st.

Sec. Lts. to be Sec. Lts., from (A. and S.):—G. J. E. Boyd, Jan. 5th; R. M. Mulrihill, March 1st; C. E. Watson, March 21st.

Sec. Lts. to be Sec. Lts., from (O.):—L. Eteson, Nov. 25th, 1918; S. R. Payne, Nov. 29th, 1918; A. Taylor, Dec. 10th, 1918; S. A. Barnes, Jan. 6th; F. H. Sibley, Jan. 20th, and to be Hon. Lt.; W. I. E. Lane, M.C., Jan. 24th; D. F. Harrison, Feb. 9th; H. Ricketts, Feb. 13th; B. Hurdus, G. E. Rochester, E. A. Seal, March 18th; M. C. Sexton, March 26th, and to be Hon. Lt.; Sec. Lt. J. H. Drayton (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., March 21st.

The following relinquish their commns. on ceasing to be empld.:—Lt. A. G. Heap (Lt., L'pool R.), Nov. 3rd, 1918; Sec. Lt. F. A. Pritchard (Sec. Lt., Ches. D.), March 17th.

The following are transferred to unempld. list:—Sec. Lt. C. Ward, Feb. 5th; Lt. C. W. T. Riley, Feb. 11th; Sec. Lt. W. R. Watt, Feb. 16th; Sec. Lt. F. W. Weeks, Feb. 22nd; Lt. (Hon. Capt.) G. T. Addis (R. Dub. Fus.); Lt. R. C. Allen (N. Mid. Brig., R.F.A., T.F.), Lt. L. G. Kesterton, Feb. 23rd; Lt. M. H Unwin, Feb. 27th (substituted for notification in "Gazette," March 14th); Sec. Lt. R. A. Smith, Feb. 28th; Sec. Lt. H. B. Elbourne, March 1st; Sec. Lt. (Hon. Capt.) E. N. Thomas, March 4th; Lt. (Hon. Capt.) D. W. Harper, March 8th; Maj. (actg. Lt.-Col.) R. M. Daniel, March 15th (substituted for notification in "Gazette," March 28th); Sec. Lt. D. T. Paine, March 18th; Sec. Lt. H. G. G. Rawlings, March 20th; Sec. Lt. (actg. Capt.) W. F. Dean, Sec. Lt. L. J. Simmons, March 21st; Capt. W. O. Thomas, M.C., March 23rd; Lt. (actg. Capt.) F. B. Luget, Lt. (actg. Capt.) W. G. Nutten, March 27th; Lt. I. A. Laing, March 29th.

The following Lts. (actg. Capts.) relinquish their commns. on account of ill health contracted on active service, and are permitted to retain the rank of Capt.:—S. I. Chapman, (Hon. Capt.) C. W. Wright, April 12th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—J. R. Hett, R.F.A., W. H. Glaser, H. I. Turner (contracted on active service), April 12th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—G. Elliott (caused by wounds), E. Holt, April 12th.

The date of appointment of Lt. E. S. C. Brooks as actg. Capt. is Feb. 1st, and not as stated on page 3,021 of "Gazette," March 4th.

The surname of R. S. Maitland-Edwards is as now described, and not as stated in "Gazette," March 7th.

The notification in "Gazette," March 7th, concerning Lt. D. H. Robinson, A.F.C., is cancelled.

Technical Branch.—Lt. B. H. McLeod to be Lt. Grade (A.), from (A.), July 16th, 1918.

Sec. Lts. to be Lts.:—(Hon. Lt.) (actg. Lt.) E. A. Gulson, (Hon. Lt.) (actg. Capt.) H. C. Bishop and to retain his actg. rank, April 2nd, 1918; (actg. Lt.) R. G. Shackel, April 13th, 1918; (actg. Lt.) E. W. Brooks, June 8th; (actg. Lt.) S. Beeby, Aug. 12th, 1918; (actg. Lt.) J. S. Done, Sept. 14th, 1918; (actg. Capt.) L. A. Hooper, Oct. 8th, 1918, and to retain his actg. rank; (actg. Lt.) J. D. Fairbairn, Oct. 27th, 1918; (actg. Lt.) C. W. B. Tubbs, Dec. 1st, 1918; (actg. Maj.) R. B. Stephenson, Dec. 18th, 1918, and to retain his actg. rank; (actg. Capt.) C. G. Stevens, Jan. 19th, and to retain his actg. rank; (actg. Capt.) C. H. Quelch, Jan. 29th, and to retain his actg. rank; (actg. Lt.) J. F. Clark, Jan. 31st.

Sec. Lts. to be Lts., without pay and allowances of that rank:—(Hon. Lt.) J. Lundon, (Hon. Lt.) E. W. Hallam, (Hon. Capt.) H. Gardiner, and to retain his hon. rank, N. E. Corbishley, (Hon. Capt.) G. M. Nobbs, and to retain his hon. rank, (Hon. Lt.) A. W. Furbank, E. P. Proud, (Hon. Lt.) R. F. Tindall, G. W. G. Tucker, (Hon. Lt.) M. A. Shepstone, N. Pellew, (Hon. Lt.) J. W. Bradford, April 2nd, 1918; S. G. Elliot-Smith, April 14th, 1918; (Hon. Capt.) E. H. Walter, and to retain his hon. rank, (Hon Lt.) B. Hesketh, April 23rd, 1918; A. R. Butler, May 4th, 1918; (Hon. Lt.) J. E. Sierra, C. Groves, F. M. Thomas, May 5th, 1918; F. B. Palmer, M.C., May 13th, 1918; (Hon. Lt.) J. T. M. Hill, June 16th, 1918; (Hon Lt.) C. H. Habrow, June 18th, 1918; (Hon. Lt.) H. B. Lee, M.C. July 26th, 1918; A. McCulloch, Aug. 9th, 1918; L. McLauchlan, Aug. 10th, 1918; J. S. V. Stephen, Aug. 13th, 1918; J. K. Shrimpton, Aug. 19th, 1918; W. F. Thrutchley, Sept. 11th, 1918; F. H. Alder, Sept. 12th, 1918; E. A. Moran-Smith, Sept. 14th, 1918; H. W. Sharman, Oct. 20th, 1918; (Hon. Lt.) H. J. Dixon, Nov. 9th, 1918; P. E. Towler, Nov. 24th, 1918; E. R Blount, R. U. Nash-Taylor, Dec. 1st, 1918; T. Willis, December 30th, 1918; (Hon. Lt.) E. J. Leech, Jan. 1st; R. E. H. Heenan, Jan. 16th; J. S. Suckling,



Spad Aeroplanes (Hispano-Suiza Engines) of No. 23 Squadron, Royal Air Force, about to leave an Aerodrome in Northern France on March 23rd, 1918, in order to take part in Operations against the German Advance in the Somme District.

Jan. 19th; C. H. Chadwick, J. C. Shakeshaft, Jan. 31st; V. H. C. Gayford, Feb. 7th; E. Harrison, Feb. 12th; C. G. Foster, Feb. 21st; R. T. B. Wynn, C. W. Triggs, G. Glen, W. H. Short, Feb. 24th; M. G. Fountain, Feb. 28th; G. R. Hanson, W. C. Farley, March 1st; W. E. French, March 2nd; W. H. Fearnsides, March 5th; F. S. Stokes, A. Campbell, A. Jennings, F. T. Holmes, F. O. Brownson, March 8th; A. Ledger, March 10th; H. A. Creswell, March 18th; J. G. Tennant, March 20th; C. J. Ashdown, F. G. Rison, March 21st; F. L. Barnett, S. G. Newport, H. S. C. Cann, D. H. Fenner, J. H. Hunter, C. F. Lane, J. W. Power, March 24th.

Sec. Lt. L. Wardle-Donald to be Lt. from (Ad.), Aug. 9th, 1918 (substituted for notification in "Gazette," Aug. 30th, 1918).

Sec. Lt. G. A. F. Gibson to be Sec. Lt. Grade "A" from (Ad.), Dec. 2nd, 1918.

Lt. A. J. Dale (R.N.) relinquishes his commn. on ceasing to be employed, March 22nd.

The following are transferred to unemployed list:—Sec. Lt. R. J. Hibberd, Jan. 4th; Capt. H. A. Wilsdon, Jan. 21st; Sec. Lt. W. C. Burleigh, Jan. 23rd, Sec. Lt. L. J. Cooke, Feb. 3rd; Lt. S. H. Pestell, Feb. 27th; Lt. (actg. Capt.) L. G. Mace, March 1st; Lt. H. S. Downs, March 5th (substituted for notification in "Gazette" of Feb. 28th); Lt. B. Pool, March 11th; Sec. Lt. R. S. A. Noakes, March 13th; Lt. (actg. Capt.) J. G. Connell (R.F.A., T.F.), Lt. F. Mayer, March 14th; Sec. Lt. M. J. S. Paton, March 17th; Lt. J. W. Maddock, Capt. W. Stewart, March 19th; Lt. (actg. Capt.) S. M. Campbell (Sco. Rif., T.F.), March 20th; Sec. Lt. (actg. Capt.) J. M. Pinkerton, March 21st; Lt. W. S. Renwick, Lt. M. E. Staples, March 22nd; Capt. J. W. Morley, March 24th; Sec. Lt. (Hon. Lt.) H. D. Cape, Lt. E. C. Colman (Wilt. R.), Capt. C. W. Jamieson, March 27th; Lt. F. H. Holmes, M.C. (R.E., T.F.), Sec. Lt. W. H. Hitch, Capt. J. Lanning, Lt. (actg. Maj.) W. E. Phillips, March 28th; Lt. H. C. Sharp, March 30th; Sec. Lt. (actg. Lt.) H. T. Hamblin, Lt. E. F. Huntley, Lt. W. A. Sievwright, Lt. (Hon. Capt.) (actg. Capt.) T. N. Weguitin, March 31st; Capt. A. D. Allen, Sec. Lt. D. L. Kane, April 1st; Lt. (actg. Capt.) E. S. Crabtree, April 3rd.

Sec. Lt. P. O. Patterson relinquishes his commn. on account of ill-health, and is permitted to retain his rank, April 12th.

The initial of H. Cox is as now described, and not E., as stated in "Gazette" of April 4th.

The notification in "Gazette" of March 18th concerning Lt. F. A. Roberts is cancelled.

The notification in "Gazette," April 1st, concerning Sec. Lt. H. Linfield is cancelled.

Medical Branch.—Capt. J. S. Dockrill (R.A.M.C.) is granted a temp. commn. as Capt., Oct. 1st, 1918, with seny., from April 1st, 1918.

N. S. Gilchrist, G.B.E. (T./Capt., R.A.M.C.), is granted a temp. commn. as Capt., Oct. 1st, 1918, with seny., from April 1st, 1918.

Lt. Col. W. H. Pope (R.N.) relinquishes his commn. on ceasing to be empld., April 14th.

The following are transferred to unempld. list:—Capt. A. B. Lindsay, Feb. 24th; Capt. C. L. Birmingham, M.D., March 1st; Capt. C. W. W. James, March 4th; Capt. C. F. Hereford, March 18th.

The notification in "Gazette" of April 1st concerning Capt. E. W. W. Jones is cancelled.

Dental Branch.—Sec. Lt. D. Campbell is transferred to unempld. list, March 28th.

Memoranda.—Sec. Lt. (Hon. Lt.) R. W. Monro is granted the hon. rank of Capt., June 7th, 1918.

Sec. Lt. W. G. Edwards to take rank and precedence as if his appt. as Sec. Lt. bore date, Jan. 24th.

Temp. Hon. Lt. R. H. Harnett relinquishes his commn. on ceasing to be empld., March 1st.

The following are transferred to unempld. list from (S.O.):—Lt. (actg. Capt.) E. A. Mayner, March 31st; Lt. (actg. Capt.) H. H. Harries, April 1st.

FROM THE COURT CIRCULAR.

Buckingham Palace, April 9th.

The Right Hon. Winston Spencer-Churchill, M.P. (Secretary of State for War and Air) and the Right Hon. Sir Rennell Rodd (His Majesty's Ambassador Extraordinary and Plenipotentiary at Rome) had audiences of the King this morning, and Sir Allan Smith had the honour of being received by His Majesty.

The Prince of Wales and the Prince Albert, attended by Captain the Lord Claud N. Hamilton and Major Louis Greig, were present at the Association Football Match between the Army (London Command) and the Royal Air Force (South-Eastern Area), at Stamford Bridge this afternoon.

Buckingham Palace, April 10th.

The following were severally introduced into the presence of the King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

The Most Excellent Order of the British Empire.—Officers (Military Division).—Maj. Harry Walmsley, R.A.F.

Members (Military Division).—Capt. Dudley Upjohn, R.A.F.

The King then conferred decorations as follows:—

Bar to the Military Cross.—Maj. Roy Phillipps, Aust. F.C.

The Military Cross.—Lt.-Col. Barry Martyn, R.A.F.

His Majesty inspected a party of Indian non-commissioned officers and men belonging to Divisional Ammunition Columns, Royal Artillery, and the Royal Air Force Base Depot, under the command of Capt. H. C. Clogstoun (Labour Corps), who are on short leave from France.

Buckingham Palace, April 12th.

The following were severally introduced into the presence of the King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

The Most Distinguished Order of Saint Michael and St. George.—*Companion*.—Brig.-Gen. Bertram Fellows, R.A.F.

The Most Excellent Order of the British Empire (Military Division).—Commander.—Lt.-Col. Thomas Cave-Browne-Cave, R.A.F.

The Most Excellent Order of the British Empire (Military Division).—Officers.—Mrs. Margaret Moss, W.R.A.F.; Lt.-Col. Ernest Stedman, R.A.F.; Maj. Frank Jolly, R.A.F.; Maj. Reginald Maitland, R.A.F.; and Maj. Brefney O'Reilly, R.A.F.

The King then conferred decorations as follows:—

The Military Cross and Bar.—Capt. Ronald Mark, R.A.F.

The Military Cross.—Major Augus Bell-Irving, R.A.F.; Capt. John Chick, R.A.F.; Capt. Leslie Mann, R.A.F.; Capt. Walter Park, R.A.F.; Lieut. Leslie Hird, late R.A.F.

ADMIRALTY APPOINTMENTS.

The following appointments have been made:—

April 8th.—Lieut. C. C. Dickinson, D.S.O., to "Pegasus," March 27th.

Sub-Lt. G. V. Knight, to "Pegasus," April 4th.

Mate, G. D. Neate, to "Pegasus," April 4th.

April 11th.—Actg. Mate.—H. F. Hackett to "Argus," April 10th.

April 14th.—Ch. Gunner (T.).—T. F. Britton, D.S.C., for duty with the Royal Air Force, April 28th.

WAR OFFICE COMMUNIQUE.

The G.O.C. British Forces in Russia reports on April 10th:—

The defence of Bolshcozerki (on the Vologda railway) against the attacks on April 1st was carried out by the Russian National Army, of which only the artillery had some French officers.

The R.A.F. rendered great assistance under great difficulties owing to bad landing grounds. Among the pilots and observers were Canadians, South Africans, and Russians.

THE CASUALTY LIST.

NAVAL.

Reported April 15th.

The undermentioned Officers previously reported Missing on the dates set against their names, now officially presumed Killed on those dates.—Flt. Sub-Lt. John G. Carrol, R.N., March 28th, 1918.

Flt. Sub-Lt. Lionel B. Ransford, R.N., March 18th, 1918.

Flt. Sub-Lt. Edward C. Stocker, R.N., March 27th, 1918.

MILITARY.

Reported April 10th.

Previously reported Missing, now reported Killed.—Reading, Sec. Lt. V. J., R.F.C.

AIR FORCE.

Reported April 10th.

Killed.—Stennett, Lt. W. R.

Wilson, Lt. H. B.

Died of Injuries.—Glanville, Capt. H. F.

Died.—Delaney, Capt. M.

Hutchison, Sec. Lt. H.

Russell, Capt. C. E. S.

Wounded.—Buxton, Maj. V.; Eastwood, Sec. Lt. D. D. M.; Redmond, Sec. Lt. W. D.

Missing.—Nunan, Sec. Lt. N. D.; Tattam, Sec. Lt. F. F.

Repatriated.—Branford, Capt. F. V.; Jenks, Lt. J. C. A.; Kinmond, Lt. D. C.

Casualties among Airmen. The Dates are those of the Official List.

Died of Injuries.

April 8th.—McEvoy 55219 AC/1 F. (Artana, Dromara, Co. Down).

Died.

April 8th.—Biscoe 7443 L/AC (a/Cpl.) F. A. (East Sheen); Buckley 29541 L/AC (a/Cpl.) G. (Oldham); Challenor 248333 AC/2 E. O. (Middlesboro'); Cope 5977 Sjt. F. E. (Caerphilly); Cushen 134009 AC/2 W. (Richmond); Deeley 88138 Sjt.-Majr./1st A. (Bromley); Davies 22896 AC/1 E. B. (Llandinam); Day 84916 AC/1 T. E. (Kennington); Gregory 2897 Cpl. T. H. (Taffits Wells); Haig 96148 AC/2 J. (Barnsley); Kemp 111826 AC/1 W. R. (Victoria Park, E.9); Krall 52276 L/AC K. (Kensington); Leeson 188678 AC/2 C. (London); Pollicott 402293 L/AC G. W. (London); Raeburn 280015 AC/2 G. (Glasgow); Spence 102071 AC/2 H. (Salford); Thompson 106375 L/AC J. E. (Leeds); Watts 213665 AC/1 P. H. (Harrow Weald); Wragg 67787 AC/2 A. (Malpas).

PERSONAL NOTICES.

NAVAL.

Marriage.

STEPHENS—FINN.—The marriage of Captain M. H. Stephens, R.A.F. (late R.N.A.S.), youngest son of Mr. J. Stephens, Toronto, Canada, and Marjorie, younger daughter of the late Mr. Alexander Finn, late H.B.M. Consul-General for Chile, and Mrs. Finn, of 2, Park Road, Richmond, Surrey, will take place very quietly, owing to mourning, at St. Matthias's Church, Richmond Hill, on Saturday, April 26th, at 2.15 p.m. All friends will be welcome at the church.

* * *

Lieut. Frank Titchener, R.A.F. (formerly of the R.N.A.S.), of the 202nd Squadron, France, was last seen on May 14th, 1918, flying No. A.7768 between Ostend and Zeebrugge. Will repatriated officers and men (or those flying with him at the time) who can give any information write to his mother—Mrs. Titchener, 178, Church Road, Teddington?

MILITARY.

Engagements.

GEMSON—DE VIRY.—A marriage is arranged, and will shortly take place, between L. C. G. Gemson, late R.E. and R.A.F., of Southport and London, and Mlle. Marie de Viry, Commandant, Red Cross Hospital, Marquise, Pas-de-Calais, second daughter of the late Comte de Viry, of Bazeilles, Ardennes.

LANCASTER—PIARY.—The engagement is announced between Lieut. J. H. Lancaster, Aust. F.C., of 127, Fellows Road, Hampstead, and Miss Lily Piary, of 26, Faure Street, Cape Town.

PERRIN—GRAZEBROOK.—The engagement is announced of Captain (acting Major) Eugene Courtenay Perrin, O.B.E., 4th Battalion the Cheshire Regt. and R.A.F., elder son of Mr. and Mrs. J. E. Perrin, The Paddock, Hoylake, and Katharine Arthur Mary Violet, widow of Captain Charles Grazebrook, King's Royal Rifle Corps, and daughter of the late Arthur Hickman and of Mrs. Morgans, Little Meadow, Radlett.

Marriages.

RAYNER—WOOD.—On April 8th, at the Parish Church, Whitchurch, Bucks, Capt. A. H. Rayner, late R.F.C., youngest son of Mr. G. G. Rayner, Croydon, was married to Mary Joyce,

R.A.F., only daughter of the Rev. Hugh and Mrs. Wood, of Whitchurch, by the Rev. F. Northrop, S.C.F., and assisted by the Rev. H. B. Walton, Rector, of Hardwick.

TURNER-BRIDGER—NURSE.—The marriage arranged between Major Fernley Turner-Bridger, The Black Watch (Royal Highlanders) and R.A.F., son of Mr. and Mrs. Turner-Bridger, Anne Cott, Haslemere, Surrey, and Dorothy Alice, daughter of Mr. and Mrs. T. Johnson Nurse, Ashdene, March, Cambs., took place quietly at St. Peter's, Eaton Square, on April 19th.

* * *

The late Capt. Bentfield Charles Hucks, R.A.F. (formerly R.F.C.), of Piccadilly, W., who died from pneumonia, at the age of 34 years, left an estate to the value of £9,236.

AIR FORCE.

Engagements.

BEDDOW—HOLMES SCOTT.—A marriage has been arranged, and will take place very shortly in London, between Capt. L. T. Beddow, R.A.F., of Thorverton, near Exeter, and Doris Holmes Scott, Deputy Administrator, W.R.A.F., widow of Capt. A. Holmes Scott, M.C., R.E., and only daughter of the late J. S. Clayton, V.D., M.D., F.R.C.S.Edin., and Mrs. Clayton, 97, Vicarage Road, Eastbourne.

SNOW—COLWELL.—An engagement is announced between Capt. C. C. Snow, R.A.F., and Gladys Burton, eldest daughter of the late General Colwell, C.B., Royal Marines, and Mrs. Colwell, Claremont Lodge, Southsea.

Marriages.

NASH—NORMAN.—On March 15th, at St. Paul's Church, Rondebosch, Cape Town, Capt. Eugene Fleetwood Nash, R.A.F., youngest son of Edward Henry Nash, of Gerrard's Cross, Bucks, was married to Winifred Norman, granddaughter of David Francis, Esq., of Tati House, Frognal, Hampstead.

READMAN—THWAITE.—On April 4th, in London, Cyril Hamilton Blyth Readman, R.A.F., second son of Dr. and Mrs. J. B. Readman, Belmont, Hereford, was married to Eleanor, the only daughter of Mrs. Thwaite (and the late Mr. Newsome Thwaite), 2, Harley House, Regent's Park, W.

Births.

BOUMPHREY.—On April 10th, 1919, at "Fairview," Coleman's Estate, Prittlewell, Essex, to Esther (née Grandage), wife of Capt. G. M. Boumphrey, R.A.F.—a son.

DEES.—On April 8th, at Oakley House, St. Peter's Street, Winchester, to Ruby, wife of Capt. Adrian Dees, R.A.F.—a son.

RILEY.—On April 13th, 1919, at Park Lodge Nursing Home, Brockley, London, to Dora (née Witney), wife of Captain C. Gordon Riley, R.A.F.—a son.

* * *

Lieut. P. M. Dennett, R.A.F., of the 208th Squadron, has been missing since June 2nd, 1918. Will any officer knowing the latest particulars of Mr. Dennett please communicate with E. C. Goodman, Mount Pleasant, Hastings?

The Royal Naval, Military, and Air Force Tournament.

The Royal Naval, Military, and Air Force Tournament will be held at Olympia from June 28th to July 12th. It is five years since the tournament last took place. A feature this year is the extension of the title to include the Royal Air Force as a third service of a military character.

Athletics in the R.A.F.

On Wednesday, April 9th, the R.A.F. Association Football Team met the London Command Eleven at Stamford Bridge. This was the third meeting of the two teams, the two previous matches having both resulted in a draw.

H.R.H. the Prince of Wales, K.G., and Capt. the Prince Albert, K.G., R.A.F., were both spectators at the match. On the whole, the R.A.F. were the better team, and deserved their win of one goal to nil.

By their win over the Canadian Fifteen at Leicester by one goal and two tries to one try, the R.A.F. gained their second victory in the Services Rugby Football Competition. They finish level with South Africa, and, therefore, considering that they began the Competition with three defeats, have some cause for satisfaction.

Aeroplanes for Archangel.

It has been stated that an ice-breaker, laden with aeroplanes, is attempting to reach Archangel but is at present held fast.

Mr. Churchill has so far refrained from making any reference to "Fighting Archangels."

What the American Air Service Offers.

The following appears in the D.M.A. "Weekly News Letter," published at Washington by the War Department It is of considerable interest as it indicates the future policy of the United States with regard to the Air Service:—

The Army Air Service presents many interesting advantages to the enlisted man. It offers a good situation now; it educates its members thoroughly in the new and growing science of aviation, with its many commercial features, and offers to those enlisted men who are physically and mentally equipped an opportunity to learn to fly. Incidentally this service pays good salaries and provides for early promotion.

In accordance with the plans of the Government for the organisation of a permanent Air Service, the Director of Air Service has been authorised by the General Staff to re-enlist or recruit enlisted men up to 15,000.

Have you a good job to-day? If not, what can you find better than the Air Service?

One feature of service in the military branch of aviation not usually considered is the education in aviation to be gained. There is but little, if any, opportunity to-day to secure employment with any of the large manufacturers of aircraft; they are cutting down their personnel. The commercial future of aviation in this country, while most promising, is at present hanging fire at best, and every plant has more experienced men than it can keep employed. The Air Service will take you to-day, however, and teach you practical aviation. The time will come within a year or two when there will be a great demand for skilled mechanicians and other experts in aviation who have had experience. To-day the only practical way to get experience is in the Air Service. Then the opportunities for good positions in commercial lines may be seized when they appear.

It is possible for men now in the Air Service to get their discharges with the $60.00 bonus and re-enlist in the Air Service for a year, with the privilege of a month's furlough. In most cases it will be possible for the non-commissioned personnel to retain the grade held during the war, and upon re-enlistment be allowed five cents per mile en route home.

The chances of advancement in the Air Service are excellent. A bright, energetic young man with initiative should not remain a private long. A man is promoted to the grade of non-commissioned officer for aptitude, attentiveness, willingness, and ability. The following table shows the chances of promotion in a squadron of 150 men, or rather it shows 114 non-commissioned grades of corporal, or better, that are available, and to which men enlisting in the Air Service can be promoted. Only 36 of the 150 are privates.

Four master signal electricians, 29 sergeants (first class), 33 sergeants, 48 corporals, 12 privates (first class), and 24 privates.

With respect to the various activities that are carried on in the Air Service, 17 different types of tradesmen are required for as many sorts of work:—

Radio mechanical work, wireless telegraph and telephone, radio electricians, airplane mechanics, aero motor mechanics, propeller makers, fabric workers, magneto repair men, instrument repair men, carpenters and cabinet makers, machinists and tool makers, metal workers and welders, coppersmiths and vulcanisers, photographers, draughtsmen, bench mechanics, and chauffeurs.

Almost any type of work in which a man is interested is required in the classifications that make up the personnel of the Air Service. Whatever may be a recruit's desires, there is no reason why those desires cannot be fulfilled by an enlistment in the Air Service.

Little mention has been made of the chances that an enlisted man has to learn to fly, but instructions have already been issued to the flying fields covering conditions under which enlisted men may learn to fly. The main qualifications determining whether or not an enlisted man will be taught how to fly are physical qualifications, combined with the necessary mechanical knowledge which he must have before he will be allowed to participate in flights or will be allowed to receive instruction in a machine. The average enlisted man with a high school education who has applied himself so that he has a good knowledge of motors and airplanes, and is in such condition physically that he can pass the required examination, can learn to fly. After a man learns to fly, he will, if properly qualified from an educational viewpoint, be given a good opportunity to secure a commission in the Air Service. Regulations are now being compiled covering this phase of the service.

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ON THE TRADITIONS OF THE R.A.F. (1)

In his farewell dispatch, on returning to England and leaving the Command of the British Army which he had directed to victory, Field-Marshal Sir Douglas Haig made a reference to the R.F.C. and R.A.F. which is typical of that loyalty to those under him which has won for him so much good and faithful service.

The reference reads thus :—

> I recall with gratitude the magnificent work done during the fighting of 1916 and 1917 by Major-General Sir H. M. Trenchard, at that time commanding the Royal Flying Corps. The influence exerted by this able and distinguished officer upon the moral and the development of the British Air Service and in the creation of its splendid traditions can scarcely be exaggerated.
>
> Since his transfer to another but kindred field of activity, his work has been most ably and successfully carried on by Major-General Sir J. M. Salmond, commander of the Royal Air Force on the Western front.

The Ideal Air Force.

Some people seem to have the idea that because one has on occasion said some extremely rude things about the Royal Air Force one is therefore opposed to everybody and everything concerned with the R.A.F. It is true that for purely military reasons one would prefer to see the R.N.A.S. re-established as a part of the Navy and the R.F.C. as a part of the Army, with the Royal Air Force as a separate Service for purely aerial operations. In this one has the support of a number of the most far-seeing and most experienced people in both the senior Services. But whether the R.A.F. is to be established on such a basis or whether it is to be the only Flying Service and is to supply aerial units for the two senior Services in time of war, one's first and foremost desire is that the R.A.F. shall be the smartest and most efficient of the King's Services.

Last week one quoted a phrase produced fairly recently to the effect that "The ideal of the Royal Air Force should be to be as smart as the Guards and as handy as the Navy," and it is owing to an intense desire that this ideal shall be attained that one is compelled from time to time to expose the abuses which exist in the R.A.F., the lamentable mis-organisation and disorganisation of the Air Force, its low level of discipline, and its general unworthiness to be considered the equal of the senior Services.

The Beginning of the R.F.C.

When the Royal Flying Corps first came into being it combined in its small personnel the virtues of every branch of the Army. The organisation was in the hands of Major F. H. Sykes, an officer of one of the smartest cavalry regiments, who had held various important staff appointments. His scheme of organisation in squadrons and flights holds to this day and has proved quite admirable under the test of war.

The officer commanding the first aeroplane unit, known as No. 1 Aeroplane Section, The Air Battalion, R.E., was Captain J. D. B. Fulton, an artillery officer of high accomplishments—as was proved by the fact that his inventions for the improvement of artillery brought such reward from the War Office that he was enabled to buy a Blériot monoplane and fly it out of the proceeds. Besides being a very able mechanical engineer, he was a sportsman of the finest type and in every way the ideal officer and gentleman.

With him were other officers of a similar type—the late Captain Loraine, Scots Guards, Lieutenants Connor and Hynes of the Artillery, and one or two others.

When the R.F.C. grew from this one Aeroplane Section, there came into it infantry officers who brought in the sound traditions of the Infantry of the Line. Officers such as Captain Brooke-Popham, Captain Dawes, Captain Webb-Bowen, Captain Becke, Captain Salmond, Lieutenants Longcroft, Sheppard, Cholmondeley, and others, some of whom are dead and many of whom happily hold high rank in the R.A.F., brought into the young R.F.C. the finest traditions of the Army.

The first Adjutant was Lieutenant Barrington-Kennett, Coldstream Guards, who brought with him for the proper education of the rank and file of the R.F.C. a number of "Guardee" N.C.Os.—Serjeant-Instructors and so forth of the most efficient type—and these experienced Guardsmen set to work on a heterogeneous mass of undisciplined civilian mechanics with such good effect that within twelve months the R.F.C. on parade was as smart a unit as any equal number of men from the Brigade of Guards.

True Co-operation.

This was accomplished without in any way decreasing the efficiency of the men as mechanics. In the nature of things the officers of the R.F.C. and their men were brought into very close contact, for the officers naturally took a very keen personal interest in the state in which their machines and engines were maintained, and there were few officers who did not actually work on their machines alongside their mechanics. Thus the officers and men came to know one another as intimately as do the officers and men of a submarine.

Yet this familiarity did not in any way breed contempt. Rather it increased the respect of the men for their officers, for the civilian mechanic, who came into the R.F.C. full of the astonishing ignorance of his class and its common prejudice against the British officer whom he had seen described in the daily news-sheets by Labour Leaders of the nature of Mr. John Burns and Mr. Lloyd George as "a gilded popinjay," found that the educated gentleman of the King's Army was very often a better mechanic than he himself, and, thanks

to his better education, was able to teach him things about his own job.

The Trenchard Touch.

A little later on when the Central Flying School was formed and Captain Godfrey Paine, R.N., was made Commandant, the first Assistant-Commandant and Chief of Staff was Lieut.-Col. Cooke, an artillery officer of great ability, and when he returned to the artillery after a year or so, he was succeeded by Major Hugh Trenchard of the Royal Scots. He, having served for years in West Africa and having learnt that the way to handle niggers is to treat them with the same kindness and firmness as that which is necessary to the proper upbringing of children, applied the same methods to the children of all classes who came to the Central Flying School.

The success of his methods is too well known to need any discussion, and the success of the same methods on an enormously extended scale on active service resulted in the R.F.C. achieving that Command of the Air which so many important people used to tell us was an impossibility.

The Meaning of Tradition.

The smartness of the Guards was given to the rank and file by the Barrington-Kennett tradition as one has already stated. And for the benefit of the younger generation of the Royal Air Force, one desires to put on record the fact that Major Barrington-Kennett, having done so much good work for the R.F.C., deliberately put aside the certainty of promotion to the rank of general officer so that in time of great stress in 1916 he might go back to his own Brigade of Guards as a Major, and there he died gallantly at the head of his men. His life and death should be a lesson to those in the Royal Air Force who set their personal advancement before their duty to their King.

The Fulton tradition of friendly co-operation between officers and men in the workships produced that versatility and mechanical effectiveness which enabled the R.F.C. in the field to do the Army's air work despite intrigue and inefficiency among the technical people at home. It was seen at its very best during the great German advance in March 1918, when, in spite of every possible hindrance, losses in the workshops, losses of material, and the worst possible weather conditions, the air-mechanics of the R.F.C. kept their machines in the air and enabled the R.F.C. to play a most important part in saving the British Army during its retreat.

The Trenchard tradition, begun at the Central Flying School and built up to its fullest development in the field, gave the youthful pilots of the R.F.C. that wonderful spirit of self-sacrifice and high standard of discipline in the field which made the R.F.C., at the moment when it ceased to exist, the greatest flying service in the world.

Those are the traditions of the Royal Flying Corps, and it should be the ideal of the Royal Air Force to live up to those traditions. What they have meant to the British Army in the war is indicated by the quotation from Field-Marshal Sir Douglas Haig's dispatch which appears at the head of this article.

The R.N.A.S. Way.

The Royal Naval Air Service has, in its own quaint way, contributed other traditions worthy to be followed by the Royal Air Force. The R.N.A.S. has never been remarkable for its high standard of discipline. Nevertheless at certain Stations a spirit of enthusiasm was instilled into the personnel which produced wonderful results.

One recalls Eastchurch in its early days when Lieutenants Samson, Gregory, and Longmore, R.N., and Lieutenant Gerrard, R.M.L.I., constituted the entire officer personnel of Naval aviation. The men attached to the aerodrome worked with enthusiasm for aviation and with sincere regard for their officers. A little later Lieutenants Malone, Spenser Grey, and Parke, Engineer-Lieut. Featherstone Briggs, Assistant-Paymasters Byrne and Parker, R.N., Lieutenant Lushington, R.M.A., and Lieutenant Risk, R.M.L.I., the tradition of enthusiasm and hard work was continued.

At a later date one recalls the Felixstowe Station, commanded by a Marine officer and equipped with Farman seaplanes, when the smartness of the Station in every respect was worthy of a Royal yacht. Later again, in the early days of the war, one remembers Hendon and Chingford as R.N.A.S. aerodromes at which an energetic "Number One" insisted on everything being done "at the double," and woe betide anybody, from a Flight Sub-Lieut. downwards, who was ever seen to walk when on duty.

A War Tradition.

One recalls that on active service the first bomb raids into Germany were made by R.N.A.S. units on Düsseldorf, Cologne, and Friedrichshafen. And later, when bombing was still regarded as of no war-like value, the R.N.A.S. acquired undying merit by developing the big bombing machine and organising bombing raids which were run with machine-like regularity and accuracy.

Also it is to the credit of the Air Department of the Admiralty under Captain Murray Sueter, R.N., that when the R.F.C. Authorities at home were endeavouring to foist upon the people in the field ineffective aeroplanes and engines of Government design the R.N.A.S. procured the best aeroplanes and engines in the world from the British Aircraft Industry. Moreover, these aircraft were obtained in such quantities that when the R.F.C. —despite the efforts of the people in the field—found themselves at the mercy of the German Air Service, the R.N.A.S. was able to supply the R.F.C. with aeroplanes which entirely turned the tables on the enemy.

Again, when the R.F.C. found itself hard pressed, the R.N.A.S. was able to supply certain fighting squadrons under very gallant and skilful leaders which had much the same effect on the German Air Service as at times the famous German "Circuses" had on the R.F.C.

Thus, the R.A.F. inherits from the R.N.A.S. the tradition of energy, initiative, and a fine offensive spirit which, when combined with the traditions of the R.F.C., should make it the greatest of all the King's Services.

It is because one's most earnest desire in life is to see the new R.A.F. become worthy of these high traditions that one criticises as bitterly and as offensively as possible those who are responsible for any overt act, or for permitting any state of affairs, which is unworthy of those traditions.

The Other Side of the Picture.

Let us turn now to the other side of the picture. Here is a story told by an officer of the R.A.F. which illustrates excellently precisely what ought not to be in the R.A.F. It may be true or it may not, but it certainly does indicate a state of mind which exists in the R.A.F.

The story goes that an R.A.F. officer employed in some technical capacity at an Air Station had on the Station an ex-R.F.C. technical Serjeant who had been trained in the Barrington-Kennett tradition. The officer, it would appear, had been trained in the worst of the R.N.A.S. traditions.

One day he sent for the Serjeant who, in accordance with the smart R.F.C. custom, came into the office, tucked his cane neatly under his arm, came to attention with a jerk, and saluted with that vibratory motion of

the hand which is regarded in certain units as the acme of smartness and gives the impression that the arm of the saluter is composed of spring steel.

The officer turned on the man and shouted—"Damn you! When you come into my office, leave your stick outside, and when you come to attention don't shake the blasted place to pieces!"

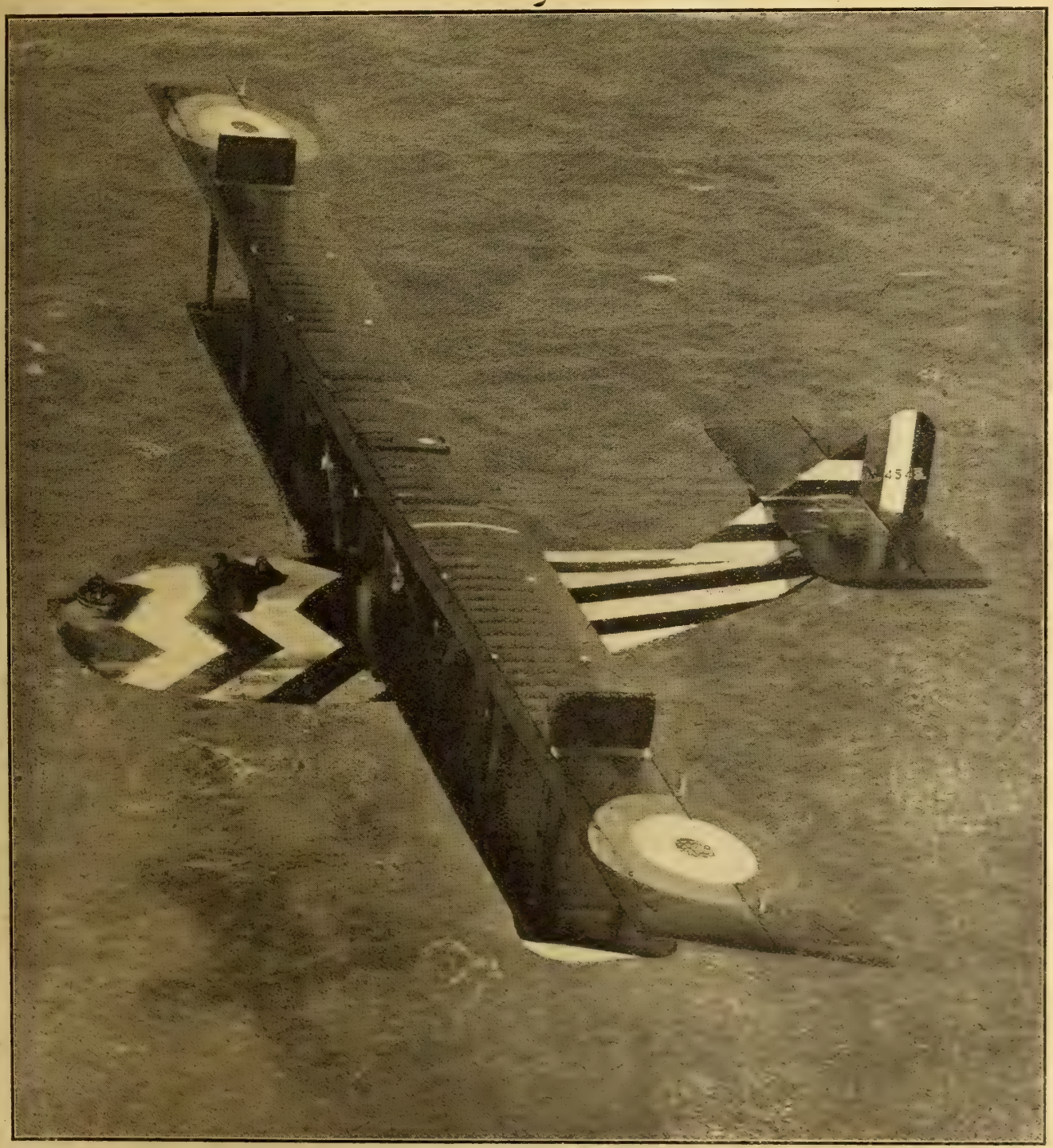
The narrator of the story, who evidently thought it was extremely funny, further stated that when all this "infernal nonsense" had been knocked out of the Serjeant he became quite an efficient technical N.C.O.

A Cad and a Fool.

As a matter of fact, if the story is within measurable distance of being true, the officer who addressed the Serjeant in such terms was not only a cad but a fool. In the first place, no officer who had any pretentions to being a gentleman would address anybody under his command in such terms.

It must be noted that there is a very wide difference between cursing one man individually when he is really doing his best and cursing a company or a regiment on parade in general terms for the good of their souls.

In the second place, if the officer in question had been even threatened with intelligence, he would have known perfectly well that the man who springs smartly to attention and who indulges in the little affectation of carrying a little swagger-cane to be tucked neatly under the arm when saluting an officer is a man who will not



ON PATROL.—A dazzle-painted F.2a. Flying-Boat. (Two "Eagle" Rolls-Royce Engines.) One of the Pictures shown at the R.A.F. "War in the Air" Exhibition at the Grafton Galleries. These Boats have done good work during the late war—both with the R.N.A.S. and the Naval Branch, R.A.F.—on Submarine Patrols. These Boats are a development of the Porte Boats designed by Lieut.-Col. J. C. Porte, C.M.G., R.A.F. (late Commander, R.N.).

only do his own work smartly, but will see that everybody under him is equally smart.

As It Was and As It Is.

To those who recall the smartness of the R.F.C. in the early days, and the resounding crash with which a squadron on parade came to attention on the tarmac, it is perfectly heartbreaking to see the men fall in at some of the R.A.F. Stations of to-day. With their pudding-like Naval caps, their beltless sloppy cast-off Army tunics, their trousers baggy at the knees, their slouching shoulders, and their slovenly walk, they look more like a lot of convicts out of a gaol, or the dregs of a labour battalion about to be demobilised, than any unit of what should be the smartest of the King's Services. And the blame for this state of affairs rests on the type of fool who swears or jeers at the smart N.C.O. trained in the Barrington-Kennett tradition.

Smartness on parade is, in the words of the catechism, "an outward and visible sign of an inward and spiritual grace," and the officer who does anything to detract from the smartness of the Air Force is doing the gravest possible dis-service to the country.

Another Story.

There is another story told which indicates the same foolish spirit in another manifestation.

In this case a technical officer narrated how on going into an aeroplane shed he found a baulk of timber in an inconvenient position and told an R.F.C. N.C.O. to move it. The only air-mechanics in the shed happened to be working on an engine, and the nearest one, according to the story, had his mouth full of screws out of the distributor and his hands full of bits of the magneto.

The N.C.O. ordered him to move the baulk of timber, whereupon he dropped the screws and the magneto parts in among other parts of the engine on which he was working and proceeded to move the timber. The teller of the story seemed to be under the impression that the N.C.O. should have moved the timber himself and should have let the air-mechanic go on with his job, the argument being that time would have been saved and the air-mechanic would not have had the job of hunting for the dropped magneto parts.

It never seems to have struck the narrator that a technical N.C.Os. job is precisely that of a foreman in a workshop, plus the added need for asserting his position as a man to be obeyed with military promptness and precision. If an N.C.O. or a foreman takes to doing a man's work, then the men will expect him to do the work for them at all times and under all sorts of conditions.

In this particular case the N.C.O. was perfectly right in having the work of moving the timber done by the men whose job it was to do it. It is only by adhering strictly to correct military custom that discipline can be preserved and smartness maintained.

A Civilian Illustration.

There are of course times when an N.C.O. or a foreman, as the case may be, has to do a job of work himself merely to impress those under him with their own inferiority, as for example the classic story of the Irish foremen and the Italian paviours.

A gang of Italian labourers engaged in laying a road had the job of lifting a large water-pipe out of a trench alongside the road. Despite an immense amount of jabbering and gesticulating, a dozen of them failed to get it out, whereupon the Irish ganger walked down the road to another gang and said to another Irish ganger, "Come here, Michael, and gi'e me a hand."

So the two Irishmen got down into the trench and spat on their hands to get a good grip of the pipe. The leader said, "Now, Michael! Heave!" and with one swing the two of them hove the pipe out of the trench and deposited it on the road.

They climbed out, wiped their hands on their trousers in the approved fashion, and then the first jerked his thumb over his shoulder towards the Italians and remarked scornfully, "And begob, Michael! Thim is what they makes Popes of!"

In that case it was necessary to demonstrate the superior muscle as well as brain of the foremen, but it would have been extraordinarily foolish for the said foremen to have done the road-laying as a matter of habit, and it is equally foolish for any officer to expect his N.C.Os. to do work which should be done by air-mechanics and at the same time to maintain their position as disciplinarians.

It is this lack of understanding on the part of many otherwise excellent technical men who have been brought into the R.A.F. from civilian life which accounts for the sloppiness and inefficiency of the R.A.F., and a return to the old R.F.C. tradition is necessary if efficiency is to be re-established.

(To be continued.)



THE BIGGEST FLYING-BOAT HULL IN THE WORLD.—The hull above, designed and built by the Gosport Aircraft Company, Ltd., is here shown ready for transport to the works of the Phœnix Dynamo Manufacturing Company, Ltd., of Bradford, where it is to be fitted with its flying organs and power plant. The whole machine is the design of Mr. C. R. Fairey, of the Fairey Aviation Company, Ltd., and the combination shows how various competing firms have co-operated cordially in the production of aircraft of war. Another machine of similar design is being built by Dick, Kerr and Co., Ltd., onto a hull built by William Fife and Sons and designed by Major Linton Hope, R.A.F. Dick, Kerr and Co., and the Phœnix Dynamo Manufacturing Co. are now amalgamated under the name of The English Electric Co., Ltd.

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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

The R.A.F. Flag.

On the afternoon of Thursday, April 17th, an airship flew very low round Windsor Castle and quite close to the Round Tower. This ship was flown before the King, the General-in-Chief of the Royal Air Force, to display the new flag of the Force. This was the first occasion on which the flag has been flown on any aircraft. Major-General J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., Under Secretary of State for Air, accompanied the flag.

The design has received the approval of the Air Council. In appearance the new flag is similar to the White Ensign of the Royal Navy. But a blue cross takes the place of the St. George's Cross in the White Ensign, and the centre of the flag bears in gold the Crown and Bird of the Royal Air Force.

The Aeronautical Commission.

The following official communiqué has arrived from Paris :—

The seventh and eighth meetings of the Aeronautical Commission of the Peace Conference were held on April 15th and 16th. The British delegates were Major-General Sir F. H. Sykes and the Marquess of Londonderry.

The Commission had before them full reports from their commercial, legal, financial, and technical sub-committees, to which were attached the 41 articles of the draft convention and its six annexes. On the question of the nationality of aircraft the analogy of merchant shipping has been followed to a certain extent, and the main principle is that this nationality should be governed by the nationality of the owner of the aircraft.

The Commission has decided as a matter of principle that certificates of airworthiness in the case of the aircraft and certificates of competency in the case of the crew are to be recognised as universally necessary in international flying.

The right of flying over a State from frontier to frontier is recognised, subject to the safeguard that the State flown over may compel a landing in the interests of national security, or, in other words, where reasonable suspicion exists that the flight is not bona fide. In the interests of domestic control by each State there are provisions as to the carriage of various papers of identity, etc., upon the aircraft, and the prohibition of the carriage of dangerous articles is also provided for.

The final provisions include an arbitration clause for the settlement of disputes and a clause which definitely places the convention on a peace basis as not affecting the rights and duties of belligerents or neutrals. Military aircraft are placed in a class apart, and may not fly outside their own country, except by the special authorisation of a State visited by them, in which case they are to be treated according to the usual rules prevailing in the case of ships of war.

The Convention contemplates the formation of a permanent international Commission, which will keep in close touch with all new developments and act as a clearing house for information on questions of air navigation between the respective States.

The Commission directed that a complete draft dealing with the various amendments proposed should be prepared for their next meeting.

Signals of Distress.

The Air Ministry made the following announcement on April 18th :—

In order to eliminate unnecessary risks of fatal accidents to aircraft and pilots, signals for aircraft in distress have been provisionally agreed upon by the International Aerial Sub-Committee of the Peace Conference in Paris and will be used in the future.

The signals, which may be displayed by the aircraft either together or separately, are as follows :—

1. The International Signal "S.O.S." by means of visual or wireless telegraphy.
2. The International Code Signal of Distress indicated by N.C.
3. The Distance Signal, consisting of a square flag having above or below it a ball or anything resembling a ball.
4. The continuous sounding with any sound apparatus.
5. A Signal consisting of a succession of White Very Lights fired at short intervals.

These signals are subject to such modifications as may be published from time to time.

The Admiralty has issued a "Notice to Mariners" containing this information, and the Board of Trade is also notifying owners and masters of shipping. The Air Ministry has called the attention of all Service pilots to the new signals in the Official Weekly Orders.

An Historical Record.

According to the "Daily Mail" "General Allenby's entry into Jerusalem and an aeroplane are shown in a church memorial window."

It is believed that this is the first historical record of General Allenby's entry into an aeroplane.

At Bowler House.

Hearts are burning in the Bolo over the rumour that after May 1st acting ranks will no longer be held.

A typewritten form has been circulated among some of those who have been clothed in all the pomp and panoply of glorious office work. It reads :—

"Those Colonels and Majors who require non-brass hats are requested to apply at Room ooooo, Bowler House."

Modern Manners and Customs.

From the "Times" of April 15th :—

Aviation in Society.—An officer, retired R.A.F., anxious to determine the degree of inside influence at work which is permitting daily flights by various society ladies, is willing to take a limited number of ladies in society for flights during the next few weeks. No charge made.—Box, etc.

Post-Bellum Frightfulness.

The Bristol Fighter biplane lent by the Air Ministry to the Harma Photoplay Co. for the purpose of delivering films to cinemas recently made its first flight from London to Newcastle. It carried 6,000 feet of film and 30,000 leaflets, which were thrown overboard. Some of the leaflets were marked, and, when the machine made its second flight from Newcastle to Leeds, it was announced that any person who found one of the marked leaflets would be paid the sum of £1. This appears to have caused some unseemly scrambles.

The threat is now made to attack London with leaflets in a similar manner. One finds it difficult to congratulate the Air Ministry upon this effort to encourage commercial aviation. If dwellers in cities are in the future to live in a perpetual snowstorm of fluttering leaflets the frightfulness of peace will be intensified. Doubtless there are hundreds of advertisers who would be glad to borrow machines from the Air Ministry in order to attract notice to Crimson Capsules for Colourless Cripples, Lilac Lotions for Languid Ladies, or similar popular panaceas for poorly people. But one does not desire that aeroplanes built at the cost of the public should be put to such uses. This is not the way to cause a commercial "boom," to use the expressive onomatopoetic word beloved by the advertisers of popular commodities.

The Postmaster-General v. Aerial Posts.

As reported in these pages last week, the Postmaster-General was asked in Parliament recently if any arrangements had been made for the provision of aerial posts in this country. Mr. Illingworth replied in the negative, and said :—"As soon as airmen can find London in a fog and land in a fog it will be practicable, but at present it is quite impossible, because the efficiency is only about 60 per cent."

A more futile remark has rarely been made. Are we to wait till the Continent has developed a highly organised system of aerial posts before we even commence to experiment seriously? What in the name of Big Ben is meant by efficiency of only about 60 per cent.? If time is the factor to be considered the efficiency is 200 per cent., or more.

Does Mr. Illingworth think that all the public expect of him is to allow his subordinates to carry on the organisation his predecessors have built up while he puts up a verbal barrage to hold in check those who wish to break through official apathy? Would Mr. Illingworth have waited for other countries to develop the telegraph before he was convinced of its efficiency compared with train-borne mails?

The Sleaford Fatality.

Sec. Lieut. Trevor Walter Chater, R.A.F., who, while flying on March 18th, 1919, near Sleaford, killed two convalescent officers, Capt. Dunn and Sec. Lieut. Pegg, who were driving to a meet of the Belvoir Hounds, was brought up at Sleaford Police Court on April 17th on a charge of manslaughter. He was remanded for a week on bail. The Coroner's inquest in this case had returned a verdict of "Accidental Death." The present proceedings are instituted under instructions from the Director of Public Prosecutions.



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The WORLD of AERONAUTICS (continued)

The R.A.F. Club.

The trustees of the R.A.F. Club have bought the premises of the Lyceum Club, Piccadilly. The R.A.F. Club, it is stated, will take over the premises at the end of May. The Lyceum is one of the best-known clubs for women.

The Death of M. Vedrines.

On April 21st, M. Jules Védrines, the French aviator, was killed while flying in the department of Drome. M. Védrines had started at 6.30 a.m. to fly to Rome. It is believed that the machine he was flying collapsed in the air. His mechanic, Guillain, who was flying with him, was also killed.

An Accident at Andover.

Three officers and two N.C.O.s—of the Royal Air Force—were killed in an accident to a night-flying Handley Page machine at Andover, Hampshire, on April 21st.

The names of the five killed are:—Major Thomas Archibald Batchelor (pilot), aged 33; Captain William Reginald Atkins; Lieut. Arthur Barlow Whiteside, aged 26; Flight-Sergeant Horace Henry Heales, aged 38; Corporal E. G. Ward.

The machine went up from the aerodrome at 2 a.m. to carry out a course of night training under war conditions. The night was fine and windless, but the ground was at times obscured by a mist.

While about to land, the pilot apparently lost his bearing, flew straight into the shed at a speed of at least 60 miles an hour. The machine overturned, caught fire, and also set the shed alight.

Major Batchelor was one of the most efficient and skilful pilots of the bombing wing at Dunkirk. He specialised on the bombing of Zeebrugge, and was wounded in an attack just before the Naval raid on that port. By his death the R.A.F. has lost a very valuable and gallant officer.

A Fanfare.

Blowing one's own trumpet is a poor sport, but when a fellow soldier in arms blares a fanfare in one's honour one may feel a glow of satisfaction.

Here are the opening bars played recently by the "Scientific American":—

"When the war started, Great Britain sent 66 airplanes to France. No one knew, then, what airplanes were to be in the war, still less that they were to be the deciding factor. At the same time France had about 140 machines in the air, but they accompanied a much larger army than Great Britain's first 150,000 expeditionary force.

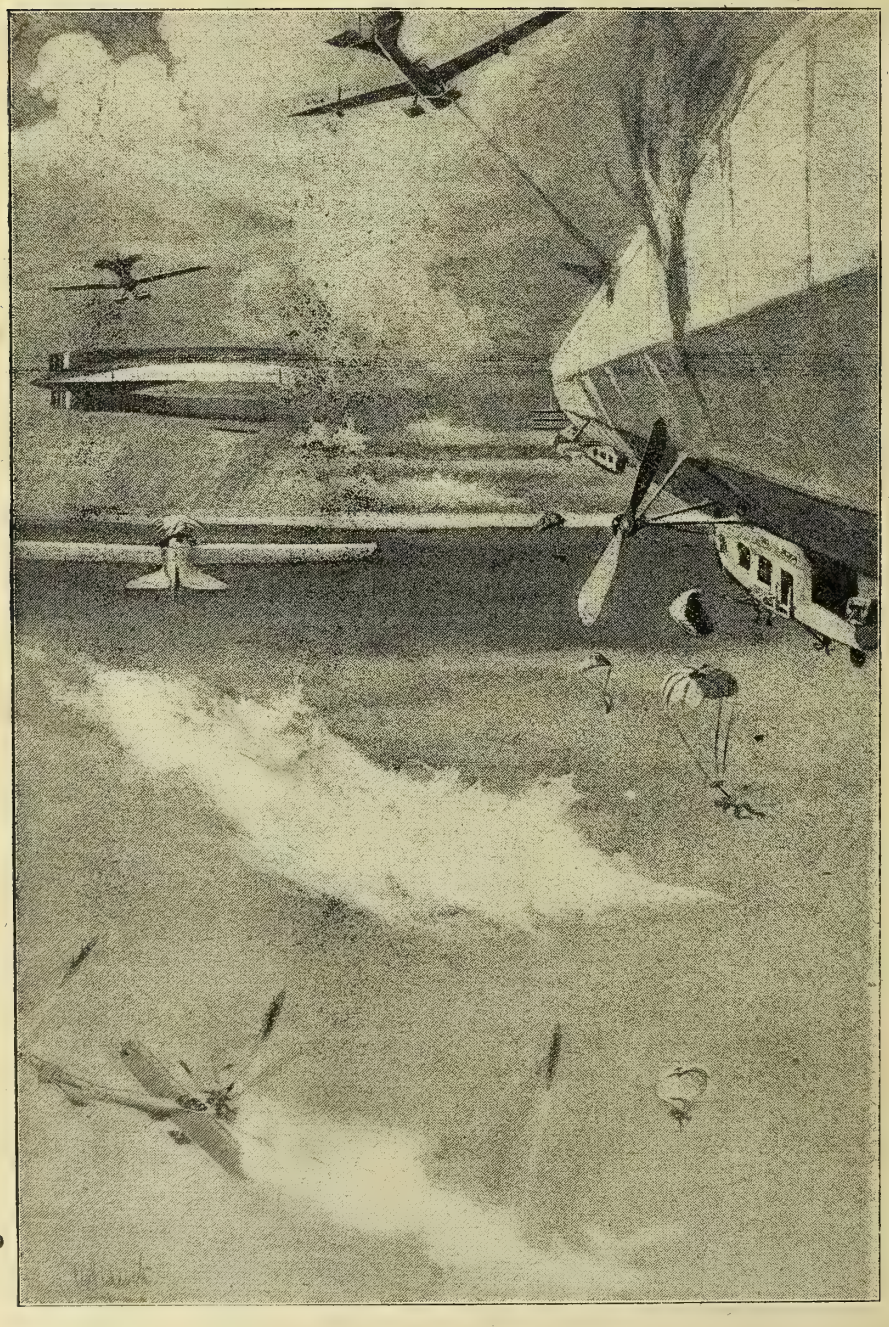
"When the United States came into the war, we promised, rather too rashly, to produce some 20,000 planes, perhaps in a year, but certainly within two years.

"We didn't do it. Great Britain made no promises, but what she did, though apparently little known, is far more than we promised to do.

"At the beginning of the war Great Britain's capacity for manufacturing airplanes was not greater than 100 per year. At the time the armistice was signed she was turning out planes at the rate of 800 a week! In other words, her production possibilities were demonstrated to be in excess of 40,000 planes a year! Think of that, and remember that it is not America, with her limitless resources of men and money and factory and raw material but the British Isles with their very much limited man-power, material resource and steel industry, which not only built the planes but engined them.

"And, then, as do all other fair-minded Americans who get the actual facts, take off your hat and bow in deep respect to a nation we of America are rather too apt to consider slow and old-fashioned in methods when it comes to factory production."

For those few kind words one thanks one's contemporary in the name of all readers. Our countrymen, thank God! are more fond of self-criticism than self-congratulations. Perhaps it is because we find fault with ourselves and are more apt to belittle than to magnify our efforts that we sometimes do rather well.



A PROPHECY.—This Picture was produced in 1912, by a draughtsman at Vickers, Ltd., Mr. C. W. Pidcock. The prophetic value of the effort is now evident. The parachutes are particularly noteworthy.

No. 34 Squadron Dinner.

A dinner has been arranged for May 7th, 1919, in London. All past and present Officers who desire to attend should communicate with Lieut. R. H. Luxton, R.A.F., No. 50, T.S., Ford Junction, Sussex, enclosing cheque for £2. Evening dress or uniform optional.

To 43 Squadron R.F.C

It is proposed to hold a dinner in London one day during May to which all present and past members of the above squadron are invited. Those who wish to attend are requested to communicate by letter with Captain L. Geach, 40, Sackville Street, Piccadilly, London, W.1, on or before April 30th, 1919

The Chronicles of 55

This book will be ready shortly. There is still a limited number of copies available for ex-members and others interested. The price is 10s.; any profits will be handed to a R.A.F. charity. Subscribers should send their permanent addresses and cheques (crossed Holt and Co.) to:—Capt. L. Miller, H.Q., R.A.F., France.

Flying at Madrid.

Major de Havilland, R.A.F., made several flights over Madrid on April 14th. It is stated by Reuter that he was proceeding to Seville on April 16th.


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The WORLD of AERONAUTICS (continued)

An Argentine Mission to Europe.

On May 5th there will arrive in England an Argentine Aviation Mission composed of Captains Brihuega and Zuluaga and Engineer Paravella. The mission has the intention of visiting the most important flying schools and factories.

European Missions to the Argentine.

Major Scott of the Gosport School of Instructors is now in Buenos Aires giving brilliant exhibitions with an Avro machine with great success. It is undoubtedly the best form of propaganda to send a machine in charge of a capable pilot, to give practical demonstrations over there.

The Mission sent by the Italian Government, with a view of propaganda, has arrived and has been received with great enthusiasm.

The French Government, following the example of the Italian, is ready to send a Mission with fifteen of the most modern machines, including two "Glisséurs," for the navigation of the Parana River between Buenos Aires and Asuncion.

Long-Distance Flying.

Two Handley Page aeroplanes in charge of Major Smitty, with Capt. Stewart and Capt. Snook as pilots, left Andover, Hants, on the morning of April 19th. They arrived at Edinburgh the same afternoon, and crossed to Belfast on the following day, landing at Ardergrene Aerodrome. They left Belfast for Cornwall *viâ* Dublin on April 21st.

Civilian Flying at Easter.

The Victory Easter, as the daily Press agreed to term the very chilly holiday, was notable for a considerable amount of civilian flying. About 600 people made short flights at the Handley Page Aerodrome at Cricklewood, and to judge by their remarks to the reporters who waited to interview the heros and heroines the majority appear to have found the experience less exciting than they expected. Possibly more were pleased than disappointed by the lack of thrills.

A charge of two guineas was made for a flight of about 15 minutes' duration, so it would appear that the provision of joy-rides to the public can be made profitable when large machines capable of carrying a number of passengers are employed.

The amount of free advertising given by the public Press should have the effect of causing many thousands of people to desire flights, and doubtless the possible thrill of being interviewed afterwards by real reporters should be an added attraction.

At Hamble there were many flights in Avro machines. Lieut.-Col. G. L. P. Henderson, M.C., gave beautiful exhibitions of skilful flying, and Mr. Hammersley and other pilots gave joy-flights to a large number of passengers. £1 per flight was charged, and this reasonable sum included the omnibus fare to and from Southampton. Two shillings and sixpence was charged for the omnibus fare without the flight

Before the holiday it was announced that passenger flights would be given in an airship at the Bedford Airship Works and in Short seaplanes at the Rochester Seaplane Works, but up to the time of going to press no information is to hand.

Colonial Cadets.

To the Editor of THE AEROPLANE.

Sir,—I think that the English public should know the real facts of the double-dealing Air Force Cadets are receiving

On this station there are still over thirty of us—all Canadians—with an average of three years' service before we transferred to the R.A.F.

So far as getting home is concerned we have almost given up all hope, but we do not like to see second lieutenants (who to dodge conscription in Canada last year ran to the R.A.F. as a last hope) getting home a few weeks after their repatriation papers were put in, while ours take months. They were commissioned at the Armament School, while all we receive is a bunch of promises that never materialise.

If the Air Ministry mean anything by their promises it is nearly time they showed something. It is all very well to promise commissions and kit allowance, but what good is it to us a year after we are back in "civvy" life?

Our case here is, by all accounts, not so bad as Blandford, but what do people think of Flight-Cadets, supposed anyway to rank as warrant officers, polishing "Pyrenes" while a bunch of air mechanics stand around laughing and the "1918 volunteers" go back home. And generally when there is any dirty work to be done we are used as airmen, but if, by chance, any money can be squeezed from us we rank as probationary officers.

I am sure if the public knew how we are putting in the time, at their expense, something would be done.

All of us have been away from home for three or four years and some have had over two years in France. Previously we had a good opinion of English ideas and institutions, but I never can say a good word for the R.A.F.

There never has been a promise made to us that has been kept and we are all sorry we ever transferred.

A DISGUSTED COLONIAL.

A British Entry in France.

News is to hand that the British Aerial Transport Company of London have entered a machine for the £12,000 contest to be organised by the "Echo de Paris."

Low and Show Flying.

The following interesting letter has been received:—

The incident of two Army officers being killed by an aeroplane while they were driving in a trap recalls experiences of low show flying on the island of Sheppey where I was engaged on aerodrome work during the war.

There was a small hill surmounted by a clump of trees opposite the house where we stayed. From the flying ground, a mile away, pilots came to practise low flying, and it was a very wonderful spectacle, though at times nerve-racking to see the machines performing circles and "eights"; mounting up over the tops of the trees, disappearing behind them, then reappearing round the side of the hill with a roar in a kind of railless "switch-back"!

On a certain Sunday afternoon two of us were walking on an open space where there is a public footpath and watching the evolutions of a looper and fancy flier, when the pilot seemed to take it into his head to give the foot passengers a scare.

He descended at a terrific pace and, swooping down, almost skimmed the footpath for 50 or 100 yards of its length. How near the ground he came I cannot say, but so near that we and several others, including some soldiers, involuntarily lay flat down to allow him to pass over us, and were not a little relieved to find we had not been actually hit!

Such exploits may be thoroughly enjoyed by the pilot, and may provide good practice for him. The passenger, when he has one, may have an anxious time.

There was a certain pilot at one time who was particularly daring, and on a bright, sunny day he took an Admiralty officer for a spin. It was the meal hour and we were sitting out between the hangars which lined one side of the flying ground.

We saw the start and watched the machine mount at a high speed right up into the blue and disappear over the top of a bulb of white, billowy cloud. He soon reappeared, swooping and turning, and then mounted till it was a competition amongst the onlookers as to who could still locate and point him out in the sunny blue. At last he was lost to sight of all and we sat down to await his reappearance.

After a short time we essayed again to see him and suddenly, as we were gaping up into the sky he (having dived without our knowledge) came from behind one of the hangars and went by us with a deafening roar, almost skimming the ground; then he mounted a little, swooped round and passed us again, so close that we flinched and gasped!

Later in the day I saw that Admiralty officer. His face was literally "as white as a sheet"!—W. B. SAYERS.

Class Names for Machines.

The following letter has been received:—

Sir,—In or about March, 1918, the Air Ministry, in conjunction with the S.B.A.C., formulated a scheme for the nomenclature of aircraft based on the practice of giving the nicknames to various types of machines obtaining amongst Service pilots.

All heavier-than-air craft were to be divided into two principal classes, land machines (including ships' aeroplanes) and seaplanes (including flying boats). Each main division was then to be sub-divided, the various sub-divisions being based upon the seating accommodation, weight, and number of engines in the machine.

Each sub-division or class received a class name, and all aircraft in any particular section were to be nicknamed in accordance with that class name. The following examples of the system may not be perfectly accurate, but will serve to indicate how the system was put into practical execution. Thus a land machine with a single engine and carrying one occupant must be named after a land bird (excluding birds of prey). As a practical example let us name the "Snipe."

Seaplanes of the same description were to be named after sea birds. Some of the other class names were fresh-water fishes, sea fish, inland towns in Great Britain, seaport towns of Great Britain, continental rivers, races and tribes, and attributes.

Although the class names were not perhaps always happily selected, the scheme was sound, as it enabled non-technical folk to grasp the salient points of the various machines on hearing the nicknames.

However, with the laxity distinguishing Air Force administration the result was that whilst certain types were correctly named, others were incorrectly named, and merely retained their designers' names with the addition of a distinguishing number.

The purpose of this letter is to suggest that the scheme might be applied to commercial aircraft. New machines are being turned out with great rapidity, and the multiplicity of varied types will naturally increase with time. Could a simple scheme be formulated by the S.B.A.C. and rigidly adhered to by the various manufacturers, the public would be enabled better to grasp the general features of any particular type, and the technical man whose head is even now overburdened with masses of data greatly assisted.

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PARIS NOTES

Paris, April 21st.

It is understood that there will be an Aero Show in Paris in December next—if, bien entendu, the Grand Palais is given up by the Military Authorities. There is a lot of opposition to their continued occupation, but it seems to make no difference.

However, it is probable that it will be arranged that the Motor Show will precede the Aero Show, so that it will be the automobile people's misfortune if the military are not dispossessed in time.

As usual, the Aero Show will be held under the auspices of the Chambre Syndicate de l'Aeronautique, the president of which is M. Robert Esnault Pelterie.

The Italian Aero Show.

Aero Shows are very much discussed just now. Most of the leading French Constructors are preparing to exhibit at the Italian show which will be held at Milan from May 18th to July 31st; as a matter of fact it is to be held on the military aerodrome at Taliedo under the auspices of the Lega Aera Nazionale.

A Technical Competition will be one of the features. This will be divided into two classes, one for small touring machines and the other for large commercial machines. Would-be exhibitors must send in their entries to the above-mentioned league accompanied by a deposit of ten lira. For the benefit of English firms who may like to exhibit, the following rates for stand space are given:—2-5 sq. metres, 50 lira the metre; 5-10 sq. metres, 30 lira the metre; 10-20 sq. metres, 25 lira the metre; 20-50 sq. metres, 20 lira the metre; 50-100 sq. metres, 15 lira the metre; 100 and over sq. metres, 10 lira the metre.

Exhibits must be in place on May 10th, the insuring and decoration of stands is at the expense of exhibitors—any further information can be obtained from the Lega Aera Nazionale, 6, Via Signora, Milan.

Rome to Paris.

For some reason or other flights from Rome to Paris seem to possess an attraction or a utility not immediately apparent. On the 12th inst. Lieuts. Carabelli and Guera left Rome at 7 a.m. and landed at Montereau, 43 miles S.E. of Paris at 8.12 p.m. on the 13th inst. The return journey is to be made immediately. Lieut. Brenta and Srgt. Veroni, who left Istres at 9.30 a.m. on the 9th inst. and arrived at Rome at 2.30 p.m., five hours after, thus covering 1,000 kms. by passing by Istres, Marseilles, Toulon, Nice, Genoa, Rome. The unfortunate sequel to Lieut. Roget's attempt to break the Paris-Rome-Paris record was mentioned last week.

New Aerogares.

There is to be an aerogare at Poitiers; Capt. Balignant has arrived there to select the best terrain.

An aeroplane service between Paris and Cabourg on the Normanly coast is being organised for the summer season. The Cabourg racecourse is to be converted into an aerodrome. The machines carrying 14 passengers are likely to be of the Goliath series, and will perform the journey in less than three hours. Flying trips along the coast will also be arranged.

A Universal Custom.

In accordance with universal custom over here the Club for Military Pioneer Aviators has decided not to charge its members any subscription fee during the whole period of the war.

Official Information.

"L'Auto" tells a piquant story. Requiring some information, they rang up the Under Secretary for Aviation, and the following conversation ensued:—

"Can you give me the 'phone number of the Service des Fabrications Aeronautiques, s.v.p.?"

"Passy 13.50, Monsieur."

"Many thanks."

"L'Auto" rings up Passy 13.50.

"Is that the Service des Fabrications de l'Aeronautique?"

"Mais, non, Monsieur; it removed from here on Feb. 15th."

Yet the Under Secretary's own office did not know!

American Aviation in Paris.

On the 11th there landed from all points of the sky over 100 machines from American Squadrons. Several of them had been captured from the Germans. The pilots and observers of these machines were present on the 12th inst. at the Opéra Comique, where they were presented with Squadron Pennants, embroidered by Frenchwomen. On the 13th inst. these aviators gave exhibitions of stunt flying.

Pilots' Pay.

I was told the other day that Farman is paying his regular pilots, such as Boussotrot, at the rate of five thousand francs a month. I am reminded of this by the news just published that pilots and mechanics engaged on ferry piloting or similar work under State arrangements receive for each journey of 10-30 km., 2 frs. 50 cs.; 30-150 km., 5 fcs.; 150-300 km., 10 fcs.; 300-500 km., 15 frs.; 500 and over, 20 frs.

On the total of voyages made in a month, counting from the 1st to 30th and 31st, 5 cs. for each kilometre after the first thousand, and 10 cs. for each km. over 2,000.

A Central Aerodrome.

At last it seems possible that the demolishment of the old "fortifs" of Paris will be commenced, and, apropos, there is a proposition on foot to reserve a certain part of the liberated space as an aerogare—if the suggestion ever becomes a fait accompli Paris will certainly be able to boast of the most central aerodrome.

Frenchwomen Who Fly.

Mlle. Jane Hervieu is to resume flying with a view to taking up passengers during the summer season.

Mlles. Madeleine and Helen Victor-Duroy have hit upon the novel distraction of taking a weekly joy-ride. Possibly this practice will become fashionable with people of means. Last week their jaunt was over the Seine Valley on a Farman F.45 triplane. They and their mother are visiting Brussels on the Goliath next trip.

A Presentation.

In the presence of an enormous crowd the French aviators left Lausanne on the afternoon of the 10th. Capt. Lavergne was presented with a souvenir cup.

A Good Flight.

From Brussels comes the news that a Belgian military machine, twin-motor, piloted by Lt. Georges, with two passengers, completed, on the 9th inst., a trip Brussels-London-Paris-Brussels in seven and a half hours' total flying time.

Pilot to a Royal House.

Crombez, who is the pilot to the Royal House of Belgium, occasionally takes the Queen, and at other times the King, for a trip in the air. The other day at Her Majesty's request he gave the Queen the thrill of a spin. On landing the Queen said to Crombez: "The King will be so jealous because he has not yet had a 'spin'!!!"

The Ace of Aces.

The Belgian Ace of Aces, Capt. Willie Coppens, who has been under treatment in Paris after having had his leg amputated, has returned to his home in Brussels.

To people who commiserated with him he is reported to reply: "Yes, I certainly have lost my leg, but I've got a lovely collection of ribbons; that's one good thing." The story has more point when it is explained that he has been the recipient of the Legion d'Honneur, Order of Leopold, Order of the Crown of Italy, Military Cross, Serbian Eagle, Belgian Croix de Guerre, and French Croix de Guerre. He was hit for the first time a few weeks before the Armistice.—F. T. N.

Italian Notes.

The excitement of the week has been the announcement made even by the best quoted technical journals that the Fiat firm are entering one of their daughter-firm's machines for the cross-Atlantic flight—a S.I.A.9b, with improvements and a floating body. Presumably, it will be engined by the latest big Fiat. The names of Captain Guidi, R.E., and of Lieut. Brack-Papa are given as the pilots.

Dirigible Problems.

As straws sometimes indicate the wind's direction, it is notable that much attention is being paid to dirigible balloon problems by the official aero organs here. In the "Aeronauta," as merely one instance, Col. Crocco devotes himself with all his skill to the contemplation of the best attitude of a pilot when obliged to travel in the face of a stiff wind. He proves mathematically that it is desirable to travel as slowly as is consistent with safety on the score of economy in every direction.

The Veteran M.1.

M.1, that old veteran, has now got her smart two-floored cabin fixed up, and was in the air a few days back at Rome with 54 officers on board. Let us hope that they were not so invaluable to aero-navigation as the Commander-Major Leone and his assistant navigating officers. The total weight carried by the vessel was 4,000 kilograms.

Good Dividends.

If I have calculated correctly, the dividend paid by the Caproni business for last year is the very honest one of 3 per cent. That of the Macchi firm is nearly double this. By-the-bye, I am told tha the latter firm's flying boats may be given a new and distinctive name.

Probably a Fine Performance.

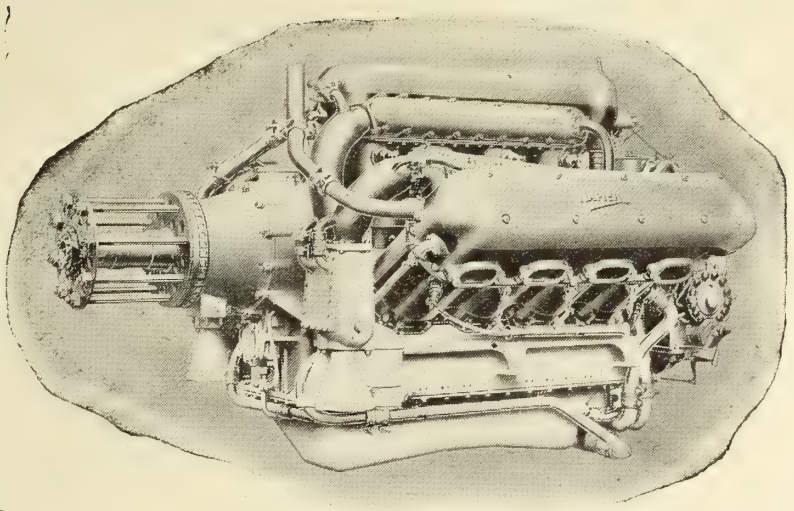
A flight of 1,000 kilometres in five hours has been reported in the papers, but I have not been able to verify the percentage of adulteration imported by them into what was probably a very fine performance, judging from the names of the man and the machine.—T. S. H.

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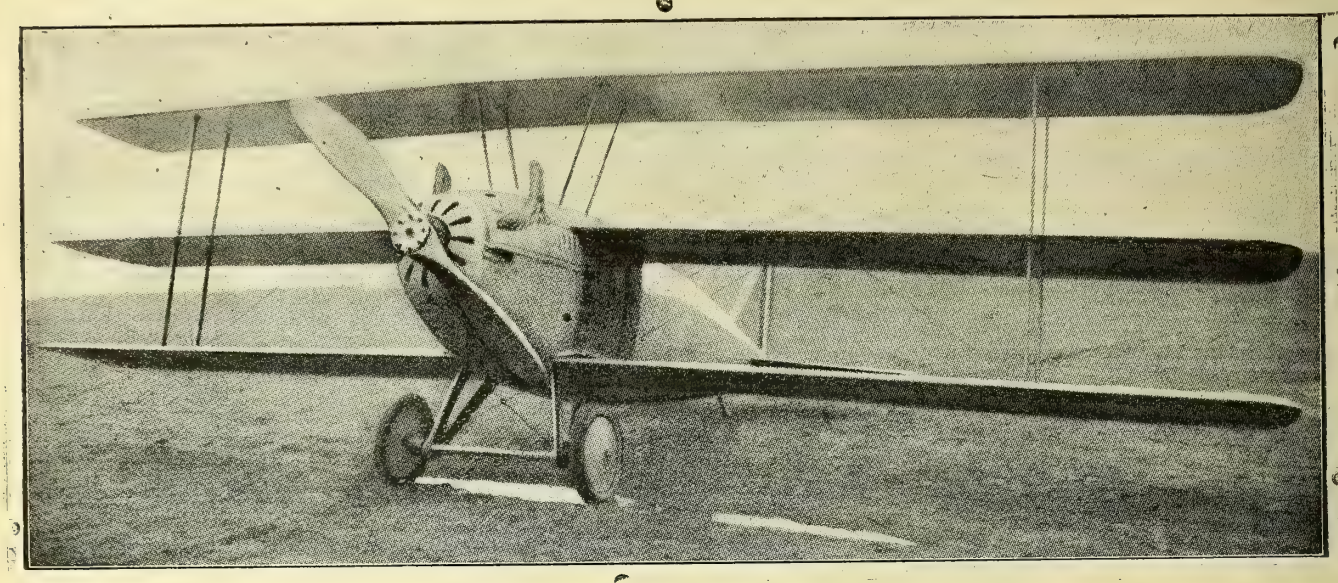
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THE NEW YORK AERO SHOW.—(*Continued.*)

By "Austerlitz."



The Curtiss Model K Triplane (Curtiss Engine).

The French used to say that every people has the government it deserves—which does not seem highly complimentary for the Russians and the Huns; and one might paraphrase this to read that every aero engine has the aeroplane it deserves. That is to say, the cleverest aeroplane design cannot overcome a dud engine, or one not adapted to the needs of the particular machine.

The Americans have given us some striking lessons in this respect. At the time when official Washington abandoned themselves to a war-dance—figuratively speaking—owing to the extraordinary things the Liberty engine was credited with being capable of doing, some expert had the happy thought of ordering the Bristol two-seater fighter and the Spad "rebuilt" to take the Liberty. The Spad never went beyond the initial stage, when the orders were revoked, for it suddenly dawned upon somebody that the 'bus could never fly; as to the Liberty-Bristol, it is said that after thirty-five of these had been built and twenty-two pilots paid the penalty of testing them with their lives, this order too was completed. Lack of a suitable engine was thus responsible for the fact that the U.S.A. had no single-seater fighter of original design in the Great War, and it was only when the 300-h.p. Hispano-Suiza entered the production stage that American designers were able to produce fighting scouts to their own ideas. The Thomas-Morse, previously mentioned, is an illustration of this case.

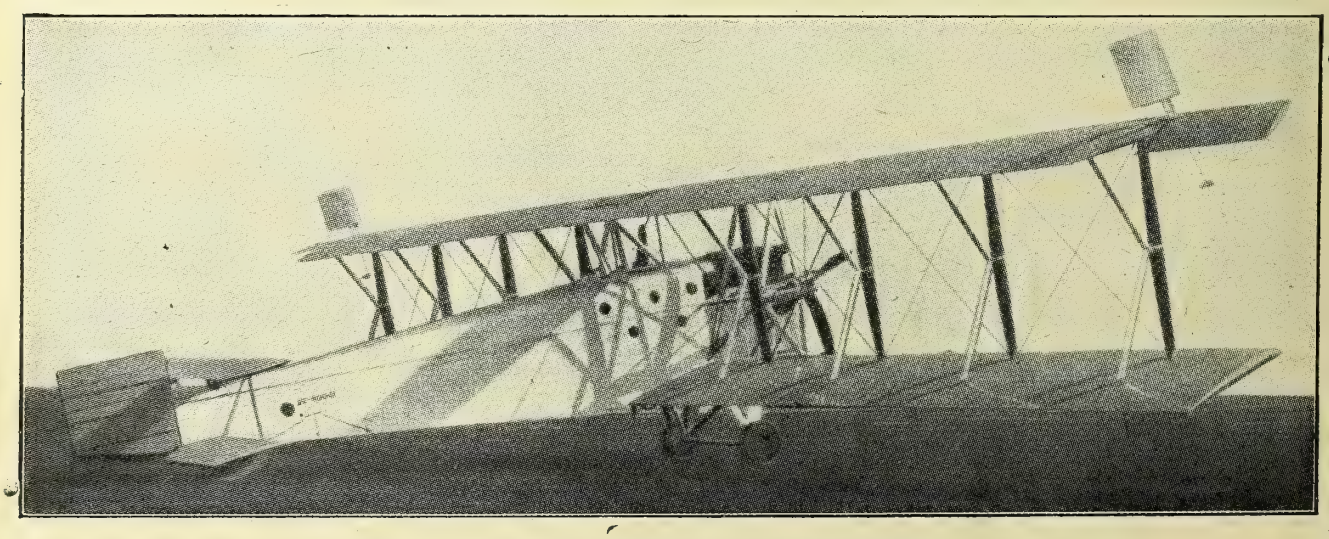
Two-seater fighters were not so much handicapped by the engine problem; the Liberty was fairly successful in making a tolerably good job of the American DeH4A, and since the 300-h.p. Hispano and the new 12-cyl. 400-h.p. Curtiss have been put on the market, American "airplane" constructors have developed some excellent two-seater fighters of original design.

Among these the Loening monoplane, with a 300-h.p. Hispano, is probably the most striking in appearance and performance. This machine has a gross weight of 2,368 lb. and a useful load of 1,328 lb. for a wing area of 239 sq. ft., which gives a wing loading of 10 lb. per sq. ft. and a power loading of 7 lb. per h.p. The wing loading would seem rather high, though it should be remembered that monoplanes are always loaded more heavily than biplanes; on the contrary, the power loading is very low, and accounts for the good climb of this machine, which has reached 20,000 ft. in 20 minutes. Owing to the clean lines of construction the horizontal speed is naturally great, 145 m.p.h., which is quite remarkable considering the useful load carried. The construction of the Loening mono is interesting, too, on account of the steel struts used for bracing the wings to the body, all wires being thus eliminated, with a great saving of head resistance, while the body is built up of longerons and three-ply bays which should make an immensely strong combination.

Another remarkable two-seater fighter is the Curtiss 18-B biplane, which carries a 400-h.p. Curtiss K-12 engine. The body represents probably the most perfect streamline which has yet been given to an aeroplane, so there is nothing astonishing in the claim that the machine will make 160 m.p.h., based on unofficial trials. It is proposed to convert this machine for sporting purposes into a three- and four-seater. With a useful load of 1,076 lb. the Curtiss 18-B has climbed 15,000 ft in 10 minutes, and should thus prove an excellent two-seater fighter, the more so as it carries two Marlin guns forward and two Lewises aft, on a gun ring.

The Curtiss Co. also exhibited a single-float seaplane built along similar lines, which is notable for its squat body. It carries a Liberty-12, and has been developed to answer the requirements of the Navy for a "fighting escort." A high speed of 132 m.p.h. and a climb of 8,500 ft. in 10 minutes is claimed for this machine, which carries a useful load of 1,000 lb. and weighs, fully loaded, 2,638 lb.

A two-seater fighter and daylight bomber which attracted considerable attention on account of its formidable armament was the L.W.F. model G-3. This machine mounts four synchronised Marlin machine guns forward and two Browning guns aft, one of the latter being fitted to a Scarff mount, while the other fires



The J. V. Martin Tractor Biplane (400 h.p. Liberty Engine).

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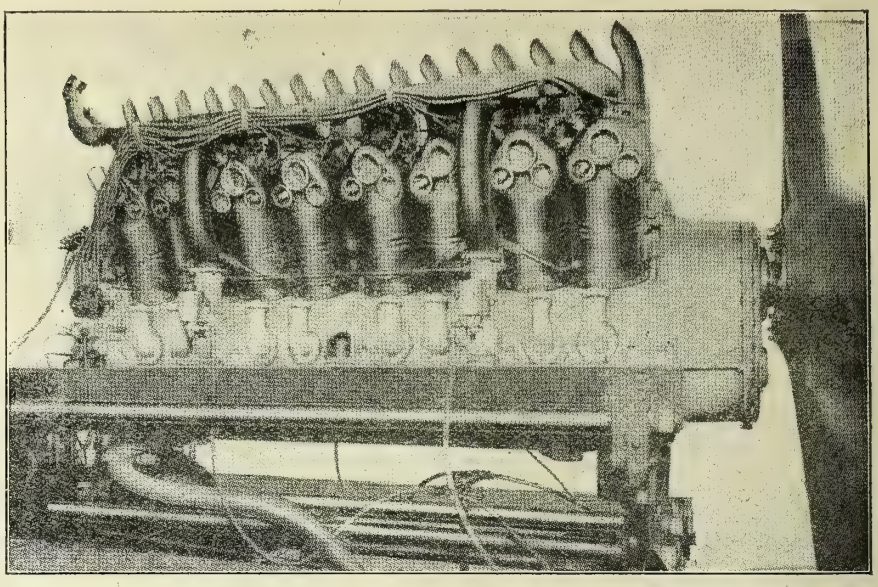
The British Aviators' Registry,

39, Upper Baker Street,
LONDON, N.W.1.

through a trap-door in the fuselage. As the L.W.F. is furthermore armoured around the cockpits, and carries four 120-lb. bombs, it should prove a formidable antagonist, particularly as a trench fighter. Its high speed is 131 m.p.h. and the climb is 10,000 ft in 15 minutes.

A 10-Passenger 'Bus.

Other military machines exhibited which are well known to the readers of The Aeroplane included a Spad, an SE-5A, a Curtiss JN-4, and a Handley Page, with two Liberty's—wherefore they do not require comment. Less well known abroad is the Martin twin-engine night bomber, with two Liberty's, four of which were purchased towards the close of the show by an aerial transport company of California, and will be converted into 10-passenger 'buses, with two pilos. The Martin has a high speed of 113 m.p.h., and carries about 4,000 lb. of useful load. It is very stable and yet easily manœuvred, and pilots who have flown it like it quite well. Constructionally it is a creditable job, though not particularly original in outlay, the influence of Handley Page being obvious.



The 850-900 h.p. Model H Duesenburg Aero-Engine.

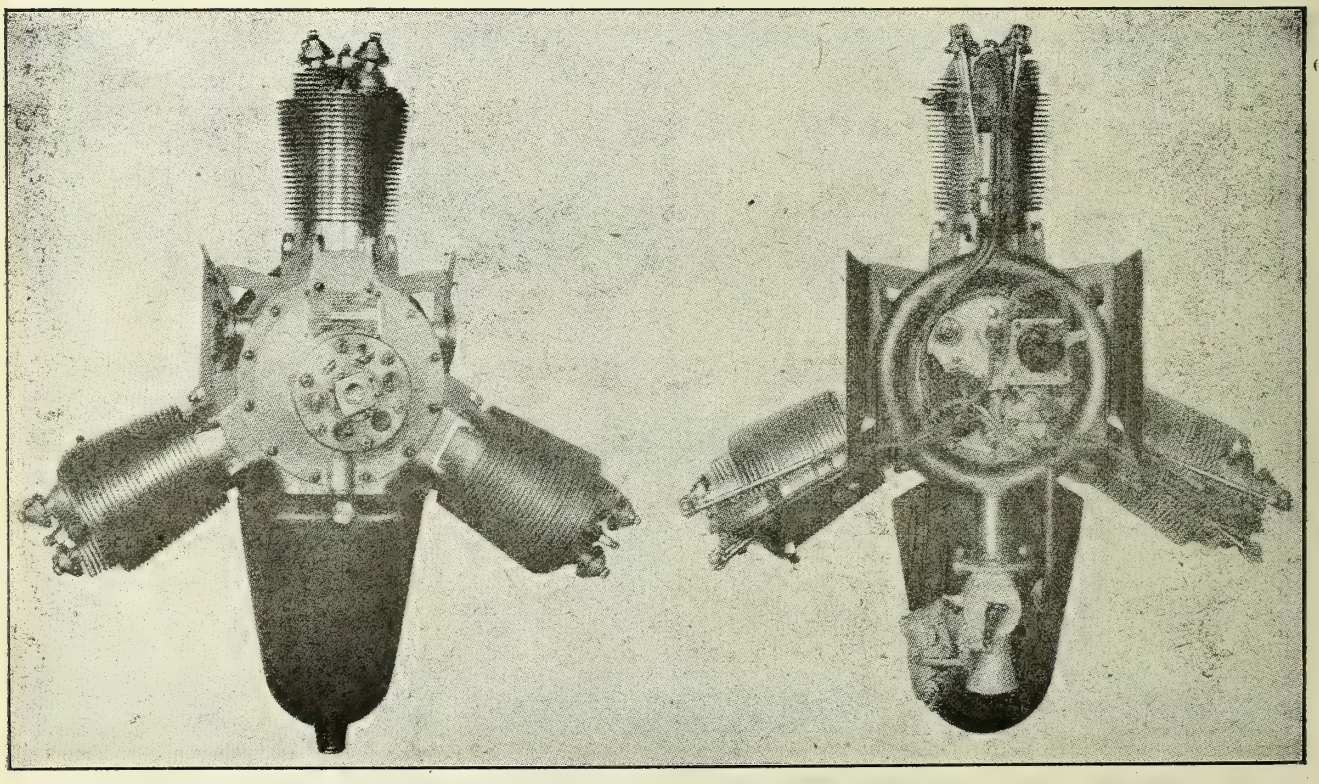
A two-seater of the advanced training type, which should make a splendid 'bus for red-blooded sportsmen, and was most beautifully finished, was the Vought VE-7bis. This has a 150-h.p. Hispano, a high speed of 116 m.p.h. and an all round excellent performance. It weighs, in full flying trim, 1,900 lb.

The Packard Automobile Co. exhibited a specially designed sportsman's model tractor biplane, which was built around their new 160-h.p. V-type 8-cyl. engine. This two-seater is, however, still in the experimental stage, so comment must be withheld for the time.

A Huge Flying Boat.

One of the most impressive machines of the show was an F-5-L flying-boat by the Naval Aircraft Factory, in Philadelphia. Its great size—102 ft. in span—was emphasised by the Loening "Kitten," which had been set up under one of its gigantic wings, and looked as if it could be carried comfortably on board the F-5-L.

This machine belongs to the large patrol class of the Navy, and is a development of the Curtiss H-12 and H-16 boats, which have been redesigned in detail by the Navy people with a view to increasing seaworthiness and offensive power. The boat was shown half stripped of its planking, as were the wings of their covering, so the public got an excellent opportunity for examining the craft at leisure. The construction of the F-5-L is throughout of the highest class and is really a monument to the engineering skill of the N.A.F. people, both as regards naval and aeronautic features. The armament is not the least interesting point about this boat, and consists of a non-recoil 2-in. Davis Q.F. gun, mounted on the bows, with a Lewis fitted on top—which is used for tracing the shots of the big fellow—and ten machine guns, mounted as follows: Aft of the Davis, but in the same cockpit, is a Scarff mount carrying twin Lewises, and another pair is carried on a gun-ring aft of the wings; inside the body, behind either board and partly under the wings, is a triple set of Lewises, which can be swung outboard through a watertight sliding door. With this arrangement it is claimed that there is no blind spot of any importance to this machine—and one readily believes this to be the case. Altogether, the F-5-L may be taken as an indication of how naval seaplanes will develop in the future towards aerial cruisers.



The Lawrence 60 h.p. Air-cooled Aero-Engine, an American effort which looks well.

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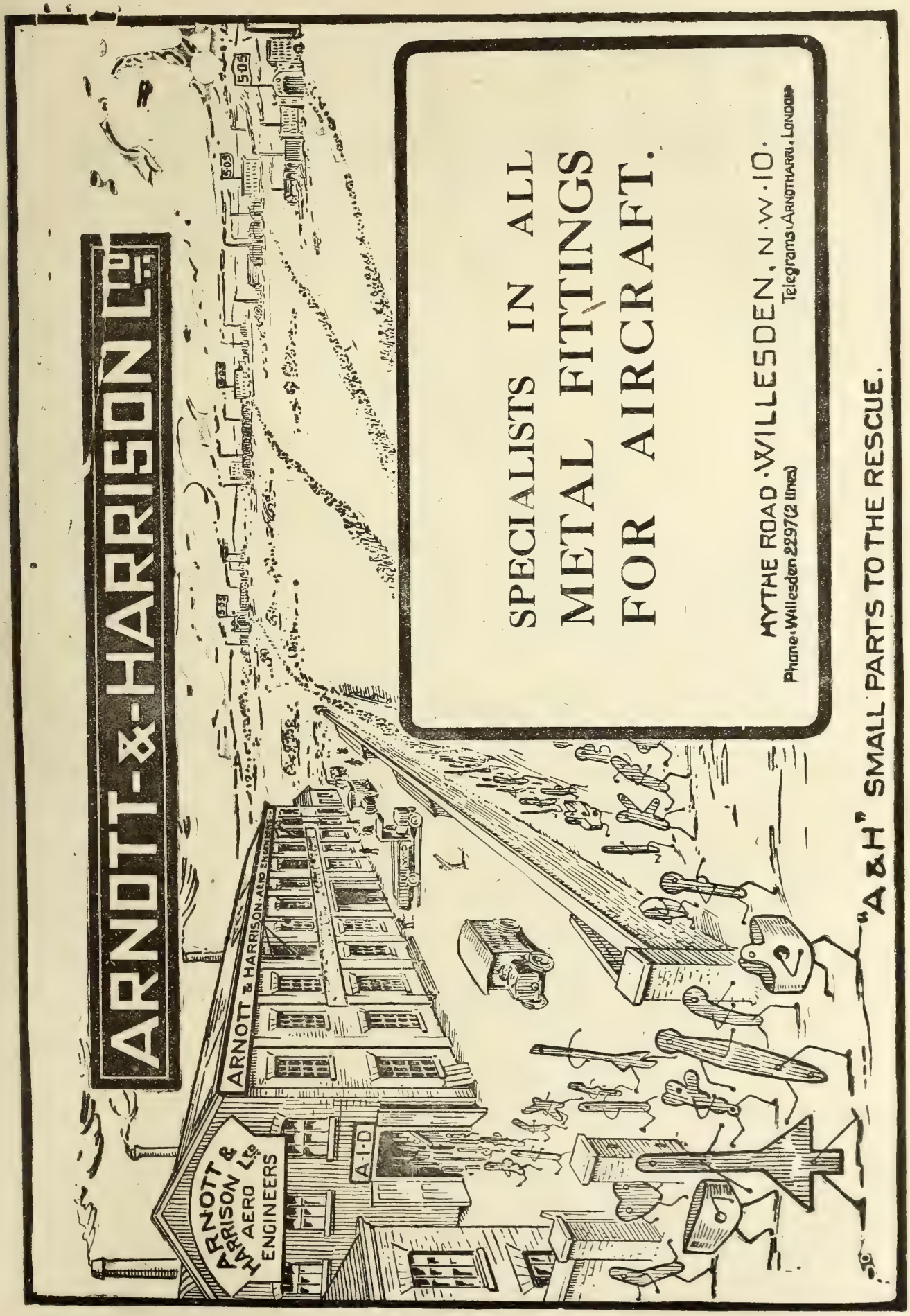
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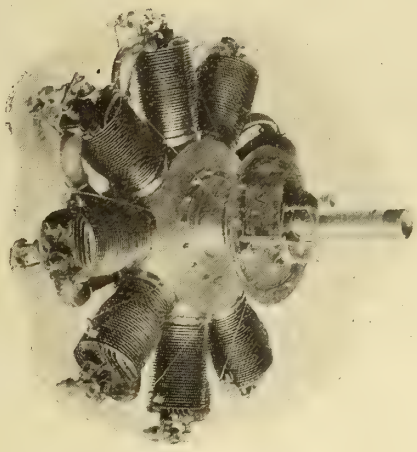
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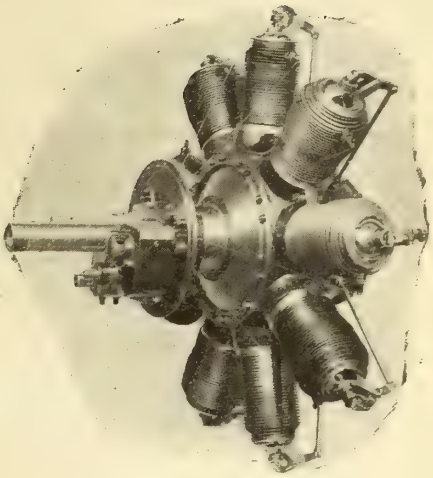
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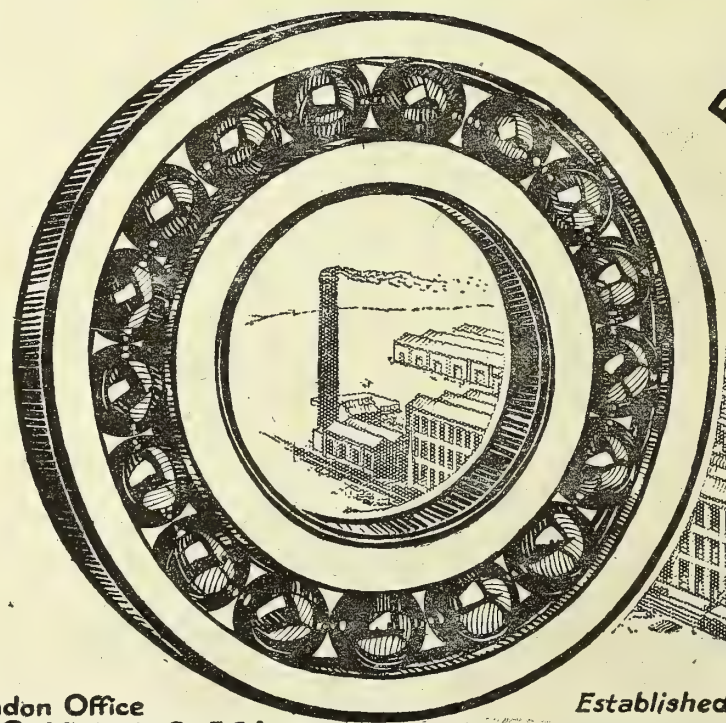
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THE WEEKLY COMMENTARY.

In this week's issue a series of articles describing the products of the world's aircraft manufacturers since August, 1914, is begun.

The first instalments deal with the firm of A. V. Roe and Company, and the series will deal firstly with the British aircraft manufacturers and their machines.

In the tenth instalment of the series on "The Design of Commercial Aircraft," Capt. Sayers discusses the design of a high-speed passenger-carrying machine, with particular reference to the effect upon its qualities of the nature of the load carried and the method of its distribution.

This machine will be compared with machines intended to carry the same total weight and designed for equal performance, but with loads of different types differently distributed.

An article descriptive of the development of the common or garden tap into the complicated petrol valve of to-day, and of the variety of purposes to which it has been adapted, will be found in this number.

COMMERCIAL AIRCRAFT DESIGN.—X.

HIGH-SPEED PASSENGER CARRIERS.

By Capt. W. H. Sayers, late R.A.F.

To give a more definite idea of the effects on design of the class of load which has to be carried, and of the way in which that load is distributed, it is proposed to consider the design of a series of machines, all of them intended for equal maximum loads, equal performances, but in which the nature of the load and the manner of its distribution is varied.

It is thought that the most graphic examples can be obtained with machines of such a size that it is a debatable point as to whether the normal centrally loaded single-engined type can be economically used, or whether a twin-engined machine with distributed weights will not serve the purpose better.

The standard which has been adopted for load and for performance has therefore been fixed at 1,200 lbs. of useful load, pilot, and 4 hours' full power fuel, at a maximum speed of at least 120 m.p.h. with a landing speed not exceeding 45 m.p.h.

Considering in the first place a passenger-carrying machine, 1,200 lbs. of useful load are equivalent to 8 passengers of 150 lbs. each, or to 6 passengers with 50 lbs. of luggage per head.

Few people will wish to make 400-mile journeys without taking some luggage, and the machine will therefore be designed to seat 6 passengers and 300 lbs. of luggage.

In the first instance an effort will be made to sketch out a design for a single-engined tractor machine to meet the case.

It is absolutely essential, if such a machine is to be successful, that it shall be of as small overall dimensions as possible, as otherwise the structure weight will become great, and it will demand a greater total horse-power than can be obtained in a single unit.

This points to the use of a heavy wing loading, but the landing-speed limits the extent to which this may be carried.

Using a high lift wing, and with a machine of the 1½ wing type, the loading may be raised to 11 lbs. per sq. ft. without exceeding the limit of 45 m.p.h. for landing.

With such a wing so loaded, the required top speed can be reached with from 12 to 14 lbs. per h.p.

Allowing for a standard of comfort not inferior to that provided in the stalls of the average West End theatre, the six passengers may be carried in a compartment 9 ft. long, 3 ft. wide, and 4 ft. 6 ins. high.

As both the passengers and the fuel must be carried as nearly as possible on the centre of gravity of the machine, the fuselage will have to be of greater cross section than the 3 ft. by 4 ft. 6 ins. required for the passengers.

The simplest arrangement is probably to place the fuel tanks beneath the floor of the passenger compartment and deepen the fuselage accordingly.

Making a first guess, one may estimate that an engine of round about 600 h.p. will be required.

It is here assumed that an engine of this output can be obtained, as it is known that such engines are in existence, though there are no records of extensive use of such high powers in actual flight.

Taking average fuel and oil consumption figures for modern engines, this calls for approximately 1,300 lbs. of fuel and oil for the specified duration of 4 hours. The required bulk is about 28 cubic feet, so that an addition of 1 ft. 6 ins. to the depth of the passenger compartment will leave ample room for fuel tanks in the required position.

This settles more or less definitely the maximum cross section of fuselage as about 6 ft. by 3 ft.

The engine weight, including water, will be about 1,500 lbs.; adding to this fuel (1,300 lbs.), useful load (1,200 lbs.), and pilot (150 lbs.), we have a total determined load of 4,150 lbs.

Taking 14 lbs. per h.p. as the extreme limit of loading compatible with the required performance, one finds that 8,400 lbs. is the maximum allowable total weight,

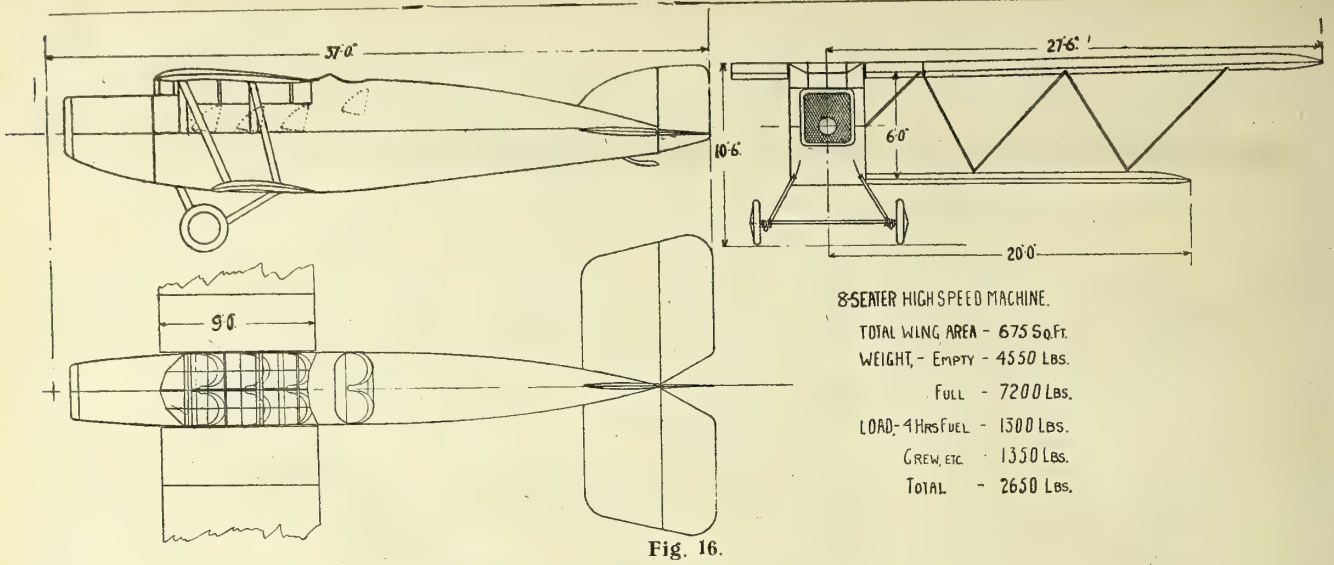


Fig. 16.

which at 11 lbs. per sq. ft. will give 765 sq. ft. as the maximum wing area which may have to be provided.

By a process of trial and error with slightly different dimensions, one arrives at the machine shown in Fig. 16.

The passenger saloon is directly beneath the centre section of the upper wing, the front end coinciding with the leading edge.

The centre of gravity of the full passenger load thus falls somewhat behind the position of the centre of gravity of the whole machine, which with full load is approximately midway between the two forward seats.

With four passengers seated two right ahead and two in the rear seats, or with two in either of the two front rows, there is only a very small change of the total C.G.

In accordance with a fashion which is just now very prevalent, the passenger compartment is shown disguised in the likeness of a hothouse, even to the closing in of the gap between the upper wings with a glazed roof.

Although at present it is doubtless a sound policy so to design machines intended for commercial passenger work that they may be readily diverted during their spare time to so profitable a use as the raising of out-of-season vegetables and fruit for the West End market, one feels that the popularity of this arrangement will wane rapidly after a few crashes in such machines.

Probably glass panelling in the front end of the compartment and one fair-sized glass panel on each side of each row of seats would satisfy the requirements of most passengers, when aerial passenger carrying becomes a real business and not a stunt. At present a substantial roof overhead does tend to give a feeling of security.

With seats as closely packed as in this case, a separate entry to each row is required. It would not be impossible to arrange for side entrance doors to each of the three rows, but it would need a rather heavy and complicated structure to maintain the strength of the fuselage across the openings. The simplest and lightest arrangement would be to enter, *via* a set of steps, the top plane, and through the roof.

The addition of one foot to the fuselage width would give room for a passage along the centre of the cabin, and a single side entrance could then be easily arranged to give access to all the seats. This would add rather a lot of head resistance and weight.

Also, the added width of body will restrict the pilot's view over the side when landing.

The pilot's cockpit has been placed behind the passenger cabin, high up in the fuselage, with a clear view over the top, and is not covered in. It may appear to be a preferable arrangement to seat him in the front of the passenger cabin. The objection to this is that it is impossible to see clearly through glass in a rain storm. If the panels are made to slide open for such occasions, the comfort of the passengers will be interfered with, and, more important still from the designer's standpoint, an opening of any size into so large a compartment will make a very big difference indeed in the total resistance.

The pilot's cockpit can be separately enclosed if desired, and fitted with sliding panels for use in rain or snow.

The fuselage would be built in the usual way, with four longerons and either struts and wire bracing or with diagonal (lattice girder) bracing. The upper longerons would be about halfway up the interplane gap, with all the seats above the longerons.

The passenger cabin and the pilot's cockpit would form a superstructure above the fuselage proper, with a light fairing behind the cockpit.

The wing structure shown in the sketch is of the wireless type. Where the lower wing is of considerably smaller span than the upper, and particularly where the lower chord is also small, this method of wing bracing has a considerable number of advantages, unless the machine is so small that a single row of struts on each side can be used. The arrangement is not, however, an essential feature of the design. There will be, for the same number of points of support, a saving in the weight of wing spars and a loss in the weight of bracings, as compared with struts and cross wiring, probably resulting altogether in a small gain. The total resistance will be little different in the two cases.

The "wireless" arrangement has the advantage that, as there are no lift wires to stretch with use, the wing cellule may be regarded as indeformable and not constantly liable to divergence from the truth.

With the main weights distributed over nearly 17 ft., a large tail area will be required to damp out longitudinal oscillations, and for its small overall dimensions this machine will be distinctly sluggish fore and aft.

In other respects the machine calls for no comment as to its general features.

The total estimated weight (7,200 lbs.) leaves no room for carelessness in detail design unless strength is to be sacrificed; but it should be possible to build the machine to that weight, provided that the engine weight does not exceed 1,500 lbs. (including water).

Allowing for the effect of the large area tail, it will be possible to land at 45 m.p.h. on a considerably greater total weight, and, since the estimated weight per horse-power is only 12, the top speed required will also leave a margin for some excess weight.

(To be continued.)

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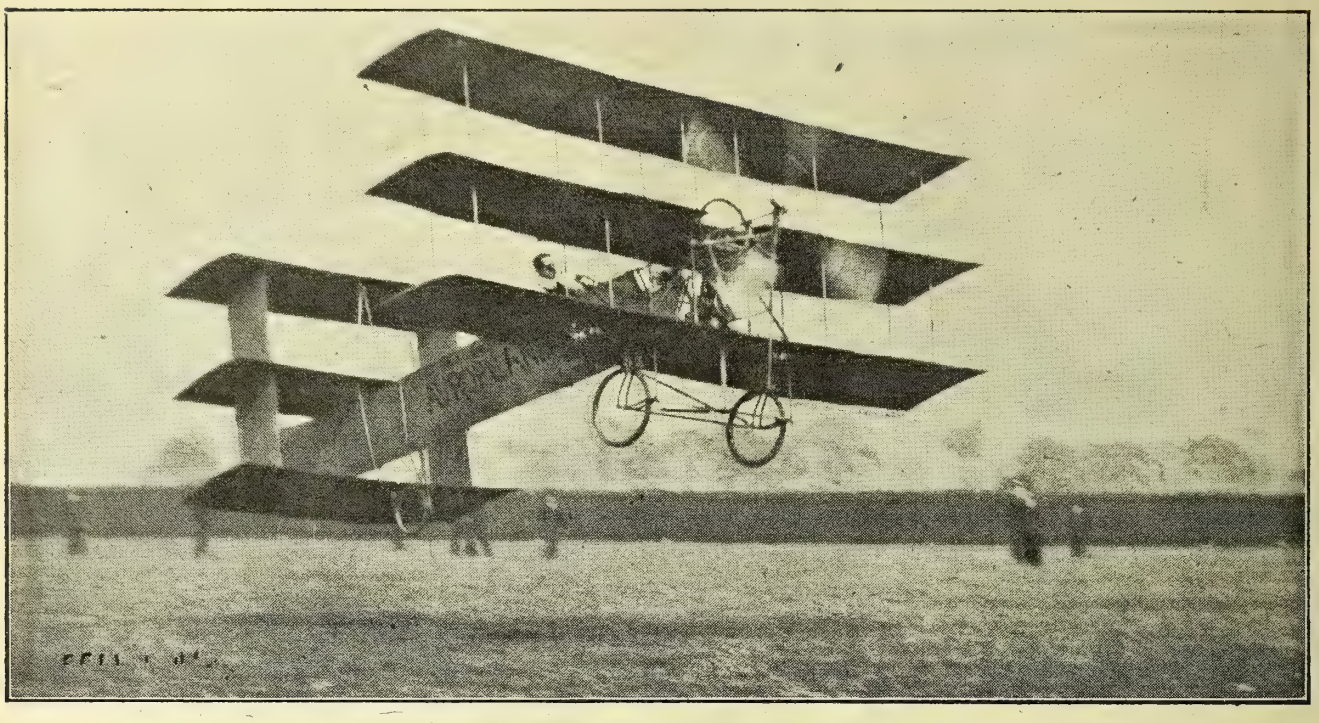
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Mr. A. V. Roe in the Air on the 9-h.p. Triplane—1909

The history of the "Avro" machines commences with the design in 1906 by Mr. A. V. Roe of a biplane, which by leaving the ground at Brooklands in July, 1908, was the first British aeroplane to fly. In 1909 Mr. Roe flew a triplane with a 9 h.p. J.A.P. engine at Lea Marshes. During 1910 Mr. Roe built two more triplanes, fitted with 30 h.p. J.A.P. and 35 h.p. Green engines, and flew them at Wembley and at Brooklands.

Early in the summer of 1911 an "Avro" biplane made its first flights at Brooklands, piloted by Mr. Howard Pixton.

From this biplane the development of the Avro machines is to be traced through a very pretty little machine with a 30 h.p. E.N.V. engine, built for Mr. Duigan, the first Australian aviator, an extremely efficient two-seater with a 60 h.p. E.N.V. engine, a series of 50 h.p. Gnôme-engined machines ordered by the War Office, which were actually the first aeroplanes designed and built by a British firm to be delivered to the British Army, to the totally enclosed biplane with the 60 h.p. Green engine which gave so good an account of itself in the British military trials at Salisbury Plain in 1912.

Early in 1913 the famous two-seater Avro with an 80 Gnôme engine made its appearance. This machine—unaltered in all its essential aerodynamic features and in its main dimensions—survives to this day as the Standard Avro training machine.

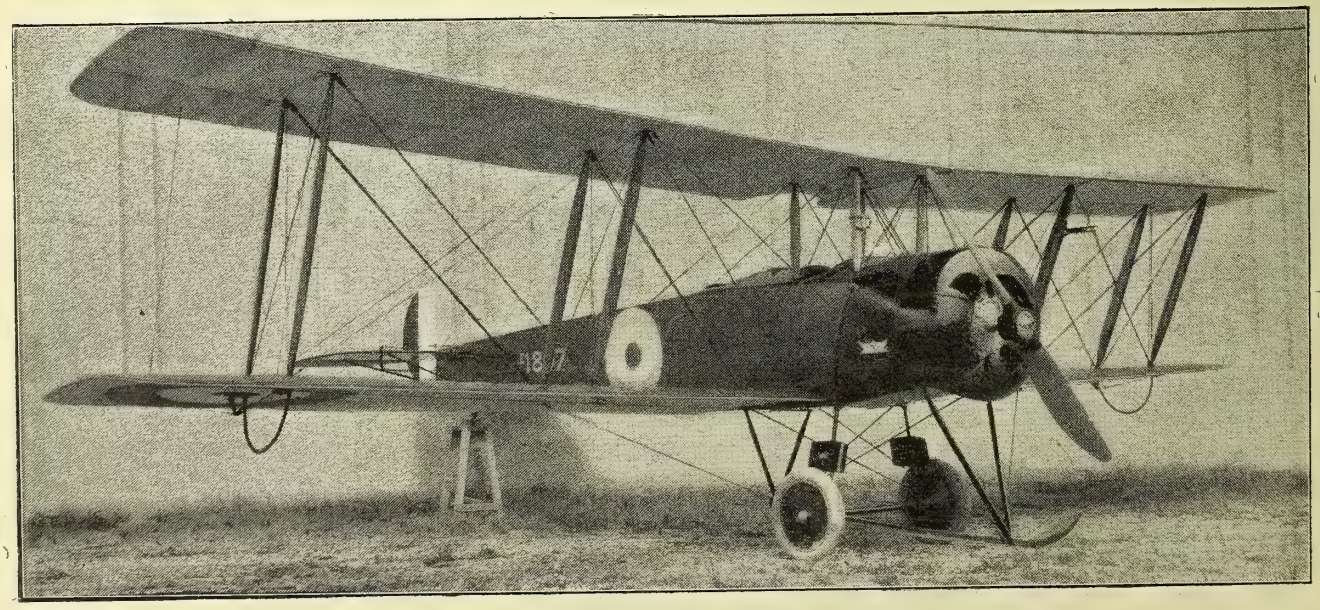
The Avro Standard Training Biplane.

By a process of detailed improvement, which has led to increased strength and greater simplicity, and by the adoption of standardised methods of manufacture, the 80 h.p. machine of 1913 has evolved into the Type 504 K, a machine admirably adapted for the methods of quantity production.

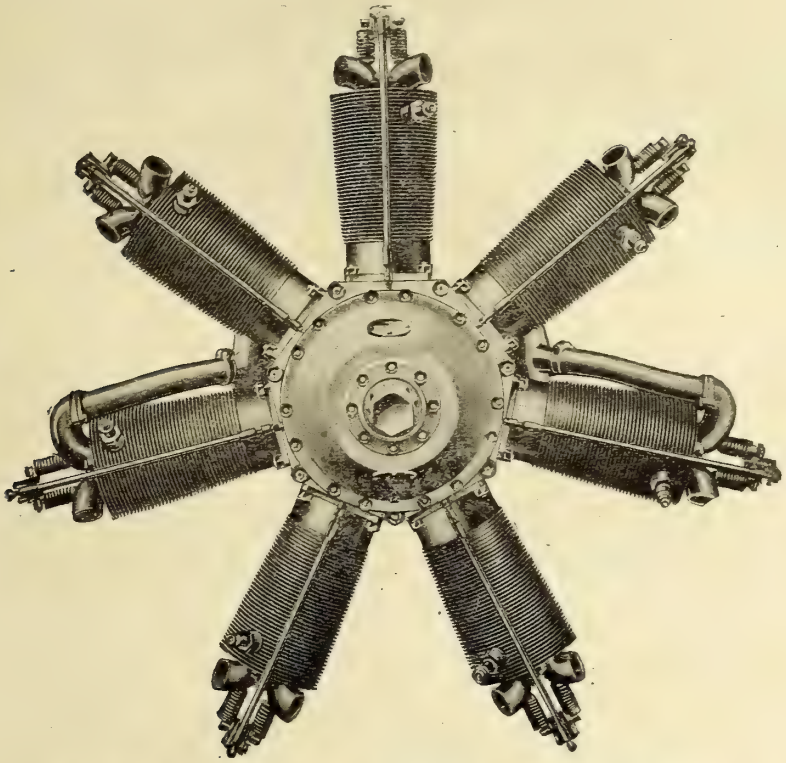
General Remarks.

This machine is specially suitable for the purpose of training pilots, and has been adopted as the Standard Training Machine by the Royal Air Force.

In the 504.K. Type the nose of the machine has been altered and the engine mounted overhung from the bearers. The machine will now take any of the existing rotary engines up to 150 h.p. This has been accomplished by suitably designing the engine



Three-quarter Front View of the Avro Standard Training Machine.



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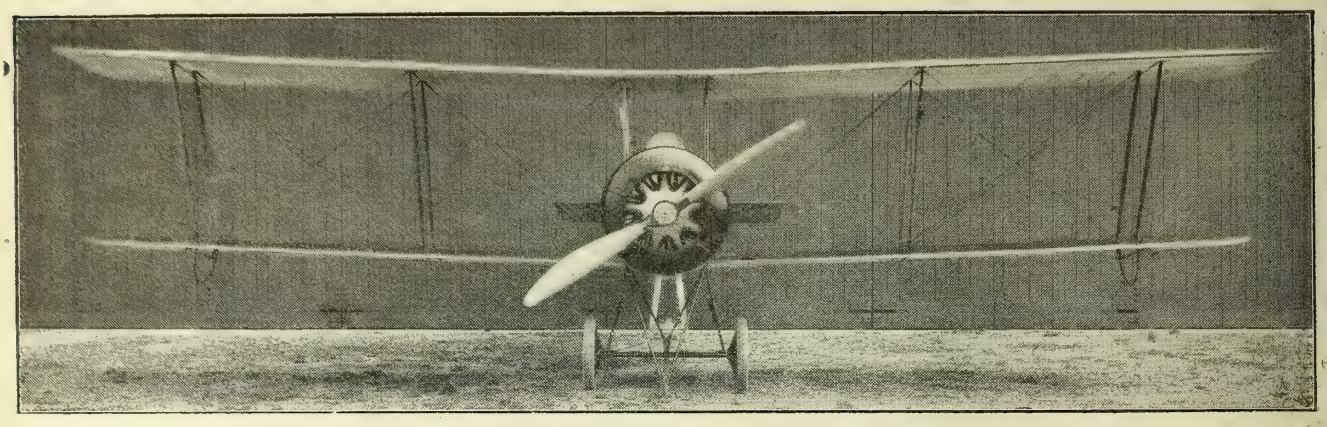
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Front View.—The Standard Avro Training Machine.

mounting and fitting adaptors to take the different engines. It will be seen that this is a great advantage from the engine supply point of view.

The machine retains its characteristics of simplicity, strength and controllability, and one of its chief advantages is the ease with which it can be repaired at School Workshops where interchangeable spares can be obtained readily.

SPECIFICATION.

The following tables give the main features of this machine :—

Type of Aeroplane .....2 Seater Biplane (Training Machine).
Aeroplane Specification....."Avro" Type 504K.
Engine .....100 Mono Gnôme, 110 Clerget, 110 Le Rhône, or 130 Clerget.
Revolutions of engine for stated b.h.p. .....1,250 r.p.m.

Maximum speed for the above horse-power and revolutions.

	m.p.h.
At ground level	95
At 8,000 feet	87
At 10,000 feet	85

Duration of flight at this speed.

	hrs.
At ground level	2
At 8,000 feet	2.14
At 10,000 feet	3

	m.p.h.
Minimum speed with full load near ground	40
Estimated speed at ¾-power at 8,000 feet	74
Estimated speed at ¾-power at 10,000 feet	71

	hrs.
Estimated duration at ¾-power at 8,000 ft.	3.7
Estimated duration at ¾-power at 10,000 ft.	4.25

Estimated climb with full load and with all fittings in position.

	mins.
To 3,500 feet	5
To 8,000 ft.	10
To 10,000 feet	16

Seating Accommodation—
Pilot, position ..... Level with trailing edge of lower wing.
Passenger's position ..... In front of pilot.

Airscrew—

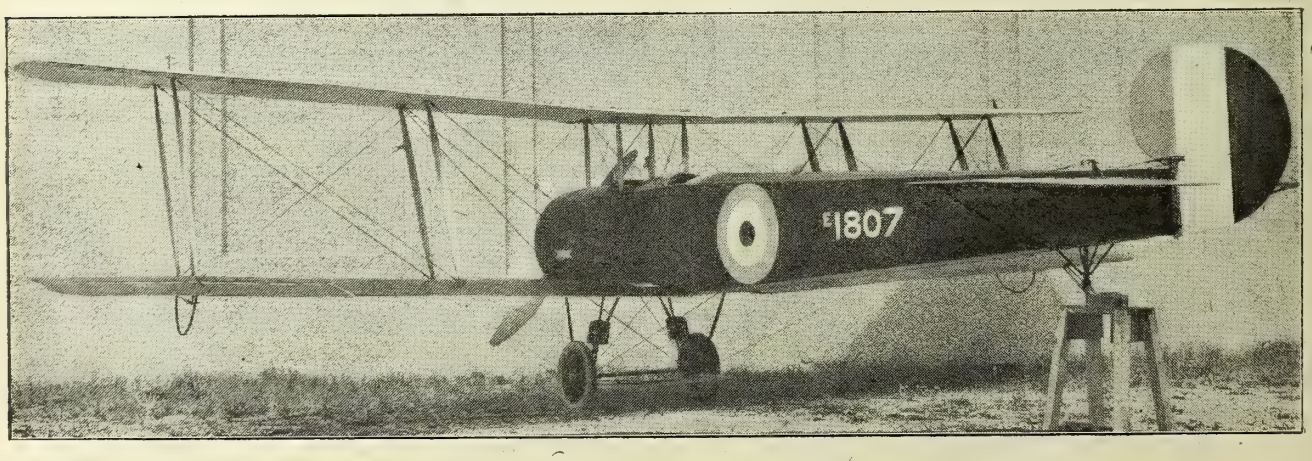
	ft.	ins.
Type ..... 2 bladed "Avro."		
Pitch (110 Le Rhône)	8	8
Diameter	9	0

OVERALL DIMENSIONS.

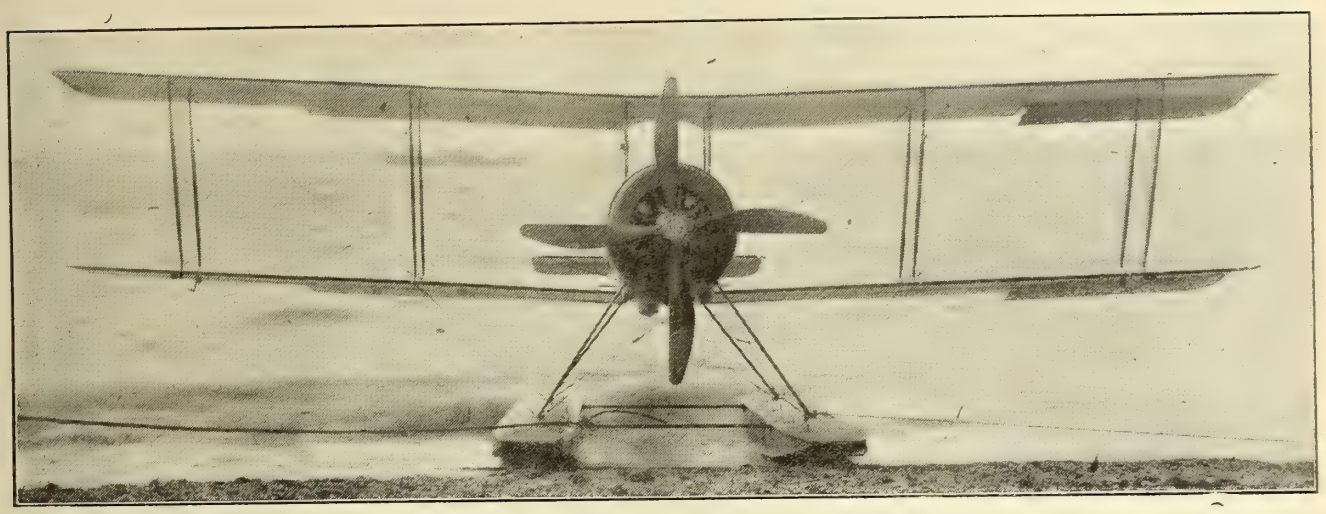
	ft.	ins.
Span of top wings	36	0
Span of lower wings	36	0
Span of tail plane	10	0
Height overall	10	5
Length overall	29	5
Chord top wing	4	9
Chord lower wing	4	9
Chord tail plane	2	8⅜
Chord elevator	2	4

DETAILS OF WEIGHT.

Component.	Weight in lbs.
Tail Unit—	
Tail plane with supports	21½
Elevators	12
Rudder with levers and wires	8½
Total	42
Main Lift Structure—	
Wings, with flaps and centre section	260½
Interplane struts	41
Interplane wires	24½
Total	326
Alighting Gear—	
Undercarriage with axle and skid	65
Main wheels 100 × 700	40
Wing skids	2
Tail skids	6
Total	113
Hull—	
Body and engine housing	270
Aeroplane control gear and wires	30



Three-quarter View from Rear.—The "Avro" Standard Training Machine.



The Avro Seaplane.—Front View.

Other details, flying instruments, lighting set, etc.	25
Total	325

Power Plant—	Centre.
Engine with magnetos (110 h.p. Le Rhône)	330
Airscrew, boss and bolts	41
Oil tanks, cooler and piping	15
Petrol tanks, piping and air pressure system	39
Total	425
Total weight of machine bare	1,231

Military Load—	
Crew of 2 at 180 lbs. each	360

Weight of Machine in Flying Trim.	
(a) Weight of machine bare	1,231
(b) Military load	360
(c) Petrol 25½ galls.	184
(d) Oil 6 galls.	54
Total	1,829

AREAS. Wings and Ailerons—	sq. ft.
Top	173
Second	157
Total	330

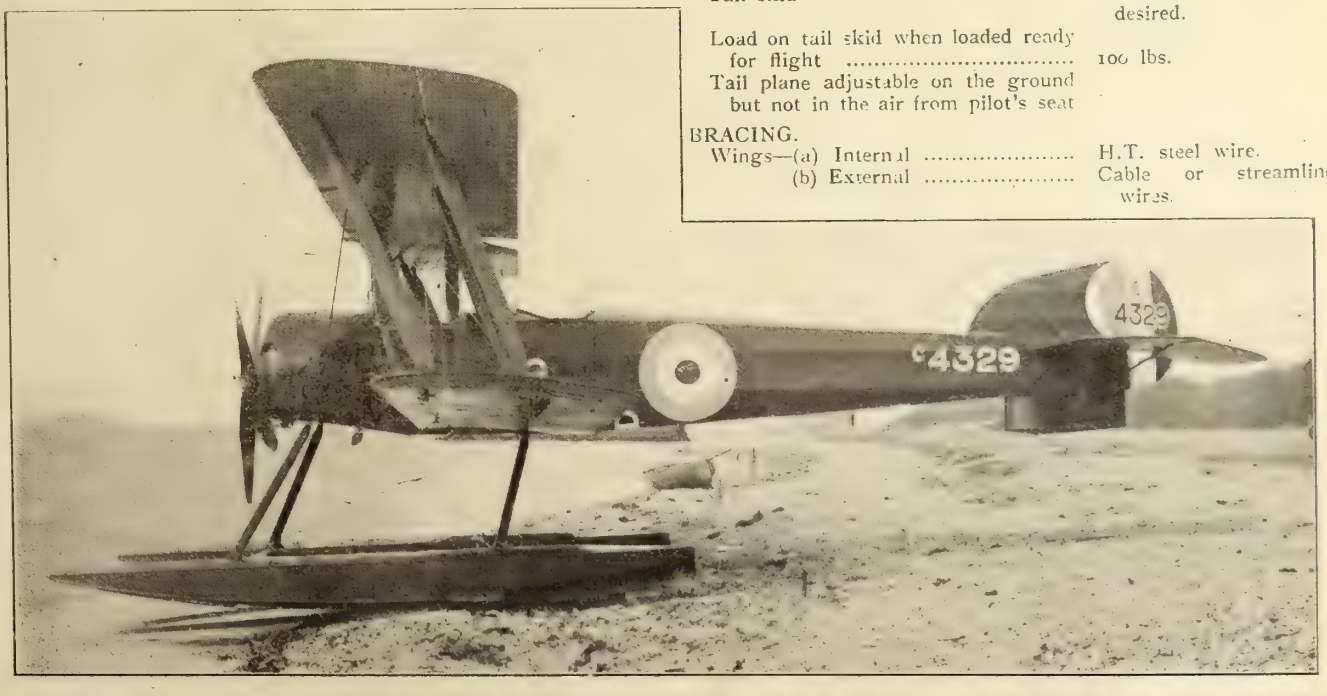
Wing Flaps—	
Top	22.7
Second	22.7
Total	45.4
Tail plane	26
Elevators	18
Rudder	9

Dihedral—	
Top wing	2½°
Second wing	2½°

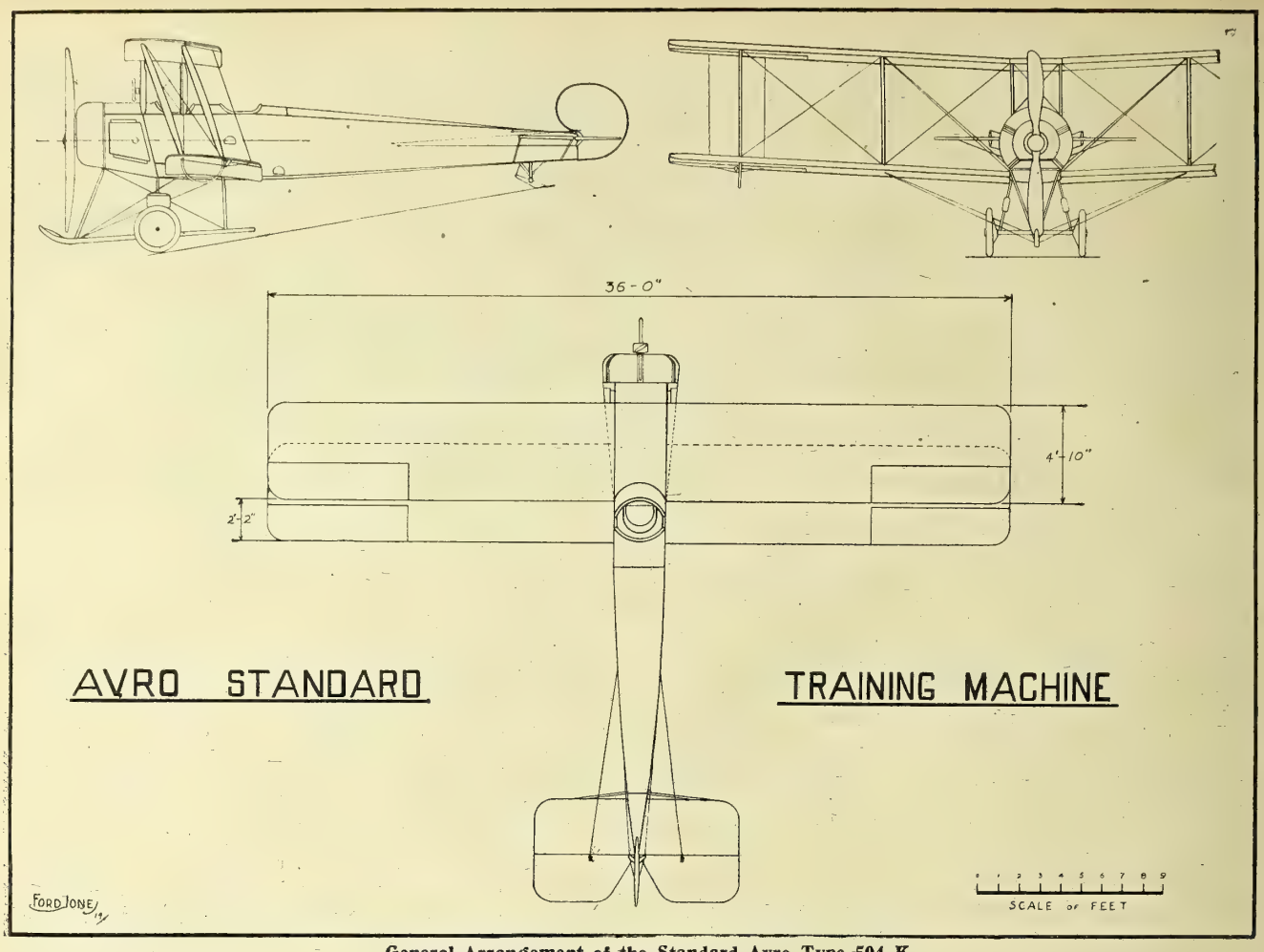
LOADING.	
Loading on wing surface per sq. ft.	5.57 lbs.
Weight fully loaded per h.p. (nominal)	16.7 lbs.
Weight carried on tail in flight	Nil.
Movement of C. G. with total variation in load during flight	4.2 ins.

CONTROL.	
Type of aeroplane controls	Control pillars and foot bars.
Positions from which aeroplane may be controlled / What control provided for crew other than pilot	Complete dual control.
Position of engine controls	On left-hand side of body.
No adjustment of rudder bar is provided	
Tail skid	Can be controlled if desired.
Load on tail skid when loaded ready for flight	100 lbs.
Tail plane adjustable on the ground but not in the air from pilot's seat	

BRACING.	
Wings—(a) Internal	H.T. steel wire.
(b) External	Cable or streamline wires.



Side View of the Avro Seaplane. This Machine is the Standard Training Machine in all Essentials, Fitted with a Float Under-Carriage.



General Arrangement of the Standard Avro Type 504 K.

Body	H.T. steel wire.
Undercarriage	Cable.
Other parts	Wire and cable.
UNDERCARRIAGE.	
Type	Special "Avro."
Size of standard wheels fitted	100 mm. × 700 mm.
MATERIALS.	
Wing spars	Spruce.
Wing struts	Spruce.
Body struts	Spruce and ash
Undercarriage struts	Steel tubes.
Longerons in body	Ash.
Shock absorber	Rubber cord.

TANKS.

Petrol Position.	Pressure or Gravity.	Capacity (gallons)	Materials	Weight Empty.
(a) Behind engine.	Pressure.	21 galls.	Tinned steel.	27
(b) In centre section.	Gravity.	4½ galls.	Tinned steel.	10
Oil. Behind engine.	Gravity.	6 galls.	Tinned steel.	12

Factor of safety. Machine had a factor of safety of 7 on sand test.
Range of movement of centre of pressure .3 to .5 of Chord.

THE AVRO SEAPLANE, TYPE 504 L.

The Avro seaplane 504 L is practically the standard Avro 504 K land machine fitted with two pontoon single-step floats, which are attached to the fuselage by four struts as shown in the accompanying photographs. A small tail-float is also fitted direct to the fuselage.

The fairing of the sides of the fuselage has been improved so that the shape throughout now more or less conforms with the shape of the engine cowling.

The machine, as a two-seater, is fitted with dual control, but it is also being made as a three-seater, the pilot then being situated in front with single control.

It is arranged to take all rotary engines up to 150 h.p. and also the A.B.C. 175 h.p. "Wasp" radial engine, by means of an engine mounting designed to make adaptors for the various engines.

It can be looped, spun, side-slipped, stalled, etc., like the standard Avro 504 K. A speed of 90 m.p.h. was obtained with a 130 h.p. Clêrget flying at sea-level.

(To be continued.)

THE DEVELOPMENT OF THE TAP.

By W. H. Smith.

To the average mind a tap is just an appliance to govern or stay the flow of gases and liquids at will. Such devices are known alternatively as cocks or valves and vary in design and construction according to the purpose for which they are intended. As an illustration of what is meant, less accuracy in construction is necessary in a tap for molasses or treacle than in a water tap for an equal degree of security from leakage. Perfect designs for both are matters of ancient history, but a perfect tap that will faithfully serve the same purpose in the case of petrol was not known until the great European War had demonstrated the acute necessity for such an article.

Petrol leakage in any circumstance is a source of serious danger; to the pilot it is one of the utmost peril. The consequent loss of spirit is an item to be reckoned with from an economic point of view, but the danger from fire outweighs everything else.

It has been said that in the early days of the war, seventy-five per cent. of the fires in the air were due to petrol leakages from taps of imperfect design. It is not possible to say how many brains were concentrated on this problem, but it can be stated that up to the present one perfect design only has been devised, and that the achievement is satisfactory from every point of view is confirmed by testimony from the Air Board, the leading aircraft constructors and by the experience of the Royal Air Force.

This achievement was not the result—as in many cases—of accident or good fortune, but the outcome of a firm determination to overcome the difficulty if it was humanly possible to do so. It was accomplished by a firm of engineers almost entirely engaged on the production of small component parts for aircraft and aircraft engines, after months of concentrated effort and experiment.

The knotty points to be unravelled embraced more than that of absolute tightness; instantaneous ease in working was essen-


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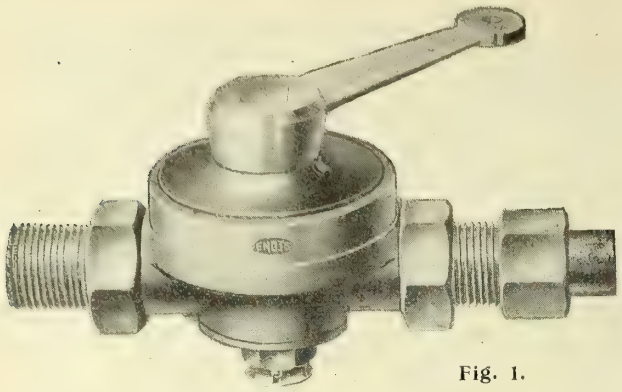


Fig. 1.

tial; sticking or seizing would be fatal, and slackening meant equally disastrous consequences. Moreover, it was not the mere weight or pressure of petrol alone that had to be considered, but the spirit under a forced pressure, the actual tests that each cock has to pass before acceptance being 15 lbs. per square inch.

Every possible combination and variation of the methods hitherto in use had to be rejected in turn as obviously useless, until at last it was seen that the use of one metal body against another was hopeless because the necessary lubricant was very quickly dissolved by the action of petrol.

In due course it was decided to try the interposition of a disc of cork between two metal surfaces, stationary and moveable respectively, and even the first and crudest experiments gave promise of ultimate success.

Difficulties are only created to be overcome; here

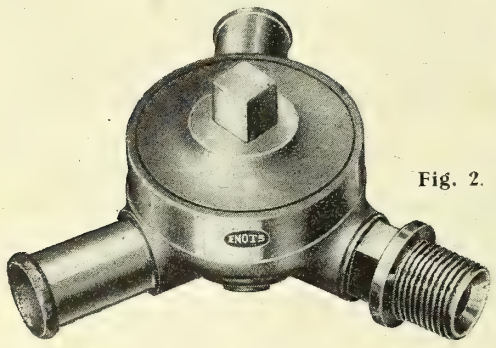


Fig. 2.

they were numerous, but were vanquished one by one. The attachment of the cork seat to the metal base, the necessary provision for taking up slackness or possible wear, and absolute freedom or "sweetness" in working had always to be borne in mind as a sine qua non.

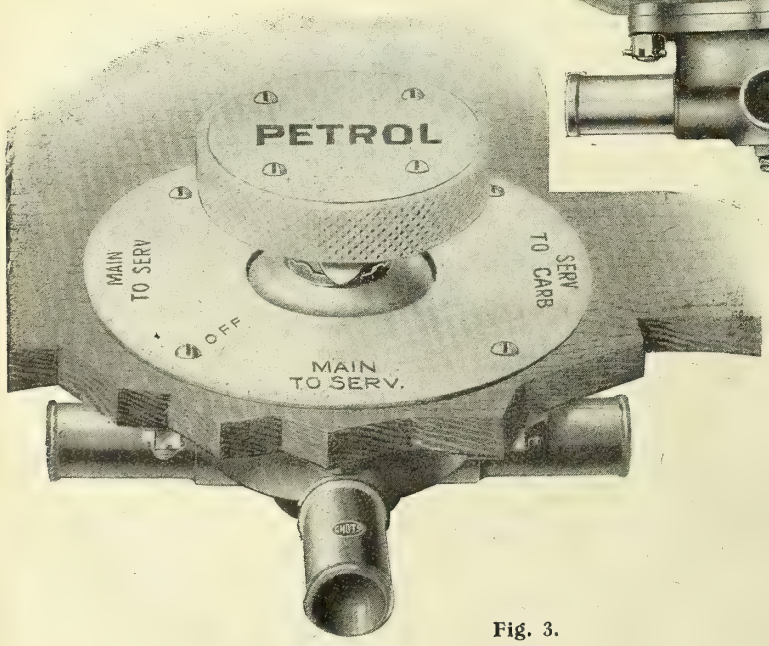


Fig. 3.

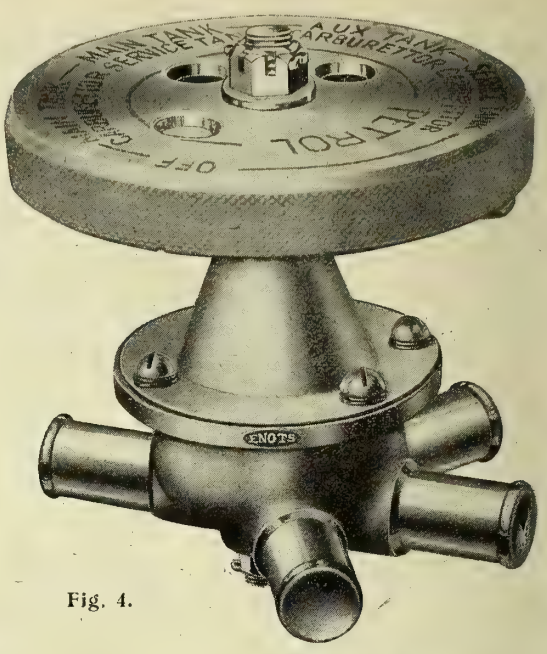


Fig. 4.

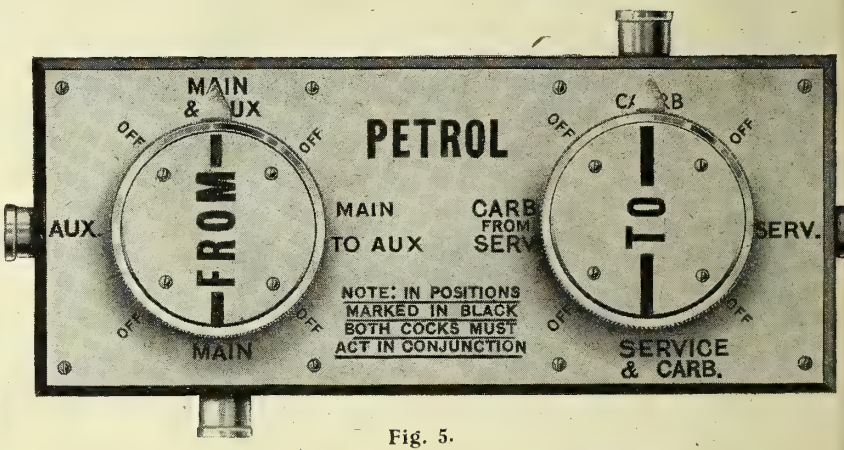


Fig. 5.

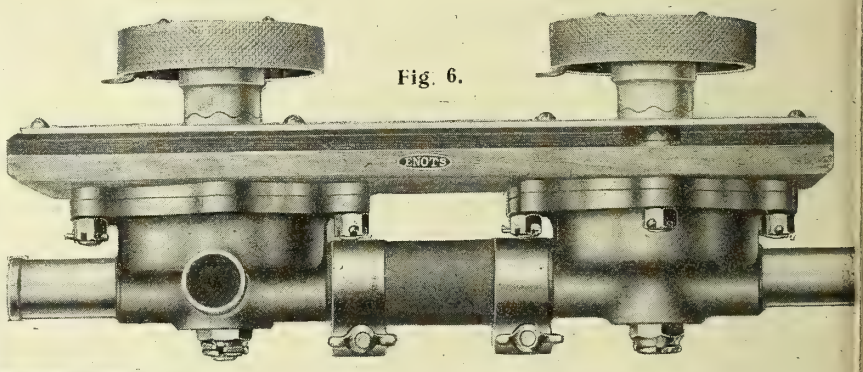


Fig. 6.

It was found that the cork employed must be free from fault or blemish in growth, also perfectly and accurately cut; this necessity alone was filled only after scouring the country. Most cork merchants could supply such materials in small quantities, but owing to shipping difficulties the co-operation of several sources of supply had to be requisitioned before the necessary quantities were available.

These and many other apparently trifling, but really vital, details being settled to the satisfaction of the originators, the Enots Cork Disc Seated Petrol Cock was protected and submitted to the Air Authorities and approved after exhaustive tests. Since then (February, 1916) the device has more than justified all that was claimed for it, and the simple "straight through" pattern became the parent of numerous others, more intricate than their forbear, but preserving in every instance the original simplicity of principle.

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Some idea of the developments in this invention that have taken place may be gathered from the accompanying illustrations. Fig. 1 shows the simplest pattern, or one-way cock; fig. 2, an elaboration of fig. 1, whereby the carburetter may be supplied from either of two tanks at will by a partial turn of the actuating lever. Fig. 3 shows a three-way cock with pointer and dial indicating the flow from main tanks to service tanks and from the latter to the carburetter. Fig. 4 shows a still more elaborate arrangement embracing petrol connections in five different ways, in addition to the "off" position, either being attained by a partial turn of the wheel handle. Figs. 5 and 6 show respectively plan and elevation of a dial or twin arrangement of cocks, the purposes of which are self explained by the illustrations. Fig. 7 shows a four-way petrol cock with an air cock attachment for the regulation of petrol supply and air pressure in six different directions coincidentally.

These seven figures are taken from a 30-page illustrated catalogue describing the taps forming the subject of this article and other Aircraft Component parts, such as air valves, petrol filters, petrol fillers, pressure pumps, flanges, unions, nuts, nipples, elbows, tee pieces, etc., etc. The list should prove of interest to many readers associated with the Aircraft Industry, and will be sent to bona fide inquirers post free on application to Benton and Stone, Limited, Enots Works, Birmingham, the manufacturers and sole patentees of the Cork Disc Seated Taps.

Over 120,000 of these petrol taps have been made at Enots Works alone; further quantities have been produced under licence by several other houses, and all have been used exclusively on British and Allied aircraft.

It may be interesting to note that Benton and Stone were manufacturing Aircraft Component parts for some considerable time before the outbreak of war. A reputation for high-grade products in connection with internal combustion engines made to fine limits naturally brought inquiries from aircraft builders, so that when the great necessity arose the firm had already gained much valuable experience. During the period covered by actual hostilities the output of aircraft parts approached 7,000,000 pieces, in addition to great quantities of fuse, shell, motor transport and similar work.

Owing to the extraordinary demand for use on aircraft it has not been possible to produce the Cork Disc Seated Taps for other purposes until now, but several patterns designed for use on motor vehicles generally will be put on the market almost at once, and the invention has great possibilities in other directions. In one instance, at least, it has proved to act perfectly in controlling a vacuum where every other type of cock had failed.

So far there is no record of any complaint as to the satisfactory working and performance of this tap. On the other hand, unqualified expressions of approval have been received from the Controller, Aircraft Production Supplies Dept., The National Aeroplane Factory, Messrs. Handley Page, Ltd., The Grahame-White Aviation Co., Ltd., Hewlett and Blondeau, Ltd., A. V. Roe and Co., Ltd., Austin Motor Co., Ltd., William Beardmore and Co., Ltd., Vickers, Ltd., Sunbeam Motor Car Co., Ltd., Brush Electrical Engineering Co., Ltd., Humber, Ltd., Harland and Wolff, Ltd., Morgan and Co., Ltd., and many others.

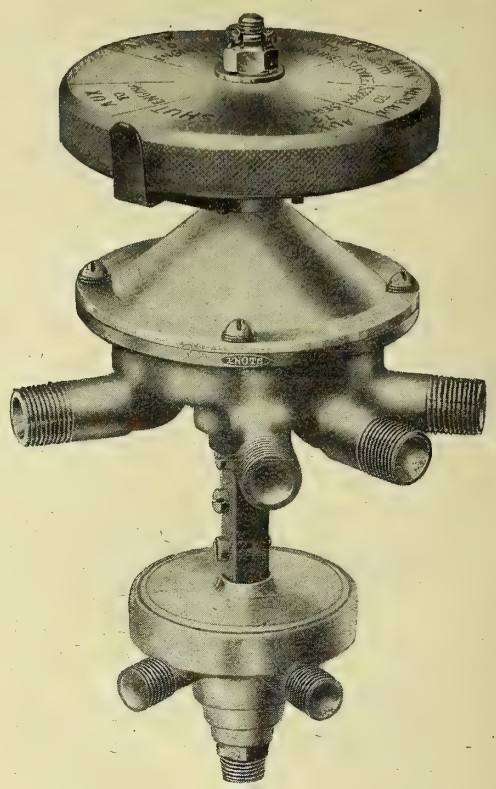


Fig. 7.

STANDARDISATION OF AIRCRAFT MATERIALS AND PARTS.

It will be recalled that during the past year and a half the British Engineering Standards Association has been responsible for the preparation of all specifications for aircraft materials on behalf of the Department of Aircraft Production. During this period some 70 British standard specifications for aircraft materials were issued, and a further 60 were practically complete at the time of the cessation of hostilities.

These specifications were distributed to the makers by the Department, as the whole of the aircraft production of this country was under its control. These conditions are now changing, and at the request of the Air Ministry and the Department of Aircraft Production, and with the cordial support of the Society of British Aircraft Constructors and the Steel Research Committee and other associations, the British Engineering Standards Association have been requested to continue the preparation of specifications for aircraft materials and parts, as well as undertake their distribution, together with the issue of manufacturing instructions and notes on testing procedure which were formerly prepared and issued by the Technical and Inspection Departments of the Department of Aircraft Production. This request was considered at a recent meeting of the Sectional Aircraft Committee of the British Engineering Standards Association, and, with the approval of the Main Standards Committee, the Association has undertaken this additional responsibility as from March 31st, 1919.

It is proposed to reorganise on a peace basis the various sub-committees concerned with the preparation of these specifications. These sub-committees when reorganised will undertake the revision of the specifications for peace purposes. In the meantime the whole of the 200 specifications in use by the Department of Aircraft Production have for immediate purposes been adopted as interim British standards.

During the war a large number of firms were engaged in the manufacture of aircraft materials and parts, but are now returning to their former occupations, and arrangements for the distribution of these specifications which have been in force during the past year will not apply in the future.

It is not proposed to circulate copies of all specifications to every maker concerned with the production of aircraft materials, but to ask the makers to indicate which they are interested in. A complete list of the specifications now available will shortly be circulated to the 2,000 contractors on the former despatching list with the request that they indicate the specifications they desire copies of. It is recommended that a small charge should be made per copy to cover the cost of printing. The charge will probably be 1½d. per copy for those specifications issued in leaflet form, and 1s. for those specifications issued in the ordinary British Standard octavo book form. This arrangement is, however, provisional.

There can be little doubt that the preparation of specifications by the British Engineering Standards Association in the manner adopted whereby manufacturers and users, together with technical officers of the Government Departments interested, as well as experts from research laboratories and colleges and consultants, co-operate in their production, coupled with the principle of not issuing a British standard specification until practical agreement has been reached, is very sound, and a wide use of these specifications for all aircraft production may confidently be expected.

It is interesting to note that specifications dealing with materials which formerly were perhaps not considered as being of an engineering nature have been prepared, such as chemicals, textiles, paints and varnishes.

THE AMERICAN VIEW.

An American friend of The Aeroplane writes:—

"We have just gotten through with our Aeronautic Exposition, and it proved to be quite interesting from the standpoint of showing the American people what had been done during the war period. The time was too brief to give the manufacturers an opportunity of giving the public a forward look into the possibilities of aerial transportation, but it did, without doubt, interest them hugely, and I think most were satisfied.

"If the newspaper comments are correct, you are doing much more constructive work in England to maintain and sustain interest in aviation than we are here, but there is every possibiilty that when Congress meets in extra session, towards the end of May, as it will, undoubtedly, we will have an opportunity of putting up a strong argument for an Air Department with proper line to international improvement.

"As you know, the Republicans will control the House and Senate, and hitherto have shown themselves a little more alert in recognising the opportunities along lines of this character."

PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the current Official Patents Records :—

Patents Applications.

Akt Norske Aerofilk; C. Hellesen. Flying-machines. No. 8579. April 4th.
Atcherley, R. H. Thin-metal aerofoil ribs. No. 8354. April 2nd.
Blackburn, H. Body harness for supporting passengers from parachutes or marine life-saving apparatus, etc. No. 8294. April 2nd.
Carden, C. E. Wind-screen for observation windows of vehicles and aircraft. No. 8229. April 2nd.
Fisher, H. F. Parachutes. No. 8636. April 5th.
Haigh, J. S. Petrol tanks for motor-cars, aircraft, etc. No. 8588. April 5th.
Huxley, M. F. Radiators for aircraft, motor vehicles, etc. No. 8615. April 5th.
Ireland, A. J. T. Airscrews. No. 8564. April 4th.
Leigh, A. G. Aeroplanes. No. 8197. April 1st.
Mable, R. I. Straining-device for wires, cables, etc., of aircraft, etc. No. 8020. March 31st.
Marrice, W. K. F. Means for navigating aircraft. No. 8234. April 2nd.
Morgan, E. T. Aircraft landing-chassis. No. 8166. April 1st.
Pearson, C. Aeroplanes. No. 8523. April 4th.
Roach, B. Toy aeroplane kite. No. 8247. April 2nd
Scaparro, E. Mechanical aircraft parachute. No. 8143. April 1st.
Sheppard, W.S. Aircraft. No. 8474. April 4th.
Simpson, C. E. H. Hydro-airship. No. 8370. April 3rd.
Supermarine Aviation Works. Tail-planes, etc, for aircraft. No. 8346. April 2nd.
Vickers, Ltd. Aeroplane, etc., wings. No. 8325. April 2nd.
Worman, W. M. Collapsible aeroplane undercarriage or chassis. No. 8353. April 2nd.

Complete Specifications Accepted, prints of which can be Obtained on and after April 24th, 1919.

124,459. Jan. 5th, 1916. Pennington, L. T. M. Firing-devices of bombs, shells, and other projectiles.
124,466. Jan. 13th, 1916. McCartney, W. C., and Redpath, R. Means for calculating the range and height of aircraft.
124,479. Jan. 25th, 1916. Pelterie, R. Esnault. Sighting-devices used in the dropping of bombs from aboard a dirigible for an aeroplane.
124,482. Jan. 24th, 1916. Vickers, Ltd., and Pierson, R. K. Control members of aircraft.
124,486. Jan. 27th, 1916. Vickers, Ltd., Challenger, G. H., and Savage, H. A. Aircraft.
124,501. Feb. 14th, 1916. Vickers, Ltd., and Challenger, G. H. Mounting for guns carried by aeroplanes and similar aircraft.
124,508. Feb. 19th, 1916. Sueter, M. F., and Ritchie, T. M. Construction of airship envelopes, balloons, and the like.
124,509. Feb. 19th, 1916. Vickers, Ltd., Challenger, G. H., and Savage, H. A. Aircraft.
124,517. March 1st, 1916. Sage and Co., F., and Feary, N. A. T. N. Hydro-aeroplane floats.
124,520. March 3rd, 1916. Glazebrook, R. T., Rouse, W. M., and Johnston, A. Fabrics used in the manufacture of balloons and dirigible airships.
124,524. March 7th, 1916. Miller, C. W. T., and Hurst, J. Gun mountings for aeroplanes.
124,531. Sept. 3rd, 1917. Friend, E. H. Rotary engine.
124,536. Dec. 29th, 1917. Goddevriendt, L., and Goddevriendt, A. Clinometer for use on aircraft, ships and the like.
124,547. March 14th, 1918. Brown, D. E. Hydro-aeroplanes.
124,572. March 27th, 1918. Kitchen, J. G. A. Means for varying the speed and stopping way of aircraft without slowing the propeller.
124,606. April 15th, 1918. Kemp, J. R. Level-indicator or clinometer for aircraft.
124,607. April 15th 1918. Hetherington, H. W. Flying-machines.
124,643. June 8th, 1918. Lees and Co., A., and Dunkerley, L. Cutters for use in machines for forming aircraft propeller blades, struts, and like articles having curved or waved or similar surfaces.
124,677. Oct 7th, 1918. Baker, F. Parachutes.

Abridgments of Recently Published Specifications.

121,513. Tanks. Thompson, A. D., Hill Crest, Merry Hill, Bushey, Hertfordshire.

Petrol and other tanks for aircraft, of the kind described in Specification 17511/15, are provided with means for automatically rotating the cover B, Fig. 1, when the tank is pierced, or with improved means for rotating the cover by hand. The automatic means comprises a plunger G operated by a variation of pressure due to the entry of a projectile and controlling electric or mechanical means for rotating the cover through gearing G^2, B^2. If the tank and cover are tapered, the cover is simultaneously moved longitudinally against the action of a spring D

FIG.1.

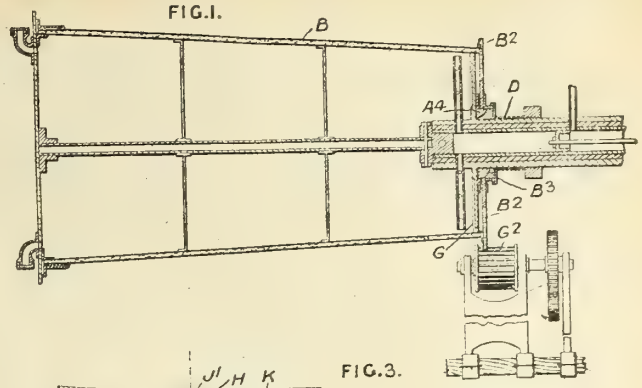
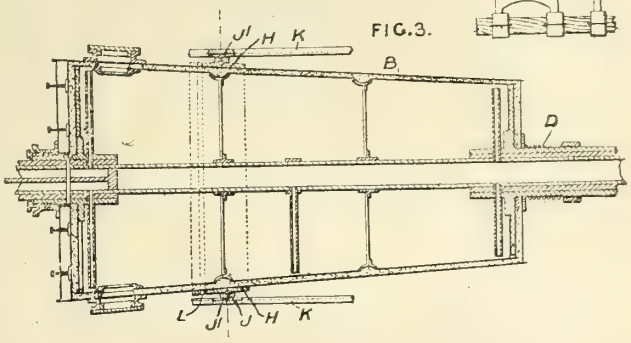


FIG.3.

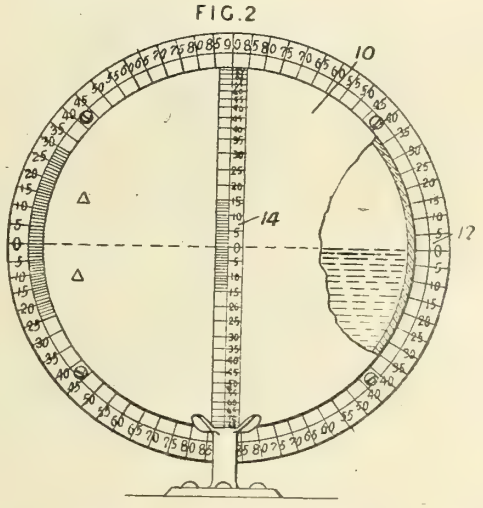


by means of ratchet-wheels B^3, A^4 on the cover and tank respectively. The cover may be longitudinally displaced and rotated by hand-operated means comprising a ratchet ring H, Fig. 3, fixed to the cover, blocks J carrying pawls J^1 and engaging spirally grooved members K, and a loose ring L fitted in a groove in the ring H and connected to an operating lever. The packing between the tank and cover may consist of layers of felt or other soft material with an interposed layer of rubber.

121,661. Inclinometers for aircraft. Marshall, J. E., Caney, Kansas, U.S.A.

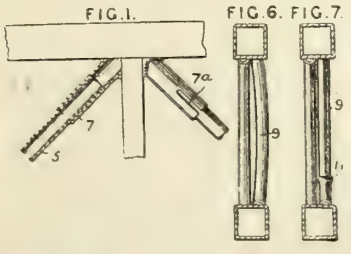
The instrument consists of a transparent sphere 10 half filled with liquid, provided with graduations 14 and encircled by a graduated plate 12, which is arranged at right-angles to the plane of the graduations 14 and is bolted to lugs projecting from the sphere.

FIG.2



121,968. Aeronautics; buildings, etc. Rapp, J. W., College Point, New York, U.S.A.

FIG.1. FIG.6. FIG.7



Frames or structures, such as are used in aeroplanes, are tensioned by members secured to the frame, etc., heated to elongate and telescope them, and then welded together while heated. In one form, Fig. 1, the member 5 is heated and then welded to sleeves 7 which are secured to the frame and have slots 7a to permit a secure weld. In a modification, the member 9, Fig. 6, secured at both ends to the frame, is heated and is melted at a point to allow the part 9 to straighten, forming a bulging joint 11, Fig. 7. The surplus-metal at the joint is then removed.

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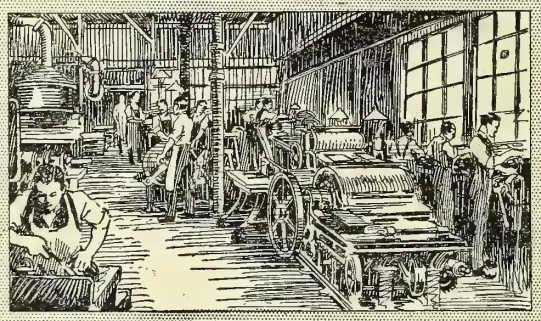
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DISTINCTIONS WITHOUT DIFFERENCES.

By "Medway."

There was published recently in the "Times" a lengthy article on the intentions of the Air Ministry. Judging solely by internal evidence, and particularly by the obvious belief of the writer that everything is for the best in the best of all possible Government Departments, I take it that this article must have been compiled by an official of the Ministry itself.

In an attempt to arrive at a more exact conclusion as to its origin, I find myself divided between two alternatives. Either it was put together by some quondam officer of the R.A.F. whose skill is capable of better illustration in the air than on paper, or else it is the work of the "Man behind the Scenes."

The Man Behind the Scenes.

This gentleman presumably figures on the staff of every Ministry. His job is to answer questions addressed to the Minister by inquiring members of the House of Commons. A Minister is, of course, supposed to be omniscient on all matters coming even remotely within the purview of his Department, but as he has probably attained his position by a serious of quick-change feats, in the course of which he has run rapidly over agriculture, education, the Army, the Colonies, the Local Government Board, and one or two other Departments, and has probably only held his present position for about three weeks, it stands to reason that his proper answer to ninety-nine questions out of a hundred would be, "I haven't the slightest idea and, in fact, I don't know what you are talking about."

It is to avoid the necessity for the perpetual repetition of this reply that the "Man behind the Scenes" is employed. He is an official of much learning, with an admirable knowledge of the classics and of higher mathematics developed in his early years. Now he is mainly employed in filling in time and seeing that the Minister says or does nothing indiscreet, or at least nothing more than usually flagrant.

The Art of Evading Questions.

His great game is to put things in an oracular manner, so that they can be read in about five different ways. He does not so much answer questions as evade them. His style appears to me to peep out through the paragraphs of the article to which I have referred. Take, for instance, the following:—

"Flying is to be divided definitely under two heads, of which one will be State flying and the other commercial flying. Under the first it is proposed to place all work that is in any way connected with the three Services, with the Customs, and with the Police. Under the second will be found all other forms of flying.

"As flying develops so will the activities of the Ministry. There will be more and more phases of service in which it can be useful, such as survey work and the transport of bullion. When the Post Office has decided that the time has come for the delivery of mails by aeroplane, it will approach the Ministry, and tenders will be asked for. The selection of the machines for the service will be made, and it will be run by the State.

"Meanwhile, if the Ministry is unable to produce from elsewhere machines and pilots for the work required to be done by the Post Office, it will be possible to draw on the Royal Air Force. But that is a consideration only to be entertained while the supply of commercial machines is limited."

Now, what on earth does all this mean. The first sentence is plain enough. State flying will be entirely separated from commercial flying. This is a statement of a policy likely to lead to a good deal of argument and criticism. I will go back to it later. Meanwhile, our friend feels that he must define State flying, which he proceeds to do. Aerial mail services are not included in it. Then he goes on to tell us that aerial mail services will be run by the State, using machines selected by the Ministry, handled by pilots produced by the Ministry. Military machines may be employed. On the other hand, they may not.

Now, in the light of all this information, is an aerial mail service State flying, or is it not? If it is commercial flying, where does the commercial side of the business come in?

The system of contracting such as is employed when the Post Office wants the use of the motor mail services cannot be in contemplation, because there is nothing left for the contractor to do if the State provides and runs the machines. Apparently, however, the machines are to be of the commercial variety if possible. They will therefore come under commercial flying. Presumably, the pilots "produced from elsewhere" will also be commercial pilots.

State Flying and Commercial Flying.

We, therefore, have State enterprise employing commercial personnel and material. How on earth, then, can we definitely divide State flying from commercial flying? The gentleman who tells us that it is proposed to do so supplies us with the best possible instance to prove that the thing cannot be done.

He does not go on to prove that it is not desirable to attempt to do it, but this seems to me to be easily demonstrable. There is no conceivable reason why the carriage of mails, which, let us remember, "will be run by the State," should be divided definitely from the carriage of passengers, which is clearly a commercial undertaking, unless we start by indulging in the present-day mania for nationalising everything. This we are distinctly told is not intended.

One can imagine that a demand will be created for the carriage of passengers and of mails between London and Paris. What possible purpose would be served by leaving the one to private enterprise and putting the other under the wing of the State? The consequence would be that the expense of two services would be incurred where one would have served the purpose. The passenger service would stand so much the worse chance of being a success, inasmuch as it would not get the regular revenue of an authorised mail carrier.

Obviously passenger and mail work must go hand in hand.

Useful Work for Service Pilots.

Moreover, if Service pilots are to be established in military depôts, at various points throughout the Empire, and if these pilots are to keep in practice, they must obviously do a certain amount of work in the air. Why should we divide them rigidly from all connection with commercial flying? Why should they not be given their practice by being allotted useful work to do? Why should not the whole ground organisation created in their support be continually tested and kept tuned up by being called upon to assist them in doing this useful work?

There seems to be a sort of trade union "One man one job" idea at the back of the scheme. If a man is a Service pilot, he cannot be a commercial pilot, although a commercial pilot, we are told, will be on the Reserve of the R.A.F. In peace-time the average soldier does something under half an hour of useful work in the day. Is the Service pilot to be condemned to a life of similar useless inactivity? If he is allowed to be active, why not let his activity be useful?

In fine, then, I am entirely up against this theory of definitely dividing flying into two heads—State flying and commercial flying. It is exactly the one thing above all others that we want to avoid. My chief hope lies in the obvious and fearful muddle into which the exponent of the theory immediately falls when he attempts to explain how it will work out in practice. His failure should be sufficient to convince those concerned that a principle, the working of which cannot even be explained, had better be abandoned before we reach the stage of its practical application.

POST-BELLUM POLICIES.

By The Special Commissioner of "The Aeroplane."

MR. A. V. ROE (A. V. Roe and Co., Ltd.).

The Avro Firm are, I believe, in a unique position, their standard Avro being recognised and used as the initial training machine of the R.A.F., and from opinions I have gathered from instructional officers in that Force, it does not seem likely to be displaced, at any rate unless the present methods of training are altered.

This is, of course, a possibility, as war necessities call for methods that are not always either approved or applied in peace time; but now when the longer time available for training pilots brings forth other theories and causes their adoption in school work, it is probable that this machine will continue as one of the most important instructional types.

The Standard Avro.

With this apparently assured consumption, demand for their machines, and the consequent income, the firm might be satisfied and it does not appear that in the near future they intend to do other than continue the construction of the standard model, and in the following forms:—

1. The standard Avro.
2. The same machine fitted with covered limousine body to carry two passengers as well as pilot.
3. Still the same fitted with floats. In this, elderly people will be able to take lessons with plenty of room for manœuvring and landing. This type of machine should prove very popular where stretches of water exist (it is conceivable that it might be far otherwise where they don't), and can be used for postal and general utility work as well as pleasure.

In the future, I am told, the firm will continue to produce and to improve on the standard Avro, in the above various forms. I cannot, however, forget that 4½ years have already passed since the original, and it seems, almost identical design was produced. Further: "We have other types ready for production, and, in addition, we shall continue experimental work with a view to excelling in the design of any particular type of machine we think will be in large demand."

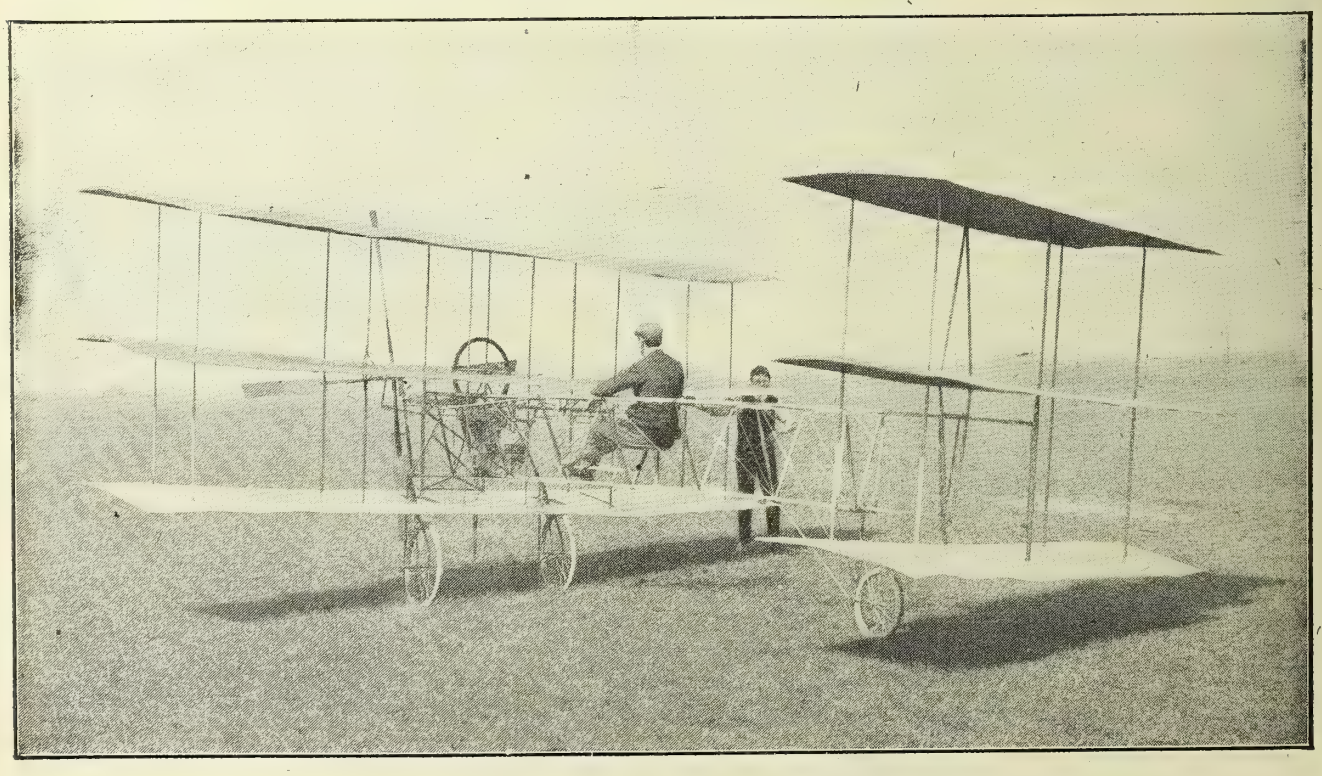
Here is a declaration of the waiting policy, waiting to be led by public opinion, and, unless the firm has something up its sleeve, it is not attempting either to create or foresee the desires of the public in the future, though I am assured that it is intended to provide machines for the individual public.

Economy.

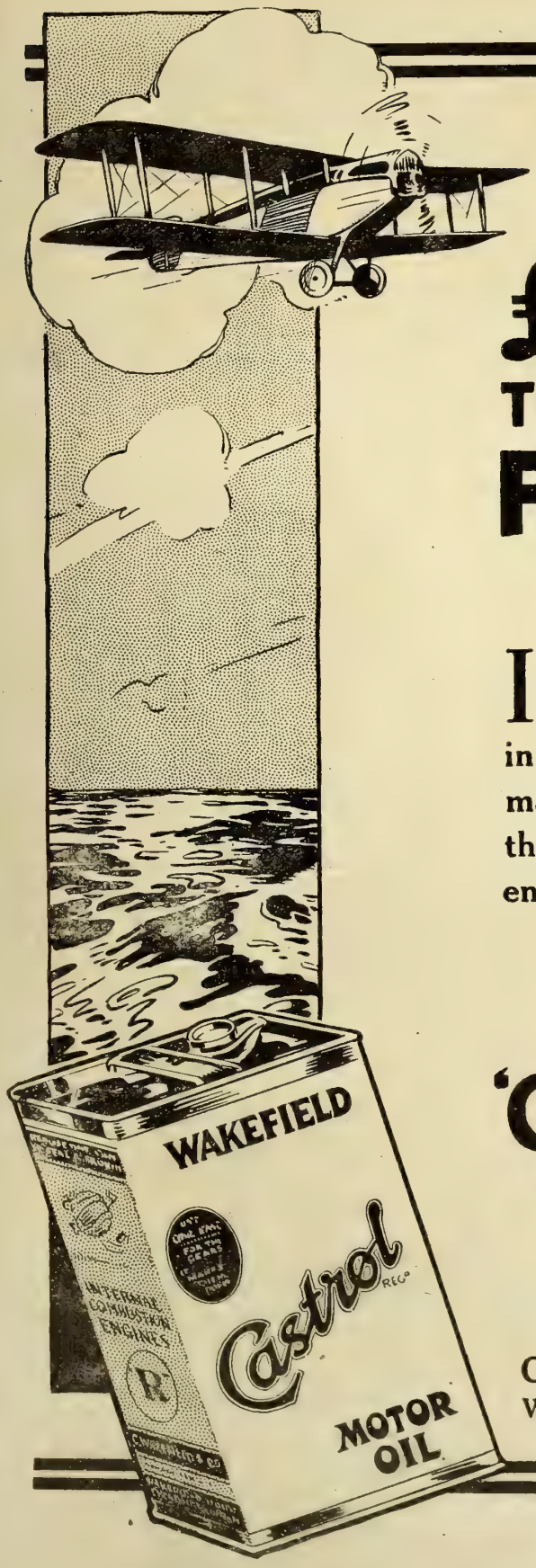
The Avro Firm, in common with others, are fully alive to the importance of economy in the air, and point out that the life of a machine compares very favourably with a car on the mileage basis, quoting instances of their machines with six or seven hundred hours' flying to their credit.

The Future of the Aeroplane.

Now, concerning the future of the flying machine, Mr. A. V. Roe says: "Improvements will continue for many years, not only



The A. V. Roe Triplane with 9-h.p. J.A.P. Engine, 1909.



£10,000 TRANS-ATLANTIC FLIGHT

IN this great contest of durability it is quality that counts. Quality in the man, the mechanism and the materials used in the flight. That the engines of every British machine entered to date will be lubricated with

WAKEFIELD'S 'CASTROL' REGD. "R"

bears its own significance.

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in machines themselves, but in the method of construction. The power plant in large machines will be so arranged that the likelihood of propulsion stoppage will be very remote Large flying-boats capable of alighting on and getting off rough seas will be developed.

Internal combustion engines will continue to be improved, and possibly steam, generated by crude oil, may play an important part in the future."

The Steam Engine in Aeronautics.

Mr. Roe's hint to the manufacturers of steam engines and boilers is extremely interesting. I do not think any of these have ever aimed at lightness in design so much as compactness, and the possibility of the use of steam has been more or less ridiculed since the later development of the petrol engine.

Although I am convinced many people will disagree with me, more especially those in the motor business, the steam engine has always been more reliable than the petrol motor. Whether it would continue to be with the weight reductions necessary to bring such an engine within the aeronautical range remains to be proved. It has, moreover, one great advantage, that is, you cannot damage a turbine by over-reving it, but the idea, with all its attendant possibilities, is fascinating. Just think of being told to "raise steam with all dispatch in No. 5 machine, two boilers only will be required." Seriously, however, it might possibly lead to greatly reduced running costs.

In Mr. Roe, too, we have another advocate for the seaplane. It will be of interest to see if Aerial Transport companies do not combine both types when they select their stock, or whether there will be separate concerns operating the two types, as I do not believe the general public has nearly so much knowledge of the possibilities of the latter.

Mr. Roe says that the firm intends to build competition machines but not "freaks, and wait for a low barometer to record climbs."

This is very non-committal, but, of course, it is very difficult to draw the line between saying too little and too much, especially when there is keen rivalry in the business. It must not be forgotten that Mr. Roe takes a very keen interest in his staff, as evidenced by his arrangements for their benefit, arrangements which should ensure loyalty even in these times of labour unrest, and that very large sums have been spent by the firm on experimental work, so that, although Mr. Roe is reticent, it is probable that new Avros will be forthcoming. I cannot imagine his inventive genius being other than fruitful. As an instance of which there is the Avro 2-engine "Pike," which, I am reasonably sure, although relying on memory, put up a better performance than other "twin" contemporaries when fitted with the same engines.

Mr. Roe's idea of the future pilot is that he will, generally speaking, hold a position analogous to that of a captain of a ship, but qualifies it by saying that "it depends on the machine and machines he flies, and the person or firm for whom he flies, and the pilot himself."

A POST-BELLUM CATALOGUE.

The Grahame-White Company, Ltd., have produced a very elaborate preliminary catalogue which will be found attractive by those who are interested in prophetic illustrations. The machines shown are as follows :—

(1) An instructional machine on sound conventional lines, which the makers hope to sell with an 80 h.p. Le Rhône at £1,000.

(2) A sporting single-seater which is called "The Bantam." One was under the impression that the name "Bantam" had already been adopted by the B.A.T. Co. However, the Grahame-White Co. hope to sell this at £500 with an 80 h.p. engine.

(3) An express "Air-mail" machine in which, with a 270 h.p. engine, the makers aim at a speed of 170 m.p.h. The main plane is to have a hinged trailing edge on lines which have already been proved successful on seaplanes by Mr. C. R. Fairey, so as to give it a slow landing speed. The makers hope to be able to sell it at £1,400—though this seems unlikely, unless the engine-makers reduce their prices below the present price of approximately £5 per h.p.

(4) A twin-engined aero "limousine" on good conventional lines with two 270 h.p. Rolls-Royces, and an estimated speed of 110 m.p.h. It is hoped to sell this at about £5,000.

(5) A five-seater limousine with the same power but slower speed, at a hoped-for £5,000 to £6,000.

(6) A 24-seater passenger triplane with three engines. This is somewhat on the lines of a Caproni, having a central nacelle with an 800 h.p. pusher engine astern and two fuselages. It differs from the Caproni in that the same nacelle is to carry two other engines of 500 h.p. each, arranged transversely, and driving a tractor screw through shafting and gears. These screws are to be outside the two fuselages, not carried on the fuselages as in the Caproni. The makers hope to sell this machine at approximately £20,000.

(7) A large flying-boat of the conventional type, to be fitted with two 350 h.p. Rolls-Royce engines. This is estimated to have a speed of 85 m.p.h., and to be sold at about £10,000.

The general scheme is finely ambitious, and one sincerely hopes that Commercial Aeronautics may develop in such a way as to fulfil the expectations of the compilers of the catalogue.

The Grahame-White Company state that as a special offer and to encourage flying as a sport, they are prepared to sell their first ten "Bantams" at 500 guineas apiece.

A.G.S. MANUFACTURERS ASSOCIATION.

To the Editor of The Aeroplane.

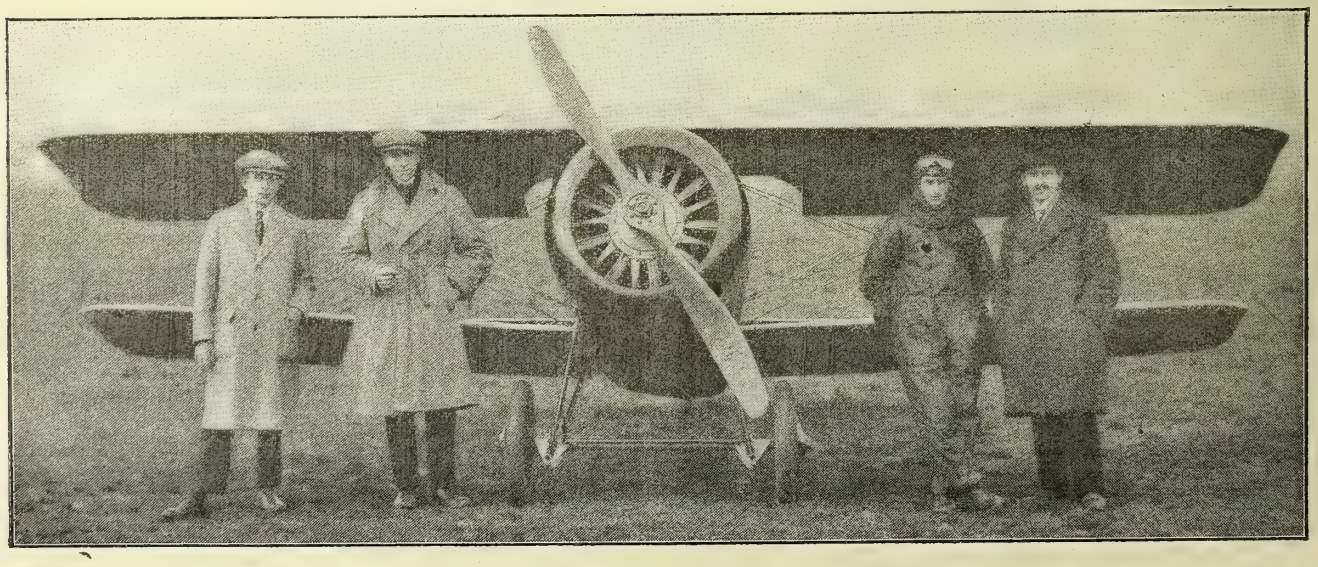
Sir,—The letter signed by Mr. Mansfield, published in your issue dated 9th inst., on the subject of Small Parts Makers is most interesting. However, Mr. Mansfield cannot be a reader of your paper or he would know of the formation of an Association to look after the interests of the Small Parts Makers.

The A.G.S. Manufacturers have been so completely left out in the cold by the S.B.A.C. (until this Association was formed) that "The A.G.S. Manufacturers' Association" has been started to deal with all matters of interest to Part Manufacturers.

If the S.B.A.C. does form such a section my Committee will be most pleased to advise them, as we are all working for the same end—the good of the trade.

I am certainly with Mr. Mansfield in his belief in the progress of Civil Aviation and join with him in advising all A.G.S. makers to become members of either this Association, which is dealing solely with their interests, or the S.B.A.C. Now is the time, when we are changing from abnormal conditions to a commercial proposition, to get matters put on a sound basis, and that can only be done by such a body; spasmodic individual efforts only tend to make things worse confounded.

Grey McCann, Secretary, A.G.S. Mfctrs. Assoc.



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CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

When civil aviation is made legal on May 1st, Harrods Ltd. intend starting a London-Paris aeroplane service. It will be used for conveying the firm's buyers to and fro, and also for fetching hats, gowns, and any other articles which are needed urgently.

Australia.

According to a Reuter message from Melbourne dated April 12th the Federal Government has agreed to the registration of a company which is to be formed to undertake the conveyance by air of mails, cargo, and passengers between the various Australian State Capitals.

Canada.

The Government of Canada has purchased a number of aeroplanes with a view to developing aerial navigation in the Dominion.

It was stated on April 19th that the Canadian Pacific Railway Company will apply to Parliament for authority to establish air services between points within or without Canada.

France.

The postal Bréguet aeroplane, which did service between Strasbourg and Paris, overturned at a forced landing near St. Dizier on April 18th.

The pilot was killed, and of the two passengers, one died from his injuries. The machine and mail were destroyed by fire.

Germany.

A third official aerial mail service, between Berlin, Hanover, and Westphalia has been established recently.

According to a Berlin correspondent's message published in the "Daily Express," Germany's commercial activity in the air is considerable. He writes:—

"On the ruins of Germany's battered railroad communications has arisen what probably is the most perfect aeroplane system in the world, and at the rate it is progressing it seems likely that when Germany is in a position to replace her lost rolling stock her railroads will scan the market in vain for passengers, and have to be content with hauling freight.

"A regular passenger air service between Berlin and Hamburg was the first instituted. Now there are six regular aeroplane routes in Germany, with daily trips both ways, and many more are being organised.

"For some weeks the Berlin-Hamburg route was the only line in operation.

"The experiment was so successful that Leipzig, in the south, Hanover and Gelsenkirchen, in the west, and Warnemuende, in the north, were added to the list of routes. A line, Berlin—Frankfort-on-the-Main, is about to be established. Berlin—Munich will be added to the schedule early this summer. These routes cover a total distance of 1,300 miles. The fare averages four shillings per mile.

'If a Berliner wants to take the three o'clock plane for Leipzig, he simply calls up the aeroplane company and orders a ticket. About half an hour before departure a chauffeur toots a limousine horn in front of the traveller's residence. At the aerodrome an agent is on hand with his ticket and special accident policy—that is, if he had the foresight to order insurance with his ticket.

"An attendant helps the passenger into the flying suit. An hour later the Berliner steps out of the aeroplane at the Leipzig aerodrome, where another motor-car is waiting to take him to his destination in the city.

"I was shown a prospectus of new aeroplane routes contemplated by the aeroplane company this year. With Berlin as the centre, they cover all Germany."

Italy.

"If a Berliner wants to take the three o'clock plane for Leip- aircraft manufacturers has received an order for the construction of a large aeroplane, which will be capable of carrying 100 passengers. The machine will be provided with every possible comfort.

Sweden.

It is reported from Landskrona, on April 14th, in South Sweden, that at a shareholders' meeting of Thulin's aeroplane factory, the largest establishment of its kind in Sweden, it was decided to discontinue making aeroplanes, and to concentrate activity in future on the manufacture of motors and motor vehicles.

Belgium.

M. Rankin, Minister of Belgian Railways, Post, and Telegraphs, on Sunday, April 13th, flew from Brussels to London in a twin-engined Handley Page machine which had been converted for passenger use. The journey, which occupied over four hours, was accomplished in spite of a strong wind, and unfavourable conditions.

"THE AEROPLANE" AND INSURANCE BUSINESS.

Various worthy people have suggested that THE AEROPLANE should adopt some Scheme of Insurance for aviators and their passengers and aircraft generally, similar to the various Insurance Schemes which are run by papers of all kinds. Very tempting propositions of this nature have been offered to THE AEROPLANE, but it has been definitely decided to have nothing whatever to do with Insurance as a business proposition.

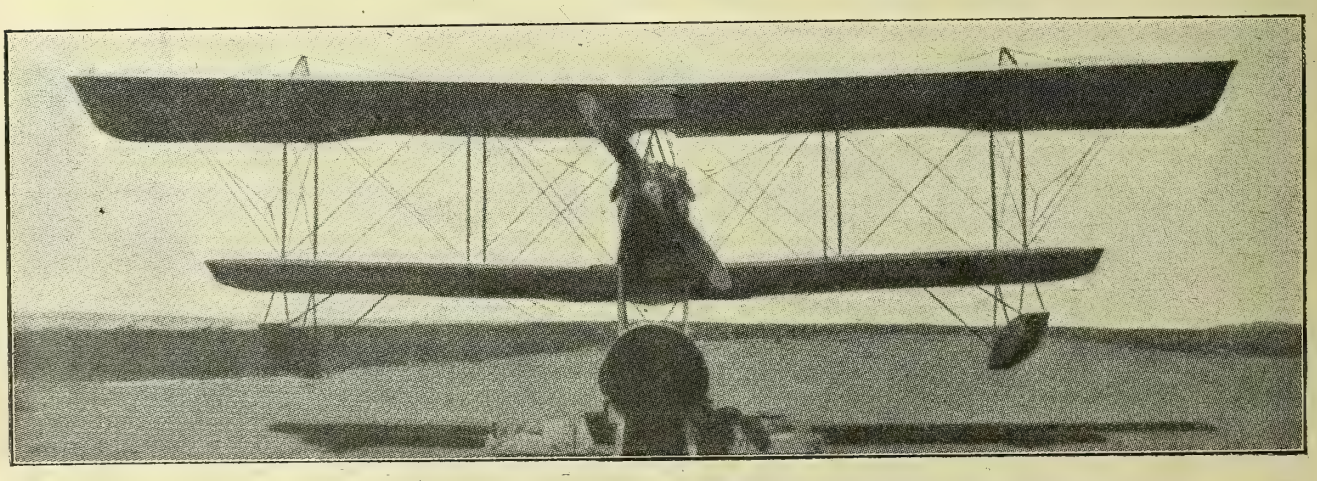
One holds firmly to the belief that a newspaper should have no financial interests whatever in any business except its own particular concern as printers, publishers and purveyors of news and opinions.

If a paper is to retain its independence and is to do its duty by the particular service, sport and/or industry which it serves, it must be absolutely free from any business tie of any kind which may conflict with that duty.

It has been proposed on occasion that THE AEROPLANE should become the official organ of this, that, or the other Association, Society or Club, and in every case these propositions have been turned down, because, in the interests of the service, or the sport, or the industry, it might be the duty of THE AEROPLANE to criticise the doings of the particular Society, Association or Club with which it was connected.

Similarly, if THE AEROPLANE had any intimate dealings with any particular business firm, for example any particular firm of Insurance Brokers, it might be its duty in the interests of Aeronautics to disagree entirely with the policy of the Insurance world in general. In such a case, if THE AEROPLANE were connected with any Insurance business, whenever it became necessary to write on the subject of Insurance, whatever was written would be subject to the suspicion that it was biased by the paper's financial interest.

Therefore, despite the kindly offers of those who mean well to THE AEROPLANE, it is proposed that the paper shall remain absolutely free and independent, so that it may fulfil its duties, which consist in helping to make the R.A.F. the greatest of the King's Services, helping the sport of flying to become the greatest of British sports and helping the Aircraft Industry to become the greatest of British Industries.—C. G. G.



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AIRCRAFT FINANCE

HANDLEY PAGE'S BOW TO THE PUBLIC.

Not merely because of the name and all that the popular imagination associates with it, but rather because of what it means to the Aircraft Industry, one is deeply interested in the Handley Page, Ltd., prospectus. The public are invited to risk £500,000 offered at par in the shape of Cumulative and Participating Preference shares in return for a fixed minimum dividend of 7 per cent. and the chance of a maximum dividend of 14 per cent. if earned.

Value of the Label.

Considering the reputation in practical aeronautics of Mr. Handley Page, it is to be hoped that this venture into the arena of public finance will add to the success of the Handley Page concern and the wealth of the investors concerned. When one pays a few shillings for a bottle of "White Label" or "Red Seal" one really does not want the label, only a decent liquid. The same with this particular prospectus. The public are paying something for the name and expect good stuff and good profitable results. Without a doubt it will get good stuff and hopes for the profit.

The Capitalisation.

Candidly the capitalisation appears to be more than moderate. The sum of £650,000 is a lot of money: the original capital was £10,000, but one must take into consideration the epoch-making events, the extraordinary developments and complete change of character since the "civilising" influences of the war first manifested themselves. "Comparisons are odious," says the Bard: in this particular case they are distinctly so.

Still, £650,000 is a lot of money. Divided into £500,000 Participating Preference shares and £150,000 Ordinary shares, it means that, after providing for depreciation, etc., etc., etc., £35,000 is required to meet the 7 per cent. Cumulative dividend on the Preference shares. After a corresponding 7 per cent. dividend is paid on the Ordinary shares, involving a further £10,500, two-fifths of any surplus profit will be distributable among the Preference shares up to a maximum of 7 per cent. This would give 14 per cent. in all.

Examination of Participating Rights.

What does this participation really mean? One may dive into the question instructively. Suppose that the total divisible surplus reached £160,000. By divisible surplus is meant the amount that is available after depreciation, internal strengthening, and the dozens of other essential appropriations that must be attended to for the upbuilding of a financially sound company.

Assuming, therefore, that the divisible surplus profit be £160,000, there would remain £114,500 after meeting the fixed 7 per cent. dividend on the total capital.

Two-fifths of this £114,500 would represent the additional 7 per cent. dividend on the Preference shares offered to the public. The remaining three-fifths would be equal to approximately 45 per cent. on the Ordinary shares. This is just a rough calculation for the purpose of illustrating the participating position of the Preference share capital.

Not Very Much Information.

It must be confessed that the information provided for the guidance of the investing public is not by any means abundant or elaborate. The statement of profits should have been amplified so as to enable one to form an opinion of the real position.

One would not desire a mass of statistical matter with rosy-coloured deductions misleading the public with expectations beyond any reasonable chance of realisation: such stuff is unnecessary, but there is a happy medium between a toneless and bald statement and an elaborated array of figures calculated to impress the investor unduly.

Toneless Statistics.

The Handley Page, Ltd., prospectus is too bald and toneless, and perhaps unduly modest, which perhaps suggests that the sponsors are really indifferent whether the public subscribe for the shares or whether they do not. There is a statement of annual profits before the deduction of royalties, and business turnover of each year is provided.

But neither of these sets of figures really convey much, if anything, as a guide for the prospective investor. Can it be that this modesty of detail is intentional and for the purpose of not enlightening competitive undertakings?

Financial Details of Interest.

As to the purely financial aspect of the transaction, Mr. Handley Page receives 140,000 of the 150,000 Ordinary £1 shares for the patents, designs, inventions, etc., and also for any improvements or further inventions relating to aircraft made by him during the seven years ending December 31st, 1925. By this agreement he undertakes to act as managing director for seven years from January 1st, 1919, which agreement he can extend for successive periods of three years during his life.

Of the £500,000 raised by the present issue of Preference shares, £100,000 will be used for paying off loans to the bank, raised for the purpose of coping with the growth of the business, and the balance will provide working capital and also meet the purchase of the factories and plant erected by the Ministry of Munitions. The price thereof is being arbitrated.

WHITEHEAD SHARES FOR SALE.

Why should J. A. Whitehead be so solicitous as to hawk (this is the term of a recipient shareholder) shares of the Whitehead Air Company (1917), Ltd.? It seems unbecoming of a governing and managing director to do such a thing. Under date of October 24th, 1918, the shareholder in question received this letter: "In accordance with my practice of communicating personally with you, informing you at once of matters of interest in connection with the business, I have the pleasure to inform you that the preliminary figures for the year ending September 30th, 1918, as now before me (after making ample allowance for depreciation and the final adjustment of figures) show that the fixed dividends on all classes of shares have been earned some three times over; the fixed dividend will therefore shortly be declared.

"It must of necessity take some little time before the final accounts are complete and audited, when the surplus dividend will be distributed."

The same shareholder received an offer from Mr. J. A. Whitehead this month to sell to the shareholders 7 per cent. Cumulative Participating Preference shares of £1 each in Whitehead Aircraft (1917), Ltd., at par—*i.e.*, £1 per share. "Why is it necessary," asks the shareholder, "to hawk shares in the second year of the company's existence?"

One must repeat: it is strange practice. Further, are the terms offered reasonably attractive? That is debatable with the 10 per cent. Participating £1 Ordinary shares changing hands in the Stock Exchange about 10s. 4½d. to 10s. 10½d. each.

CURRENT TOPICS.

Insuring Easter "Flips."

So much is said in the papers about the expected "boom" in Easter aerial "joy rides" that the question of insurance connected therewith is important. The Aviation Insurance Association has been fully alive to the business, which is what one expects of specialists. They have been quite prepared to quote rates either for omnibus policies to the aviation company, under which the companies would declare each risk when incurred, or for individual policies.

Interesting Quotations.

Provided a normal flight was to be made in an approved type of machine, the company was prepared to quote a rate of about 8d. per £100 to cover the risk of death of a passenger during a "flip." The minimum premium would be 2s. 6d., and for about 3s. 4d. the passenger could take out a policy covering the risk of death for £500.

For another premium of about 2s. 9d. the intending passenger could effect a policy covering certain disablement benefits. These benefits include the payment of £500 in the event of the loss of two limbs or both eyes or one limb and one eye: £250 for the loss of one limb or one eye; £500 for permanent disablement from all active occupation, and £5 per week (after the first week) for temporary total disablement up to 26 weeks, the limit of claim under one or all headings. For about 6s. 1d. per £500 the intending passenger could thus insure against the risks of death and non-fatal accidents together. If trick or night flying were to be indulged in, additional rates would be charged.

Cynical.

From the preliminary statement covering all the State War Insurance schemes it appears that the premiums received for aircraft and bombardment risks accepted reached £13,610,000, while the claims paid and outstanding losses amounted to £2,970,000, leaving a surplus of £10,640,000. One might suggest, cynically, that the very fact that this is one of the very few profitable State transactions is enraging some of the critics.

New Issues Coming Out Freely.

An interesting point is the constant increase in the number of New Issues curtseying for the kind consideration of the investing public. Times are changing rapidly in this respect: it is to be hoped that the public will show discrimination in the selection of the outlets for their savings: it is necessary.

Wellesley-Brown Aircraft Prospectus.

There is published the prospectus of the Wellesley-Brown Aircraft, Ltd., with a capital of £100,000, inviting subscriptions for 91,000 £1 shares at par.

The company was incorporated in September, 1918, and acquired the whole of the rights in an invention of a high-power internal combustion engine for aeroplanes (applicable in a modified form to motor-ships, boats, cars, etc.), "designed to give greater horse-power than obtainable in other designs, and run continuously for protracted periods with a minimum of vibration. . . . Applications have also been made for patents in respect of certain novel features introduced into the design for the engine."

He would be an optimist who risked his money in such a venture without some fuller knowledge of the position. The business has yet to prove its capabilities, which is a serious consideration; the details given are meagre, and the estimates of the value of Royalties not sufficiently convincing.

MORTGAGES, CHARGES, AND SATISFACTIONS.

Flightcraft, Ltd.—Issue on March 19th, 1919, of £500 debentures, part of a series already registered.

Flightcraft, Ltd.—Issue on March 29th, 1919, of £100 debentures, part of a series already registered.

Rolls-Royce Releases.

The following account of an attack by a large British flying boat on a German Zeppelin of the latest type during the latter part of the war has made a belated appearance. The boat was fitted with two powerful Rolls-Royce engines and carried two pilots, a wireless rating, and a petty officer engineer.

One of those on the boat, describing their experiences, said:

"We left our base at 1.15 p.m., and at 4.30 p.m. a German Zeppelin of the latest type was observed on the port beam. It was about 1,500 feet above us, approximately a mile away, and was proceeding due east in the direction of Heligoland. Our machine was at once put to its best climbing angle, the guns were tested and everything found satisfactory—the engineer rating proceeded to the rear gun cockpit and tested both guns.

Zeppelin Attacked with Bombs.

"By this time we were at a height of 6,000 feet. The hostile craft had evidently seen us first, and was endeavouring to get directly over our boat in order to attack us with bombs. When we had reached a height of 8,000 feet (the Zeppelin had climbed to 9,000 feet) the attack was opened.

"We fired about 120 rounds of explosive ammunition, and the engineer rating also fired about the same number of rounds. By this time the Zeppelin was about 500 yards distant—all our fire appeared to hit her. Little spurts of flame caused by our explosive bullets appeared all over the Zeppelin envelope, and she discharged what appeared to be a great amount of water ballast and threw many articles overboard. Then the nose of the great Zeppelin gradually rose and she commenced to climb above us as fast as possible.

A Gun Stoppage.

"Unfortunately we had a gun stoppage which meant a good many minutes' delay, the breech of the gun having to be taken to pieces. All the while the Zeppelin continued to climb, and again endeavoured to get directly over our machine. In this it eventually succeeded and dropped five or six bombs. The engineer then reported that seven hostile destroyers were circling beneath us. We were now at a height of 11,000 feet and the Zeppelin about 12,500 feet.

"We again opened fire, and another 130 rounds of explosive and tracer bullets were put into the Zeppelin. It was noticed that her port propeller almost stopped and she steered hard to port—it was concluded that the port engine had been hit by gun-fire as well as other parts of the craft, as the envelopes and gondolas seemed a background for all the flashes of the explosive and tracer bullets. There were more outpourings of ballast and articles and considerable smoke.

A Tracer Bullet Exploded in Gun.

"It was concluded that the Zeppelin was finished, but she again headed for Holstein in a crab-wise fashion, emitting much smoke. We were again stopped with gun trouble, one being a bad jam—a tracer bullet exploded in the gun and flashed in the face and on the hand of one of the pilots, but outside a few scratches he received no injury.

"As soon as the gun was cleared the machine was ready to attack again—the Zeppelin was then proceeding due east, still in a crab-wise fashion.

"It was losing its height and emitting black smoke, although parts were pure white. Just then the hostile destroyers beneath us opened fire, and, owing to shortness of petrol for the return journey and being only a few miles from Heligoland, we were forced to give up any further attack. The fighting had last for one hour and five minutes.

Alighting on the Sea for Repairs.

"As our boat was difficult to control in the air, we alighted on the sea, and then ascertained that the rudder and elevator were slightly damaged. The German destroyers were steaming with all possible speed in our direction, so repairs were quickly carried out, and we once more rose into the air and left the destroyers behind. We eventually reached home without further adventure, but with practically no petrol.

"During the whole time in the air, which was 7½ hours, the two Rolls-Royce engines ran perfectly, and it was doubtless due to their reliability that we were able to make this lengthy and effective flight and return successfully."

[This is valuable testimony to the joint work of Lieut.-Col. John Porte, C.M.G., and of Mr. F. Henry Royce.—Ed.]

LIEUT.-COL. J. B. BARRINGTON.

Lieut.-Col. J. B. Barrington, who has now returned to civilian life, has accepted the position of Chief Assistant Engineer to Rolls-Royce, Ltd. For six years prior to the outbreak of war he was on the engineering and designing staff of this firm, and from March, 1915, he has done war service, firstly in connection with the aero-engine department of the Admiralty, and, secondly, as officer in charge of aircraft engines, immediately under the head of the technical side of aircraft.

The other principal officers of the department serving under Mr. F. Henry Royce, the Engineer-in-Chief, are Messrs. Day and Elliot, Chiefs of Designing Staff; Messrs. Hailey and Olley, Chief Production Draughtsmen; Messrs. Nadin and Haldenby, Equipment Engineers; and Mr. Hall, Metallurgical Chemist.

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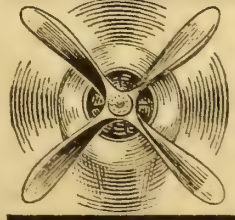
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AIRCRAFT IN PARLIAMENT

THE HOUSE OF LORDS.

April 16th.

NAVAL, MILITARY, AND AIR FORCE SERVICE BILL.

The House did not insist on the amendments which it had made in this Bill and with which the Commons had disagreed.

* * *

THE HOUSE OF COMMONS.

The following oral answers were given on April 14th :—

BRITISH CELLULOSE COMPANY.

Lieut.-Col. MALONE asked the Prime Minister whether his attention has been drawn to the fact that permission was granted to the British Cellulose and Chemical Manufacturing Company to issue fresh capital in January last; whether the case of the company was *sub judice* at that date; and whether it would have been preferable to have suspended the issue pending the publication of the Report of Lord Sumner's Committee?

The CHANCELLOR OF THE EXCHEQUER (Mr Chamberlain): The answer to the first part of the question is in the affirmative. The matter was carefully considered, and it was not considered advisable to suspend the issue.

Mr. BOTTOMLEY: Is it not the fact that the people most pressing for the publication of this Report are the company itself?

Mr. CHAMBERLAIN: I have no knowledge of that, Sir.

AIR SERVICES—MACHINES REDUCED.

Mr. RAPER asked the Under Secretary of State for Air whether a number of aeroplanes which were quite fit for instructional purposes and for practice flying have been destroyed after the engines had been removed, when they could have been put to good use in training cadets and junior flying officers; and whether a number of late types of machines have been destroyed in France after the engines had been removed, when they have merely had their under-carriages crashed, broken one or two spars, or suffered some other easily repairable injury?

The UNDER SECRETARY OF STATE FOR AIR (Major-General Seely): The machines that have been reduced to produce, i.e., reduced to their component parts, fall into two classes :—

(*a*) Those that have been declared "obsolete" by the Air Council; one of the points taken into account by the Council in pronouncing a type "obsolete" is its suitability for instructional or practice flying. The total number of such machines reduced to produce from November 11th, 1918, to February 28th, 1919, was 2,646.

(*b*) Those that have been so damaged in flying accidents as to be beyond the capacity of the unit concerned to repair them, and not worth the cost of transport to a repair depot. The only standard machines reduced to produce in France are of this class.

HANDLEY PAGE MACHINES—HENDON.

Mr RAPER asked the Under Secretary for Air what damage was sustained by the twenty Handley-Page machines which have been left uncovered in the wet at Hendon for periods varying from one month to three months during the recent bad weather, and the value of all parts, both as regards machines and engines, which have been, or will be, replaced as a result therefrom before all these machines can be passed as serviceable?

Major-Gen. SEELY: The total cost of making good the damage sustained by the thirty-two Handley Page machines which had to be left in the open at Hendon Aircraft Acceptance Park was £1,672 0s. Of the damage sustained part was due to failure of the dope covering certain of the fabric parts; and the remainder due to the very high winds which injured some of the tail skids, control cables, etc.

RESERVE OF AVIATORS

Mr. RAPER asked the Under Secretary of State to the Air Ministry whether it is the intention of the Air Council to continue the training of cadets and officer pupils who have already received part of their instruction so as to form an Air Force Reserve similar to the Special Reserve of the Army, so that a number of aviators can be called up for training for a set period in each year, thus securing to this country an adequate reserve of aviators prepared for any national emergency?

Major-Gen. SEELY: There are already more than sufficient trained pilots to meet all the requirements of the Royal Air Force Reserve, so far as can be anticipated, and it is not considered necessary to call upon cadets whose training is not completed.

CIVILIAN FLYING.

Mr. JOYNSON-HICKS (*by Private Notice*) asked the Under Secretary of State for Air whether he is yet in a position to make any statement as to the progress with the Civilian Aviation Department, and when it will be possible to permit civilian flying in this country?

Major-Gen. SEELY: It is intended to start civilian flying on May 1st Applications have been received from various companies for permission to make civilian passenger flights during the Easter holidays. It has been decided to give this permission as from April 17th to April 22nd, inclusive; flights to be limited to a radius of three miles from an approved aerodrome, and on an undertaking that the rules of the aerodrome shall be strictly observed Owing to the short time available it will only be possible to give approval to service types which have been built under the supervision of the Aircraft Inspection Department.

Applications should be sent to the Secretary, Air Ministry (C.G C.A.) and must state :

(*a*) The type of machine with sufficient particulars to identify it.
(*b*) The full name and surname of the pilot.
(*c*) The location of the aerodrome (and of the aircraft), and
(*d*) The name of the company or firm applying.

I am not in a position to make any definite statement with regard to the first part of the hon. Gentleman's question, but I hope to be able to do so after Easter

ROYAL AIR FORCE—EQUIPMENT OFFICERS (GRATUITY).

Lieut.-Col. SPENDER CLAY asked the Secretary of State for War how the gratuity is calculated for Equipment Officers who joined as such prior to the issue in 1916 of H.C.I. 193; and whether these officers are entitled under their contract to the gratuity as laid down in Article 226 of the Pay Warrant?

Major-Gen. SEELY: Army Council Instruction 193, of 1916, was issued with a view to making clear which officers of the Special Reserve of the Royal Flying Corps were entitled to gratuity under Article 226 of the Army Pay Warrant. At the time this Article was framed the appointment of "equipment officer" did not exist, and the special gratuity of £150 per annum provided under it was designed only for flying officers and not for those engaged on ground duties. Officers appointed as equipment officers accordingly have no contract entitling them to gratuity under Article 226 B, but they are eligible, under Article 497(*b*) of the Pay Warrant, for gratuities of 124 days' pay for the first year and 62 days' pay for each further year, or part of a year, of service, based, subject to certain conditions, on the highest rate of pay they have drawn at any time during their service

AIR ROUTES.

Lieut.-Col. MOORE-BRABAZON asked the Under Secretary of State for the Air Ministry whether it is still the policy of the Government to allow private enterprise at first to operate the easier of the great air routes, the more difficult being operated by the State; and whether such decision has been changed in view of the statements to the effect that the Cairo to India and beyond route is to be operated by the Government?

Major-Gen. SEELY: The policy of His Majesty's Government is broadly that stated in the first part of the question. Strategic considerations enter largely into the route between Cairo and India, and it would, therefore, be premature to make any precise statement at present.

* * *

April 14th.

The Lords Amendments on the Naval, Military and Air Forces Service Bill were considered. It was resolved—

"That a Committee be appointed to draw up reasons to be assigned to the Lords for disagreeing to their Amendments to the Naval, Military, and Air Forces Service Bill.

"That the Committee do consist of Mr. Churchill, General Seely, Captain Wedgwood Benn, Mr Tyson Wilson, and Colonel Royds.

"That three be the quorum, and that the Committee withdraw immediately."—[Mr. Churchill.]

April 16th.

The Royal Assent was given to the Naval, Military, and Air Force Service Act, 1919.

* * *

The following written answers were given on April 15th :—

AEROPLANE MANUFACTURE—(GERMANY AND AUSTRIA).

Mr. RAWLINSON asked the Prime Minister what steps, if any, have been taken to prevent the manufacture of aeroplanes in Germany and Austria at the present time?

Mr. CHURCHILL: No steps have been taken in either case to prevent such manufacture under the terms of the Armistice, but export is prohibited.

* * *

The following written answer was given on April 16th :—

ENEMY AIR RAIDS—(COMPENSATION).

Mr. SAMUEL SAMUEL asked the Prime Minister whether he will take steps to compensate British subjects, who were uninsured, and whose property has been destroyed by damage by air raids and bombardment, out of the first moneys received from the German war indemnity, in the same way as French and Belgian citizens are compensated for the material damage to their property in consequence of the German invasion?

Mr. BONAR LAW: I cannot make any statement at present with regard to the disposal of moneys received from the German indemnity.

* * *

The following oral answers were given on April 16th :—

MISS VIOLET DOUGLAS-PENNANT.

Mr. THOMAS RICHARDS asked the Prime Minister whether, in view of the fact that the conditions of the pledge given to the House by the Secretary of State for War in the case of Miss Violet Douglas-Pennant have now been complied with, the inquiry promised is to take place?

Mr. CHURCHILL: I have been asked to answer this question. I am ready to lay on the Table of the House the correspondence which has passed up to the present on this subject between the Air Ministry and Miss Douglas-Pennant if that is the desire of those who are acting for her, and if the House considers it of sufficient importance.

So far as it has at present proceeded, it does not, in my opinion, disclose any case different from that which could be made by any person superseded in any situation against those among whom and under whom she has been working. I have, however, asked for more precise definitions of the various allegations which Miss Douglas-Pennant has preferred.

It is possible that some of the statements might be suitable for private persons to test in the Courts in the ordinary way; but I do not at present discern any sufficient grounds to justify the considerable expense of an official inquiry.

Mr. RICHARDS: Is it not a fact that Miss Pennant made specific charges against certain people?

Mr. CHURCHILL: As I have said I am willing if those who are acting for Miss Pennant wish it, and if they think it is in her interest, to lay the correspondence on the Table of the House so that hon Members can judge for themselves.

Brig.-Gen. Sir O. THOMAS: Will the right hon. Gentleman supply the House with the report of the hon. Member for Luton (Mr Harmsworth) in respect of which the Prime Minister has already promised an inquiry into this case?

Mr. CHURCHILL: No, Sir, I am not prepared to lay that report on the Table. After making inquiries I ascertained that the hon. Member for Luton considered it was a private report drawn up by him for the information of the Prime Minister, and, on general grounds, it would be fatal to the administration of public Departments if documents of this kind prepared in this way were subsequently to be published.

Sir O. THOMAS: Will the right hon. Gentleman say why the advice of the Prime Minister was not acted upon?

Mr. DEPUTY-SPEAKER: That does not arise out of the question.

Mr. TYSON WILSON: If the right hon. Gentleman lays on the Table of the House the papers referred to, will he also lay on the Table the letters of protest from Miss Pennant's subordinates?

Mr. CHURCHILL: I think the matter is one between this lady and the Department concerned. The correspondence I have mentioned appears to be relevant to the issue.

Mr. RULING: Are we to understand that in the event of this case being taken to the Courts all the official documents will be disclosed?

Mr. CHURCHILL: It is not for me to attempt to lay down rules for the conduct of proceedings in the Courts.

AERONAUTICS and The LAW

AIR ADVERTISING.

By "THE LINCOLN IMP."

M. Jourdain's surprise on learning that he had been speaking "prose" all his life was nothing to that which an advertising expert would exhibit on hearing himself described as "a subtle psychologist." But the fact is incontestable. To be successful, an "ad." must compel attention to itself *nolens volens* the public; this cannot be achieved, at least on a large scale, without a subtle intuition into the psychology of the crowd.

This is not going to be a dissertation on the general art of advertisement, but it is relevant to remark that to achieve big results an advertisement has two conditions to fulfil—(a) the advertisement must be visible to masses of men and (b) it must force their attention to itself. By no vehicle of advertisement are these two conditions better fulfilled than by aircraft aloft in the sky. Crowds cannot help looking up when aircraft pass overhead. It may therefore be predicted with some confidence that aircraft will be extensively utilised for advertising projects, unless legal difficulties intervene.

It is to the advantage of the aircraft industry as a whole that reasonable aerial advertisement should be allowed. The revenue from this source should be a far from negligible item to set off against the running costs which advertisement need not increase. Are there, then, any legal restrictions on this form of advertisement as the law stands at present?

First Act to Regulate Advertisements.

The first Act ever passed to regulate advertisements in general was the Advertisement Regulation Act, 1907. This Act authorises local authorities to make bye-laws respecting the exhibition of advertisements, and for breach of such bye-laws imposes a penalty of £5 in the first instance, with 20s. a day extra, after conviction, so long as the breach is persisted in.

The scope of the Act is, however, very limited, since it extends only to (a) hoardings and similar structures and (b) advertisements exhibited in such places or in such manner or by such means as to affect injuriously the amenities of a public park or promenade or to disfigure the natural beauty of a landscape.

Is an Airship a Structure?

It seems very improbable that even an airship could properly be described as "a structure similar to a hoarding"; but if "landscape" can be said to include "skyscape," it does seem arguable that a huge aerial advertisement might disfigure the natural beauty of a sky scene or a sunset. Particularly so in the case of an anchored aircraft, such as a kite balloon.

A kite balloon is clearly capable of falling within the statutory definition of "a sky sign" which includes "any balloon, parachute, or other similar device employed wholly or in part for the purposes of any advertisement or announcement on or over or above any house, building, structure, or erection of any kind, or on or over any street or public way."

Inclusion of the Word "Parachute."

It would have seemed tolerably clear from the context that only fixed or anchored signs were hit at by this definition, but for the curious inclusion of the term "parachute." With the definition as it stands, it could be said that an airship is a similar device to a balloon, and an aeroplane a device similar to either a balloon or a parachute. The result of this interpretation, if correct, is practically to prohibit advertisement in the air above the British Isles. For new sky signs are prohibited over London by the London Building Act, 1894, and over such part of the rest of the British Isles as a principal Secretary of State decides by the Public Health Acts Amendment Act, 1907.

Those interested in aviation will do well to bear these Acts in mind when legislative provision is being made for commercial air navigation in general.

Another method of advertisement from aircraft is by the dropping of leaflets; this appears to have become so prevalent in the R.A.F. a short while ago that it was thought necessary to prohibit it by Air Ministry Weekly Order.

Leaflets Scattered by Aircraft.

"The Imp" has seen people picking up leaflets in Oxford Street advertising some charity or War Bonds and dropped from an aircraft overhead. If it could be said that the notices so dropped were (a) distributed in Oxford Street and (b) by any person riding on a vehicle, then the aviator was committing an offence for which the penalty was 10s., unless he had the authority of the Commissioner of Police or was selling newspapers (Metropolitan Streets Act, 1867, s. 3). It may be that each leaflet dropped is a separate offence.

So far as "The Imp" is aware, there is no special legislation directed at another form of aerial advertising usually included in the expression "exhibition flying." It would seem very desirable in the interests alike of the public at large, the pilots of the machines, and bona-fide acrobatics that the law should require special safeguards to be provided where extra risks are incurred for the mere sake of advertisement. THE LINCOLN IMP.

Carriage by Air.

An Important Point for Aerial Carriers.

In reply to Mr. Bickmore "The Lincoln Imp" writes:—

A carrier of goods may be "a common carrier," or he may not. A carrier who undertakes to carry for anyone who asks him is a common carrier. If he limits his customers to particular persons he is not.

A common carrier is subject to peculiar liabilities, originating in the custom of the realm and incorporated in the common law of England. A common carrier may carry either by land or by water. Can he carry by air?

In his sound and useful letter in a recent number of THE AEROPLANE Mr. Bickmore assumes that it is possible for a man to be a common carrier by air, and probably this is so. The common law of England is as wide as the realm and as expansive as our language.

Apply the analogy of railways. The owners of "The Rocket," when steam traction was novel, were common carriers at law equally with Mr. Cripps the Carrier or Barkis the willing. They were none of them limited in their responsibility to the exercise of reasonable care, but had the liability of insurers in respect of the goods they carried.

The common law liability of carriers has been modified in some degree by statute; in particular by the Carriers Act, 1830. Railways, in 1830, had only just come into existence and were not mentioned by name in the Act, which extended, however, to all public conveyances by land.

The preamble refers to the frequent practice of bankers and others of sending by the public mails and conveyances packages containing money, bills, notes, jewellery, and other articles of great value in small compass, with the result that common carriers have been exposed to great and unavoidable risk, and have sustained heavy losses. The Act then proceeds to relieve the carrier of his common law liability in respect of various articles which it specifies if above the value of £10 unless a declaration of nature and value is made and an increased charge is paid.

Articles "of great value in small compass" are the very type of goods which will be carried by air, but the carrier by air will not have the protection of the statute as would a carrier by land since the application of the Act is confined to the latter by its express terms. It is up to those who intend to fly for hire as carriers by air to see that they are protected by special legislation, or they too may sustain heavy losses.

Meanwhile a curious question may arise if valuables are destroyed or damaged by a crash on the 'drome for which the common carrier is in no way to blame. Is he within the protection of the Act as being "a carrier by land"? If the sea analogy be applicable he is, since it has been held that a contract to carry goods partly by land and partly by sea is divisible, and the Act has been applied to the land part of the journey.

THE WAR MEMORIALS EXHIBITION.

The Royal Academy War Memorials Committee has been considering for some time past the best means of giving guidance to promoters of war memorials and of meeting the interest of the general public in the selection of suitable designs and of artists specially qualified for their execution, and the Committee has now decided to hold an Exhibition of Memorials, which will be arranged in two distinct sections during the present year.

It is proposed to hold the first section at the Victoria and Albert Museum, South Kensington, in June. This section will comprise selected examples of memorials executed in past and recent times by deceased and living artists.

The second section, to consist of new designs for war memorials in any class of art or craft with a view to the circumstances of the present war, will be held at the Royal Academy in October.

THE TRANS-ATLANTIC COMPETITION.

On Friday, April 18th, Major Wood, R.A.F., pilot, and Capt. Wyllie, R.A.F., navigator, left Eastchurch for Ireland in the Short trans-Atlantic machine. An experimental machine piloted by Mr. Lankester Parker, the Short test pilot, was acting as escort.

All went well until a short time after Holyhead had been passed, and then the trans-Atlantic machine fell into the Irish Sea. The cause of the descent was, it is alleged, an air lock in what one of the daily papers called the "petrol cistern"—*id est* system.

Both the pilot and the navigator were rescued and the machine has been salved in a more or less damaged condition. Major Wood intends making another attempt should the prize not have been won by the time he is ready to make a start.

Other Competitors.

Several competitors are now ready to attempt a trans-Atlantic flight for the £10,000 prize. The weather conditions, however, have not been sufficiently suitable for an attempt to be made from either side of the Atlantic.

The Sopwith Plans.

The Sopwith aerodrome at St. John's, Newfoundland, is at present soaked with rain and snow. Mr. Hawker, the pilot, made a trial flight recently, during which the sending instruments of the wireless apparatus were damaged. This is unfortunate, as it decreases the aviator's chances of being picked up should a forced landing be made.

Mr. Hawker proposes to fly fairly low until he has crossed the Grand Banks, now probably fog-bound. Beyond that point he expects finer weather, and he will then ascend to a height of about 8,000 ft., which will be the average height over the greater portion of the route. At this height he hopes to avoid conditions of fog and mist which are normally very frequent over the Atlantic area at this season, and the moon will assist him in navigation.

In the early morning, if the position is uncertain, he will descend sufficiently low to come within sight of any ship which may be passing, and the position of which he can determine beforehand by his wireless, and will obtain his latitude and longitude from it. With this check on his reckoning he will ascend again and continue his flight at a higher altitude until he reaches the British coast. In the event of any accident which compels him to return he would plan to make a new flight immediately after repairs could be made, unless in the meantime some more fortunate competitor has gained the prize.

The Martinsyde.

Mr. Raynham, who is going to pilot the Martinsyde machine, has declared that the aeroplane could fly for twenty-five hours at a rate of 100 miles an hour, and it is expected that the pilot will make straight for the west coast of Ireland, and proceed thence to Brooklands, completing the journey in twenty hours.

He added that the failure to provide personal safeguards was due to the fact that he proposed "to cross the Atlantic, not fall into it." Major Morgan, Mr. Raynham's navigator, will lay the course, using the sextant on the stars by night and the sun by day.

The Handley Page Preparations.

The Handley Page aeroplane which is to attempt the flight is now on its way to Liverpool, dismantled and packed in crates, whence it will be sent to Newfoundland. It is expected that the party, which includes Major H. G. Brackley, D.S.O., D.S.C., R.A.F., and Vice-Admiral Mark Kerr, C.B., M.V.O., R.N., the pilots, Major Gran, R.A.F., who will act as navigator, and a wireless operator, will sail on or about May 3rd, for St. John's, Newfoundland.

Discussing the projected flight recently, Major Brackley said that the preparation for an aerodrome at St. John's had been in progress for some time. Owing to the enormous weight of the machine, which, when fully loaded, will amount to about 32,000 lbs., it will require an exceptionally long take-off. With all four engines at full power, a speed of sixty-five miles an hour will have to be attained before any attempt can be made to rise, and a run of at least half a mile will be necessary, but if possible a clear mile will be prepared.

The wireless operator and the navigator will be covered in and protected from the weather, but the pilot and the observer will be exposed, save for a thick glass screen. Each of them, however, will be wearing clothing which can be warmed instantly by electricity, if warmth is needed. No boat is being carried, but life-saving apparatus will be included in the equipment, and a special balloon can be sent up to attract the attention of passing ships should the machine fall into the sea.

For calculation of the drift, a special instrument is being carried, and smoke-bombs will be released to show which way the wind is blowing. Bearings will be picked up from ships en route. Thermos flasks of cocoa will be provided. If possible, a landing will be made near London, at Hendon or Cricklewood, but, in case of necessity—for instance, if petrol is running short—the machine will come down in Ireland.

The American Preparations.

The first official announcement regarding the proposed trans-Atlantic flight by United States Navy seaplanes was issued by Lieutenant-Commander Harold W. Schofield, who is in charge of publicity regarding the Navy's plans. He stated that the flight would start from Rockaway Beach, where the Naval aviation field is situated, and would follow the coast-line to Newfoundland, to a base selected for the take-off.

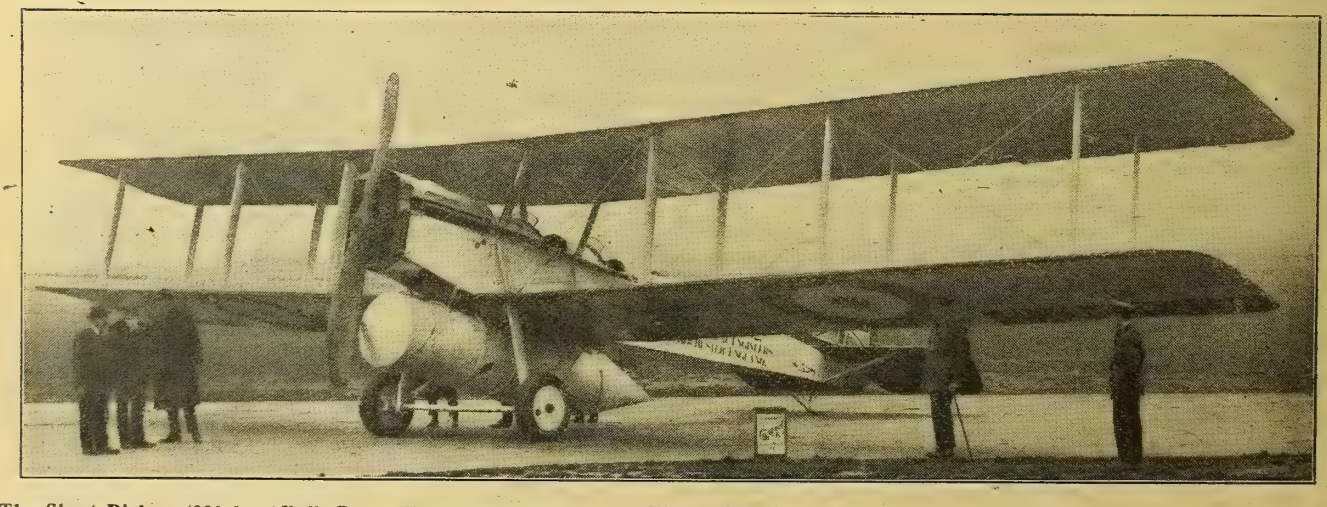
Newspapers will have 24 hours' advance notice of the start. Probably there will be three flying-boats of the N.C. type. It has not been decided whether there will be five or six men in each crew. The harbour in Newfoundland whence the start will be made has not been selected. The seaplane will not be entered for the competition.

The Ninth Entry.

Another entry has been lodged with the Royal Aero Club, this making the ninth. Mr. J. A. Peters, representing the Alliance Aeroplane Co., Ltd., of Hammersmith, one of the several aircraft concerns controlled by Mr. Sam Waring, is the designer of the machine, which is fitted with a 450 h.p. Napier "Lion" engine. Mr. Peters has been nominated as pilot and Capt. W. R. Curtis, R.A.F., as navigator.

The Only Airship Attempt.

Much interest has been aroused by the announcement that the large rigid airship R.33, which a few weeks ago passed its first trial test, has now undergone several additions and improvements, and next week will be completely ready for a trans-Atlantic flight. Many more petrol tanks have been added, bringing the number up to 87, and this will permit of an 88 hours' continuous flight.



The Short Biplane (360 h.p. Rolls-Royce Engine) in which Major Wood, R.A.F., and Captain Wyllie, R.A.F., came down in the Sea off Holyhead.

THE WORK OF THE ROYAL AERONAUTICAL SOCIETY IN 1918-19.

(Communicated by the Secretary, Mr. W. Barnard Farraday.)

Meetings.

A very full and interesting course of lectures was arranged for the current session. During the war, in the national interests, the censorship has rendered it impossible to publish much of the more recent scientific work. But now the necessity for secrecy has to a great extent ceased, and it is hoped that in future years the latest research will be promptly made public at the Society's meetings.

In spite of the precautions observed, however, the lectures offered to the members were undoubtedly of the greatest value and interest, and the Council desire to acknowledge the kindness of Major-General Sir W. S. Brancker, K.M.G., Major L. N. G. Filon, F.R.S., Sir Robert Hadfield, F.R.S., Lieut.-Colonel M. O'Gorman, C.B., Surgeon-General Sir Alfred Keogh, G.C.B., L. Bairstow, F.R.S., Lieut.-Colonel T. R. Cave-Browne-Cave, Brigadier-General R. K. Bagnall Wild, C.M.G., R.E., Lieut.-Colonel A. Ogilvie, R.A.F., Dr. T. E. Stanton, F.R.S., Brigadier-General E. M. Maitland, D.S.O., Lieut.-Colonel Jenkin, R.A.F., for their support in presiding at the meetings. The Council also offer their most cordial thanks to Major Cochrane Patrick, D.S.O., M.C., R.A.F., Major A. R. Low, R.A.F., Major Philpot, R.E., Captain W. S. Farren, M.B.E., Dr. L. E. Stamm, R.A.F., Captain R. J. Goodman Crouch, Mr. F. W. Aston, D.Sc., Captain F. S. Barnwell, C.B.E., Mr. H. Levy, Lieut.-Colonel T. R. Cave-Browne-Cave, Captain A. P. Thurston, D.Sc., Prof. F. C. Lea, Major H. E. Wimperis and Lieut.-Colonel H. G. Lyons, F.R.S., for the series of admirable lectures placed before the Society.

The Wilbur Wright Lecture.

This lecture for 1918 was held in the Central Hall, Westminster, on June 25th. An audience of over 3,000 assembled to hear Dr. W. F. Durand, Chairman of the American Advisory Committee on Aeronautics, lecture on "Some Outstanding Problems in Aeronautics." Sir William Weir, Secretary of State to the Air Ministry, presided. The Council express their cordial thanks to both these gentlemen.

Juvenile Lecture.

The success of the juvenile lecture last year encouraged a repetition and accordingly, on January 8th, a second lecture for the children of members and friends was arranged. A very large audience of young people assembled. The thanks of the Society are due to Mr. Handley Page for his highly interesting lecture and to Lieut.-Colonel Alan Burgoyne, M.P., who presided.

The Exhibit of Enemy Aircraft.

At the request of the Air Council the Society undertook the distribution of the interesting and valuable collection of the war relics at the Agricultural Hall, Islington. The objects selected by the Society were given to it in trust by the Government and have been distributed by it on permanent loan to the following councils and institutions:—The Universities of Bristol, Leeds, Belfast, Liverpool, Birmingham, Sheffield and Wales; the College of Technology, Manchester; the Technical College, Cardiff; the East London College; the Armstrong College, Newcastle; the Technical College, Swansea; University College, Southampton; the Heriot Watt College, Edinburgh; the Technical College, Glasgow; University College, London; Technical School, Lincoln; Northampton Polytechnic, London; Harris Institute, Preston; South-Western Polytechnic; Technical School, Stockport; Tottenham Polytechnic. Technical School, West Ham; and the Corporations of Gravesend, Ramsgate, Southend, Leeds and Swansea; the Technical School, Blackburn; the Borough Polytechnic Institute, Southwark; the Corporation of Ipswich; University College, Exeter; the Technical Institute, Coventry; the Royal Technical Institute, Salford; Tonbridge School, and the Imperial College of Science.

Demobilisation of Officers and Others in the Flying Services.

The Council, upon the declaration of the Armistice, appointed a Special Committee to consider the problems likely to arise in relation to the employment of members of the Society demobilised from the Services, and the cognate problems existing in relation to aeronautical education. It has throughout advised the Ministry of Labour in relation to these questions. It is proposed to circulate, where it is likely to be of service, a list of members of the Society who have asked for assistance in obtaining employment, and it is hoped that all members will do their utmost to assist fellow members in these critical times.

Qualifications for Membership.

The qualifications which should be required of candidates for technical membership of the Society has again been under consideration on various occasions during the year. In connection with this question of the desirability of instituting examinations, and the acceptance in lieu thereof of the degrees and diplomas of certain universities and colleges came under review. The Council do not think that the time has yet come to institute examinations by the Society, but inquiries are being made with a view to preparing a list of universities, colleges and schools where classes for aeronautical training have been established and where degrees or diplomas in this subject are granted, and of ascertaining which aircraft and other works would be likely to offer an adequate technical training.

The "Journal."

In January, 1918, in consequence of a general demand, the experiment was made of issuing the "Journal" as a monthly instead of a quarterly as heretofore. At the same time, in consequence of the greatly increased cost of printing and paper, the price was increased from 1s. 6d. to 2s. 6d. A publication of this sort is such a heavy expense to a learned society that the experiment was embarked upon with some anxiety, but the result has fully justified the action taken.

The Library.

Recent issues of new books on aeronautics have been added as published, while the collection of bound issues of trade and scientific journals dealing with aeronautics throughout the world has been kept up to date and is nearly complete. Upon the declaration of peace an endeavour will be made to obtain various German publications, which it has been impossible to obtain during the continuance of the war.

Abstracts.

Under the arrangement with the War Office a monthly issue has been made of abstracts from the world's Press on aeronautics. It may be opportune to detail to the members how the abstracts on aeronautics have been prepared. The War Office collected the material, the Society and the National Physical Laboratory jointly appointed the abstractors. The matter thus procured was issued by the War Office under the editorship of Lieut.-Colonel Wake. The Council desire to place on record their sense of the very useful services of Colonel Wake in the matter.

The Secretary.

The Council desire to express their keen appreciation of the work of the Secretary during the past year; the large increase in membership and highly satisfactory condition of the finances is due in no small measure to his exertions in the interests of the Society. His business qualifications have been specially useful as regards the publications of the Society, which have been a matter of considerable anxiety and difficulty during the war.

The Council also desire to acknowledge with appreciation the valuable assistance given to the Society by Miss St. Barbe, the Assistant Secretary.

Finance.

The financial position of the Society, as shown in the accompanying balance sheet, is satisfactory and continues to improve. In January of the present year a further investment of £500 was made in War Loan, bringing the investments of the Society in this stock up to £1,350. The labour of transacting the office business of the Society would be made considerably lighter and much exeense would be saved if members would, wherever possible, pay their subscriptions by means of a banker's order.

The Honorary Officials.

The Council desire to express their most cordial thanks to Messieurs James Ward and Co. for their services in auditing the books of the Society, and to Mr. B. Woodward, the Honorary Solicitor, who has advised them throughout the year.

DISPOSAL OF GOVERNMENT STORES.

Mr. W. J. Larke, O.B.E., Controller of the Disposal of Miscellaneous Stores has removed from the Hotel Metropole to Caxton House, Westminster, now the headquarters of the Miscellaneous Stores Department, and to which address all communications should be sent.

The Standing Advisory Committee of the Ministry of Munitions on the Utilisation of Surplus War Material has removed from the Hotel Metropole to Caxton House, and all communications should be sent to the Secretary at that address.

THE AERO CLUB OF ITALY.

The Aero Club of Italy announces that it has appointed "L'Aeronauta" as its official organ. This review is a highly technical monthly, and is published by Prof. Giacomelli at 52, via Colonna, Rome. The yearly subscription is 25 lire, and the editor would be glad to get into touch with English business firms.—T. S. H.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

Air Ministry, April 15th.

R.A.F.—The following temp. appts are made at the Air Ministry :—Staff Officers, 2nd Cl.—(P). Maj. R. C. Lane, Oct. 28th, 1918.

Staff Officers, 3rd Cl.—Capt. F. F. Loyd, March 8th; (P.) Lt. (actg. Capt.) J. H. Evans, and to retain the actg. rank of Capt. whilst so empld., April 3rd.

Flying Branch.—Lt.-Col. (actg. Col.) C. D. Breese, A.F.C., to be Lt.-Col. (A.), and relinquishes the actg. rank of Col., from (S.O.), April 7th

Maj. (actg. Lt.-Col.) J. E. Dixon-Spain to be Maj. (A.), and to be actg. Lt.-Col., without pay and allces. of that rank, whilst empld. as Lt.-Col., from (T.), March 26th

Majs to be Majs. :—(A.) J. A. G. de Courcy, M.C., from (S.O.), Feb. 6th; S. E. Parker, M.B.E., A.F.C., from (S.O.), March 27th; (Actg. Lt.-Col.) A. W. Tedder, and relinquishes the actg. rank of Lt.-Col. on reduction of establishment, April 2nd.

Capt. E. A. Taylor to be actg. Maj. whilst empld. as Maj. (A.), Oct. 2nd, 1918.

D. Wood (Lt., Gen. List) is granted a temp. commn. as Sec. Lt. (A.), Aug. 19th, 1918, and to be hon. Lt. (substituted for notification in "Gazette," Sept. 17th, 1918).

G. W. Mitchell (Sec. Lt., E. York R., T.F.) is granted a temp. commn. as Sec. Lt., Observer Officer, Aug. 16th, 1918 (substituted for notification in "Gazette," Sept. 10th, 1918, page 10,665).

100086 F./Cadet L. G. Lowe is granted a temp. commn. as Sec. Lt. (A.), Aug. 23rd, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. H. S. Taylor (Capt., C. Ont. R.); Dec. 7th, 1918 (substituted for notification in "Gazette," Jan. 24th, concerning Lt. H. S. Taylor (Capt., Nova Scotia R.)); Lt. R. E. M. Taunton (Lt., Manitaba R.), March 12th.

The following are transferred to unempld. list :—Capt. R. W. Nichol, Jan. 24th; Lt. S. Crosfield, Jan. 28th; Sec. Lt. W. W. McDavid, Feb. 1st; Lt. A. R. Blackeley, Feb. 3rd; Sec. Lt. C. Waine, Lt. R. Brown, Feb. 14th; Capt. (actg. Maj.) A. J. Evans, M.C., Feb. 17th; Lt. (Hon. Capt.) J. E. Chick, Lt. P. Wood, Feb. 19th; Sec. Lt. I. M. B. McCulloch, Feb. 20th; Lt. K. Wallace, Feb. 22nd; Lt. M. E. Burnham, Sec. Lt. E. Dawson, Lt. (actg. Capt.) G. Macfarlane, Lt. B. Ord (Lt., Devon. R.), March 4th; Sec. Lt. (Hon. Lt.) R. S. Blacke (Dorset R.), March 5th; Sec. Lt. W. H. Bentley, March 6th; Sec. Lt. K. Bannister, Lt. N. C. Bennison (Lond. R.), Sec. Lt. D. V. McLeod (substituted for notification in the "Gazette," March 21st); Sec. Lt. R. G. Wilson, March 7th; Sec. Lt. G. Burton, March 8th; Sec. Lt. H. M. Bickle, March 11th; Lt. S. G. Beard, Lt. B. J. E. Belcher, D.F.C., Lt. J. D. Cowie (Arg. and Suth'd Highrs., T.F.), March 12th; Lt. H. A. Francis, March 14th; Sec. Lt. A. M. Wilson, March 15th; Lt. J. Boyd (Scot. Rif., T.F.), Sec. Lt. A. S. Hartley, March 16th; Lt. (actg. Capt.) C. L. Morley, D.F.C., March 18th; Lt. N. L. Monger, Sec. Lt. W. Turner, March 19th; Sec. Lt. W. Massey, March 20th; Sec. Lt. W. Hagan, Sec. Lt. (Hon. Lt.) R. E. Mathias, Capt. C. H. Stocks, A.F.C., March 21st; Sec. Lt. S. T. Metcalfe, March 22nd; Sec. Lt. K. G. Macmillan, March 25th; Lt. A. A. Baker, Sec. Lt. C. R. Knott, March 27th; Capt. A. N. Benge, Sec. Lt. J. Campbell, Lt. G. H. L. Easterbrook, Sec. Lt. W. R. A. Whettell, March 28th; Sec. Lt. G. L. Cox, Lt. H. A. Bendall, Sec. Lt. O. E. Miller, March 29th; Lt. W. T. J. Atkins, Lt. L. H. Burrows, Sec. Lt. J. O. F. Carrall, Lt. W. R. Plaskitt, March 30th; Sec. Lt. W. G. Addison, Maj. H. G. Brackley, D.S.O., D.S.C., Sec. Lt. J. C. Buckley, Lt. I. A. Johnson-Gilbert, March 31st; Capt. E. S. Arnold, Sec. Lt. W. Badger, Lt. H. A. G. Baker, Sec. Lt. I. R. H. Hall, Lt. A. R. Morrison, Lt. E. T. Martin, Lt. (actg. Capt.) J. MacDonald, Lt. T. W. Williams, April 1st; Sec. Lt. J. R. Barrett, Lt. I. S. Black, Sec. Lt. A. I. Boyer, Sec. Lt. F. Chalcroft, Sec. Lt. A. J. Cripps, Sec. Lt. J. B. Gunn, Sec. Lt. J. K. Kempson, Sec. Lt. W. T. Neilson, Sec. Lt. H. S. MacNeice, Capt. J. R. Ross, Lt. J. C. Tate, Sec. Lt. C. E. Whitaker, Lt. A. C. Watkins, Lt. H. R. G. Whates, April 2nd; Lt. (Hon. Capt.) H. Baring, Lt. L. C. Bower, Sec. Lt. A. McL. Blain, Lt. P. A. Carrie, Sec. Lt. F. D. Chappell, Lt. T. H. Whitby, April 3rd; Sec. Lt. P. G. Clarabut, Lt. A. C. Cooper, April 4th; Sec. Lt. P. F. Bruce, April 5th; Sec. Lt. C. Buckton, Lt. M. J. Barnard-Smith, April 6th; Sec. Lt. D. H. Mackay, April 7th; Lt. S. J. Allen, Lt. H. C. Alexander, Lt. (actg. Capt.) F. F. Babbage, Sec. Lt. R. H. G. Boys, Sec. Lt. R. R. H. Bruce, Lt. G. L. Du Cros, Lt. A. J. Coleman, Sec. Lt. A. B. Crawford, Lt. H. R. Cleveland, Lt. L. G. Clark, April 9th; Lt. E. Banks, Lt. E. Bradley, Sec. Lt. R. Beesley, Lt. C. L. F. Clutterbuck, Sec. Lt. H. D. Clacher, Sec. Lt. (Hon. Lt.) B. H. Curry, Sec. Lt. M. Cleland, Lt. (Hon. Capt.) H. Claye, Sec. Lt. C. Curtis, Sec. Lt. H. G. Cowley, Sec. Lt. C. W. Christie, Sec. Lt. A. Dickinson, Lt. A. H. Gearing, Lt. S. Moss, April 10th; Lt. O. H. Adams, Lt. H. W. Collander-Brown, Lt. F. E. Boulton, Lt. W. M. Bevan, Sec. Lt. (Hon. Lt.) S. N. Bourne, Sec. Lt. F. Butler, Lt. T. C. Clifford, Capt. H. L. Chadwick, Lt. (actg. Capt.) R. Cook, Sec. Lt. H. Chapman, Lt. J. Burness, Lt. E. H. Channon, Lt. E. G. Johnstone, D.F.C., Lt. J. D. S. McCubbin (North'd Fus.), April 11th; Lt. C. R. Ball, Lt. R. A. Cartledge, Sec. Lt. H. I. Fryer, Sec. Lt. G. W. Elias, Sec. Lt. E. L. Fuller, Lt. W. Moel-Lushly, April 12th; Lt. F. C. Annesley, Lt. J. L. Armstrong, Lt. L. G. Arcand, Sec. Lt. W. C. Angus, Sec. Lt. D. Agassie, Lt. W. O. Adams, Sec. Lt. W. Atkinson, Sec. Lt. H. A. Barrett, Sec. Lt. R. McG. Balfour, Sec. Lt. J. Brown, Sec. Lt. G. A. Boyer, Lt. C. A. Bisonette, Sec. Lt. S. Burbidge, Sec. Lt. E. Barker, Sec. Lt. R. B. Butler, Sec. Lt. A. H. Butler, Sec. Lt. J. R. Belton, Sec. Lt. R. D. Gilpin-Brown, Sec. Lt. F. H. Brady, Lt. J. W. Bell, Sec. Lt. R. L. Barnes, Sec. Lt. J. A. Carr, Lt. M. S. Cook, Lt. W. W. Chreiman, Sec. Lt. C. B. Clark, Sec. Lt. C. R. Curry, Sec. Lt. E. W. Cockerline, Lt. H. H. Costain, Sec. Lt. H. W. Clark, Sec. Lt. C. J. Church, Sec. Lt. J. R. Crocker, Sec. Lt. R. W. Cunningham, Sec. Lt. H. F. Donovan, Sec. Lt. L. C. Ennis, Sec. Lt. A. H. Dubois, Sec. Lt. F. H. Edson, Sec. Lt. B. J. Forester, Lt. F. E. Des Brisay, Sec. Lt. A. B. Gardiner, Sec. Lt. M. A. Genest, Lt. L. M. Goodfellow, Sec. Lt. R. Gilbruth, Sec. Lt. C. J. A. Guymer, Lt. D. R. Grant, Lt. O. St. C. Harris, Sec. Lt. J. H. Hodgins, Sec. Lt. A. E. Hounson, Sec. Lt. A. McDonald, Lt. H. L. MacDonald, Sec. Lt. H. A. McGrath, April 13th; Sec. Lt. (Hon. Lt.) S. K. Bunce, Lt. B. Burr, Sec. Lt. T. M. Bartlett, Lt. C. W. Band, Lt. J. E. Carpenter, Lt. C. C. L. Coulson, D.F.C., Lt. K. R. Cole, Sec. Lt. J. Cockburn, Sec. Lt. S. E. Crookell, Sec. Lt. G. A. Franklin, Sec. Lt. L. W. Long, April 14th; Sec. Lt. L. H. T. Ashburner, Sec. Lt. H. Atkinson, Sec. Lt. W. H. Barry, Sec. Lt. C. G. Beatty, Lt. L. A. Budd, Sec. Lt. H. N. Baker, Sec. Lt. K. C. R. Coulter, Sec. Lt. J. R. E. Coburn, Sec. Lt. G. H. Carley, Sec. Lt. R. Connor, Lt. (actg. Capt.) J. M. Drysdale, Lt. T. R. Dawson, Lt. H. A. F. Goodison, Sec. Lt. C. B. Gibson, Sec. Lt. F. Guthro, Sec. Lt. M. Golt, Lt. D. S. May, Sec. Lt. S. B. Milner, Sec. Lt. (Hon. Lt.) J. S. Oliphant, Lt. H. E. F. Parkinson (Lt., R.A.S.C., T.F.), Sec. Lt. J. C. Petty, April 15th.

Captain O. Greig relinquishes his commn. on account of ill-health, and is permitted to retain his rank, April 16th.

The following Capts. relinquish their commns. :—H. M. T. Lehmann (on account of wounds contracted on active service), W. T. Wood (Nova Scotia R.) (on account of ill-health), April 16th, 1918.

Capt. P. G. Taylor resigns his commn. at own request, March 31st.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—W. T. J. Hall, O. A. Moore (contracted on active service), H. J. Walkerdine (contracted on active service), April 16th.

The following Lts. relinquish their commns. on account of ill-health :—(Hon. Capt.) H. P. Smith (Border R.), R. H. Stacey, April 16th.

Sec. Lt. (Hon. Capt.) L. N. Robinson relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt., April 16th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—E. R. Wallington, C. A. Robotham, W. S. Spark (contracted on active service), W. Susman (caused by wounds), F. W. Savignac (contracted on active service), April 16th.

Sec. Lt. C. McD. de Nobriga is removed the Service, his Majesty having no further use for his services as an officer, Dec. 16th, 1918.

The date of appt. of Lt. J. B. V. Clements, D.F.C., is May 2nd, 1918, and not as in "Gazette," March 7th.

Lt. S. Horscroft, M.C., is as now described and not Sec. Lt. S. Horscroft, as in "Gazette," April 8th.

The surname of Lt. W. S. Birkett is as now described, and not as in "Gazette," April 1st.

The notification in "Gazette," April 11th concerning Lt. F. W. Marshall is cancelled.

The rank of Sec. Lt. V. T. Harwood is as now described, and not Lt., as stated in "Gazette," March 28th.

The rank of Sec. Lt. H. Hartley is as now described, and not Lt., as stated in "Gazette," March 28th.

The notification in "Gazette," Jan. 28th concerning Sec. Lt. C. B. Gibson is cancelled.

The notification in "Gazette," April 1st concerning Sec. Lt. R. W. Brigstock is cancelled.

The notification in "Gazette," March 25th concerning Lt. F. Fowler is cancelled.

The Christian names of Sec. Lt. Daniel Barri Jones are as now described, and not as stated in the "Gazette," Nov. 1st, 1918.

The notification in the "Gazette," Feb. 4th concerning Sec. Lt. F. H. Alder is cancelled.

The surname of Lt. A. D. Riches is as now described, and not as stated in "Gazette," March 14th.

The notification in the "Gazette," April 1st concerning Lt. J. Hirst A.F.C., is cancelled.

The notification in the "Gazette, March 28th concerning Lt. (actg. Capt.) S. W. Highwood, D.F.C., is cancelled.

Administrative Branch.—G. Dyson is granted a temp. commn. as Maj., March 10th.

Lts. to be actg. Capts. whilst empld. as Capts. :—J. E. B. Cochrane, Nov. 14th; (Hon. Capt.) F. F. McKenna, March 4th.

Lts. (A.) to be Lts. :—W. H. Williams, March 18th; C. E. Walton, D. Watt, March 19th; (Hon. Capt.) L. F. Bettinson, (Hon. Capt.) (actg. Capt.) H. M. Goode, and relinquishes actg. rank of Capt. March 25th.

Lt. R. R. Herring, M.C., to be Lt., from (O.), March 18th.

Sec. Lt. (Hon. Lt.) C. A. Luce to be Lt., Aug. 22nd, 1918.

The following Sec. Lts. (late Gen. List, R.F.C. on prob.) are confirmed in their rank as Sec. Lts. :—R. M. Cobb, April 1st, 1918; H. Wagner, June 22nd, 1918; W. T. A. Jacob, Oct. 25th, 1918.

The following are transferred to the unemployed list :—Sec. Lt. H. C. Print, Jan. 20th; Lt. G. C. Bateman, Feb. 2nd; Sec. Lt. R. Biggin, Feb. 12th; Lt. A. Ashurst, March 1st; Sec. Lt. D. McCullock, March 2nd; Sec. Lt. B. Berry, March 4th; Sec. Lt. R. H. Blake, March 11th; Sec. Lt. H. F. Monypenny, March 17th; Sec. Lt. (actg. Lt.) R. E. Cunningham, March 22nd; Capt. C. A. K. Lord, Ossulston, March 31st; Capt. J. J. S. Naylor, April 1st; Sec. Lt. (actg. Lt.) L. S. Pape, April 4th; Sec. Lt. F. Mycock, April 6th; Lt. H. F. W. Bailey, April 7th; Sec. Lt. F. R. Cooke, Lt. (Hon. Capt.) A. B. Campbell, April 9th; Capt. H. A. Drewe-Mercer, April 10th; Lt. A. F. Corker, D.F.C., Capt. M. C. P. Hamer, April 11th; Sec. Lt. T. Bateman, Sec. Lt. A. Chouffet, April 12th; Sec. Lt. E. W. Anderson, Capt. (act. Maj.) W. M. Urquhart, M.C., April 13th; Lt. V. G. Barry, Lt. A. J. Cassiday, Sec. Lt. C. E. Easton, Maj. F. Hill, Sec. Lt. (Hon. Lt.) (actg. Lt.) C. S. Marriott, April 14th; Sec. Lt. J. S. Clarke, Sec. Lt. J. A. C. Allan, Lt. C. E. Bacon, April 15th.

Capt. H. M. Rushworth (Lond. R.) relinquishes his commn. on account of ill-health, April 16th.

Lt. W. Law relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Lt., April 12th.

Sec. Lt. F. W. Salmon relinquishes his commn. on account of ill-health and is permitted to retain the rank of Sec. Lt., April 16th.

Sec. Lt. H. W. Gallagher resigns his commn., March 15th.

The surname of Lt. B. Burton is as now described, and not Barton as stated in "Gazette," March 14th.

The surname of Lt. W. G. Hurrell, D.F.C., is as now described, and not Harrell as stated in "Gazette," Feb. 4th.

The "Gazette" notice of March 4th concerning Sec. Lt. J. F. George is cancelled.

TECHNICAL BRANCH.—Lt. (actg. Maj.) T. L. F. Burnett to be Lt., and to retain the actg. rank of Maj. whilst empld as Maj., from (S.O.), April 1st.

Lt. (actg. Capt.) H. H. Greig to be Lt., and relinquishes the actg. rank of Capt. on ceasing to be empld. with British Naval Mission, March 14th.

Lt. C. A. Brook to be Lt. (Grade A.), from (O.), Nov. 7th, 1918.

Lt. T. Foster to be Lt. (Grade B.), from (O.), March 24th.

Lts. to be Lts. (Grade B.), from (Ad.):—S. H. Pickles, J. D. Davidson, A. L. Stirk, March 24th.

Sec. Lt. G. Moon to be Lt., without pay and allces. of that rank, April 2nd, 1918.

Sec. Lts. to be Sec. Lts. (Grade B.), from Ad.):—G. W. Webb, Dec. 20th, 1918; F. W. Pridham, March 24th.

Sec. Lt. W. J. Lee-Bird (Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (Grade B.), Jan. 14th.

The following are transferred to the unempld. list:—Sec. Lt. C. Macpherson, Jan. 10th; Lt. P. Eadie, Jan. 30th; Lt. R. L. Brown, Feb. 5th; Capt. W. H. F. Mattinson (Cent. Ontario R.), Sec. Lt. (Hon. Lt.) J. C. K. Watson, Feb. 25th; Lt. (actg. Capt.) F. Avison (R. Lancs. R., T.F.), Feb. 28th; Sec. Lt. H. R. Mayes, Capt. A. Orr, March 4th; Lt. (actg. Capt.) N. McGregor (A. and S. Highrs.), March 15th; Sec. Lt. (actg. Lt.) F. E. Miles, March 19th; Maj. R. V. Mostyn, March 20th; Lt. N. E. Beal, March 24th; Lt. E. E. Cutts, Lt. R. S. Eachus, March 30th; Lt. A. R. B. Gill, March 31st, Sec. Lt. E. B. Cooke, Sec. Lt. W. A. A. Joyner, Sec. Lt. (actg. Lt.) H. A. Paton, Lt. H. R. Soutter, April 1st; Sec. Lt. H. Cooper, April 2nd; Sec. Lt. A. O. Binding (A.F.C.), Sec. Lt. A. E. Coyne, Lt. P. R. Aitken, Maj. E. N. G. Morris, April 3rd; Sec. Lt. B. T. Auckland, April 5th; Lt. (Hon. Capt.) C. F. Cape, April 6th; Lt. O. Clayton, April 9th; Lt. W. T. Kanaar, April 12th; Lt. G. S. B. Fuller, April 13th; Sec. Lt. (actg. Lt.) G. E. Barnet, Lt. S. B. Henson (E. Kent R., T.F.), April 14th.

Capt. A. D. Wigram relinquishes his commn. on account of ill-health, and is permitted to retain his rank, April 16th.

The following Lts relinquish their commns. on account of ill-health and are permitted to retain their rank:—J. Southall (contracted on active service), C. W. Ware, April 16th.

Sec. Lt. T. L. Bowen is dismissed the service by sentence of a Gen. court martial, Dec. 16th, 1918.

Sec Lt. E. L. Hoffmun relinquishes his commn. on account of ill-health, and is permitted to retain his rank, April 16th.

The surname of Lt. J. Elgood is as now described, and not as J. E. Good as stated in "Gazette," March 7th.

MOTOR-BOAT BRANCH.—Capt. A. H. Mackenzie is transferred to unempld. list, March 27th.

MEDICAL BRANCH.—H. Gardiner-Hill, M.B.E. (T./Capt., R.A.M.C.), is granted a temp. commn. as Capt., Oct. 1st, 1918, seny. from April 1st, 1918.

The following are transferred to unempld. list:—Capt. B. Maclean, March 8th; Lt.-Col. G. N. Biggs, M.B., March 13th.

DENTAL BRANCH.—The following are transferred to unempld. list:—Sec. Lt. D. Campbell, March 28th; Capt. C. J. Crocker, March 29th.

CHAPLAINS BRANCH.—Capt. the Rev. N. L. Bicknell, M.A., is transferred to unempld. list, Feb. 24th.

MEMORANDA.—Lt. W. C. Alexander to be Hon. Capt. June 2nd, 1918.

The following relinquish their commns. on ceasing to be empld.:—Maj. J. L. Baird, C.M.G., D.S.O., M.P. (Scot. Yeo., T.F.), and is permitted to retain his rank, Jan. 14th; Lt. G. H. Wadsworth, March 10th; Lt. J. A. Whyte, March 31st.

The following are transferred to the unempld. list:—Capt. (actg. Maj.) H. R. Coningsby (S.O.), Feb. 1st; Capt. S. J. A. Beale (S.O.), Feb. 22nd; Capt. (actg. Maj.) J. T. North, O.B.E. (S.O.), March 27th; Maj. (actg. Lt.-Col.) E. P. A. Melville, O.B.E. (S.O.), April 1st; Capt. (actg. Maj.) P. M. Beachcroft (R.G.A., Spec. Res.) (S.O.), April 2nd, Capt. R. G. Blakesley, April 4th; Lt. W. D. Cairns, from S.O., April 5th; Maj. R. Addenbrooke-Prout, O.B.E., M.C. (S.O.), April 6th; Capt. (actg. Maj.) W. L. Birch, M.B.E. (S.O.), April 7th.

Capt. H. O'N. De H. Segrave (Lt., R. War, R.) relinquishes his commn. on account of ill-health, April 16th

Lt. (Hon. Capt.) G. McD. Turner relinquishes his commn. on account of ill-health (S.O.), April 16th.

The "Gazette" notice of March 28th concerning Capt. A. W. Dods is cancelled.

AIR MINISTRY, April 18th.

R.A.F.—The following temp. appointment is made at the Air Ministry:—Deputy Chief of the Air Staff.—Col. (actg. Brig.-Gen.) R. M. Groves, C.B., D.S.O., A.F.C., and to retain the actg. rank of Brig.-Gen. while so empld., March 12th.

The following temp. appointments are made, graded for pay at Air Ministry rates:—

Brig.-Gen., Air Staff.—**Col. (actg. Brig. Gen.) J. M. Steel, C.B.E., and** to retain the actg. rank of Brig.-Gen. while so empld., **March 12th.**

Staff Officer, 2nd Cl. (T.).—Capt. (actg. Maj.) P. G. N. Ommanney, and to retain the actg. rank of Maj. while so empld., Jan. 3rd; Capt. (actg. Maj.) R. S. Booth, and to retain the actg. rank of Maj. while so empld., March 20th; Capt. V. A. Watson, March 20th.

The following temp. appointment is made:—Brig.-Gen.—Col. (actg. Brig.-Gen.) O. Swann, C.B., and to retain the actg. rank of Brig.-Gen. while so empld., April 2nd.

Staff Officer, 1st Cl. (T.).—Maj. (actg. Lt.-Col.) R. Hall, M.B.E., Sept. 13th, 1918.

Staff Officers, 3rd Cl. (P).—Capt. H. H. Clarke, March 26th; (T.) (Air) Lt. (actg. Capt.) S. J. Stocks, and to retain the actg. rank of Capt. whilst so empld., Nov. 14th, 1918

Air Attaché.—Lt.-Col. C. H. Meares, Dec. 1st, 1918

FLYING BRANCH.—Capt. W. E. Molesworth, M.C., to be actg. Maj. whilst empld. as Maj. (A.), Sept. 3rd, 1918.

Capt. (actg. Maj.) S. E. Adams to be Capt. (A.), and relinquishes the actg. rank of Maj. on reduction of establt., March 25th.

Capt. J. H. Woolner, A.F.C., to be graded for purposes of pay and allowances of Capt. whilst empld. as Capt. (A. and S.), April 1st, 1918.

Lt. (actg. Capt.) R. C. Kean to retain the actg. rank of Capt. whilst empld. as Capt. (A.) from (T.), Dec. 10th, 1918.

Lt. J. W. Young to be actg. Capt. whilst empld as Capt. (A. and S.), Aug. 25th, 1918.

Lts. (actg. Capts.) relinquish the actg. rank of Capt. on ceasing to be empld. as Capts. (A.).—(Hon. Capt.) H. S. Quigley, M.C., March 24th; N. G. Fraser, A.F.C., April 11th.

Lts. (actg. Capts.) to be Lts. (A.) and relinquish the actg. rank of Capt. on reduction of establt.:—A. L. Cuffe, A. K. Cowper, M.C., A. H. Curtis, R. J. Housden, J. B. Henry, E. S. Meek, N. L. Robertson, F. L. Soraul, N. R. Smuts, R. A. Way, P. Wilson, M.C., G. T. Williams, March 25th; C. W. Busk, M.C., P. H. Cummings, D.F.C., W. R. Cox, M.C., H. Haycock, M.C., J. S. Harvey, I. H. P. McEwen, H. N. C. Robinson, H. C. Senior, D.F.C., F. H. St. C. Sargant, D.F.C., C. J. Thompson, A.F.C., March 27th; R. E. Dodds, D.F.C., March 29th.

Sec. Lt. H. Burdsley to be Lt., Nov. 4th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. C. C. Walmsley (Lt., Essex R.), Aug. 28th, 1918, Maj. B. F. Vernon-Harcourt (Maj., Welsh R.), April 7th.

The following are transferred to unempld. list.—Lt. R. J. W. Palmer, Jan. 19th; Capt. A. M. Wynne, Jan. 24th; Lt. A. G. Vlasto, R.G.A., Jan. 31st; Sec. Lt. A. C. Scarr, Feb. 2nd; Lt. G. A. Pitt, Feb. 4th; Sec. Lt. G. P. McCraig, Lt. S. E. Towill (Yorks. Hrs.), Feb. 6th; Sec. Lt. A. Macdonald, Feb. 9th; Sec. Lt. J. E. B. Skinner, Feb. 12th; Sec. Lt. (Hon. Lt.) H. L. Arnott (W. Rid. R., T.F.), Feb. 23th; Lt. B. Smith, Feb. 15th; Lt. J. S. Hopper, Feb. 19th; Sec. Lt. S. W. Jackson, Feb. 23rd; Lt. W. Williamson, Feb. 25th; Lt. D. Francis, Feb. 20th; Sec. Lt. G. V. Kitson, Feb. 27th; Sec. Lt. (Hon. Lt.) R. L. Astin (Lond.R., T.F.), Feb. 20th; Lt. A. D. Drew, March 4th; Lt. A. Hopkins, M.C., March 5th; Sec. Lt. G. F. Custance, March 7th; Lt. F. W. Addison, March 12th; Lt. G. Andrews, March 15th; Lt. G. Austin, March 22nd, Sec. Lt. P. E. Tottle, March 23rd; Sec. Lt. L. J. Williams, March 25th, Lt. J. N. Bickner, Mar. 26th; Sec. Lt. L. W. Thres, D.F.C., March 27th; Sec. Lt. H. A. Young, March 28th; Sec. Lt. W. W. Ruddock, March 31st; Sec. Lt. R. S. Asher, Lt. R. E. Duke, Sec. Lt. H. H. Davies, Maj. C. H. Drabble, Lt. F. R. Dawson, Sec. Lt. L. W. Sage, April 1st; Lt. (Hon. Capt.) N. J. Allgood (Northumb. Fus.), Sec. Lt. J. R. Brown, D.F.C., Sec. Lt. K. Curry, Sec. Lt. M. J. Clark, Sec. Lt. B. M. Evans, Sec. Lt. H. Green, Lt. A. D. Gledhill, Lt. (actg. Capt.) J. Parry, Sec. Lt. G. Pickup, Sec. Lt. R. McK. Soulby, Lt. W. H. Scott, Lt. Q. E. Worsley, April 2nd; Sec. Lt. J. H. Adams, Capt. S. G. Beare, Sec. Lt. H. S. Batting, Sec. Lt. W. Day, Lt. (actg. Capt.) H. F. L. Mavity, Lt. G. G. Preston, M.C. (R.G.A.), Sec. Lt. J. D. Parker, Lt. J. E. Sharp Sec. Lt. H. C. Tombs, Lt. B. C. W. Windle, April 3rd; Lt. A. T. Adams, Lt. J. B. Blackett, Sec. Lt. F. W. Bate, Lt. J. O. Comber, Sec. Lt. R. I. Cox, Lt. F. L. Milner, Capt. W. Tesh, Sec. Lt. T. T. Williams, Lt. J. L. Wingate, Sec. Lt. G. F. Young, April 4th; Sec. Lt. L. R. Backhouse, Sec. Lt. W. J. Bird, Sec. Lt. R. A. Cully, Lt. E. W. Carmichael, Sec. Lt. C. T. Dawson, Lt. M. K. Denning, Sec. Lt. J. S. Dixon, Sec. Lt. R. Fittes, Lt. A. W. Stevenson, D.F.C., Sec. Lt. H. M. Laing, Sec. Lt. J. A. Woodhead, Lt. R. T. T. Waring, April 5th; Lt. R. L. Crane, Capt. (actg. Maj.) W. R. B. McBain, M.C. (R.F.A., T.F.), Sec. Lt. R. C. Michaelson, Lt. H. Spurrier, Lt. E. C. Willis, April 6th; Sec. Lt. C. W. Browell, April 7th; Sec. Lt. J. McA. Allan, Sec. Lt. J. E. Motion, Lt. D. L. H. Moore, Lt. (actg. Capt.) C. M. Maud, D.F.C., Sec. Lt. H. I. Padfield, Sec. Lt. T. B. Thomson, April 8th; Lt. J. B. Davies, Capt. G. A. Gooderham, Sec. Lt. R. A. D. Jones, April 9th; Sec. Lt. W. N. Ashburner, Sec. Lt. E. P. Brown, Lt. A. P. Darlow, Lt. (Hon. Capt.) R. M. A. Edlundh, Lt. D. F. Gibbons, April 10th; Lt. (actg. Capt.) O. C. Bridgeman, M.C., Lt. D. C. Burgess, Sec. Lt. L. H. Day, Sec. Lt. M. Whitehead, April 11th; Lt. E. J. T. Bosanquet, Lt. C. F. Frank, D.F.C., Lt. J. O. Hawley, Lt. K. N. King (E. Surr. R.), April 12th; Sec. Lt. J. A. Arnott, Lt. G. H. Bastin, Lt. J. Boydell, Sec. Lt. O. V. Crawford, Sec. Lt. P. R. Davis, Sec. Lt. C. H. Dickens, Sec. Lt. R. R. Drysdale, Lt. J. C. Douglas, Lt. G. A. Firby, Sec. Lt. J. F. C. Fisher, Sec. Lt. E. J. Ellis, Lt. R. Fitton, Lt. A. De Niverville, Lt. W. A. Pomeroy, April 13th; Lt. (actg. Capt.) S. Anderson, D.F.C., Lt. E. S. Chantrell, Sec. Lt. L. Dexter, Sec. Lt. C. E. Eastgate, Sec. Lt. B. B. Everitt, Sec. Lt. H. W. Freshney, Lt. L. L. Falck, Sec. Lt. F. C. Grundy, Sec. Lt. K. M. McGregor, Sec. Lt. A. L. Wright, April 14th; Lt. A. M. Alexander, A.F.C., Sec. Lt. L. H. T. Ashburner, Lt. A. E. C. Andrews, Sec. Lt. W. N. L. Cope, Lt. J. S. Cassels, M.C., Sec. Lt. S. H. Coventry, Lt. C. T. F. Chamberlain, Lt. J. Cross, Lt. F. G. Carpenter, Lt. T. L. Crouch, Sec. Lt. J. W. Dempsey, Lt. H. F. D. Delves, Sec. Lt. F. Dummer, Lt. J. E. Dumbleton, Lt. M. L. J. Daly, Lt. E. E. Elliott, Sec. Lt. J. Groves, Sec. Lt. H. W. Howes, Sec. Lt. G. R. Iles, Sec. Lt. G. P. MacDonald, Lt. N. E. Parkes, Sec. Lt. E. Peacop, Sec. Lt. W. F. Wheeler, April 15th; Sec. Lt. R. G. W. Baker, Sec. Lt. L. Clark, Lt. (actg. Capt.) J. M. Chaundler, Sec. Lt. F. H. Foster, Sec. Lt. W. T. Edmunds, Sec. Lt. M. H. Edmunds, Lt. E. M. Forsyth, M.C., Sec. Lt. E. A. Hardiman, Lt. R. G. Holt (E. Lancs. R., T.F.), Sec. Lt. L. T. Laurence, Sec. Lt. W. C. Piper, April 16th; Sec. Lt. G. J. Baragwanath, Sec. Lt. A. R. Barrett, Sec. Lt. J. C. Bradford, Sec. Lt. F. C. Bradley, Lt. (actg. Capt.) L. P. Coombes, D.F.C., Sec. Lt. C. S. Cooper, Sec. Lt. F. Cartwright (R.F.A.), Sec. Lt. A. W. T. Chudley, Lt. (Hon. Capt.) W. E. J. Detmold, Sec. Lt. C. H. F. Greene, Maj. A. C. Hagon, Sec. Lt. W. C. Harvey (Arg. and Suth'd. Highrs.), T.F.), Sec. Lt. C. R. Jones, Sec. Lt. J. L. Muir, Sec. Lt. C. F. C. Mossey, Lt. C. A. McCreath, Sec. Lt. H. H. Durkis, Lt. E. G. Mattingley, April 17th; Lt. G. F. M. Apps, Sec. Lt. I. A. Bailey, Sec. Lt. C. D. Frogbrook, Lt. R. Gray, Capt. W. J. Henney, Lt. J. E. Johnston (Huntingdon Cyclist Bn., T.F.), Sec. Lt. R. A. Meek, Sec. Lt. F. Moulding, Lt. N. McCirrick, Lt. (actg. Capt.) J. A. Middleton, M.C. (R.F.A., T.F.), Sec. Lt. D. H. Mansfield, Lt. E. R. Pemberton, Sec. Lt. G. B. Powell, A.F.C., Lt. A. J. Winstanley, Sec. Lt. V. Williams, April 18th.

Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—H. B. Davis, March 30th. (Substituted for notification in "Gazette," Dec. 17th, 1918.) L. S. Brander, April 6th. (Substituted for notification in "Gazette," Jan. 24th.) C. A. Barry (caused by wounds); J. J. Lanctot (contracted on active service); W. J. Saunders (caused by wounds); T. C. Wilson (caused by wounds); W. T. Warren (contracted on active service), April 19th.

Lts. relinquish their commns. on account of wounds:—J. M. R. Miller (K.O.S.B.), P. D. McIntosh (Quebec R.), April 19th.

Lts. relinquish their commns. on account of ill-health:—W. B. Swart, April 16th. (Substituted for notification in "Gazette," Oct. 22nd, 1918.) H. W. White (R.G.A.), April 19th.

Lt. F. G. Ibbett is removed the Service for absence without leave, Nov. 7th, 1918.

Sec. Lt. (actg. Capt.) H. G. Clappison relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., April 15th.

Sec. Lt. J. S. Potter relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, April 19th.

Sec. Lt. R. C. Hockey relinquishes his commn. on account of ill-health, April 19th.

Sec. Lt. G. T. Porter is antedated in his appt. as Sec. Lt. (A.), Aug. 7th, 1918.

The Christian names of Sec. Lt. Edward Gordon Warren are as now described, and not Gordon Edward, as stated in the "Gazette" of Aug. 20th, 1918, page, 9,704.

The surname of Sec. Lt. W. Coogle is as now described, and not Google, as stated in the "Gazette" of Dec. 10th, 1918, on page 14,573.

The initials of Lt. H. C. Murray are as now described, and not H. C. C. Murray, as stated in the "Gazette" of March 18th.

The initials of Lt. W. H. Naylor are as now described, and not W. W., as stated in the "Gazette" of March 7th.

The initials of Lt. G. R. Hurst are as now described, and not C. R., as stated in "Gazette" of April 1st.

The notification in the "Gazette" of March 18th concerning Lt. A. Jackson is cancelled.

The notification in the "Gazette" of March 21st, concerning Lt. P. G. Ashford is cancelled

The Christian names of Lt. Archibald Elsden Smith, D.F.C., are as now described, and not A.E., as in "Gazette" of Jan. 14th.

The Christian names of Lt. Austin Edward Smith, D.F.C., are as now described, and not A. E., as in "Gazette" of March 28th.

The notification in the "Gazette" of March 28th, concerning Lt. H. J. Jewell is cancelled ("London Gazette" notice of March 11th to remain).

The notifications in the "Gazette" of March 28th concerning Sec. Lt. S. W. Jackson are cancelled.

The notification in the "Gazette" of March 7th concerning Lt. J. S. Roper is cancelled.

The notification in the "Gazette" of Jan. 17th concerning Lt. R. B. Beevor is cancelled.

The initials and surname of Sec. Lt. W. J. Goodey are as now described, and not W. T. Goodney, as stated in the "Gazette" of Dec. 10th, 1918, page 14,574.

Administrative Branch.—Capt. W. T. F. Holland, A.F.C., to be Capt. and to relinquish the actg. rank of Major on ceasing to be empld. as Major, from (A.), March 5th.

Lt. J. F. Battersby to be Hon. Capt., Dec. 14th, 1918.

Lt. F. Paterson to be actg. Capt. whilst empld. as Capt., Nov. 22nd, 1918.

Sec. Lts. to be actg. Capts. whilst empld. as Capts.:—(Actg. Lt.) A. E. Boyce, Oct. 24th, 1918. (Actg. Lt.) E. Bentley, Nov. 1st, 1918; G. L. Grey, from (A.), March 28th.

Lts. relinquish the actg. rank of Capt. on reduction of establishment: E. S. B. Tavener, March 25th; G. A. Hutchinson, March 27th.

Lts. (actg. Capts. A.) to be Lts., and relinquish the rank of Capt. on ceasing to be empld. as Capts.:—H. R. Eycott-Martin, M.C., Jan. 17th; W. E. Green, D.F.C., Feb. 12th.

Lts. (A.) to be Lts.:—C. H. Williams, Jan. 7th; C. Wilderspin, Jan. 18th; H. E. R. Twamley, Jan. 20th; C. H. Denny, R. F. Overbury, Feb. 10th; J. Burness, Feb. 27th; T. Elder Hearn, March 5th; F. E. Vipond, March 28th; R. A. W. Powell, S. Yates, J. A. Pugh, March 31st; A. Baird, I. V. Hunt, L. P. Wallis, April 1st; A. Leslie-Moore, W. Wallace, M.C., April 7th.

Capt. F. C. F. Walwyn to be Lt., from (O.), March 27th.

Lt. W. Gaunt to be Lt., from (O.), March 29th.

The following are granted temp. commns. as Lts.:—H. H. Marks, M.C. (Lt., Durh. L.I.), April 21st, 1918, sen. from April 1st, 1918; G. G. Raphael, (Lt., Lond. R.), May 17th, 1918, sen. from April 1st, 1918.

Sec. Lt. (actg. Lt.) J. W. Hustwaite to retain the actg. rank of Lt. while empld. as Lt., from (S.O.), April 1st.

Sec. Lts. to be Sec. Lts. from (A.):—K. Wiggins, March 6th; D. A. MacDonald, and to be Hon. Lt., C. F. Purday, M. J. Moffat, March 27th. H. T. Hempsall, March 28th; W. Badger, March 31st; R. W. Davis, April 1st; G. Jacob, April 2nd.

Sec. Lt. J. C. Tyler to be Sec. Lt., from (A. and S.), Jan. 2nd.

Sec. Lts. to be Sec. Lts., from (O.):—L. F. H. Bird, Nov. 27th, 1918; A. J. Baxter, Dec. 19th, 1918; G. A. McGillivray, Jan. 27th; H. T. G. Robey, Jan. 29th; J. M. S. MacPherson, Feb. 6th; C. J. M. Turner, Feb. 10th; P. D. Broughton, Feb. 27th; A. C. Fraser, March 6th; W. Tunstall, March 19th.

Sec. Lts. to be Sec. Lts., from (T.):—R. Bushell, Jan. 14th; J. H. Woodgett, March 31st.

Lt. (actg. Capt.) Lord H. Cecil relinquishes his commn. on being elected M.P., Dec. 28th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. H. J. Priestland (temp. Lt., Loyal N. Lancs. R.), Aug. 9th, 1918; Capt. H. C. Lloyd, M.C. (temp. Capt. K.R.R. R.), Feb. 5th; Lt. C. Patrick (Lt., 16th Lancers), March 20th; Lt. (Hon. Maj.) J. Cemlyn-Jones (Maj., R.W. Fus., T.F.), March 27th; Lt. (Hon. Capt.), D. E. Mozley, M.C. (Capt., Glouc. R.), April 2nd.

The following are transfd. to unempld. list:—Lt. (actg. Capt.) A. C. Carter, Jan. 10th; Lt. G. S. McGregor, Jan. 13th; Lt. H. Salmon, Jan. 24th; Maj. D. M. Mackenzie, Feb. 21st, Lt. G. F. Randall, Feb. 28th; Sec. Lt. C. W. Warwick, March 5th; Sec. Lt. W. Yarwood, March 8th; Capt. E. D. Shearn, March 9th; Sec. Lt. (Hon. Lt.) J. C. Bain, March 11th (substituted for notification in "Gazette," March 28th; Sec. Lt. W. P. Wilks, March 27th; Lt. W. Woodward, March 31st; Sec. Lt. F. Fogg, April 1st; Lt. J. W. Amos, Lt. (Hon. Capt.) K. Nicholson (W. Riding R.), Capt. T. C. Spurway, April 2nd; Lt. W. S. De Ropp, April 4th; Capt. C. J. Dickinson, April 6th; Capt. S. Clare, April 7th; Lt. H. L. Ball, Sec. Lt. A. MacBean, April 8th; Capt. (actg. Maj.) G. H. K. Bone, April 9th; Lt. E. B. Ridsdel, April 10th; Lt. E. F. Dixon, April 11th; Lt. W. E. Gilbert, April 13th; Lt. D. S. F. E. Maule-Cole, April 15th; Lt. F. R. Hunt, April 16th; Sec. Lt. (Hon. Lt.) N. S. Beale, Lt. (Hon. Capt.) H. R. King (Durh. L.I. R.), April 17th.

Capt. P. Le G. Gribble relinquishes his commn. on acct. of ill-health, and is permitted to retain his rank, April 19th.

Capt. W. E. Birch (S. Lancs. R., T.F.) relinquishes his commn. on acct. of ill-health contracted on active service, April 19th.

Sec. Lt. C. Wallace resigns his commn., and is permitted to retain his rank, April 19th.

The "Gazette" notice concerning Sec. Lt. N. V. W. Lucas in "Gazette," April 1st, is cancelled.

Technical Branch.—Lt. W. S. Harms to be actg. Capt. while empld. as Capt., Grade (A.), (substituted for notification concerning this officer in "Gazette," Jan. 28th).

Lt. A. Dent to be Lt., Grade (A.), from (A.), May 27th, 1918.

Lt. A. L. C. Hartland-Rowe to be Lt., Grade (A), March 18th.

Lts. to be Lts., Grade (B.), from (Ad.):—N. H. de V. Heathcote, Nov. 2nd, 1918 (substituted for notification which appeared in "Gazette," Nov. 22nd, 1918); O. Clayton, Dec. 30th, 1918 (substituted for notification which appeared in "Gazette," Jan. 21st).

Sec. Lt. (Hon. Lt.) (actg. Lt.) D. McK. Finlayson to be Lt., April 2nd, 1918.

Sec. Lt. (Hon. Lt.) G. T. Cain to be actg. Lt. whilst empld. as Lt., Grade (B), Oct. 14th, 1918.

Sec. Lt. A. W. Whistlecroft to be Sec. Lt., Grade (A.), from (Ad.), Dec. 1st, 1918 (substituted for notification in "Gazette," Feb. 4th).

Sec. Lt. (actg. Lt.) R. N. Tweedy to be Sec. Lt., from (Ad.), Sept. 2nd, 1918, and to retain the actg. rank of Lt. whilst empld. as Lt. (substituted for the notification in "Gazette," Oct. 29th, 1918).

To be Sec. Lts., Grade "A.," relinquishing the actg. rank of Lt. on reduction of establishment:—H. Weakley, W. F. Arnold, March 25th; M. F. Tomkins, March 27th.

Sec. Lt. C. B. Brown to be Sec. Lt., Grade (B.), from (Ad.), March 27th.

The following are transferred to the unempld. list:—Lt. H. C. Newton, Feb. 2nd; Lt. (actg. Capt.) (actg. Maj.) F. H. Austen, Feb. 9th; Sec. Lt. (Hon. Lt.) J. W. Anteliffe (Lt., Lancs. Fus., T.F.), Feb. 16th; Sec. Lt. J. Pritchard, March 1st; Lt. W. C. Green, March 8th; Capt. N. C. D. Colman, March 27th; Sec. Lt. (actg. Lt.) J. Darwen, Sec. Lt. H. J. Gaunt, April 1st; Sec. Lt. D. C. Buchan, April 2nd; Sec. Lt. T. W. Cummins, Sec. Lt. (actg. Capt.) H. V. Cherry, Lt. (actg. Capt.) H. H. Greig, Lt. R. E. Chadderton, April 3rd; Sec. Lt. P. H. Bayer, Lt. G. A. Crane, Sec. Lt. J. C. Gemmell, Lt. W. M. Metcalfe, April 4th; Maj. the Hon. A. V. Cave, Sec. Lt. (actg. Lt.) E. Lewis, April 5th; Capt. L. C. Abbott, April 7th; Sec. Lt. (Hon. Lt.) J. L. Burt, April 8th; Maj. H. B. T. Childs, Sec. Lt. (Hon. Lt.) (actg. Lt.)



YPRES.—An Official Aerial Photograph of the City of Ypres taken from a height of 1,100 ft.

M. Cohen, Lt. (actg. Capt.) G. McKerrow, April 9th; Lt. B. S. Cain, April 10th; Capt. S. E. Bowyer, Lt. R. A. Watson, April 11th; Lt. J. B. Holden, Sec. Lt. R. Mason, April 14th; Sec. Lt. (actg. Lt.) G. W. Cooke, Sec. Lt. (actg. Capt.) F. R. Assinder, Lt. E. L. Chadwick, April 16th; Sec. Lt. V. H. Kidney, April 17th; Sec Lt. (actg. Lt.) P. B. Barlow, Maj. C. G. Coe, M.B.E., Lt. S. Williamson, April 18th.

Capt. H. Phillips relinquishes his commn. on account of ill-health, April 19th.

Lt G Shanks resigns his commn. at own request, April 19th (substituted for notice in "Gazette," April 4th.

Sec. Lt. R. A. G. Shepherd relinquishes his commn. on account of ill health, and is permitted to retain his rank, April 19th.

The Christian names of Lt. James Partington White are as now described, and not as stated in "Gazette," March 21st.

The Christian names of Lt. John Percival White are as now described, and not as stated in "Gazette," March 28th.

The notification concerning Lt. (actg. Capt.) F. M Howard is as now described, and not Lt., as in "Gazette," March 18th.

The rank of Capt. A. R. Jackson is as now described, and not Lt. (actg. Capt.), as stated in "Gazette," March 18th.

The notification concerning Capt. A. Kennedy, which appeared in "Gazette," April 4th, is cancelled.

The notification concerning Sec. Lt. H. T. Savage, which appeared in "Gazette," March 21st, is cancelled, "Gazette" notice, March 28th, to remain.

Medical Branch.—Lt.-Col. E. C. Cridland relinquishes his commn. on ceasing to be empld., March 7th.

Sec. Lt. (actg. Capt.) L. W. Jones is transfd. to the unempld. list, March 8th.

The notification concerning Maj. L. L. Greig (Staff Surg., R.N.), which appeared in "Gazette," Nov. 26th, 1918, is cancelled.

Chaplains Branch.—Asst. Prin. Chaplain for Presbyterians.—Rev. W. P. Young, D.C.M. (Chaplain, 4th. Cl., A.C.D.), is granted a temp. commission as Chaplain, with the relative rank of Capt., and is granted the relative rank of Maj. whilst empld. as Asst. Prin. Chaplain, April 8th.

Memoranda.—F. J. Toulmin is granted a temp hon. commn. whilst specially empld. with the A.I.D., April 18th

The following relinquish their commns. on ceasing to be empld.:—Temp. Hon. Lt. M. Tombs, Dec. 16th, 1918; Maj.-Gen. G. C. Cayley, C.B., April 4th.

The following are transfd. to the unempld list:—Capt. D. R. Parry-Jones, S.O., Feb. 20th; Capt. W. A. Johnson, S.O., Feb. 28th; Maj. G. V. Carey, S.O., April 1st; Capt. F. C. Townshend, (Rifle Brig.), S.O., April 3rd; Sec. Lt. (actg. Capt.) H. Sorrell, S.O., April 4th; Sec. Lt. V. L. Cockle, April 19th.

"Gazette" notice, April 1st, concerning Maj. E. A. Falconer is cancelled.

ADMIRALTY APPOINTMENTS.

The following appointments have been made:—

April 15th.—R.N.R.—Lieut. W. I. Lane, to "Pegasus" (undated).
April 19th.—Lieuts.—A. Ferguson to "Pegasus" (April 16th).
Engr. Sub-Lieut. (Temp.).—A. A. Joyce, to "Vindictive," (April 17th).
R.N.R.—Art. Engrs.—F Hague, to "Vindictive"
Mid. (Temp.).—E. C. M. Morrell, to "Vindictive" (April 17th).

THE CASUALTY LIST.

AIR FORCE.

Reported April 16th.

Killed.—Bainbrigge, Capt. W. A. de L. Y.
Fenwick, Lt. F.
Thornton, Lt. F. O.
Died.—Bell, Sec. Lt. A. McC.
Wood, Maj. H. F.
Repatriated.—Macintyre, Lt. D. H.; Porter, Capt. G. Y. Withers, Lt. K. G.

Reported April 17th.

Correction.—Repatriated.—"Porter, Capt. G. Y., R.A.F." should read "Porter, Capt. G. T., R.A.F."

Reported April 19th.

Killed.—Burnay, Lt. P. S., R.A.F.
Ottewell, Lt. J. M., R.A.F.
Sullivan, Sec. Lt. F. H., R.A.F.
Died.—De Kock, Sec. Lt. D. W. F.A.F
Jacobs, Lt. J. V. R., R.A.F.
McDonald, Lt. J. J., R.A.F.
Wells, Sec. Lt. S., R.A.F.
Died of Injuries.—Westall, Sec. Lt. A., R.A.F.
Repatriated.—Candy, Sec. Lt. F. B., R.A.F.; Coleman, Sec. Lt. O. E., R.A.F.; Freeman, Sec Lt. J., R.A.F.

PERSONAL NOTICES.

NAVAL.

Death.

STOCKER.—Flt. Sub-Lt. Edward Cuthbert Stocker, R.N.A.S., who was reported as missing is now presumed to have been killed on March 27th while flying near Dompierre. He was younger son and only surviving child of Major E. G. Stocker, R.A.M.C.T., and Mrs. Stocker, Carn Brea, Cornwall, and was 18 years of age.

MILITARY.

Death.

ATKINSON.—Capt. Rupert Norman Gould Atkinson, M.C., D.F.C., Croix de Guerre (Belgium), R.A.F., was the elder son of the late Mr. Brennan Atkinson, of Shanghai, China, and of Mrs. Atkinson, of High Kelton, Berkhamsted, Herts. He was born in 1896, and was educated at Orley Farm School, Harrow, and at Marlborough College (Preshute). He went up to Pembroke College, Cambridge, in June, 1914. In the following September he joined the 16th (Public Schools) Battalion, Middlesex Regt., and obtained his commission in the 15th Middlesex in December, 1914. On July 28th, 1915, he proceeded to Cameroon, where he was attached to the West African Regiment throughout the campaign. He was invalided home in April, 1916, and in August joined the Royal Flying Corps, and, obtaining his pilot's certificate, proceeded to the Western Front in November, 1916. He was gazetted Captain in July, 1917, becoming Flight Commander shortly afterwards. From November, 1916, till the Armistice Captain Atkinson was engaged almost continuously in artillery observation, photography, night-bombing, and low-flying machine-gun work. He received the Military Cross in 1917 for a daring and successful attack on enemy observation balloons; the Distinguished Flying Cross in 1918, and the Belgian Croix de Guerre in 1919, when he was also recommended for a bar to his D.F.C. He returned home on leave from Cologne at the end of February, and died of pneumonia, following influenza, on March 7th.

Engagement.

PARKER—URQUHART.—The engagement is announced between Lieut. the Hon. John S. Parker, East African Protectorate Force and R.A.F., second son of the late Lord Parker of Waddington and the Lady Parker of Waddington, of Aldworth, Haslemere, Surrey, and Marjorie, second daughter of Sir James and Lady Urquhart, Magdala House, Dundee.

Birth.

BOYD.—On April 16th, at 235, Cromwell Road, S.W.5, the wife of Major (acting Lieut.-Col.) J. M. Boyd, 8th Scottish Rifles and R.A.F., of a daughter.

AIR FORCE.

Deaths.

EVANS.—The body of Lieut. Walter George Evans, R.A.F., was washed ashore near Zeebrugge recently. Mr. Evans was last seen alive on June 27th, 1918, near Blankenberghe. He was engaged in an aerial fight with a German aviator.

RITCHIE.—Capt. Stanley E. Ritchie, R.A.F., who was killed on April 16th while flying, was the eldest son of Mr. and Mrs. E. Ritchie, Buckhurst, Dorking. He was 23 years of age.

Engagements.

ELIOTT-LOCKHART—WHIGHAM.—A marriage has been arranged, and will take place shortly, between Capt. Gilbert Eliott-Lockhart, R.A.F., youngest son of the late David Eliott-Lockhart, and Dora, only daughter of the late Rev. L. R. Whigham and Mrs. Whigham, Morden House, Guildford.

WHEATLEY—HODGKINSON.—An engagement is announced between Lieut. Eric S. Wheatley, R.A.F., younger son of Colonel H. S. Wheatley, C.B., I.A., and Mrs. Wheatley, of The Knoll, Farnham, Surrey, and Dorothy Hodgkinson, daughter of Dr. and Mrs. Hodgkinson, of Bradshaigh, Farnham, Surrey.

Marriages.

BANTING—LION.—On April 14th, at Christ Church, Lancaster Gate, H. W. Russel Banting, R.A.F., was married to Serena Phylis Lion, youngest daughter of John Lion, of Severn Lodge, Addison Road.

ST. GEORGE—LABOUCHERE-HILLYER.—On April 17th, very quietly, in London, Lieut. Leonard Durant St. George, R.A.F., of Wellington, New Zealand, was married to Mrs. Josephine Labouchere-Hillyer, of 4, Cornwall Mansions, Chelsea, widow of Mr. G. Labouchere-Hillyer.

Births.

ELLOR.—On April 17th, 1919, at 155, Stapleton Hall Road, N.4, the wife of Lieut. J. F. Ellor, R.A.F., of a daughter.

LIVINGSTONE.—On April 18th, at The Firs, Whyteleafe Road, Caterham, Jeanette, the wife of Capt. A. F. Livingstone, R.A.F., of a son.

* * *

To 85 Squadron, R.A.F.—Information is desired concerning the fate of Lieut. T. C. Martin, R.A.F., who left his aerodrome on August 12th, 1918, flying S.E 5 No. 6895, and was concerned in a fight with five German Fokker biplanes just to the north of Ypres. The local Anti-Aircraft Section report having seen him falling out of control, but no further information has been received concerning him. His father, Mr. G. C. Martin, General Traffic Manager, the Toronto, Hamilton and Buffalo Railway Co., Hamilton, Ontario, is anxious to get in touch with any officers of 85 Squadron, who were with the Squadron at that date, and who knew Mr. Martin. If this paragraph meets the eye of Lieut. W. E. W. Cushing, who was Recording Officer of 85 Squadron at the time, will he be good enough to write to Mr. Martin?

THE INDIAN MUTINY.

According to reports received from Gujranwala (Punjab), a crowd which attacked a passenger train and wrecked the station was dispersed by bombs and machine-gun fire from aeroplanes.

AN ATTEMPTED ESCAPE.

When Brunswick was liberated by the Government Forces, Herr Eichhorn, ex-President of the Berlin Police, attempted to escape from the city by aeroplane. Engine trouble was, however, experienced, and a forced landing was made near Holzminden. Herr Eichhorn was immediately arrested by the Government troops.

OFFICERS' PENSIONS AND GRATUITIES.

In the "Morning Post" of April 16th there appeared some strong criticism of the methods of granting officers' pensions and gratuities.

The writer complains that demobilised officers find it difficult to master the various orders and instructions that have been issued from time to time. He calls for a clear codification of all orders regarding officers' pensions, gratuities and educational and employment concessions to be published in the form of a pamphlet under the joint authority of the Admiralty, the War Office, the Royal Air Force, the Ministry of Pensions and the Ministries of Labour and Education.

One ventures to suggest that if all these authorities are to collaborate in the production of the pamphlet the oldest pensioner probably would have reached (one hopes) a better world before the publication of the work.

With some other remarks, however, one is inclined to agree. For instance, the writer of the article says:—"There is a bad old precedent at the War Office that a concession should be kept as secret as possible, so that a little money may be saved at the expense of officers, or their dependents, who do not know what they are entitled to. This precedent was set up in the old days by the Finance Branch, and seems to be explained by the argument that the officer of the Old Regular Army was supposed to be too rich to worry about trifles.

"An example of this bad old custom was the rule that a wound gratuity was not payable unless on application. Now, every officer should have the easy means of knowing all that he is entitled to, and the dependents of killed officers should have the means of knowing. The effects of a concession should be carefully studied before it is granted, with no saving idea that some of the cost will not be incurred through the ignorance of possible beneficiaries."

When the writer of the article turns his attention to the Air Ministry his tone becomes more bitter. He says:—

"As regards the War Office, there have not been many bad cases. F Branch has tried a niggling policy sometimes, but on the whole the W.O. has been fairly decent. The Air Ministry, on the other hand, until very recently has behaved like a dishonest corporation trying to shirk its just debts.

"A classic instance was that of the widow of a flying officer reported missing, who was refused both his pension and his pay. If she wanted a pension, her husband was alive; if she wanted his pay, her husband was dead.

"The Air Ministry has now turned over a new leaf, and is coming into line with the W.O. But for Air Force officers and their dependents, as well as for naval and military officers, a clear codification of benefits is necessary. The work could be done in a week, and should be done next week."

Frankly one admires the sublime optimism indicated in the last sentence. The work could be done in a week! Why, the Bolo alone would spend more than that time in writing "Passed to you, please" and "For your remarks" before the suggestion reached the right department. The mind staggers at the thought of the aeons that would elapse before all the other Ministries had been asked to express their views on the proposal.—P. A. B.

ENLISTMENT IN THE R.A.F.

The Air Ministry made the following announcement on April 18th, regarding the terms of recruiting for the R.A.F.:—

1. Recruiting for the R.A.F. will begin on Monday, April 28th.

2. Recruits are required in all trades, both technical, clerical, and non-technical.

3. Ages, 18 to 26.

4. Periods of enlistment:—Four years Regular service, eight years Reserve; five years Regular service, seven years Reserve; six years Regular service, six years Reserve; eight years Regular service, four years Reserve.

5. Pay.—Men enlisting will receive the present rates of pay, *plus* war bonus, until further orders. A revised scale of pay for the R.A.F. is now under consideration, and will shortly be published, and men will then (or at such later date as may be decided) be brought on to the rate of pay of their rank according to that scale, in lieu of present rates *plus* war bonus.

Separation allowance.—Men enlisting will be entitled to separation allowance under the existing rates and conditions, these rates and conditions being subject to revision.

6. For further particulars application should be made to any of the following recruiting depots:—4, Henrietta Street, Covent Garden, W.C.; 8, Tyndall's Park Road, Clifton, Bristol; 12, Newport Road, Cardiff; Carlton Chambers, Paradise Street, Birmingham; 8, George Street, Nottingham; 12, Abercromby Square, Liverpool; The Mount, Springfield Mount, Leeds; 10, Sydenham Terrace, North Road, Newcastle-on-Tyne; 9, Somerset Place, Sauchiehall Street, Glasgow. Men desirous of enlisting should apply to any of the above depots or to the nearest R.A.F. unit.

ATHLETICS IN THE R.A.F.

On a plateau near the Forest of Crecy the Royal Air Force sports tournament was begun on Thursday, April 17th. The programme consists of competitions in boxing, cross-country running, both Rugby and Association football, and tug-of-war. The competition is open to teams from each of the seven R.A.F. centres in France and the occupied regions.

On Friday, April 18th, the R.A.F. Rugby football team began a tour in Wales, and beat Neath by a goal and a try (eight points) to a try (three points).

A good game, of which the R.A.F. had the better during the latter part, was witnessed at Leicester on Saturday, April 19th, when the R.A.F. Rugby team played the Leicester fifteen. The concluding scores were: R.A.F., two goals and four tries (22 points), and Leicester, one goal and one try (8 points).

AUSTRALIAN AERIAL DEFENCE.

The Australian Government has completed a scheme of aerial defence, and proposes to establish various flying schools for aeroplane, seaplane and airship pilots. The initial expenditure will amount to £500,000, and the annual expenditure to the same amount.

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ON THE TRADITIONS OF THE R.A.F. (II).

Permanent Commissions.

Though the anecdotes which were interpolated into the previous section of these notes may be purely imaginative, they do certainly illustrate existing defects in the constitution of the R.A.F., and one is fairly convinced that those in high places at the Air Ministry are not even now going to work the right way to remedy such defects. Discontent in the R.A.F. is growing, *esprit de corps* is diminishing, and the best men are leaving the Air Force just at the very time when the most strenuous efforts should be made to allay discontent and to raise *esprit de corps* by appealing more and more to the traditions of the past, and by keeping the very best men in the R.A.F.

In theory, no doubt, the principle on which permanent commissions in the R.A.F. and temporary commissions for aviators serving in the Army of Occupation are being given is excellent. One believes that the scheme in general is that officers holding permanent commissions in the Navy and Army shall have first claim on permanent commissions in the R.A.F. The underlying idea doubtless is that such officers have had proper service training in their youth and are therefore likely to import proper service tradition into the R.A.F.

This would be all very well if one could assume that all regular officers in the Navy and Army who apply for permanent commissions in the R.A.F. are officers of the best type in their respective Services. Unfortunately, such is far from being the case. It is perfectly true that a number of the regular officers in the R.A.F. are of the very finest type in the King's older Services, but it is unfortunately true that others of them are in the R.A.F. because they have managed to make themselves thoroughly unpopular in their own Services, or because, for one reason or another, their own Services were glad to get rid of them. And it is also unfortunately true that some of the very best regular officers in both Senior Services who have served with the R.A.F. are throwing up high ranks in the Air Force and going back to very much lower rank in their own Services because they are, in their own expressive language, "fed up with the Bolo House."

The First and Last Love.

Therefore one is by no means convinced of the soundness of making a hard and fast rule that regular officers are entitled *ipso facto* to permanent commissions in the R.A.F. It may very well be argued that a young, highly educated, intelligent, and energetic R.A.F. officer who came direct into either of the Flying Services from civilian life at the beginning of the war, who is by nature of the proper Service type—as many of them are—and whose only Service interests lie with the R.A.F., is in fact preferable to any but the very best of the officers of the Senior Services, of whom it is probably true, in the words of Miss Violet Lorraine, that "The first love is always the last love and the best love of all."

One would naturally feel rather suspicious of an officer brought up either in the Navy or Army who found it possible to feel the same affection for the R.A.F. that he did for his first Service. Therefore, while fully recognising the need for having regular officers of the Senior Services in the R.A.F. in order to impart to it the proper Service tone, one is by no means convinced that the possession of a regular commission should by itself constitute a right to a permanent commission in the R.A.F.

Public School Boys.

It is understood that after regular officers of the Senior Services, the people who have the next claims to permanent commissions are Public School boys of those Schools which are generally recognised as being in the first or second grade, but that many quite decent Public Schools are excluded from the recognised list. This again is as it should be in theory, for obviously a man with the better class of Public School education will make a better officer than one who has been brought up at a third-rate school or by a private tutor.

At the same time here again very great care is necessary in making a selection. A Public School education should by no means give a prescriptive right to a commission as against the claim of a candidate who, for some reason or another, has not had the good fortune to go to a Public School, although he may have been brought up by his parents in the Public School tradition.

Proved Air Fighters.

The third class, so far as one can gather, is composed of those who, no matter what their antecedents, have won two or more decorations in the field. Here again the idea is sound in theory, for it gives an absolute right to a commission to men of proved gallantry. But, as in the previous cases, very great care is necessary in making a selection, because some of the most gallant fighting men are by nature pirates rather than soldiers, and in time of peace are likely to give considerably more trouble than they are worth.

A Matter of Selection.

There is no doubt that by interpreting these general rules fairly liberally a very desirable class of officer may be obtained for permanent commissions in the R.A.F., but, even if one accepts them as a basis, one is by no means convinced that commissions are going to the right men.

Judging from examples within one's personal knowledge, it seems that commissions are being given in a purely arbitrary manner. And unless whatever body is supposed to be doing the work of the original Selection Committee—now apparently defunct—is very careful and also very skilful, the efforts of those in authority to make the R.A.F. worthy of the original idea that the R.F.C. was to be the *corps d'élite* of the British Army may result in its becoming a close corporation of an eminently undesirable kind.

A Matter of Money.

There is a very general impression throughout the R.A.F. that an officer has no hope of getting a permanent commission unless he has private means. It is commonly believed that the R.F.C. pay is to be cut down and that the standard of living is to be raised so that an R.A.F. officer will not be able to live on his pay, at any rate in the junior ranks, for he will be expected to keep a car and polo ponies.

One has seen this impression categorically denied in print, but it has not yet been denied officially by those in authority, and it is undoubtedly a fact that officers who have applied for permanent commissions have been asked whether they have private means. It is natural, therefore, that people should believe that a private income is a necessary qualification for a permanent commission.

One hopes that such is not the fact, for if the R.A.F. is to be run on such lines it will become a monument of financial snobbery similar to certain of the so-called crack cavalry regiments of the past. Moreover, there is no reason whatever to believe that the possession of money carries with it either personal gallantry or the amount of brains which are essential to a successful active-service aviator.

A Matter of Brains.

It is an incontrovertible fact that such an aviator needs more brains than the corresponding officer of the line if he is to be of real value in time of war. A platoon commander who knows something of the science of war is naturally a more useful man than one who is merely a good leader of men, but an officer may be quite a good platoon commander and yet not a particularly brainy individual.

The aviator on the other hand must possess brains. If he is to be a good artillery observer he must know practically everything there is to know about artillery, and he must know quite a great deal about the work of infantry and about the engineering side of war if he is to direct his battery with the best effect.

Similarly, if he is to be a good reconnaissance pilot or observer he must be able to read the movements of troops and must be able to judge what those movements indicate. So much was made perfectly clear by Major-General Sykes in various papers which he read before the war, and the experience of war has merely confirmed his theories.

The fighting aviator likewise must be a man of brains and of intense industry and application. One has only to read the late Major McCudden's account of his own work as a fighting pilot to understand thoroughly that industry and thoughtfulness go further towards successes in air fighting than does skill as a pilot or mere personal bravery.

What Is the Test?

Judging by very many instances within one's personal knowledge, those who have the handing out of permanent commissions, and of appointments to the Army of Occupation, have taken little or no trouble to discover whether applicants are people with brains and industry. In fact one knows that a number of extremely keen men with very good war records have been turned down, whereas some of those who have been accepted seem to have less qualifications for permanent appointments than some of those who have been unsuccessful in their applications.

It is even doubtful whether the R.A.F. will obtain the actual number of people required, judging by the proportion of people rejected. For example, one knows of one Squadron Commander who out of a matter of a hundred applications for permanent or temporary commissions recommended forty applicants who, of his own personal knowledge, he judged worthy of appointments. Much to his surprise two out of the forty were accepted and the rest received notice to be prepared to be demobilised within a fortnight. One has also heard of other instances where people have been rejected in very much the same proportion.

The Evidence of Figures.

Now we know that at the signing of the Armistice there were 30,000 officers in the R.A.F., and we have been told officially that 2,000 permanent commissions will be given at once and that some 6,000 or 7,000 temporary commissions will be given in the Army of Occupation.

It is probable that out of the original 30,000 at least 10,000 (at the most moderate estimate) have either been demobilised or have applied to be demobilised, so that at the very most there cannot be more than 20,000 officers who are at all likely to have applied for permanent or temporary commissions.

Of these, no doubt a number are ground officers who would like to have comfortable jobs without the danger of flying attached. And in their case, with very few exceptions in favour of experienced men who have done unusually good work during the war, they ought all to be rejected, because among the actual flyers it is quite possible to find enough men to do the ground jobs as well as the non-flyers, and they would have the advantage of being able to fly and so of being able to form a better judgment on technical matters concerning flying.

If these mere groundlings were rejected straight away there could scarcely be more than 15,000 officers, at most at all qualified for permanent and temporary commissions.

Now in all the cases of rejection of which one has heard, the applicants have been pilots, and if permanent commissions are only being given at the rate of two for every forty applicants it looks as if by the time the fell work is done there will be about 700 permanent commissions in the R.A.F. instead of 2,000.

Is the Selection Fair?

These figures are obviously absurd, and therefore one is forced to the conclusion that the selection of officers for permanent commissions is not being conducted fairly; that is to say, apparently an unduly high proportion of permanent commissions is being given to certain units and other units are getting practically no permanent commissions at all.

One can quite understand that the whole of a crack squadron now with the Army on the Rhine might be given commissions all round because they did well during the last month or two of the war. On the face of it this seems reasonable. But if one looks further into the matter, it is grossly unfair, because the chances are that the pilots and observers of such a squadron have only been away from England for a few months and probably have only been flying since the end of 1917 or the beginning of 1918.

The members of that squadron who built up the squadron's reputation, formed its traditions, and imbued it with its high moral are now probably dispersed over a number of training squadrons or home defence squadrons in England, and their applications for permanent commissions have probably been turned down just because they had not the luck to be actually at the front at the end of the war.

Yet individually those officers may be worth any two or three of the people who finished the war, for, be it remembered, the men who went through the bad times of 1916 and the men who fought through the great

German offensive of early 1918 had to be made of very much sterner stuff than those who maintained the command of the air through the last four months of the war.

The Need for an Announcement.

One suggests in all good feeling to the Air Ministry that a public announcement should be made as to the principle on which permanent commissions and temporary commissions in the R.A.F. are being given. The present state of mind of the officers of the Air Force is altogether bad for the moral of the Service. If money is to be the chief qualification for a commission, then the Air Ministry should say so, but if not, the idea should be denied officially and most emphatically.

If commissions are being given wholesale to certain squadrons and are being refused wholesale to people who have had the misfortune to come home for a well-deserved rest, then the fact should also be made clear. Those who cannot possibly be accepted would then be able to apply for demobilisation and would get out of the Air Force instead of hanging on in it feeling thoroughly disgusted and spreading an increasing feeling of discontent among the entire personnel.

If the authorities at present in charge cannot make a definite statement on the subject owing to the absence through illness of both General Trenchard or of his able Deputy-Chief of the Air Staff, General Groves, then let them state plainly that no decisions can be given until both officers return to duty. Then at any rate applicants for commissions will all be on the same level and there will be no legitimate cause for discontent. But infinite harm is being done by giving a few permanent commissions and leaving the majority of the officers in a most disturbed state of mental suspense.

If the position is made clear to all those officers who have not yet been actually demobilised, then they will certainly be content to wait and see what is going to happen to them. But the sooner the whole business is cleared up, and the sooner everybody is cleared out of the Air Force except those who are to remain in it permanently, the sooner the R.A.F. will be able to begin pulling itself together and reaching out after those high ideals which one hopes in all sincerity will, in due course, make it a Service worthy to rank with, but after, the King's Senior Armed Forces.

Demobilisation Muddles.

Another example of the way in which the High Authorities are causing irritation and raising bad feeling among the officers of the R.A.F. concerns the manner of demobilisation.

Those officers whose applications for temporary or permanent commissions have been refused, as well as the number of others who have neither applied for demobilisation nor for temporary or permanent commissions, have received notice to hold themselves "ready to be demobilised within twenty-eight days." The ambiguity of the wording of these notices is causing a large amount of ill-feeling.

Young officers do not understand whether it means that at any time during the twenty-eight days following the receipt of this notice they may receive orders to demobilise at once, or whether it means that at any time



THE OCHILL HILLS, near ALLOA.—This Photograph was taken from a G.3 Caudron Biplane (100 h.p. Anzani Engine) by M. R. L. Desoutter, flying from the Caudron Aerodrome alongside the Forth. The Proprietors of the Aerodrome state that the scenery is better than Italy, and that for a suitable fee a passenger can loop the loop over the perpetual snow of Ben Nevis.

for the next year or two they may receive instructions to demobilise at the end of twenty-eight days' notice. Some of them take it to mean that if they do not receive instructions to clear out of the Air Force during the ensuing twenty-eight days, they are free to leave without further orders when the twenty-eight days have elapsed.

The whole thing is an example of the muddle-headed way in which the Personnel Department of the Air Force is being run, and it shows the utter folly of mixing up Naval and Military methods in one department. In the Army it is clearly laid down by the War Office that any officer who is demobilised shall receive, after leaving his unit, twenty-eight days' clear leave on full pay, the intention being that he shall be at liberty to use those twenty-eight days in finding himself a job. As usual the War Office method is perfectly clear, perfecly reasonable, and perfectly understandable. Equally, as usual, the Air Ministry method—thanks probably to its amphibious origin—is thoroughly obscure, thoroughly muddled, and thoroughly devoid of reason.

Differences of Opinion.

The demobilisation of R.A.F. officers seems to be carried out in different ways in different areas. Some officers are simply sent home and told to await final instructions about demobilisation. Some of them are allowed to go to outside jobs, and are then, at the end of several weeks, hauled back to their original units for a day, perhaps at the other end of the British Isles, to be demobilised there. Some are given a month's leave, apparently on the responsibility of their individual C.Os., pending demobilisation, after the Army fashion. Some are kept hanging about their Stations doing nothing until the Personnel Department at the Air Ministry sees fit to deal with their papers.

The result is, of course, the creation of still more bad feeling and still more contempt for the incapacity of the high authorities at the Bolo House among the young officers of the R.A.F., who are the very people who ought to be handled in such a way as to inspire them with respect for those in authority, in view of the fact that ultimately they ought all voluntarily to join the R.A.F. Reserve.

Rear-Admiral Lambert, R.N., who, one understands, is responsible for the duties of Master-General of Personnel, may have been an excellent Fourth Sea Lord: one gathered at the time, however, that he was not particularly an admirer of the R.N.A.S. He may also be an excellent Quarter-deck Officer: one does not know. He may be an excellent Commander of seaplane units: and according to accounts from those who served under him in the Mediterranean he was in fact a very good Commanding Officer.

But it is pretty evident from the way in which the officer personnel of the R.A.F. has been handled for the last few months, and from the evident increase in the amount of discontent among the personnel owing to the way in which they have been handled more recently, either that Admiral Lambert is not the right man for that job (good as he may be in others), or else that he has been singularly unfortunate in the staff which he has chosen for his department or in the staff which was left to him as a legacy by his predecessor.

It is to be hoped that in the course of the next few days the Personnel Department will see fit to issue an announcement to the R.A.F. as a whole, setting forth the meaning of demobilisation orders as clearly as those which are issued by the War Office.

The Need for Charity.

It is quite possible that all one's impressions, as conveyed in the foregoing notes, may be entirely wrong. One hopes that they are. But the fact remains that those are the impressions held by the present officer personnel of the R.A.F. If they are wrong: and if commissions are being given according to a definite scheme of selection, intelligently operated: and if demobilisation is being carried out in a proper manner with due regard to the rights of the people who are being demobilised, nobody will be better pleased to hear that one is wrong than one will be oneself.

And if the Air Ministry sees fit to publish its intentions in a clear and concise manner, this paper will give the greatest possible prominence to the announcement.

As one has said before, one's most earnest desire is to see the R.A.F. become a force worthy of the highest traditions of the King's Services. It cannot become such a force so long as the officers and men are seething with discontent at the way in which they are being mishandled by the Air Ministry, and it is very much better that this state of discontent should be thoroughly ventilated than that it should be allowed to continue in a hushed-up state until it has ruined the *esprit de corps* of the R.A.F.—C. G. G.

PRINCE ALBERT, K.G.

Captain the Prince Albert, K.G., R.A.F., who is undergoing the ordinary course of instruction at the Wallington Aerodrome, near Croydon, is reported to be making good progress. H.R.H. the Prince of Wales, K.G., it is stated, occasionally accompanies the Prince Albert on the latter's flights. It is not the intention of the Prince of Wales to qualify for his wings.

GOOD NEWS.

It is reported that Major-General Sir Hugh Trenchard has made an excellent recovery from his recent serious illness and is expected to resume his duties as Chief of the Air Staff at any moment. The news will be the best possible to all who have the welfare of the R.A.F. at heart. It is hoped that as soon as he returns General Trenchard will lay down a fixed policy which will not be liable to alteration once a fortnight at the behest of the Harmsworth Press.

THE KING AND QUEEN OF BELGIUM.

While the King and Queen of the Belgians were flying on their way to visit the Belgian troops who have recently been sent to the left bank of the Rhine to constitute part of the Armies of Occupation, they were caught in a hailstorm near the German frontier. The King's machine landed near Düren, but later continued to Bochum, which it reached at 2.30 p.m.

The aeroplane in which the Queen was a passenger landed outside Liége, and reached Bochum at 1.30 p.m.

The King and Queen proceeded thence to Crefeld

AERONAUTICAL HONOURS.

The list of honours, publication of which has been deferred since the New Year, was issued on April 29th. It includes the following:—

Central Chancery of the Orders of Knighthood.

St. James's Palace, S.W., April 29th, 1919.

The King has been graciously pleased to signify His Majesty's intention of conferring a Peerage of the United Kingdom on the following:—

Viscount.

The Right Hon. Harold Sidney, Baron Rothermere.

Controls the "Daily Mirror" and the "Sunday Pictorial." Director-General Royal Army Clothing Department, 1916-17. Air Minister, 1917-18.

[One would have imagined that the Air Ministry affair would have cancelled out against the Army Clothing success and that honours would have been easy. Apparently, "honours" are easier in politics than at cards.—Ed.]

The King has been pleased to signify His Majesty's intention of conferring a Baronetcy of the United Kingdom on the following:—

Samuel James Waring, Esq.

High Sheriff of Denbighshire. Public and local services. Within two months organised the largest tent and equipment factory in the world, employing 10,000 hands. Built, equipped, and organised factory and devised a new scheme known as the peddle system for expanding the production of the Lee-Enfield rifle. Organised factories throughout Great Britain for the production of aeroplanes.

[Sir Samuel Waring deserves every congratulation, and few baronetcies have been better earned. At the same time, one is moved to wonder why not a single one of the pioneers of aviation have received any honour of any kind. The O.B.E. can scarcely be reckoned an "honour" in these days.—Ed.]

THE

Sopwith

AVIATION & ENGINEERING Co., Ltd.

Designers and Constructors of Aeroplanes and Seaplanes.

Standard types delivered and used during the War, 1914-1918:—

CONTRACTORS TO THE **BRITISH & FRENCH** GOVERNMENTS

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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

The Reclamation of Brass Hats.

It seems that there is no truth in the rumour that the National Aircraft Factory at Owdham is to be started to work again on the job of reclaiming the gold from the headgear of de-brass-hatted Lieut.-Colonels and Majors who will be automatically demoted under the regulation to come into operation on May 1st, cancelling all "acting" ranks in the R.A.F. The reason for not using the said factory for the purpose is not that the material to be "reduced to produce" would be insufficient, but that the majority of the *dégomé* officers insist on retaining possession of their hats as a permanent reply to the question, "What did you do in the Great War, Daddy?"

The Scream of the Eagle.

An article published in the "Daily Express" begins in this staccato style :—

"Four hundred million pounds.

"Eight eighty-mile wide airways with feeders cris-crossing the North American Continent.

"Two hundred aerial mail routes, using two thousand aeroplanes, planning.

"That is America's challenge to the world in the air."

These phrases are not intended to be "college yells." They precede a description of the marvellous things that America is about to perform. The writer evidently is endeavouring to stimulate British manufacturers into activity, as he ends with the query, "And in all this—what is England doing?" The answer is, of course, that she is doing quite a lot while America is talking.

This interesting paragraph is worth quoting :—

"The average cost of sending . . . day and night letters is a dollar apiece, and 13 cents for the special delivery letters. That alone spells £10,000,000 waiting to be picked up. Further, the aerial letter is going to challenge the telegraph—it is a case of an 8d. letter versus a £1 telegram, and greater privacy."

One is not sure what "day and night letters" are, neither is it clear why one dollar apiece should be charged for them and only 13 cents for special delivery letters which are to rival £1 telegrams. The introduction of "an 8d. letter" in the final sentence causes more confusion. Thirteen cents is usually considered to be equivalent to 6½d., not to 8d.

Newspaper readers of average ignorance are likely to add to their store by perusing the article.

A Promenade-Decked Aeroplane.

According to a U.S. wireless message, Ifkor Sikorski, the Russian aviation expert, who has arrived at New York, announces that he "will enter the commercial air flying industry in the United States, manufacturing the 'Sikorski 28,' which design is an adaptation from the battleplane type used extensively by the Russians in heavy bombing during the war." A feature of the machine is a promenade deck on the lower wings for the use of adventurous passengers.

American reporters seeking sensational news find that there is no truth in the rumour that a band will perform on the promenade.

Nothing is said as to the means by which promenaders are to be attached to the planes.

More Silliness.

A writer in the "Daily Mail" has committed the following banality :—

"Flying does not interfere with the privacy of the ordinary citizen. Aeroplanes pass too high above his home and his garden for their passengers to quizz at him or annoy him. When aeroplanes land they can land only at proper landing places; their pilots do not descend voluntarily upon private property. Flying no more violates privacy than a railway line does at the end of one's garden.

"But what will a general extension of this parachuting mean? You can take it for granted that, just as everyone will soon fly, so everyone will soon parachute. That means the end of the legend that an Englishman's home is his castle. What is more annoying than to have unwelcome visitors 'drop in'? Everyone suffers from that affliction at times, but, at least, when the undesired visitors call at the front door, you can fob them off by telling a maid to say, 'not at home.'

"But how about when they have learned the trick of literally 'dropping in' to one's garden by a parachute?"

One might ask in the same inspired language: "How about when" this writer has learned the trick of dropping out of this literary style?

Theatrical Aerial Tours.

The daily news-sheets allege that Mr. Harry Tate, the famous motorist, is to tour the world per Handley Page Biplane (presumably Rolls-Royce engines) complete with scenery and "son" as fitted, and that he is to be accompanied by two pilots. It is not stated whether his stage assistants will act as aeroplane mechanics, or whether the pilots will do that job as well. At this rate one may expect to see advertisements for "pilot-mechanics wanted by famous actor-manager for company touring 'Hamlet.' Preference given to a couple willing to play First and Second Grave-Diggers and to act as scene-shifters and stage-carpenters when not flying"

The Height of Vulgarity.

In an American journal there appears an advertisement of an Aircraft Advertising Agency which announces its readiness to display advertisement on dirigible balloons, kite balloons, and aeroplanes, and to drop "souvenirs" and handbills from the air. The advertisement gives the names of various majors and captains who are in the conspiracy, and gives a précis of each aviator's services in the war. One is told that one representative of the Advertising Agency has twelve air victories to his credit.

Is it possible even for the American commercial mind to conceive anything more vulgar than this? One wonders if in the near future one will see business notepaper headed "Major Samuel Browne-Flapdoodle, the hero who brought down ten Huns in flames. Live advertising a speciality."

Horrible!

A Good Scheme.

A proposal is on foot to form an ex-Flying Officers' City Luncheon Club, and as an immediate beginning it is intended to arrange for a separate long table at one of the central City restaurants. Any ex-R.N.A.S., R.F.C., or R.A.F. pilots or observers who may now be demobilised and working in the City, and who are interested in the scheme, should communicate in the first instance by letter with Major Modin, Durrington Lodge, The Crescent, Surbiton.

The intention is to hold a meeting one evening in the City at an early date, when the scheme can be discussed and a Mess Committee nominated, etc.

The underlying idea is that there is now a very large number of ex-pilots and observers demobilised in the City of London who would welcome the formation of a luncheon club where they could meet old comrades and "talk shop" without annoying other people.

Mullet-Hunting with Seaplanes.

One commented recently in these pages upon the grisly possibilities of herring hunting with H.E. dropped from seaplanes. The "Scientific American," which is rarely (intentionally) humorous, treats the suggestion very seriously. This journal devotes much attention to a proposal of Professor Joubin, of the Oceanographic Institute in Monaco, who thinks that seaplane pilots can be of great use to fishermen. The following remark is made by the "Scientific American" :—

"An important business of the seaplane during the war was hunting submarines. As is well known, a submarine, when not too deeply submerged, is easily seen silhouetted against the sea bottom from a point of vantage a certain distance above the water. The same is true of the larger species of fish. A good-sized mullet, for instance, can be seen from an altitude of two or three hundred feet, when swimming over a sandy bottom."

One presumes that the American mullet is larger than ours, but one was not aware that its displacement is as great as that of a submarine, as this paragraph would lead one to believe. The last paragraph is, however, confusing, as it is not clear whether it is the mullet or the seaplane that is swimming over a sandy bottom at an altitude of two or three hundred feet.

To continue :—

"Professor Joubin proposes the establishment of a regular patrol by 'hydroplanes' over the various fishing grounds. These craft should be equipped with radio-telegraphic apparatus, whereby they would notify the fishermen of the neighbourhood whenever a shoal of fish was located. This plan would result in a great saving of the fishermen's time. It would also ensure a more economical use of expensive bait, such as the peanut flour and fish-roe, used in sardine fishing."

Not being expert in the art of sardine fishing, one hesitates to comment upon this paragraph, as it is not stated whether it is the pilot or the fisherman who feeds the sardines on peanut flour.



MARTINSYDE

DESIGNERS OF THE F-MOUS

F4 FIGHTER

WHICH ESTABLISHED THE

WAR RECORD

FOR CLIMB AND SPEED AT HEIGHT.

A ROLLS-MARTINSYDE

OF THIS TYPE HOLDS

THE LONDON-PARIS SPEED RECORD,

1 HOUR 15 MIN.

TRANS-ATLANTIC TYPE.

INQUIRIES INVITED FOR PASSENGER—OR MAIL-CARRYING MACHINES OF THIS TYPE.
SPECIFICATIONS WILL INCLUDE

ROLLS-ROYCE ENGINES,

"FALCON" 285 H.P., OR "EAGLE" 350 H.P.

APPROXIMATE PRICE £3,000.

MARTINSYDE, LTD.,
WOKING, ENGLAND.
Telephones—551, 552 and 553 Woking.

The WORLD of AERONAUTICS (continued)

The Lord Chancellor's Flight.

The Lord Chancellor and his son made a flight in an Avro aeroplane at Hamble, near Southampton, on April 25th. The machine was an Avro five-seater—one of the latest type. At the conclusion of the flight Lord Birkenhead expressed great delight with his experience. The newspaper account says:—"Captain Hammersley was in charge of the arrangements, and the machine was piloted by Mr. Chilcott." Captain Hammersley is a very expert pilot, but one was not aware that Mr. Chilcott, M.P. (late R.N.V.R., attd. R.N.A.S.), was a pilot.

That Flag.

The voyage of an airship from London to Windsor flying the new R.A.F. flag, raises rather an interesting point to which one ventures to draw the attention of the Air Ministry.

It appears that all airships are at present for purposes of administration and operations under the Admiralty. Being thus, in theory and practice, vessels of the Royal Navy, they are obliged when on duty to fly the White Ensign. The point, therefore, arises as to whether it is proper for any airship to fly the R.A.F. flag.

Perhaps the Air Ministry will be so good as to issue an order on the subject.

Recruiting Circuses.

The official "Air Service News Letter" from Washington is always interesting and often unintentionally funny. The one just received appears to indicate that the United States Air Service is in need of men, and therefore what is described as "a drive for recruits" has been organised. One prefers to make no attempt to translate the announcement into English.

"The Army Air Service launches its first recruiting campaign on April 9th, in connection with the three Victory Loan Flying Circuses operating chiefly for the Treasury Department. These flying expeditions were organised at Ellington Field, Texas; Hazelhurst Field, Long Island; and Rockwell Field, California, to tour adjacent sections. They comprise 12 or 15 American pilots each, including an American Ace who won distinction in the air overseas, and aces from the French and British Air Services who also distinguished themselves in their battles with the enemy. An Air Service recruiting officer is attached to each flight.

"Authority has just been received by the Director of Air Service to send out special recruiting expeditions in airplanes from 17 Air Service centres and 4 balloon fields in an effort to recruit men for the Air Service. Not only will flights be made over neighbouring cities, but demonstrations of assembling and taking down planes will be staged. In this drive for recruits the Air Service will co-operate with local general recruiting agencies."

One learns more of the Victory Loan Flying Circuses in another portion of the Official News Letter. For example:—

"Many schemes are to be used in the raising of the huge fifth Liberty Loan, but one of the most unique plans of all is the sending of three Flying Circuses over the country. The circus will carry two Fokkers, four Spads, five S.E.5's, and five Curtiss H's ships."

This is certainly one of "the most unique plans of all"; that is to say that even America cannot produce anything uniquer.

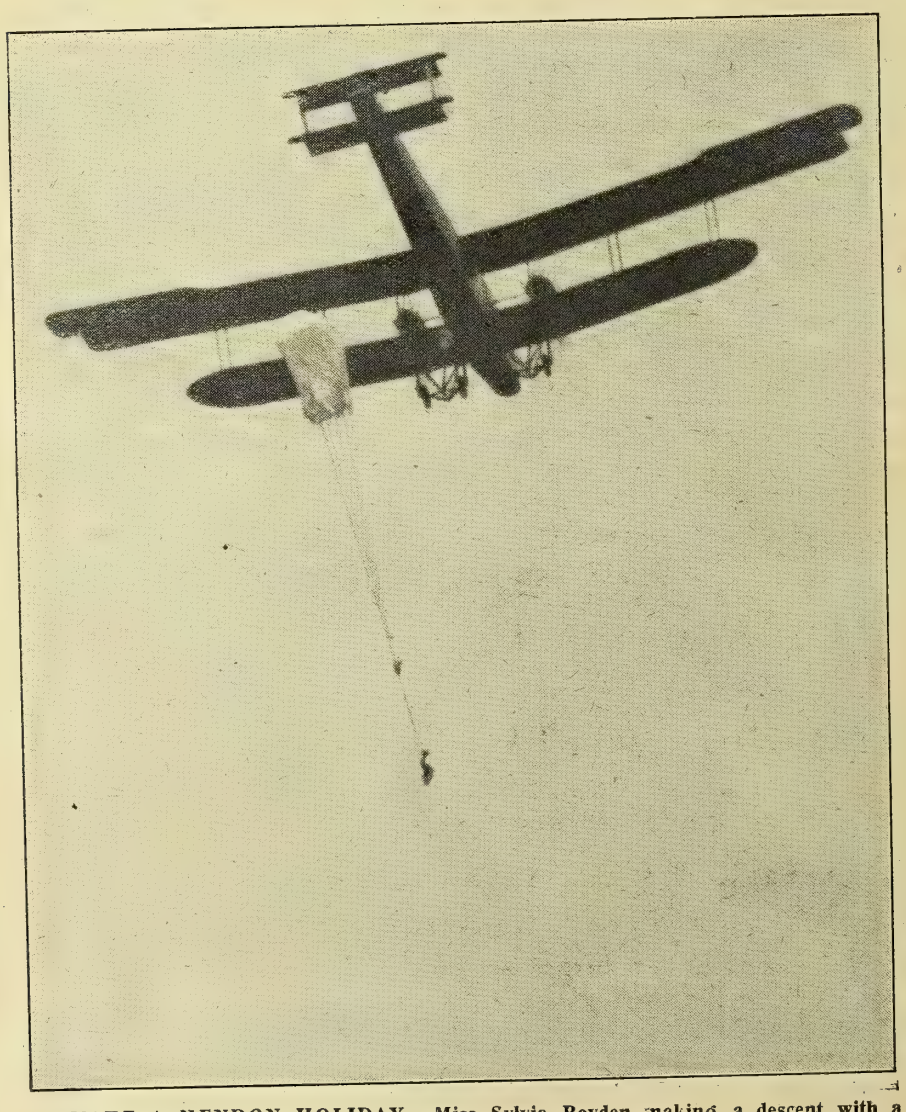
The Fatal Accident near Sleaford.

Flight Cadet Trevor Walter Chater, R.A.F., was charged at Sleaford with the manslaughter of Captain Robin Dunn and Lieut. Pegg, who were killed by an aeroplane on March 18th.

The accused, the pilot of the aeroplane, said that he was diving at a haystack near a road and did not see the trap in which the officers were driving. He was not aware that he had caught anything but felt a slight bump.

He admitted that he had a signed order not to dive near roads. A statement made by him to the adjutant was objected to as evidence by Mr. Mellor, who defended, on the ground that it was made to a superior officer.

The magistrate said there had been reckless disregard of orders, and committed the accused to the assizes, allowing bail on his own recognisances.



TO MAKE A HENDON HOLIDAY.—Miss Sylvia Boyden making a descent with a "Guardian Angel" Parachute from a Handley Page Machine (Rolls-Royce Engines). It will be noted that the modern parachutist dives head-first instead of descending feet first.

An Invalid.

Mr. A. Baldwin Raper, M.P., late Lieut. R.A.F., who has recently been asking some very pertinent questions in the House of Commons on the subject of aircraft, has been laid up recently owing to an operation for appendicitis. Some complications ensued immediately after the operation, but he is now making rapid progress and hopes soon to be back on duty.

65's Dinner.

It is proposed to hold a dinner in London on May 17th for all officers who served with this squadron in France. Will anyone wishing to attend please communicate with Capt. Withington, 12, Dover Street, enclosing £2 for expenses?

A Projected Polar Exploration.

Another expedition to the Antarctic regions is to be made under the leadership of Mr. John L. Cope, F.R.G.S., who accompanied the Imperial Trans-Atlantic Expedition, 1914-17, as surgeon and biologist to the Ross Sea party.

The expedition intends to leave this country in June, 1920, in the "Terra Nova," and to return in 1926. An aeroplane is to be taken for surveying purposes, and possibly for a flight to the South Pole. The temporary headquarters of the expedition are at 17, Somerset Street, London, W.1.

An Alleged Deception.

Captain Shelby Cullom Chapman, formerly of the United States Army, has been arrested in Chicago for, it is alleged, "posing as an air hero." It appears that when Capt. Chapman was going home, some reporters in New York confused him with a Lieut. Chapman, U.S.A., A.S., who was killed in action, but previously gained a certain amount of distinction, and Capt. Chapman, it is alleged, kept up the deception.


The finest all-round passenger and cargo machine yet constructed
Full particulars of the "Bristol" Triplane or other "Bristol" Aeroplanes will be forwarded on application to:
The Designers and Constructors,
THE BRITISH AND COLONIAL AEROPLANE CO., LTD.,
Filton, Bristol.
Telegrams: "Aviation, Filton." Telephone 3906.
"The Bristol" Aeroplanes

The WORLD of AERONAUTICS (continued)

An Exhibition for Leeds.

The Aircraft Exhibition at Newcastle has been visited by about 200,000 people during the six weeks that it has been open, and owing to its success it is to have another lease of life in Roundhay Park, Leeds. The exhibition includes a specimen of practically every type of British and German machine. Engines, machine-guns, cameras, wireless apparatus, etc., are shown, and there is an excellent collection of photographs. Kinema films are used to illustrate various aspects of modern flight.

A circus of skilful pilots has been employed to give exhibitions of flying in Avros, Snipes, and Camels, and there is one kite-balloon in which the public have been allowed to make ascents at the rate of £1 1s. per head. To popularise these ascents, a scheme was devised which suggests that the inventor had some knowledge of human nature. The K.B. carried the usual telephone, and this was connected to the exchange, so that passengers while in the air might ring up their friends and advise them of their heroism. The opportunity to inform mere ground-lubbers that they were speaking from a height of, say, three thousand feet proved a great attraction to many. It must have given them the delightful sensation of talking down to the level of their inferiors.

Appointments for Demobilised Officers.

Though one is not concerned with the advertisements which conceal the editorial columns of this paper one could not help being struck the other day by the statement of a certain advertiser to the effect that his is the *only* concern which is devoted to the job of finding employment for demobilised R.A.F. officers. One would therefore like to draw the attention of the advertiser in question, as well as that of all readers of this paper, to the fact that the R.A.F. Department of the Appointments Branch, Ministry of Labour, St. Ermin's Hotel, S.W.1, is concerned solely and entirely with precisely such work and is not doing it for any fee or profit.

Employers of all sorts who want good men, from managing directors down to junior clerks, in any sort of business, are earnestly requested to communicate with Room 238, St. Ermin's Hotel, stating the particular kind of man they need. Officers in need of a job should also write to Room 238 saying what sort of job their experience fits them to fill—*after* they have previously communicated with their local Headquarters of the Appointments Branch. A number of ex-officers R.A.F. have already got decent jobs from that Department, and one is earnestly desirous of seeing both employers of labour and applicants for jobs give their heartiest support to this Department, which has been established solely for the benefit of demobilised officers.

The Late Jules Vedrines.

By the death of Jules Védrines another link is broken in the living chain that connects aviation of to-day with the days of early experiment. A child of the people, an Apache by instinct and by habit, he nevertheless made a great name for himself in the world of aeronautics by his perseverance and determination in a profession which, if not lacking in rewards, is certainly not free from danger and from bitter disillusion.



The Late Jules Védrines.

At one time, in the days before he had found anyone trusting enough to provide means for his education in aviation, he was employed as a mechanic by Mr. Robert Loraine, then acquiring merit as an aviator of singular enterprise.

Later he became an aviator and almost at once sprang into fame. Each of the great circuits and races in which France and Great Britain took an active part had Védrines as an entrant. Not always victorious, he rarely failed to attain some manner of distinction.

During the war he showed that he possessed the courage proper to soldiers.

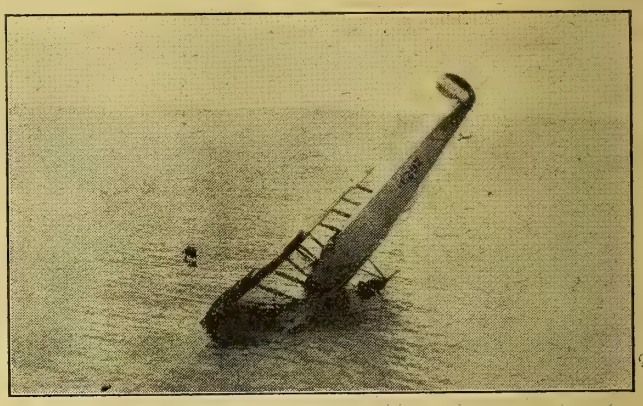
Disliked in life for entire lack of charm or courtesy, his death is regretted by all those who admire bravery in any path of life.

Low Flying.

The following letter has been received :—

Sir,—I read your leader of April 2nd, on "The Selection of Aviators," with great interest, and I heartily agree with you. I have had ample opportunity for observing the idiotic low-flying stunts that some chaps indulge in, and I must say that they don't tend to increase one's sense of security.

At a certain west-coast resort where I used to live, machines used to come from two aerodromes about 15 miles distant, and skim along the promenade with one wing literally almost touching the rail. I remember one case in particular. An Avro was



The finish of a low-flying performance.

flying low, when the engine failed and the pilot attempted to land on a bit of shingly beach, but bounced and landed in the water, as shown in the snapshot which I enclose.

Another case I remember is as follows : On a hill in the neighbourhood were two poplar trees, about twelve yards apart. An Avro, flying low, steered straight for these and flew in between, about six feet from the ground. Of course it was magnificent flying, but rather too dangerous for both the pilot and the spectators.

(Signed) G. Simpson.

The Royal Air Force Club.

In connection with the purchase of the Lyceum Club by Lord Cowdray for the Royal Air Force Club, it now appears that Lord Cowdray has also purchased extensive additional adjoining properties, including the famous Milton job yard and riding school, a block of residential flats, and a large range of stable premises. The total area of property acquired is 116,000 square feet.

Under these circumstances one hopes that there will be a "peace-time" Air Force sufficiently strong to make good use of the extensive premises.

Theft in the Royal Air Force.

Lieut. Arthur Charles Hankey, R.A.F., 29, of Gray's Inn Road, W.C., was charged at Feltham on April 23rd, with stealing from Hurst Park ten barrels containing 400 gallons of lubricating oil, value £70, the property of the Secretary for War, and Lieut. Charles Joseph Young, R.A.F., 39, of West Brompton, was charged at the same time with being concerned in the theft, and William James Twigg, 50, motor engineer, Hampton, was also charged with having in his possession 31 empty petrol tins, supposed to be stolen.

Detective Inspector Prothero gave evidence and the accused were remanded on bail.

The All-Metal Aeroplane.

Capt. A. P. Thurston, whose lecture on "The All-Metal Aeroplane" had unfortunately to be postponed some time ago, has now arranged to deliver the lecture on Wednesday, May 14th, at 8 p.m. The meeting will take place in the Hall of the Royal Society of Arts, John Street, Adelphi, which, as usual, has been kindly lent for the purpose to the Royal Aeronautical Society.

It is almost unnecessary to draw the attention of the readers of this paper to the importance of the subject of this lecture. Many attempts have been made from the earliest days of aviation to produce all-metal aeroplanes. All have been unsuccessful until comparatively recently, since steel construction of an entirely new type has been brought into being, largely through the efforts of the Steel Wing Company, the head of which is Mr. Mooney. Many of the machines which have been called all-metal machines have in fact only had steel-tube fuselages and occasionally have had steel-tube wing-spars, but hardly any, if any, have had the complete wing structure and fuselage structure made of metal.

Capt. Thurston has made a special study of the uses of various metals, and of various methods of using them, for some years past, and as one of the pioneers of aeronautical science his lecture should be of more than usual interest to aeroplane constructors and users.

Tickets for the lecture can be obtained free from Mr. W. Barnard Faraday, Secretary, The Royal Aeronautical Society of Great Britain, 7, Albemarle Street, W.1.

ROLLS-ROYCE

The Future of Flying depends on Trustworthiness.

LONDON to PARIS in 75 mins.

NEW FLIGHT RECORD

A MARTINSYDE plane with ROLLS-ROYCE ENGINE left Hendon Aerodrome, London, at 3.20 p.m. on April 8th last and travelling via Dieppe landed at Buc Aerodrome, Paris, a distance of 215 miles, 75 minutes after its departure from London. This gives an average speed of

172 MILES AN HOUR or over 2¾ MILES A MINUTE

The following Aircraft entered in Great Britain for Atlantic Flight are fitted with ROLLS-ROYCE engines.

WHITEHEAD	with ROLLS-ROYCE engines
SOPWITH	with ROLLS-ROYCE engine
SHORT	with ROLLS-ROYCE engine
FAIREY	with ROLLS-ROYCE engine
MARTINSYDE	with ROLLS-ROYCE engine
HANDLEY PAGE	with ROLLS-ROYCE engines

Also the great PORTE FLYING BOAT fitted with 5 ROLLS-ROYCE engines will attempt to fly the Atlantic.

ROLLS-ROYCE Aero Engines like ROLLS-ROYCE CARS ARE THE BEST IN THE WORLD.

ROLLS-ROYCE LIMITED, 15, Conduit St., London, W 1.

ROLLS-ROYCE

PARIS NOTES

Paris, April 28th.

A New Directeur.

According to a decree of April 15th, Colonel Dhé has been replaced in the office of Directeur de l'Aeronautique Militaire by Brigadier-General Duval.

Colonel Dhé has held office since November, 1917, when the Aeronautical Services were to be separated in two parts, one to be under the War Minister and the other under the French equivalent of our Minister of Munitions. Colonel Dhe assumed control of the two and combined the functions of both heads in himself. Thanks to his technical knowledge and his capacity for work and organisation he was able to maintain the cohesion of the whole, which enabled the French to make in 1918 their most formidable aeronautical effort since the Battles of Verdun and the Somme in 1916, notwithstanding the fact that, during a large part of the German offensive most of the Parisian factories were required to be able to remove machinery, materiel, and personnel at a few days' notice.

On him devolved the responsibility of creating the Department and organisation of Civil Aviation, but he did not receive the support from his superiors that he had a right to expect. Lately, he had presided, at the request of the delegates of the Allied Aeronautical Commission, over their deliberations, a work which has now come to an end. Considering his duty finished he asked to be released immediately in order to undertake certain civilian work, where no doubt he will continue to display his talents unfettered by routine and jealousy.

Another Aviation Company.

One of the most promising signs of the times is a new company lately registered under the title of Compagnie des Messageries Aériennes, with a very large capital. They intend to promote the development of Aviation in all its forms in France or its colonies, and later on abroad, by the organisation of aerial transport of postal packages, letters, merchandise and passengers.

The offices of the concern are 55-57, Avenue Kléber, Paris, and its first administrators are Messrs. Louis Bréguet, Louis Blériot, Réné Caudron and the Morane-Saulnier Company. This is the organisation to which I referred two months ago as being in course of formation.

An Ambitious Attempt.

Lieut. Fontan, who hopes to fly from Paris-Casablanca-Dakar and then, if all goes well, to South America, is in no wise deterred by the untimely end of his friend Védrines, and is making the most elaborate preparations for an early start.

Post-Bellum Plans.

All the big aeroplane factories here are busy putting their houses in order. Messrs Lioré et Olivier have an hydravion under consideration as well as their ordinary machines, and are taking up shortly the manufacture of agricultural tractors.

Messrs. Blériot who had begun to make furniture in order to avoid a stoppage have received a big order from the State for motor fishing boats; they are also undertaking the manufacture of motor-cycles as well as a new type of aeroplane with four motors.

The big model buildings of Farman Frères at Billancourt show how an aeroplane factory should be laid out. All three brothers fly regularly, and M. Dick Farman daily. During the whole period of the war they have not had an accident to either pilot or machines in their reception tests or subsequent delivery to the Army, and they supplied well over 5,000!

Naval Aeronautics.

From a statement issued by the French Authorities one notes that on October 1st, 1918, the French Navy possessed 870 avions or hydravions, 59 airships, and 198 observations balloons divided up as follows:—

Sector.	Avions or Hydravions.	Dirig.	Balloons.
Dunkirk-Cherbourg	168	21	22
Brittany	104	11	39
Loire-Bidassoa	74	7	21
Mediterranean (French coast)	110	4	41
Corsica	38	2	0
Portugal	16	0	0
Algeria-Tunis	176	11	31
Morocco-Senegal	44	0	0
Corfu	54	3	12
Ægean Sea	86	0	32
	870	59	198

From Bordeaux comes news of a new giant hydravion built to carry 18 passengers. A single motor of 500 h.p. with 18 cylinders is the motive power. Its trial flight was successful.

At the signing of the Armistice four firms were turning out hydravions for the "high seas" in large quantities. The G. Levy at St. Raphael, the Tellier-Nieuport and the Latham on the Seine, and the Donnet at Lorient.

The following details are available:—

Weight, fully loaded, seven tons.

Span, 30 metres.

Nacelle, length, 18-20 metres.

Overall, height, 5.50 mm.

H.P., 1,050; h.p. in three motors of 350 h.p. each.

All being of the central hull type. At the moment new types of 2,000 to 3,000 h.p. are being studied with a view to commercial usage.

Naval Lieut. Lefranc, piloting an old type hydravion, has just completed a trip in Senegal of 650 kilometres in nine hours.

MM. Nungesser and Navarre, two notable war aces, are giving up aviation in favour of motor racing.

A Proposed Aerial Circus.

There is a proposition on foot to organise an aerial circus to tour France and abroad, and to be composed of three men and three women. Colour is lent to this rumour by the activity of Mlle. Jane Hervieu and Mdme. de Laroche, who is re-learning to fly on a G3 Caudron. Mlle. Hervieu has taken up several passengers lately, is now learning how to loop the loop, and during the holidays flew over Paris, throwing out tracts on behalf of a war society.

A Flying Motor-cycle.

From Geneva comes news of a new motor-driven aviette, the invention of M. Duplan. It is designed to be used as an ordinary motor-cycle, but can deploy its wings in a few seconds. It weighs 230 kilos. and a 35 h.p. motor actuates either the propeller or the wheels.

Safety and Comfort.

The provisional list of stages in the preliminary trials in connection with the safety and comfort competition for which the "Echo de Paris" is offering £12,000 is now available. Starting from Paris, stops will be made at the following towns in France and neighbouring countries:—Nantes, Bordeaux, Toulouse, Barcelona, Nimes, Turin, Avignon, Geneva, Strasbourg, Brussels, London, and so back to Paris. Brief halts will be made at other places between these points.

Commercial and Postal Services.

The first trial of a civilian commercial aeroplane service between Paris and Lille was successful. On the 19th inst. a Bréguet biplane, piloted by Tassel, left Villacoublay at midday, with commercial mail and packages. He landed at Lille at 1.35. He left Lille again at 4 p.m. with the Military mail, which had been held up, landed at Le Bourget to deliver the Military mail, and at 5.30 arrived at Villacoublay with the civilian mail.

On the other hand, one regrets to record that a machine working the postal service between Paris and Strasbourg came to grief at St. Didier. The pilot and two passengers were killed or injured, and the mail destroyed.

The Farman Goliath made its weekly trip both ways with 15 passengers each journey. The return flight was made in 2¼ hours. On Easter Sunday, M. Dick Farman and his son, went for a flying trip to the Normandy coast and flew over Deauville, Cabourg, and Dieppe, returning to Toussus-le-Noble Monday morning.

The Avignon-Nice aerial postal service continues to operate.

Nimes has been classified as an aerogare, and from the 18th inst. an aerial postal service operates between it and Nice. 10,000 letters and two passengers will, it is expected, be carried per machine.

Good Performances.

Cross-country long-distance flights by French aviators between France and Spain are becoming too frequent to be mentioned individually. One fine performance is that of M. Royeres and two passengers who flew from Toulouse-Barcelona-Saragosse-Madrid.

Last week Capt. Roig, accompanied by Adj. Champs, flew in stages the circuit Paris-Lyon-Nimes-Toulous-Tarbes-Bordeaux-Poitiers-Paris on a 280 h.p. Salmson machine.

The Tour de France Aerien.

The Tour de France Aerien which is to start on Aug. 24th is to be open to airships as well as aeroplanes under certain conditions yet to be decided. Machines entered must carry at least one passenger, in addition to the pilot, and attain a height of 9,000 ft. in a minimum time. Only French or Allied firms are to be allowed to enter.

Switzerland.

An aerial postal service is to be organised this summer between St. Gall and Geneva passing by Zurich, Berne and Lausanne. A tax of 50 c. per letter will be imposed. The service will only be temporary; experience having shown that good results are obtained even when the distance is over 600 kms.—F. T. N.

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BRAINS v. SUPERFICIAL SMARTNESS.

By "THE SNIPE."

As one who has been through the mill, may I be permitted to make a few comments on the smartness of the R.A.F. and its progenitors the R.F.C. and the R.N.A.S.?

The proposition is made for about the ten thousandth time that the efficiency of a Station may be judged by the smartness of the Airmen on Parade and the mechanical precision of their salutes.

I deny this flatly.

If ever I saw an Airman who was abnormally smart, whose tunic was always clean and creaseless, and whose every movement was made with a click, an Airman who was the pride of a Guardee Serjt.-Major, I usually found that as a mechanic he was a wash-out.

Such a man may, and does usually, "swing the lead" to any extent; he will never be checked. By the Serjt.-Major, and very probably by the Adjutant, he will be held up as a model to other Airmen who are merely good at their trades and who have been posted to the R.A.F. because of their proficiency as engine-fitters, turners, blacksmiths, or any other useful trades.

During the war the best of these tradesmen were frankly bored by the military discipline, which they regarded as eye-wash. First-class fitters who could be relied upon to put up the revs. of any engine that was running badly could rarely be made to understand why they should spend useful working hours at infantry drill.

At their own work they were enthusiasts; their hearts were in their jobs. While employed at their trades they felt the self-respect that is born of the knowledge that work is well done. There was no grousing over long hours. But there were heart-felt grumbles over purely military tasks that to them appeared mere waste of time.

I remember very vividly a certain station which had been originally the aerodrome of a large aeroplane manufacturing concern. A small number of civilians tuned, and tested the machines. Then the station was taken over by the R.F.C., and for months the chief topics of conversation consisted of comparisons between the civilian and military methods.

It was computed that under military organisation about 160 men were required to do the work formerly done by about 25 skilled workers, who were unhampered by military duties.

This station was commanded by an officer of a very famous infantry regiment. He had been attached to the R.F.C. after having been wounded in 1914.

He groused about having to command a rabble of "garage hands" and "ironmongers' assistants," and told the Adjutant to "give them hell in penny numbers." The Adjutant was a pilot who had seen some service in France, and, having succeeded in obtaining a ground job, was determined to keep it. He gave "hell in penny numbers" with a twopenny edition on Sundays.

A notorious Serjt.-Major was obtained to assist in keeping the station incandescent. This person invariably addressed the airmen as "You b—— rabble."

"What the Hell is that funny shaped man in the rear rank doing?" he would shout passionately, pointing to an expert engine-tuner, whose physical deformities had caused him to be rejected for service until sheer persistence had won him a job in which he could serve his country.

The Serjt.-Major would call that "funny shaped man" out from the ranks, inspect him with insolent contempt and then turn his back on him with the remark:—"Thank God, we've got a Navy!"

That was his stock irony. Except for this alleged jest, his weapon was invective.

Some of the officers complained of his language to the O.C. and were told that the station was not intended as a school for young ladies. So the hell in penny numbers became an interminable serial.

There were many well-qualified pilots and highly specialised technical officers there. The Infantry Officer Commanding the station decided that they were not smart enough, so he gave them a lecture lasting for one hour every morning and instructed the Adjutant to drill them for one hour and a half every afternoon.

Meanwhile, there was an immense amount of work to be done on the station. If the technical officers complained that they were unable to keep pace with it they were told that officers ought not to have to work; the routine should be carried on by the serjeants, and officers ought only to think of inculcating discipline.

A working day was by this time a farce. From 6 a.m. to 7 a.m. the men were drilled. At 9 a.m. there was the first working parade at which many airmen were detailed for fatigues. The remainder proceeded to the rigging, engine, armoury sheds, etc.

Their technical Officers would be with them for perhaps half an hour before they went to listen to the C.O.'s lecture on Military Law, Army Tradition, or some subject as far as possible removed from the kind of work upon which they were employed. When the lecture was over the men of their flights would have downed tools for the mid-morning "break."

The engine officer would look at the machines waiting attention, curse, and wonder how many he could have dealt with if he had been working with undisciplined civilians under a business manager-in-chief.

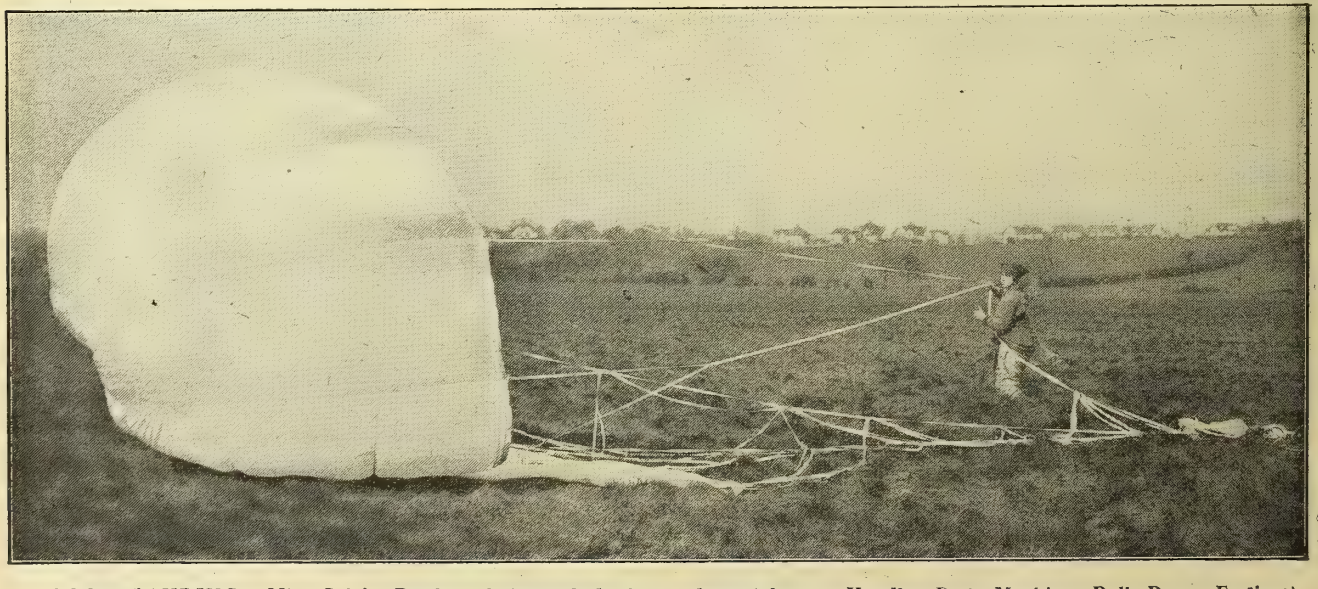
When the men returned he would find that his two best fitters had been placed under arrest for some trivial crime, and before his annoyance over the discovery had cooled down, a fire-alarm would sound and all hands would drop tools again, and double to their appointed stations.

These frequent fire drills were the Adjutant's hobby, and the busiest mornings were usually chosen. By the time a large number of Minimax Extinguishers had spouted their contents into the air, and had once—to the joy of the men—accidentally sprinkled the O.C., dinner-time would have arrived.

From 3 p.m. till tea-time the pilots and technical officers would be taking lessons in drill from the Adjutant, and if no other means of keeping the men from useful work could be devised, there would be a bathing parade, and they would be marched to an adjacent river.

At the end of the day most of the work for which this station was founded had been left undone, and everybody was considerably over-nourished with the absurd attempt to convert a lot of satisfactory mechanics into unsatisfactory soldiers. Had they been fit for infantry the majority of the men would not have been in the Force.

There is no exaggeration in this account. Thousands of offi-



A GOOD LANDING.—Miss Sylvia Boyden photographed after a descent from a Handley Page Machine (Rolls-Royce Engines) with a Calthrop Parachute.

Aero Engine VALVES.

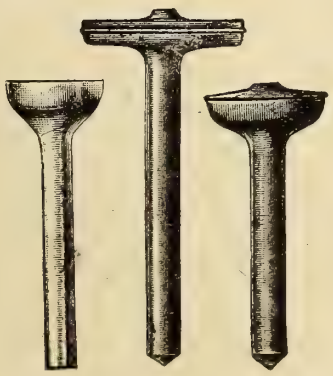
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cers found that the attempt to obtain a high degree of smartness led to inefficiency in other directions.

In many cases Commanding Officers have known nothing of the technical work of their stations, but they have felt compelled to make their influence felt, and, in consequence, have been "all out" for discipline.

Too often, also, we have had the wrong type of Adjutant. A pilot, aged about 22 years, who has lost his nerve for flying, is not the ideal officer for the position. He usually carries little weight with other pilots, and is only made an Adjutant because he has no special knowledge to enable him to qualify for the technical branches. Possibly he is nervously anxious to do well. Having no natural dignity nor influence with men he thinks he is bound to assume a hectoring attitude and is soon cordially disliked by everybody.

I have seen so many capable officers hindered in their work by the interference of boy Adjutants, that I know it would have been far better for the country to have pensioned the boys off as soon as they became unfit for flying than to allow them to play at soldiers with skilled officers and mechanics of twice their age.

The peace-time R.A.F. will, we hope, have learned its lessons. The one it should take most to heart is that it is a highly technical organisation. We want the most accomplished aviators in it and the most highly trained scientific minds of the country.

We do not want at the head administrative officers who rate the ability to salute smartly more highly than efficiency in other directions. We have seen too much of them in the past.

In peace-time it may be possible to introduce a reasonable amount of drilling into the training without unduly reducing the efficiency of the Force. But I contend that in war-time when there was practical work for every officer and man, the effort to produce the "smartness of the Guards" into a technical organisation was a mistake.

There was eternal conflict between those officers and airmen who earnestly wished to get on with the war by doing the work for which they had special knowledge, and those whose only chance of gaining distinction lay in drilling the men until they gained the approbation of be-ribboned disciplinarian inspecting officers upon whose reports the promotion of Commanding Officers of Units depended to a great extent.

If we insist on "the smartness of the Guards" we must inevitably lose the services of some of the most expert engine-tuners, electricians and other special ratings. Brains and acquired skill in technical work and excessive military smartness are rarely found in the same person. Bright, original minds, the ones we require in all branches of work connected with aviation are dulled by the effort to turn their owners into military machines. Every student of psychology knows that fine brains are the least susceptible to that form of discipline that tends to cramp them into conformity with those of the herd.

I knew one airman, a Britisher by birth, who, at the outbreak of war, was in America. He was a man of about 40 years of age, and was of poor physique. He paid his own passage to England and endeavoured to enlist, but was refused many times. Finally, he was placed in a low category and drafted into the R.F.C.

By trade he was a machinist, and he had that type of mind which has a natural fondness for science and mechanics. He showed ability for acquiring knowledge that almost amounted to genius, and, in a very short time, was familiar with every detail of eight or nine aero-engines and half a dozen aeroplanes.

He spent considerably more than his pay on technical handbooks dealing with aero-dynamics, wireless, photography and the many fascinatingly interesting subjects allied to aeronautics. This man was of the same breed as the pioneers of aviation, a man of natural talent and equally natural enthusiasm.

One day he was absent, and his serjeant explained that he was ill. Inquiry showed that he had fainted during a particularly severe drill.

His officer visited him in his tent and found him lying down reading one of his beloved technical works. Having a genuine respect for the man, he spoke about him to the Commanding Officer, and asked that he might be excused further drills, for which he was obviously unfitted. The C.O., however, had been inculcated with "the smartness of the Guards" principle. He suggested that the man was probably swinging the lead. He did not believe in 3rd A.M.'s who read "a lot of d——d theoretical rot" in order to escape drilling. Unless the M.O. certified that the man was permanently unfit for anything but light duty, he would take no action.

The result was that the man fainted again while drilling, though he made a plucky effort to "stick it," and when at last the M.O. was compelled to certify him unfit, the O.C., who believed in smartness before brains, had him drafted to another station.

So ended the career of one of the most promising A.M.'s that particular unit ever had. It is to be hoped for the sake of the Force that he served later under an officer who believed that in technical work brains are worth more than smartness.

I have not drawn upon imagination in these notes, but have spoken from practical experience. I could go further and say that the best fighting pilots and the best technical officers (who could generally be found in shabby, oil-soaked tunics during their working hours) were not the ones who on parade looked like the advertisements of military tailors, or were specially noted for their love of soldierly smartness.

The war was not won by saluting in the face of the enemy, but by officers and airmen who did specialised work in which they were, I think, handicapped more than helped by the purely military element.

In the peace establishment of the R.A.F. we should be guided by past experience. We have no need to take the Guards as our model for smartness or the Navy for handiness. Let us have our own sulphur and our own matches and make our own Hell. It will be an improvement upon that in which we suffered in the past.

THE ROYAL AERO CLUB.

Flying Services Fund Committee.

A meeting of the Flying Services Fund Committee was held on Monday, the 14th inst., when there were present Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., in the chair; Mr. Chester Fox; and Mr. Harold E. Perrin, secretary.

Chairman.—On the motion of Lieut.-Col T. O'B. Hubbard, seconded by Mr. Chester Fox, Brig.-Gen. R. H. More, C.M.G., was elected chairman for the current year.

Grants and Allowances.—The following grants and allowances were made:—

(28) A grant of £5 to an ex-A.M.I. in the Royal Naval Air Service who had been incapacitated on active service.

(99) A continued allowance of £2 a month for six months to the mother of a Sergeant in the Royal Air Force who had died on active service.

(112) A continued allowance of £2 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Service who had been killed on active service.

(150) The school fees of two children of the widow of a Private in the Royal Air Force who had been killed on active service.

(167) A grant of £10 to the widow of a Captain in the Royal Air Force who had died on active service.

(168) An allowance of £2 a month for six months to the mother of a Private in the Royal Air Force who had died on active service.

(169) An allowance of £2 a month for six months to the widow of a Private in the Royal Flying Corps who had died on active service.

(172) An allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who had been killed on active service.

(173) An allowance of £2 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who had died on active service.

(174) An allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who had died on active service.

(175) An allowance of £1 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Air Force who had died on active service.

(177) An allowance of £2 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who had been killed on active service.

(182) An allowance of £2 a month for six months to the widow of a Corporal in the Royal Air Force who had been killed on active service.

(183) An allowance of £1 a month for six months to the mother of a 3rd Class Air Mechanic in the Royal Flying Corps who had died on active service.

(184) An allowance of £2 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps who had died on active service.

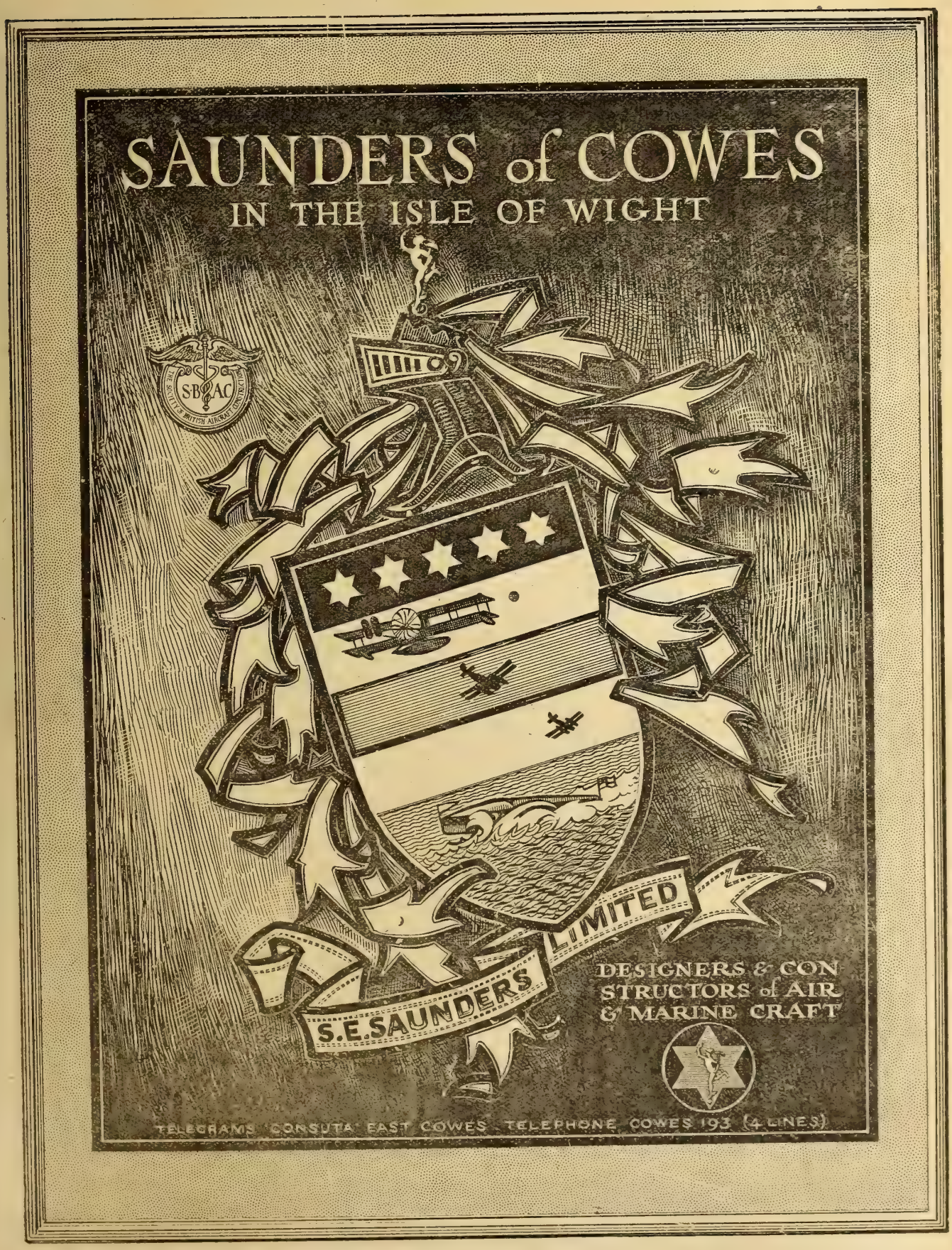
Total subscriptions received to April 8th, 1919 ...	£14,941	1	1
Collections made at Church of England Parade Services in the South-Western Area, Headquarters, Royal Air Force, Salisbury	24	0	0
Collections made at Church Services held at No. 143 Squadron, Royal Air Force, Detling ...	1	0	0
Total, April 22nd, 1919	£14,966	1	1

AN AMERICAN VISIT.

It is stated that a number of American officers are to visit Holland in order to investigate some new developments in the Fokker type of aircraft.

THE TRIAL OF AN AMERICAN AVIATOR.

The Naval court martial upon Capt. Edmund Chamberlain, U.S.A. Air Service, was continued in Paris on April 22nd, when evidence for the defence was heard.


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THE DAILY PRESS AND CIVIL AVIATION.

A Warning To Those Concerned for the Progress of Aeronautics.

The attitude of the daily Press in relation to the unfortunate accident to the Handley Page biplane at Wey Hill, near Andover, should be a warning to those who imagine that the daily papers are going to be any real assistance to the progress of Civil Aviation. The daily papers are out for sensation, or for what the limited intelligence of the majority of their editors calls "a good story." Hardly any, if any, of them are seriously interested in the welfare of aeronautics as such, therefore those concerned with Civil Aviation will do well to realise that the future of Civil Aviation depends on themselves and not on the help which they will receive from the Press.

An officer of the R.F.C. summed up the situation excellently a few days ago when he remarked that "the one thing which would eclipse the trans-Atlantic flight in the daily Press, if both happened simultaneously, would be a smash with a four-engined machine containing a Bank Holiday crowd of about 50 people complete with oranges and bananas." One feels fairly sure that such an accident would appeal to the daily Press as a far better "air story" than would the mere successful crossing of the Atlantic.

It would give every hack writer in the purlieus of Fleet Street the opportunity of a lifetime to indulge in purple passages into which he could work all the pet journalistic clichés about "flying tragedies," "dramatic incidents," "distressing scenes," "blood-curdling screams," "charred corpses," "blazing planes," "survivors' jumps," "army airmen killed" (despite the fact that the pilot might be a very distinguished R.N.A.S. officer transformed into an R.A.F. officer), and all the rest of it. It would be so much easier to write up such an event at so many pence a line than it would be to find anything exciting to say about a perfectly peaceful Atlantic crossing.

The Benefits of Dora.

The unfortunate D.O.R.A. has been much abused, and deservedly so, but she had certain virtues. The greatest of these perhaps was that she prevented the daily Press from injuring aviation with its assinine attentions. Somehow or another the progress of aviation, until D.O.R.A. intervened, resembled the steady plodding progress of a caravan through the desert with a herd of wild asses prancing and braying alongside. And it seems that now that D.O.R.A. is in extremis, the wild asses can return to the charge.

As a matter of fact, the Wey Hill accident, regrettable though it was, differed very little from a number of other accidents which have occurred during the war. At least one twin-engine machine caught fire in the air at the Manston aerodrome and burnt four or five people to death. It is common knowledge that the first of all the four-engined Handley Pages, owing to some curious and uncertain cause, got into a spin at Golders Green, hit the ground nose on, and burnt four of its crew to death. It fell on a man working in an allotment garden and burnt him to death. The two occupants of the gunner's cockpit in the tail were thrown out, one of them—the manager of the Aviation Department at Harland and Wolff's Works in Belfast—was killed on the spot, and the other, Lieut.-Col. Alec Ogilvie, escaped with a broken arm and concussion (he was the sole survivor). Among the other four occupants was Mr. Bertram Cooper, formerly Secretary of the Aeronautical Society. Thanks to D.O.R.A. the daily Press was compelled to leave such an excellent story alone, but one can imagine the columns which would have been expended on that accident if it had happened in peace time.

Incidentally in this connection it is interesting to note that Herr Hans Vollmöller, one of the earliest of German pilots and a particularly charming young man, was killed in an accident to either the first or one of the first of the four-engined German "Albatros" machines.

Accidental Causes.

The inquest on the crew of the machine which was crashed at Wey Hill leaves one undecided as to whether the accident was the fault of the pilot or of the machine. One officer is said to have stated that Major Batchelor seemed to be too careful and that in attempting not to climb the machine too steeply he hit the shed in the dark. On the other hand, Flight-Serjeant H. W. Smith, who was one of the two survivors, expressed his opinion that the machine swerved to the right, did not appear to climb, and seemed to be sluggish.

Considering that the machine was not carrying anything like her full load, it would seem that there must have been something wrong with this particular machine if she failed to rise and behaved sluggishly. It is further of interest to note that the machine was described at the inquest as being very nearly new. It would be interesting to know precisely what is meant by this description.

A Straight Question.

For example, a machine which had been standing in the wet at Hendon for two months but had not been flown might have been delivered thence to Wey Hill during the recent spell of fairly fine weather and so would be nearly new, so far as Wey Hill was concerned. At the same time it might have suffered very considerably from its exposure and might have become so warped or so deteriorated internally as to account for that unexplained swerve to the right and the sluggish climb afterwards.

The Air Ministry would therefore do well to let it be known publicly whether this particular machine was one of the Handley Pages recently taken away from Hendon after having been exposed to the weather, or whether it was in fact a practically new machine direct from the firm's works. A number of people in the R.A.F. would no doubt be interested to know the answer to this question.

A Skilful Pilot.

It scarcely seems likely that Major Batchelor, the pilot, made a mistake, for he was quite one of the most experienced night flying pilots in the King's Service, and, as was stated at the inquest, he was extraordinarily careful. It is related of him that when he was preparing for the big attack on the lock gates at Zeebrugge he had a full-scale plan of the locks and the surrounding buildings marked out on the ground for him at an aerodrome in the North, and used to practise dropping bombs by day and by night and in all sorts of weather on this plan until he was absolutely sure of hitting his mark under all conditions. The result was that when the attack actually came off it was an entire success.

All know that he was a very gallant officer, as was proved by the fact that in the same attack he flew so low in order to make sure of his mark that he and every member of his crew were wounded, he himself having to bring the machine back to Dunkirk with one hand. Few decorations have been better earned than those won by Major Batchelor, and his death is a very great loss to the King's Service.

A Necessary Warning.

Despite all this the accident was not of such magnitude as to justify the attention which has been given to it by the daily Press, and therefore one repeats the warning with which these notes began, namely, that those concerned with the progress of aviation must realise that the future of aviation depends on themselves and not on newspaper booming, because the daily Press will undoubtedly do at least as much harm to the progress of aviation as it will do good.

The only way in which the Press can be prevented from doing harm to aviation is by depriving the Press of opportunities for attacking aviation. Accidents must be avoided, and the only way in which accidents can be avoided is by selecting pilots with the very greatest of care and by paying the strictest attention to the state in which machines are allowed to fly. Not only must accidents be avoided, but all causes of offence to the general public must equally be avoided.

Fool Flying.

Civilian pilots must be prevented from playing tricks over crowds at aerodromes or elsewhere. Pilots must also be strictly prohibited from flying low over inhabited areas or over such places as promenades and beaches at holiday resorts. Such performances as charging at groups of people on aerodromes, or diving at vehicles on roads or at vessels on the sea, or rivers, or on lakes, must also be strictly forbidden.

R.A.F. pilots have been warned against such behaviour in the past, but apparently absolutely without effect, thanks to lack of discipline in the R.A.F. It remains to be seen whether the Society of British Aircraft Constructors, as representing the employers of civilian aviators, and the Royal Aero Club as the governing body of the sport of flying, will exercise stricter control over civilian aviators than did the R.A.F. authorities over Service aviators.

It will take very little caddish behaviour on the part of aviators to produce in the sensational Press an outcry against "air hogs" similar to that outcry against "road hogs" which made all motorists so unpopular a few years before the war.

The Good Name of Aviation.

It is to be hoped that the Controller-General of Civil Aviation will back up the Society of British Aircraft Constructors and the Royal Aero Club by inflicting severe punishment upon Civil Service aviators employed under his Department who may misconduct themselves in the air. But ultimately the good name of aviation depends on the firmness of the Society of British Aircraft Constructors and the Aero Club. One has no fear of misbehaviour on the part of pilots employed by large and respectable aerial transport firms, but one has grave doubts about what may be done by pilots who are their own masters, and by cheap and inexperienced pilots employed by cheap get-rich-quick firms who are out to make money from what are vulgarly termed "joy-ride stunts."

If Civil Aviation gets a bad name through accidents caused by caddish flying, or by badly-built or ill-attended machines, the Aircraft Industry will have nobody but itself to blame, and it will certainly not be able to plead in such an event that it has not had fair warning.—C. G. G.

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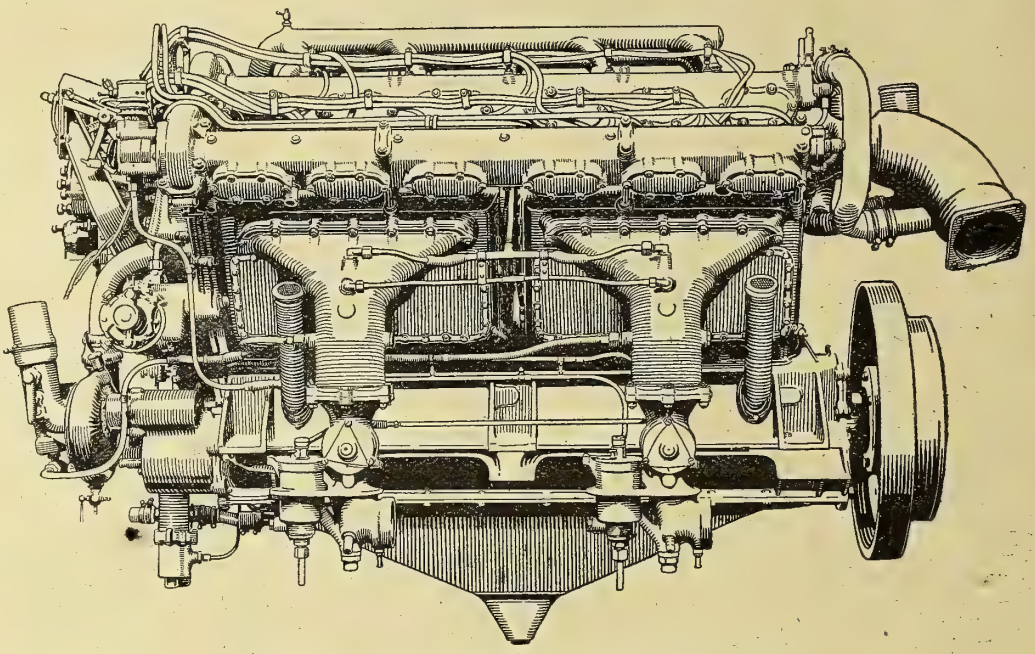


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THE WEEKLY COMMENTARY.

Discussing the design of a twin-engined high-speed passenger-carrier for the same duties as the single-engined machine considered in the last instalment of his articles, Capt. Sayers concludes that for this particular case the use of the twin-engined machine is not warranted except on the score of reliability.

With regard to this point Capt. Sayers suggests that the superiority of two-engined machines has been considerably exaggerated, and that the single-engined machine may soon come to be regarded as the more reliable type.

The description of machines designed and built by Messrs. A. V. Roe & Co., Ltd., is continued in this week's instalment of the series on "Modern British Aeroplanes."

COMMERCIAL AIRCRAFT DESIGN.—XI.

HIGH-SPEED PASSENGER-CARRIERS.

By Capt. W. H. Sayers, late R.A.F.

Consider now the case of a twin-engined machine, to the same general specification as that outlined in the last instalment.

The requirements are that 1,200 lbs. of load, in the form of six passengers and luggage, together with the crew and four hours' fuel, shall be carried at a maximum speed of at least 120 miles per hour, and that, with full load, the landing speed shall not exceed 45 m.p.h.

It will not be possible to produce the required result by cutting off the fuselage of the machine shown in Fig. 15 ahead of the passengers' cabin, and placing two 300 h.p. power plants on the wings, even if by setting these wings farther aft on the fuselage the machine could be brought into balance fore and aft.

In the first place, the one and a half wing arrangement with the lower wing staggered back makes it difficult to design a satisfactory engine mounting, particularly if tractor airscrews are to be used, because the power plant must overhang the lower wing considerably if the airscrew is to clear the upper plane.

It is usually desirable that the engines should be as far forward as possible in order to balance the machine, and any pronounced stagger adds to the difficulty.

Secondly, to give clearance for airscrews of reasonable diameter, engine centres must be at least 13 ft. apart. The machine shown in Fig. 16 has a span of only 55 ft., and with two large engines spaced so far apart it would probably become unmanageable laterally.

Thirdly, two large nacelles in the small gap of 6 ft. would interfere very considerably with the air flow through the gap.

With so small a total surface this would lead to a very noticeable loss of lift and an increase in the resistance. This would put the landing speed up very considerably, and would pull down the top speed to some extent.

These three factors all call for an increase of the span for a reduced stagger and an increased gap.

On a span of 70 ft. the twin-engined machine would become fairly reasonably proportioned, and would be controllable sideways, but on that span the weight would inevitably increase, even allowing for the effect of distributing the loads upon the weight of the wing structure.

If it were assumed that the total weight remained at 7,200 lbs, and if the total surface and loading were kept as in Fig. 16, then with equal top and bottom chords on 70 ft. span the wing chord would be about 5 ft. It would be impossible to use wing spars even as deep as those in the lower wing of Fig. 16. Shallow spars are necessarily heavy, and the total wing weight would increase on this account.

It will therefore probably pay to increase the total surface fairly considerably, reduce the loading per square foot, and use a wing with a good lift/drag ratio which will enable the required top speed to be reached even with a fairly high load per h.p.

Using any of the standard types of high-speed wing, the landing speed of 45 m.p.h. cannot be retained if the loading exceeds about 6 lbs. per square foot, and with this loading it will not be possible to reach 120 m.p.h. with very much more than 15 lbs. per h.p.

Assuming that one is limited to the same total h.p. as before, a total maximum permissible weight of 9,000 lbs. is given by this consideration, which would call for 1,500 sq. ft. of wing surface.

It is, however, possible to compromise to some extent between the qualities of the high lift and the high speed wing. This may be done by using a high speed wing section fitted with trailing edge flaps, which are pulled down to increase the camber and reduce the landing speed. It may also be accomplished by using an intermediate form of wing without flaps.

Taking 7½ lbs. per square foot as the loading to be used, and relying on one or other of these expedients to look after the landing speed, the maximum total surface will be reduced to about 1,200 sq. ft., and with the higher loading the same weight per horse-power should give a rather better top speed.

The machine shown in Fig. 17 is based on this figure for loading. The estimated total weight is somewhat less than the approximate maximum of 9,000 lbs., and the desired top speed should be reached fairly easily.

The central fuselage is of very nearly the same overall

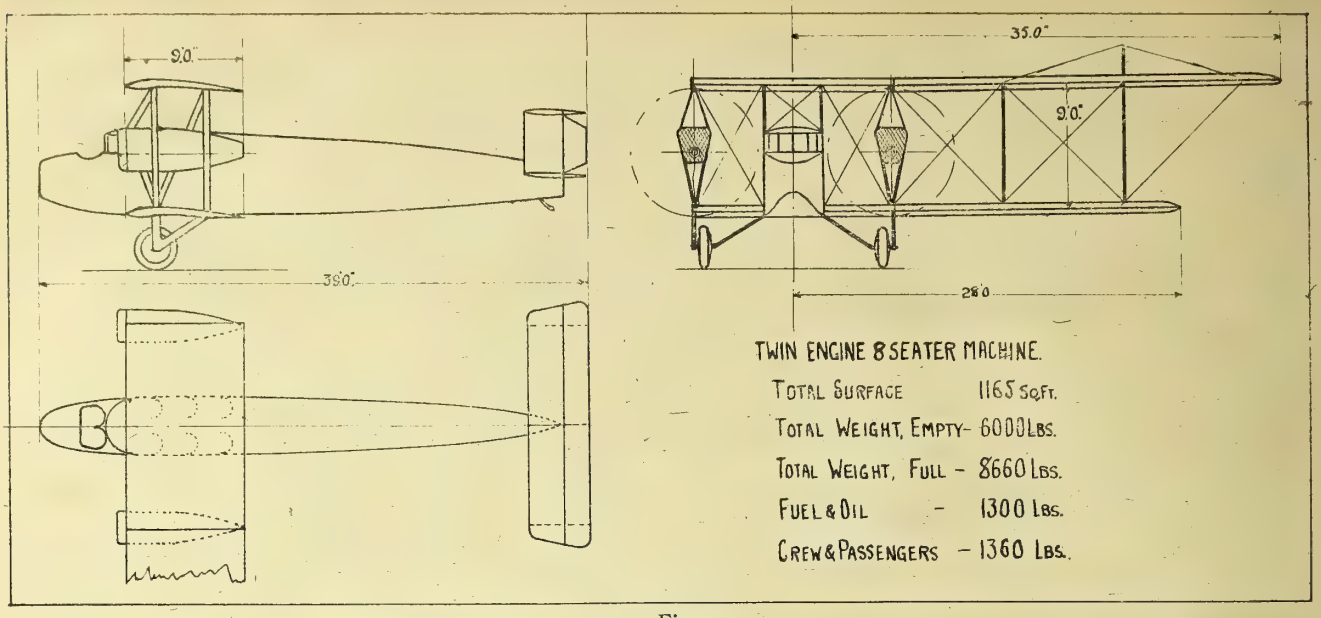


Fig. 17.

dimensions as that of Fig. 16, except that it is about 1 ft. wider at the passengers' cabin, to leave room for a gangway between the seats. The cabin is farther forward relatively to the wings, and the seat for pilot and mechanician is ahead of the cabin.

The main fuel tanks are to be carried as before, beneath the cabin floor.

The centre of gravity of this part of the load is considerably nearer to the desired position for the C.G. of the whole machine, and it is therefore possible to keep the engines considerably farther aft than was necessary in the single-engined machine, without making the machine tail-heavy.

It is doubtful whether, as drawn, the machine would be quite satisfactory in this respect. It would probably be improved by sweeping back the wings on each side of the centre section by about 2 ft. at their tips.

The chord of both top and bottom wings is 9 ft., with a gap equal to the chord, making it a fairly simple matter to carry the power plants sufficiently far forward for the airscrews to clear the leading edge of the wings and to a position giving a reasonable balance.

A biplane tail is carried at the rear of the fuselage. The three sets of intertail struts are enclosed in fairings which act as fins, with rudders hinged to the rear struts.

As compared with Fig. 16, this machine will be rather quicker longitudinally, because the main weights are spread over a shorter total length.

Laterally Fig. 17 will be much slower and heavier on controls because of the side engines.

Fig. 17 will probably have less margin on the top speed requirements, and will climb slower and have a lower ceiling than will Fig. 16, and the speed will fall off more rapidly with height, because of the greater total weight.

The twin-engined machine will be more costly to build, and will require considerably more shed room, unless it is fitted with folding wings, and even then will require considerably larger handling parties when on the ground.

The wider fuselage of Fig. 17 will allow rather more comfortable seating arrangements for the passengers, and with the gangway between the two rows of seats an entrance to the cabin at the aft end through the floor of the fuselage can be arranged very simply.

The twin-engine arrangement gives rather greater security against the effect of engine breakdown, and may on this account justify the use of this type for the passenger-carrying work, but in every other respect the twin-engined machine in this case is the inferior.

This point of the superior reliability of the twin-engined machine appears to have been considerably over-emphasised in the past.

It is undoubtedly true that it is less likely that both engines of a twin-engined machine will fail at the same time than that a single engine will fail.

It is also a fact that any reasonably designed twin-engined machine with one engine available will at least have a greater choice of landing grounds than will a machine whose only power plant has broken down.

But only under exceptional circumstances will a twin-engined machine with only one engine running be able to complete its stage.

Generally the failure of one engine will force a landing at the first available landing ground for the overhaul of the faulty engine. There will, of course, be less risk of being forced to land on unsuitable ground, and therefore less risk of crashing because of engine failure.

But on the other hand the multiple-engined machine involves greater complication in all those accessories of a power plant installation which experience shows to be most liable to derangement in flight.

Petrol systems are apt to be complicated with long lengths of fuel supply piping, giving greater chances of fracture or choking.

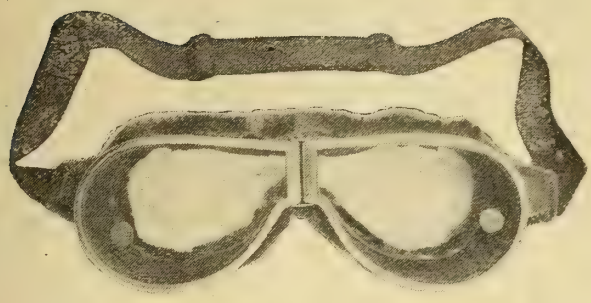
Engine controls are necessarily less direct in their action, and therefore more apt to give trouble, and a failure, or partial failure, of one of the twin engines occurring when taking off or about to land may cause a crash which would not occur as a result of the failure of a single central engine.

The superiority of the twin-engined machine is therefore practically confined to a considerably reduced risk of crashing through forced landings caused by engine failure, and this superiority is to be purchased only at the price of a greater liability to partial engine failure caused by the more complicated power plant arrangements which are usually necessary.

Under present conditions the greater safety to life and limb which can be obtained with twin engines, entirely as a result of the better choice of landing grounds when one engine does fail, may justify the use of twin engines even where the single-engine machine is otherwise superior.

With improving reliability of the engines themselves, and, more important still, with proper precautions against failure of the innumerable details of petrol, ignition, and control accessories, it is quite possible that the single-engined machine may eventually come to be regarded as more reliable than the twin-engine type.

(To be continued.)



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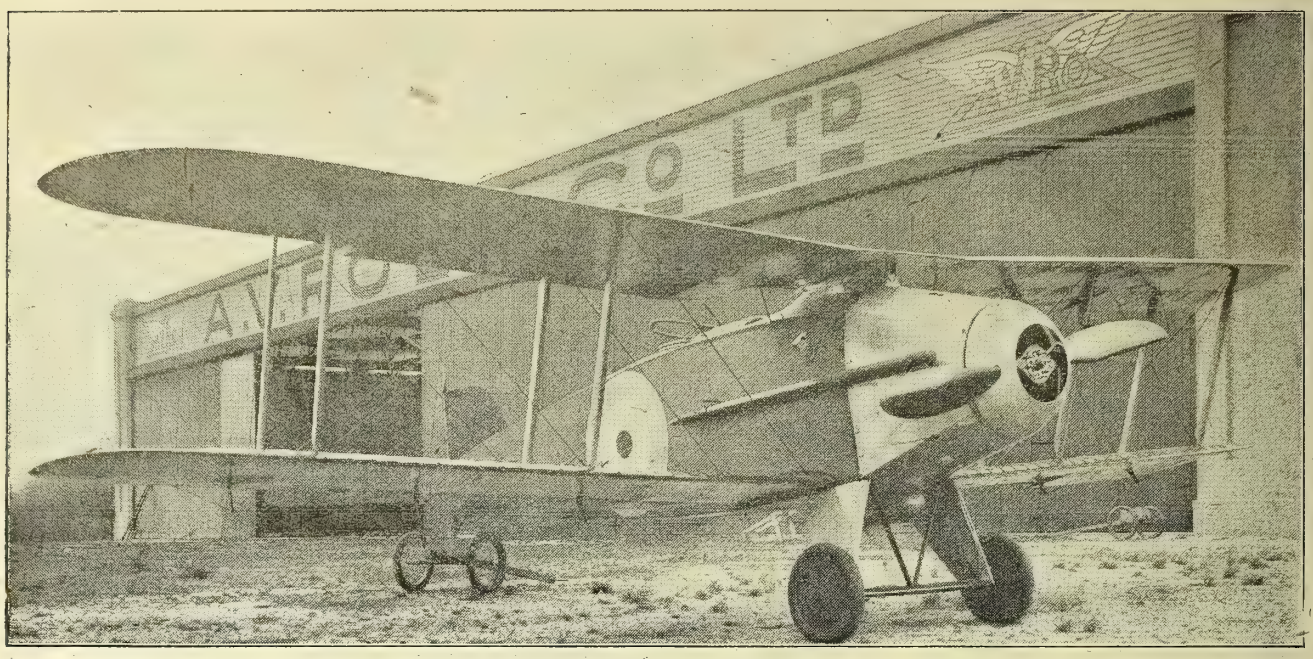


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A. V. Roe & Co., Ltd.—(*Continued.*)



Three-quarter Front View of the Avro Two-seater Fighter, Type 530. (200-H.P. Hispano-Suiza).

THE AVRO TWO-SEATER FIGHTER.—Type 530.

This machine was originally designed by Messrs. A. V. Roe and Co., in 1915, to meet the needs of the R.F.C. for a fast two-seater fighter. For some reason or other [Presumably because it was too much better than the contemporary R.A.F. product.—Ed.] the machine did not obtain the approval of the authorities, and has never been put into production.

In its design special attention has been given to securing the best possible view for both pilot and passenger.

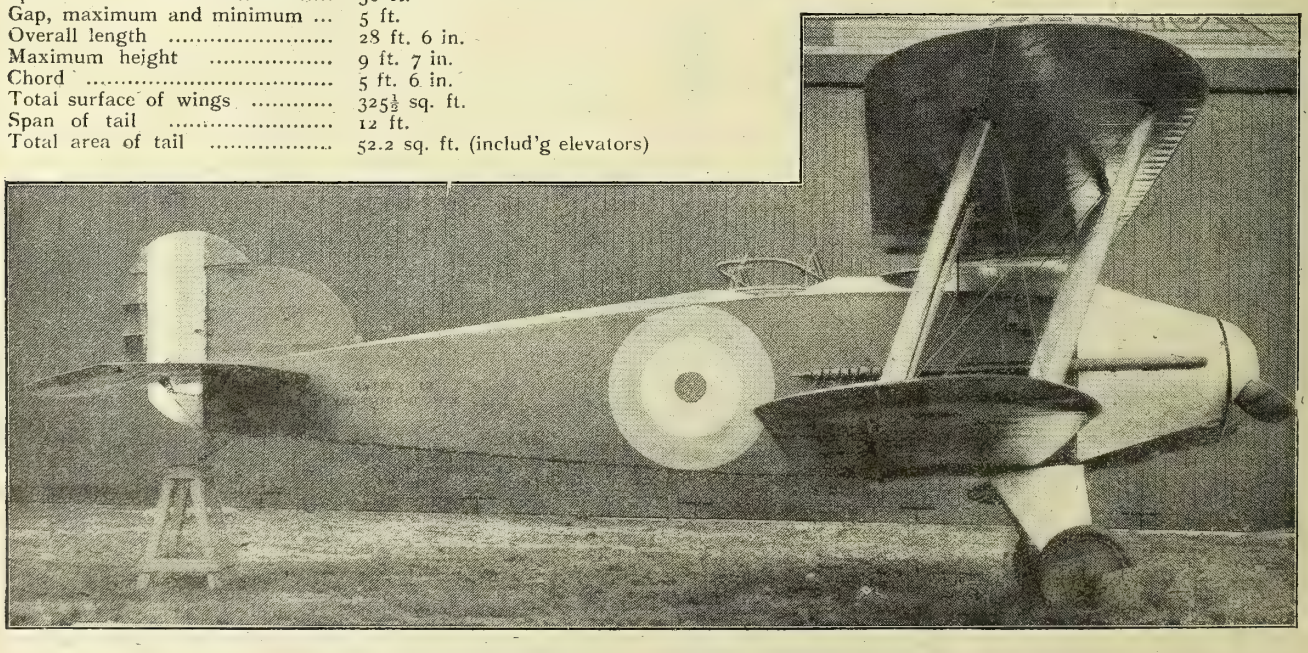
The upper centre section is arranged to be level with the pilot's eye, thus obstructing his view to the smallest possible extent. The lower plane is staggered back and gives him a view downwards and forwards at a very steep angle.

The rear gunners' seat is aft of the trailing edge of the lower wing, so that both occupants have a very wide range of vision.

The following tables give the essential details of the machine :—

SPECIFICATION.

Type of machine	Two-seater Biplane.
Name or type No. of machine	Avro 530.
Purpose for which intended	Fighter or fast two-seater.
Span	36 ft.
Gap, maximum and minimum	5 ft.
Overall length	28 ft. 6 in.
Maximum height	9 ft. 7 in.
Chord	5 ft. 6 in.
Total surface of wings	325½ sq. ft.
Span of tail	12 ft.
Total area of tail	52.2 sq. ft. (includ'g elevators)
Area of elevators	23.8 sq. ft.
Area of rudder	8.8 sq. ft.
Area of fin	4.5 sq. ft.
Area of each aileron and total area	4 × 14.5 sq. ft. = 58 sq. ft.
Maximum cross section of body	14.0 sq. ft.
Horizontal area of body	63½ sq. ft.
Vertical area of body	120 sq. ft.
Engine type and h.p.	200 h.p. Hispano-Suiza or Sunbeam "Arab."
Airscrew, diam., pitch, and revs.	Avro Tractor D. 2.97 metres ; 2.82 metres ; r.p.m. 1,200.
Weight of machine empty	1,695 lbs.
Load per sq. ft.	8.23 lbs.
Weight per h.p.	13.4 lbs. (assuming 200 h.p.).
Tank capacity in hours	4 hours at 10,000 ft.
Tank capacity in gallons	40 gallons.
PERFORMANCE—	
Speed low down	114 m.p.h.
Speed at 10,000 feet	102 m.p.h.
Landing speed	58 m.p.h.



Side View, the Avro Two-seater Fighter, Type 530.

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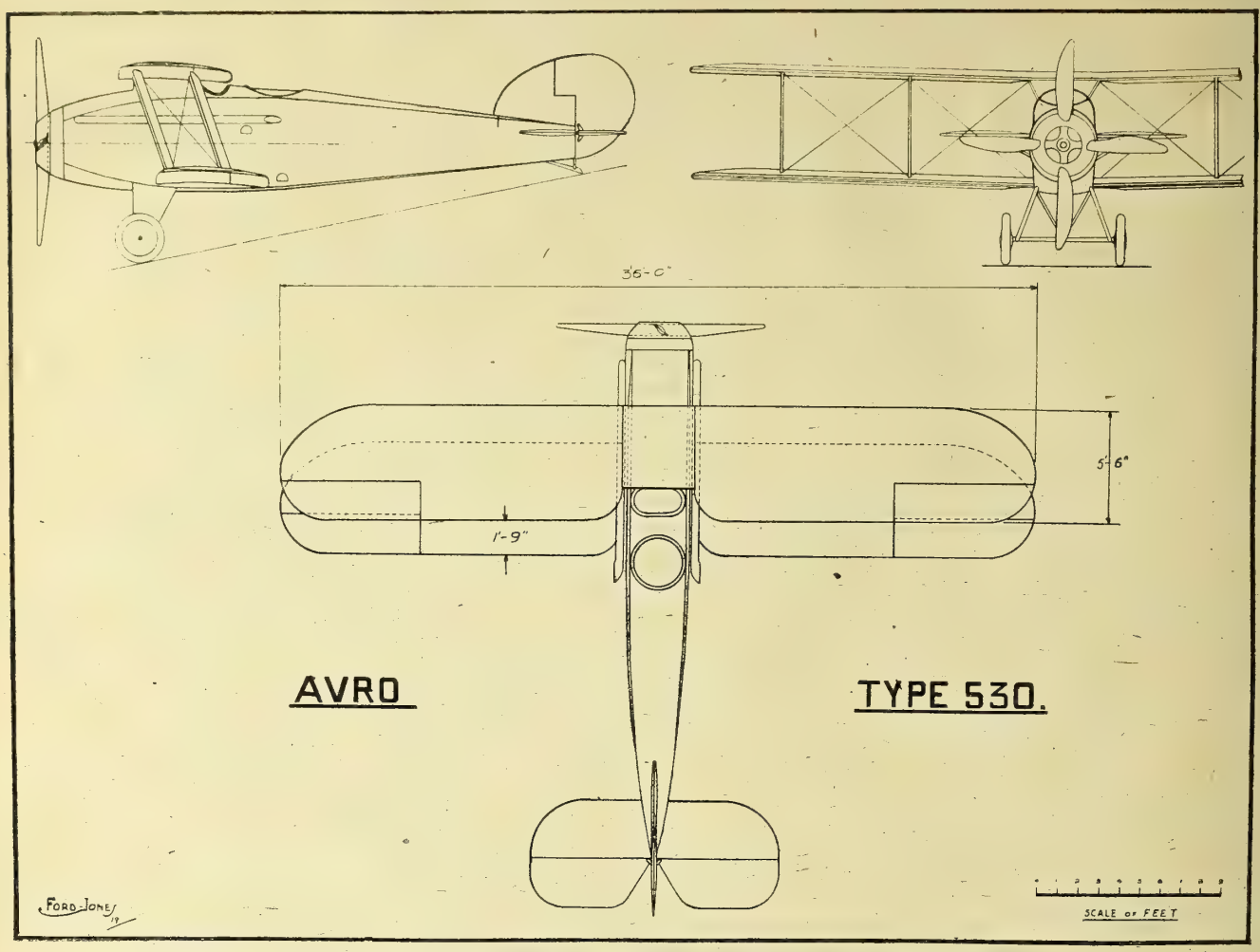
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General Arrangement of the Avro Two-seater Fighter. (200-H.P. Hispano-Suiza).

Climb—	
To 5,000 feet	6½ mins.
To 10,000 feet	15 mins.
Ceiling	18,000 ft. in 40 mins.
Disposable load apart from fuel...	574 lbs.
Total weight of machine loaded...	2,680 lbs.

THE AVRO "MANCHESTER" TWIN-ENGINED BIPLANES.

The two " Manchester " types hereafter described differ mainly in respect of their power plant.

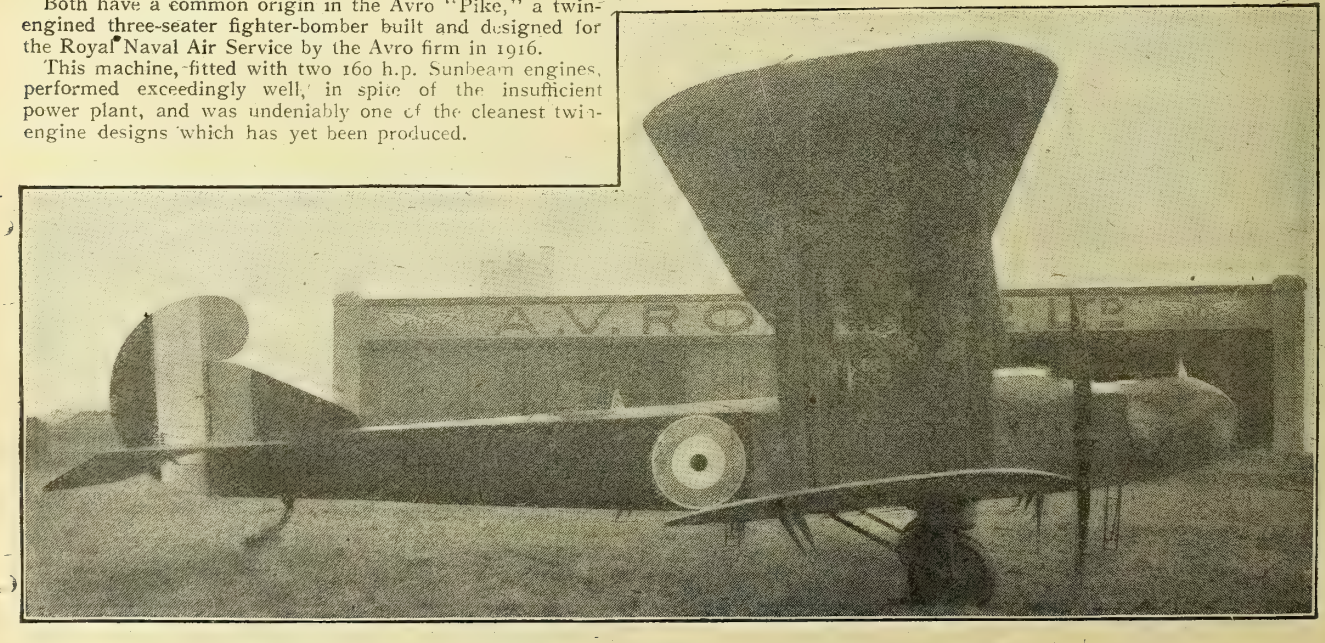
Both have a common origin in the Avro "Pike," a twin-engined three-seater fighter-bomber built and designed for the Royal Naval Air Service by the Avro firm in 1916.

This machine, fitted with two 160 h.p. Sunbeam engines, performed exceedingly well, in spite of the insufficient power plant, and was undeniably one of the cleanest twin-engine designs which has yet been produced.

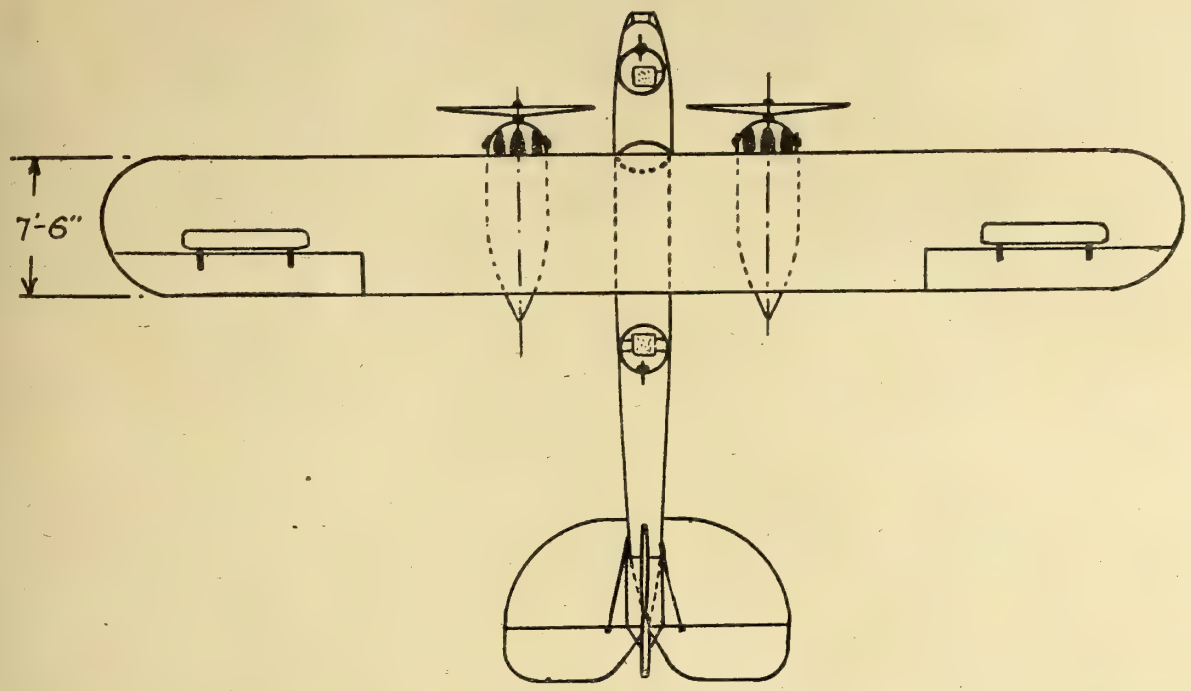
The "Manchester" Mark 1 and 2 machines differ very little in their general arrangement and outline from this original.

One very interesting feature, which is shown in the scale drawings reproduced of the Mark 1 machine, is the method of balancing the ailerons which is employed.

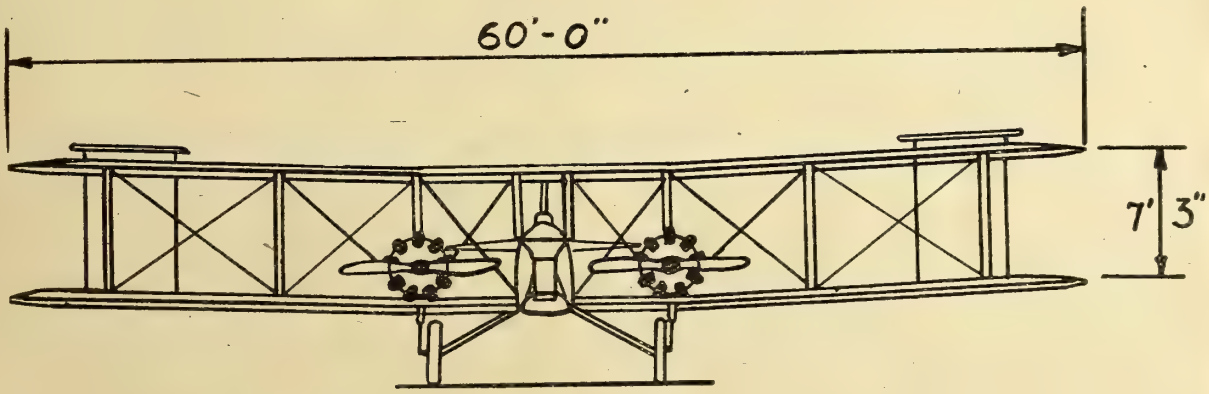
To the top of the upper king-post of the top plane aileron a small plane is fixed. When an aileron is pulled down this plane is given a positive incidence by the movement of the king-post,



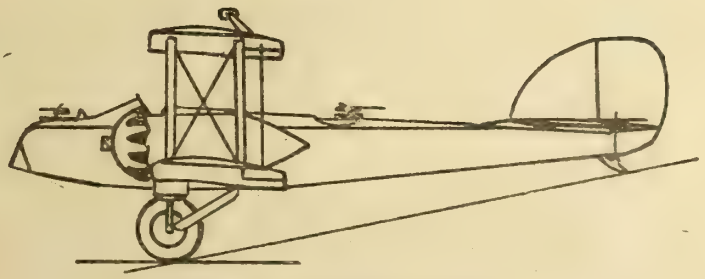
Side View of the "Manchester Mark II" (Two 300-H.P. Siddeley "Puma" Engines).



PLAN.



FRONT



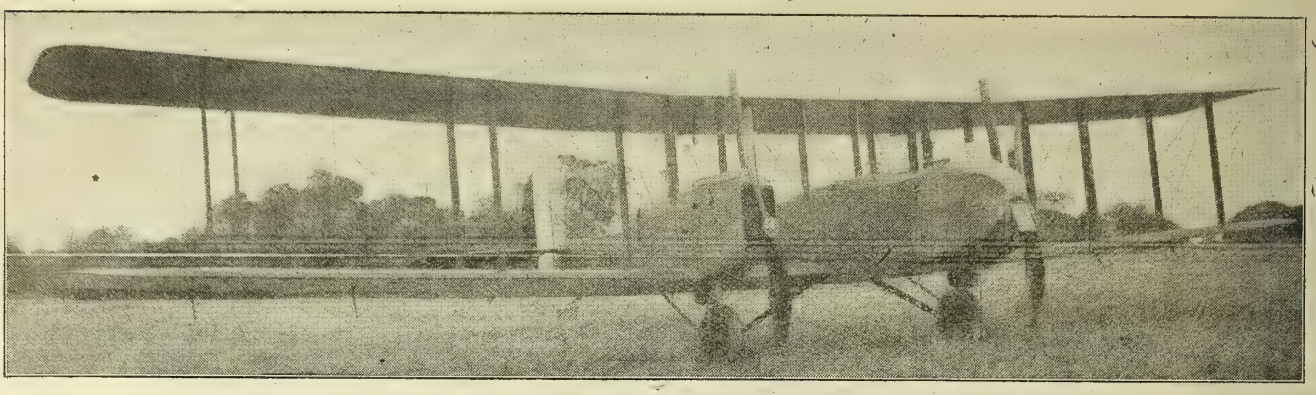
SIDE ELEVATION

AVRO MANCHESTER MARK 1.

2 - A.B.C. DRAGONFLYS.

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General Arrangement of the Avro "Manchester Mark I" Three-seater. (Two 320 h.p. A.B.C. Dragon-Fly Engines).



Three-quarter Front View of the Avro "Manchester Mark II" (2 Siddeley "Puma" Engines).

and gives an appreciable lift. As the plane is ahead of the aileron hinge, this lift assists in holding the aileron down, and so partly balances the aileron.

When the aileron is pulled up the balancing plane is given a negative incidence, and exerts the required balancing force tending to hold that aileron up.

Both types are three-seaters, with pilot's cockpit under the leading edge of the wings, observer's seat and gun turret in the nose of the fuselage, and a rear gunner's cockpit well aft of the main planes, whence a very wide field of fire is obtained.

THE TWIN-ENGINED AVRO.—"Manchester Mark I."

Type of machine	Three-seater Twin-engined Biplane.
Name or type No. of machine	Avro "Manchester Mark I."
Purpose for which intended	Photography, reconnaissance, bombing.
Span	60 ft.
Gap, maximum and minimum	7 ft. 3 in.
Overall length	37 ft.
Maximum height	12 ft. 6 in.
Chord	7 ft. 6 in.
Total surface of wings	843 minus 30 (area of nacelles).
Span of tail	13 ft.
Total area of tail	82 sq. ft. (including elevators)
Area of elevators	32 sq. ft.
Area of rudder	19 sq. ft.
Area of fin	11.7 sq. ft.
Area of each aileron and total area	31 sq. ft.; total 124 sq. ft.
Maximum cross section of body	14.3 sq. ft.
Horizontal area of body	80 sq. ft.
Vertical area of body	111 sq. ft.
Engine type and h.p.	A.B.C. "Dragon-fly"; 320 h.p. at 1,650 r.p.m.
Airscrew, diam., pitch, and revs.	Avro Tractor D. 2.9 m.; 2 m.; r.p.m. 1,600.
Weight of machine empty	4,049 lbs.
Load per sq. ft.	8.06 lbs.
Weight per h.p.	10.3 lbs.
Tank capacity in hours	5¾ hours at 10,000 ft. (including climb).
Tank capacity in gallons	183 gallons.
PERFORMANCE—	
Speed low down	128 m.p.h.
Speed at 10,000 feet	122 m.p.h.
Speed at 15,000 feet	115 m.p.h.
Landing speed	45 m.p.h.
CLIMB—	
To 5,000 feet	4½ mins.
To 10,000 feet	11 mins.
To 20,000 feet	Service ceiling, 40 mins.
Disposable load apart from fuel	1,007 lbs.
Total weight of machine loaded	6,586 lbs.

No bombs carried for this performance.

THE TWIN-ENGINED AVRO.—"Manchester Mark II."

Type of machine	Three-seater Twin-engined Biplane.
Name or type No. of machine	Avro "Manchester Mark II."
Purpose for which intended	Photography, reconnaissance, bombing.
Span	60 ft.
Gap, maximum and minimum	7 ft. 3 in.
Overall length	37 ft.
Maximum height	12 ft. 6 in.
Chord	7 ft. 6 in.
Total surface of wings	843 minus 26 (area of engine nacelles).
Span of tail	13 ft.
Total area of tail	82 sq. ft. (including elevators).
Area of elevators	32 sq. ft.
Area of rudder	19 sq. ft
Area of fin	11.7 sq. ft.
Area of each aileron and total area	31 sq. ft.; total 124 sq. ft.
Maximum cross section of body	14.3 sq. ft.
Horizontal area of body	80 sq. ft.
Vertical area of body	111 sq. ft.
Engine type and h.p.	Siddeley "Puma" (boosted); 300 h.p. at 1,600 r.p.m.
Airscrew, diam., pitch, and revs.	Avro Tractor D. 2.9 m.; P. 2 m.; r.p.m. 1,600.
Weight of machine (empty)	4,574 lbs.
Load per sq. ft.	8.76 lbs.
Weight per h.p.	11.93 lbs. (assuming 600 h.p.).
Tank capacity in hours	3¾ hrs. at 10,000 ft., including climb.
Tank capacity in gallons	116 gallons.
PERFORMANCE—	
Speed low down	125 m.p.h.
Speed at 10,000 feet	119 m.p.h.
Speed at 15,000 feet	112½ m.p.h.
Landing speed	45 m.p.h.
CLIMB—	
To 5,000 feet in minutes	6½.
To 10,000 feet in minutes	16⅜, 15,000 ft. in 32 mins.
Service ceiling 17,000 ft. in	43 mins.
Disposable load apart from fuel	1,614 lbs.
Total weight of machine loaded	7,158 lbs.

THE AVRO "SPIDER."

The Avro "Spider" is one of the very few examples amongst British aeroplanes of the so-called "wireless" type. The wing structure is entirely supported by a triangulated system of steel tubes, and has neither flying nor landing wires.

The front end of the fuselage is identical in all respects with the forward portion of the type 504 Avro; but it has been shortened up aft of the cockpit. The tail unit is also of the same design as that of the standard training machine, so that fittings already being produced in quantity can be used for the whole of this part of the machine.

This machine has been specially designed as a Single-Seater Fighter. Great attention has been paid to the question of view and manœuvrability. It is extraordinarily quick and light on the controls, and in mock fights, for which it has so far been used, has easily out-manœuvred other machines which have been standardised.

Although the first machine has only been fitted with 110 Le Rhône, it is proposed to fit a much higher-powered engine so as to get a still better performance.

The view in every direction is excellent, as the pilot sits between the main spars of the top plane, and has a perfect view both upwards and downwards, the dimensions of the bottom plane being so small as hardly to obstruct the view at all.

The pilot's cockpit is very roomy and comfortable, and full use can be made of the controls without any obstruction.

The guns are conveniently placed and the ammunition boxes and chutes well arranged.

The engine controls are placed in a convenient position on the pilot's left-hand side, and the hand-pump is in a comfortable position for use.

SPECIFICATION.

Type of Aeroplane	Single-Seater "Fighter."
Aeroplane specification	Avro "Spider."
Engine	180 h.p. B.R.2
Revolutions of engine for stated b.h.p.	1250 r.p.m.



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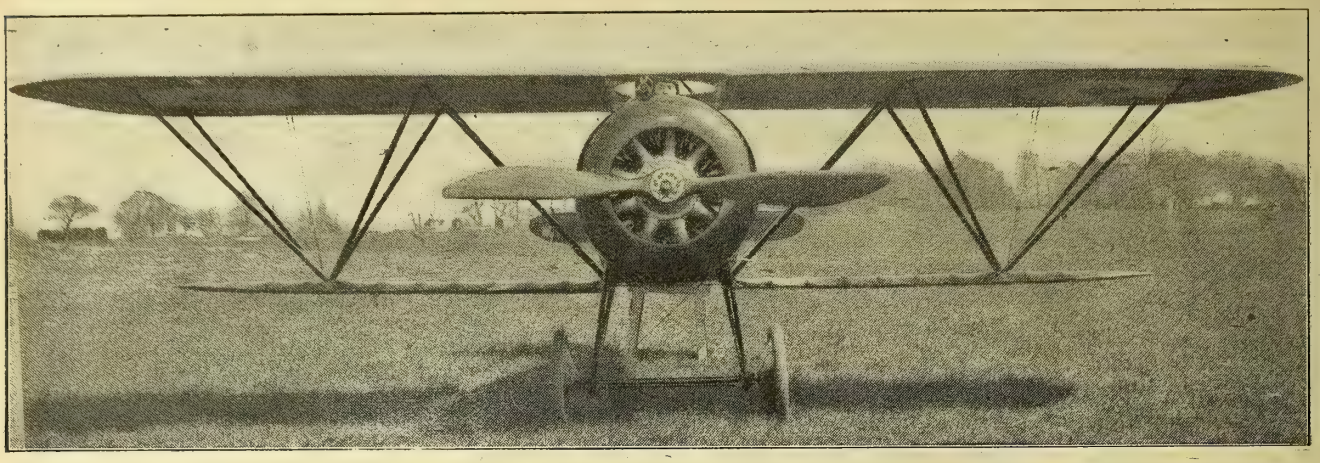
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ENGINEERS, LONDON.

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Front View of the Avro "Spider," showing the Wing Bracing System. (110 h.p. Le Rhône).

ESTIMATED SPEED WITH FULL LOAD AND WITH ALL FITTINGS IN POSITION.

Maximum speed for the above horse-power and revolutions.

	m.p.h.
At ground level	124
At 8,000 feet	121
At 10,000 feet	122
At 15,000 feet	115

Duration of flight at this speed.

At 10,000 feet	2 hrs.
At 15,000 feet	2½ hrs.
Minimum speed with full load near ground	45 m.p.h.

ESTIMATED CLIMB WITH FULL LOAD AND WITH ALL FITTINGS IN POSITION.

	mins.
To 3,500 feet	2.2
To 8,000 feet	5
To 10,000 feet	7
To 15,000 feet	13½
To 18,000 feet	20
To 20,000 feet	26

Pilot, position ..... Between main spars of top plane

AIR-SCREW.

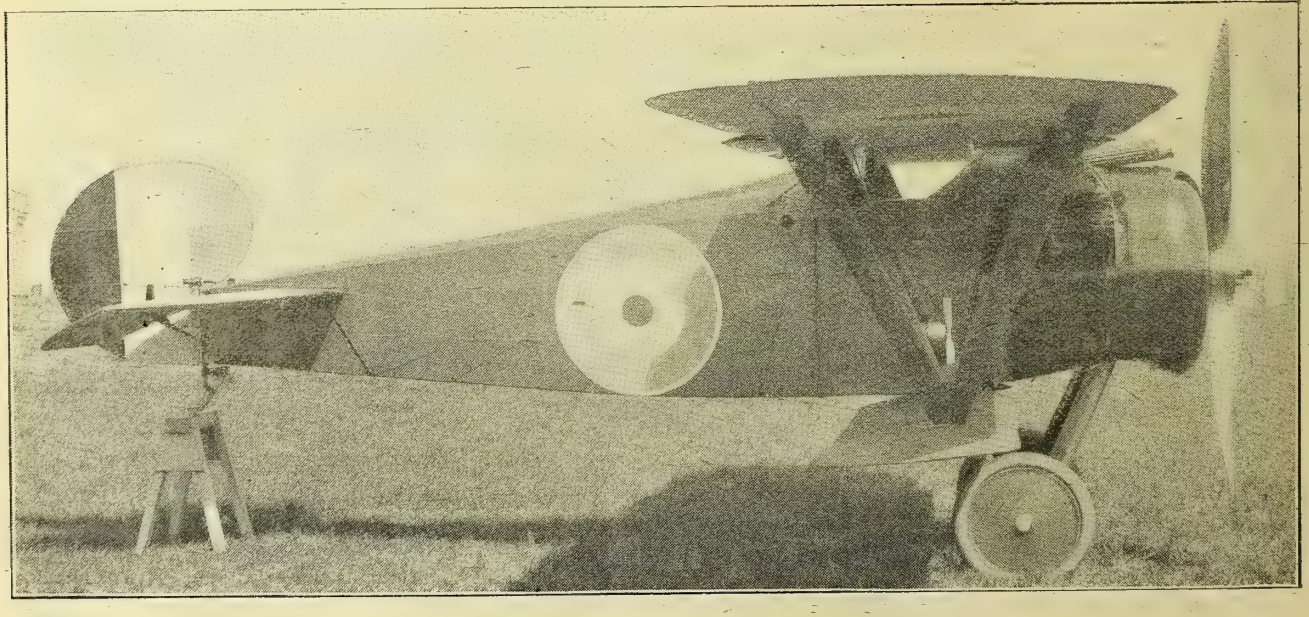
Type	"Avro."
Pitch	9 ft.
Diameter	8 ft. 6 ins.

OVERALL DIMENSIONS—

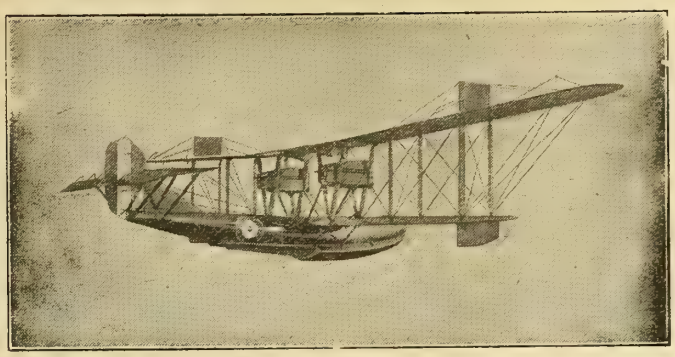
Span of top wings	28 ft. 6 ins.
Span of bottom wings	21 ft. 6 ins.
Span of tail plane	8 ft. 6 ins.
Height overall	7 ft. 10 ins.
Length overall	20 ft. 6 ins.
Chord top wing	6 ft.
Chord bottom wing	2 ft. 6 ins.
Chord tail plane	2 ft. 8 ins.
Chord elevator	1 ft. 6 ins.

DETAILS OF WEIGHT.

Component.	Weight in lbs.
TAIL UNIT—	
Tail plane	12
Elevator	10
Rudder	10
Total	32
MAIN LIFT STRUCTURE—	
Wings with flaps	170
Interplane struts	70
Interplane wires	5
Total	245
ALIGHTING GEAR—	
Under carriage	25
Main wheels and axle	34
Tail skids	6
Total	65
FUSELAGE—	
Body and engine housing	186
Aeroplane control gear and wires	15
Other details, flying instruments, lighting set, etc.	25
Total	226
POWER PLANT—	Centre. lbs.
Engine with magnetos	500
Airscrews, boss and bolts	35
Oil tanks, cooler and piping	10
Petrol tanks, piping and air pressure system	35
Total	580



Side View of the Avro "Spider." (110 h.p. Le Rhône).



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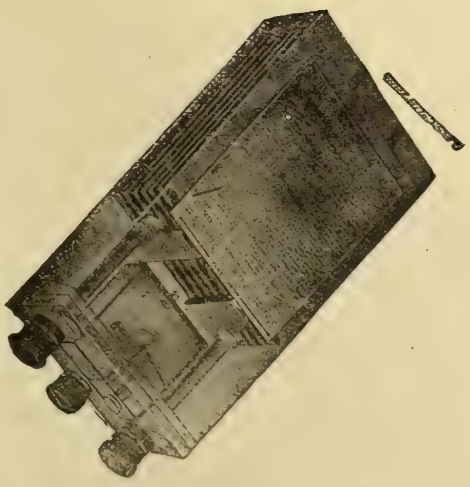
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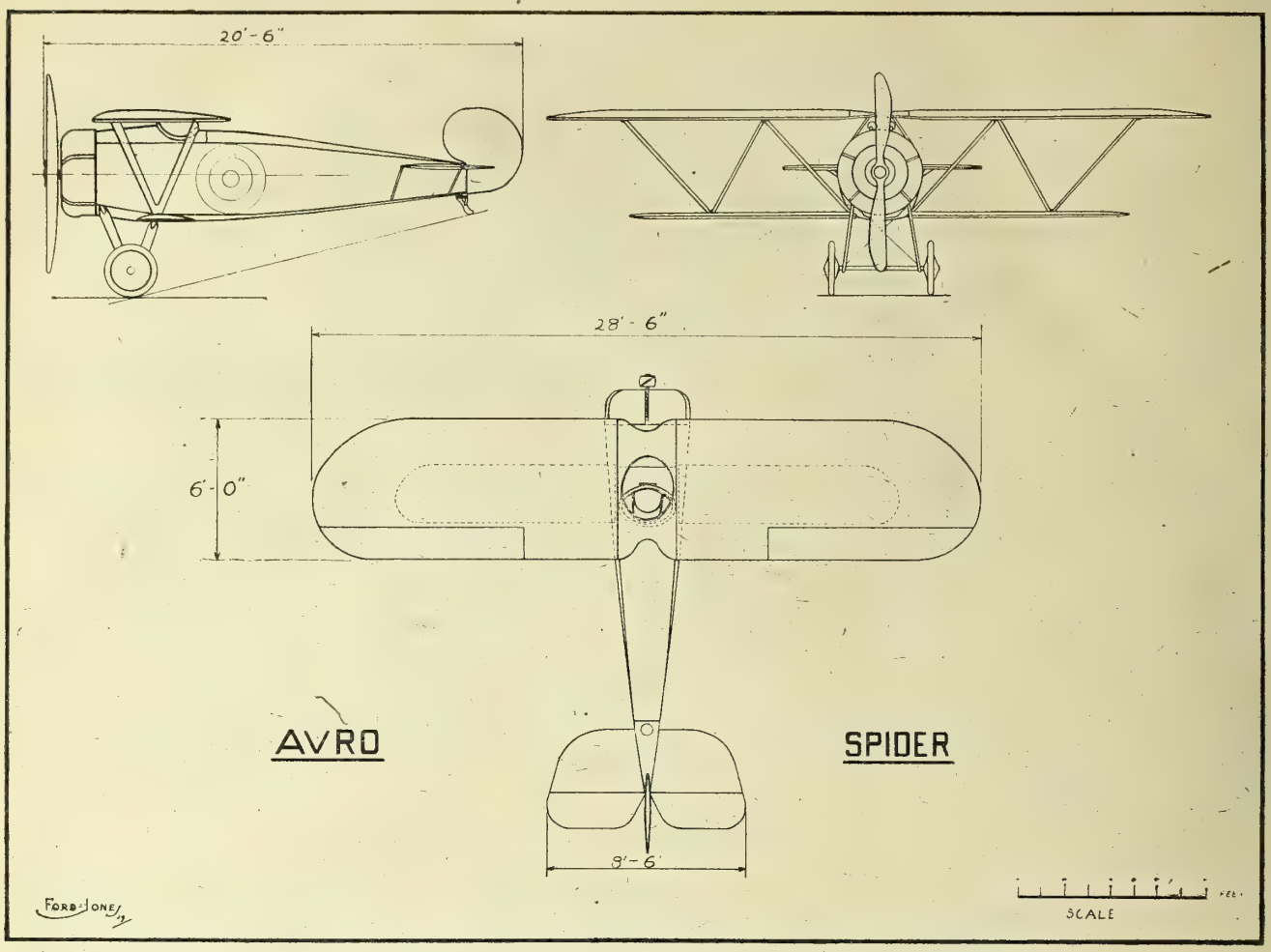
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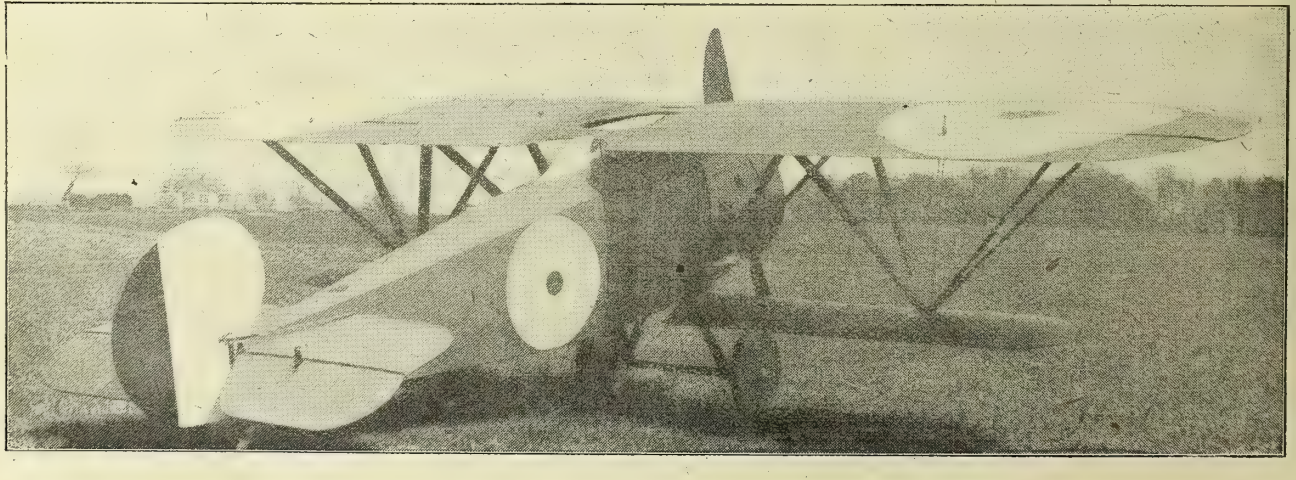
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London Office
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General Arrangement of the Avro "Spider." (110 h.p. Le Rhône).

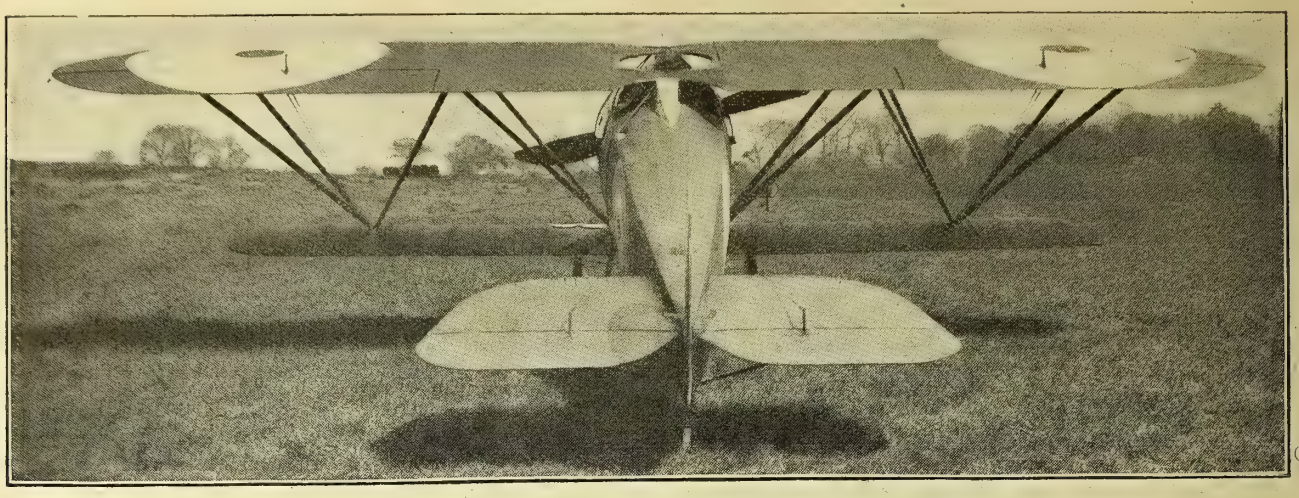
Total weight of machine bare		1,148
ARMAMENT AND MILITARY LOAD—		
Pilot's gun		70
Mounting and ammunition box		20
Belt and ammunition, 800 rounds		60
Total Gun Load		150
Véry Pistol with cartridges		8
Total reconnaissance load		8
MILITARY LOAD—		
Total of gun, bomb and reconnaissance load		158
Crew of 1 at 180 lbs.		180
Total military load		338
WEIGHT OF MACHINE IN FLYING TRIM—		
(a) Weight of machine bare		1,148
(b) Military load		338
(c) Petrol 26½ gallons		194
(d) Oil 6 gallons		54
Total		1,734
AREAS—WINGS—	sq. ft.	
Top	122	
Second	45	
Total	167	
WING FLAPS—		
Top	22	
Total supporting surface	189	
TAIL PLANE	17.5	
Elevators	11	
Rudder	7.8	



Three-quarter Rear View of the Avro "Spider." (110 h.p. Le Rhône).


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Rear View of the Avro "Spider." (110 h.p. Le Rhône).

LOADING—		lbs.
Loading on wing surface per sq. ft.		9.15
Weight fully loaded per h.p.		9.65
Weight carried on tail when in flight		Nil.
CONTROL—		
Type of aeroplane controls	Stick and V foot bar.	
Position of engine controls	On left-hand side of body.	
Rudder bar adjustable		
Tail skid controllable		
Load on tail skid when loaded ready for flight	100 lbs.	
Tail plane adjustable on the ground but not in the air from pilot's seat		
BRACING—		
Wings—(a) Internal	High tensile wire.	
(b) External	Steel struts.	
Body	High tensile wire.	
Undercarriage	Cable.	
UNDERCARRIAGE—		
Type	"Vee" Type.	
Size of Standard Wheels fitted	700 mm. × 78 mm.	
MATERIALS—		
Wing spars	Built up spruce.	
Wing struts	Steel tubes.	
Body struts	Spruce.	
Undercarriage	Steel tubes	
Longerons in body	Spruce.	
Shock absorber	Rubber cord.	
Petrol tank	Behind pilot.	
Pressure feed capacity	26½ gallons	
Material	Tinned steel.	
Weight empty	20 lbs.	

	Top	Bottom.
MINIMUM FACTOR OF SAFETY—front spars	13	9½
rear spars	13	
Rear wing bracing.		
front struts	5	6
rear struts	6	6
Range of movement of centre of pressure	.20 to .5 of chord.	

APROPOS SUNBEAMS.

The testing of the various new British airships makes it of interest to note that each of these airships is driven by five "Maori" Sunbeam-Coatalen engines of 275 h.p. each. These engines on test have given the most satisfactory results, and it is interesting to note that when the Armstrong-built R.33 was brought out for test and the signal was given to start up the engines from their cold state all five engines were running inside 70 seconds. The airship thereafter did a test of 4½ hours and developed a speed of 53 knots, which approximates to 60 m.p.h.

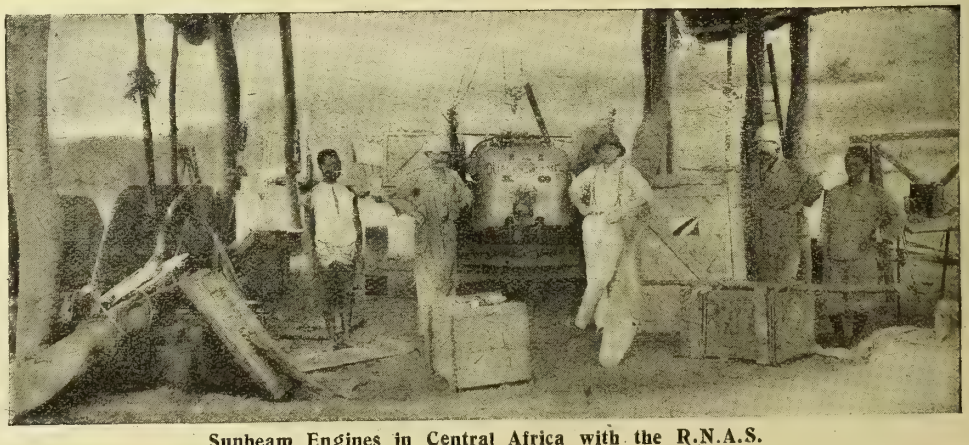
A rumour has appeared in various papers that the Beardmore-built R.34—which in her general design is a sister ship to R.33—was to be fitted with bigger engines, and apparently this rumour led some people to think that the "Maori" Sunbeams were not giving satisfaction. The origin of the rumour seems to have been that the bigger airships which are in process of construction are to be driven by "Cossack" Sunbeam-Coatalen engines of 350-h.p. each, so that evidently the "Maori" engine has given results which justify the airship people in using bigger Sunbeams for the bigger ships.

Quite recently a very good flight was made with a "Matabele" Sunbeam-Coatalen engine of 425-h.p. in an Airco D.H.4 machine. Practically without help from the wind this machine flew from Castle Bromwich, near Birmingham, to Hendon in 35 minutes, which gives a speed of 150 m.p.h. over the ground. The "Matabele" is an engine very similar to the "Cossack," but driving a geared airscrew instead of having a direct drive. The petrol consumption of the engine has proved to be quite low, being 0.52 pints per h.p. per hour.

It is of further interest to note that the "Cossack" Sunbeam-Coatalen has had great success in France, where it is used very largely in the flying boats built by M. Tellier. These Tellier flying-boats are about the largest of the single-engined flying-boats used by the Allies, and have made the journey from France to Corsica successfully on several occasions.

The "Cossack" engine has proved so satisfactory in the Tellier that it is commonly said in the French Naval Aviation Service that the engine should not be called the "Sunbeam" but the "Sublime" (the French pronunciation of the latter word is necessary to appreciate the jest).

Very severe tests were carried out at St. Raphael, the big French Naval Aviation depôt, in April, 1918, with the Tellier-Cossack combination. Carrying a load of 1,050 kilogrammes, the boat reached 2,000 metres in 19 minutes 30 seconds; with a 1,300 kilo. load, 2,000 metres took 22 minutes 10 seconds; with 1,520 kilos. the time was 28 minutes 25 seconds, and with 1,632 kilos. the time was 35 minutes 30 seconds. The petrol consumption was 18.4 gallons per hour of petrol and 7.2 gallons per hour of oil for the 350-h.p. "Cossack," so that evidently the engine shows quite high efficiency.



Sunbeam Engines in Central Africa with the R.N.A.S.

COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

FIRST EXPERIENCES OF CIVILIAN FLYING.

Some very interesting comments on the results of the Easter flying have been received from an R.A.F. officer, now demobilised, who is himself organising an extensive scheme for pleasure flying during what is left of this year.

The officer in question, Lieut.-Col. G. L. P. Henderson, M.C., R.A.F., took part in the flying at Hamble during the Easter holidays, and states that during three days' work, although very little publicity and advertising were possible in the short period available, 359 passengers were taken up for trips averaging about 10 minutes' duration each.

The machines used were two three-seater Avros and one two-seater, all fitted with Mono-Gnômes. The best day's work for one pilot with one machine was 75 passengers. The public seemed content with anything between 5 and 10 minutes per trip, and, when large numbers were waiting, the trips were somewhat reduced in length. There were no breakages and no engine troubles. The only replacement on the three machines was one wheel, the tyre of which had punctured. Over 100 loops were made in the course of the meeting.

The spirit of the public seemed to be divided about equally between 50 per cent. who were very anxious to do all kinds of stunt flying, and 50 per cent. who wanted to do as little as possible. The latter half all seemed very brave after they had landed, and expressed great regret that they had not emulated the others. The weather conditions throughout the holiday were ideal, according to modern ideas, though the strong north-east wind which was blowing on Monday would have interfered seriously with flying before the war.

Col. Henderson, who is a believer in small machines, remarks that the passengers who went for trips on big machines must feel envious of Avro passengers whose sensations were those of true flying, for numbers of them can now say that they have performed all possible stunts.

The writer further remarks that, judging from a recent leader in the "Times," there is a tendency to suggest that civilian flying must be limited to the slow and sure kind, but that he himself is convinced from the spirit of the public at Hamble that stunts at safe altitudes must be allowed, though it is essential that only capable pilots and safe machines in the best of conditions should be permitted to do such flying. He further suggests that the liberty of the subject is such that he may, if he wishes, hire a pilot on purpose to perform "aerobatics" for him.

The writer also draws attention to General Seely's recent remark that "Flying is now as safe as fast motoring or travelling in express trains." He himself (he is one of our most experienced war pilots) does not believe that flying is nearly as safe as either, and the lessons which he draws from the recent accidents to Major Wood on the Short machine, to the late M. Vedrines, and from the Wey Hill accident to the Handley Page are as follows:—

1. That no power on earth, much less the A.I.D., and the Air Ministry, can possibly prevent the ordinary run of flying accident, which is controlled by the law of averages.
2. The real safeguards are:—
   A. Careful selection of pilot.
   B. Careful selection of machine.
   C. The most important of all. The essential fact that all commercial enterprises must be run as financial successes.

As he rightly suggests, this last consideration of financial success must impose restrictions both on stupidity and recklessness which are much more powerful than any number of men in "Bolo" blue standing round an aerodrome like hens watching young ducklings going for their first swim. He is entirely right in saying that, if none but "A.1. at Gosport" were allowed to fly, and then only on approved machines, there would be no harm in permitting absolute freedom of movement and in giving greater freedom as to the use of landing grounds.

The writer also makes the interesting suggestion that, in order to do away with all unnecessary Government control, every civilian pilot should be subjected to a very severe flying test under Government supervision, and that, subject to his passing this test, the pilot should then be given a special certificate which would permit him to fly where he liked, providing that the owners of the ground were agreeable. There could then be no question of favouritism or preference. The suspension of this certificate would be the penalty of any foolhardiness, and one quite agrees with the writer in thinking that along this road is the right course towards popularising flying.

A SPORTING-TYPE AVRO.

The latest addition to the number of small, cheap low-powered machines now being designed for the use of the sporting pilot is a very neat single-seater which has been designed by Messrs. A. V. Roe and Co. for a 35-h.p. Green engine.

It is understood that the first of the type is now ready for trials at the firm's experimental works at Hamble, and it is hoped that a complete description will be available within the course of the next few weeks.

The attached photograph of the machine partly erected in skeleton form gives a very fair idea of the general characteristics.



The New 35-H.P. Avro.

AERIAL TRANSPORT.

Lieut.-Col. Piccio has been detached to France to superintend arrangements in connection with pending aerial transport of international import. It is known that a squadron of C. biplanes has not returned with the other Italian Forces which were detached to the French front.

FICTITIOUS FIGURES ON FLYING.

The following letter has been received :—

Sir,—The article by " Engineer Officer ' entitled " Fictitious Figures on Flying," which appeared in your issue dated April 9th, should, I imagine, be taken more as a counterblast to some of the very wild prophecies as to the immediate future of aerial passenger-carrying scheme than as a really careful estimate of what the cost of such schemes is actually likely to be.

Regarded in this light, I am entirely in accord with the objects of the article. The piffulent tosh about commercial aviation with which some of the daily Press habitually regale their readers, and the utterly misleading imitations of cost estimates for commercial air services which emanate from certain sources popularly supposed to be well informed, are only too likely to prepare the way for the fraudulent promoter of aerial transport companies.

An Effort that Must be Defeated.

There is little doubt that this is the actual object aimed at; and if the development of sound aerial enterprise on a commercial basis is not to be arrested for some years, this effort must be defeated.

At the same time an undue pessimism is almost equally to be deprecated.

It seems to me that " Engineer Officer " has erred nearly as far to the pessimistic side as the most interested optimist has attempted to mislead us on the other.

Taking his " Postulated Principles " seriatim, there is nothing to object to in the first six items.

A Pessimistic Estimate.

In taking the life of a machine as averaging one year, I think he is a little depressed, but the point is doubtless arguable. In assuming as he does that an engine will be worn out and worth nothing after 180 hours of flying, I feel certain that he is wrong. Certainly if he puts an engine into a machine and runs it till it breaks up and then replaces it, the average life may be even less than this.

If each machine is fitted with two complete sets of engines, and if each engine is removed and replaced by a spare and thoroughly overhauled before going back into service at regular and fairly frequent intervals, I believe many modern engines would live indefinitely, and their careers need only terminate when an engine was available which was so much an improvement that the extra earnings obtained by its use would pay the interest on the capital needed to purchase it.

Such maintenance would cost money, probably 5 per cent. of the prime cost of the engine for every 100 hours' running for materials alone.

Taking the estimated cost of machines per year, that given for each engine is £2,000. This seems to indicate that each engine is round about 400 h.p., and that the machine h.p. is therefore about 1,600. This agrees fairly well with his figure for petrol consumption, which at 1 gallon per mile at 100 m.p.h. is 100 gallons, say 750 lbs., per hour, or at the rate of ½ lb. per b.h.p. per hour for 1,500 b.h.p.—a normal figure.

The Handley Page type V/1,500 is the only British machine equipped with such a power plant for which any particulars are at the moment available. Without engines it ought to be possible to sell it, given a reasonable demand, at the £10,000 quoted by the author of the article.

Available Figures.

According to the figures which are available, this machine empty weighs 15,000 lbs.; and fully loaded 30,000 lbs., or a disposable load of 15,000 lbs.

Assuming that it is not desired to load the machine to this extent, and allowing for only 10,000 lbs. of total load to carry out the 500-mile stage at 100 m.p.h., 5 hours' full power fuel must be carried. Allowing for adverse weather conditions let this be increased to 6½ hours.

This would weigh 5,200 lbs., leaving 4,800 for crew and goods or passengers—say 4,500 lbs. of useful load.

That is to say that " Engineer Officer " appears to have based his figures on a machine meant to carry two tons, but which on an average only carries three-quarters of a ton of paying cargo.

Prohibitive Cost.

If an aeroplane service is carried on under conditions such as this it is bound to be prohibitively costly. But these conditions would indicate extremely bad traffic management.

If the traffic is so irregular that the average cargo is only three-quarters of a ton, although on some trips it may be necessary to carry two tons, it will be more economically handled by machines of about three-quarter ton capacity, running one, two or three machines on each trip according to the day's traffic.

If "Engineer Officer's" machines averaged three-quarters of their full load instead of only three-eighths, his cost per ton mile, man mile, or letter mile would be halved at once.

If a company operating such a service as is now being considered has to maintain its own aerodromes for its own use, and they are used for no other purpose than for the one service, the resulting costs might be as great as is suggested.

It is, however, extremely unlikely that anyone would attempt to run a regular service over a 5,000-mile route before a fairly well developed aerial transport system had been developed in the more densely populated parts of the earth. Such a service, when developed, would be arranged to use the aerodromes already established to as great an extent as possible, and the service would have to bear only a fraction of the whole cost of maintaining the aerodromes.

Taking the same case as that dealt with by " Engineer Officer," but assuming that his traffic manager does not use machines of two tons capacity until his traffic warrants it, and that an average load of one and a half tons per trip can be relied on, the figures work out at :—

Total machines employed, 25.

Life of machine, one year.

Life of engines, five years (1,800 hrs. flying), scrapped, obsolete.

Cost of engine maintenance, 20 per cent. of initial cost per annum.

Cost of machines per annum, £10,000 each. Each machine has two sets of engines, eight in all. £2,000 each is roughly the price which would have to be paid to-day for such engines, though their real value is nearer £1,000. Leaving the figure as in the original, the cost of engines for each machine is £16,000, with a further £16,000 as the cost of replacement of parts; total, £32,000 for a life of five years, or £6,400 per annum.

This cost applies only to the 10 machines in regular service. The 10 ready for flight and the 5 spares would cost considerably less, because the whole of the flying time has been credited to the 20 sets of engines allotted to the machines in actual service.

Unnecessary Expense.

It would be unnecessary to provide duplicate engines for the reserve machines, as the spares for the service machines are equally spares for the reserves. It would be perfectly safe, therefore, to take 35 sets of engines as the total required.

The 15 sets of engines which are not in service will cost nothing in the form of materials for maintenance.

For total cost of machines, therefore, one arrives at :—

25 machines at £10,000	£250,000
35 sets of engines at £3,200 p.a.	£112,000
Renewals of 20 sets of engines at £3,200 p.a...	£ 64,000
Total cost per annum	£426,000

Allowing for 10 per cent. of the original cost of the machines alone as the value of left-over machines and parts at the end of the year, the total cost of machines and engines becomes £401,000 per annum.

The average load has been increased to 1½ tons, and the miles flown per annum remain at 720,000.

The yearly ton mileage is then 1,080,000.

The figure for petrol will not be changed, though 2s. 6d. per gallon is a very high figure. Probably by the time 1,500 h.p. machines are running services of this kind the fuel employed will be a crude oil at round about 8d. per gallon.

Pilots remain at £25,000 p.a.

Cost of Aerodromes.

With regard to aerodromes it will be assumed that, allowing for the use of some already established aerodromes employed by other services, this service has only to bear on an average one-half of the total cost of aerodromes.

The aerodrome cost is then £50,000 p.a.

All the other figures remain unaltered, except insurance, which is charged at the same rate on the same items.

Total costs are therefore :—

Machines and engines	£401,000
Petrol	90,000
Oil	18,000
Pilots	25,000
Aerodromes	50,000
Offices	30,000
Labour (engineers and riggers)	100,000
Car services	20,000
Insurance	95,200
	£819,200

This is £0.75 per ton mile, which with the addition of 30 per cent. profit gives £1.00 per ton mile as freight charges, instead of " Engineer Officer's " figure of £2 13s.

The half-ounce letter carried 5,000 miles would now cost 1s. 7d., and the 200 lb. man carried the same distance would cost £450, instead of the original figures of 3s. 9d. and £1,150.

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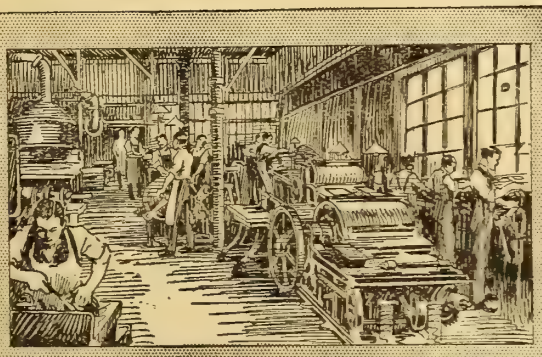
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Taking the type of conditions which 'Engineer Officer" presumably had in mind when he based his estimates on the use of two-ton machines, and assuming that the cargo per trip will vary between a half ton and two tons, with an average of three-quarters of a ton, giving a total ton mileage of 540,000 per annum, what will the cost be under the worst conditions if the service is run by machines with a capacity of three-quarters of a ton of paying cargo?

To deal with the maximum load per trip of two tons, three of these machines will be required for each stage, or 30 in all. Two reserve machines at each stage, or 20 more, plus 10 spares should be ample.

A Revised Estimate.

Assuming the costs to be proportional to the carrying capacity, which is probably unfair to the smaller machine, each machine will cost £3,750, or a total of £225,000 for the 60.

On the same basis each set of power plant will cost £3,000.

Each of the 30 service machines should have duplicate power plants, and each reserve machine one only, making a total of 90 power plants, £270,000. Allowing, as before, 5 years before obsolescence, this is £54,000 per annum. Under the worst possible traffic conditions, consistent with the assumption made, the average load carried by the machine actually flown on any one trip need never fall below half their full capacity, and the maximum machine mileage need not exceed 1,440,000 miles per annum.

This is 14,400 hours engine running, which, allowing 5 per cent. of the prime cost of a complete power plant per 100 hours, as the cost of engine renewals gives 7.2 times the cost of one unit as the renewals cost per annum, or £21,600 per annum for engine renewals.

Five pilots per stage would give ample security against illness and afford ample reliefs; 50 pilots at £500 = £25,000 per annum.

Petrol taken in proportion to the useful load capacity of the machines would run to ⅛ gals. per mile—540,000 gals.—£67,500 per annum at 2s. 6d. per gallon.

Oil in the same proportion is £13,500.

Aerodromes will remain at £50,000, and offices at £30,000. There will be a smaller number of engineers and riggers required than with the large machines, so the cost of these may reasonably come down to £75,000 per annum.

The total cost per annum then becomes:—

Machines	£225,000
Engines	54,000
Engine maintenance	21,600
Petrol	67,500
Oil	13,500
Pilots	25,000
Aerodromes	50,000
Offices	30,000
Engineers	75,000
Cars	20,000
Insurance	75,000
Total	£656,600

which is £1.22 per ton mile, or, allowing for 30 per cent. profit, £1 11s. 8d. per ton mile, which figure, it will be remembered, applies to running at an average of only one half full load on the machines actually flown, and at one-third of the maximum load capacity of the whole fleet. Ex. R.N.V.R.

POST-BELLUM POLICIES.

By The Special Commissioner of "The Aeroplane."

The Air Navigation Company, Ltd.

Mr. Norbert Chereau.

To find a small Surrey village possessed of a Chamber of Trade is an idea which, 20 years ago, would have been regarded as a joke, yet Addlestone has such, and I am sure that in the present day no one regards it as humorous. Although I have not verified the facts, I suspect that the Aircraft Industry was not without its influence when the Chamber was formed. Twenty years ago the Air Navigation Company would also have come in for its share of ridicule from the tongues of sceptics, and I should have been glad to have some of them with me when I sat listening to Mr. Norbert Chereau speaking of the future of the aeroplane in commerce. What a sentence it would be for the guilty. I sat there hearing plans for the linking of London, Paris and Milan (as it is probably known the firm has a sister company in each of these foreign cities), and it is meditating running its own machines for passenger and other work. The uncertainty as to the official restrictions which may be imposed is responsible for the tentative character of the policy at the present time; but the plan is there all the same.

Mr. Chereau could not give me particulars of types of machines to be used, again because the official dictum is awaited. It seems probable, however, that seaplanes will form part of their "flying stock," as M. Blériot has prepared for their manufacture by purchasing a large building site. In connection with Aerial Transport Mr. Chereau is one of the believers in "main lines" of large machines fed by local services of smaller types.

The Future of the Large Machine.

I asked him what he thought the future of the large machine would be. He replied that in his view we should get something very different from any existing design, of course, retaining the aerofoil, and with a very low landing speed, as a matter of fact 10 miles an hour was mentioned. He does not foreshadow the helicopter, but he rather gave me the impression of foreseeing that some radical change from our existing ideas of construction would take place. Holding the opinion that the very large machine will be so elastic in performance he tells me that he does not consider that the airship will be necessary, in fact, that it will be supplanted by the aeroplane. Here is an exponent of the great machine with a vengeance. On the question of the small privately owned aero or seaplane, Mr. Chereau thinks that the market will be very limited, owing not only to the cost of upkeep, but because of the expense of either owning private landing grounds, or, in lieu of that, high aerodrome charges for garaging the machine, and, again, in fees payable when cross-country journey is made. I suggested to him that it would be no more expensive than yacht-owning, but I do not know whether that will have to any extent caused modification of his opinion.

The Life of Aeroplanes.

As to life of a machine Mr. Chereau points out that with the much lower grade timber supplied nowadays it is very difficult to judge. He quoted a pre-war machine which was perfectly sound after three years' use, and said that the same engine remained in the machine at the conclusion of that period. As both engine and machine were made of pre-war material they could hardly be taken as a standard on which to base calculations as to life of machines made from elements that are at present available. While on this topic, Mr. Chereau said that he was in favour of the builder's mechanics being called in to effect repairs, and mentioned two instances to prove the desirability of this procedure. In the second case, where local aid had been sought, disaster followed, and so also in due course did the firm's mobile mechanical party. I gather that this party will be brought into existence again with the commencement of civil flying. I asked Mr. Chereau whether he considered it might not pay to sell aeroplanes on the principle adopted by some motor-car firms, that is, that the firm should maintain the machine for a fixed yearly payment, but he considered that the variable nature of the expenses connected with aeroplanes made this out of the question, and that a better method would be to agree to carry out all repairs at the cost of the men's time only.

A ceiling of 12,000 feet he considered to be sufficient for commercial machines.

The Pilot of Commerce.

Referring to the pilot, Mr. Chereau is of the opinion that he will always be of importance. He said that that was bound to be the case where judgment is required. It has remained so in ships, and the motor-driver without judgment invariably has a smash if he goes on driving long enough. That with all the use and improvement in cars nothing had been invented to take the place of judgment; and that it would remain essential to aeroplane pilots, and he did not believe that any mechanical driver would overcome the need for it.

Material.

On the question of material for construction, Mr. Chereau is a believer in wood, at any rate so far as present-day materials are concerned. Of course, there is always the possibility of a new metal or composition being made, but until that happens he thinks that wood is the best thing available.

It is evident from the foregoing that Mr. Chereau is a firm believer in the aeroplane as against the lighter-than-air vehicle. That the firm believes in the commercial possibilities of Aerial Transport is emphasised by the plans for putting it into execution. Gallic imagination placed aviation ahead of us in the early days of flying, and if we are to judge the future by the past, and the insight Mr. Chereau gives that same imagination may well do so in the world of commercial aeronautics of the future.

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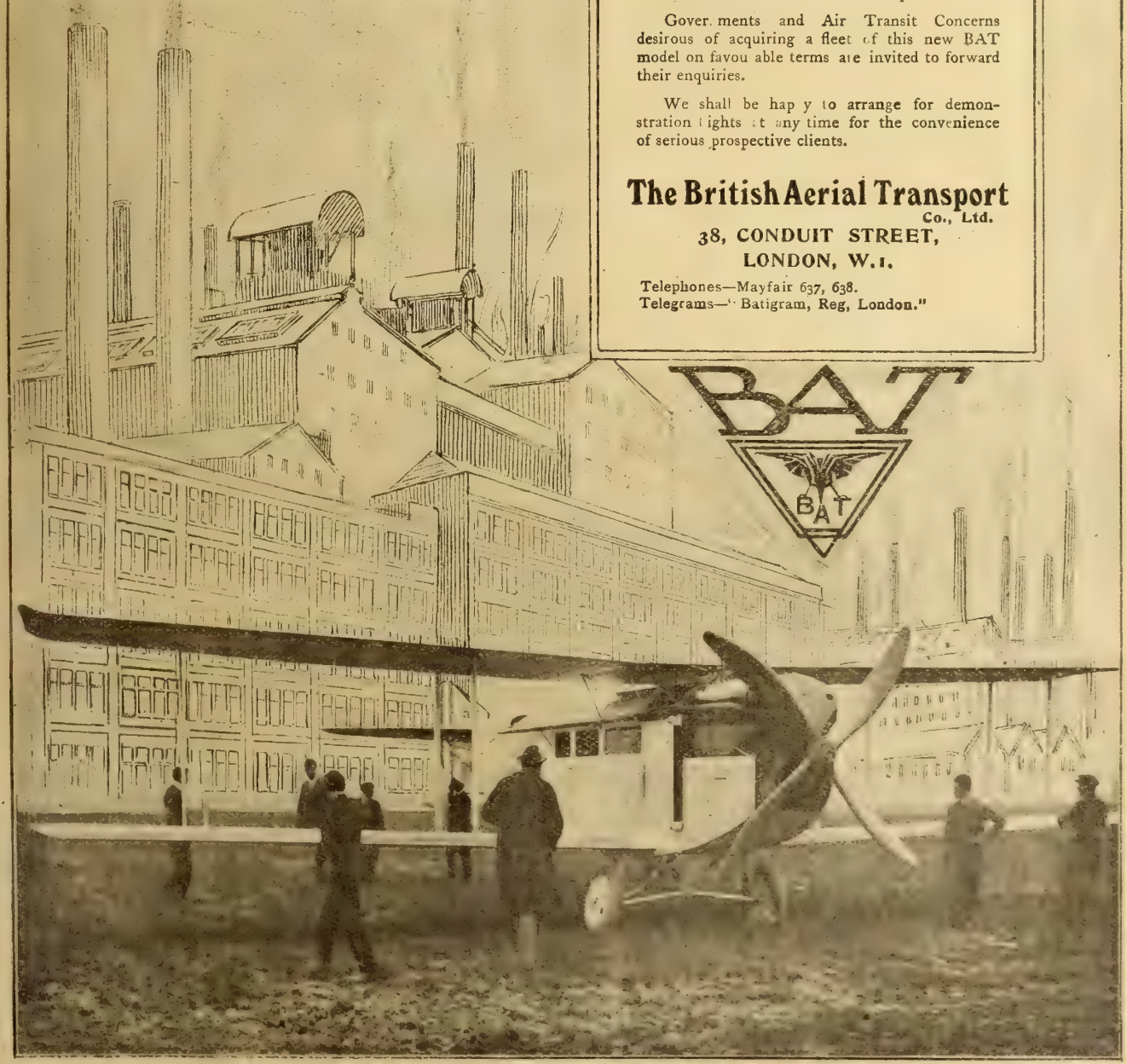
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OFFICIAL EXPLANATION OF THE CIVIL AVIATION REGULATIONS

One learns from the daily news-sheets that on April 25th Major-General Sir F. H. Sykes, Controller-General of Civil Aviation, presided at a luncheon given by the Air Ministry at the Criterion Restaurant, on the occasion of the approaching inauguration of civil aviation, for the purpose of explaining to the Press the Air Ministry's policy. THE AEROPLANE was distinguished by being excluded from the gathering.

GENERAL SYKES'S SPEECH.

The following report of the speech of the Controller-General of Civil Aviation is taken with acknowledgments and thanks from the "Times" newspaper:—

General Sir F. H. Sykes said that it was for us to see that we did not during peace lose the advantage gained during war, and that we also held the same position in civil aviation.

The actual regulations, which could not be issued beforehand, would appear on May 1st. At the outset perhaps a word in regard to the absolute necessity for definite regulations might not be amiss. He had alluded to the necessity for being first in the field. This, of course, implied speed, but it did not mean hurry. One could not afford to make mistakes in the air as on the ground, or even as at sea, and a series of accidents which might be caused by lack of forethought and precaution might well cause a setback to the whole art and industry.

INTERNATIONAL REGULATIONS.

Pilots taking passengers for hire must be physically very sound. If the lives of people were to be trusted to pilots for long distances, when the strain was very heavy, there must be a very good measure of medical fitness. Before being put to proof as to their technical capability those wishing to be pilots, navigators, or engineers in the air must pass a medical test. Physical, mental, and temperamental suitability were obviously very important and had been made the subject of special medical research. Any person wishing to fly aircraft carrying either passengers or goods for hire must obtain a certificate to the effect that he was properly qualified to do so, and a licence.

SAFEGUARDING THE PUBLIC.

A man who flew for hire must have skill. An airman might break his own neck, but the public must be safeguarded. The bulk of other countries would require every person who flew a machine in the air to get a State certificate of competence and a State licence. In this country it had been sought to get the greatest elasticity possible and to impose the full obligations only upon pilots who plied with machines for hire or reward. It had to be borne in mind that a man who was flying a machine might fall upon another person's house. On the other hand, the subject had been considered carefully, and it was desired in compliance with the wish existing in the country to assist the sporting element to get its chance. A man flying his own machine would need a licence, but he would not be subject to the same restrictions as a man taking the responsibility of flying for the public.

Turning from personnel to material, every aircraft must be registered and would be assigned a registration and nationality mark. Before this, however, each particular type of aircraft would have to be officially inspected for design, material, construction, and actual performance in the air. Machines would be certified for a definite load, for in the air no over-loading or strap-hanging could be allowed. Each passenger or goods machine would carry log-books. Machines would be tested as types. When the type had been tested it was considered that machines following that type, provided the inspectors in the factories were doing their work properly, need only be subject to very much modified restrictions. The initial machine would be very carefully scrutinised in detail, but afterwards the restrictions would be easier. All passenger aircraft would be periodically inspected, overhauled, and certified as airworthy, and none would be allowed to start on any journey unless it had first been inspected on that same day by a competent person other than the pilot.

THE AIR ROUTES.

Referring to the map of air routes, General Sykes said that to say that the Government were opening these routes was perhaps misleading. What they were doing was to say that at various points on these routes there would be facilities for commercial traffic. The purpose was to indicate to the Industry what help was available and then to give play to the good old British principle of letting industry act for itself. At the aerodromes would be offices for issuing information in regard to meteorological conditions. But there was no restrictive intention. A man flying on a commercial line would take his risk himself. He would decide whether in view of the information he should fly on that line.

As to departure and arrival, passenger-carrying aircraft would be allowed to leave the ground or land (except under stress) only at certain aerodromes which had been approved and licensed as being suitable. A list of those already selected had been given in the newspapers that morning. Rules had been agreed to in Paris for the control of aerodrome traffic and would be attached to the regulations, and once a man was in the air a definite international rule of the road must be adhered to. There would be, he hoped, one area for getting up and another for coming down, which would be signalled to the flier, and a neutral zone, it was hoped, so as to avoid congestion. Every possible precaution must be taken against collision. Instant and instinctive decision was essential, and the rules must therefore be perfectly clear and simple. The aerodrome regulations were not severe. Their whole object was to ensure the greatest freedom of traffic both ways, and at the same time ensure the least possible chance of collision. A small but important regulation forbade anything except ballast, that was to say, water or fine sand, to be dropped from aircraft. It must be remembered that even a small and comparatively light object casually thrown overboard by some thoughtless but well-meaning person might cause grievous damage below.

So far as national secrecy was concerned, there were, of course, certain specified prohibited areas of a nature which could readily be imagined or by which no aircraft might fly. When we reached proper days of peace they would probably become very much less.

An obvious point which had not been lost sight of was the danger of certain undesirable gentlemen from overseas being literally dropped from the clouds in this country and the police and other authorities knowing nothing of their advent. The provisions of the Aliens Restrictions Order or the Defence of the Realm Regulations were applicable to persons arriving in this country by air equally with those arriving by sea, except that the place of "approved ports" was taken by that of "appointed aerodromes."

The danger of aerial smuggling, once aviation became free, was a real one, and it was largely with this in view that there would be at present only four of these "appointed aerodromes" which might be used by aircraft arriving from or departing for abroad. If, however, they found that commercial traffic developed, for instance, from Manchester or Liverpool to France, or, say, Italy, or even further afield, they could always extend the number by arrangement with the Customs.

"SAFETY FIRST."

In regard to the recent foretaste of civil flying provided for in flips, or short pleasure trips, during Easter, he gathered that there had been some dissatisfaction as to the facilities granted by the Air Ministry. It had even been said, he believed, that the facilities were in fact nothing but restrictions. In order to emphasise how necessary some of the restrictions were, he would like to mention a few of the causes which might have given rise to serious accidents during Easter Week if no limitations had been imposed and no precautions taken. As it was, the five days' flying passed without accident, and 972 people were carried safely. This, he thought, reflected credit not only on the firms and pilots concerned, but also on the Department which he controlled, and which, acting on "safety first," had insisted on enforcing, despite some opposition, the regulations which were imposed.

So soon as the announcement that civilian flying was pemitted from April 17th to 22nd was made in the House of Commons by General Seely on April 14th, applications were sent in to the Air Ministry from all parts of the country for licensing of proposed sites for aerodromes, machines, and pilots. The majority of the proposed sites had up to then never been used as aerodromes, but in every case officers were ordered by telegram to proceed to inspect them, and many of the places were found to be absolutely unsuitable. Furthermore, some of the pilots who applied for licences were found on investigation to have retired from the R.A.F. as "permanently unfit for pilot or observer." Had permission been granted to these men to take passengers into the air accidents might have occurred with most disastrous results. Again, in some cases licences were asked for machines which were either obsolete or had not passed their experimental stage.

The task of the Department of Civil Aviation would be to help in every way by the provision and Aviation would be to help in every way by the provision and dissemination of intelligence, and information and expert opinion. If, as we were doing, and he was sure we should do, we displayed real team work in its best sense, he had no doubt of the continued success of British aviation.

Replying to questions, General Sykes said some of the aerodromes which had grown up during the war had been handed back to agriculture. It might be better from an international point of view that others should be taken by engineering industries, motor industries, or used for other activities, or it might be that they would be taken up by big aviation firms. He thought the Government would probably maintain some for civil flying. Certainly at present they would. A certain number would be made available for storage. For the time being certain of the aerodromes would really be Government aerodromes as a form of direct assistance for the industry. A fee would be charged for landing to machines passing through. The fee would be what he would consider a nominal one.

Asked how aviation was going to "make its living," General Sir F. Sykes said England was small from an aviation point of view, foggy, and thickly populated. But aviation was going to be international, and it was this which would make civil aviation what it would be. Local aviation would be a link in the chain. Joy-riding would be helpful. It would lead to greater knowledge and greater interest in aviation as a whole. In peace flying increased effort would be put into ground organisation, relating to signals, meteorological information, and other matters.

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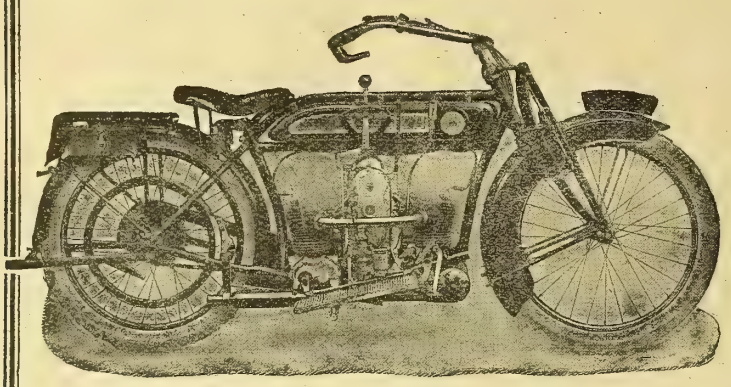
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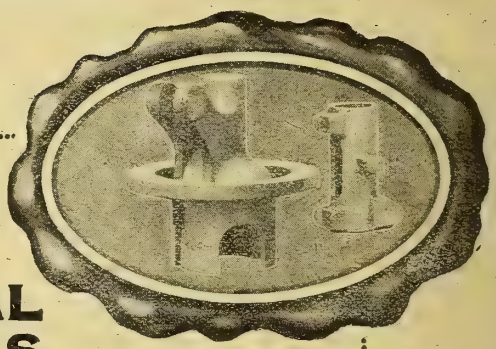
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CAPITALISATION PECULIARITIES.

Some people maintain that it is just as well to be out of the world as out of the fashion. In dealing with certain peculiarities of the capitalisation of aircraft undertakings one must therefore make some allowance for the belief that such peculiarities are simply *á la mode*.

Admittedly the peculiarities are affected by a certain limited, second-rate section of the company world. But to say that the peculiarities represent the best fashion would be untruthful.

Not Liked.

These peculiarities may, in the course of time, develop into a fault or prove a disadvantage. At the moment they are "not liked in the best houses," and therefore detract from the merit of aircraft investments just at a time of uncertainty and suspicion, when every little that is good is really good and helpful and every little that is bad is very bad and menacing.

Inequitable Division.

Why should the capitalisation be divided into, say, 40 per cent. of Cumulative Preference shares bearing a fixed and maximum dividend, say, 50 per cent. of something euphemistically described as Participating Preference shares entitled to a minimum rate of dividend supplemented by a moderate division of surplus profits, if any, and the remainder of the capital in Deferred shares?

Faulty Principle.

One is not provoked to criticise this peculiarity *per se*, or even because of the confusion created by the classification of the shares, but because of the principle involved, and rather on moral grounds, with some regard for the future of the Industry. In the division of the financial responsibility the burden is not equitably balanced: those who have staked little stand to scoop in the lion's share of whatever profits there may be to distribute. These so-called Deferred shares are really Founder's shares, and Founder's shares went out of fashion ages ago: they were in fact forced out of fashion by the abuses they created.

Experience not Satisfactory.

Nowadays the investing public is much more enlightened: as a rule, it abhors Founder's shares or shares any way approaching that character, and this dislike is really fundamentally sound. Doubtless it is socialistic in a way, being an objection to any special privileged group receiving a greater proportion of the profit than is represented by the capital at stake. This is simply common sense.

Two Points of View.

Those whose genius or ability enable them to develop a commercial project are justly entitled to a correspondingly large remuneration. No one can conscientiously dispute their claim. But the investor who risks his capital for the purpose of enabling the guiding genius to translate his ideas into a profitable business is also entitled to a rate of remuneration commensurate with the great risk entailed. This, too, is indisputable.

Founder Shares Disabilities.

Furthermore, the investor who risks his money for the commercial exploitation of new ideas, like aircraft, frequently pins a great deal of faith in the chance of a brilliant financial success ultimately when his initial courage will be richly rewarded. But the common experience of successful undertakings burdened with Founder's shares is that the ultimate reward of the investor is beggarly and almost insignificant compared with that received by the holders of Founder's shares.

Trouble Results from Success.

Founder's shares possess a menacing degree of power, and their possibilities, assuming success is attained, are so unrestricted, compared with the capital originally staked, that they become troublesome to the company: they even retard progress and development at times, and that is why the necessity arises for capital reorganisation. Such reorganisation means the purchase at a fantastically high price of the vested interests created by the existence of the Founder's shares.

If There is a Failure.

It is thus quite easy to understand why promoters are partial to Founder's shares: they risk little capital, and so if the worst comes to the worst and their ideas do not prove commercially successful their pecuniary loss is small. In such an event the loss to the ordinary investor is considerable, and it is then that bad words are coined to describe the pernicious nature of Founder's shares.

Mistaken Idea of Fashion.

This mixed variety of capitalisation characteristic of aircraft companies is not fashionable, and is not liked as a rule. It would be far better if the capitalisation conformed with the ordinary practice. In the case of, say, a £500,000 company, there might be £200,000 in Cumulative Preference shares. This type appeals to a large number of people whose first consideration is a decent uniform rate of interest compatible with a moderate risk.

Straight Financing.

The balance of the capital should be in Ordinary shares. Some of these would be reserved in part payment of the purchase consideration and allotted to the promoters. The balance would appeal to that speculative section of the public fond of new ideas and not frightened by such a risk as that involved.

Not only would capitalisation on these lines be more sound: it would be cleaner. The promoter, in the event of success, would be amply rewarded for his genius and ability. It would be fairer to all parties.—W. J. Davies.

CURRENT TOPICS.

Sustained Activity of Oil Shares.

Conditions are moderately cheerful in the financial world. Quite a lot of speculative activity is witnessed in the Stock Exchange, being centred principally in oil shares and a few isolated mining descriptions. It is remarkable how consistently good oil shares are maintained, being capable of rising superior to such adverse influences as the Budget, and being only temporarily affected by diplomatic difficulties such as those with Italy. The Budget is feared by most people, and serves to check any latent confidence in purely investment securities. Even if the worst happens, there will be a sigh of relief, because there is no greater enemy to finance than uncertainty.

Dealing in New Handley Page.

A few dealings have taken place in the new shares of the Handley Page Co. at a small discount. Doubtless a real market will be maintained in these shares. This is as it should be, and is in the interests of all.

Aircraft Manufacturing issues have sunk to a slightly lower level, the "B" being slightly under £1 and the First Preference about that figure. Some investors are growing nervous about the immediate prospects. The 7 per cent. Short Term Notes have changed hands about 102¾. Aero Stations, Ltd., announce a dividend of 10 per cent. on the year's trading. This company dates back to 1917, and entered into an agreement with the Brighton Shoreham Aerodrome, Ltd., to acquire and develop stations for aircraft and to carry on other work.

NEW COMPANIES.

J. F. & R. Platt, Ltd.—Private company. Registered April 12th. Capital, £10,000 in £1 shares. Mechanical, electrical, marine, aircraft, consulting and general engineers, in the U.K., the U.S.A., Europe, and elsewhere. The subscribers (each with 50 shares) are F. J. Platt, Dudbridge Hill, Stroud; R. E. Platt, Junior United Service Club, S.W. First directors: J. Platt, F. J. Platt, and R. E. Platt. Solicitors: Denton, Hall, and Burgin, Gray's Inn, W.C.1.

Associated Artcrafts, Ltd.—Private company. Registered April 17th. Capital, £100 in £1 shares. Designers and manufacturers of aircraft, cabinet work, and machinery, etc. The subscribers (each with one share) are R. Taylor, 26, St. Mary's Mansions, Paddington, W.2, engineer; C. Nathan, 97, New Bond Street, W.1, secretary. The first directors are to be appointed by the subscribers. Registered office: 97, New Bond Street, W.1.

North Sea Aerial Navigation Company, Ltd.—Private company. Registered April 23rd. Capital, £10,000 in £1 shares. To carry on the business of civil aerial trading, transport, and navigation, aircraft designing and construction, motor manufacturing, flying instruction, etc. The first directors are R. Blackburn, Bowcliffe, Boston Spa, Yorks, managing director of Blackburn Aeroplane and Motor Company, Ltd., and S. A. Hirst, Oak Lea, Adel, Leeds, commercial engineer. Registered office: Olympia, Roundhay Road, Leeds.

Aeronautical and Panel Plywood Company, Ltd.—Private company. Registered April 24th. Capital, £100,000 in £1 shares (25,000 preference). To take over the business of timber and plywood merchants and sawmillers recently carried on by W. M. Mallinson and Sons, Ltd., at 218-226, Kingsland Road, and 5-7, Laburnum Street, E.2. The first directors are W. Mallinson, The Limes, Walthamstow, timber merchant (chairman); W. J. Mallinson, The Grange, Carshalton, Surrey, timber merchant; L. V. Mallinson, The Limes, Walthamstow, timber merchant. Registered office: 218-226, Kingsland Road, E.2.

Boulton Magnetos, Ltd.—Private company. Registered April 15th. Capital, £4,000 in £1 shares. To take over the business of magneto manufacturers carried on by A. H. and J. H. Boulton, as "A. H. Boulton and Sons," at Old Hall Street, Wolverhampton. The subscribers (each with one share) are:—P. Thomas, York Avenue, Wolverhampton, brassfounder; A. H. Boulton, 146, Waterloo Road, Wolverhampton, magneto manufacturer. First directors: A. H. Boulton, P. Thomas and C. W. Parkes, Church Hall, Tottenhall. Solicitor: A. C. Skidmore, Imperial Chambers, Lichfield Street, Wolverhampton.

British Motor Trading Corporation, Ltd.—Registered April 17th. Capital, £2,000,000 in £1 shares. Manufacturers, repairers and storers of and dealers in motor vehicles, tramcars, locomotives, cycles, boats, aircraft and agricultural tractors, and appliances, garage and aerodrome proprietors, owners of motor, electric and other boats and vehicles, etc. First directors: C. H. Dodd, Arkley, Holyport, Berks., solicitor; Brig.-Gen. F. Conway Jenkins, C.B.E., R.A.F., 25, Jermyn Street, S.W.; J. E. Hodgkin, Shelleys, Donington, consulting engineer; W. R. Jeffreys, Brecon, Christchurch Park, Sutton, Surrey, director Motor Union Insurance Co., Ltd; H. J. Whitcomb, Campions, Harlow, Essex, general manager Motor Union Insurance Co., Ltd. Solicitors: Slaughter and May, 18, Austin Friars, E.C.

Taunton, Lindsay and Co., Ltd.—Private company. Registered, April 16th. Capital, £10,000 in 9,000 10 per cent. participating preference shares of £1 each, and 20,000 deferred shares of 1s. each, to adopt an agreement with J. B. Taunton, of 98, Victoria Street, S.W., and to carry on the business of manufacturers of and dealers in aeroplane engines, aeroplanes, motorcars, etc., Permanent directors: J. B. Taunton, 22, Marloes Road, W.8, engineer; Capt. J. M. Lindsay, 78, Buckingham Gate, S.W.1.

Affiliated Aero Clubs of the British Empire, Ltd.—Private. Registered April 15th. Capital £100 in £1 shares. To acquire sites for the construction of club houses and landing grounds for the use of aviators and others, and to carry on the business of club and aerodrome proprietors, merchants, agents, engineers, carriers, etc. The subscribers (each with one share) are:—G. A. Wingfield, 74, Cheapside, E.C., solicitor; H. Wingfield, 67, Watling Street, E.C., C.A. The first directors are not named, the company being governed mainly by Table "A" of the Companies (Consolidation) Act, 1908. No notice of situation of registered office was filed at the time of incorporation.

The following companies have been registered for purpose of acquiring from Aero Stations, Ltd., sites adjoining the places named in the titles. The other objects and general particulars are similar to those of Affiliated Aero Clubs of the British Empire, Ltd.

Aberdeen Aero Club, Ltd.; Birmingham Aero Club, Ltd.; Bristol Aero Club, Ltd.; Carlisle Aero Club, Ltd.; Derby Aero Club, Ltd.; Dundee Aero Club, Ltd.; Edinburgh Aero Club, Ltd.; Exeter Aero Club, Ltd.; Folkestone Aero Club, Ltd.; Glasgow Aero Club, Ltd.; Grimsby Aero Club, Ltd.; Inverness Aero Club, Ltd.; Ipswich Aero Club, Ltd.; Leeds Aero Club, Ltd.; Liverpool Aero Club, Ltd.; Manchester Aero Club, Ltd.; Newcastle Aero Club, Ltd.; Norwich Aero Club, Ltd.; Plymouth Aero Club, Ltd.

MORTGAGES, CHARGES, AND SATISFACTIONS.

R. L. Dubois and Co., Ltd.—Debenture dated March 20th, 1919, to secure £430, charged on the company's undertaking and property, present and future, including uncalled capital and book debt of Meerloo Engineering Company, Ltd. Holders: L. Schaer.

John Dawson and Co. (Newcastle-on-Tyne), Ltd.—Debenture dated April 4th, 1919, to secure £30,000 and any further sums (not exceeding £70,000 altogether), charged on the company's undertaking and property, present and future, including uncalled capital. Holder: Minister of Munitions.

PROSPECTS OF ALUMINIUM.

Concerning the prospects of the aluminium industry the following statement by a leading authority is interesting:—Although the present conditions are difficult it is clear that if industry can resume its normal proportions it will not be long before we see improvement, because the developments which took place in the demand and uses for the metal previous to the war were of a most encouraging nature, and much progress has been made since in consequence of the war.

Therefore, although to-day there is manifestly a large surplus capacity of production throughout the world it is to be hoped that within a reasonable period this will not only be taken up, but it will again be necessary still further to increase production in order to supply the demand.

The future for the metal is bright when we consider the large demands which must in time be made in consequence of the development in the motor, chemical, electrical and aeroplane industries, and for domestic utensils and other commodities for which it is eminently suited in addition to the demands which have been, and will be, created, by research work in connection with alloys in which aluminium plays an important part. The costs of production during the past year have shown substantial increases over those of the previous year, but this was to be expected because of the increases in wages (which have had to be granted from time to time to meet the increased cost of living) and in the costs of all materials.

SURPLUS AIRCRAFT STORES.

The Surplus Government Property Disposal Board, Aircraft Equipment Section, has to dispose of a large quantity of items that should be useful to aircraft manufacturers. The following are examples:—

Bolts and nuts, 2 Ba, 4 Ba, 6 Ba—¼, 3/16, ⅜ B.S.F.; metric, ditto; strainers for brake controls; wire cables; woodscrews, brass and iron; studs, various; union connections, brass; relief valves; petrol filters; copper tubing; steel tubing; washers, all metals; rivets, all metals; joint fins; fork joints, steel; petrol tank fittings; Bowden controls and wires; brass cocks; hose pipe connections and clips; gimp, fine, for trimmings; accumulators; aluminium beadings, sheets, angles, etc.; duralumin ditto; brass ditto; celluloid sheets for windows; acetylene lamps; electric switches; speaking tubes.

The address of the S.G.P.D.B. is 54L, Alexandra House, Kingsway, W.C.2.

PETROL SUPPLIES.

It is stated by the Petroleum Executive that the impression which appears to prevail in some quarters that there is a serious scarcity of petrol is quite unfounded, as there are abundant supplies in this country available for all purposes. It may be mentioned that the price has been reduced by 5½d. per gallon since the date of the Armistice. The control system is not being continued in order to restrict supplies, but for the purpose of collecting the license duty, the present arrangements for which must remain in force until the question can be dealt with in the new Budget.

By Direction of the Disposal Board.

AIRCRAFT DISPOSAL DEPARTMENT.

FOR SALE

AEROPLANE RADIATORS.

Lot S.B.6/12.

500 Aeroplane Radiators, some new, others repairable, material, chiefly Brass.

AEROPLANE RADIATOR TUBES.

TONS.	BRASS NEW.	
32	120m/m × 10m/m × .005	Air Board Standard.
19	100m/m × 7m/m × .005	
3	100m/m × 10m/m × .005	

SHOCK ABSORBER CORD.

Lot S.B.6/12.

NEW.

510 yds.	Black Braided Shock Absorber Cord	3/8
190	,, ,, ,, ,,	7/16
1651	,, ,, ,, ,,	5/8
2718	,, ,, ,, ,,	1/2
1297	,, ,, ,, ,,	3/4
537	,, White ,, ,, ,,	5/8

Passed by A.I.D.

PALMER WHEELS COMPLETE.

Lot S.B.6/12.

63 Palmer Wheels, complete with tyres and tubes, size 100×150. Passed by A.I.D.

FLEXIBLE TUBING.

Lot S.B.6/12.

New Oil and Petrol-proof Tubing, Canvas and Rubber.

3-ply 157 feet, various lengths and sizes.
2-ply 1545 feet, ,, ,, ,,

SEAPLANE PARTS.

Lot S.B.5/11.

A quantity of finished and unfinished Seaplane Parts now lying at the Works of Messrs. J. Samuel White & Co., Ltd., Isle of Wight. To be sold in one lot. The above may be viewed on the following days:—**Thursday, Friday and Saturday, May 8th, 9th and 10th.** Forms of Tender and further particulars may be obtained from the:

AIRCRAFT DISPOSAL DEPARTMENT,
YORK HOUSE,
KINGSWAY, W.C.

Latest date for receiving Tenders is May 12th, 1919.

MR. SANDOW
ON
Natural & Scientific Nerve-Culture.

THE PHYSICAL BASIS OF STRONG NERVES AND A COOL BRAIN.

The nerves are the strands in the life-line of an airman. What is the secret of strong nerves? What is it that gives a man that sublime calm and confidence in the critical moment—I might even say second—that may decide not only his own fate, but the fate of others dependent upon him? It is not, as some may think, a supernatural gift. The superman in the air, with nerves like finest-tempered steel, is only a superman in physical condition, and that superior physical condition is, I contend, attainable by all, naturally, easily, and pleasantly.

Nerve strength is not to be found in any special food or drink, or medicine, and nervous force can only be generated in the body by the perfect functioning of every other organ, more especially of the organs of respiration, digestion, and elimination. In other words, physical fitness and efficiency are the basic essentials of strong and steady nerves. The three requisites of a well-ordered nervous system are:—

1. Pure air. 2. Good food. 3. Physical exercise.

The two first are ensured, but they cannot be converted into nervous force in sufficient quantity or quality without the latter, and in no other branch of military service is this vital factor so apt to be overlooked. Indeed, I know one leading airman, a pupil of mine, who has been flying for three years, and who has never had an accident in the air, and he attributes his nerve entirely to my system of keeping himself always thoroughly fit, as many airmen who have consulted me declare that they get less physical exercise than any other fighting men, and their nerves suffer in consequence.

"A course of Sandow," as it is colloquially called, is the best tonic an airman can have, as many flying men gladly testify. It means:—

1. Firm muscles—and muscle is only "crystallised function."
2. Sound digestion and a well-nourished nervous system.
3. Deeper and fuller breathing and nerves well nourished.
4. Well-oxygenated blood and good circulation.
5. A body, brain, and nervous system harmoniously developed, strengthened, and self-disciplined.

The nervous system is the petrol tank of the human engine, the driving power of the whole human machinery. Every other system is dependent upon and regulated by nerve force. Airmen, therefore, will appreciate what I mean when I say that the storage of nerve force is the most vital necessity of the human body in every condition and circumstance of life, but especially in the peculiar and abnormal condition by which they are almost daily subjected.

Airmen anxious to get and keep "in the pink" should try a "a course of Sandow." I shall always be pleased to place my services at their disposal, and they can carry out my advice either by correspondence or at the Sandow Institute. Only a few minutes daily will suffice to recruit their nervous force and condition, and the exercises are always most carefully chosen to suit the individual in every way. They are easy and pleasant to carry out, and increase nerve force in *the only and natural, safe and radical way*. Personal consultations by appointment or free descriptive booklet will be sent on request. Address all letters personally.

COUPON.

Mr. E. Sandow, Sandow's Curative Institute, Ltd., 32, St. James Street, LONDON, S.W.1.

Sir,—Please send free booklet descriptive of your methods as offered.

Name .....

Address .....

.....

Age ..... "Aeroplane," 30/4/19.

AERONAUTICS and The LAW

GREETINGS FROM THE SKY.

By "THE LINCOLN IMP."

The pictorial postcard will soon be reinforced by the products of the aerial camera. The public has plunged up into the air and will soon be exhibiting a longing to tell its friends all about it. "Greetings from the Sky" will come fluttering down, and "Souvenir Pictures" taken on the trip will find a ready sale and be bought for posting to acquaintances in all parts of the world.

Presently will come the desire for a vertical or oblique photograph of the tripper's own home, perhaps even taken by the tripper himself, developed on board, and dropped by him in his own garden! But what if a neighbour, who happened to be taking a siesta in his garden in the sun, objects to a plan view of his bald head being thus published to all the world? Could he claim damages for libel, or could he obtain an injunction to prevent his person or property being photographed against his will or forbidding publication of the prints, or how could he stop it?

The Right to Privacy.

Though the example given is facetious, the principle at stake is a serious one. In certain circumstances it may prove to be of considerable importance to John Citizen on the one hand and to the aerial photographer on the other. Put in a phrase, the question at issue is whether or no the law recognises a specific right to privacy for a fellow's own concerns. Is an Englishman's house his castle in the sense that he can prevent his personal sayings and doings at home from being published abroad and keep private and unexposed to the curiosity of the world the house and grounds, small or large, which he has a right to call his own? Is there any right "not to be overlooked"?

American Law.

Sir Frederick Pollock has pointed out that the Common Law of England is "the system according to which justice is administered in almost every part of the English-speaking world except Scotland and Louisiana." To this generality the United States of America form no exception, and English decisions are constantly accepted by American judges as authorities which they are bound to follow in administering American law.

Though the converse is not true, and American decisions are not authorities which bind an English Court, yet, in the words of Lord Esher, "we are always glad to be able to follow them." It is therefore not irrelevant to examine the American decisions on what a learned American writer has called "the right to be let alone," inasmuch as the point, though fully considered in the States, has never been raised directly in our own Courts.

The Castle in the Air.

In 1890 the "Harvard Law Review" (Vol. IV.) contained a long and learned article in which it was sought to establish that the principle which protects personal writings and other productions of the intellect or of the emotions from piratical publication is not the principle of private *property*, but the right to privacy independently of property.

"The Common Law," say the authors, "secures to each individual the right of determining, ordinarily, to what extent his thoughts, sentiments, and emotions shall be communicated to others, and the law has no new principle to formulate when it extends this protection to the personal appearance, sayings, and acts and to personal relations, domestic or otherwise."

The article seems to have been evoked by a case in which an actress alleged that while acting in Broadway Theatre in a *rôle* which required her appearance in tights a flashlight photograph was taken of her, from one of the boxes, surreptitiously and without her consent, by a photographer and the manager of "The Castle in the Air" company. The article was subsequently quoted with approval and almost made the basis of his decision by an American judge in a rather curious case.

The Typical Philanthropist.

Mrs. George Schuyler, though largely interested in private charities, had never in any way entered public life. On her death some zealots known as the Woman's Memorial Fund Association undertook to commemorate her good deeds by a statue of her to be designated "The Typical Philanthropist" and to be placed in Chicago as a companion piece to a bust of a well-known agitator, Susan B. Anthony, who was to be called "The Typical Reformer." In consequence of the strong disapproval of Mrs. Schuyler's relatives of the proposed commemoration her nephew brought an action to prevent it taking place, and obtained an injunction, the judge expressly basing his decision on the existence of a right to privacy at common law. The lady, he held, could not be forced to become a public character even after her death.

This decision was, however, reversed on appeal on the ground, it would seem, that whatever the lady's own rights might have been in her lifetime, they ceased on her death, and the mere injury to the feelings of her relatives gave them no claim to relief in a court of law. A critic of this decision somewhat unkindly inquired: "Could the learned judge bear for an instant the thought of a public representation or description of his courtship after his death?"

My Face is Your Fortune.

Similar ill-success attended attempts (1) to prevent publication of a biography with portrait of a well-known inventor after his death, and (2) to prevent a cigar manufacturer from using the name and likeness of a dead man as a label for a brand of cigars. More striking still was a case where the plaintiff—described as a young woman of attractive appearance—was herself refused an injunction to prohibit the unauthorised use of her own portrait by a company in advertising its business.

Hunnish.

In 1894 the editor of "Der Wachter" started to publish portraits of a law student, formerly an actor, and also of an actor called "Mogulesko," and invited his readers to vote which of them was more popular. The judge considered the law student's right to stop this "too clear for further argument" and granted an injunction.

Lack of Privacy in the U.S.A.

The net result of the American cases is that the Courts, after showing a marked tendency at one time to decide in favour of the existence of a specific right to privacy at common law, finally decided against it, through fear, very largely, of frivolous actions.

English Analogies.

In England, as we have said, the suggested "right to be let alone" seems never to have been seriously raised in any of the reported cases. Analogous actions have all, with greater or less ease, been brought under one or other of the subordinate heads of law known as libel and slander, copyright, breach of contract, or abuse of confidence. Considerable difficulty, however, exists in bringing under any of these heads the mere publication to the world of what is visible or can be photographed from the air.

Queen Victoria's Etchings.

The case of Prince Albert v. Strange is remarkable from many points of view. As stated by Knight Bruce, K.C., the facts were that "a lady and gentleman (the latter being the plaintiff) having, with a view no doubt to rational and domestic amusement, learned the art of etching, executed from time to time for their private use several works of this description."

The "lady and gentleman" were in fact Queen Victoria and the Prince Consort, the latter of whom brought the action, while the Queen's interest in the matter was protected by her Attorney-General in her own Courts.

A complication arose from the fact that some of the compositions in dispute had been drawn by the Queen and etched by the Prince and some *vice versa*; but the Prince was expressly prohibited by statute from acquiring any interest in the property of Her Majesty his Consort, while there was a legal difficulty about the Queen taking an oath or giving evidence before a Court over which she as Sovereign was supreme, "in all courts and over all causes as well ecclesiastical as civil within Her Dominions Supreme," as the bidding prayer has it.

For present purposes, however, we may disregard the hairy exterior and come straight at the milk in the cocoanut—to wit, the simple facts that the unpublished etchings of the lady and gentleman had been seen by the defendant, who had described and catalogued a number of them and was proposing to publish and sell this descriptive catalogue. To any such publication of their private efforts the lady and gentleman strenuously objected.

Having cracked the legal nut the Courts came at the milk and granted the plaintiff an injunction on the ground (a) that unpublished works are the property of the author, who can prevent even a list of them from being published, and (b) that the information contained in the list could only have been procured by means of a breach of confidence on the part of someone.

This case is the high-water mark of the law on this subject, but unless my person and private property can be described as

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" my unpublished works " it is difficult to see how a photograph of either taken from the air without my permission could be brought within the *ratio decidendi* of the case. " I light my torch by your torch, you are none the poorer," unless, as was maintained in argument, " there has been the abstraction of one attribute of property which is often its most valuable quality—namely, privacy." But could one prevent a man from looking over his own wall and watching the performance of his neighbour's racehorses and publishing an account of what he saw? Surely not, or this would have been the ground of the decision in the racing tout case mentioned in a previous article.

The Chamber of Horrors.

We are told by Mr. J. T. Tussaud that the idea of a separate " chamber of horrors " originated with a Cambridge professor. It was an excellent idea, but the place is not a nice one in which to spend the night even if you are only a wax figure. Mr. Monson had had the misfortune to be tried for murder in Scotland, the trial resulting in the Scotch verdict of " Not proven." He objected very strongly to a wax portrait model of himself being placed in or near the Chamber of Horrors at Madame Tussaud's and brought an action to stop it.

He did not contend that the figure was not a good likeness nor did he claim any copyright in his own face or appearance. He put his claim substantially on the ground that placing him in that situation held him up to public opprobrium, not necessarily as a murderer, but as a notorious character, and he secured on that ground a temporary injunction. The injunction, however, was not continued by the Court of Appeal because of new evidence to the effect that the plaintiff had himself supplied for exhibition, through a friend, the gun he was carrying and the suit of clothes he was wearing on the day of the supposed murder!

Pertinent Questions.

Lord Halsbury said he regarded " with something like dismay" the claim that "every incident which has actually happened in private life may be used to furnish materials for an adventurous exhibition, dramatised perhaps, and justified because, in truth, such an incident did really happen "; but Lord Justice Lopes asked: " Might not a jury, without being unreasonable, consider that any discredit attaching to Monson resulted from the trial and not the exhibition of his figure at Madame Tussaud's? " None of the judges in their judgments gave support to the existence of any general right to privacy. Collins, J., asked: " Has it ever been held that a private individual can restrain the publication of his own face? " Mathew, J., replied: " If it were so, no paper could publish the likeness of a person without paying him a royalty."

This point was neatly raised and disposed of in a case where a photographer displayed for sale in his window a print made up as a Christmas card and taken from the negative of a photograph of a lady taken in the usual way. An injunction was granted, not on the ground that the lady could restrain publication of her own face, but on the ground that it was an implied term of the contract she had made with the photographer when she gave him the sitting that the negative should not be used by him for such a purpose as this, and that so to use it was a breach of confidence on his part. The case of a snapshot taken without permission would be quite different.

Conclusion.

It appears, therefore, that the taking of aerial photographs and their reproduction for gain is a legitimate enterprise open to all the world as soon as flying becomes general, and that it cannot be objected to as an infringement of " the right to be let alone " because no such right as this is known to the law.

AIR FORCE LAW.

"*Some* sort of order, please, Mr. Jones," a Judge of the High Court is recorded to have begged of Counsel who was rambling at large through a maze of facts, figures, and dates, "*alphabetical* order if you like, but chronological is best."

Some sort of order is an urgent requirement if that welter of words which constitute Air Force Law is to be read with any sort of profit, let alone pleasure.

Mr. Cheshire (who concurs with the Judge in finding chronological order best) has carried out excellently* the burdensome task of re-stating in logical order and sequence that portion of K.R. and the Provisional Manual of Air Force Law which deals with the investigation of charges and the preparation of a case for Court Martial.

A Well-Defined Plan.

The subject is considered under six heads, which follow exactly the usual sequence of events; to wit, an arrest followed by a charge investigated first by the Squadron Commander, and then by the C.O., and finally, if necessary, by a Court Martial, for which the case has to be prepared.

The plan of the booklet is this: In the text will be found a clear statement of the normal and proper procedure at each stage of events, whilst in the wide margin there is inserted, in clear and distinctive type, the number of that section or paragraph of the Act or the Regulations which is quoted as an authority for the statements made in the text.

The advantage of this plan is that it enables the pamphlet to fulfil a double function. The text is a clear and readable summary of the law, and the margin contains a handy and complete index to the relevant portions of the Air Force Act and Regulations.

The Meaning of Crime.

"Crime 'im," says the traditional drill-sergeant at every petty offence, but this does not justify Mr. Cheshire in asserting that "Crime" is a term which "ranges from the most trivial peccadillo of military life, such as slovenliness in one's dress, to those enormous misdeeds which figure in the opening sections of the Air Force Act."

The word " Crime " is one which has given lawyers a lot of trouble to define, but whatever its content may be it is not synonymous with " Offence," which is a term borrowed from Military Law, and largely, if not exclusively, employed throughout the Air Force Act and the Rules. This detail, however, is of no great importance.

Another detail worth pointing out is that the term "Airman," which Mr. Cheshire uses, should no longer be employed. " Men in the Ranks " at present are "Aircraftmen"; the declension of the term being apparently "Leading Aircraftman," "Aircraftmen First Class," "Aircraftman Second Class," and, finally, "Boy." But to keep up to date with Air Force Uniform and Terminology the reader must be a close student of Weekly and other Orders.

Specimens of Documents.

The point might prove of importance in drafting a Charge or Summary of Evidence. Specimens of these and similar documents are given in the pamphlet, and appropriate references are made to the official Air Force forms throughout.

Throughout the pamphlet due emphasis is laid on practical points; for example, the important distinctions which exist between such terms as "Reprimand" and "Severe Reprimand" and " Disobeying a Lawful Command," and " Hesitating to Obey an Order." The cases in which forfeiture of pay is inflicted as a punishment are duly differentiated from those cases in which it is automatic.

The Sources of the Law.

The author is to be commended for his candour in warning the reader against placing reliance on the wording of any text book further than as a guide to the sources of the law. The law is to be found in the Act and Regulations not in the text which, however, does serve to elucidate for the reader the crabbed and involved statements therein, and to enable him to find his way through the wilderness of words to the solution of his particular problem.

It is not only those C.Os. and Adjutants who formerly belonged to the R.N.A.S. who will find a use for Mr. Cheshire's little book.

The Lincoln Imp.

* "The Investigation of Charges in the R.A.F." By G. C. Cheshire, M.A.B.C.L. (Published by Gale and Polden, Ltd., at 2s. net.)

AERIAL TRESPASS.

Speaking in the Inner Temple Hall recently on the legal problems of commercial aviation, Lieut.-Col. T. W. C. Carthew, D.S.O., R.A.F., said that, unless the question was approached in a broad-minded way, infinite harm might be done in an epoch-making industry.

It was unthinkable that a nation could surrender the sovereignty of its air-space. Supposing an aeroplane came down in Piccadilly and killed someone, how would they be able to show fault or negligence when the pilot's head might be on the pavement of Piccadilly and his legs on Ludgate Hill? Was there going to be right of action for trespass against every aeroplane that crossed a person's property?

These questions were of great interest to underwriters. Industrial aviation companies could not generally be their own insurers, and if third party risks were very heavy Lloyd's would not undertake them. He suggested that a practical solution of this difficulty might be found by charging 6d. or 1s. a flight, and thus forming an indemnity fund under the control of the Civil Air Ministry, which could meet liabilities above a certain amount. By limiting the loss on one particular machine aviation could be assisted as a commercial proposition.

The gruesome suggestion regarding the imaginary pilot whose legs were on Ludgate Hill and his head in Piccadilly is not quite clear. If the machine fell in Piccadilly, why should the pilot have left his legs on Ludgate Hill? In spite of Lieut.-Col. Carthew's comment, one thinks such a performance would prove negligence.

CIVIL AVIATION AND THE AIR ROUTES OF GREAT BRITAIN.

The Air Ministry makes the following announcement :—

As was announced by the Under Secretary of State for Air in the House of Commons on April 14th, the ban on Civil Aviation is to be raised on May 1st, and the Order containing the various regulations which will control it will be signed on that date. There must ensue a period during which regulations are being studied and applications are being made by firms and private individuals for the licensing of pilots and aerodromes and the licensing and registration of aircraft.

To give all the assistance possible beforehand to those intending to take advantage of whatever facilities are offered by the Government, certain details of some of the aerial routes of Great Britain which it is proposed to declare open to civil aviation are now made public. These routes are shown on the attached map. It must, however, be emphasised that they are provisional, for practical experience alone can show if all the air stations selected are rightly placed and whether the proposed air track or route does not in some cases lie too far off certain large centres of population and industry. Uncertainty on these points is for the moment unavoidable. Selection and decision has been limited by existing conditions. Certain aerodromes are in being, and in order to start civil flying as soon as possible and also for the sake of economy it is necessary to make use of what already exists. Whatever may eventually be the demand for additional or new aerodromes, it can be ascertained only after trial.

Existing Facilities.

On November 11th, when the Armistice was signed, there were in Great Britain and Ireland 337 aerodromes and landing grounds (a landing ground being, for practical purposes, the same as an aerodrome with less facilities and accommodation). Of these, 116 have already been relinquished for purposes of cultivation, etc., while about 100 will be required for the time being by the Royal Air Force. There remain, therefore, about 120 aerodromes and landing grounds which will ultimately be available for civil aviation. At very many of these there are extensive buildings, and it is possible that with the progress of civil aviation, Town Councils, public bodies, or important commercial firms interested in the subject, may be disposed to avail themselves of the opportunity of acquiring a "going concern" in an aerodrome equipped with ready-made accommodation.

Owing to the necessity for completing running contracts for material, for maintaining the power of remobilisation in case of necessity, and to the sudden cessation of the war wastage of equipment overseas, the demand for storage accommodation in England at the moment is very great. This implies that at many of the aerodromes marked for ultimate disposal the buildings will for some time be largely required for service machines, causing a deficiency in storage facilities which may prevent potential purchasers from taking over the aerodromes. The question of storage accommodation, however, is one of a temporary nature, and as conditions become more normal the situation will become easier owing to military equipment being relegated to military aerodromes. In the meantime a certain easement may be effected by the erection of Bessonneaux and temporary hangars.

Choice of Routes.

In spite of the storage and other difficulties, the Government has decided to open up certain trunk aerial routes at once. These routes have not been laid down arbitrarily—as History relates was done by a certain Tsar of Russia, in the case of a railway—by ruling a line on the map from place to place. They have been chosen with reference to the situation of existing aerodromes and military demands, and in their arrangement an attempt has been made not only to establish direct communication between London and Ireland, and London and the North, etc., but also to cater for some of the larger and more important centres of population which lie along the route.

The routes at present suggested, together with the more important stations ("station" being the term used for an aerodrome or landing place), are :—

(1) London—Scotland.—Hounslow, Wyton, Harlaxton, South Carlton, New Holland, Doncaster, Copmanthorpe, Catterick, Redcar, Newcastle, Turnhouse, Renfrew.

(2) London—Dublin.—Hounslow, Witney, Castle Bromwich, North Shotwick, Baldonnel.

(3) London—Manchester—Belfast.—Hounslow, Hucknall, Didsbury, Scale Hall, Sheffield, Manywell Heights, Luce Bay, Aldergrove.

(4) Continental Route.—Hounslow, Lympne.

(5) Dutch Route.—Hounslow, Hadleigh.

(6) London—Plymouth.—Hounslow, Eastleigh, Cattewater.

(7) London—Bristol.—Hounslow, Filton.

Once a particular route has been declared open, the pilot of an aeroplane making the journey will find petrol, some accommodation, and, where possible, mechanics to handle his machine at each of the air stations named, and the practical value of the intimation now given lies in the fact that on and after May 1st, any individual who complies with the terms of the regulations is at liberty to fly along these civil air routes, and to make use of the stations and facilities afforded. It should be noted by all those interested that the Government cannot guarantee to assist aircraft which may land elsewhere than at a specified station, and a pilot descending either by design or owing to force of circumstances at an aerodrome off the route must not expect to find either mechanics, accommodation or petrol or oil at his disposal.

Opportunities for Private Enterprise.

After deducting from the sum total those aerodromes which have been provisionally selected as stations along the proposed air routes, there will remain for disposal nearly 100, many of which are very well equipped. It is proposed to publish shortly a list of these showing the distance of each from the nearest railway station and postal town. There is, of course, no inherent necessity why these aerodromes, if not required for civil aviation, should not be used for other purposes, and it is possible that not aviation firms alone, but other firms, such as engineering businesses, may desire to seize the opportunity of acquiring large buildings, valuable plant and open spaces of ground situated at important points



Map showing the Aerial Routes described in the accompanying article.

throughout the country. Inquiries on this subject should be addressed to the Secretary, Air Ministry (C.G., C.A.).

Appointed Aerodromes.

The control of traffic passing to and from overseas cannot but prove a difficult problem and it is one upon which the Air Ministry has worked in close touch with the Home Office and His Majesty's Board of Customs and Excise. It has been decided that the aerodromes which can alone be used for this traffic, called "appointed" aerodromes, shall for the present be limited to four in number, and with the exception of the London terminal aerodrome at Hounslow, be on the coast. They are as follows :—

For Continental traffic—Lympne, in Kent.

For Dutch traffic, via Harwich—Hadleigh, in Suffolk.

For Scandinavian traffic, via the Humber—New Holland, in Lincolnshire.

For traffic direct to London—Hounslow, in Middlesex.

At these "appointed" aerodromes all outward and inward bound aircraft must touch, i.e., land for examination of goods and passengers. It has been suggested that these aerodromes would be better situated inland and not on the coast, the argument being that much of the time gained by aerial transit of goods would be lost if examination had to be carried out immediately on crossing the seaboard. But the difficulties of control if such a system were adopted, and the lack of certainty as to what particular channels trade will follow have led to the provisional placing of them on the coast. For the convenience of pilots flying direct from the Continent to London, one "appointed" aerodrome has been placed at Hounslow whence pilots can proceed after examination, direct to their destination.

It should be understood that the "appointed" aerodromes as at present selected are by no means finally fixed as to situation nor limited as to number. If sufficient trade and air traffic should grow up in any other direction, the question will be reconsidered and "appointed" aerodromes will be established by the Air Ministry as necessary at other centres.

Peace and War.

Hitherto, much of the progress in aviation has been due to war and war conditions, and it follows that at first the majority of machines used in civil aviation will be either actual war models or war models adapted. But types more suitable for pleasure and commercial work are already beginning to make their appearance, and for them, as has been the case with the earlier war models, rigid care and supervision in regard to construction and air-worthiness will have to be insisted upon for the safety of the travelling public and also the public which does not travel.

For this duty, the Air Ministry will continue to be responsible. It will not in any way hinder development by imposing inspection on inventions or purely experimental machines, but it will insist on the inspection and certification for general air-worthiness of any passenger machine plying for hire. Not only the machine, but the pilot who carries passengers, and the aerodrome where he lands will be liable to periodical inspection and if they are not passed as fit, the licence is liable to be withdrawn.

Experience gained during the successful short spell of flying during Easter when 972 people were carried has been of assistance in drawing up the Regulations. Any restrictions which have been imposed are for the safeguarding of the public, and it is believed that with the good-will of firms and individuals concerned the restrictions will be of benefit to the development of aviation as a whole.

THE ROTARY CLUB DISCUSSION.

Aeronautics was the subject of discussion at the dinner given by the Rotary Club of London at the Holborn Restaurant on St. George's Day.

The Rotary Club is not concerned with Mono, Clerget or Le Rhône engines, as might be supposed. Neither is it a dancing club for students of the Jazz. It is a sedate organisation of professional and business men who meet at regular intervals to discuss various subjects, chiefly commercial. In its list of members one can find a "Foot Specialist," a Funeral Furnisher, a Milkmonger, a Ventriloquist, a Steam Rolling Contractor and a Physical Culture Expert, to select only a few from a great store.

This fertile intellectual soil produces a wonderful rotation of crops. By conscientious gleaning a member may in time learn all about everything that is not his own business.

On April 23rd, as already stated, the subject of the speeches was Aeronautics, Mr. G. E. Pike, the president, was in the chair, and among those present were Brigadier-General Brooke-Popham, D.S.O., Director of Aeronautical Research, Lieut.-Col. W. A. Bristow, R.A.F., and Lieut.-Col. A. Ogilvie, C.B.E., R.A.F.

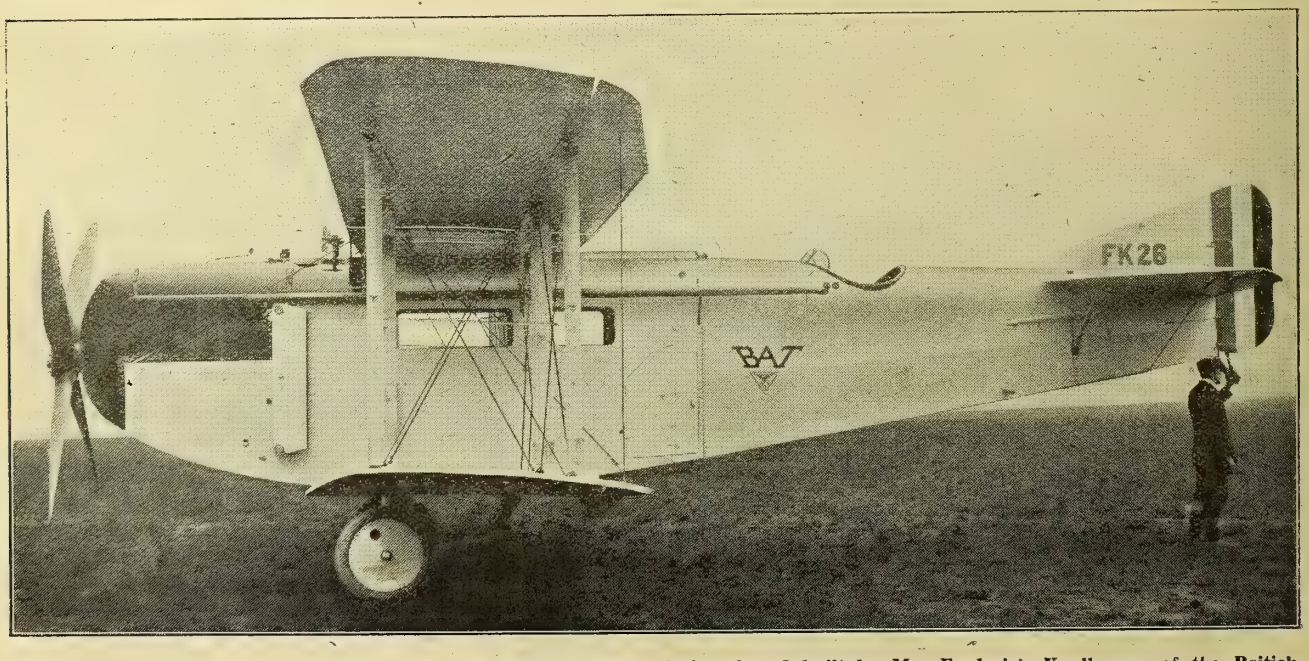
Lieut.-Col. Bristow, in an address, illustrated with lantern slides, gave a historical review of the development of aeronautics.

He remarked that it would be no easy matter to harness for commercial purposes the whole of the great organisations which had been built up during the war, and no doubt before the industry was finally established on a peace basis there might be very considerable changes. He thought it was a great mistake to be pessimistic about the future.

During the war British engineering skill and enterprise overcame far more difficulties in design and equipping war machines than were likely to be encountered in the establishment of successful commercial aircraft. From a practical point of view, therefore, the difficulties might be said to be non-existent, and within a very short time flights of unheard-of range and duration would take place all over the globe.

Commenting on a photograph of the Sopwith machine with which Mr. Hawker hopes to fly the Atlantic, he said some people might think that it was a very small machine for the purpose. The size of the machine, however, had no bearing on the question. If they could find a pilot weighing about one pound he could probably fly across the Atlantic with no more petrol than could be contained in the tank of a motor-car.

Brig.-Gen. Brooke-Popham said that people must not be disappointed if civil aviation did not begin with a tremendous bound. It would probably be a good many months, or even years, before



A REAL COMMERCIAL AEROPLANE.—The five-seater Bat, designed and built by Mr. Frederick Koolhoven, of the British Aerial Transport Co., which is one of Sir Samuel Waring's ventures. It is believed to be the first machine designed entirely for Commercial Aviation, and—*pace* General Brooke-Popham—it already exists, as the photograph shows.

they saw civil machines, designed purely for civil purposes, actually flying and in use.

There was still a vast field open for research in all branches of aeronautical science. Research work in aeronautics could not be looked upon altogether as a whole by itself. It was the intention of the Air Ministry that aeronautical research should be closely connected with other branches of research in this country. If they tried to develop research entirely from an aeronautical point of view, they would not be able to draw on all the resources available, all the various laboratories available in London, and the various universities.

He hoped a scheme would shortly be in operation whereby they would be able to advance aeronautical research hand in hand with research in other branches of science and industry. He hoped the research department, of which he had lately been appointed the head, would prove to some extent the successors of the pioneers who had laid the foundation of aeronautical science in this country. (Cheers.)

Lieut.-Col. Ogilvie did not think they could expect the rate of development of the last few years to be maintained. That rate had only been attained by the expenditure of an enormous amount of money. But, though some little time might be needed for the work, aviation would certainly take a permanent position in the business life of the community.

One of the obstacles to the use of aircraft for the general community was the fact that it was necessary for aeroplanes to run up a gradient. That gradient, which was once one in four, was now one in eight, and he thought within 10 years it would be one in 16. The flatter the gradient, the cheaper aerial transport would be. The present air machines were not sufficiently durable for commercial purposes, but by means of a metal design machines might be made to last four or five years. Fog was still a serious difficulty; it was not possible to land successfully in a fog.

Mr. J. Bain Taylor asked whether an aerial post, readily accessible to business men, could not be established. He had seen an aerial post-box in an American business men's hotel.

Lieut.-Col. Bristow said the circumstances in this country differed from those of the United States. When the time taken in collection and delivery formed a large proportion of the total time of transmission, the advantage of using the aeroplane was diminished. The establishment of a great scheme of postal service with the Continent was, however, under consideration. There would be a very complete postal service to France, Italy, Egypt, and even South Africa. It would be possible by this service to send samples and small packages.

Another member asked if at the present time a business man could fly from London to Manchester and then to Glasgow and return the same day.

Lieut.-Col. Bristow jocularly replied that it would depend upon the day chosen. If it were a Tuesday or a Friday and a visit were paid to the Exchange bar, he thought it probable that the journey would not be completed. If any other day were chosen he saw nothing to prevent such a flight being made.

THE TRANS-ATLANTIC COMPETITION.

The bad weather, it is alleged, is responsible for the failure of the various competitors to fly the Atlantic during the last week.

It would appear from the numerous reports that so certain are the Americans of success that they are "lining the route" with no fewer than 54 destroyers, not to mention some half-dozen light cruisers and various other craft, complete with ship-planes.

The Ardath Tobacco Company, Ltd., have achieved fame by the offer of an additional prize of 2,000 guineas for the trans-Atlantic flight.

False Weather Reports.

The sensation of the week occurred on April 23rd when those in Newfoundland were asked by the Air Ministry to explain the reasons of the failure of the Martinsyde and Sopwith pilots to start. The reply was that, owing to adverse weather reports the start had naturally been delayed. The Air Ministry meteorologists, who had reported the weather favourable, were unable to understand whence such reports had come, and so far as one knows nothing has yet come to light.

Newfoundland, not having directional wireless, apparently could not say whether the reports came from the South or the East.

The Air Ministry made the following announcement on April 24th regarding this phenomenon:—

Frequent statements have appeared in the Press during the past few days that there was an extraordinary divergence of views in England and Newfoundland regarding the weather conditions in the Atlantic. In some cases the suggestion has been made that the Air Ministry Weather reports were inaccurate.

It cannot be too strongly emphasised that the Air Ministry forecasts are framed in conjunction with the reports from the United States Weather Bureau, the Canadian Meteorological Office, the R.A.F. Meteorological Officer at Newfoundland, the Azores, the principal Meteorological Stations on the Continent, ships on the Atlantic route, and Home Stations. They take into account not only weather conditions existing along the Atlantic course, as notified by ships, but also show what weather may be expected according to the information available from the sources mentioned.

The weather statements, which are being sent by newspaper correspondents from Newfoundland, are entirely unofficial, and have not been in conformity with the information received at the Air Ministry. The R.A.F. Meteorological Officer at Newfoundland confirms this statement in a message received by wireless to-day in which he stated:—"No weather reports given by me to the Press. . . . Anything published is without my authority."

When the official weather bulletin is drawn up by the Air Ministry Meteorological Staff local weather conditions in Newfoundland, as furnished by the Meteorological Officer, are considered carefully; and it must also be borne in mind that the bulletin gives the conditions for the whole route information which is of the utmost importance to airmen proposing to undertake the flight. It may happen that although the local conditions are such as to make a start somewhat difficult, yet if these difficulties can be overcome it is possible that the flight may be successfully accomplished. Ideal conditions throughout the whole route, including both starting and landing points, are not considered as likely to occur frequently.

The latest message from St. John's, Newfoundland, states that "consternation was caused in the airmen's camp yesterday (Wednesday) by a message from the British Air Ministry asking the reasons for Mr. Hawker's and Mr. Raynham's failure to start on the Trans-Atlantic flight." It must be stated emphatically that no such message has been sent by the Air Ministry Meteorological Staff. They merely prepare the forecasts; it is not within their province to say that a machine should start. That is entirely a matter for the pilot and his navigator to decide.

The Selecton of Aerodromes.

The Air Ministry have selected Cape Broyle Harbour, south of St. John's, as their headquarters, and the start of the Porte triplane will be made from there. The Handley Page aerodrome is being made at Harbour Grace, and the machine is expected to leave Liverpool on April 29th by S.S. "Digby," of the Furness-Withy Line. An agent of Messrs. Boulton and Paul, Ltd., arrived at St. John's on April 21st to select a site for an aerodrome.

Another Short Flight?

Messrs. Short Bros. are now stated to be reassembling their seaplane preparatory to making a second attempt on the Atlantic Flight. It is stated by Major Sippe that the cause of the unfortunate descent of this machine into the Irish Sea was "most undoubtedly an air-lock which prevented the petrol from reaching the engine."

How Many Boats Make Five?

According to which of the daily news-sheets one happens to be so unfortunate as to read, the number of the American flying-boat competitor varies. The "Daily Mail" prefers N.C.2 or 3, but the other papers entered their choice of numbers from N.C.1 to N.C.5. The U.S. Government have not yet decided whether to use the Newfoundland to Ireland route or the route to Ireland *via* the Azores. It is stated that the machines may use St. Mary's Bay, St John's, as their headquarters. Anyhow, they appear to have sent a substantial draft of men to prepare things in Newfoundland. United States warships "Aroostok," "Baltimore," "Shawmut," and "Melville" are to be used in connection with the flight in a hitherto unstated capacity.

It is stated that the sheds in which the Martinsyde and Sopwith machines are kept are guarded during the day and night by men and dogs.

THE AMERICAN WAY.

According to a message from New York, a feature of the "Victory Liberty Loan" celebration in Washington was the reading of President Wilson's message from an aeroplane. By means of a wireless telephone and the newly invented sound amplifier a crowd numbering about 15,000 assembled on the Treasury steps heard distinctly the words spoken by an Army aviator flying at a height of 2,600 feet. The crowds cheered as the aviator concluded the message

MAJOR DE HAVILLAND IN SPAIN.

Major Geoffrey de Havilland, R.A.F., who is staying for a time in Spain, has flown from Madrid to Seville and back, a distance of 480 miles, in four hours. This, it is stated, is a "record" for the journey.

The machine used by Major de Havilland while giving exhibitions of flying was a De H.9 biplane with a 450 h.p. Napier engine. Major de Havilland is better known as the designer of the famous Airco machines than as an aerial exhibitor.

THE REORGANISATION OF THE UNITED STATES AIR SERVICE.

An official report received from Washington shows how the United States Air Service has been reorganised. Major-General Wm. L. Keney has been relieved of his rank as Major-General in the National Army and of his appointment as Director of Military Aeronautics, and has reverted to his rank as Colonel in the Field Artillery.

Brig.-Gen. Wm. Mitchell, who was Assistant Chief of the Air Service, A.E.F., and later Chief of the Air Service, 3rd Army of the Army of Occupation, has succeeded General Keney as Director of Military Aeronautics.

Major-General Charles P. Mencher, Director of Air Service, has announced the names of his staff. They are as follows:—

EXECUTIVE STAFF.

Executive Officer, Colonel Milton F. Davis, A.S., A.

First Assistant Executive, Colonel William E. Gillmore, A.S., A.

Second Assistant Executive, Major Horace M. Hickam, A.S., A.

Third Assistant Executive, Brig.-General William Mitchell, U.S.A.

Fourth Assistant Executive, Liuet.-Colonel William F. Pearson, A.S., A.

TECHNICAL ADVISORY STAFF.

Supply:—

Chief, Air Service Property, Lieut.-Col. Augustine W. Robins, A.S., A.

Chief, Air Service Procurement, Col. Chalmers G. Hall, A.S., A.

Chief, Air Service Matériels Inspection, Lieut.-Col. George W. Mixter, A.S., A.P.

Chief, Air Service Finance, Lieut.-Col. Alex. C. Downey, A.S., A.P.

Chief, Air Service Aeronautical Engineering, Col. Thurman H. Bane, A.S., A.

Training and Operations:—

Chief Air Service Training. (Detail to be announced later.)

Chief, Air Service Operations, Lieut.-Col. Lewis H. Brereton, A.S., A.

Chief, Air Service Gunnery, Lieut.-Col. Harold E. Hartney, A.S., A.

Chief, Air Service Communications, Col. Clarence C. Culver, A.S., A.

Chief, Air Service Balloons and Airships, Col. Charles DeF. Chandler, A.S., A.

ADMINISTRATIVE STAFF.

Chief, Air Service Personnel, Lieut.-Col. Rush B. Lincoln, A.S., A.

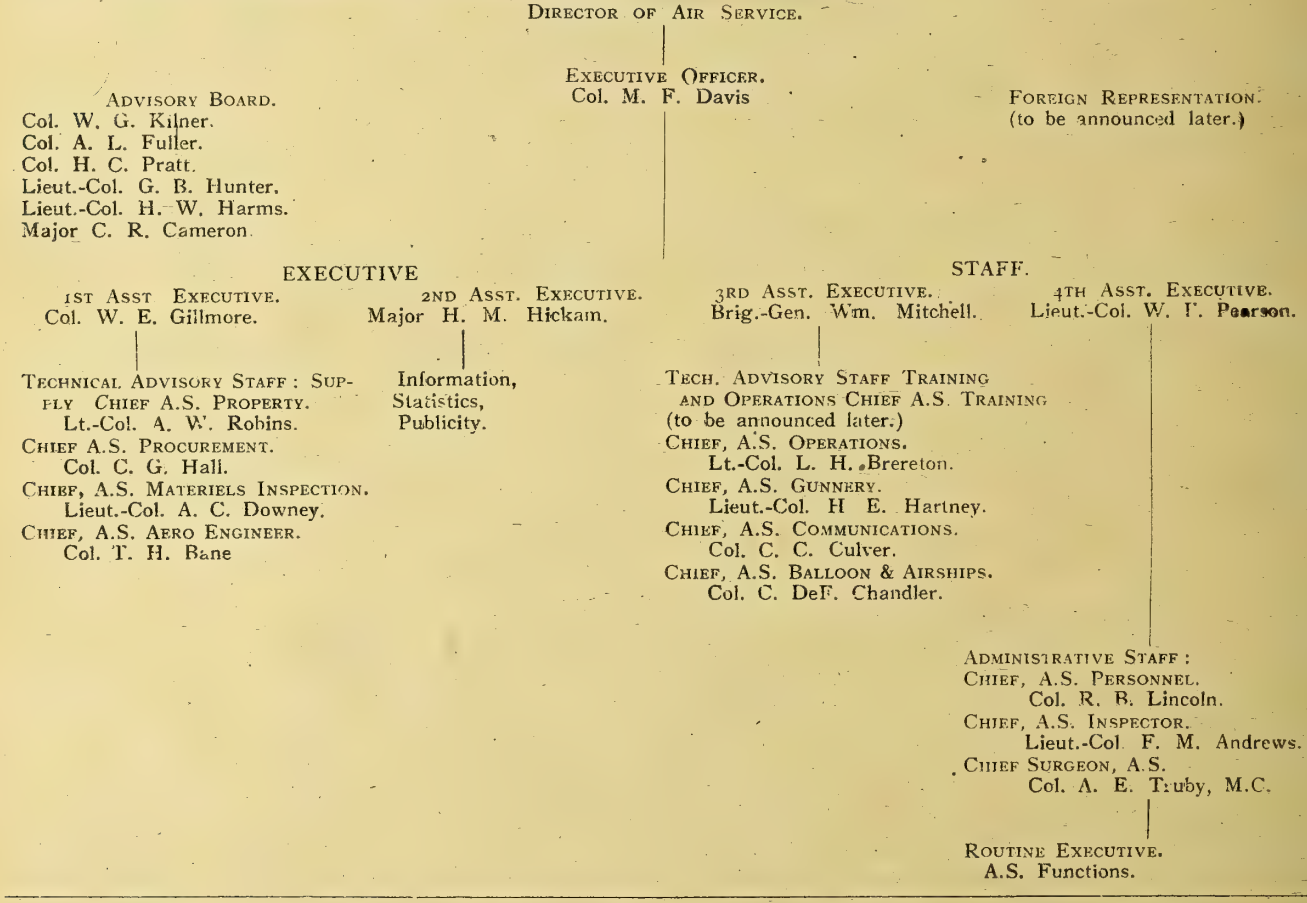
Chief, Air Service Inspector, Lieut.-Col. Frank M. Andrews, A.S., A.

Chief Surgeon, Air Service, Col. Albert E. Truby, M.C.

The following named officers have been designated as an Advisory Board, Air Service:—

Colonel Walter G. Kilner, M.A., A.S., A.; Colonel Arthur L. Fuller, A.S., A.; Colonel Henry C. Pratt, A.S., A.; Lieut.-Col. George B. Hunter, A.S., A.; Lieut.-Col. Henry W. Harms, J.M.A, A.S., A.; Major Charles R. Cameron, A.S., A., Secretary.

The following Chart explains the various functions of the Executive Staff:—



U.S.A. NAVAL AVIATION.

Although hostilities have now ceased, it seems very improbable that U.S.A. Service aviation in general, but Naval aviation in particular, will be neglected. Several Naval officers have lately put forward arguments in favour of a large Naval air froce which should appeal to the country as convincing. These statements are to be considered by the Committee on Naval Affairs of the House, who will, presumably, authorise the necessary financial appropriation for aviation purposes.

Capt. Steele, speaking in favour of a large Naval air force, recently addressed the Committee. He pointed out that the advisability of establishing a number of air stations on both the Atlantic and Pacific coasts had been under the consideration of the Navy Department ever since Naval aviation started. They have not, however, been put into operation during the period of hostilities because of the fact that the only nations on the western seaboard were allies, who might have misconstrued the object.

The Chairman of the Committee asked why a large Naval air force was now needed, as Germany would have to deliver up her existing aircraft and would not then, it was thought, be in a position to build many more. Capt. Steele replied that he was not considering that Germany was the only possible enemy.

Capt. Steele stated that it was estimated that $85,649,300 would be needed for Naval aviation. Which sum would be expended under the direction of the Secretary of the Navy for "procuring, producing, constructing, operating, preserving, stor-

ing, and handling aircraft; for the establishment and maintenance of aircraft stations, including the acquisition of land by purchase, donation, or condemnation; and for experimental work in the development of aviation for Naval purposes."

Capt. Steele pointed out that this estimate was made up of the types of machines which would most probably be required before the end of June, 1920. These are:—108 fighting escorts, at a cost of about $10,000 each; 54 large patrol machines, at $24,000 each; 54 small patrol machines, at $14,000 each; 108 fleet type machines, which have yet to be developed, at $10,000 each; and 300 school machines, at $6,500 each. Besides which, a general sum of $2,000,000, to be expended on experimental work for the development of heavier-than-air craft, was added.

For lighter-than-air craft, Capt. Steele estimated the requirements for the year at 560 kite-balloons, at $4,000 each; 114 twin-engine coastal airships, non-rigid type, at $75,000 each; 12 large non-rigid airships, at $250,000 each; 4 rigid airships, at $1,500,000 each; and 10 free balloons, at $25,000 each.

Further possible expenditure is as follows:—Instruments, including radio sets, $500,000; 100 winches for kite-balloons, at $3,000 each; operation of coastal stations, $8,000,000; expansion of coastal stations, $42,460,000; operation of training stations, $3,000,000; experimental work not otherwise covered, $3,000,000; for clerical, drafting and technical force, $300,000.

It is not known whether the fighting escorts are single-seater or two-seater machines, although the armament—four machine-guns and two light bombs—points to the latter. This type is called the Dunkirk type and attained a speed of 108 knots an hour when tried last year. Besides this, however, a machine designed and built by Mr. Kirkham, of the Curtiss Engineering Plant, which attained a speed of 140 knots an hour last year, is being experimented with, and may be used as a fighting escort.

The large patrol machines are the twin-engined tractor biplanes of the F5 type, which have a speed of 77½ knots an hour, armed with two 500-lb. bombs and four machine-guns.

The small patrol machines are the H.S.2 type flying-boats now in general servive. These are armed with two 230-lb. bombs and one machine-gun, developing a speed of 78.2 knots an hour. As previously mentioned, the fleet-type machine has not yet been developed.

The school machines for instructional purposes are the N.9 float type seaplanes, and small flying boats. Also, a number of JN.4 and Thomas-Morse types capable of operating either from the land or the decks of ships—will be put into commission.

The following stations have already been established; the figures denote the number of machines—all seaplanes—operating from each:—

Chatham, Mass., 24; Rockaway, Long Island, 24; Cape May, N.J., 24; Hampton Roads, Va., 24; Morehead City, N.C., 12; Brunswick, Ga., 18; Miami, Fla., 12; Key West, Fla., 24; Galveston, Tex., 24; Canal Zone, 24; and San Diego, 24. Of these, the stations at Morehead City, Brunswick, and Galveston, Tex., are under construction, but not yet completed. The establishment of a further number of stations has been recommended at Narragansett Bay, 24; St. Thomas, West Indies, 18; San Francisco, 24; Seaward, Alaska, 6; Pearl Harbour, Territory of Hawaii, 24; Hilo, 12; Port Apra, Guam, 12; and Cavite, 24.

It is expected that the most important accomplishments of Naval aviation for the year 1920 will be experimental.

It is proposed to use kite-balloons for observation purposes both at the stations and with the fleet. They will be located at the following stations, with the numbers as mentioned:—

Boston, 6; Narragansett Bay, 6; New York, 6; Cape May, 6; Hampton Roads, 6; Yorktown, Va., 12; Charleston, S.C., 6; Brunswick, Ga., 6; Key West, 6; Pensacola, 6; Galveston, Tex., 6; St. Thomas, 6; Port Angeles, 6; Columbia River, 6; San Francisco Bay, 6; San Diego, 6; Seward, Alaska, 4; Pearl Harbour, 6; Hilo, 6; Port Apra, 6; and Cavite,6.

For the twin-engined airships it is proposed to establish stations at the following places:—

Some point in New England, between Rockland and Portland, which has not yet been located, 4; Chatham, 2; Montauk, 4; Cape May, 4; Hampton Roads, 4; Charleston, 4; Miami, Fla., 2; Key West, 2; Port Arthur, 2; Canal Zone, 2, St. Thomas, 4; Port Angeles, Wash., 4; Columbia River, 4; San Francisco Bay, 4; San Diego, 2; Seward, Alaska, 4; Pearl Harbour, 4; Port Apra, 4; and Cavite, 4.

The large non-rigid airships are to be used for extended patrols, in conjunction with the fleet, and scouting purposes. The free balloons will be used for giving the airship and kite-balloon personnel a preliminary training.

The following is a summary of the estimated costs of construction of all stations proposed and recommended in the plan of patrol and protection, except the stations at Guantanamo, Samana Bay, and all the rest stations on the Pacific coast and Pacific Islands:—

Atlantic, Gulf Coasts and Caribbean Sea.

New England airship station	$1,175,000
Narragansett Bay seaplane and kite balloon station	$1,365,000
New York airship station	$2,250,000
Port Arthur airship station	$1,750,000
Sir Thomas airship and kite balloon station	$2,865,000
Canal Zone seaplane, airship and kite balloon station	$2,490,000
Lighter-than-air experimental station	$8,200,000
Expansion of existing station	$6,310,000
Total	$26,980,000

Pacific Coast, Alaska, and Pacific Islands.

Port Angeles airship and kite balloon station	$2,033,000
Columbia River airship and kite balloon station	$2,033,000
San Francisco airship, kite balloon and seaplane station	$3,250,000
Seward airship, kite balloon and seaplane station	$2,449,168
Pearl Harbour airship, kite balloon and seaplane station	$3,250,000
Hilo seaplane and kite balloon station	$975,500
Port Apra airship, kite balloon, and seaplane station	$2,726,500
Cavite kite balloon and seaplane station	$3,250,000
Total	$46,947,168

Besides these, it is proposed to establish twenty-five rest stations at various places. No estimate is given for these as there is, as yet, no certainty as to exactly what the stations will contain. It is, however, expected that they will consist of petrol, oil and water storage facilities, with road and telephone connection.

MEDICAL STANDARDS.

According to the "Evening News" the International Commission on aviation in Paris have laid down a definite medical standard for all pilots, civil and military. Four distinct tests must be passed.

Family History and Record, or Psychological Test: A searching inquiry into the pilot's antecedents. These invariably have a far-reaching effect on temperament.

Test for Mental Aptitude: Ingenious devices, including instruments to test the quickness of the brain will be used. The time taken from the action of the brain to the action of the hand can be measured to the hundredth part of a second.

Physical Test, and examination for any surgical abnormalities, such as wounds, etc.

Eyesight Test: A great majority of the crashes on landing are due to a visional defect. Heterophoria, or concealed squint, was found in many cases. By means of eye exercises this can be cured; during the war a special school for such cases was set up at Greenwich.

All pilots will be tested every six months for any signs of fatigue, and unless certified as absolutely fit, will not be allowed to fly.

Their licenses will be suspended for a period decided by the medical examiners.

At Croydon Aerodrome a special squadron is at work teaching all repatriated airmen prisoners to fly the latest types of machines.

The medical side of the squadron is in charge of Major T. S. Rippon, who has made a special study of airmen. His valuable data was used as a basis for the discussions in Paris.

[One presumes that by "airmen" the "Evening News" means Flying Officers.—Ed.]

FLYING FROM JUSTICE.

"One of the problems of the future," according to the "Times," "will be the effect which civilian flying will have upon crime and the escape of the criminals. In the United States arrangements have already been made for the training of aerial police, and the flying routes during the aviation meeting of the Pan-American Aeronautical Exposition will be guarded by the police next month.

"Aerial police will be required in all countries to prevent violation of the rules of the air, when flying becomes general, but a much more serious problem will be to prevent criminals escaping from the country by aeroplane. Customs authorities will undoubtedly deal with the aerial smuggler, and it is possible that the same authorities may be able to do something towards catching the criminal who is trying to get abroad by air.

"The man with nothing incriminating upon him, who is merely anxious to get away in order to secure his own personal safety, is a much more difficult case. It is not anticipated that many criminals will have their own aeroplanes for some time yet, but when aerial passenger services to the Continent become a regular thing they may be used by people anxious quickly to make their escape."

One would suggest that it might be more easy to trace a criminal who travelled by an aerial passenger service than one who attempted to escape by train, as for a long time the field of inquiry will be very limited.

BOOKS REVIEWED.

FLY-PAPERS.

A most appalling vertical gust, "rich-nourished," as M. Mortane would say, overcame "The Whip" as he found himself hung in mid-air at 3,000 feet on his first solo.

"Was the machine *never* going to stop climbing? *What* a a fool! Of course, the throttle. Here I was, three times as high as I was told to go, and all my own fault. Worse than that, I had been running the engine 'all out,' a heinous offence. Mentally cursing myself for my folly, I eased back the throttle lever and looked over the side, without any definite hope, and began searching the country for some open space on which it might be possible to land.

"As I looked, I almost shouted for joy. There, almost directly beneath me" (for the last half-hour it had eluded me with the diabolic perversity of a collar-stud) "was the aerodrome. Yes, those were the hangars and huts, those queer little things like dolls' houses. Thank God, I had found it at last! I pushed the nose of the machine down, pointing it at the aerodrome.

"Down, down I went. I was terrified of losing the aerodrome again, and scarcely dared risk taking my eyes off it. I did so only to steal occasional glances at my instruments. The wires first began to hum and then to shriek. I looked at the air-speed indicator. A hundred miles an hour—that would never do. I pulled the stick back, and in my excitement overdid it and nearly stalled the machine . . . essayed a gentle turn, keeping the aerodrome in view all the time . . . I calculated that I should touch the ground almost in the centre. . . . The time to flatten out was fast approaching.

"With a thumping heart and every nerve strained I watched the ground rushing up to meet me. Nearer and nearer it came—in another moment I would flatten out—now—Crash!!!! I had delayed too long. . . .

"The instructor surveyed the wreck sorrowfully for a moment, shaking his head, and then, turning to me, said: 'And I told you not to stunt. These loops on the ground simply aren't done by the best people.'"

That's what you might call a "slice of luck," and it is rendered more real by the brief account following of the hero's righteous indignation at the brother "Hun" who attempted to steal his nice splintered propeller. Quite rightly he told him to crash one for himself if he wanted a walking-stick.

"Fly-papers" (R. Ward & Sons, Newcastle-on-Tyne; 2s.), from which the above racy account is taken, is quite a jolly little book, being a series of war silhouettes which are none the less attractive for being unpretentiously written and sold at a moderate price.

Having, in Pyecroft's classic phrase, "bought an 'am," he proceeded to "see life," and at the outset of his career in the air nearly deprived us of these memoirs by wandering into a very pretty Hun trap. Far off he had watched what seemed to be a formation of our scouting machines doing an offensive patrol. They were being heavily engaged by anti-aircraft guns, and were diving and darting about along the ominous black bursts.

"So long as they are there," he thought, "we have nothing to fear." So he went hunting for photographs with a mind at rest. When a heavy barrage of Archie fire was put up to the westward of his machine he woke up to find himself the object of concentrated attention on the part of seven of those scouts which he had seen but a moment before being ringed by the fire of their own batteries. Richthofen & Co. had sprung their trap!

He manœuvred like a dragon-fly, "never doing the same thing twice in succession." "My observer," he writes, "was fighting magnificently. He was perfectly cool and collected, changing the ammunition trays with a speed and precision born of long practice, never wasting a shot, but by means of short, rapid burst of fire preventing the enemy machines getting very close. At last one of the enemy machines determined not to let us escape, dived close in and opened fire. A group of holes appeared in the wing close beside me, and my revolution counter flew into a thousand pieces. My observer's gun spoke, and the enemy's ceased. I caught a momentary glimpse of his machine as it went spinning down underneath me."

The rest of the Huns drove him down to 7,000 feet, but, laying Falstaff's maxim to heart, chose the better part of valour in the end.

There is a vivid silhouette of a German N.C.O. pilot who landed on the British aerodrome without his observer having shown fight, much to the puzzlement of the squadron. When they came to look in the observer's seat they beheld:

". . . in a drunken sleep, camouflaged as a gentleman, in the gorgeous mess uniform of a crack Prussian regiment, a splendid specimen of Prussian militarism. He was the very embodiment of his species, even to the stentorian blast from his nasal organ, which announced to the world his type. It appeared that the previous evening he had taken part in one of those drunken orgies of which the German Crown Prince is the high priest . . . the debauch had apparently lasted until well into the morning hours, and the recumbent gentleman had torn himself away just in time to crawl or be carried and dumped into the machine ready for the early morning reconnaissance."

In fact, he didn't make a very good impression.

There are many thumb-nail etchings in the volume, such as this:

"It is not a pleasant thing to see the phantom-like form of a huge shell flash smoothly, silently past a few feet in front of one's machine. You cannot hear it. The noise of the engine drowns the shriek, but one sees it almost as a spectre moving across the path of one's vision. . . . I have seen a machine suffer a direct hit.

"The effect on the mind is a peculiar one. At the time it is nothing like so disturbing a sight as seeing a machine brought down in flames, nor yet even of one crashing to the earth out of control. One moment one sees a machine cruising along in a perfectly normal manner; the next there is a blinding flash, a puff of smoke, and then—nothing. Everything appears just the same as before, except that the machine has disappeared, vanished from out the sky. It is difficult to realise that in one blinding flash two souls have gone to meet their Maker. . . ."

The author writes with a natural ease, tempered by an occasional spurt of gaiety, which renders his book an enjoyable interlude. In spite of the becoming diffidence with which he offers his entertainment, the volume is better worth while than many which have been noisily heralded; which goes to prove yet once more that the cardinal rule of writing is, "Have something to say, and say it."— R. H. Brittain.

OUR FIRST AIRWAYS.

[By Claude Grahame-White and Harry Harper. (John Lane, The Bodley Head. Price 6s. 6d. net.)]

The chief characteristic of this book is its obviousness. Upon reading it one receives the impression of having heard it all before, which may be owing to the fact that the book appears to be principally compiled from Mr. Grahame-White's recent juvenile lecture on commercial aeronautics, delivered before the Aeronautical Society.

One has it on the publishers' authority—*vide* the slip cover—that "this book, written by two experts who have studied aeronautics from its very inception, may be regarded as a standard work on air-way organisation, equipment and finance, and contains all the latest information as to this fascinating subject."

After such a statement what can one say? Especially as the writer has no wish to become an expert on commercial aeronautics, and is openly pessimistic as to the future thereof.

One disagrees with the extremely optimistic vein in which the book is written. The authors throughout appear to take it for granted that commercial aeronautics is an established fact, and that in the space of a few weeks—months at the most—"airways"—horrible word—will be in full working order, and aerial services will be running to all parts of the earth. When one stops to consider such admittedly unimportant drawbacks as the weather and the internal state of various countries on the most important overland routes, one wonders if this will be the case.

". . . neither wind nor rain would have any detrimental effect at all on the flight of the machine . . ." (p. 71). One merely asks whether the R.A.F. Aerial Peace Conference Mail have found this so.

The book abounds in obvious statements such as that to be found on page xi of the Introduction: "If it cannot be combined with safety and with an ability to fly regularly to a daily timetable, then the use of the air will always be irregular, and air services will be unable to compete with other methods of transport.

Nevertheless, the book should be well received by that section of the public for whom it appears to have been written, namely, the entirely uninitiated, or those with but a little knowledge of aeronautics. There is some quite good stuff in the book, and the language in which it is written assures it being understanded of the above-mentioned class.

The illustrations in the book are reproduced from drawings by Mr. Geoffrey Watson, several of which appear in the catalogue issued by the Grahame-White Company. This Company is at pains to let the readers know that "the pictures showing commercial and pleasure-type machines were produced by Mr. Watson from drawings prepared by the designing staff of the Grahame-White Company.

Particularly amusing is the picture facing page 78, showing a method of illuminating an aerodrome in fog. One wonders if the authors of the book, who are undoubtedly responsible for the idea incorporated in this picture, have ever experienced the effect of fog upon the searchlights at present available. Possibly they may have added to their other claims to fame by the invention of a new fog-penetrating searchlight, throwing a vertical beam. Certainly there is no such thing in existence, efficient though the British Army is.

Mr. Claude Grahame-White's many admirers will doubtless be pleased to learn that the frontispiece of the book consists of a studio portrait of Mr. Grahame-White.—S. F. B.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

Air Ministry, April 25th.

R.A.F.—The following temp. appointments are made at the Air Ministry :—Staff Officer, 2nd Cl.—(Air.)—Maj. R. M. Field, March 17th.

Staff Officer, 3rd Cl.—(Air.)—Capt. F. W Walker, D.S.C., A.F.C., March 24th.

Staff Officer, 4th Cl.—(P.)—Lt. B.H. Godfrey, March 5th

The following temp. appointments are made :—Staff Officer, 1st Cl. (P.)—Maj. (actg. Lt.-Col.) A. G R. Garrod, April 7th

Staff Officer, 3rd Cl.—(P.)—Lt. (actg. Capt.) D. W. Stewart-Saville, M.C., and to retain actg. rank of Capt. whilst so empld., Jan. 3rd.

Flying Branch.—Capt. A. J. O'Reilly to be actg. Maj. whilst empld. as Maj. (K.B.), Oct. 1st, 1918.

Lts. to be Lts. (O.) from (Ad.) :—J. L. Rowe, March 28th; J. F. Titmas, April 9th.

Sec. Lt. C. W. Harrison to be actg. Lt. whilst empld. as Balloon Comm. (K.B.), Oct. 19th, 1918. (Substituted for notification in "Gazette" of March 19th.)

The following relinquish their commns. on ceasing to be empld. :—Lt. B. E Gilbert (Lt., W Ont. R.), Dec. 14th, 1918; Sec Lt (Hon. Lt.) F. P. J. Travis (Lt., Quebec R.), Feb. 2nd; Lt. T. F Flanagan (Lt., E. Ont. R.), Lt. J. R. Rodger (Lt., Alb. R.), March 17th; Sec. Lt. (Hon. Lt.) T. C. Knowles, M.M. (Lt., Brit. Col. R.), Sec. Lt. (Hon. Lt.) S. Knight (Lt., Can. Rly. Serv.), March 19th; Lt. (Hon. Capt.) A. R. C. Morton (Capt., Brit. Co. R.), March 20th; Lt. W. Ridley, D.F.C. (Lt., Brit. Col. R.), March 25th; Sec. Lt. (Hon. Lt.) F. H. Allwood (Lt., Can. F. Art.), March 28th; Lt. (Hon. Maj.) (actg. Capt.) F. I. Tanner (Maj., Nova Scotia R.), April 14th.

The following are transferred to unempld. list :—Sec. Lt. A. R. Quirk, Feb. 1st; Sec. Lt. A. C. Macauley, Feb. 5th; Sec. Lt. G. N. Malcolm, Feb. 10th; Sec. Lt. W. H. Morrow, Feb. 14th; Sec. Lt. L A Clack, Feb. 15th; Sec. Lt. J. L. McPherson, Feb. 16th; Sec. Lt. W. J. Irwin, Sec. Lt. C. E. McKeen, Feb. 22nd; Sec. Lt. J. A Ellis, Feb. 24th; Sec. Lt. G. Stannard, Feb. 26th; Lt. C. E. Mayer, March 2nd; Sec. Lt D. Mallett, March 4th; Lt. H. K. Cassels, March 5th (substituted for notification in "Gazette," March 28th); Lt. F. S. Crossley, March 7th; Lt. G. W. Holderness, D.F.C., March 9th; Sec. Lt. H. Jackson, March 10th; Sec. Lt. J. McGrail, Sec. Lt. A. G. Wright, March 13th; Capt. (actg. Maj.) D. C. Miller, Lt. T. Rateliffe, March 15th; Lt (actg. Capt.) G. W. Ferguson, M.C., Lt. C. M. R. Prewett, March 18th; Sec Lt. R. O. Machin, Sec. Lt. C. Taylor, March 20th; Sec. Lt. R W. Mitchell, March 23rd; Sec. Lt. A. C. Mann, March 24th; Sec. Lt. D. Rodger, Lt A S. Travers, March 24th; Lt. J. Ditchfield, Lt. R. S. Milani, Lt. (Hon. Capt.) D. H. Rylands, Lt. W. L. Thomas, Sec. Lt. B. Troth, Capt H V. Terry, Lt. T. Terrell, D.S.C., Sec. Lt. W. Taylor, March 26th; Lt. A. L. Garrett, Lt. G. W. Manton, Sec. Lt. L. S. Macdonald, Lt. R. G. Mitchell, March 27th; Sec. Lt. C. A. Matthews, Sec Lt W. S. Ryeroft, Lt. J. E. Reid, March 29th; Lt. N. Goudie, Capt. A. G. McEwen, March 30th; Lt. C. A. Jefferson, March 31st; Sec. Lt. D. C. Macdonald, Sec. Lt. E. Mason, Sec. Lt K. R. Marsh, Capt. S. W. Taylor, M.C., Lt H. H. Thompson, April 1st; Lt (actg. Capt.) P. R. T. Chamberlayne, Lt. J. C. MacLennan, April 2nd; Sec. Lt. L. S. Elphick, Sec. Lt. D. L. Gould, Sec. Lt. (Hon Lt.) P. C. Hoyle (R.A.F.), Lt. R. I. Page, April 3rd; Sec. Lt. E. Beale, Sec. Lt. J. K. Grant, Lt. (actg. Capt.) A. R. McAfee, Sec. Lt. C. Macintyre, Lt. V. Norbury, Lt. F. C Robinson, Sec. Lt. C. E. W. Thresher, Maj. B. Travero, April 4th; Sec. Lt. A. G. Bailey, Sec. Lt. W. C. Marsh, April 5th; Lt. (actg. Capt.) J. W. Beebee, Sec. Lt. F. L. Hill, Sec. Lt. J. A. Kelynack, Sec. Lt. J. N. Mallam, Capt. B. B. Toms, April 6th; Sec. Lt. W. J. Collett, Lt V. G. Emery, Sec. Lt. F. W. Elliott, Sec. Lt. W. A. Ford, April 7th; Capt R. H. Ayre, Sec. Lt. (Hon Lt.) J. M. Craig, Sec. Lt. J. H. Cuthbertson, Sec. Lt. H. S. Chapman, Sec. Lt. W. H. Coghill, Sec. Lt. H. D. Cleveley, Lt. N. J. R. Macdonnell, Sec. Lt. E. Robinson, Sec. Lt. C. F. Temple, April 8th; Lt. A. K. Bamber, Sec. Lt. R. Burgess, Sec. Lt. C. C. Carlow, Sec. Lt. G. H. Enderby, Sec. Lt. T. D. Edgar, Maj. R. L. Farley, Sec. Lt. J. Grisdale, Lt. S W. Grant, Sec. Lt. J. Golding, Lt. E. L. McLeod, Sec. Lt. J. M. McLeod, Sec. Lt. (Hon. Lt.) W. R. B. Mann, Lt. (actg. Capt.) B. Monkhouse, Lt. (actg. Capt.) R. T. Mark, M.C., Sec. Lt. F. J. Reynolds, Sec. Lt. N. S. Todd, Lt. F. R. Waddington, Sec. Lt. E. E. Welby, Sec. Lt S Whittaker, April 9th; Sec. Lt. E. P. Blackmore, Lt. N. B. Eames, Sec Lt S. E. Foreman, Sec. Lt. C. S. Fowler, Sec. Lt. E. T. Griffiths, Lt. V. H. Legg, Sec. Lt. T. B. Lowton, Sec. Lt. A. F. Manton, Lt D M. Matthews, Lt A. P. Morley, Lt. F. R. Murray, April 10th; Lt. J. A. Beeney, D.F.C., Capt. F. S. Barnwell, O.B.E., A.F.C., Lt. C. Booth, Sec. Lt. H. Baldwin, Lt. C. D. Chapman, Lt E. C. Dickens, Capt J. V. McLean, M.C., Sec. Lt. (Hon. Lt.) F. D. V. Miller, Lt. C. Roberts, Sec. Lt. F. Reeday, Capt. G. R. Riley, Lt. G. H. Welsh, April 11th; Sec. Lt. T. Allan, Lt. A. V. Evans, Lt. (actg. Capt.) W Grossart, D.F.C., Sec. Lt. H. Millburn, Sec. Lt. C. J. Rae, Lt E. J. Withers, April 12th; Lt. A. E. Cambridge, Sec. Lt. G. S. Eby, Sec. Lt. G. G. Faulkes, Lt J. Farley, Capt. C. M. G. Farrell, Sec. Lt. M. Fearman, Sec Lt W A. Greene, Sec Lt. G. D. Gosnell, Sec. Lt. J L. Graham, Lt. G C. C Harris, Sec Lt C B Loomis, Sec Lt. J. H. McLeod, Sec Lt W. A. McKinnon, Sec. Lt. W J. McNab, Sec. Lt. R. P. McHaffie, Sec. Lt. J. A. Matthews, Capt A. S Mather, Sec. Lt. L. R. Mattern, Sec. Lt. J. M. Martin, Sec. Lt. N. C. MacDonald, Lt. (actg Capt.) E. F. McIlwraith, D.F.C., Lt. A. L. McLaren, Lt. T. B. Randall, Lt. G. K. Runciman, Sec. Lt T W. Rowlands, Sec. Lt. H. H. Towne, Lt. C. G H. Winter, April 13th; Sec. Lt. E. B. Marsh, Lt. W. E. Reynolds, Lt. G S. Ranshaw, Sec. Lt. R. J. Steele, April 14th; Lt. (actg. Capt.) J. E. H. Dakin, Sec. Lt. (Hon. Lt.) G. E. Davis, M.C., Lt. A. C. Goldsmith, Sec. Lt. G. W. Harvey, Sec. Lt. N. P. Hilton, Lt. F. G. Jones, Sec. Lt. C. Lawie, Sec. Lt. C. K. McArthur, Sec. Lt. S. B. Milner, Lt. L. B. May, Sec. Lt. F. S. McKechnie, Sec. Lt. M. C. McLeod, Sec. Lt. C E. Marrin, Sec. Lt. A H Maynard, Sec. Lt. W. G. Roberts, Lt. J A. Reeve, April 15th, Sec. Lt. L. S. Duffill, Sec. Lt. C. D. Davidson, Sec Lt. C. H Ford, Sec. Lt. W T Ganter, Sec. Lt. (Hon. Lt.) C. J. R. Gibson, Sec. Lt D McIntyre, Sec. Lt. (Hon Lt.) J. T. Rose, April 16th; Sec. Lt A. D. E. S Ades, Sec. Lt. R Davies, Sec. Lt. C. P. Durkin, Sec. Lt. G. A. W. Garland, Sec. Lt. A. J. Goodship, Sec. Lt. C. Kirkwood, Lt. A. J. Marsden, Lt. D. A. McKerron, Lt. R. N. McLean, Lt. D. W. McLeod, Lt. C. M. Martin, Sec. Lt. J. B. Risk, Sec. Lt. S. M Robins, Lt. G. Rodgers, Capt. L. H. Rochford, D.F.C., D.S.C., Sec. Lt. C. J. Thomas, April 17th; Sec. Lt. W. Cox, Sec. Lieut. R. F. Cathrow, Sec. Lieut. H. V. Cox, Lieut. R P. Greey, Lt (Hon. Capt.) (actg. Capt.) C. B Glynn, Sec. Lt C. B. Harold, Sec. Lt. E. Haskins, Sec. Lt. G. C. R. List, Sec. Lt. F G. C. Maggs, Lt. A. D. Pole, Sec. Lt. P. W. Ross, Lt. (Hon. Capt.) H. Rogerson, April 18th; Sec. Lt. L. S. Collard, Sec. Lt. D H. W. Cropley, Sec Lt. A. J. Elvin, Capt. S. J Fetherston, Lt. C. McM. Russell, Sec. Lt. C. C. Woods, April 19th; Sec. Lt. J. H. Laycock, Lt. L. A. Lewis, Lt. F. A. W. Mann, Sec. Lt. E. H. Rossington, Sec. Lt. R. A. Rutter, April 20th; Sec. Lt. S. V. Annis, Sec. Lt. A. R. Bloxham, Sec. Lt. H. C. S. Drake, Lt. S. G. Mawdsley, Sec. Lt. F. J. W. Miles, April 21st; Lt. (actg. Capt.) J. W. Aldred, M.C., Sec. Lt. L. Arnold, Sec Lt J. G. Cootes, Sec. Lt. F. Gandy, Lt. G. W. G. Gould, Lt. H. J Hudson, Sec Lt. J A Massey, Sec. Lt. H. M. Passmore, April 22nd; Lt. L. F. Lomas, April 24th; Sec. Lt. J Bromham, April 25th.

Maj. (actg. Lt.-Col.) J. A. Cunningham, D.S.O., D.F.C., resigns his commn. and is permitted to retain rank of Lt.-Col., April 26th

Sec. Lt. (Hon. Lt.) M. G. Robson relinquishes his commn. on account of ill health caused by wounds, and is permitted to retain rank of Lt. April 26th.

Sec. Lt. B. Digby-Worsley relinquishes his commn. on account of ill health contracted on active service, and is permitted to retain his rank, April 26th.

Sec. Lt. G. Roberts (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (A.) (July 7th, 1918) (substituted for notification in "Gazette," Nov. 26th, 1918).

Rank of Sec. Lt. A. Beck is as now described, and not Lt. (actg. Capt.) as stated in "Gazette," March 28th.

Initials of Lt A. C. Anderson are as now described, and not A. C. D as stated in "Gazette," March 7th.

Administrative Branch.—Lts. to be actg. Capts. while empld. as Capts. :—(Hon. Capt.) R G. Kitson, from (C.), May 18th, 1918 (substituted for notification in "Gazette," Jan. 24th); H. F. W. Bailey, July 20th, 1918; W. E. N. Growden, April 5th; M. J. Norton, from (A. and S.), Jan. 1st.

Lts. (A.) to be Lts. :—C. F. Palmer, Nov. 14th, 1918; C A. Jordan, Feb. 3rd; M. G. Begg, M.C., Feb. 18th; D. S Cairnes, March 3rd; I. R. V. Hill, J. M. Purcell, March 4th; R. A. Maddock, March 7th; H. Austin, March 14th; C. W. E. Browse, March 17th; A. Colley, T. P. L. Molloy, J. L. Sawyer, April 17th.

Lt. S. Wallingford to be Lt., from (A. and S.), March 12th.

Lts. (K.B.) to be Lts. :—A. J. Johnston, Feb. 17th (substituted for notification in "Gazette," March 14th); (Hon. Capt.) G. S St. Noble, March 6th; F. G. Taylor, March 11th.

Lts. (O.) to be Lts. :—J. St. G. George, Nov. 25th, 1918; A. Lomax, M.C., Nov. 28th, 1918; E. D. Warburton, Dec. 15th, 1918; J Y. Baird, Feb. 22nd.

Lt. J. W. Hustwaite to be Lt., from (S.O.), April 1st (substituted for notification in "Gazette," April 18th)

G. A. Miller (T./Lt., E Surr. R.) is granted a temp. commn. as Lt., July 18th, 1918, with seny. from April 1st, 1918.

Sec. Lt. H. T Joy to be Lt., Feb. 30th.

R. H. Walker (Sec. Lt., Essex R.) is granted a temp. commn. as Sec. Lt., and to be actg. Lt. whilst empld. as Lt., April 1st, 1918.

Sec. Lts. to be Sec. Lts., from (A.) :—C. S. Dunbar, Nov 6th, 1918; W. W. McBain, Dec. 3rd, 1918; A. Barrington, Dec. 16th, 1918; Wilson Campbell, Jan. 17th; H. S. Stidston, Jan. 23rd (and to be Hon. Lt.); J. Silvester, Feb. 4th.

Sec. Lts. to be Sec. Lts., from (A and S.) :—C. W. Irving, A H. Betteridge, April 4th.

Sec. Lt. P. Lovery to be Sec. Lt., from (K.B.), Jan. 3rd.

Sec. Lts. to be Sec. Lts., from (O) :—T. W. Hopley, Nov 29th, 1918; F. A. A. Hewson, Dec. 11th, 1918; F. H. Perry, March 1st; G. Storey, March 4th; M. G. Robson, M.C., April 3rd (and to be Hon. Lt.); J. T. White, April 4th.

The following are transferred to the unempld. list :—Lt. S. Hunter, Jan. 22nd; Sec. Lt. (Hon. Lt.) A. G. Thomson, Jan. 25th; Lt. (actg. Maj.) H. S. Quekett, Feb. 20th; Lt. R. R. F. Cookson, Sec. Lt. A. C. Thornitt, March 16th; Sec. Lt. E. A. Mann, March 17th; Sec. Lt. F. A. Mansueld, March 24th; Capt. C. V. Booth, Sec Lt. D. E. McIntosh, Sec. Lt. H. F. Tattersall, March 27th; Capt. W Hayward (S.O.), March 30th; Sec. Lt. G. I. Griffiths, March 31st; Sec. Lt. H J. B. Franks, Lt. (actg Maj.) A. C Rowden, Capt. W. E. E. Stone (Devon R.), April 1st; Lt. (actg. Capt.) A. W. R. Matthews, Lt. F. G W. Taylor, April 2nd; Sec. Lt. (actg. Capt.) J M. Allister, April 5th; Capt. J S. Michie, M.C., Lt. D. B Maitland, D.S.O., April 8th; Sec. Lt. W. I. Lee-Bird, April 9th; Sec. Lt. H. T Duke, Capt. J S. Leslie, April 10th; Lt. (actg. Capt.) R C. Ashfield (Black Watch), Sec. Lt. D Miller, Sec. Lt. A. G. Redstone, Sec Lt. W. H. Stanley, April 11th; Lt. T McGovern, April 12th; Sec Lt A N MacIntosh, April 13th; Sec Lt. G. L. Rawkins, April 14th; Sec. Lt. A. S. Mansfield, Capt. H G. Tweedie, April 5th; Capt. C S Godfard Lt D R Griffiths, April 16th; Sec. Lt C Robertson, Campbell, Sec Lt G Deacock, Lt G C. Hughes, Sec Lt F C Jones, April 18th Lt. H. V Hamilton, April 21st; Sec. Lt. J. MacLarty, April 22nd; Lt A H Jarvis, April 24th

Sec. Lt. O W. Owen resigns his commn., April 26th

The notification in "Gazette," Oct. 15th, 1918, concerning Lt O J Gauvier is cancelled.

The notification in "Gazette," March 25th, concerning Lt. G T Dunstan is cancelled.

The notification in "Gazette," March 4th, concerning Sec. Lt. (Hon Lt.) J. Cobley is cancelled

The notification in "Gazette," April 11th, concerning Sec. Lt E. Holt is cancelled.

The notification in "Gazette," Feb. 14th, concerning Sec. Lt. T. Whittaker is cancelled.

Technical Branch.—Capt. (actg. Lt.-Col.) H. A. P. Disney retains the actg. rank of Lt Col. whilst empld. as Lt.-Col., Grade (B) from S.O., April 1st.

Maj. (actg. Lt.-Col.) A Gleghorn to be Maj., Grade (A), and relinquishes the actg. rank of Lt.-Col. on reduction of estabt., April 3rd

Capt. A. Roberts to be Capt., Grade (B) from Grade (A), Jan. 22nd

Lt. (Hon. Capt.) O. M. Greg to be Lt. (Hon. Capt.), Grade (B) from Grade (A), Feb. 3rd.

Sec. Lt. F. H. Whitmore, D.S.C., to be actg. Lt. whilst empld. as Lt., Grade (A), Aug. 1st, 1918.

Lt. W. R. Exley to be Lt., from (Ad.), Jan. 1st

Sec. Lts. to be Sec. Lts., Grade (A) from (Ad.) :—R. F. Tummer, Nov. 18th, 1918; H. R. Stubbington, Nov. 25th, 1918 (substituted for notification in "Gazette," Dec. 24th, 1918).

Sec. Lts. to be Lts., from Grade (A) .—C. F. Soanes, Jan. 14th; J. Weeks, A. Sowden (substituted for notification in "Gazette," Dec 24th, 1918), Nov. 25th, 1918.

Sec. Lts. to be Sec. Lts., from (Ad.) :—E. Hennen, Jan. 11th; M. D. Hart, Jan. 17th.

Sec. Lts. to be Sec. Lts. from Grade (A.) :—C. F. Soanes, Jan. 14th; J. K. M. Dodds (Jan. 15th, and to be Hon. Lt.).

Sec. Lt. T. Lund to be Sec. Lt., Grade (B) from (A), Jan. 13th.

Sec. Lt. (Hon. Lt.) R. H. Hampton to be Sec. Lt., Grade (B) from (KB), Jan. 15th.

Sec. Lt. A. N. Goodwin (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., Grade (A), Sept. 10th, 1918.

The following are transferred to the unempld. list :—Sec. Lt. (actg. Capt.) C. H. Quelch, Feb. 1st; Sec. Lt. D. L. Morter, Feb. 8th; Sec. Lt. P. M. Maury, Feb. 11th; Sec. Lt. (Hon. Lt.) W. F. E. MacLaren, Feb. 13th; Capt. F. E. John, Feb. 21st; Lt. J. E. Jones, March 1st; Lt. J. E. Sierra, M.C., March 4th; Sec. Lt. H. S. Adams, March 6th; Capt. F. J. R. Macfayden, March 7th; Lt. D. Gordon, March 8th; Sec. Lt. (Hon. Lt.) W. G. N. Cutts, March 11th; Lt. D. O'B. Gill, Sec. Lt. (actg. Lt.) F. E. Miles, March 19th; Maj. T. E. Robertson, O.B.E., March 22nd; actg. Lt. J. F. Lannonby, March 23rd; Capt. J. W. W. Ashworth, March 27th; Sec. Lt. C. Groves, Sec. Lt. P. H. C. Martin, Sec. Lt. T. Mattocks, March 28th; Capt. (actg. Maj.) H. C. Mills, March 31st; Lt. E. H. Robinson, April 1st; Lt. T. W. King, Sec. Lt. (actg. Lt.) J. O. Furber, April 3rd; Sec. Lt. A. H. Denly, Maj. G. R. Moser, Maj. (actg. Lt.-Col.) J. Romanes, April 4th; Capt. H. B. Leach, Lt. T. R. Mayhew, April 5th; Sec. Lt. W. C. K. Dent, Sec. Lt. G. T. Kitts, April 6th; Lt. (actg. Capt.) B. Collbran, Lt. L. H. Gamble, Sec. Lt. R. Gordon, Capt. J. Gray, Sec. Lt. A. Jennings, April 7th; Sec. Lt. H. C. Baker, Sec. Lt. E. C. Cousens, Lt. E. W. Edwards, Capt. G. E. Thomas, April 8th; Lt. (actg. Capt.) W. M. Arnot, Lt. H. J. Ashwell, Lt. P. Brindle, Lt. T. G. H. Goodacre, Lt. G. H. Wilkinson, Sec. Lt. A. T. Welsh, April 9th; Sec. Lt. (Hon. Lt.) T. J. L. S. Boyd, Capt. J. B. Beal, Sec. Lt. J. Faux, Lt. B. R. S. Jones (S. Wales Bord.), Sec. Lt. G. J. Mayer, Capt. D. T. McLeish, Lt. J. C. Taylor, April 10th; Capt. C. L. Apps, Lt. R. A. Golden, Capt. E. Mansbridge, Maj. R. H. Mayo, O.B.E., Lt. A. H. Rayner, Sec. Lt. (Hon. Lt.) (actg. Capt.) F. E. Richardson, Lt. W. R. Trounson, April 11th; Capt. G. F. Cole, April 12th; Sec. Lt. F. A. Carter, Sec. Lt. C. Edwards, Sec. Lt. J. G. McK. M. Stronach, April 13th; Lt. (actg. Capt.) C. F. Gorringe, Lt. R. Rutherford, Sec. Lt. T. A. G. Strickland, April 14th; Lt. R. M. D. Fairweather, Sec. Lt. G. Forster, Sec. Lt. (Hon. Lt.) A. G. Green, Sec. Lt. (actg. Lt.) F. C. Topham, April 15th; Sec. Lt. (actg. Lt.) J. J. Mackenzie, April 16th; Lt. H. W. Robinson, April 17th; Lt. J. T. Borthwick, Sec. Lt. G. L. Chesterton, Lt. (actg. Capt.) J. N. Longfield, April 18th; Hon. Lt. H. B. Hurst, April 19th; Lt. M. G. Fountain, Capt. H. Le Jeune, M.C., Sec. Lt. G. H. Mewes, Sec. Lt. J. F. Richardson, April 21st; Sec. Lt. C. L. Champion, Sec. Lt. R. T. B. Wynn, April 22nd; Lt. W. K. Cannon, Lt. (actg. Capt.) A. Graham, April 23rd; Capt. J. Matthews, April 25th.

The following relinquish their commns. on account of ill-health :—Capt. (actg. Maj.) D. G. Nairn, O.B.E., (R.A.S.C., T.F.), Capt. B. May (R.W.K.R.), contracted on active service, April 26th.

Lt. J. R. Taverner relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, April 26th.

Sec. Lt. (Hon. Lt.) C. B. Swanstone relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., April 26th.

Sec. Lt. E. Holt relinquishes his commn. on account of ill-health, and is permitted to retain his rank, April 12th.

The notification in "Gazette," April 1st, concerning Lt. H. Gray is cancelled.

Medical Branch.—The following are transferred to the unempld. list :—Capt. T. Gibbins, March 28th; Capt. J. Allen, April 5th; Capt. W. M. Jeffreys, April 6th; Capt. L. C. Blackstone, April 8th.

Memoranda.—Lt. J. S. Flanagan to be Hon. Capt., March 31st.

The following are transferred to the unempld. list :—Lt. (actg. Capt.) J. A. Heather, from (S.O.), Feb. 4th; Capt. (actg. Maj.) G. C. Gold, from (S.O.), Feb. 11th; Capt. G. B. Anderson, Feb. 12th; Capt. W. C. M. Crothers (Suff. R.), from (S.O.), Feb. 25th; Capt. S. T. Ravenscroft, from (S.O.), March 30th; Maj. W. C. Michie, O.B.E., from (S.O.), March 31st; Capt. (actg. Maj.) W. H. S. Garnett, from (S.O.), April 1st; Lt. F. W. Austin, from (S.O.), April 12th; Lt. (actg. Capt.) A. Keiller, from (S.O.), April 15th; Capt. (actg. Maj.) P. G. Edge, O.B.E., from (S.O.), April 21st.

ADMIRALTY APPOINTMENTS.

The following appointments have been made :—

April 26th.—Commrs.—Q. M. F. Stokes, D.S.O., to "Pegasus," in command, April 24th.

R.N.R.—Mids. (temp.).—A. E. Bye, to "Vindictive," April 25th.

THE CASUALTY LIST.

MILITARY.

Reported April 29th.

Released Prisoner from Germany arrived in England.—MacIntyre, Lt. D. H., Arg. and Suth'd Highrs., attd. R.F.C.

AIR FORCE.

Reported April 28th.

Previously Reported Missing, now Reported Killed.—Webster, Lt. J.

Previously Reported Missing, now Reported Died of Wounds.—Nunan, Sec. Lt. N. D.

Died of Injuries.—Hutton, Lt. W. D. C.; Minors, Capt. R. T.

Died.—McCulloch, Capt. R. C. S.; Patey, Capt. H. A.

Wounded.—Mackenzie, Lt. K. L.

Cadet.—Killed.—Craig, A. C.

PERSONAL NOTICES.

NAVAL.

Death.

BATCHELOR.—Major Thomas A. Batchelor, D.F.C., R.A.F. (late R.N.A.S.), was killed in a flying accident at Andover Aerodrome on April 22nd. He was the husband of Una Batchelor, Glenlyon, Alexandra Road, Andover, and was 32 years of age.

Major Batchelor was at one time serving with the R.N.A.S. at Dunkirk. In an attack on the lock-gates at Zeebrugge, he descended to within 500 ft. of his objective, which was very well defended. Although he and his observer were wounded and his machine was hit in many places, he landed his Handley Page safely at Dunkirk. For this gallant feat he was awarded the D.F.C. He also commanded a squadron of night-flying aeroplanes in France.

The "Daily Express" says :—

"When a paymaster in the Royal Naval Air Service he invented one of the best devices for teaching bomb-dropping. This device was a mirror on which were many parallel lines. The mirror was placed on the white target and the course of the bomber was watched in the mirror through a small eye-piece, and was followed by a little metal pointer moved by hand across the surface of the glass.

"When the observer in the air considered the target was in line with his bomb-sight he fired a coloured light, and immediately the instructor would cease moving the pointer. By examining the position on the cross-line the instructor could tell by how many yards short or over, right or left, of the objective the bomb would have fallen. This device was very reliable and was in great request for the training of bombers."

Birth.

MURRAY.—On April 17th, at the Eyrie, Radlett, Herts, to Dorothy, wife of Capt. L. E. R. Murray, R.A.F. (late R.N.A.S.)—a son.

MILITARY.

Death.

FENTON.—Sec. Lieut. Alan Hughes Fenton, R.F.C., who was previously reported missing is now known to have been killed in an aerial fight on March 4th, 1917. He was the only son of Mr. and Mrs. James Fenton, Oldfield, Worple Road, Wimbledon, and was 22 years of age.

Engagements.

LUKE—YOUNG.—An engagement is announced between Captain T. Carlyon Luke, M.C., R.E., attd. R.A.F., elder son of the late Mr. E. Arnest Luke and Mrs. Luke, late of Clevelands, Bere Alston, S. Devon, and Enid Isabel, younger daughter of J. B. Young, B.A., late Indian Educational Service, and Mrs. Young, of 7, Trinity Place, Eastbourne.

TEMPEST—BEST.—An engagement is announced between Major W. J. Tempest, D.S.O., M.C., R.A.F., son of Mr. W. F. Tempest, J.P., of Ackworth Grange, near Pontefract, Yorks, and Camille Millicent, elder daughter of Mme. C. M. Best and the late Mr. J. P. Best, of Brussels and Antwerp.

Marriage.

McEWEN—SMEATON.—At Shere Church, Surrey, on April 23rd, a marriage took place between Captain Ian McEwen, 2nd Seaforth Highlanders and R.A.F., only son of Mr. John Forrester McEwen, of Villa Razzolini, Florence, and Miss Amethe Smeaton, daughter of the late Mr. Donald Smeaton, M.P., C.S.I., and Mrs. Smeaton, of Lawbrook, Gomshall. The Rev. F. C. Hill, rector of the parish, officiated, and the bride was given away by her brother-in-law, Colonel Monck-Mason.



AT NEWCASTLE: A "Super-Handley" getting off from the Exhibition Ground. "Rupert" is seen aloft in the back-ground.

LONGRIDGE—HOLLAND.—On April 23rd, at St. John Baptist, Knutsford, Captain Robert Begbie Longridge, 16th Lancers and R.A.F., younger son of R. Charles Longridge, was married to Alice Mary, only child of Captain the Honble. C. T. and Mrs. Holland, of Leamington, by the Rev. Wm. Armour and Canon T. J. Evans.

Births.

CHURCHMAN.—On April 27th, to Doris (née Greville), wife of Captain Allan Robert Churchman, D.F.C., R North Devon Hussars and R.A.F., of a daughter.

O'FARRELL.—On April 22nd, at 60, Fitzwilliam Square, Dublin, the wife of Major (act. Lieut.-Col.) E. H. O'Farrell, Royal Irish Fusiliers and R.A.F., of a son.

AIR FORCE

Deaths.

HUNT.—Lieut. Hunt, R.A.F., whose home is at Richmond Valley, was killed as the result of a flying accident at Ford, Sussex, on April 23rd. Mr. Hunt had only just left Ford aerodrome and crossed the railway lines when he appeared to have engine trouble, and the machine was seen to crash in a field. When assistance arrived the officer was found to have sustained terrible injuries, and death must have been instantaneous.

PACE.—A motor-car accident, which occurred at Hanworth on April 26th, caused the death of Capt. Pace, D.F.C., R.A.F., and serious injury to three other officers. Capt. Face was in the car with Major Hazell, Major Lloyd, Capt. Lloyd, and Capt. Jackson, all of the R.A.F. The car was driven by Capt. Jackson over Queen's River Bridge, on the way to Hounslow Aerodrome, when the officer saw a dog in the road immediately ahead. He suddenly diverted the car to avoid the dog, a tyre burst, and the car turned completely over twice and was wrecked. All the officers except Major Lloyd, who luckily escaped with only scratches and bruises, were seriously injured. The officers were taken to St. Mary's Cottage Hospital, Hampton. Captain Pace died on the following morning.

Marriages.

GRIFFITH—PARKINSON.—On April 21st, at Witney Parish Church, Capt. Edward Noel G. Griffith, R.A.F., son of Col. and Mrs. Griffith, Deanwood House, Cheltenham, was married to Maude Lyle (Bluebell), widow of Lieut. Reay Parkinson, R.N., only daughter of Capt. Hooper, Bishop's Stortford.

KELLY—D'ARENBERG.—On April 26th, at Bramshott Church, Captain Ignatius George Kelly, R.A.F., eldest son of the late David Frederic Kelly, Professor of Classics in Adelaide University, was married to Elia Francis, younger daughter of the late Arthur William d'Arenberg, Esq., by the Rev. Hugh B. Chapman, M.A., Chaplain of the Chapel Royal, Savoy, assisted by the Rev. E. H. Polehampton, M.A., Rector of the Parish.

MANGHAM-HESELTINE.—On April 14th, at St. Mary's, Balham, Lieut. Frank Roland Mangham, R.A.F., twin son of Harry Mangham, Esq., B.A., and Mrs. L Mangham, was married to Elsie Maud Heseltine, eldest daughter of the late W. J. Heseltine, Esq., and Mrs. Heseltine.

MELHUISH—HAILL.—On April 23rd, at St. Giles's, Camberwell, Lieut. Percy A. Melhuish, R.A.F., younger son of Mr. and Mrs. A. E. Melhuish, of The Cottage, Purley, was married to Mildred May, daughter of the late E. R. Haill, and Mrs. Haill, The Bank House, New Kent Road, S.E., by the Rev. C. W. Litting, Vicar of St. Luke's, Hornsey.

Births.

ANDERSON.—On April 22nd, at a nursing home, the wife of John Anderson, R.A.F., of St. Margaret's, Broomfield Avenue, Palmer's Green—a daughter.

GOLDSWORTHY.—On Easter Day, at Ballymore, Camolin, the wife of Lieut. E. C. Goldsworthy, R.A.F., of a son.

ROBERTS.—On April 18th, at 34, Albert Road, Regent's Park, the wife of Major E. J. Cyril Roberts, R.A.F., of a daughter.

* * *

Members of 41 Squadron R.A.F. are earnestly requested to communicate to G. Herbert Martin, Esq., 3908 Dewdney Avenue, Regina, Sask., Canada, any information available concerning the fate of Lieut. F. M. H. Martin, R.A.F., of 41 Squadron. He was reported missing on Aug. 9th, 1918. No information has reached his father since that date, and his parents are anxious to hear from anybody who knew him in the Squadron, or could tell them anything whatever regarding his disappearance, or who knew of the work he had done in the R.A.F. His last letter home was dated July 28th, and, naturally, his people desire very much to have news of his doings, and will be most grateful to anybody who will communicate with them.

* * *

Lieut. W. F. Mars, R.A.F., who left an aerodrome in Belgium on Tuesday last, April 22nd, has not been heard of since, and all efforts to trace him have failed.

He has been in the Royal Air Force for two years, and was considered a good pilot. It is thought that, during the stormy weather of the past week, he may have been driven out to sea, and have been picked up by a trawler or passing ship.

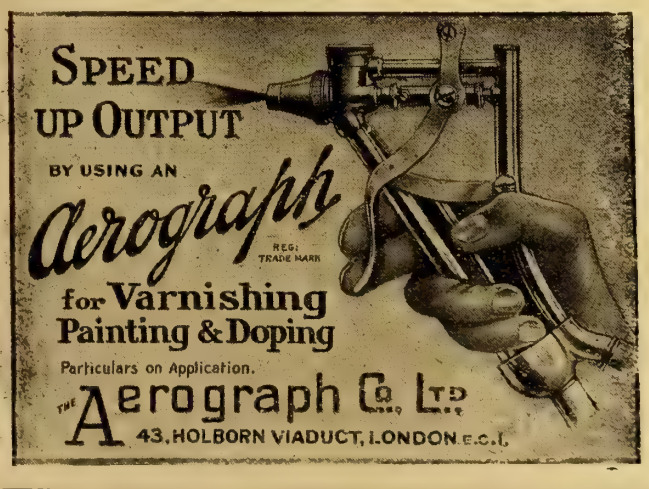
Any persons able to give information of the missing aviator are requested to communicate with his mother, Mrs. Mars, 32, Mowbray Road, Brondesbury, N.W.

* * *

An aeroplane piloted by Capt. Bowen, R.A.F., with Lieut. Alcock, R.A.F., as observer, was seen to be in distress while flying over Galway on April 22nd. The aeroplane managed to get over Galway Bay when the engine stopped. The machine then turned a somersault in mid-air, and dived nose first into the water. The observer jumped clear, but the pilot was unable to extricate himself in time, and was carried underneath the waves by the falling aeroplane. With difficulty he managed to scramble out, and joined his observer in a twenty-five yards' swim to the shore, which they reached in safety before a boat dispatched from the Naval Base immediately the mishap was observed, could arrive on the scene.

* * *

108th Sqd., R.A.F.—Any information concerning Lieut. C. A. Featherstone (pilot) and Sec. Lieut. F. Ovens (observer) will be gratefully received by Mr. Featherstone (Trinity House Pilot),



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The Nest, Stanley Road, Deal, Kent. The two officers were flying D.H.9 D.7342 and were seen to come down under control west of Roulers on Oct. 1st, 1918, when returning from a raid.

ATHLETICS IN THE R.A.F.

The programme on April 19th in the R.A.F. sports tournament in France consisted of the semi-final ties in the two football competitions.

At Rugby football the Engine Repair Shops beat 9th Brigade by 1 goal and 1 try (8 points) to 1 penalty goal and 1 try (6 points), and the 2nd Brigade beat No. 1 A.S.D. by 6 goals, 3 dropped goals, and 4 tries (54 points) to nothing.

At Association football the 2nd Brigade beat the 9th Brigade by 4 goals to 3, after extra time; and the Engine Repair Shops beat Headquarters by 5 goals to 1.

RUGBY FOOTBALL.

On Saturday, April 19th, Llanelly beat the R.A.F., at Llanelly, by 13 points to 10 points.

Swansea beat the Royal Air Force, at Swansea, on April 26th by 1 try (3 points) to nothing.

SWEDISH MILITARY TRIALS.

The Swedish Government acceded on April 25th to the request of the British Government for permission for two large British aeroplanes to enter Sweden to compete in some military trials.

AUSTRALIAN AERIAL DEFENCE.

It is now stated that the British Government is supporting the scheme of Australian Aerial Defence projected by the Commonwealth Government, and is offering as a gift one hundred quite modern aeroplanes to Australia. Four air stations will be established as soon as practicable, and the conditions of service and pay proposed are attractive.

A U.S. NAVAL FLIGHT.

On April 26th the seaplane F5 (?F-5-L), with a crew of four naval fliers, made a duration flight which is claimed by the Americans as a world's record. The machine started from Norfolk, Virginia, and flew for 20 hrs 10 mins., covering a distance of 1,250 miles. Her crew consisted of Lieut.-Comdr. H. B. Crow and Ensigns Delos, T. R. F. Souther, and Irvine. She had two Liberty engines. The crew claim to have travelled 2,000 miles, but this is unofficial, as indeed is the whole story.

AN AMERICAN FLIGHT.

It was recently announced in America that Major T. C. Macauley, U.S.A., A.S., had flown from San Diego, California, to Jacksonville, Florida, and back to Fort Worth, Texas, a distance of 5,500 miles, in 44 hours and 15 minutes actual flying time. Frequent stops were made en route.—[In "dry" territory, one hopes.—Ed.]

COLONIAL CADETS.

To the Editor of THE AEROPLANE.

Sir,—I am a flight cadet, a Colonial, and, therefore, a totally insignificant personality in the R.A.F. The foregoing will apprise you of the fact that I have a grouse to air.

If General Seely's word can be taken I was to get a temp. commission as from Feb. 12th, 1919, a £50 kit grant, and a first-class passage home. Need I say that these desirable conditions have not come into effect?

I graduated early in February "A," "B" and "C," and am wearing wings, but, when I applied for full flying pay (8s. per day), to which I became entitled on graduation, I was informed that 4s. per day was the full rate for a cadet, and they want to know when I ceased flying, in order that even the 4s. might be knocked off, leaving me with 7s. 6d. on which to live as an officer in a mess the other members of which draw three times my pay!

Probably I shall be sent home very shortly in the steerage—perhaps I should be delighted to get a passage in a cattle boat if it would get me away from the R.A.F. quicker, but that does not make the conduct of the Air Force Authorities any more justifiable.

J. R. L.

SELECTION OF FLYING MEN.

The following letter appeared in the "Times":—

Sir,—You have repeatedly pointed out in your columns that civil aviation must be made as safe as possible. Now there are three chief risks in aviation:—

1. Weather conditions, especially fogs and storms.
2. Mechanical defects in the machine.
3. Physical defects of the pilot.

There are, unfortunately, at the present moment no reliable data by which we can estimate flying risks, but there can be no doubt from the experience gained during the war that the physical condition of the pilot is of the greatest importance in minimising the risks of flying.

Pilots are now presenting themselves to insurance companies for civil aviation, having previously been employed in the Air Force. They are asked how many hours they have flown and whether they have had "crashes," and whether they feel fit at the present moment.

If they have had any "crashes" the premium is raised. No medical certificate is required as to the condition of the airman when he becomes insured; he may be quite unfit for flight, and all medical officers engaged in the examination of flying men would agree that little reliance can be placed on the opinion of the pilot himself with regard to his fitness.

It seems to me that the present haphazard selection of flying men is a great danger to the public and cannot be allowed to continue. The ordinary physical examination by which organic disease can be excluded is not sufficient; specific attention must be given to the functional efficiency of, for instance, the nervous system and cardiac-vascular system. Then again one examination is of little use; in three or four months' time the man may be quite unfit for flight.

There must therefore be periodic re-examination if civilian flying is to be a safe pursuit. The examination of entrants to the Air Force was thought by some to be absurdly severe, but, as a matter of fact, when the standards of fitness were applied to pilots of some experience, the quality of fitness demanded was found to be by no means too high. The public must look to the Air Ministry for a definite plan of action which will, as far as possible, ensure their safety.

Yours faithfully,

H. RONALD CARTER, late Captain, R.A.F.,
Kensington. Member of Aviation Candidates' Medical Board.

LORD WEIR ON INDIVIDUAL ENTERPRISE.

Lord Weir, speaking at Glasgow on Thursday evening, at a staff dinner of William Beardmore and Co., Ltd., said that he disagreed with those who contended that the Ministry of Munitions represented the greatest Socialistic enterprise ever undertaken, and that its success justified a fuller extension of State control and nationalisation of industry during peace time. He did not think a greater fallacy was ever conceived, in so far as the Ministry adhered to its policy of offering opportunities to, and to a certain extent assisting, manufacturers to realise their opportunities.

Success was achieved, but as a rule failure resulted from attempting to show industries how to do their own business. We went to war and beat the enemy because we gave full play, more or less, to individual enterprise against an enemy who fed his industries through a Government spoon and choked them at the finish.

JOY RIDING ON A LORRY.

Four young airmen stationed at Duxford were charged at Cambridge on April 25th with stealing an Army lorry. It was alleged that they drove away in it on Sunday morning and went to the Norfolk coast, stopping at Snettisham, near Hunstanton, where they got into difficulties through the lorry wheels digging themselves into the shingle.

They got the lorry on the road again on Monday morning but excited the suspicions of the police, who made inquiries. On Tuesday a police sergeant and a special constable jumped in the lorry to arrest them. But the airmen put them out of the car and drove to Fakenham and Denver. A cordon was drawn round the district by telephone, and the party were eventually arrested and conveyed to Cambridge.

The accused are First Airman Charles Brier Adams, 22, Second Airman Henry Beddard, 20, First Airman David Watson Armstrong, 20, and Second Airman John William Martindale, 20.

Martindale is alleged to have admitted to the officer who arrested him that they stole the lorry, and in excuse for escaping from the police at Snettisham said that the sergeant interfered with his driving, whereupon they put him out.

TO CANADIAN AVIATORS.

Canadians of all ranks in the R.A.F. who are interested in co-operation for military, commercial, and social purposes on their return to Canada are invited to write to "Canfly," c/o THE AEROPLANE, 166, Piccadilly, W.1, giving their names and addresses.

As stated last week, this has nothing to do with an employment agency, nor is it concerned with a register of pilots. It is merely an effort on the part of a Canadian officer, who is returning to Canada, to keep Canadian aviators in touch with developments and with one another.

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ON THE REGULATION OF CIVIL AVIATION IN THE BRITISH ISLES.

(PART I.)

On April 29th there was issued to the Press for publication on April 30th the long-attended "Order of The Secretary of State Under The Air Navigation Acts, 1911 to 1919," governing Civil Aviation within the British Isles. This appeared in the usual form of a Supplement to the "London Gazette" dated Wednesday, April 20th.

Simultaneously the Air Ministry issued a pamphlet entitled "Air Navigation Directions I," explaining quite lucidly the correct course to be followed by those affected by the Order aforementioned in obeying the various regulations.

Both documents may be had from stationers, booksellers, and the usual Government publishers, and all who are concerned with Civil Aviation are advised to keep copies by them for reference. At the same time it seems advisable to publish both documents in this paper simultaneously—though in serial form—so that those who are not so immediately affected by the Regulations as to need to have the documents constantly with them may be informed as to their contents.

One proposes throughout, for the sake of brevity and clearness, to refer to the Order Under the Air Navigation Act as the "Regulations" and to the explanatory Air Navigation Direction simply as the "Directions." The scheme which one proposes to follow is to give a section of the Regulations and to place immediately after it the section of the Directions which refers to it. Thereafter one will add a few comments where they may appear necessary.

As the Regulations are obviously subject to modification according to the experiences of those practising civilian flying, readers are cordially invited to criticise both the Regulations and the Directions, for such criticism is likely to be of interest and of use to the Air Ministry in framing future Air Laws. Such criticisms, if rational and likely to be useful, will be published in this paper for the enlightenment of the aeronautical community.

Let it be said as a preliminary remark that as they stand the Regulations and the Directions appear to be eminently reasonable. But the good or evil of Laws depend not so much in the laws themselves as in the application thereof. One's chief fear is lest aviation should be hampered by evil or foolish Government officials who may misconstrue these Regulations either to suit their own ends or because of their lack of sense.

Now that the actual fighting on the Continent is over one fears that we who are concerned with aircraft may find ourselves engaged in a Civil Aviation War no less bitter than that which was waged against the other Teutonic tribes. But that is another matter, which will come in its own bad time. For the present let us to our Regulations and Directions,

THE AIR REGULATIONS.

Here follows the text of the Regulations, as published officially:—

From the "London Gazette" of Wednesday, April 30th, 1919.
AIR MINISTRY, APRIL 30TH, 1919.

AIR NAVIGATION REGULATIONS, 1919.

ARRANGEMENT OF REGULATIONS.

REGULATION.

1. General conditions of flying.
2. Additional conditions in certain cases.
3. Reference to schedules.
4. Aerodromes.
5. General safety provisions.
6. Production of licences, certificates and log books for inspection.
7. Right of inspection of and access to aerodromes and factories.
8. Exceptions.
9. Foreign aircraft.
10. Penalties.
11. Power to cancel or suspend licences and certificates.
12. Interpretation.
13. Saving.
14. Short title.

SCHEDULES.

I.—Registration of aircraft.
II.—Licensing of personnel.
III.—Certificates of airworthiness for passenger aircraft and periodical overhaul and examination of such aircraft.
IV.—Registration and nationality marks.
V.—Log books.
VI.—Prohibited areas.
VII.—Rules as to lights and signals and rules of the air.
VIII.—Rules as to aircraft arriving in or departing from the United Kingdom.

Order of the Secretary of State under the Air Navigation Acts, 1911 to 1919.

In pursuance of the powers conferred upon me by the Air Navigation Acts, 1911 to 1919, and all other powers enabling me in that behalf, I, the Right Honourable Winston Spencer Churchill, one of His Majesty's Principal Secretaries of State, by order make the following regulations:—

GENERAL CONDITIONS OF FLYING.

1. No aircraft shall fly within the limits of the British Islands and the territorial waters adjacent thereto unless the following conditions are complied with:—

(1) The aircraft shall be registered in the prescribed manner:

(2) The aircraft shall bear the prescribed registration and nationality marks, affixed or painted on the aircraft in the prescribed manner:

(3) The personnel of the aircraft shall be licensed in the prescribed manner:

(4) There shall be carried in the aircraft—

(a) the certificate of registration; and

(b) the licence of any member of the personnel who is required to be licensed:

(5) The provisions of these regulations as to general safety, and the rules as to lights and signals and rules of the air, as set out in these regulations, shall be duly complied with:

(6) No mails shall be carried without the consent in writing of the Postmaster-General, and no wireless apparatus shall be installed or worked except under and in accordance with a licence granted by the Postmaster-General, containing such conditions as may be approved by the Secretary of State:

(7) The aircraft shall not fly over any prohibited area as defined by these regulations;

Provided that—

(a) the requirements of this regulation as to registration and as to the bearing of registration and nationality marks, shall not apply to aircraft built for the purpose of experiment, and flown for the purpose of experiment or test only, within three miles of an aerodrome or aircraft factory or in accordance with such directions (if any) as may be given by the Secretary of State; and

(b) the requirements of this regulation as to licensing of personnel shall not apply within the precincts of an aerodrome in the case of personnel under instruction or of aircraft flying for experimental purposes.

ADDITIONAL CONDITIONS IN CERTAIN CASES.

2. Without prejudice to the last foregoing regulation—

(1) A passenger aircraft carrying passengers shall not—

(a) fly within the limits aforesaid unless it has been certified in the prescribed manner as airworthy, and the prescribed conditions as to airworthiness, periodical overhaul, and examination before each flight are complied with, and all the prescribed certificates in relation to airworthiness are carried in the aircraft; or

(b) use as a regular place of departure or place of landing any place other than a licensed aerodrome, or a Royal Air Force aerodrome or aerodrome under the control of the Secretary of State approved for the purpose by the Secretary of State:

(2) A passenger or goods aircraft shall not fly within the limits aforesaid unless there are carried in the aircraft the prescribed log books, accurately kept up to date in the prescribed form and manner:

(3) An aircraft arriving in or departing from the United Kingdom shall comply with the provisions of these regulations applicable to such a case.

REFERENCE TO SCHEDULE.

3.—(1) The provisions in the schedules to those regulations shall have effect as part of these regulations, and shall be duly observed by all persons concerned in the cases to which they relate, that is to say:—

Schedule.	Subject matter.
I	Registration of aircraft.
II	Licensing of personnel.
III	Certificates of airworthiness for passenger aircraft, and periodical overhaul and examination of such aircraft.
IV	Registration and nationality marks.
V	Log books.
VI	Prohibited areas.
VII	Rules as to lights and signals and rules of the air.
VIII	Rules as to aircraft arriving in or departing from the United Kingdom.

(2) The Secretary of State may, if he thinks fit, issue directions for the purpose of supplementing or giving full effect to the provisions of the above schedules, or for any purpose for which provision is under these regulations to be made by direction of the Secretary of State.

AERODROMES.

4.—(1) No place in the British Islands shall be used as an aerodrome or as a regular place of landing or departure by passenger aircraft carrying passengers, unless it has been licensed for the purpose by the Secretary of State, and any conditions of such licence are complied with.

(2) There shall be kept exhibited in a conspicuous place at all aerodromes used for the landing or departure of passenger or goods aircraft, a tariff of charges in such form and on such scale as may be directed or approved by the Secretary of State.

(3) In the case of any contravention of or failure to comply with this regulation, the proprietor of the aerodrome shall be deemed to have acted in contravention of or, as the case may be, failed to comply with these regulations.

(4) This regulation shall not apply to Royal Air Force aerodromes or aerodromes under the control of the Secretary of State, the use of which has been sanctioned by the Secretary of State; provided that any directions of the Secretary of State as to the use of such aerodromes are complied with.

GENERAL SAFETY PROVISIONS.

5.—(1) An aircraft shall not fly over any city or town except at such altitude as will enable the aircraft to land outside the city or town should the means of propulsion fail through mechanical breakdown or other cause;

Provided that this prohibition shall not apply to any area comprised within a circle with a radius of one mile from the centre of a licensed aerodrome or of a Royal Air Force aerodrome, or of an aerodrome under the control of the Secretary of State.

(2) No person in any aircraft shall—

(a) carry out any trick flying or exhibition flying over any city or town area or populous district; or

(b) carry out any trick flying or exhibition flying over any regatta, race meeting, or meeting for public games or sports, except where specially arranged for in writing by the promoters of such regatta or meeting; or

(c) carry out any flying which by reason of low altitude or proximity to persons or dwellings is dangerous to public safety; or

(d) drop or cause or permit to be dropped, from the aircraft any article except ballast as authorised by the rules of the air as set out in these regulations.

PRODUCTION OF LICENCES, CERTIFICATES AND LOG-BOOKS FOR INSPECTION.

6.—(1) Any member of the personnel of an aircraft shall on demand produce his licence for the inspection of any persons authorised for the purpose by the Secretary of State.

(2) The owner and person in charge of any aircraft shall, on demand, produce for the inspection of any person authorised for the purpose by the Secretary of State, any certificates or licences relating to the aircraft, and also, in the case of passenger or goods aircraft, any of the prescribed log-books.

RIGHT OF INSPECTION OF AND ACCESS TO AERODROMES AND FACTORIES.

7.—(1) Any person authorised by the Secretary of State for the purpose shall have the right of access at all reasonable times to any aerodrome for the purpose of inspecting the same, or to any place to which access is necessary for the purpose of carrying out his powers and duties under these regulations.

(2) All aircraft belonging to or employed in the service of His Majesty shall have at all reasonable times the right of access to any licensed aerodrome.

(3) During the construction of a passenger aircraft any person authorised by the Secretary of State shall at all times during working hours have the right of access, for purposes of inspection, to that portion of the shops in which parts are being manufactured or assembled, and to drawings of the parts under inspection, whether at the works of the main contractor or of sub-contractors.

EXCEPTIONS.

8. These regulations do not, except where otherwise expressly stated, apply—

(a) to military aircraft belonging to or employed in the service of his Majesty; or

(b) to any aircraft or to any persons if and to such extent as such aircraft or persons may be excepted from these regulations, or any of them, by direction of the Secretary of State on the recommendation of a Government Department.

FOREIGN AIRCRAFT.

9. The provisions of these regulations as to—

(a) registration of aircraft;
(b) licensing of personnel;
(c) airworthiness;
(d) log books; and
(e) wireless apparatus;

shall not apply to foreign aircraft:

Provided that—

(i) no foreign military aircraft shall fly over or land in the British Islands or the territorial waters adjacent thereto except on the express invitation or with the express permission of His Majesty or of a Government Department, but any such aircraft landing on such invitation or with such permission shall be exempt from these regulations to such extent and on such conditions as may be specified in the invitation or permission; and

(ii) where any foreign aircraft, after first landing in the British Islands, flies over any part thereof except in such manner as may be necessary in order to proceed to a foreign destination, all the provisions of these regulations shall apply to that aircraft unless there are carried in the aircraft, and produced for inspection as and when required by the Secretary of State, certificates, licences, and log books issued by the responsible authority in the country to which the aircraft belongs, complying substantially with the provisions of these regulations, and unless (in the case of a passenger aircraft) the conditions of the aircraft from the point of view of the safety of the passengers and personnel correspond substantially with the particulars contained in the certificates produced.

PENALTIES.

10.—(1) Where any aircraft flies in contravention of, or fails to comply with, these regulations or any provision thereof, the owner of the aircraft, and also the pilot or commander, shall be deemed to have contravened or, as the case may be, failed to comply with these regulations:

Provided that it shall be a good defence to any proceedings for contravention or failure to comply with these regulations if the contravention or failure is proved to have been due to stress of weather or other unavoidable cause.

(2) If any person obstructs or impedes any person acting under the authority of the Secretary of State in the exercise of his powers and duties under these regulations, such first-mentioned person shall be deemed to have acted in contravention of these regulations.

(3) Any person contravening or failing to comply with these regulations or any provision thereof is liable to imprisonment for a term not exceeding six months or to a fine not exceeding two hundred pounds, or to both such imprisonment and fine.

(4) Any aircraft which flies or attempts to fly over a prohibited area is liable to be fired on in accordance with section two of the Aerial Navigation Act, 1913, and the provisions of these regulations relating thereto.

(5) If any person in any aircraft is guilty of any act of espionage to which the provisions of section one of the Official Secrets Act, 1911, apply, he is liable to penal servitude for a term not exceeding seven years.

POWER TO CANCEL OR SUSPEND LICENCES AND CERTIFICATES.

11.—(1) The licence of any member of the personnel of an aircraft, or the licence of any aerodrome, may be cancelled or suspended by the Secretary of State on sufficient ground being shown to his satisfaction, after due inquiry, and his decision shall be final:

Provided that in special cases the Secretary of State may suspend any such licence temporarily and provisionally pending the holding of an inquiry.

(2) Any certificate relating to the airworthiness of an aircraft may be cancelled or suspended by the Secretary of State if he is satisfied that reasonable doubt exists as to the safety of the aircraft in question, or of the type to which the aircraft in question belongs.

(3) Where any person is convicted of any contravention or failure to comply with these regulations in respect of any aircraft, the Secretary of State may cancel or suspend the certificate of registration of that aircraft.

INTERPRETATION.

12. In these regulations, unless the context otherwise requires—

"Aircraft" includes airships and flying machines, all balloons, whether fixed or free, and kites;

"Airship" means an aircraft lighter than air and having means of propulsion;

"Balloon" means an aircraft lighter than air and having no means of propulsion;

"Flying machine" includes aeroplanes, seaplanes, flying boats, and other flying machines heavier than air and having means of propulsion;

"Military aircraft" includes naval, military, and Air Force aircraft;

"Passenger aircraft" and "goods aircraft" means respectively aircraft intended for carrying passengers or goods (including mails), for hire or reward, and include respectively aircraft on which passengers or goods are actually so carried;

"Personnel" (in relation to any aircraft) includes any pilot, commander, navigator, and engineer, and any operative member of the crew;

"Aerodrome" means any definite and limited ground or water area intended to be used and capable of being used, either wholly or in part, for the landing or departure of aircraft;

"Proprietor of an aerodrome" includes any person responsible for the management thereof;

"Licensed aerodrome" means an aerodrome licensed under these regulations;

"Prescribed" means prescribed by these regulations or by directions of the Secretary of State thereunder;

"Prohibited area" means any of the areas referred to in Schedule VI. of these regulations;

"Secretary of State" includes, in relation to any purpose of these regulations, any person authorised by the Secretary of State for that purpose.

The Interpretation Act, 1889, applies for the purpose of the interpretation of these regulations as it applies for the purpose of the interpretation of an Act of Parliament, and as if these regulations were an Act of Parliament.

SAVING.

13. Nothing in these regulations shall be construed as conferring any right to land in any place as against the owner of the land or other persons interested therein, or as prejudicing the rights or remedies of any person in respect of any injury to persons or property caused by any aircraft.

SHORT TITLE.

14. These regulations may be cited as the Air Navigation Regulations, 1919.

WINSTON S. CHURCHILL,
One of His Majesty's Principal
Secretaries of State.

Air Ministry, London, April 30th, 1919.

So far as the matter of passenger-carrying and mail-carrying machines is concerned it hardly seems that anyone can have any serious quarrel with these Regulations. But there would appear to be a good deal of doubt about the position of private pilots, their aerodromes, and their passengers. The Regulations throughout seem to refer to pilots and machines carrying passengers for hire or reward. If they refer to private flying, then certain of the Regulations—as for example the licensing and inspection of aerodromes—are an interference with the liberty of the subject. If they do not refer to private flying then undue liberty is given to the private aviator, who, it seems, might loop down Piccadilly or loop round the Tower Bridge to the danger of the British Public without let or hindrance.

However, let us now proceed to the Schedules, which, unlike the first part of the Regulations, involve reference to the Directions:—



A Photograph of typical country in the neighbourhood of Gouda, Holland, taken from a Dutch Military Aeroplane, and published by courtesy of the Dutch Military Authorities.

THE SCHEDULES.

SCHEDULE I.

REGISTRATION OF AIRCRAFT.

1. Certificates of registration shall be granted by the Secretary of State, and upon registration there shall be assigned to the registered aircraft a registration mark.

2. The applicant, unless the Secretary of State in special cases otherwise allows, must be a British subject, or in the case of a body corporate must be registered and have its principal place of business in the United Kingdom.

3. Application for registration shall be made to the Secretary, Air Ministry.

4. The fee to be charged for registration will be one guinea.

5. Upon any change of ownership of registered aircraft, the certificate of registration shall lapse, but a fresh certificate may be applied for by the new owner.

The Directions are introduced by a short preliminary paragraph which, together with the Directions relating to Schedule I, reads as follows :—

AIR NAVIGATION DIRECTIONS I.
Air Navigation Acts, 1911-1919.

DIRECTIONS.

The Air Navigation Regulations, 1919, recently issued, provide for the issue of supplementary "Directions" as may be necessary, and the following Directions are accordingly notified for the information of all concerned :—

I.—REGISTRATION OF AIRCRAFT.

1. With reference to Regulations 1 (1) and Schedule I, applications for registration should be made to the Secretary, Air Ministry, London, W.C.2.

2. Application forms will be supplied on demand.

This calls for no comment, so we may now pass to Schedule II of the Regulations :—

SCHEDULE II.
Licensing of Personnel.

LICENSING AUTHORITY.

1. Licences shall be granted by the Secretary of State. Applications therefor shall be made to the Secretary, Air Ministry.

PILOTS.

2. A person applying for a pilot's licence to fly passenger or goods aircraft will be required to—

(a) pass a medical examination carried out under the control of the Secretary of State;

(b) produce a certificate of competency issued by the Secretary of State, or be qualified as a Royal Air Force pilot;

(c) submit proof of recent reasonable flying experience on the class of machine for which the licence is required, or failing such proof undergo practical tests.

3. A person applying for a pilot's licence to fly machines other than passenger or goods aircraft must either be qualified as a Royal Air Force pilot, or produce a certificate of competency issued by the Secretary of State.

NAVIGATORS.

4. A person applying for a licence to navigate passenger or goods aircraft will be required to—

(a) pass a medical examination carried out under the control of the Secretary of State;

(b) produce a certificate of competency issued by the Secretary of State.

ENGINEERS.

5. A person applying for a licence to be engaged as engineer on passenger or goods aircraft will be required to—

(a) pass a medical examination carried out under the control of the Secretary of State;

(b) submit proof of sufficient knowledge and experience in the management of aircraft engines;

(c) undergo, if necessary, practical and theoretical tests.

OTHER PERSONS.

6. Persons applying for a licence in any other capacity than those above specified must comply with such conditions as may be directed by the Secretary of State.

GENERAL.

7. Holders of licences may be required from time to time to undergo furtther medical examination carried out under the control of the Secretary of State.

8. Licences shall remain valid for the following periods :—

Pilots' licences ..... 6 months
Other licences ..... 12 months

and shall not be valid unless endorsed by the Secretary of State at those intervals.

9. The fee to be charged in respect of each licence issued and in respect of each such endorsement as aforesaid shall be five shillings.

In the event of any applicant being required to undergo such practical test as is specified in paragraphs 2 (c) and 5 (c) above, a further fee of one guinea will be charged.

Here again the Regulations seem reasonable. Though pilots may feel aggrieved at having to renew their licences every six months, it is in the interests of aviation that it should be so, for in no other way can a check be kept on the depreciation of a pilot's nerve, or on his behaviour as a public servant.

The Directions concerning this Schedule are of considerable interest :—

II.—LICENSING OF PERSONNEL.

1. With reference to Regulations 1 (3) and Schedule II, applications for licences should be made to the Secretary, Air Ministry, London, W.C.2.

2. Any member of the personnel of an aircraft, other than those specifically mentioned in Schedule II, can obtain on application to the Secretary, Air Ministry, particulars of the requirements for obtaining a licence.

3. Application forms will be supplied on demand.

Medical Requirements.

4. Every applicant before obtaining a licence as a pilot, navigator, or engineer of aircraft engaged in public transport will present himself for examination by specially qualified men appointed by or acting under the authority of the Secretary of State.

5. Medical supervision, both for the selection and the maintenance of efficiency, shall be based upon the following requirements of mental and physical fitness :—

(*a*) Good family and personal history, with particular reference to nervous stability. Absence of any mental, moral, or physical defect which will interfere with flying efficiency.

(*b*) MINIMUM AGE for pilots and navigators engaged in public transport shall be nineteen (19) years.

(*c*) GENERAL SURGICAL EXAMINATION.—The applicant must neither suffer from any wound, injury, or operation, nor possess any abnormality, congenital or otherwise, which will interfere with the efficient and safe handling of aircraft.

(*d*) GENERAL MEDICAL EXAMINATION.—The applicant must not suffer from any disease or disability that renders him liable suddenly to become incompetent in the management of aircraft. He must possess heart, lungs, kidneys, and nervous system capable of withstanding the effects of altitude and also the effects of prolonged flight.

(*e*) EYE EXAMINATION.—The applicant must possess a degree of visual acuity compatible with the efficient performance of his duties. No pilot or navigator shall have more than two (2) dioptres of latent hypermetropia; muscle balance must be good and commensurate with the refraction. He must have a good field of vision in each eye and must possess normal colour perception.

(*f*) EAR EXAMINATION.—The middle ear must be healthy. The applicant must possess a degree of auditory acuity compatible with the efficient performance of his duties.

(*g*) The vestibular mechanism must be intact, and neither unduly hypersensitive nor hypnosensitive.

(*h*) NOSE AND THROAT EXAMINATION.—The applicant must possess free nasal entry on either side, and not suffer from serious acute or chronic affections of the upper respiratory tract.

6. The successful applicant will receive a medical certificate of acceptance, which must be produced before the licence can be issued.

7. In order to insure the maintenance of efficiency, every applicant shall be re-examined periodically, at least every six months, and the findings attached to his original record. In case of illness or accident, also, a pilot, navigator, or engineer shall be re-examined and pronounced fit before resuming aerial duties. The date and result of each re-examination shall be recorded on the applicant's flying certificates.

8. No applicant who, before May 1st, 1919 has given proof of his flying ability shall, so long as he retains such ability, be necessarily disqualified because he fails to fulfil all of the above requirements.

9. Applications for medical examination should be made to the Secretary, Air Ministry, London, W.C.2.

Flying Certificates.

10. CERTIFICATES FOR PILOTS OF FLYING MACHINES :—

"A" Flying Certificate for private pilots (not valid for flying passenger or goods aircraft).

"B" Pilot's Flying Certificate for flying passenger or goods aircraft.

"A" Private Pilot's Flying Certificate.

(I) PRACTICAL TESTS.

In each practical test the candidate must be alone in the flying machine.

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Designers and Constructors of Aeroplanes and Seaplanes.

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Telephone—Central 80.44.

(*a*) Test for Altitude and Gliding Flight.—A flight without landing, during which the pilot shall remain for at least an hour at a minimum altitude of 6,000 feet above the point of departure. The descent shall finish with a glide, the engines cut off at 4,500 feet above the landing ground. The landing shall be made within 150 yards or less of a point fixed beforehand by the official examiners of the test without starting the engine again.

(*b*) Tests of Skill.—A flight without landing around two posts (or buoys) situated 500 yards apart, making a series of five figure-of-eight turns, each turn reaching one of the two posts (or buoys). This flight shall be made at an altitude of not more than 600 feet above the ground (or water) without touching the ground (or water). The landing shall be effected by :—

(i) Finally shutting off the engine or engines at latest when the aircraft touches the ground (or water).

(ii) Finally stopping the flying machine within a distance of 50 yards from a point fixed by the candidate before starting.

(II) Technical Examination.

(*a*) Rules as to lights and signals, and rules of the air.

(*b*) Rules for aerial traffic in the vicinity of aerodromes.

"B" Pilot's Flying Certificate for Flying Passenger or Goods Aircraft.

Goods Aircraft.

(I) Practical Tests.

In each practical test the candidate must be alone in the flying machine.

(*a*) The tests for altitude and gliding flight and for skill are the same as those required for a private pilot's Flying Certificate. Candidates already in possession of the latter certificate are not required to pass these tests again.

(*b*) Test of Endurance.—A cross-country or oversea flight of at least 200 miles, and the final landing shall be made at the point of departure.

This flight shall be carried out by the same aircraft within eight hours, and include two obligatory landings, during which the machine must come to rest, which shall not be at the point of departure, but shall be fixed by the judges.

At the time of departure the candidate shall be informed of his course and furnished with a map. The judges will decide if the course has been correctly followed.

(*c*) Night Flight.—A thirty minutes' flight at an altitude of at least 1,500 feet, made between two hours after sunset and two hours before sunrise.

(II) Technical Examination.

After satisfactory practical tests have been passed, candidates will submit themselves when summoned to examination on :—

(*a*) Flying machines.

(*b*) Engines.

(*c*) Navigation.

(*a*) Flying Machines.

Aeroplanes and Seaplanes.—Theoretical abstract knowledge of the resistance of the air in connection with planes, rudders, elevators, and propellers; functions of the different parts of the machine and their controls.

Assembling of aeroplanes, propellers, undercarriages, rudders, elevators and their controls.

Practical tests on rigging.

(*b*) Engines.

General knowledge of internal combustion engines, and their various functions; valve gear, carburation, ignition, exhaust.

Characteristics of aero-engines and a general idea of their construction, adjustment, and assembling.

Causes of the faulty running of engines. Fuel and oils. Description of the details of the aero-engines used. Adjustments, lubrication, upkeep, dissembling and assembling of the principal parts; causes of breakdown. Use of throttle and other controls.

Practical tests in running repairs.

(*c*) Navigation.

Knowledge of rules as to lights and signals, rules of the air, and rules for aerial traffic in the vicinity of aerodromes.

Practical knowledge of the special conditions of aerial traffic.

Map reading, use of compass, location of position.

Remarks.

The practical tests shall be carried out within a maximum period of one month.

They may be carried out in any order, and each may be attempted twice. They shall be witnessed by at least two properly accredited examiners who will hand over the official reports to the proper authorities.

The official reports will give full details of the flights, especially of the landings. The candidates shall furnish, before each test, proof of identity, which the examiners have the right to demand.

A barograph shall be carried on all practical tests, and the graph signed by the two examiners shall be attached to their report.

11. Certificate for Navigators.—The candidate must pass a theoretical and practical examination in the following :—

(A) Practical Astronomy.

True and apparent movements of the celestial bodies.
Different aspects of the celestial sphere.
Hour angles, mean, true, and astronomical time.
Shape and dimensions of earth.
Star globes and maps.
Methods of determining latitude, longitude, time, and azimuth.

(B) Navigation.

Maps and charts—how to read them.
Compass—magnetic meridian—declination, deviation, variation.
Courses—bearings—and their corrections.
Compensation of compasses (technical and practical).
Calculations of azimuth.
Flight by dead reckoning—measure of the relative speed—drift, traverse table.
Chronometer—chronometer rate—comparisons.
Sextants—adjustments.
Nautical almanac.
Determination of positions by means of bearings and altitudes of stars.
Knowledge of great circle navigation.
Aeronautical navigational instruments.

(C) General Knowledge.

International rules for aerial and maritime navigation.
Practical knowledge of international aerial legislation.
Good knowledge of meteorology and of weather charts.

It seems probable that these Directions will cause more agitation than all of the rest of the Air Laws put together. To the free and independent pilot, used only to the slip-shod methods of the R.A.F., the Medical Requirements will doubtless seem purely tyrannous. Why should he not have more than two dioptres of latent hypermetropia if he pleases? Surely he can make a hobby of collecting these interesting pets if he likes.

Nevertheless, the pilot must remember that he is a public servant, and that he must be physically fit for his job just like a railway-engine driver, who is subjected by his employers to regular periodic medical examination. One is only surprised that the State has for so long permitted drivers of other public vehicles, such as omnibuses and taxi-cabs, to operate without proper medical inspection. The Nose and Throat requirements seem ambiguous. Does the sentence marked (*h*) mean that *both* nostrils must be clear, or that *either* (*id est*, one or other) must be clear? It would be foolish to turn down a really good pilot because, owing perhaps to a nose smitten in anger when he was a youth, one nostril was permanently bunged up.

As a council of perfection the Medical Requirements are excellent, but in practice many first-class pilots who have never broken a wire suffer from ailments which would cause them to be rejected if the Directions were followed to the letter and not in the spirit. One only hopes that the official doctors will use intelligence as well as science, for if they do not they will force a great deal of unnecessary work on those Members of Parliament who are devoting themselves to helping the progress of British aeronautics.

The saving clause for existing pilots is that numbered 8, but even so the doctors seem to have been let loose to an undue extent in compiling the Directions.

Practical Tests.

The practical tests for both "A" and "B" Certificates are also likely to give rise to argument. The "A" test is certain to send up the fees of flying schools to a somewhat alarming extent, for the amount of tuition and practice necessary before a pilot can hit a 300-yard target from 4,500 feet is considerable, and a whole hour of flying, whether at 6,000 feet or 60, is going to add much to the cost of running the school.

The "B" test is even worse, for a firm will need a great deal of persuading before engaging a pilot, if it has to stand the cost of a 200-mile cross-country flight, and a night flight, before it can set him to work. Still, nobody is fit to pilot a public-service aeroplane unless



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he can pass such simple tests, so they seem to be inevitable. Presumably the war record of existing pilots will be accepted as proof that they have already passed such tests, and neither they nor their employers will have to go to the expense of doing it all over again.

The Technical Examinations may be either very easy or very sensible or very difficult or very idiotic according to the mental outfit of the Air Ministry examiners. If the examiners are chosen from among the sound practical men in France who won the war, all will be well. But if some of that wonderful combination of rogues and fools in the Technical Department—who very nearly succeeded in losing the war on various occasions—are allowed to intrigue themselves into good jobs as Technical Examiners then one can foresee a lot more work for those good Members of Parliament to whom one has already referred.

The proposed examination for Navigators' Certificates looks very terrible to an ignorant person like oneself, but here again, in all probability, the preceding remarks will apply.

THE NEXT INSTALMENT.

The next sections of the Regulations and Directions deal with the absorbing question of Certificates of Airworthiness, Periodical Overhaul and Examination. These subjects lend themselves to much discussion, so one proposes to leave them until next week.

(To be continued.)

GENERAL TRENCHARD'S RETURN.

Major-General Sir Hugh Trenchard, K.C.B., D.S.O., has now resumed his duties as Chief of the Air Staff, after having been absent for some months as the result of a serious illness.

This will be the best possible news to all who are concerned for the welfare of the Royal Air Force.

GENERAL SYKES' ACCIDENT.

All will learn with regret of the accident, involving the death of Capt. E. M. Knott, A.F.C., R.A.F., and the injury of Major-General Sir F. H. Sykes, Controller-General of Civil Aviation, which happened at Kenley Aerodrome on Saturday, May 3rd.

It appears that General Sykes was starting for Paris with Capt. Knott as pilot when the machine came down, whether owing to a side-slip or to engine failure is not known at the moment.

Kenley Aerodrome is one of the most dangerous in the country in the event of a forced descent while at an insufficient height in certain directions, as the only possible landing ground is on a steep hillside. One is told that this accident happened on that hill. Many pilots have alleged that this area should never have been taken over as a flying ground, and this accident seems to support their case.

It is generally rumoured that the accident was caused by the engine seizing-up because there was no water in the radiators. This absence of water has been commonly ascribed to *sabotage*, and it is said that the machine was prepared for General Seely, but that General Sykes took his place at the last moment. Personally one regards this talk of *sabotage* as mere idle gossip, but if it is proved that the engine was short of water one would not be at all surprised. Such carelessness would be quite in keeping with the lack of discipline and method in the R.A.F. of to-day.

All will be glad to learn that General Sykes is recovering quite satisfactorily from his injuries.

AN IMPORTANT APPOINTMENT.

The announcement has now been made publicly that Brig.-General Francis Festing, C.M.G., has been appointed Managing Director of Air Transport and Travel, Ltd., of which firm Mr. G. Holt Thomas is Chairman. It has been known for some time that General Festing was about to join Mr. Holt Thomas, but in what capacity was uncertain. Air Travel and Transport, Ltd., is to be congratulated on its new Director, and the R.A.F. will regret deeply his defection to civilian employment.

For the last three years or so of the war General Festing was chief personnel officer at R.F.C. H.Q. and R.A.F. G.H.Q. in France under General Trenchard and later under General Salmond. In the early days of the war, being an officer of the Northumberland Fusiliers, he served with the infantry and was badly damaged. Thereafter he was appointed to General Trenchard's Staff, where he won the highest opinions of all with whom he came in contact.

His charm of manner won the personal liking of his subordinates, and his sound judgment of men won the confidence of his seniors in rank. If one quotes correctly, it was said of Colonel Ward in South Africa that he was "the best Supply Officer since Moses." One may, perhaps, plagiarise that remark and say that General Festing is the best Personnel Officer since Aaron.

General Festing is essentially a soldier of the Old Army, and was naturally entirely out of sympathy with the Bolo House and all its works, therefore it is natural that he should leave it for a job where his unusual gift for handling men can be used to advantage. In his new capacity he will no doubt be able to do more to help the progress of aviation than he would in the Bolo House, but it is a thousand pities that the R.A.F. should lose him just when the very best men are needed to make it a force worthy of the King's Service.

However, he will, of course be available for the next war, and in the meantime tthe R.A.F.'s loss is a gain tto Civil Aviation.

INJUSTICES OF DEMOBILISATION.

It is quite time that a proper inquiry was made into the question of R.A.F. demobilisation. Those who want to get out find difficulty in doing so and those who want to stay in are being kicked out as discourteously as possible. The latest case concerns the officers of the Aircraft Acceptance Park at Hendon, which is being broken up so as to make room for Mr. Grahame-White and his aerial exhibitions.

A number of these officers signed on for the Army of Occupation some months ago, and were under the impression that they were definitely signing on for one, two, or three years as the case might be, and not that they were merely applying for temporary commissions. They have now received 28 days' notice to quit the R.A.F. They are not being given 28 days' leave on full pay in which to find a job, but they are to hang around for 28 days and then leave, without so much as a thank-you from the Bolo House.

They are all war pilots and most of them have been crashed or wounded. The only people, apparently, who are being kept on are the technical officers, most of whom, being technically trained men, could find jobs outside, whereas the pilots, being youngsters at the beginning of the war, have no means of earning a living.

If these officers are not wanted as pilots, surely it should be possible to make them technical officers on the strength of their experience as acceptance and test pilots, and to let the trained technical men go back to civil life, where most of them would prefer to be.

Another outrage on decency by the Bolo House is the case of disabled officers who have been doing Staff work at the Air Ministry Many of these officers are quite capable of doing the brain-work of their offices and have been doing it thoroughly well. Now the war is over, one learns that able-bodied civilians who have never served in the field are being brought into the Bolo House to replace them. And, to add insult to injury, the maimed and disabled officers who cannot earn a living outside are being compelled to teach their jobs to the able-bodied civilians who are going to take the bread out of their mouths. Can Boloism go any further?—C. G. G.

ANOTHER INJUSTICE.

An R.A.F. officer raises a comparatively minor point which, although perhaps of little importance during the war, is likely to be very much more important in the future, especially if the Air Ministry carries out its intention of raising the standard of living in the R.A.F. and lowering the rate of pay.

It appears that when mechanics are sent out from a station to attend to a machine which has been crashed some miles away, they are theoretically entitled to put in a claim for any reasonable expenses which they may incur while doing so. That is to say, if the job takes longer than was expected and no rations have been served out to them, they are entitled to buy food on the spot and to be paid for what it costs.

In practice it appears that the mechanics and N.C.O.s in charge of them generally meet with an official refusal to repay them these out-of-pocket expenses, with the result tthat so far as one can gather they very seldom put them in. The result is that as a general rule the unfortunate officer who, probably through no fault of his own and generally through the fault of the Technical Department in supplying him with a defective engine, has had to make a forced landing and so has been the cause of bringing the mechanics away from their station has to pay the men out of his own pocket for whatever they have spent, or as an alternative, has to pay the local hotel-keeper for whatever they have been eating and drinking. Naturally he has no claim to get his money back or, at any rate, if he does claim for it he does not get it.

The whole system is obviously wrong and it would be well if the Air Ministry would inquire into the matter and issue proper instructions.


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THE DEATH OF PETER LEGH.

Aviation the world over has suffered a grievous loss through the death of Peter Legh, late Flight Commander, R.N.A.S., who was killed in an accident at Finchley on Saturday, May 3rd.

Peter Legh started at 10.10 a.m. from the London Aerodrome at Hendon, flying a Bat " Basilisk " biplane, with a 300 h.p. A.B.C. engine in an attempt to beat the World's Height Record. At 10.25 the machine fell in flames on a summer-house in or near the grounds of Holy Trinity Vicarage, East Finchley. His body was found some hundreds of yards away from the machine.

The Rev. W. J. Ferrar, Vicar of Holy Trinity, stated that the machine caught fire in the air, and that when near the ground the pilot jumped from the machine. It was found afterwards that one side of Mr. Legh's face and his hands were burned, so it seems evident that, seeing the impossibility of landing the machine before the flames caused him to become unconscious, he jumped out when fairly close to the ground as a last hope, but that the height was too great and he was killed by the fall. How or why the machine caught fire can never be discovered, unless by some good fortune a similar accident happens to another pilot with the same engine and carburetter while near enough to the ground for him to escape death.

Peter Legh's death is another terrible indictment of those incompetent technical people who throughout the war have made no serious attempt to make fire in the air impossible. If half the labour and material which has been expended in merely getting more and more power out of ordinary engines had been put into experiments to produce a satisfactory aero-engine more or less of the Diesel type, using heavy oil which could not catch fire as petrol does, we should have been safe against fire in the air a year or two ago. And until such an engine is built we shall never be free from that danger.

Parachutes are merely a means of escape, they do not prevent fire. Jacketed petrol-tanks may help a little, but they are no guarantee. The heavy oil engine is the only safeguard, and we shall go on losing our best and dearest in wholly avoidable accidents until it is produced. That is the most important task of all which lies before the new Department of Research.

In this case the pilot could have been saved by a parachute, but he was out after the Height Record, so he would not have carried the extra weight, even if a parachute had been available. But this accident is another proof of the fact, so often pressed forward in these pages, that parachutes must be made compulsory in all passenger-carrying machines, just as life-buoys are compulsory on board ship. In the " Basilisk " every possible precaution had been taken against fire, and yet she caught fire. So it is evident that a means of escape must be provided in every machine, no matter how well guarded it may be.



PETER LEGH.

A Personal Memoir.

Peter Legh was the only son of Major the Honourable Gilbert Legh, late Grenadier Guards, younger brother of the Lord Newton. Peter learned to fly at Hendon before the war, and at the outbreak of war joined the R.N.A.S. After qualifying he served at Isle of Grain and at Whitley Bay, near Newcastle, at which latter station he did much night-flying on the inadequate machines of the period in search of raiding Zeppelins. Later he went to Dunkirk, where he was promoted to Flight Commander R.N., and was in a great deal of air fighting.

While serving there he was wounded and badly crashed, so on recovering he was released for civilian occupation as test pilot for the Armstrong-Whitworth firm at Newcastle, where Frederick Koolhoven was works manager. When Mr. Koolhoven was appointed to create and manage the British Aerial Transport Company—more commonly known as the Bat Co.—Peter Legh went with him, and between them they produced in a very short time what was undoubtedly the finest single-seated fighting machine of its period, the Bat " Bantam " with the 180 h.p. A.B.C. " Wasp " engine.

This appeared late in 1917, but despite the enthusiasm of all the experienced active-service pilots who flew it, or even saw it, the Air Ministry refused to put it into production. The refusal was as great a blow to Peter Legh as to Frederick Koolhoven, for he knew its capabilities—which those who refused it, being ignorant of war flying, did not—and he did some of the finest flying ever seen in his efforts to convince these officials of its excellence, and of their own foolishness.

In 1918 the Bat " Basilisk " was produced to meet Air Ministry specifications. It was not a commercial machine, as stated in the " Times " and " Telegraph." It proved to be the fastest machine in the world, its speed being over 160 miles an hour. Its climb was equally astonishing, and Peter Legh saw at last the prospects of proving to the world the errors of the Air Ministry. A series of test flights showed that he had any records he liked at his mercy. He started for the first of them, and we know the lamentable result.

One of the most experienced of R.N.A.S officers set down some three years ago a list of the half-dozen best pilots in the world, including such people as Roland Garros, Hucks, and Hawker, and he put Peter Legh among them (though he was then a very young pilot) because of his perfect judgment in handling an aeroplane. Thereafter Peter Legh became not only a much better pilot, but a splendid judge of aeroplane performance, design, and construction. When he took the Bat "Bantam" to Paris last summer the leading French authorities were astonished at his flying, and the late Roland Garros himself expressed his unqualified admiration of his skill.

Peter Legh and Frederick Koolhoven made a wonderful combination, for the pilot's absolute reliability and high judgment as a tester were a perfect guide for the designing and constructing genius of the engineer. So perfect was the understanding between them that the result was as if one man had been doing both the testing and designing. They were, as it seemed, critic and author in one.

If the pilot found that a machine had any peculiarity or trick in the air, the engineer at once spotted the cause and cured it. If the engineer wanted a test of any particular point of performance or handling, the pilot at once tested that point with as much intelligent comprehension as if it had been one of his own devising. In their work the two were as one mind, and their personal relations during the years in which they lived and worked together were of the kind from which the legends of great friendships have sprung.

The way in which those who know Peter Legh regarded him was quite unusual. Among the R.N.A.S. people with whom he served in his early days, among the people in the works at Newcastle and at Willesden, and among the R.F.C and R.A.F. people at Hendon with whom he spent much of his time latterly, he was not popular in the ordinary sense. It would be more correct to say that they all loved him. His quiet gentle manner won everybody's affection, but it concealed a firmness of will and intensity of purpose which won everybody's respect.

To those who knew him he was always " Peter." None ever thought of calling him by his surname. More often he was called " Little Peter," as a mark of affection. Yet the most experienced war pilots stood and looked on in respectful admiration when Peter was getting ready to fly and when he was in the air. He was essentially what the French describe by the untranslatable word *sympathique*.

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The first delivery by Air of Newspapers was undertaken by

BRITISH NIEUPORT

Our Organisation which has in the past been responsible for our success in design and production of NAVAL and MILITARY aircraft is now concentrating its energies on the development of Commercial Aircraft. Enquiries are therefore solicited from Governments, Companies, or individuals interested.

In his ways Peter was very young, and he had a childlike simplicity which made the contrast all the more astonishing when one found that he was extremely well read and held very pronounced views on all the subjects of the day. Which deceptive simplicity was perhaps the mark of his caste, for Peter was typical of those clean-bred, clean-living young aristocrats who made the British Army what it was before the war, who led it to victory in the war, and who, in their younger generations, may yet by that same simplicity and ability of mind make this nation again what it used to be before the stress of war and the machinations of politicians set almost everybody in their wrong place. After all these years of war one would expect to find our fighting men fairly hardened to the loss of their dearest friends, but never even before the war has one seen such genuine sorrow shown over the death of a man as was clearly to be seen at Hendon on the day Peter died. One hopes that it may be some small consolation to his father and mother, and to Peter's dearest friends, Frederick Koolhoven and his wife—his devoted companions in many strenuous years of motor-racing and flying—to know that so many of us grieve with them in the loss of Peter Legh, whom we knew and loved so well.—C. G. G.

THE ROYAL AERO CLUB.

THE ENTRANCE FEE AND SUBSCRIPTION FOR NEW MEMBERS.

In accordance with the Resolution passed unanimously at the Annual General Meeting of the Royal Aero Club on March 31st, 1919, the Subscription for Members elected on or after May 31st, 1919, will be £7 7s. per annum and the Entrance Fee £5 5s.

Committee Meeting.

A Meeting of the Committee was held on Tuesday, April 29th, 1919, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S.; in the Chair, Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. F. K. McClean, Brig.-Gen. E. M. Maitland, D.S.O., Lieut.-Col. J T. C. Moore-Brabazon, M.P., Lieut.-Col. Alec Ogilvie, and Mr. H. E. Perrin, Secretary.

Election of Members.

The following New Members were elected:—

Sec. Lieut. Archibald Henry Allardyce, R.A.F., Lieut. John Maxwell Poole Baird, R.A.F., Major Vernon Sydney Brown, R.A.F., Major Reginald Hugh Carr, R.A.F., Capt. Geoffrey Ernest Clinton, R.A.F., Harry Ernest Dale, Capt. William Forster Dickson, D.S.O., R.A.F., Paymaster-Lieut. Norman Stanley Douglass, R.N.R., Major Roger Martin Field, R.A.F., Lieut. Harold Fraser Game, R.A.F., John Granville Grenfell, Capt. Adolph Herbert Handman, R.A.F., Major Duncan Clive Mackenzie Hume, R.A.F., William Oscar Kennington, Johan Frederik Lebret, Capt. John Charles Liddle, R.A.F., Horace Gordon Lowe, Lieut. Francis Peabody Magoun, R.A.F., Capt. Thomas John Clement Martyn, R.A.F., Lieut.-Col. Derick Merens (Dutch Army), Major Thomas Baxter Milne, R.F.A., Capt. Samuel Eric Neal, R.A.F., Major Henry Andrew Robert Norton, R.A.F., Lieut. Cyril Eustace Prescott, R.A.F., John Herbert Redpath, Henry Herbert Reynolds, Major John Hunter Rutherford, R.A.F., Lieut. William George Sitwell, R.N., Capt. Reginald Noël Swann, R.A.F., Cyril Charles Teesdale Turner, Frank Ford Peregrine Walsh, Capt. Frederick James Watts, R.A.F., Lawrence Arthur Wingfield.

Election of Stewards.

The Stewards of the Club were re-elected as follows for the current year:—

The Earl of Lonsdale, Admiral The Hon. Sir Edward H. Seymour, P.C., G.C.B., O.M., G.C.V.O., Hon. Arthur Stanley, M.V.O., M.P., Sir Charles S. Henry, Bart., M.P., Lieut.-Gen. Sir David Henderson, K.C.B., D.S.O., Professor Sir John H. Biles, LL.D., D.Sc.

Technical Committee.

The following Technical Committee was appointed:—

Mr. Griffith Brewer, Lieut.-Col. D. Harries, R.A.F., Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. F. K. McClean, Brig.-Gen. E. M. Maitland, D.S.O., R.A.F., Major R. H. Mayo, Lieut.-Col. Alec Ogilvie, R.A.F., Lieut.-Col. Mervyn O'Gorman, C.B., Lieut.-Col. T. H. Tizard, R.A.F., Mr. Howard Wright.

Federation Aeronautique Internationale.

The report of the delegates (Lieut.-Col. Mervyn O'Gorman, C.B., Lieut.-Col. Alec Ogilvie, and Mr. H. E. Perrin) who attended the Conference of the Fédération Aéronautique Internationale in Paris on April 11th and 12th, 1919, was received.

A letter from the Fédération Aéronautique Internationale was read convening a further Conference of the Fédération to be held in Paris on May 19th, 1919, and the following delegates were appointed to represent the Club:—

Lieut.-Col. Mervyn O'Gorman, C.B., Lieut.-Col. J. T. C. Moore-Brabazon, M.P., Lieut.-Col. Alec Ogilvie, Mr. H. E. Perrin (Secretary).

The Secretary was instructed to forward several items for the Agenda, including the passing of World's Records for Aeronautical performances put up during the War.

"Daily Mail" £10,000 Trans-Atlantic Flight.

It was reported that the proprietors of the State Express cigarettes had offered an additional prize of 2,000 guineas to the winner of this competition.

The following additional entry was reported:—

The Alliance Aeroplane Co., Ltd.: 450-h.p. Napier "Lion" Engine. Pilot: Capt. W. R. Curtis, R.A.F.

WORLD'S AERONAUTICAL RECORDS.

The Fédération Aéronautique Internationale is the sole authority for granting World's Records for flying performances, and the Royal Aero Club is the Official representative of the Fédération for the British Empire.

The Fédération, being international, it has not been possible for any world's records to be ratified during the War, and consequently any statements which have been published as to world's records having been made during the War are not official and are likely to mislead the public.

With the resumption of civilian flying, the Royal Aero Club will be in a position to supervise attempts on records under the Fédération Aéronautique Internationale and the Competition Rules of the Royal Aero Club.

Any person wishing to claim a World's Record for a flying performance carried out since 1914 is particularly urged to forward particulars to the Royal Aero Club for verification and subsequent ratification by the Fédération Aéronautique Internationale.



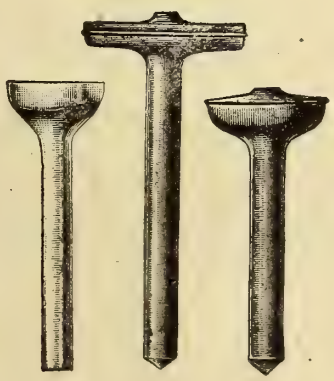
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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

Some Questions for the Bolo House.

It has been interesting to read the evasive answers given in Parliament to well-meaning inquirers who are anxious to know the truth about the deliberate destruction of serviceable machines.

Can a really sound reason be given as to why brand new D.H.9s should be taken out of packing cases, the engines hacked out of them and the machines destroyed?

Can a really sound reason be given as to why brand new "Camels" should be sent to Acceptance Parks, there to be burnt?

Is this waste being done to avoid future waste, or is someone gaining by the carrying out of contracts leading to the destruction of those contracts?

It makes one a little inclined to become frothy at the mouth when one knows that aviation is in its infancy still in Japan, South America, Spain, and the countries which have not advanced as we have in flying. It seems feasible to pass these machines on to those who require them for what they will fetch. But as long as our M.P.s are content to accept indirect answers the glorious orgy of expenditure will go on.

Congratulations.

Recently "The Snipe" pointed out in these pages that evening newspapers could be more advantageously distributed by means of aeroplanes than could morning papers. One is pleased to note that the London "Evening News" has been the first to adopt the suggestion. Mr. Sidney Pickles is the pilot of the Fairey (Rolls-Royce) seaplane which carries the papers from the Thames between Lambeth and Westminster bridges to the east coast.

A Great Discovery

A writer in the "Daily News" reveals the followiing discovery to the world:—

"If you go downstairs and grab the first man or woman of an average age whom you meet, the chances are that you can train him or her to fly.

"Flying requires the same curious kind of knack which riding a bicycle requires. It is a question of acquiring a particular sense of equilibrium."

Since the publication of the results of the author's researches it is understood that in future pupils at schools of aviation will undergo a preliminary test, in which they must show their ability to ride a bicycle without stalling or allowing it to nose-dive.

The Camera Cannot Lie, but——

The "Daily Sketch" recently reproduced a photograph entitled "Hawker's Trial Flight." Careful scrutiny reveals some interesting information. One had heard rumours to the effect that after leaving the ground Mr. Hawker intends to drop his undercarriage, but his method of attaching floats in mid-air has not yet been described. Clearly he must have discovered a means of accomplishing this because the photograph plainly shows the floats, and the journal describes the machine as a Sopwith seaplane.

One presumes, therefore, that Mr. Hawker has been practising the difficult task of leaving his aerodrome in Newfoundland on his land machine, substituting floats for the wheels during flight and alighting on the sea as a perfectly equipped seaplane.

Or is it possible that the "Daily Sketch" has found an old photograph of the Sopwith seaplane on which Mr. Hawker made his flight round Britain in 1913, and has brought it up to date by the simple process of calling it the trans-Atlantic machine?

Assurance!

The following story illustrates the abysmal ignorance of insurance companies regarding aircraft risks.

A certain aeroplane manufacturer telephoned to a company to ask what premium would be quoted to cover risks to an aeroplane during a one-day flight from London to certain Midland cities. The value of the machine was considered to be £2,000.

The assurance company promptly quoted £45 as the premium for one day. This so amazed the manufacturer that he thought it advisable to replace the receiver before he expressed his views.

On the following day the Company's representative rang up to say that the proposal had been reconsidered and that the premium would be not £45 but £15!

The manufacturer is now wondering what sum will be asked if he waits for a week.

What is a Pieutenant?

The following appeared in the "Times" on May 1st:—

"Starting next Saturday and continuing throughout the whole of next week daily, flights will be made from Messrs. A. V. Roe and Co.'s aerodrome at Hounslow. The public will be able to participate in the flights, a charge of 20s. per head being made. Avro five-seater machines, fitted with Le Rhône engines, will be employed. The pilots will be Captain Fagan, Lieutenant Park, Pieutenant Hastings, and Colonel Henderson."

It is understood that no additional fee will be charged for flying with the Pieutenant. One wonders, however, what this worshipful journal means by: "Starting next Saturday and continuing throughout the whole of next week daily." It causes one to ponder upon the fares that would be charged for flights continuing through the whole of next month weekly.

Aircraft at the Academy.

Evidently aircraft are forging ahead in the social world. At Burlington House there are several paintings devoted entirely to aerial subjects. And it seems to be quite the thing to dot an odd aeroplane or so in the background, just to let one know that the artist is up to date.

I saw a miniature even, a child's head, with a cloudscape background and an aeroplane over the right ear, and I am not sure it would not have been the best effort of the lot if the artist had left out the portrait part, as the clouds and sky are just as one sees them on a breezy day at 6,000 feet or so.

The picture which evidently impressed the artistic mind most, to judge from its prominent position, depicts a British photographic machine being chased back over the lines by a mass of, presumably, infuriated Huns. After much thought, I came to the conclusion that the said 'bus was a R.E.8, as the artist had got the exhaust pipes in the right place, but I will not back my opinion. Anyway, the pilot is having a lively time, surrounded by clouds, Archie bursts, and Huns, and apparently his fuselage has telescoped. I suppose it is an impression of the pilot's state of mind commonly known as "wind up." I give up trying to guess the species of Hun the artist had in mind; *he* wins that trick.

There is a good picture of ground strafing, but the machines are only a background for a German transport column thrown into confusion by bombs. It would have been a far more powerful scene if the aggressor had been a "Camel" using its machine-guns instead of these aeroplanes of uncertain type, which appear quite detached from the scene of action.

The finest study of aircraft to my mind is "The Channel Patrol," by Capt. C. E. Turner. One can hear the roar of the engines and feel the lash of the spray as one looks at the F.2a flying boat taking off. A picture of a U.S. destroyer picking up the crew of a sinking seaplane will recall pleasant memories to those who had the privilege of doing patrols on certain seaplanes with certain engines, neither of which I shall specify. The artist is equally discreet.

Other pictures of sea aircraft there are in plenty, but only one to which it is worth while to draw attention, namely, "The Avengers," a fine panorama of ships doing a sweep for a submarine, assisted by aeroplanes and seaplanes. The only quarrel I have with this artist is that he has got a battle-cruiser on the job. The "big ships" are not usually to the fore in an operation like this; they leave such unpleasant work to the R.N.R. However, he means well, and perhaps the battle-cruiser was the object of the submarine's attack.

There are several pictures of the surrender of the German Fleet, but unfortunately that event occurred in thick weather, and all the artists have forgotten that point. It is a pity, especially in the case of the gentleman who has inserted a Handley Page, and an airship like an N.S., but with the envelope of a Zero. The fog would have saved him a lot of mistakes.

One of the most striking portraits is that of the late Sec. Lieut. R. Morgan, of 55 Squadron, R.F.C., by Solomon J. Solomon, R.A., which will be of great interest to those who knew this officer. One picture I must mention, although it is not concerned with aircraft, is Lieut.-Commander Norman Wilkinson's "The Merchant Service." The artist was one of the prime movers in the development of dazzle painting, and this seascape with the solitary ship's lifeboat being shelled by a submarine is a splendid tribute to the men whom he helped with his art.—Ex-Pilot.


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The WORLD of AERONAUTICS (continued)

An Aeroplane for Sale by Auction.

An aeroplane was offered for sale by auction on April 29th at the Grahame-White Auction Rooms, Hendon. The machine was described as a Grahame-White Bantam (1919), a sporting single-seater aeroplane, fitted with 80-horse-power Le Rhône engine, speed over 100 miles an hour, landing speed 40 miles an hour, weight, empty, 640 lbs., and in splendid flying condition.

A bid of £100 was quickly followed by another of £200. After a pause the bidding went to £250, £300, and £350, and then, after a longer pause, £375 was bid. By bids of £25 the price rose to £450, but as there was a reserve on the machine of £500 it was then withdrawn.

It has been stated in the Press that this is the first time an aeroplane has been offered for sale by auction in England, which is pure rubbish, because many aeroplanes were sold by auction before the war.

200 Miles per Hour.

Major-General Seely, Vice-President of the Air Council, said recently to a represenative of the "Daily Mail," that the Government experts can see their way to 200 miles per hour with the present type of aeroplane, but for greater air speeds some type altogether different is needed with super-engines and new materials to withstand the strain.

"It is possible (he said) that the most extreme speeds, after all, will be found on land and not in the air. We have attained certain speeds and climbing ability—now we want flying to be made safe, certain, and convenient. A large sum will be spent by the Air Ministry in experiment and research along the lines indicated."

Apparently the lines indicated are not railway lines as the reference to "the most extreme speed" on land might lead some people to think.

To Canadian Aviators.

Canadians of all ranks in the R.A.F. who are interested in co-operation for military, commercial, and social purposes on their return to Canada are invited to write to "Canfly," c.o. The Aeroplane, 166, Piccadilly, W.1, giving their names and addresses.

As stated last week, this has nothing to do with an employment agency, nor is it concerned with a register of pilots. It is merely an effort on the part of a Canadian officer, who is returning to Canada, to keep Canadian aviators in touch with developments and with one another.

A Fatal Accident.

A fatal flying accident occurred on May 1st, at Stebbing, near Dunmow, Essex. The machine, a two-engined Vimy bombing aeroplane, was travelling from an aerodrome near Crayford, Kent, to Norwich. All the occupants were civilians, the pilot being Mr. James Dennis Chattaway, employed at Vickers' works at Crayford. He was accompanied by Mr. Walter H. Jones, foreman of the Vickers works at Crayford, Kent, and Mr. Harold James Geddes, also connected with the works.

Mr. Jones sat beside the pilot and Mr. Geddes occupied the cockpit behind. The starboard engine failed over Dunmow, and the pilot came down in a wheat field at Stebbing.

The aeroplane ran along the ground, crashed into a ditch, and was smashed. Mr. Geddes was thrown out on the wings, and escaped. The engine took fire, and the pilot and Mr. Jones were imprisoned in the wreckage. Mr. Chattaway was taken out injured, but alive. Mr. Jones was suffocated. He was a married man living at Dartford.

At the inquest on May 1st, at Stebbing, near Dunmow, on Mr. Walter Jones, Captain O. H. D. Vickers, for Vickers, Ltd., said the machine was being delivered to the Government at Norwich. The engines were of foreign make, and the landing skids had been removed to fit the aeroplane for landing on water. This was why the aeroplane went over on its nose.

All-Metal Aeroplanes.

Readers are reminded that on Wednesday next, May 14th, Capt. A. P. Thurston, D.Sc., R.A.F., will deliver a lecture to the Royal Aeronautical Society on the use of metal in place of wood in aeroplane construction.

The lecture will begin at 8 p.m., and will be given at the Royal Society of Arts, John Street, Adelphi—close to Charing Cross Station. As metal construction has now advanced to the stage of equalling wood in weight and local strength, and surpassing it in constructional strength, all who are concerned with the use or construction of aircraft should make a point of attending the lecture.

In this connection readers are referred to the remarks of Lieut.-Col. Ogilvie and of Mr. J. D. North, which appear in the *resumé* of the latter's lecture on page 1836 of this issue.

Tickets for Capt. Thurston's lecture may be had gratis from Mr. W. Barnard Faraday, the Royal Aeronautical Society, 7, Albemarle Street, W.1.

Demobilised.

Dr. Yorke Davies, having been demobilised from the Royal Air Force Medical Service, has returned to 44, Harley Street, S.W.1.

A Criticism of Swedish Machines.

The Secretary of the Swedish Aeronautic Society, M. Tersten Gullberg, who was one of the Swedish judges at the flying competition at Copenhagen, has returned to Stockholm. In an interview he said he had met several British, French, and German aviators in Copenhagen who praised the Swedish machines, especially as regards their strength and finish. With regard to variety of types, however, the Swedish machines were considered to be not sufficiently up-to-date.

Brains v. Superficial Smartness.

The following letter has been received:—

Sir,—I have just been reading the article by "The Snipe." It seems to me that his are rather biased views of the other extreme.

Of course, as you know, my views on discipline are rather on the principle that it is a damned good thing and it should be instilled into everyone—except myself. However, I make the proposition to "The Snipe" for the ten thousand and first time that in ninety cases out of a hundred the efficiency of a station does still, and always will, depend on its smartness on parade.

Take a station, for instance, run by ———, late of one of the big flying schools, who is probably one of the greatest exponents of the "Boom" traditions.

If you dared to walk up to him instead of doubling when he sent for you your life wouldn't be worth a 2 c. Yet I remember him saying once at Shoreham that he hated to see an officer in the sheds with a spotlessly clean tunic nearly as much as seeing one in Brighton with a dirty tunic.

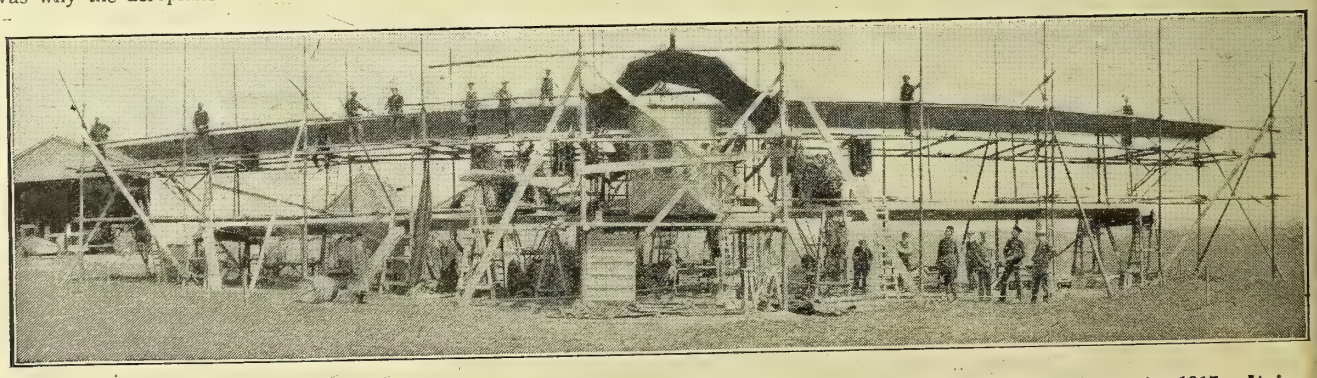
Personally I loathe him, because I, as usual, got up against him, but I would set him up as my model of efficiency and discipline if ever I proposed to be a R.A.F. general.

Of course, you do get some C.O.'s, adjutants, and serjeant-majors who have got no idea of the proportion in which military discipline and technical efficiency should be doled out.

Look at the name the R.F.C. had before the war and look at the R.A.F. now. It has tons of technical efficiency and merely ounces of military discipline, and it is that lack of saluting which gives to the R.A.F. its present contemptuous name and enables George Robey to get his best laugh of the evening by remarking that he has no vices, doesn't smoke or drink, and hasn't a friend in the Air Force.

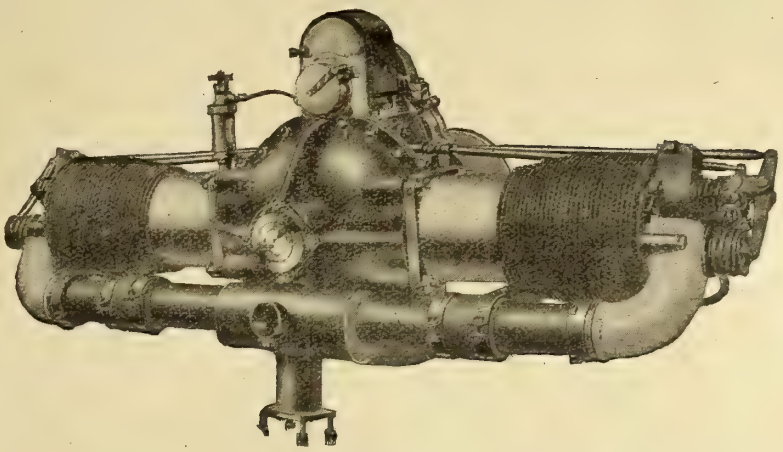
Supposing you flew over to another aerodrome for lunch and told a mechanic to have your machine filled up. If that mechanic gave you a hell of a good salute you could bet your life the machine would be ready when you got back. If he merely looked at you and perhaps touched his cap and mumbled to himself nine cases out of ten when you came back nothing would have been done.

(Signed) Demobbed.



THE KENNEDY GIANT BIPLANE (Two 200 h.p. Salmson Engines), being erected at Northolt Aerodrome in 1917. It is described fully on page 1840 of this issue.

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The WORLD of AERONAUTICS (continued)

The Eastbourne R.N. Air Station's Dinner.

It is proposed to hold a Reunion Dinner for Officers of the R.N. Air Station, Eastbourne, 1915-16. Those willing to help in arranging it are requested to meet at the Royal Aero Club, 3, Clifford Street, on Thursday, May 8th, at 5.30 p.m.—Sandy and "Doc" Anderson.

An Independent Air Force Dinner.

A Dinner will be held on June 14th, at the Savoy Hotel, at 7.30 p.m. for 8 p.m., for all Officers who served at any time with the Independent Air Force. All those wishing to attend should communicate with Major W. G. P. Young, Room No. 668, Air Ministry, London, W.C.2, on or before June 1st, enclosing cheque for two guineas. Evening dress or uniform.

United by Air.

Mr. Winston Churchill has sent a telegram to the Pan-American Aeronautical Congress, which was opened at Atlantic City on Thursday, saying: "Ocean divided us, may Air unite us."

So now it is up to America to say that the little fuss about the tea-chests in Boston Harbour has been forgotten.

No Limit to Luggage.

A Handley Page twin-engine machine flew on May 3rd from London to Brighton, thence to Eastbourne and Hastings, with seven passengers and 9 cwt. of luggage. Major E. L. Foot, M.C., was the pilot.

The 9 cwt. of luggage leads one to believe that some of the passengers were ladies.

An Aviators' Club in Vancouver.

The returned aviators now in Vancouver and adjacent cities have formed an Association known as the "Air Service Association of British Columbia," with temporary headquarters and club rooms at 821, Pender Street West, Vancouver City.

Lieut.-Col. Collishaw is the Hon. President, and among the list of members are officers and men who served in the R.N.A.S., R.F.C., and R.A.F. Applicants for membership must have served (or be serving) in one of the Flying Services of the British Empire.

The objects of the Association are (1) to continue the friendships amongst the members which have been formed while serving the Flag; (2) to look into and try to have adjusted all matters pertaining to discharges, gratuities, pensions, etc.; and (3) to do everything possible to encourage flying in Western Canada.

Australian and New Zealand aviators on their way home *via* Vancouver will be welcomed at the Club.

General Stefanik Killed.

It was reported on May 5th that General Stefanik, the famous Czecho-Slovak aviator and commander, had been killed in an aeroplane accident near Pressburg. He was flying from Italy to Prague with several Italian officers. For some unknown reason the machine fell from a height of 1,300 ft., and all the occupants were killed.

General Stefanik, who was a Slovak by birth served in the French Air Service during the war.

Trial by Court Martial.

At a District Court Martial held at the Royal Air Force Headquarters, Upton, Chester, on April 29th, Flight-Cadet Harry Willoughby Ray, of Shotwick, Chester, was charged on two counts (1) that on April 21st he flew an aeroplane at Chester at a low altitude contrary to standing orders, thereby causing damage to 14 telegraph wires, and (2) with flying an aeroplane at Chester at a low altitude to the danger of the public. The accused pleaded "Not guilty."

Evidence in support of the charge was given, Cadet Ray giving evidence on his own behalf.

The prosecutor pointed out the danger of low flying near towns, and pressed for a sentence deterring aviators from committing this offence with impunity.

Sentence will be promulgated in due course.

A Flight Over the Andes.

For many years the Chileans have delighted to call themselves the "Britishers of South America," and in the air they are certainly proving themselves pilots worthy of the name. A telegram from Santiago de Chile of April 5th announces the fact that Lieut. Cortinez made a successful flight over the Andes, attaining an altitude of 6,000 metres (19,600 feet). The feat was accomplished on one of the "Bristol" aeroplanes recently presented to the Chilean Government by the British Government.

This is not the first occasion on which the Andes have been crossed on a "Bristol" machine, for it may be remembered that last December Lieut. Godoy, another Chilian aviator, accomplished the feat on an aeroplane of similar manufacture, crossing from the Chilean capital to Mendoza, in Argentina, in 1½ hours.

The crossing of the Andes by aeroplane has more than a passing or theoretical importance. The Transandine Tunnel, which affords the only means of comparatively rapid communication between Argentina and Chile, and, therefore, between Chile and Europe, is unfortunately impassable for days at a time owing to snow-drifts. The only present alternative is the tedious passage by sea through the Straits of Magellan. For the carriage of mails and for the more speedy requirements of passenger traffic it appears likely, therefore, that the crossing from Chile to Argentina may shortly develop into a regular service.

Fashions for Elopements.

There is one section of the "Evening Standard" that I never read, but a musical cooing from the other side of the table made me wonder what there could be so attractive on the Fashion Page. Afterwards I looked—and saw! "Becoming Fashions for Flying Women," was the caption, and beneath it stood a maiden reminiscent of Ingoldsby's "subaqueous Lurline," whose "one garment was looped up with bunches of coral." This *degagée* wench was labelled, "None but the Smart deserve to Fly," which seems to have "per ardua ad astra" beaten any way you look at it. This intrigued me so that I removed the paper gently, but firmly from its erstwhile reader, considerately substituting "Bradshaw's Railway Guide."

"When Flying Flossie decides to elope with Airy Arthur," I read with delight, "in a dinky two-seater built specially for the purpose. . . . (Mmm, *what* purpose?) she does not mean to seek her happiness in the skies in anything except the most becoming costume the genius of her dressmaker can devise. . . Now, it has been proved that a woman can wear breeches and still retain the sweetness and grace and modesty and all the other virtues necessary in the make-up of the really 'nice' woman . . . the 'flighty' woman will be a model instead of a terrible example."

A pity we cannot reproduce her, though. You ought to see her. And you ought to see her biplane in the middle distance, with four struts for one wing section, and one for the other, and a tail which resembles one of Messrs. Beeves paint brushes, beginner's size. "Bedford cord upholstery to match your flying suit," "soft leather, of saxe blue"; to this favour *Shall* we come at last?"—R. H. B.

The Bolo House as seen from the Front.

The following letter has been received:—

Sir,—In the good old days—we always speak of good old days—when the Royal Flying Corps consisted of a small number of suicidal enthusiasts, De Keyser's Hotel was taken over by the Government to be the headquarters of the R.F.C., and it was re-christened with the romantic name of Adastral House.

To its portals came all those in need of advice or advance pay—until a visit to town could not be considered complete without a visit to "Hot-air" House.

And then, when the Corps grew until its dimensions necessitated the formation of the Royal Air Force, the scene of its Headquarter activity had shifted to the Hotel Cecil, and in Adastral House the dust accumulated, to be occasionally disturbed by a gust of feminine laughter and the revelry of a dance (*vide* the Carmelite Press).

The high-sounding title of "Air Ministry" degenerated into the impertinent epithet, "The Bolo House," which was so named because of its amazing ingenuity in attempting to lose the war.

Or so it seemed to us at the Front.

When I came home on leave, I was taken by anxious friends and relatives to funny plays in London, in order to obliterate from my mind the grim horrors of war. But for sheer amusement, combined with the horrors of war, I preferred a visit to Bolo. For there, from the moment of jaunty entrance to the moment of weak-kneed exit, the experience was one to remember and relish.

But the authorities must have grown wary, for on a later visit I found that without the permission of my commanding officer access was denied to me, and the motto of our Corps had changed to "Per ardua ad Bolo."

So I could only stand at the door and watch the kaleidoscopic procession of red tabs and gold-leafed majors within, until the thought was forced upon me that in order to gain promotion it was necessary never to fly.

And I returned to my job of flying, dispirited and dejected. For once, I had failed to see the humour of Bolo. Yet, somehow, I preferred the cramped seat of my cockpit and the gouts of oil blown back onto my face, to the ease of a swivel-chair and the insipid taste of tea and ink.

To us in France the typical Boloite was either an old old gentleman with no wings but with the Crimean medal, or a very young gentleman with no wings but with the O.B.E.. They all seemed to be majors, they all seemed to have cars, and they all seemed to be truly terrified at the thought of themselves aviating.

In France, in Belgium, in Mespot, in Palestine, in East Africa, and in the other unhealthy spots where war was waged, we trusted our wing headquarters, we trusted our brigade headquarters, and we trusted our General Headquarters, but we never trusted the Bolo.

For the Bolo was not alive to the war, its inmates shuddered at the thought of war, and those who had caught a glimpse of the war were in no hurry to renew their acquaintance.

So it came about that when the war-weary pilot returned to England the thought of temporary peace and enjoyment soothed his nerves and made him glad to be home again. But the worst possible insult to offer him was a job at the Bolo.

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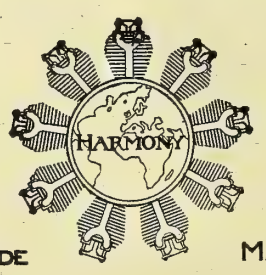
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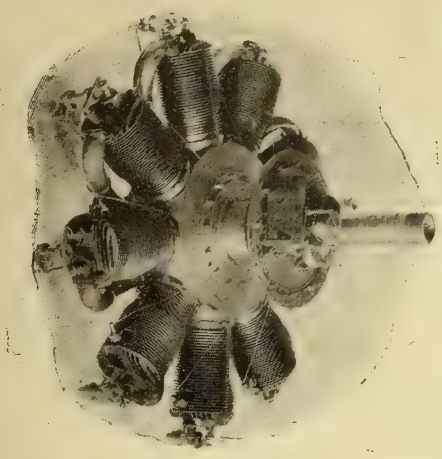
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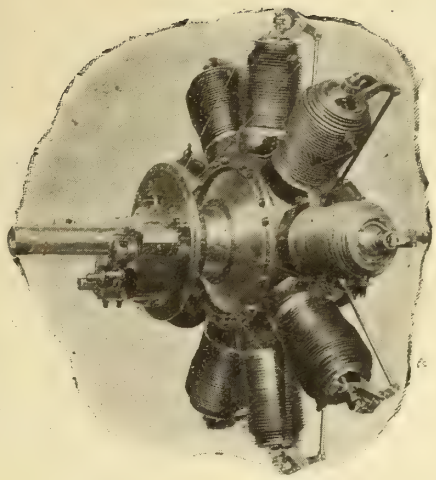
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NOTES BY THE PUBLISHER.

What are the revelations of Roy? They are the satiric stunts of one who during the war was just an air mechanic. Who he is there are no means of knowing. The Air Force will ask in vain. If the Air Force knows him not, he knows the Air Force, and he indulges in much wit and wisdom at the expense of its past and present chiefs and of those good fellows who, with all their foibles, made it what it is. "The Revelations of Roy," small book though it be, fires a whole drum with a merciless disregard of personality, high or low, and the only person to whom Roy apologises is that great scribe Artemas, whose style he adopts with immense success. Everyone who likes a good laugh at other people's peculiarities and weaknesses will read "The Revelations of Roy," which can be bought for 1s. net.

To pass from "The Revelations of Roy" to "Flying Colours" is very like stepping from the ridiculous to the sublime, from impudence to dignity. "Flying Colours" is by Captain H. M. S. Saundby, M.C., Zepp-strafer and among the most enterprising of the pilots who won for Great Britain the mastery of the air on the Western front. Captain Saundby paints as well as he flies—and, we believe, is by profession an engineer. Anyway, twenty more delightful and realistic pictures in colour we have never seen. They are unique. Major-General Ashmore in an introduction says they give "a true and vivid idea of things as seen by a pilot in action." The book makes the most charming of presents. Every flying boy's mother should possess a copy, as it affords an idea of his work which neither pen nor camera can hope to rival. Everyone interested in the doings of the Royal Air Force in war-time should seize this opportunity for securing a souvenir. An *Edition de luxe*, numbered and limited to 250 copies, is published at £2 2s. net; a Popular Edition at 15s. net.

Aces win battles in the air as well as tricks at the card-table. McCudden was the British ace of trumps, Richthofen the German. The two were examples of nationals at their best. Both wrote their reminiscences and described their methods and their triumphs. Both were sportsmen, and how far ahead British is of German sport will be fully realised by the simple, modest narrative of the one and the thinly veiled sense of superiority of the other. Read both books and you have the heroes of two Empires self-revealed. McCudden's "Five Years in the R.F.C." (7s. 6d. net) and Richthofen's "The Red Air Fighter" (Second Edition, 3s. 6d. net) must have a corner in every properly equipped aeronautical library. No pilot's education is complete unless he has studied both.

Civil and commercial aviation began officially as from May 1st. The problems opened up of costs, of routes, of possibilities of making it profitable are the subject of wide and varied speculation. Captain Arthur Swinton, with a lively sense of the need for careful and authoritative estimates, worked at the subject well in advance, and that his "£ s. d. of Flying" (6s. net) is of considerable practical value is proved by the fact that it commands the interest not only of the aircraft industry and the trader at home, but is in request from the West Indies, Africa, and Australia. It is the book of the moment, though a few years hence it may be looked upon as a prophetic curiosity.

Aeroplane building during the war was a business that had to be learned in a hurry; in peace-time it can be learned as any other business is learned—methodically and deliberately. But nothing can deprive the proved text-book of its usefulness, and Mr. Stepney Blakeney's "How an Aeroplane Is Built" (2nd Edition, 5s. net) may claim to be such a text-book. The secret of its success is easy to explain. Mr. Blakeney is a practical worker himself. He knows what others want to know, and he is able to impart his knowledge simply and effectively. The good mechanic becomes a better by taking a leaf out of Mr. Blakeney's book.

A simple yet expert guide to the aero-engine is badly wanted. Mr. C. Sylvester, A.M.I.E.E., has undertaken to supply the want. The quality of his work on "The Design and Construction of Aero Engines" (6s. net) is proved by the fact that much of it has appeared in The Aeroplane. New chapters and new diagrams make it complete. It will be ready in a day or two, and the engine designer and constructor, as well as the flying man who would understand the essentials of an engine, will turn to Mr. Sylvester for guidance.

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THE WEEKLY COMMENTARY.

This week the article on "Commercial Aircraft Design" by Capt. Sayers is held over to give space to a *resumé* of a lecture on "Commercial Aeronautics" given at the Institution of Junior Engineers by Mr. J. D. North, A.F.R.Ae.S. He points out that at present commercial flying is more or less in its infancy, and that its prospects as outlined in the lay press have been considerably exaggerated, but by careful organisation a very great future presents itself from the commercial point of view. He discusses navigation, depreciation, expense, etc., in a simple manner.

A few interesting notes on parachutes, written by the late Mr. W. L. Wade, appear in this issue. This appears rather apposite, in view of the fact that parachutes will eventually form a necessary part of the equipment of all aircraft.

The death of the Press Bureau permits one to describe the work of Mr. Chessborough J. H. McKenzie-Kennedy, late of Petersburg, and the publication of some interesting photographs and particulars of the Kennedy biplane which was built entirely in the open at Northolt. Owing to lack of support from the War Office, it was never supplied with engines of sufficient power to prove the capabilities of the big twin-engined machine.

The description of machines built by Armstrong-Whitworth, Ltd., is a continuation of the series on "Modern British Aeroplanes."

A DESIGNER'S VIEW OF COMMERCIAL AERONAUTICS.

It is a habit of the Institution of Junior Engineers to hold on Friday evenings a series of informal meetings at which some member or visitor reads a short paper on some subject of general interest which is afterwards discussed by those present, to the accompaniment of pipes and coffee, with an absence of ceremony which is in very marked contrast to the usual type of formal discussion indulged in by most of the learned societies.

The result of this absence of formality is that those who know little or nothing of the subject, but who wish to learn, are encouraged to take part in the discussion and to ask questions rather than that the discussion should be confined to those who are, or who consider themselves to be, authorities upon the subject.

At the meeting held on the evening of April 25th, Mr. J. D. North, the technical chief of Boulton & Paul, Ltd., of Norwich, presented a paper on "Commercial Aeronautics" which deserves a wide publicity, on account of the cheerful and sane pessimism as to the immediate future of commercial aviation therein displayed.

Mr. North's opening passages are quoted *in extenso*:—

"The Psalmist has said, 'Prophecy is left to children and to fools,' and anything which savours of the prophetic is justly regarded with suspicion.

"We have had many and weird glimpses presented to us of the prospects of civil aviation. Here we are told that flying is only for millionaires; there we read that the air will soon be black with the aeroplanes of *hoi polloi*.

"Not unnaturally, we are somewhat bewildered; in a multitude of counsellors there may be wisdom, but it seems that there is also confusion of thought. (In some cases behind the picture of optimism do we not see the shadow of the company prospectus?)

"If I am asked to foretell the future of commercial flying I must cry off—I do not know what will happen. I would rather show you an outline of the present, and let you fit in the rest for yourselves.

A Simile.

"Imagine the world's shipping without harbours, without lights, without charts, its development having been almost entirely due to war necessity. Destroyers preponderating. Big ships in their infancy. All thickly enmeshed in the net of official control.

"Astute financiers visioning gigantic liners, not yet built, carrying the world's travellers, the world's goods; lesser minds scheming coastal trips in the 'Skylark' at 5s a head.

"Millions to be spent before these ambitious schemes can become an accomplished fact, and national capacity for expenditure on new ventures at a minimum.

"And yet beneath everything a sound basis of commercial advantage lies, for 'transportation is civilisation.'"

Of Speeds and Speeds.

Dealing with the technical difficulties of successful commercial aviation, Mr. North drew attention to the error of imagining that the time taken by an aeroplane to travel between two points was the straight line distance divided by the maximum speed as was so often conveniently assumed. To maintain an average speed of 100 m.p.h. he suggested that a maximum of 140 to 150 m.p.h. was necessary.

This was due to adverse winds, errors in navigation, and like troubles.

The fuel costs of a machine with a large speed margin and normally run with engines throttled down was very slightly greater than that of a machine which had always to be run full out, and the gain in engine reliability entirely outweighed the extra cost.

If modern engines were normally run at one-half to two-thirds their full power, their reliability would be sufficient for commercial purposes.

Twin Engines and Unreliability.

Twin-engined machines which had not sufficient reserve power to complete their journey on one engine were just twice as unreliable as a single-engine machine with the same power reserve.

By completing the journey he did not mean barely stagger home at just on stalling speed, but maintain a reasonable approach to the normal schedule air speed.

There was at the moment no conclusive evidence that water-cooled engines were necessarily more reliable than air-cooled.

Except in regard to the petrol system, he considered that the modern aeroplane itself, properly looked after, might be regarded as 100 per cent. reliable, and that most petrol system troubles could be avoided if gravity petrol feeds were always used.

In other words, a properly designed, properly maintained, and carefully run aeroplane should "get there" every time, if the navigation is good.

Serious aerial navigation was only just beginning.

Navigation the Difficulty.

In good weather, where the ground was visible, navigation was simple. In fog or haze it was far from it. Compass readings were not reliable, since a swing of the course would often set a compass spinning, and with no visible landmark to get onto a steady course it was very difficult to settle down to any straight course and bring the instrument to rest.

Turn indicators, consisting of two pressure heads fixed to the machine and pointing at equal angles on each side of the centre line, connected one to each side of a sensitive pressure indicator similar to an air speed indicator would show the direction of a very slight turn, and by carefully watching such an instrument and correcting every divergence immediately it occurred a pilot could keep on a steady compass course even in fogs.

Keeping on a compass course did not solve the difficulty entirely, owing to wind drift.

Drift Measurement.

Where the ground was clearly visible it was possible to observe the apparent motion of any fixed object on the earth which would give the true course over the ground, and to time the object over a scale which would give the ground speed. Knowing these, the true wind speed could be arrived at by a mechanical application of the triangle of velocities, and the correct compass course could be laid.

Unfortunately, owing to vibration and the consequent errors of observation, this method was very inaccurate at any height over 6,000 feet even in clear weather, and a very slight haze would render it useless at much smaller heights. In fog it was obviously useless.

Corrections for drift might be made by measurement or careful forecast of the upper winds. Over land winds could be measured by observation of pilot balloons if the weather were sufficiently clear.

Over open sea fairly accurate forecasts might be made from meteorological data in some cases.

Directional Wireless.

Directional wireless had been used for aerial navigation, but was still in an experimental stage. By the use of an instrument known as a radio-goneometer it was possible to find the bearing of a wireless-sending station, and consequently to keep the machine heading for that station. With a cross wind, particularly with a cross following wind, the course so set might be an extremely long one.

By using two stations and obtaining the bearing of each, it was possible to determine the actual position of the machine relative to the stations from time to time, and thus find the actual course of the machine.

The accuracy of the bearings so obtained varied with different operators, but was not often better than from 1 deg. to 2 deg.

Aerial Lighthouses.

Vertical searchlights could be seen through a haze or fog which entirely veiled the ground, and the development of a system of aerial lights of this nature would greatly assist navigation in fogs and mist.

There was no evidence that a sextant had ever been successfully used in the air. Something of the nature of an artificial horizon would be necessary, and probably vibration troubles would render the inaccuracy large.

Depreciation.

As to the depreciation of machines in use, Mr. North said that the experiences of the last four and a half years had actually provided a vast amount of data on the subject, and that were a competent body of statisticians set to work on the records of the Air Forces during that time it would be perfectly possible to arrive at extremely useful results, provided that due allowance for the extravagant methods of officialdom were made in the process.

His own experience was that engines required frequent overhaul, but, given that, would continue to run for a very long time.

The Most Expensive Item.

The fabric covering of an aeroplane was the most expensive item in its maintenance.

It required frequent renewal or redoping, which was almost as expensive.

Tyres cost very little if of reasonable size. In many machines for military work the tyres had been cut down to the last ounce for the sake of extra performance, and tyre bursts were frequent. This was not necessary for commercial purposes.

The only serious cause of deterioration in the structure of the present-day aeroplane, other than accident, was warping of the wood parts.

This trouble could be avoided by the use of metal construction, and there were hopes that a substitute for fabric and dope might be available in the near future.

Metal Construction.

With metal construction there was no appreciable saving in weight to be looked for, and there were serious constructional difficulties.

If high tensile steels were used, there was no difficulty in providing against primary stresses, but the very thin sections which would meet these stresses were not sufficiently stiff against secondary stresses, and would usually fail by buckling in the flanges. This could be met by corrugating the flanges, calling for special rolling and some increase in weight.

A light alloy construction overcame this difficulty at a very large cost for materials.

At the same time the difficulties of steel construction had been overcome, to the extent that it was possible to build wing spars for even a machine of the size of a Standard "Avro" at no serious increase in weight, and at a reasonable cost, if the production were on a large enough scale.

[One learns that a complete Avro wing with steel and fabric only in its construction has been made which is lighter than a wooden wing.—Ed.]

Col. Ogilvie's Views.

In the discussion Lieut.-Col. Ogilvie said that, in his view, even for a machine of the size of an Avro, metal structure could be made lighter and stronger than wood, and that he believed that by its use it would become possible to build machines of a total weight of from 80,000 to 100,000 lbs. with a structure weight of from 30 to 33 per cent. of the total.

At the same time he dissented strongly from the view, held in some quarters, that the fact that an aeroplane was mainly built of wood put it beyond consideration

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as a serious engineering job. He believed the aeroplane represented in the highest degree the art of structural design.

As to engines, he (Col. Ogilvie) believed that the air-cooled engine would eventually be found more reliable than the water-cooled type.

Regarding the running of engines at less than their maximum horse-power, he believed that the correct method of attaining the desired result was to detune engines, by altering their valve timing and so forth, so that they could not be run at their maximum possible output.

SOME NOTES ON PARACHUTES.

The article which appeared in a recent number of The Aeroplane on the subject of "Life-Saving in the Air" in general, and on parachutes in particular, has aroused some discussion, particularly among inventors and others who would like to contribute to the knowledge which is available concerning aerial safety appliances. It may be useful, therefore, to offer a few hints to those who are possessed with an inventor's longings.

In the first place, it should be remembered that the parachute problem is being investigated by the Air Force Technical Department, and that this Department is in possession of all available knowledge concerning previous experiments with the various forms of apparatus, and that, although in the minds of the inventors concerned a certain idea may appear to be revolutionary, it is possible that such ground has already been covered, although no record may be found in the Patent Office.

The principal object in equipping aircraft with parachutes is to inspire confidence in those who use the aircraft, and, therefore, parachutes must be so constructed as to leave no doubt in the minds of aviators as to the certainty of their operation. That is to say, no parachute will become popular which includes in its construction a large number of small and delicate moving parts upon the successful working of which the unfolding of the parachute depends.

What is Wanted.

At the present time various parachutes exist which are extremely simple in their packing and method of operation, and no new parachute can hope to compete with these, no matter how great its ingenuity, if its action is so complicated as to lead an aviator to fear that it might not work at the critical moment.

For this reason parachutes which are liberated from an aeroplane with the aid of compressed air, springs, or explosive charges will not receive recognition, because there would always be suspicion in the mind of the aviator that the compressed air might leak prematurely, that the explosive charge might fail to explode, or that the springs might jamb or break.

Also, the action of the apparatus must be positive. That is to say, it should leave the aeroplane progressively, and not in a heap, and that all the time there should be some definite natural force tending to force it open. Obviously the most accessible form of natural force is the air through which the aeroplane is passing.

So far as people are concerned who have not full access to all the research work which has already been done concerning parachutes, there would appear to be a wider field for experimentation where minor improvements applicable to existing parachutes are concerned. There is still a wide field for ingenuity in the discovery of improved methods of folding, simple arrangements for ensuring the positive opening of parachutes, systems of avoiding entanglement of rigging, improvements in the comfort, safety, and quick detachment of the harness, devices for saving weight and reducing packing space, and improvements in the arrangements in, and ejection from, the aeroplane or airship.

There is little demand for a decrease in the necessary time required for opening, as some existing parachutes open so quickly that there is distinct danger of the parachute fouling the machine, and devices which would ensure the positive opening of the parachute at a pre-determined *minimum* distance would be welcomed.

On a good many occasions the problem of fitting an aeroplane with a parachute sufficiently large to take up the weight of the whole machine has been discussed. Time should not be wasted in experiments along this line, because a parachute of sufficient size to support the weight of an aeroplane would absorb too great a proportion of the stowage capacity and lifting power of the machine.

Soaring Parachutes.

Another line of thought which has received much attention is the possibility of ejecting an aviator upwards from his machine in such manner as to extract him from his seat by the pull of the parachute. No matter in what attitude the parachute opened itself, it would not, unless the machine was completely stalled, commence to extract the pilot until the vertical axis of the parachute was in line with the direction in which the machine was flying. This would apply if the aeroplane were flying horizontally or diving at any angle down to vertical, with the net result that the pilot would be decelerated from a speed of anywhere between 60 and 140 miles per hour to a speed of practically zero, almost instantaneously, and no shock-absorbing devices which can be conceived would be sufficient to secure him from harm. Even assuming that the parachute was attached to a detachable portion of the aeroplane and not to the pilot, the jerk would be so sudden that it would probably break his neck. On the old principle that it is not a fall which injures a man but the sudden stop, the effect of the opening of the parachute would be practically the same as if the aeroplane had charged into a brick wall.

Possibly this difficulty might be overcome by the employment of a pilot parachute—one imagines that an appliance about the size of an umbrella would be sufficient to eject an aviator from a fast-moving aeroplane—but such an arrangement would certainly introduce complications, and complications must be avoided.

Positive Opening.

Reference has already been made to positive acting parachutes. This applies to parachutes which extend in such a way that the rigging end of the parachute remains attached to the aviator, while the apex of the parachute remains attached to the aeroplane until the parachute is fully extended, the relative motion between the falling aviator and the aeroplane being the force which extends the parachute. Parachutes of this character tend naturally to inspire the highest degree of confidence in those who have to use them.

The non-positive types are usually those in which the parachute is packed upon the aviator's person and leaves the aeroplane with him, depending for its opening upon the entry of air into its mouth by inflation caused by the fall. Although this type has much to recommend it—for instance, the obvious advantage of being stowable about the person of the individual for whom it is intended (a very great advantage in the case of aeroplanes carrying large numbers of passengers) the precarious principle on which its opening depends is not such as to inspire confidence.

It is hoped that a study of these remarks will throw some light onto a rather obscure problem, the final solution of which cannot be obtained without a proper enunciation of the requirements.—W. L. W.

SOARING FLIGHT IN FANCY—U.S.A.

According to a communication received from the Cantilever Aero Co., of New York, who are the makers of the Christmas "Bullet,"

". . . . Dr. William Whitney Christmas, although only 52 years of age, is the oldest living investigator of aerodynamics in the United States. . . . . ."

". . . . In 1898 he designed and successfully flew a monoplane, and was soon followed by a biplane."

One cannot help feeling that he is quite old enough to know better, and that it is a matter for regret that the biplane which followed him didn't catch him.

It is also stated that Dr. Christmas was "so convinced . . . . that the future of aviation was in the development of bird form in heavier-than-air machines . . . . that he lay on his back for many hours each day for a year and a half studying one single peculiarity exhibited in a bird's wing while in flight."

One is inclined to discredit a rumour to the effect that Dr. Christmas was the originator of the well-known exclamation, "Ciel! que les vaches ne volent pas," for it would then be unthinkable that he should have failed to notice that one thing which a bird never drops in its flight is its wings.

According to the same authority the Cantilever Aero Co. has started to build a Christmas machine of 180 ft. span, of 3,200 h.p. and of a gross weight of 30 tons.

This machine is "to make a non-stop flight across the Atlantic, starting from New York, and landing within perhaps 35 hours either in Queenstown, Ireland, London, England, or Brest, France."

"Each feature of design, every part . . . . has been gone over not less than one hundred times."

"A prominent and vital feature——in this 'Christmas' model is the arrangement of its motors. They are connected in such a way that should one inadvertently be put out of commission, the operation of the machine will not be affected in the smallest degree."

This being the case, it is difficult to see why two, three, or four motors out of commission should produce any effect—so one would recommend their total omission.

Perhaps the omission would have to be inadvertent—but even this might be arranged. It is so much safer to forget one's engines than one's wing bracing.

Incidentally the writer of this screed, modestly described as "what seems to us to be an interesting news story," further assists in the process of improving the performance of the Christmas "Bullet"—to which attention was drawn in this paper some weeks ago—by raising the speed to 200 m.p.h.

This is rather a falling off in progress—merely an extra three miles per hour—but, on the other hand, the reference to "the terrific vibration of this machine whizzing through the air at 197 miles pe rhour" has been omitted—inadvertently, one feels sure.

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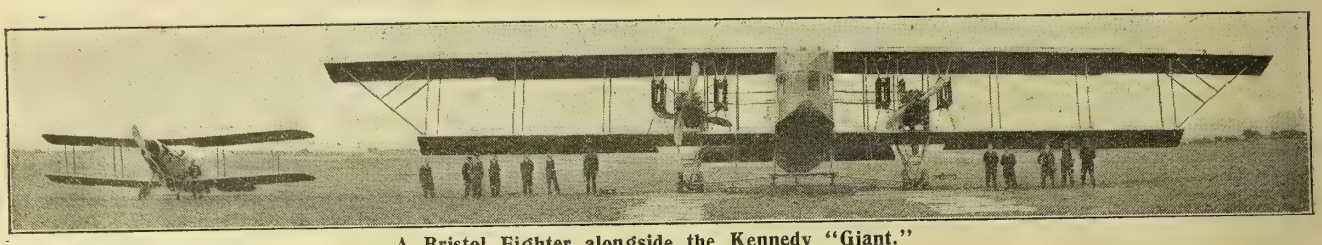
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

HE KENNEDY AND ALLIED AIRCRAFT ORGANISATIONS.



A Bristol Fighter alongside the Kennedy "Giant."

Those who knew aviation in its early days will well remember Mr. Chessborough J. H. MacKenzie-Kennedy of Petersburg.

Mr. Kennedy is practically the pioneer of aviation in Russia. He went to Russia with the proverbial half-crown—or should it be half-rouble—in his pocket while still a youth and managed to carve out for himself a very successful business career. After some ten or eleven years in Russia he began, in 1907, to devote himself seriously to aviation, and it was very largely through him that the Russian Government took any interest in aviation at all before the war. Also he had much to do with the design and experimentation of the Sikorsky biplane, which was actually the first four-engined aeroplane to fly successfully.

Very soon after the outbreak of war he came to England in the hope of interesting our people in the construction of giant aeroplanes, more or less on Sikorsky lines, and he managed to secure in this country sufficient financial support to enable him to embark on the construction of quite a remarkable machine. This machine, a big biplane, was built at the works of The Gramophone Co., Ltd., of Hayes, and the parts when constructed were taken to the R.F.C. aerodrome at Northolt.

No shed was available to house such a giant, as may be gathered from the following specification :—Span 142 ft.; length, 80 ft.; height, 23 ft. 6 ins.; chord, 10 ft.; gap, 10 ft.; total weight, 19,000 lbs. empty.

The machine was equipped with four 200-h.p. Salmson engines, which were the only type which the Government would issue. These were actually British-built engines turned out more or less experimentally, the Serial Nos. being 2, 6, 8, and 10.

One is not aware of the actual performance of each individual engine on test, or whether the whole four gave their estimated total of 800 h.p. satisfactorily, but in any case it appears that 800 h.p., even if obtained, would have been too little for the size and weight of the machine, and therefore it never progressed further than doing straight flights over the aerodrome. One gathers, however, that it actually upheld the theories which it set out to prove in the matter of weight lifted per h.p., and very probably if it had had a modern power-plant of 1,600 h.p. as the big machines of to-day have, it would have proved a success. It is quite an interesting effort and it has the distinction of being the only aeroplane in this country which has been assembled in the open without any shed accommodation or covering.

This machine was abandoned somewhere in 1917, but the calculations made for it and the knowledge gained from it have now been put to use in building another large aeroplane.

This has the following specification :—Span, 100 ft.; length, 55 ft.; height, 22 ft.; estimated speed, 120-130 m.p.h.; estimated useful load, 6,500 lbs., in addition to crew and fuel necessary for 500 miles.

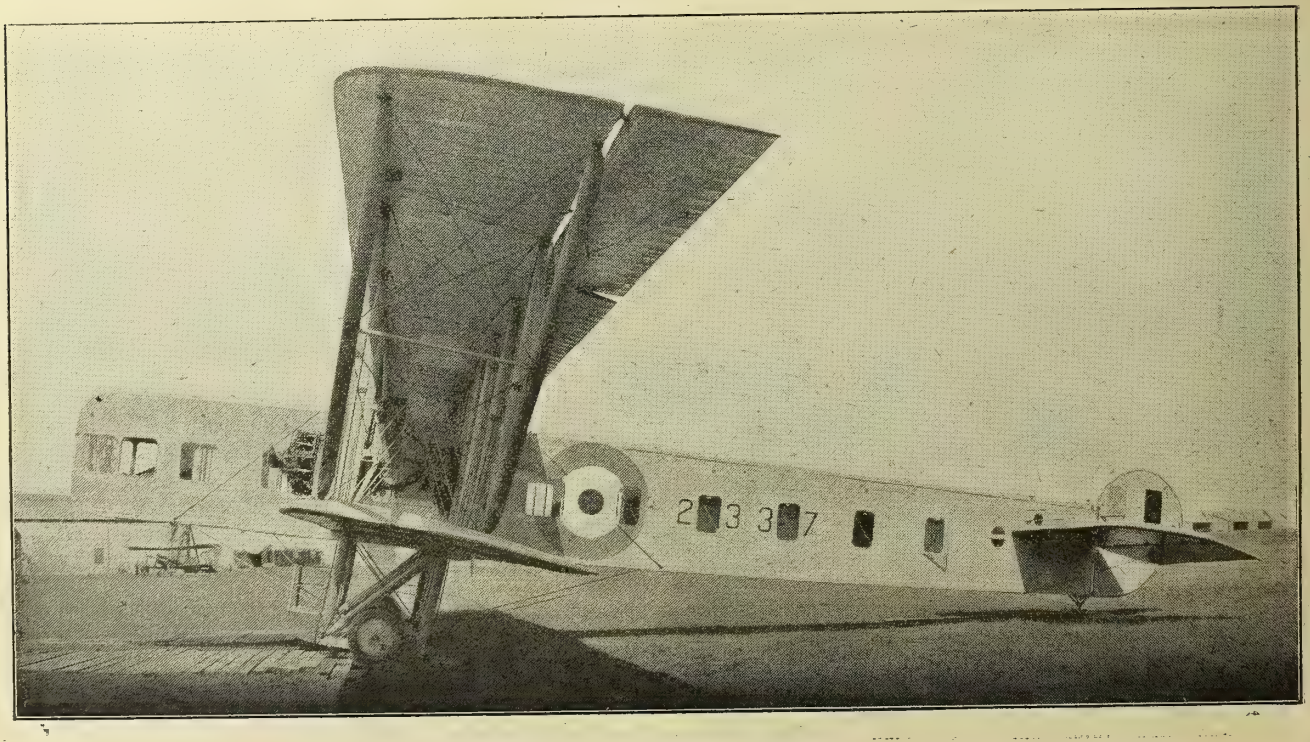
The machine is being built by John Dawson and Co., Ltd., of Newcastle-on-Tyne, the moving spirit in which is Mr. G. H. Humphrey, who is well known to most people in the Aircraft Industry as the chief of the Fairby Construction Co., Ltd., which has built some of the most successful, and certainly the most quickly produced, aircraft factories in this country.

Mr. Kennedy's ideas on the organisation of aircraft work deserve attention also because of their originality. He believes that the designing organisation of any aircraft venture should be entirely separate from production, and that each should stand financially on its own merits. The result is that his designing organisation is situated in a mansion at 102, Cromwell Road, South Kensington, S.W.7, which has been turned into an aeroplane design office on quite original lines, each department of design having its own particular set of rooms. Thus, there is a design department, a calculating department, a checking department, a big drawing office, an experimental department, a general management office, a financial office, and so forth.

The design organisation has to support itself either by selling its designs or by receiving royalties from its building or using licensees. The construction organisation, on the other hand, has to support itself by selling the aeroplanes either on the open market or to its allied transport organisations. Thus, the designing, constructing and operating organisations are actually separate companies, each of which is self-supporting.

Mr. Kennedy has secured for his design organisation a number of people with very considerable experience in aircraft design, among them Mr. T. W. K. Clarke, who is undoubtedly one of the pioneers of aviation in this country, Mr. E. A. Vessey, formerly of the Royal Aircraft Factory, and Mr. G. C. McLaughlin.

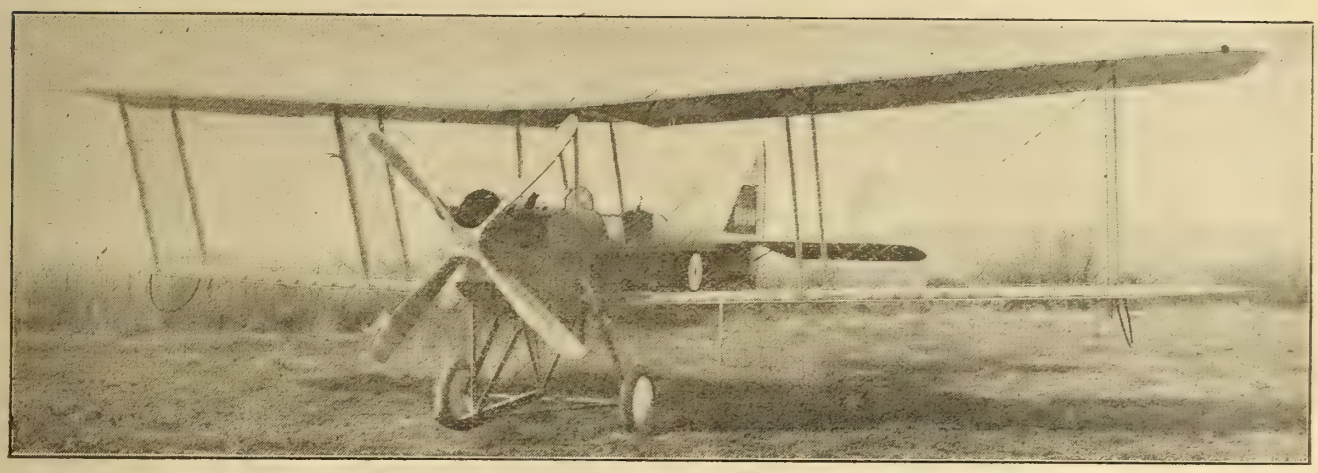
One gathers that adequate financial support has been secured for Mr. Kennedy's new ventures, and the development of his schemes will be watched with considerable interest.



Side View of the Kennedy "Giant."

MODERN BRITISH AEROPLANES.

II.—Armstrong-Whitworth, Ltd.



Three-quarter Front View of the Armstrong-Whitworth F.K.3 (90 h.p. R.A.F. Engine).

The following notes deal with the Aircraft Works of Sir W. G. Armstrong, Whitworth and Co., Ltd., of Gosforth, Newcastle-on-Tyne (Aeroplane Works), and Barlow, nr. Selby (Airship Works).

Captain I. F. Fairbairn-Crawford, who is general manager of the aircraft department, founded the aeroplane department in 1913 and the airship department in 1915. Lieut.-Commander R. G. Lock, R.N., is assistant to the general manager. Mr. F. Murphy is chief designer and works manager of the aeroplane department, Gosforth. Mr. H. H. Golightly is works manager of the airship department, Barlow Aircraft Works, Selby.

Both departments have been working at full pressure during the period of the war, and over 1,300 aeroplanes for military purposes and three large rigid airships for the Navy have been completed and delivered.

The following types of aeroplanes have been delivered:—

B.E.2a., B.E.2b., B.E.2c., biplanes to R.A.F. design.

The 70-h.p., 90-h.p., 120-h.p., and 160-h.p. F.K. type Armstrong-Whitworth two-seater biplanes, which were designed by Mr. Frederick Koolhoven.

A 250-h.p. triplane.

Several 130-h,p. quadruplanes.

220-h.p. B.R.2, F.N.type, single-seater scout biplanes. (The "Armadillo.")

320-h.p. A.B.C., F.M. type, single-seater scout biplanes. (The "Ara.") Etc., etc., etc.

The following Naval rigid airships.

H.M.R.25, with four 250-h.p. Rolls-Royce engines.

H.M.R.29, with four 250-h.p. Rolls-Royce engines.

H.M.R.33, with five 270-h.p. Sunbeam engines.

Cars for fifteen S.S. and coastal type non-rigid airships.

Larger rigid airships are in course of construction and design.

THE ARMSTRONG-WHITWORTH F.K.3.

The Armstrong-Whitworth was designed by Mr. Frederick Koolhoven, and was built at the time when B.E.2cs were being produced in large numbers and was an improvement on this type of machine.

In general apearance there is very little difference from the B.E.2c, the fuselage being of the same long, narrow type, with the exception that the pilot is placed in front of the observer, who is equipped with a swivel gun-mounting.

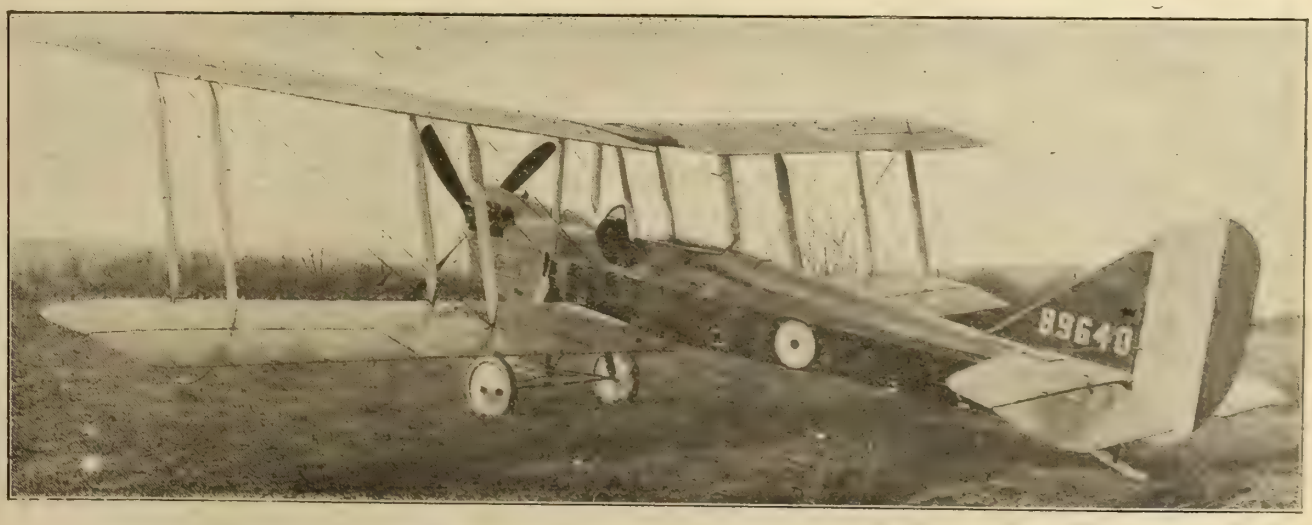
A 90-h.p. R.A.F. air-cooled engine is carried in the nose.

The undercarriage consists of an axle hinged in the middle to a central skid which is carried in two Vees from the fuselage, the two side struts from the axle being mounted on oleo-pneumatic shock-absorbers inside the fuselage.

The main planes are staggered with a wide gap, and have two sets of struts on each side of the fuselage. The rudder is balanced. The machine was used on active service for some time, but was eventually used as a training machine in conjunction with the B.E.2c and d.

SPECIFICATION.

Type of machine	Two-seater Biplane.
Name or type No. of machine	Armstrong-Whitworth F.K.3.
Purpose for which intended	Sport and Training.
Span	46 ft.
Overall length	28 ft. 8 ins.
Maximum height	10 ft. 2½ ins.
Engine type and h.p.	90 h.p. R A.F.
Weight of machine empty	1,900 lbs.
Tank capacity in hours	3½ hours.
Performance—	
Speed at 1,000 feet	85 m.p.h.
Landing speed	38 m.p.h.
Climb—	
To 10,000 feet	23 mins.



Three-quarter Rear View of the Armstrong-Whitworth F.K.3 (90 h.p. R.A.F. Engine).



Three-quarter Front View of the Armstrong-Whitworth F.K.8 (160 h.p. Beardmore Engine).

THE ARMSTRONG-WHITWORTH F.K.8.

The Armstrong-Whitworth F.K.8, also designed by Mr. Koolhoven, was a heavier and improved F.K.3. It had a deeper fuselage, a similar type of undercarriage except that the central skid was cut short in front of the front Vee, and a 120-h.p. Beardmore engine was enclosed in a cowling, with two radiators, one on either side of the fuselage and meeting in the form of an inverted Vee at the upper plane.

There is no centre section, the two upper planes being attached to two inverted Vees over the fuselage.

This machine was used to a large extent on various fronts for contact patrols, artillery spotting, light bombing, photography and reconnaissance work up to the signing of the Armistice, although it was gradually being superseded by machines of improved design.

About half-way through its active service life the F.K.8 was slightly modified by having a Vee-type undercarriage fitted and the engine mounting altered to take a 160-h.p. Beardmore smaller radiators of improved efficiency, fitted on the sides of the fuselage only. A long exhaust pipe was also added to carry the exhaust fumes well clear of the crew.

Accommodation was made for two guns, camera and wireless installation to be carried.

SPECIFICATION.

Type of machine	Two-seater Biplane.
Name or type No. of machine	Armstrong-Whitworth F.K.8.
Purpose for which intended	Military and Commercial.
Span	43 ft. 4 ins.
Overall length	31 ft.
Maximum height	10 ft. 6 ins.
Engine type and h.p.	160 h.p. Beardmore.
Weight of machine empty	2,500 lbs.
Tank capacity in hours	3½ hours.
Performance—	
Speed at 1,000 feet	104 m.p.h.
Landing speed	45 m.p.h.
Climb—	
To 10,000 feet	17½ mins.

THE ARMSTRONG-WHITWORTH "ARMADILLO."

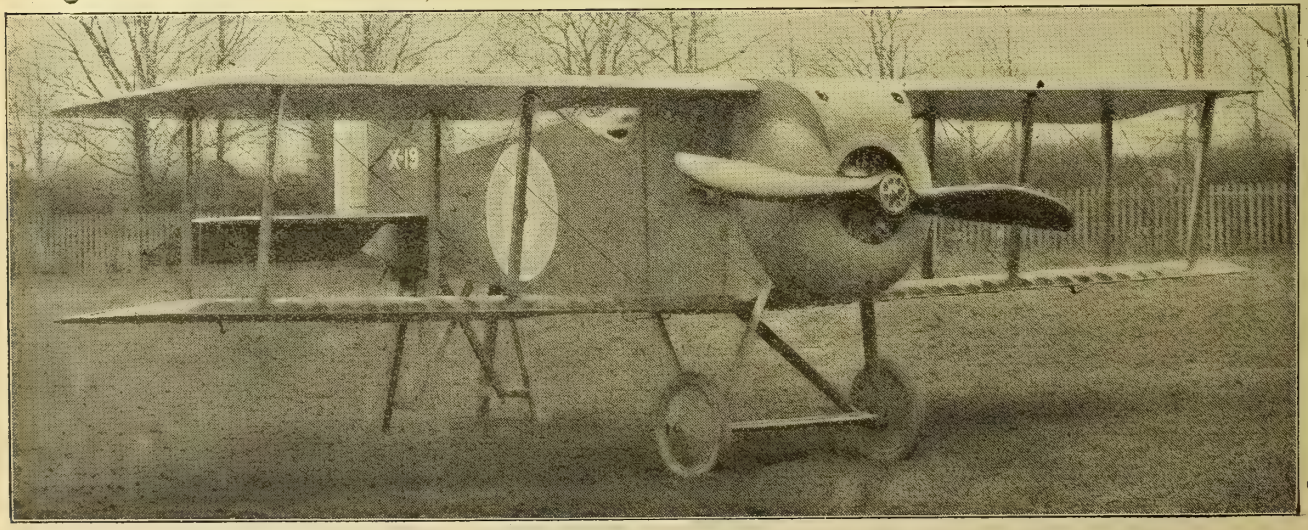
This machine was designed as a single-seater fighter and was produced about the middle of 1918, the trial flights taking place in September of that year.

The chief characteristics of the machines are a square fuselage and the top plane resting on the upper longerons. Two pairs of interplane struts are fitted on each side of the fuselage.

A 200-h.p. B.R.2 engine is carried in the nose of the fuselage and is enclosed in a circular cowl in the top of which is a pecu box-like hump, which is actually a continuation of the upper part of the fuselage brought round and finished off on the cowling. In this box-like arrangement are two fixed Vickers guns, mounted to fire through the airscrew with the usual form of fire control gear.

SPECIFICATION.

Type of machine	Single-seater Biplane.
Name or type No. of machine	"Armadillo" (1918).
Purpose for which intended	Military and Sport.
Span	27 ft. 6 ins.
Overall length	20 ft.
Maximum height	7 ft. 10 ins.
Engine type and h.p.	220 h.p. B.R. 2 Rotary.
Weight of machine empty	1,900 lbs.
Tank capacity in hours	2¾ hours.
Performance—	
Speed at 1,000 feet	140 m.p.h.
Landing speed	55 m.p.h.
Climb—	
To 10,000 feet	4½ mins.



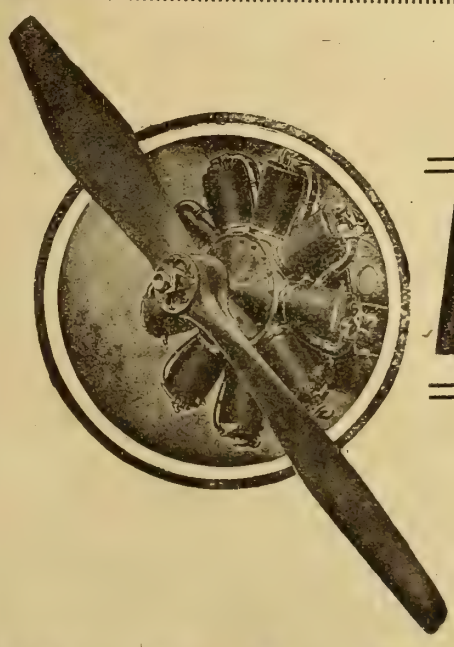
Three-quarter Front View of the Armstrong Whitworth "Armadillo" (220 h.p. B.R.2 Engine).



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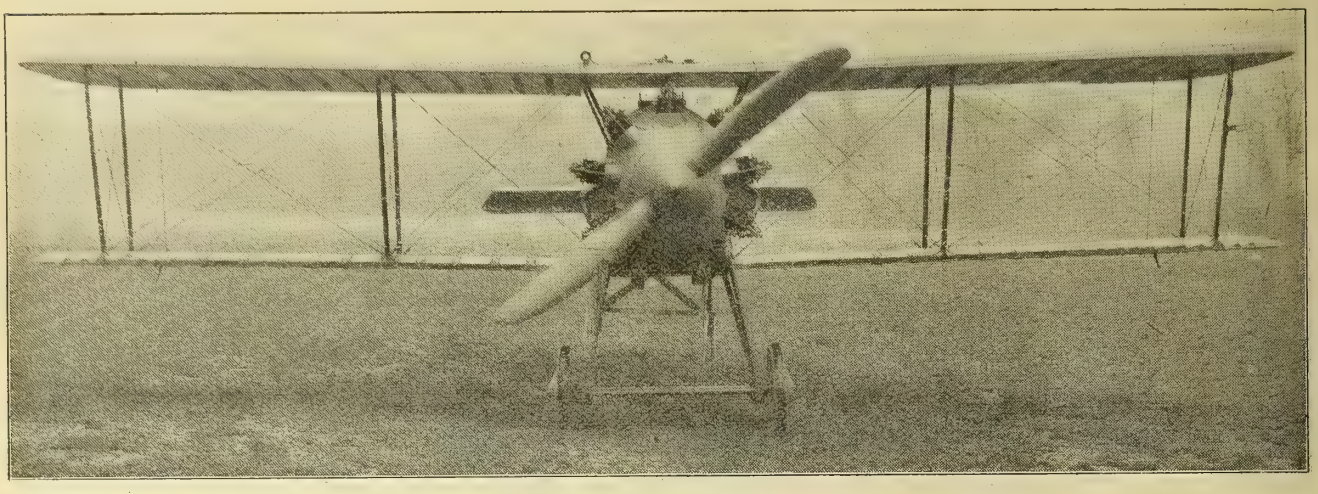


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Front View of the Armstrong-Whitworth " Ara " (320 h.p. A.B.C. Engine).

THE ARMSTRONG-WHITWORTH " ARA."

The Armstrong-Whitworth "Ara," although it was not produced until early this year, was designed as a single-seater fighter, but can be easily adapted as a sporting machine for one who desires something more than the low-powered, slow-speed machines which are being introduced by many firms at the present time.

The fuselage is of square section and carries a 320-h.p. A.B.C. "Dragonfly" engine in its nose, which is covered in by a conical cowl leaving the cylinder heads protruding, a continuation of the cowl forming a spinner on the propeller boss.

An ordinary vee-type undercarriage is fitted. The upper plane is placed very low over the top of the fuselage thus giving the pilot an excellent view upwards.

SPECIFICATION.

Type of machine	Single-seater Biplane.
Name or type No. of machine ...	" Ara " (1919).
Purpose for which intended	Military and Sport.
Span	27 ft. 6 ins.
Overall length	20 ft.
Maximum height	7 ft. 10 ins.
Engine type and h.p.	320 h.p. A.B.C. "Dragon-fly."
Weight of machine empty	1,900 lbs.
Tank capacity in hours	3¼ hours.
Performance—	
Speed at 1,000 feet	150 m.p.h.
Landing speed	55 m.p.h.
Climb—	
To 10,000 feet	5½ mins.

ITALIAN NOTES.

The Viennese having seen them and probably taken excellent photos of them, it is now permitted to point out a few of the characteristic features of the S.V.A. machine designed on plans (suggested of Savoia and Verduzio one has seen it stated) by Ing. Brezzi of the Ansaldo firm, the biggest concern of its sort in Italy and perhaps in Europe.

The wing shape of this smallish scouting biplane is of very low aspect ratio with a greater span to the trailing edge than to the leading edge. Squareness seems almost to have been aimed at in the designing of the wings as in the nose of the machine while the upper surface of the body is unusually streamlined and quite distinctive. The engine is the vertical S.P.A., and the latest type is said to do 250 kilometres (say, 160 miles) an hour.

The type now in use has a small dihedral to the lower plane which is cut away round the body for visibility. There is no stagger and there are ailerons only on the upper plane. Deep fuselage, plenty of side area, and a generously proportioned tail of fairly normal design are features of the machine. These were the machines which photographed Friederichshafen. There are two types, merely varying in size and engine power. The relative absence of wiring and the tubular struts are perhaps the technical talking points. Anyhow, speed and a big radius of action have been produced, which is most of what one needs.

T. S. Harvey.



The Armstrong-Whitworth " Ara " 320-h.p. A.B C. " Dragonfly."

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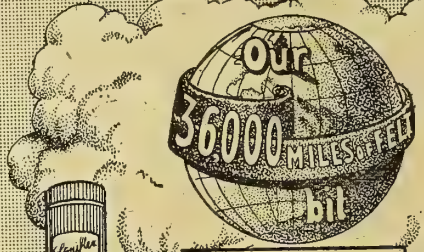
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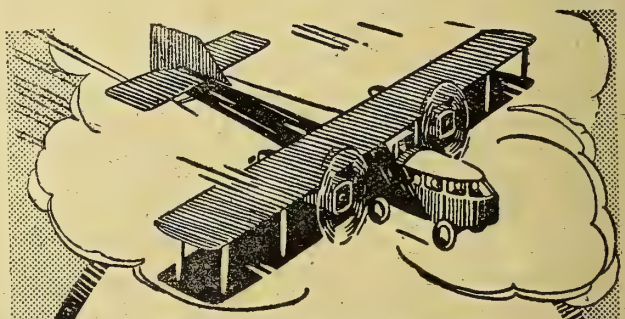
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THE PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the Current Official Patents Records :—

Patents Applications.

Ayscough, H. H. Device for compressing air on aircraft. No. 8747. April 7th.

Ayscough, H. H. Reservoir for accumulating and heating compressed air on aircraft. No. 8748. April 7th.

Chapman, H. E. Level-indicators for aircraft, etc. No. 8879. April 8th.

Christmas, W. W. Aeroplanes. No. 9141. April 10th.

Craig, J. Carrying and releasing bombs, etc. No. 8755. April 7th.

Gammell, S. J. Assisting aircraft to land. No. 9173. April 10th.

Hargreaves, W. A. Silencers for aircraft engines. No. 9305. April 11th.

Hargreaves, W. A. Controlling-devices on aircraft, etc. No. 9306. April 11th.

Harwood, A. Aircraft planes, etc. No. 8948. April 9th.

McLaughlan, J. Level-indicators for aeroplanes, motor-cars, etc. No. 8978. April 9th.

Marschall, L. Automatic aeroplane director. No. 8791. April 7th.

Mellor, W. H. Parachutes. No. 9266. April 11th.

Paine, H. Scott-. Aeroplanes, seaplanes, etc. No. 9299. April 11th.

Paine, H. Scott-. Elevator-controlling mechanism in aircraft, etc. No. 9300. April 11th.

Paine, H. Scott-. Aircraft, etc. No. 9301. April 11th.

Paine, H. Scott-. Aircraft, etc. No. 9303. April 11th.

Paine, H. Scott-. Aircraft, etc. No. 9304. April 11th.

Paine, H. Scott-. Mounting of control sticks in aircraft, etc. No. 9302. April 11th.

Paine, H. Scott-. Bodies of flying-boats, etc. No. 9307 April 11th.

Rensch, B. Aeroplanes. No. 9120. April 10th.

Scheffermeyer, J. T. V. Means for synchronising compass and chart in flying-machines. No. 8749. April 7th.

Slinger, T. Helicopter flying-machine. No. 8678. April 7th.

Stewart, C. J. Apparatus for supplying oxygen, etc., for breathing in aircraft. No. 8810. April 8th.

Tidswell, H. R. Aerial propellers. No. 8711. April 7th.

Blacksher, E. M. Aeroplanes, etc. No. 9595. April 15th.

Boerner, A. System for feeding internal-combustion engines for airships. No. 9405. April 14th.

Bonson, E. W. Landing places for aircraft. No. 9569 April 15th.

Bonson, E. W. Landing devices for aircraft. No 9570. April 15th.

Dixon, H. S. Flying machines. No. 9629. April 15th.

Limlemann, F. A. Gyroscopic turn-indicators for aircraft. No. 9521. April 14th.

Mallinson, B. H. Combined radiator and air-intake for aircraft. No. 9725. April 16th.

Normand, J. C. Folding framing for dismountable booths and hangars. No. 9867. April 17th.

Orman, F. R. Landing arrangements for aeroplanes. No. 9684. April 16th.

Parsons, J. G. Propulsion and steering of aerial and marine vessels. No. 9900. April 17th.

Piddock, J. Toy flying devices. No. 9885. April 17th

Richards, G. T. Aeroplanes. No. 9720. April 16th.

Sherrin, G. C. Speed-indicators for aeroplanes, etc No. 9515. April 14th.

Stamper, S. W. Aeroplanes. No. 9590. April 15th

Stephen, R. S. Marine, aerial, etc., compasses. No. 9790. April 17th.

Stevenson, W. J. Aeroplanes and airships. No. 9692. April 16th.

Complete Specifications Accepted, prints of which can be obtained on and after May 1st, 1919.

124,763. Jan. 3rd, 1916. Tesse, T. F. Coating-composition and process of applying same, intended more particularly for coating aeroplane cloths.

124,767. March 16th, 1916. Phillips, G. F. T. Apparatus for determining the altitude of aircraft.

124,783. March 27th, 1916. Aeronautical Instrument Co., and Brewer, G. Air-speed indicators.

124,785. March 27th, 1916. Mortimer, W., and Potten, F. Apparatus for facilitating the landing of aircraft.

124,787. March 28th, 1916. Coulson, W. T., and Optalyte, Ltd. Means for determining the heights from the ground of aircraft and the like.

124,790. March 29th, 1916. Peck, H. S. Aerial dart bombs.

124,808. April 13th, 1916. Sunbeam Motor Car Co., and Coatalen, L. Fuel-feed systems for use on aeroplanes and the like.

124,815. April 19th, 1916. Blackburn Aeroplane and Motor Co., and Blackburn R. Bracing between the planes of tri-planes and multi-planes.

124,819. April 20th, 1916. Day, B. I., and Rolls-Royce, Ltd. Construction of car framework of airships, aeroplanes, and the like.

124,822. April 25th, 1916. Beardmore and Co., W., and Richards, G. T. Controlling-devices for aeroplane flying-machines.

124,827. April 28th, 1916. Aeronautical Instrument Co., and Brewer, G. Combined pressure and static head for air speed indicators.

124,832. May 1st, 1916. Roe, A. V. Tilting mechanism for the tail planes of aerial craft.

124,834. May 2nd, 1916. Vickers, Ltd., Challenger, G. H., and Savage, H. A. Aircraft.

124,835. May 2nd, 1916. Vickers, Ltd., Challenger, G. H., and Savage, H. A. Aircraft.

124,844 Jan. 3rd, 1916. Tesse, T. F. Treatment of fabrics, and particularly the treatment of aeroplane fabrics.

124,848. June 6th, 1917. Davidson Aviation Co., Chester, W. E., and Morgan, L. Metal propeller bush for aircraft of all descriptions.

124,857. July 30th, 1918. Bygrave, L. C. Sights for use on aircraft.

124,861. March 1st, 1918. Lumsden, J. D., MacKenzie, R. W. R., Robinson, E. H., and Fort, M. Wings, and the like, of aeroplanes.

124,872. March 28th, 1918. Allen, R. Gun mountings for aeroplanes.

124,892. April 4th, 1918. Morch, J. J. Means for mounting propellers for aircraft.

124,893. April 4th, 1918. Tarrant, W. G., and Barling, W. H. Steering or controlling aircraft.

124,894. April 4th, 1918. Tarrant, W. G., and Bouillon, E. Means for operating the stabilising or steering devices for aeroplanes.

124,935. April 30th, 1918. Drzewiecki, S., and Rey, J. Self-setting sails or blades of windmills or of tractor screws or of pusher screws of aeroplanes or dirigibles.

124,939. May 8th, 1918. Watkins, H. E. Aeroplane level or position indicators.

125,003. Aug. 14th, 1918. Masterman, E. A. Mooring-devices for lighter-than-air-aircraft.

125,019. Oct. 16th, 1918. Fairey Aviation Co., and Fairey, C. R. Means of securing fittings to the spars of aircraft.

125,023. Oct. 17th, 1918. Blondeau, G. J. E. Fuel-supply devices for the engines of aircraft.

123,074. Feb. 1st, 1918. Stabilimenti Biak—Ing. A. Pouchain. Axle for aeroplane carriages.

123,748. Feb. 21st, 1918. Stabilimenti Biak—Ing. A. Pouchain. Axle for aeroplane carriages.

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Brackenbury, E. W. Propulsion of air and watercraft and land vehicles. No. 10425. April 26th.

Calthrop, E. R. Parachutes. No. 10190. April 23rd.

Calthrop, E. R. Load-detaching devices for parachutes. No. 10191. April 23rd.

Caproni, G. Flying machine. No. 10340. April 25th.

Caproni, G. Landing-carriage for flying machines. No. 10341. April 25th.

Hall, W. Means for connecting to crankpin the connecting-rods of multi-cylinder radial or rotary engines. No. 10266. April 24th.

Hamilton, C. H. Level-indicators for aircraft, etc. No. 10084. April 22nd.

Malsallez, P. M. J., R.C.C.G. Landing-apparatus for aeroplanes. No. 10019. April 22nd.

Pastrone, G. Ensuring normal air conditions for persons in aircraft. No. 10256. April 24th.

Pavely, D. A. Compressed-air power plant for model aeroplanes. No. 9969. April 22nd.

Tarrant, W. G. Aeroplanes. No. 10070. April 22nd.

Westaway, J. Means for arresting or braking aeroplanes, etc. No. 10010. April 22nd.

Wiltshire, F. J. Gas-producer plants for vehicles, locomotives, aircraft, etc. No. 10092. April 22nd.

Complete Specifications Accepted, prints of which can be obtained on and after May 15th, 1919.

125,090. May 5th, 1916. Sperry, L. B. Means for controlling aeroplanes.

125,092. May 8th, 1916. Roe, A. V. Construction of aircraft wings.

125,093. May 8th, 1916. Cochrane, F. Production of fabrics having the property of invisibility.

125,096. May 11th, 1916. Henderson, J. B. Apparatus for indicating changes in the course of a ship, airship, aeroplane, or the like, also applicable for automatic steering.

125,106. May 19th, 1916. Fairey Aviation Co., and Fairey, C. R. Seaplanes, flying-boats, and the like.

125,109. May 19th, 1916. Nestler, F. C., and Nestler, Ltd., F. C. Portable sheds or hangars, and the like, portable structure.

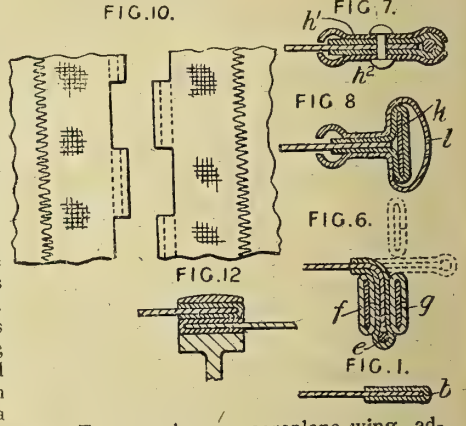
125,111. May 20th, 1916. Hall, L. M. M. Aeroplanes.

125,113. May 22nd, 1916. Ritchie, T. M., and Perrin, A. A. Airships, balloons, and the like.
125,114. May 24th, 1916. Vickers, Ltd., and Duncan, T. S. Mountings for guns carried by aeroplanes, and similar aircraft.
125,115. May 25th, 1916. Malder, A. F. Packing case, especially adapted for the transport of aircraft.
125,116. May 26th, 1916. Sunbeam Motor Car Co., and Coatalen, L. Cooling of internal-combustion engines such as are used on aeroplanes.
125,123. May 31st, 1916 Dunlop Rubber Company, Macbeth, C. Device for use in connection with aeroplane wheels
125,124. June 2nd, 1916. Edwards, W. N., and Gardner, J. D. Sighting-apparatus for use in dropping bombs or other missiles from aircraft.
125,125. June 2nd, 1916. Blackburn Aeroplane and Motor Co., and Blackburn, R. Aeroplanes.
125,126. June 2nd, 1916. Armstrong, Whitworth and Co., Sir W. G. Hadcock, A. G., and Forster, G. Non-recoiling guns suitable for use on aircraft.
125,152. June 19th, 1916. Peters, J. A. Aeroplanes.
125,159. June 21st, 1916. Saunders, S. E. Seaplanes.
125,161. June 23rd, 1916. Aeronautical Instrument Co., and Brewer, G. Balloons
125,162. June 23rd, 1916. Nalder, A. F. Portable hangar or shed for aeroplanes, and the like.
125,169. March 30th, 1916. Cazanave, A. Aeroplanes.
125,171. March 2nd, 1917. Cazanave, A. Aeroplanes.
125,196. April 3rd, 1918. Stead, F. Apparatus for shaping propellers for aircraft work.
125,209. April 8th, 1918. Rogers, R. H. Structural units in the form of beams, girders, and the like.
125,227, April 13th, 1918. Shirley, E. Clip or like attachment for wires or other stays on aeroplanes, etc.
125,249. May 1st, 1918. Gaynor, T. F. Station ships for an oceanic-aerial navigation and transport system.
125,261. May 11th, 1918. Morton, W. Means for attaching fabric panels to aircraft.
125,270. May 23rd, 1918. Boulton and Paul, and North, J. D. Means for loading the fuselages of aircraft with bombs or other articles.
116,893. June 12th, 1917. Kahl, J. F. Aeroplanes.
125,284. June 25th, 1918. Brown, E. E., and Mooney, D. J. Struts for aircraft.
125,317. Sept. 18th, 1918. Miller, H. W., and Bingley, F. Girders, spars, and like members of aircraft, and similar light structures.
121,464. Dec. 11th, 1917. Soc. des Moteurs Salmson. Tailpiece for aeroplanes.
125,398. June 28th, 1916. Flower, S. A. Airships.
125,419. July 8th, 1916. Roe, A. V. Detachable blade propellers for aircraft, and the like.
125,424. July 13th, 1916. Peters, J. A. Braking arrangements for aeroplanes.
125,429. July 18th, 1916. Sueter, M. F. Aircraft.
125,432. July 19th, 1916. Parkes, S. R. Bombs for use with aircraft.
125,438. July 25th, 1916. Power, R. F. Aerial observation.
125,440. July 26th, 1916. Hull, T. G., and Brewer, G. Apparatus for indicating the speed of ascent and descent of aircraft.
125,455. Aug. 5th, 1916. Barr and Stroud, Barr, A., and Stroud, W. Instruments for use in connection with anti-aircraft gunnery—an instrument for measuring the deflection and angle of sight correction with appliance for showing the fuse indication corresponding to the predicted position of target
125,456. Aug. 9th, 1916. Blackburn Aeroplane and Motor Co., and Blackburn, R. Manufacture of propellers for aeroplanes.
125,457. Aug. 10th, 1916. Phillips, G. F. Apparatus for calculating the ranges of aircraft from the observations of range-finders.
125,458. Aug. 10th, 1916. Blackburn Aeroplane and Motor Co., Blackburn, R., Copley, J., and Bumpus, F. A. Means or apparatus for adjusting or balancing the movement of the elevators or other controlling surfaces of aeroplanes.
125,460. Aug. 11th, 1916. Williams, E. T. Landing grounds for aircraft.
125,467. Aug. 17th, 1916. Pollen, A. H., and Chicken, C. B. Speed over land and drift indicator for use on aircraft.
125,468. Aug. 17th, 1916. Pollen, A. H., and Lanstad, H. F. Bomb-dropping sight for aircraft.
125,469. Aug. 18th, 1916. Saunders, S. E. Driving mechanism for the propellers of aircraft.
125,472. Aug. 19th, 1916. Vickers, Ltd., Challenger, G. H., and Savage, H. A. Means for firing guns carried by aircraft.
125,473. Aug. 21st, 1916. Hargreaves, F. J., and Blackburn Aeroplane and Motor Co. Controlling-mechanism for aerial machines.
125,474. Aug. 21st, 1916. Fairey Aviation Co., and Fairey, C. R. Aeroplanes and other flying machines.
125,479. Aug. 26th, 1916. Avery, W. and T., and Pratt, A. C. Aeroplanes.
125,504. April 16th, 1918. Baynes, C. Construction of controlling-devices applicable for use with internal combustion engines used on aircraft, and for other purposes.
125,530. May 30th, 1918. Ellis, J. Inclinometers for aircraft.
125,554. July 8th, 1918. Mooney, D. J. Treating steel for aircraft.
125,559. Oct. 2nd, 1918. Shaw, W. R. D. Aerofoils for aircraft.
125,564. Nov. 21st, 1918. Low, A. M. Apparatus for testing aeroplanes.

ABRIDGMENTS OF RECENTLY PUBLISHED SPECIFICATIONS.

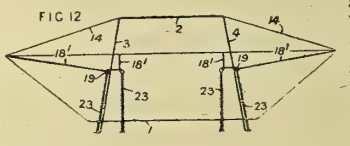
121,813. Celluloid panels; windows; aeroplane coverings. DOVER, H. W., Holyrood, St. James, Northampton.

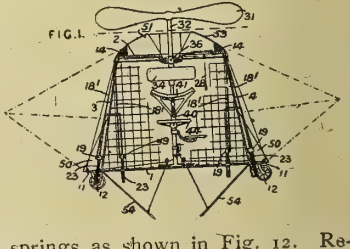
Celluloid and like sheets are provided on the margin with a strip of woven fabric *b* doubled upon itself and cemented or solutioned to the two faces of the sheet, the invention being applicable to wind-screens and windows or look-outs for cars, ships, aircraft, buildings, and hoods of vehicles; and to mirrors, scale-marked covers for maps, and coverings for aeroplanes. The doubled portion may extend beyond the sheet and may form a tube which may have a core *e*. The sheet may be clamped between inner and outer frames *f*, *g*, Fig. 6, or be secured by rivets between two frames h^1, h^2, Fig. 7. In the form shown in Fig. 8, a flat strip or core *k* is inserted in the fold of the fabric, and the frame is formed as a split metal tube *l*. The frame may comprise two wooden members secured together by screws which pass through the celluloid sheet. Fig. 10 shows a hinge joint for connecting two sheets edge to edge by means of a rod passed through the loops of the fabrics; the joint so formed may be covered on each side by a strip of wood, metal, etc. For covering an aeroplane wing, adjacent edges of the sheets overlap as shown in Fig. 12, and the fabric-covered margins are lapped over the nose of the wing to present a smooth leading edge.



122,164. Aeronautics. LEGGELO, P. B. VAN, 2405, West Sixth Street, Los Angeles, California, U.S.A.

AERIAL MACHINES WITHOUT AEROSTATS; CARS AND CABINS; PARACHUTES.—A helicopter machine comprises square or other shaped frames 1, 2 connected together by posts 3, 4 and covered with wire mesh to form a compartment for the pilot, etc., and an adjustable propeller 31 driven by a motor 34. A parachute 14 is normally collapsed under a cover 53, its outer end being attached to frames 18^1, Fig. 12, which are spring-hinged to slides 19 subject to the upward pressure of springs 23. When the parachute is closed by means of cords, the frames 18^1 lie against the sides of the compartment, as shown in Fig. 1, and are retained at their upper ends by catches. When the catches are released by means of cords 28, the parachute is automatically extended by its springs as shown in Fig. 12. Reflectors 54 may be swung out underneath the machine for rendering the car invisible from below.





PROPELLING; STEERING.—The shaft 32 of the propeller 31 is universally jointed at 36, and may be moved in any direction by means of a hand-wheel 44 and a lever 40 moving over a sector 41. The motor may be suspended below the joint 36, as shown, or may be above it.

PLANES, ARRANGEMENT OF.—Vertical planes 50 are provided for preventing rotation of the car.

LAND WHEELS.—The floor 1 of the car is provided with extensions 11 at each corner carrying swivel wheels 12.

TANKS, ARRANGEMENT OF.—Fuel tanks are provided at 51.

COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

COMEDIANS, CRIMINALS, AND CUSTOMS.

By "Medway."

I forget who first remarked, "Sweet are the uses of Advertisements." The phrase is one of which we are fairly often reminded. Thus I find in my morning paper two paragraphs on one page. The headings are respectively, "Flying Comedians" and "Flying Criminals."

The particular comedian referred to is Mr. Harry Tate, who contemplates making an aerial tour of the world in a Handley Page machine, carrying with him all the necessary company, scenery, and equipment for "Motoring" and other sketches, presumably including "Flying."

I do not for a moment suggest that there is any connection whatever between Mr. Harry Tate and the criminals already mentioned in passing. The juxtaposition of the two paragraphs merely gives one some idea of the extraordinary ubiquity of the aeroplane.

Mr. Tate's Dates.

First, as to Mr. Harry Tate's proposition. I have hinted at my impression that a recognition of the value of advertisement is not altogether unconnected with this paragraph. For some time to come long distance aeroplane tours are bound to be dependent upon weather conditions to a degree which will make it impossible to time exactly the arrival at each point. To me, in my ignorance, it seems a disadvantage to a theatrical company not to know until the last moment upon what date it will be able to give its entertainment.

Mr. Harry Tate is to make his first halt at Gibraltar. Will he book his theatre for a few weeks in advance, so as to be quite sure that it will be vacant when he arrives, or will he trust to luck to find him an adequate building capable of holding enough money to cover his expenses? These are professional problems on which I cannot profess to judge.

For the rest, the tour is to include Malta, Colombo, and various towns in India, China, Japan, and the United States. I presume that at the bigger centres Mr. Harry Tate will appear in the leading variety theatres as an extra special attraction, though it is rather difficult to understand how full advantage can be taken of his presence when advance bookings are practically impossible.



A FIVE-SEATER AVRO PASSENGER MACHINE.—The Photograph shows a standard Avro, type 504K, (100 h.p. Monosoupape Gnôme Engine), transformed into a Five-seater Passenger Machine. The four passengers sit two by two behind the pilot. The Machine is in every way a standard Avro, except that the fuselage has been widened and strengthened to accommodate the passengers. With the standard Mono Gnôme the Machine lifts its five passengers easily, but the authorities appear to consider that for ordinary commercial purposes a higher power should be used, and, therefore, at present it is only being used to carry two passengers and a pilot. This type, with a 130 H.p. Clergêt or a 200 h.p. "Wasp" A.B.C. Engine should make an excellent passenger-carrier. Further interest is lent to the Photograph by the persons with the Machine. Reading from left to right they are:—Mr. R. J. Parrott (Works Manager of the Avro Hamble Works); Captain Hammersley (the firm's chief pilot, who is seen climbing out of the pilot's seat of the machine); the Hon. Mr. Smith; his father, Lord Birkenhead, the present Lord Chancellor, who was formerly Sir Fredk. E. Smith, K.C.; and Mr. H. W. T. Chilcott, M.P., late Lieut.-Commander, R.N.V.R., attd. R.N.A.S. Lord Birkenhead and his son had just returned from a flight with Captain Hammersley.

The Modesty of Criminals.

Let us, however, turn to the other side of our subject, namely, flying criminals. The particular mental warp that makes a man funny in public is different from that which dictates the actions of criminals of the common or garden type. The successful comedian differs from the successful burglar or forger inasmuch as the former possesses a highly developed bump of publicity that is altogether absent or admirably suppressed in the case of the latter.

With the exception, perhaps, of the politician, the well-known actor is the most efficiently advertised person in the world. From this standpoint his desires could not be further removed from those of the criminal. The fact that both are attracted to the possibilities of the aeroplane shows how extraordinarily ubiquitous the aeroplane is to become. Some men will fly to escape publicity, while others will fly to secure it.

Opportunities for Qualified Housebreakers.

The criminal of the near future has some wonderful opportunities. He need not confine his operations within a narrow radius, but can work rapidly over a very large area. The qualified housebreaker will, of course, be subject to a slight inconvenience if he wishes to extend his operations to foreign countries. In that case his stock of implements will be liable to examination by the Customs authorities, presuming always that it is found possible to make an aerial coastguard reasonably effective.

Obviously such a coastguard will be needed, and it remains to be seen whether the organisation for the prevention of smuggling will be identified with the aerial police, or whether the two will be kept separate. It would be rather characteristic of us to adopt the latter course, because it would afford a means of providing more official positions. It would, moreover, supply an extra annoyance to the average aeroplane owner, inasmuch as he would have to undergo two overhauls, one by the Customs and the other by the police.

The Respectable Felon.

Obviously, the right plan would be to classify smugglers with all other breakers of the law and deal with them all by means of one organisation. Then there will be no question about the allocation of responsibility in the event of the wrong man getting through unobserved. In any case, the detective's job will be difficult enough.

The class of offender most likely to make use of the aeroplane is the man who has posed throughout his life as a very desirable and trustworthy citizen. In all probility he is a sidesman with side whiskers, or a generous supporter of the local charities and a member of the local council. The fact that he has been diverting funds entrusted to his charge, imitating handwritings on cheques, or adjusting the accounts of companies of which he is an official, will not be known to the public until it is observed that he, in anticipation of a crisis, has disappeared from his customary walks of life. Meanwhile, this respected gentleman, having equipped himself with an aeroplane for which he has not paid, will have got somewhere near the far end of the earth, and all kinds of trouble will arise in connection with extradition, assuming that he is located at all.

Wealth Is Not Proof of Dishonesty.

It rather seems to me that the laws connected with extradition will have to be changed and the process made easier. One cannot arrest a man who is attempting to leave the country in an aeroplane merely on the grounds that he looks respectable and appears to be wealthy and therefore in all probability is dishonest.

From the man's point of view, the beauty of the aerial method is that it can put such a long distance between him and those who are looking out for him during the interval between the removal and the discovery of his defalcation. There will, no doubt, be some very pretty little incidents in which aeroplanes and red-handed criminals will figure, but the really awkward cases will be those of the men against whom there is nothing definite at the time of their flight.

POST-BELLUM POLICIES.

By The Special Commissioner of "The Aeroplane."

The Nieuport and General Aircraft Co.

"Nebuchadnezzar, King of the Jews,
Suffered from new and original views."

I am beginning to regard him as a very fortunate man. My own views are getting more and more stereotyped as I progress on this subject. But that is another story. On this question of Commercial Aviation it is only natural that many manufacturers agree on many points. As I have stated before, they are somewhat shy of allowing the publication of their more original opinions. The easiest way to write these notes would, no doubt, be to have a printed series of answers to certain questions, arrange according to answers received, and fill in the name at the top; but the Editor might object, in spite of the facts that it would make much quicker reading—and easier writing.

Reduction in Cost.

Major Heckstall-Smith is very decided on the necessity of a big reduction in cost in the manufacture of aeroplanes, and also insists that they should be very much more easy to repair in order to effect economy in upkeep, which would undoubtedly result. He is considering new and cheaper methods of construction with this end in view, without sacrificing strength be it undestood. He points out that the chief stumbling-block to economy at the present time is the exorbitant cost of engines. So seriously does he regard this that he is quite prepared to enter into competition with engine makers and start manufacturing his own engines, supposing always that the price does not decline very considerably. He says that at present the cost of a complete machine is made up as to one-third aeroplane and two-thirds engines, or thereabouts.

Types of Aeroplanes.

The Nieuport Company is going to confine itself to land machines, to consist for the present of a semi-large machine, as distinct from the Giant type prophesied, for passenger or freight-carrying, and two and three-seaters. Major Heckstall-Smith does not believe in the enormous machine, he thinks a span of about 100 feet to be quite large enough, and went on to say that for really heavy cargo work or carrying large numbers of passengers it will be the airship that will be used. He suggested that aeroplanes will be in use at the termini of long trans-continental airship routes to collect and distribute both passengers and goods.

The largest of the Nieuport family is to carry a cargo load of 2,000 lbs., have a ceiling of 12,000 feet, and a climb to 10,000 feet in about 20 minutes; these figures represent the probable limits of requirements in Major Heckstall-Smith's opinion. Light loading and slow landing speed will also be features.

Military and Commercial Aircraft.

He emphasised the necessity for keeping Commercial and Military types distinct, both as to machines and pilots. He considers the Military machine as useless from a Commercial aspect, and vice-versa, and that it is absurd to suppose that Commercial aeroplanes can be any safeguard to the country in case of war, any more than merchant-ships can be used as warships in that event. With regard to Commercial pilots, he says that they will, he thinks, become "'bus-drivers" of the air, and that they cannot be regarded as a reserve from which to draw war pilots, especially as the very characteristics which make them safe and successful in their commercial occupation will operate against their success in war-flying. He regards bombing as the artillery of the future, and says constant pactice is necessary to ensure accuracy in carrying it out; thus the commercial pilot should not be military in any way.

Government Support.

Major Heckstall-Smith looks to the Government to assure the existence of certain firms, notably those whose war designs have been of proven value, by placing orders for war machines, at any rate to tide over bad times, he says it would be a disaster if our best designers were attracted by offers from abroad. This applies to both Military and Commercial designers, and he further states it would be a menace to our national safety. He regards 100 miles per hour as the economic speed, and the comfort of passen-

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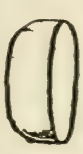
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gers as important. In his own words, "One has to turn from bombs to plush-covered seats." It may have been imagination, but I thought he did not look altogether pleased at the prospect.

The two and three-seaters will be purely joy-riding machines on scout lines, presumably on those of the Night Hawk, the price is to be in the neighbourhood of £500.

He regards the life-of-the-machine question entirely from the commercial point of view, and not as to how long the machine will last. How much can be reasonably written off for depreciation in making up a balance-sheet for the year's working? If he were a director of an Aerial Transport Company he would be inclined to go to the extent of writing off 100 per cent. of a machine after its first year. In other words, he places the commercial life at one year, of course it might be longer, if so, so much the better, but that is his view of the financial side of it. He thinks it is a safe and apparently conservative basis on which to make out charges against capital account.

COMPETITIONS.

I gather that in the way of competition machines the firm will confine itself to building high-speed Military scouts, and though this implies that they will not build for commercial competitions, it may not necessarily be so, for when the conditions for such are published, it is quite possible that different plans will be made. After all, it is rather one of the problems of the future, this competition question, which may resolve itself into tests between a few manufacturers who agree amongst themselves to build to certain specifications. It is not to be supposed that after the almost daily spectacle of flying during the war the public will easily be coaxed into parting with its shillings to see much the same thing during peace.

Also, there is a limit to the amount of advertisement to be got by offering large money prizes.

Taking it all round, it appears that the policy of the Nieuport Company is to be chiefly concerned with Military rather than Commercial Aeronautics; at any rate, it is apparently from war machines that the company is expecting to make its profits in the future. In this connection it must be remembered that the production of the Night Hawk may possibly have made its influence felt. I wonder if it is altogether good from the commercial point of view for a firm to turn out a highly successful war machine, I am inclined to think it is apt to overshadow commerce.

STUNTS OR BUSINESS.

My remarks on the value of the Atlantic flights at the present juncture from the commercial standpoint appear to have had an extremely irritating effect upon "Capt., R.A.F.," whose letter was published in THE AEROPLANE of April 9th. If he has not exactly got hold of the wrong end of the stick he has certainly not got a very firm grip of the right end.

In the first place, I would remind him and any other readers who are out of sympathy with my views that my business is confined strictly to the consideration of the commercial aspect of the case. This is not the section of the paper in which to discuss the purely sporting aspect.

I have the very greatest respect for the men who have risked their lives day after day in aerial warfare. My respect for any and all of these men goes so far that it could in no way be increased by their success in a venture perhaps no less risky but of a totally different class. The R.A.F. has lost thousands of good men during the war. I am loth to see the lives of those who have survived jeopardised for what I consider to be a comparatively inadequate cause.

If the trans-Atlantic flight presented no risks then I maintain that the public interest in it would be vastly less. This interest is in fact based largely on the desire for sensation, as I have already pointed out to the disgust of "Capt., R.A.F."

My critic wastes a lot of valuable ink in classifying me with people who in their day ridiculed the possibilities of railway trains and steamships. May I remind him that one of my first statements was "We know perfectly well that it is possible for an aeroplane to fly the distance."

I admitted that the first man to do it would attain at least a transitory fame and considerable financial reward. As a speculative investment the thing, therefore, appeals to a certain number of people. Later on we shall have regular trans-Atlantic services, but whether these will first be conducted by aeroplane or by airship remains to be seen.

For the moment, from the commercial standpoint, which is the point of view that it is my business to consider, the thing is not worth doing because it cannot add appreciably to our useful knowledge of how practical services should be run, and there are at least grave risks that it may have the effect of over-accentuating those drawbacks of aerial services that still have to be encountered and overcome.

On the day on which I am writing this note—April 14th—I find in my morning paper intimations to the effect that various famous aviators have been obliged by weather conditions to postpone making a start. Every announcement to this effect rubs into the mind of the public the fact that aerial travel is still dependent on weather.

I also find a note to the effect that in one case, at least, the under-carriage of the aeroplane is to be dropped shortly after the start, which necessitates a crash on landing. This is an admission that the flight is an adventure and not a demonstration of commercial possibilities.

I sincerely hope that before these lines appear in print we shall not have read that valuable lives have been lost and that evidence is being piled up to make the average member of the public feel more than ever that aerial travel is a very risky business.

In my opinion, at the moment the wise course would be to play for safety; not to attempt too much all at once but to go about the whole proposition gradually and carefully. I do not want anything to happen which will put back the clock by over accentuating the elements of danger and of an inability to work to time table.

I should like to see commercial aeronautics developed as promptly as possible, largely because that development will provide congenial and valuable employment for many of the men who have done such splendid service in the R.A.F. Every failure means, to my mind, the postponement of a number of openings for these men.

In short, I am not over happy about the whole thing "Capt., R.A.F." may jeer at me on account of my fears and may despise my commercial spirit. It is, however, out of commerce that the majority of us have to make our livings.

The time will, of course, come when trans-Atlantic aerial services will be absolutely safe and absolutely punctual. I do not contest this for a moment. Where I really differ with "Capt., R.A.F." is that I, personally, consider the present moment inopportune for the first great event in this new field.

I feel that the effects of failure, should it occur, would be so serious as to out-balance a hundred times the effect of the success which is inevitable at a very early date, and because of its inevitability, has already been largely discounted. The man who makes the record will, of course, be a public hero. He will loom much bigger in the eyes of the public than men who have done many equally heroic things in the air during the past four years. He will have demonstrated an almost superhuman endurance of nerve-strain.

I do not think our aviators need to provide any further proof of their qualities of skill and courage and their adventurous temperament. There is a heap of sound work to be done in developing real solid commercial aeronautical propositions and in the interests of those whose living depends upon the development, I grudge time spent on what seems to me a more showy, more dangerous, but no more important, adventure than a score of others which need to be undertaken in the near future.—"MEDWAY."



THREE EXPERIMENTAL ACK-Ws.—Two of the F.K.10 Type Quadruplanes and an F.K.8 with a Sunbeam-Coatalen "Arab" Engine.



An impression of the night flight by Mr. Grahame-White at the Hendon Aerodrome, the lighting being by Messrs. Rushmores, Ltd.

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CIVIL AVIATION.

With possibly one exception, that of the flight of Mr. H. J. Thomas, of the British and Colonial Aeroplane Co., Ltd., from Filton to London, little was done on May 12 to mark the inauguration of civilian flying.

Naturally the weather was responsible, for, although a Service pilot must fly in bad weather at times, it is, to say the least of it, unnecessary for civilians to do the same. So May 1st, hailed by all the newspapers as the day which was to set flying free, passed and left things much as they were.

Flying in Unfavourable Weather.

On May 1st Mr. H. J. Thomas, Director and Works Manager for the British and Colonial Aeroplane Co., Ltd., had an important appointment in London with Major.-Gen. Seely, and decided to take immediate advantage of the removal of the restrictions on civilian flying. From the various types of "Bristol" machines suitable for commercial flying, Mr. H. J. Thomas chose a "Bristol" "Coupé" as being the most convenient for his purpose. This is an extremely fast machine, designed to carry a single (why not married?) passenger in a warm, closed-in coupé, fitted with a writing-desk and in telephonic communication with the pilot. The engine was of the Rolls-Royce "Falcon" type.

In spite of the fact that the wind was blowing almost a gale, that rain was falling in heavy showers, and that mist and low-lying clouds made the conditions most unfavourable, Mr. Thomas started on his journey piloted by Lieut. Ewins. With the strong wind behind them remarkable speed was made: Swindon was reached in 12½ minutes. After passing over Didcot the aeroplane encountered a particularly heavy storm of rain and wind, and a deflection was made to avoid the storm centre. This necessitated a wide detour *via* Aylesbury, so that Hounslow was approached eventually from the north. An excellent landing was made in the aerodrome 58 minutes and 5 seconds from the time of taking off at Filton. Aylesbury to Hounslow took 10 mins.

The landing was made shortly before 11.30, so that Mr. Thomas won for himself the distinction of being the first civilian passenger to land at an officially appointed aerodrome under the British Air Ministry, either in London, or so far as can be ascertained, at any point within the British Isles.

So far as can be ascertained, the only important descents which were made on the national aerodromes on the appointed day for civilian flying were confined to London and Manchester. It is interesting to record that just as a "Bristol" machine was the first model to land within the Metropolis, so in Manchester the first aeroplane to land was a "Bristol" Fighter piloted by Capt. West, which conveyed aeroplane films from Reading.

Newspapers by Air.

Two daily newspapers had arranged to have their papers carried by air, but neither of the machines reached its destination. The "Daily Express" representative was to fly to Manchester, but only reached Rugby, and the "Daily Mail" representative was to fly to Bournemouth, but crashed on Portsdown Hill, Portsmouth. Capt. Saint, one of the two occupants, sustained a fractured jaw, and Capt. Grieg was badly shaken.

On May 3rd Mr. Sidney Pickles on a Fairey seaplane (Rolls-Royce engine) flew from the Thames opposite the Houses of Parliament to Westgate and Margate with copies of the "Evening News," and also made the return journey to Blackfriars Bridge, where the seaplane was hoisted onto a barge.

Major E. L. Foot, R.A.F., flying a Handley Page, made a tour of Brighton, Eastbourne, and Hastings from Hounslow, dropping copies of the "Evening News" by Guardian Angel parachutes at each town. The aeroplane left Hounslow at 4.50 and returned at 10 p.m.

The "Daily Mail" two-engined Handley Page aeroplane (Rolls-Royce engines) made a fine non-stop flight of 370 miles on May 5th with newspapers and ten passengers. It left Manchester at 5.20 and passed over Carlisle, Dundee, Aberdeen, Montrose, and Edinburgh. At Aberdeen Major Orde Lees descended by parachute in order, he said, to pay a visit to an old friend. The machine carried 1,500 lbs. of newspapers, which were dropped along the route by parachute.

London to Manchester.

On May 1st a Handley Page machine (two Rolls-Royce engines) left Cricklewood Aerodrome, carrying ten passengers and 6 cwt. of luggage, for Manchester. The pilot was Lieut.-Colonel W. S. Douglas, R.A.F. The flight was a non-stop one. In spite of a very strong head-wind of about 30 miles, the machine arrived safely in Manchester in about four hours.

Another flight on the new civilian air route from London to Manchester ended on May 1st, in a disappointment; but when or how exactly it ended it is not yet possible to say. Great interest was taken all day at the Alexandra Park Aerodrome, in the expected arrival of two aeroplanes which should have started from London as early as six in the morning—one carrying Madame Venn, with some of her well-known merchandise for sale in Manchester, and the other a Press correspondent.

But to the great disappointment of quite a lot of the general public, as well as the W.R.A.F.s, nothing more satisfying arrived in daylight than a telegram to say that Madame Venn had passed Coventry (?) The weather, of course, was abominable. Late this evening news arrived from Madame Venn to say she was safe at Long Buckley.

A Long Run.

Another good flight was made on May 3rd by another Handley Page machine (four 350 h.p. Rolls-Royce engines) which flew from Belfast to Carlisle, Newcastle, York, Doncaster, Lincoln, Boston, and across the Wash to Bircham Newton, a total distance of 410 miles, in four hours and 20 minutes. The weather was very bad and at one point the machine ran into a hailstorm.

CIVIL AVIATION IN SCOTLAND.

By a Scottish Correspondent.

The principal Scottish civilian flying station, Turnhouse, was affected in no way by the inauguration of pleasure and commercial flying on May 1st. I paid the Edinburgh aerodrome a visit in the morning expecting to see some signs which would indicate a busy time in the world of aviation, but had to return disappointed, and rather surprised at the pessimistic attitude which some of the aerial officials adopted.

Nor did they take any pains to hide their views. They seemed, indeed, to take delight in prophesying the failure of post-war commercial aviation, unless it were connected with military or naval schemes. There were, however, no signs of a civil or commercial invasion of the Turnhouse station. On the historic date there was a belief in the Scottish capital that possibly one or two machines would land at this ground, but unless for highly experienced pilots any attempt at flying on May 1st was certain to meet with failure. The Clerk of the Weather was evidently against any flying in Edinburgh and district on the first civilian aviation day. There was a very high wind blowing across the station, and later in the morning heavy clouds gathered and rain was accompanied by gusts of wind.

The Lack of Clear Regulations.

The general opinion at Turnhouse is that the officials will not be troubled very much at any time by visiting machines. The officers who are to deal with the arrival of private machines are as yet almost in ignorance of their duties. At the time of writing no clear regulations have been issued by the authorities beyond the usual official statements regarding procedure in the air and so forth, and the officials are in a quandary. Of course, according to the regulations, any machine landing at Turnhouse or any other stations must be in possession of a registration number. This number would be checked at the Edinburgh station if the machine landed there, and the pilot would need to produce his "bona-fides" in the shape of his certificate and registration number.

The supplying of petrol, oil, and other necessities and the carrying out of repairs would be done by expert mechanics, a charge being made for the amount of work done. In expectation of machines arriving, two large hangars have been cleared, and the ground will now be taken over by the civilian flying authorities.

Farewell Stunts.

The military pilots with their machines are removing. In fact, some left the ground and raced across the stormy sky during the time I was at the station. The farewell took the form of several daring stunts, magnificently carried out on Sopwith Camels.

There is, as yet, no talk of a mail service from the South to Edinburgh or from the city to the West or North; but it was explained that in the event of such a venture on the part of the postal officials the work would devolve on the Turnhouse officials. The public will, of course, be able to obtain pleasure flights at this station, and it is expected that some excellent business will be done.

Scottish Gloom.

There is a belief that the British Caudron Company will take over a part of the aerodrome for pleasure flying, and it might be pointed out that this venture would meet with the greatest approval from the citizens of Edinburgh.

As already indicated, officials at Turnhouse are not in the least attracted by the new civilian flying regulations, and, indeed, foretell failure for any schemes. One officer stated to me that the "game was not worth the money." He quoted the case of an individual who might for business reasons require to undertake a journey of 4,000 miles. Taking into account the expenses of the trip, it would work out at about £2,000 as the sum which the passenger would need to pay as his fare.—McP.

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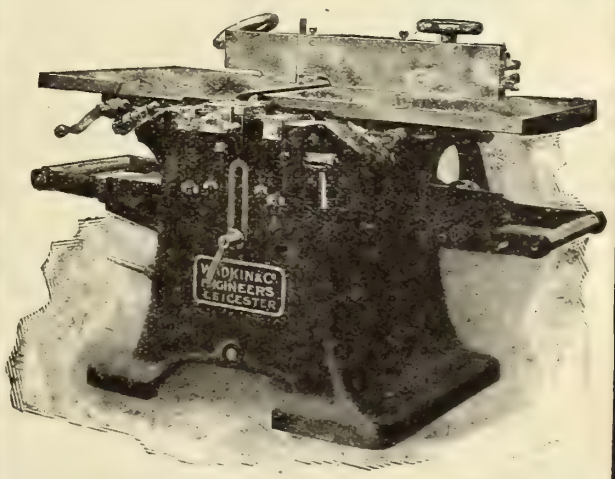
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AIRCRAFT FINANCE

THE AERODROME CONSTRUCTION CONTRACTS.

The Appropriation Accounts presented by the Air Board (and Air Ministry), covering the first year of its separate existence, raises one's hopes of great revelations—and almost immediately there is a slump below zero. Neither are they illuminating nor comprehensive, but, on the contrary, rather more dull than ditch-water.

The Year's Appropriations.

In reality they are not accounts, as one commonly understands a balance-sheet, but simply a bald statement of sums appropriated by permission of Parliament "for the purpose of organising and maintaining the supply of aircraft in the national interest in connection with the present war," and refer only to aerodrome accommodation provided and contemplated.

Treasury Criticism.

But even the policy relating to the provision of aerodromes can be made to serve up some interest. Thus the Treasury, which is commonly supposed to keep an eye on extravagance, considered it necessary to correspond with the Air Ministry apropos the method or principle of contracting.

The New and the Old Style.

As an example of Treasury criticism, the Air Ministry revised the form of contract which did not appeal to the Treasury as being so advantageous or economical. This gingered up both parties. Lump-sum contracts being impracticable, they were placed on a commission basis. The War Department contract superseded by the new method of the Air Ministry was :—

(1) Contractor's commission calculated at, in most cases, 3½ per cent. and 4 per cent. on the contractor's cost.

(2) No commission payable on any material supplied by the War Department.

(3) Depreciation and hire of plant were to be valued and paid for accordingly.

The Air Ministry substituted the following terms :—

(1) Contractor's commission calculated at 4 per cent. on the first £250,000, 3 per cent. on the next £250,000, and 2½ per cent. on all above £500,000.

Reservations.

To the casual observer the new seems the cheaper way of contracting, especially as the work was on a large scale as a rule. Moreover, the terms provided a time limit within which the contractor *undertakes to do his utmost to complete the work* and reserve power to the Air Ministry to *cancel the contract if they considered the rate of progress insufficient*. Such reservations were important, provided they were exercised efficiently.

The Toothsome Titbits.

There are some toothsome titbits in the Treasury comment on this definition of policy. It was regretted that the Administrator of Works and Buildings should have taken the step (which was clearly outside his competence as an officer of the Ministry of Munitions) of cancelling and revising in a sense *more favourable to contractors the already liberal contract terms* on which aerodromes were being constructed for the War Office.

As these contractors were receiving a percentage on their expenditure and incurred no risk, it is difficult to understand, said their Lordships, what public benefit could be derived from a change which increased their remuneration (by an amount which they note is estimated at £66,000) without, so far as can be seen, securing in any particular an additional advantage to the State. This £66,000, by the way, was a conjectural increase brought about under the new contracting.

Some Sauce Piquante.

Continuing, their Lordships of the Treasury serve up to the Air Ministry some *sauce piquante* in the following brief, bright, and brotherly manner; they note that the ground alleged (for revising the contracting method) is that the contractors were *not making sufficiently handsome profits*, and had, therefore, "lost interest" in their contracts, but the Army Council say that this statement is entirely at variance with the information at their disposal.

Complaints of Wasted Money.

The complaints which their Lordships have received from many quarters, continues the Epistle of the Treasury, as to the waste of money which is arising in connection with aerodrome contracts reinforce their view that the form of contracts on the cost plus percentage system is open to serious objection. The Air Ministry's contention of the impracticability of lump-sum or similar contracting failed to carry conviction. From the point of view of urgency and efficiency, runs the concluding paragraph, it is difficult to see how anything but harm could result from a contract under which a contractor had *no incentive to press on the completion of the work, but has, on the contrary, a direct incentive to allow his workmen to idle and accumulate unnecessary expense.*

Compassion.

This is a palpable hit, and, so far as an outsider is able to judge, the lead is with the Treasury. But it is easy to criticise, as the French philosopher remarked. Constructive criticism is useful, and produces healthy results sometimes. One is not sure whether to be compassionate with the Air Ministry and make a liberal concession for the natural faults of youth or smile grimly.

The Amount Spent.

As from April 1st, 1918, the Air Council assumed much more complete financial responsibility for services connected with the R.A.F., including pay, stores, and transport, but the supply of technical air equipment remained with the Ministry of Munitions. The expenditure for the year was £2,531,974, made up as follows :—

Salaries, wages, etc.	£107,518
Travelling expenses	4,255
Incidental expenses	10,312
Miscellaneous stores	1,058
Works and buildings	2,408,831

Uncompleted Schemes.

On the cessation of the Armistice, measures were taken to stop work on the construction of aerodromes, and by the end of March work had ceased at 71 sites without completion of the original plans.

CURRENT TOPICS.

A Professorship of Aviation.

Apropos the gift by the Board of £25,000 for the foundation of a Professorship of Aviation in London, agreement was not reached between the University and the Department, on the conditions attaching to the foundation, until July, 1918, when the Air Council decided that the capital endowment should be paid over with interest, and the Auditor-General, in assenting to

the charge of interest at 5 per cent. against the funds of the Ministry, points out that the Treasury regretted that the matter had not been referred to them earlier, as immediate investment in Government securities would have been advised.

Clerical Staff Grows.

The civilian clerical, etc., staff at headquarters on January 31st, 1919, numbered 2,768, against 667 on January 11th, 1918, and 1,692 on April 26th, 1918. As against the continued increase in numbers of male staff after the date of the Armistice it appears that the military staff has been appreciably reduced.

W. J. Davies.

ON MATTERS ACTUAERAL.

By Captain P. A. Barron (late R.A.F.).

The subject of Aviation Insurance has been discussed at length by writers and lecturers, "too tedious to mention," to use the words of a certain truthful but tactless reporter.

These discussions have a tendency to wander into what one presumes are purely academic investigations into the effects of alcohol upon the lateral stability of pilots, and the necessity of registering officially the characteristics, congenital or acquired, of those who fly.

Gravity not to be Treated with Levity.

Thought seems to have run in the direction of life or accident insurance of those persons who though they aspire to the stars remember that the force of gravity is not to be treated with levity. But this is only one aspect of the problem. The other is the insurance of aircraft, and this is quite as important.

Until all types of aircraft can be insured at reasonable premiums it is difficult to see how one can expect great advances in the utilitarian application of aeroplanes and airships.

One heard recently of a clause in a policy to the effect that claims would be settled less 1/500th for each hour of flying life of the aircraft after its first 100 hours. This clause calls for some consideration.

It is evident that after a machine has flown for 100 hours its life as an "A.1. at Lloyds" craft is considered to be at an end. After 200 flying hours its value is supposed to have dropped to 4/5ths of the amount for which it was originally insured, and after 600 hours its value is to be considered nil.

A Very Unprofitable Crash.

This means, one presumes, that if an insured machine crashed after the completion of 600 flying hours the owner would be entitled to nothing whatever. To put the proposition in another way, if the machine were to fly two hours each day (excluding Sundays) its value would be regarded as nil at the end of a year.

Now, as machines and engines are at the present time, it would be quite impossible to keep an aeroplane in commission for one year without renewing a great many parts. In the case of the engine a large number of the wearing parts such as valves and valve operating gear, bushes, pistons and rings would have been replaced many times over before the year had expired. The aeroplane would in all probability consist of only a small proportion of its original parts and the remainder would be new.

If it had received proper attention throughout the year it should be as airworthy at the end of the twelve months as it was at the beginning.

The system, therefore, of depreciating its value solely in accordance with the number of hours flown strikes one as absurd.

Nothing left of the Machine except the Number.

One may with advantage consider the methods employed in the R.A.F. A machine was taken over from the manufacturers and allotted a certain number. In course of time it might be fitted with a new engine, new planes, a complete undercarriage, and possibly the fuselage might be entirely re-built. Thus practically nothing of the original machine would be left except the number, and that might be painted on a new rudder.

But it would be absurd to say that the machine was less airworthy at the end of its service. It was equally safe, and, providing that the replacements had been made efficiently, it should have had an equal insurable value throughout its life.

Now when we consider the problem of aircraft insurance one fails to see why one should assume that commercial firms will not apply the same methods, in this respect, as those of the R.A.F. One presumes that they will not be allowed to fly machines that are not airworthy, as one has been assured that aircraft will be inspected daily by licensed ground engineers.

The Thing that Matters.

Therefore it would appear that the number of hours flown is not the chief factor to be taken into consideration in determining insurance premiums. The thing that matters is the airworthiness of the machine, and that is to be certified officially from day to day.

In its comparatively short life an aeroplane does not deteriorate as do ships, for example. Owing to the rapid development of the science of aeronautics they become obsolete very rapidly, but during their period of utility they must always be tuned up to concert pitch. Were it not that they have been superseded by improved types some of the machines built five years ago might be just as airworthy, or air-unworthy, as they were when they first left the ground, though it is probable that there would be nothing left of the original engine or aeroplane.

Not Like Bret Harte's Miner.

Bret Harte in one of his stories referred to a certain miner who regarded clothes as a second skin only to be sloughed off through decay. Do insurance companies think that aeroplanes will be worn out in the same manner until the fabric has sloughed off the planes? One can assure them that they will not.

One might perhaps argue on the law of averages that the longer an individual machine flies the greater are its chances of meeting with an accident, but one's reason tells one that in the case of aircraft this is not necessarily so.

A Few Whole-hearted Crashes.

If one thousand machines flew two hundred hours each it is probable that some of them would crash so whole-heartedly that they would be write-offs, but one is not compelled to believe that there would be more crashes among those in their 'teens than among the centenhourians.

Certainly as time goes on aircraft will be produced that are less liable to damage than those we have to-day, and guided by future experience (plus the compelling force of competition), insurance companies will quote lower premiums for the newer and safer craft. Also, guided by experience, they may decline to renew policies on older types of machines on the terms first quoted.

Some Entirely New Problems.

The particular point one wishes to drive home is that in the insurance of aircraft one cannot be guided entirely by analogies. Aeronautical actuaries (may one call them Actuaerial experts?) have entirely new problems to solve. They should realise that the number of hours during which a machine has flown is not the chief factor that should determine the premium. Airworthiness is the premier consideration.

In the Air Navigation Acts, 1911-1919, Directions issued by the Secretary of State for Air under para. 3 (2) of the Air Navigation Regulations, 1919, dated April 30th, 1919, one finds the following:—

"8. Aircraft certified daily by such Licensed Ground Engineers will be periodically re-inspected by a person or persons duly authorised by the Secretary of State, who reserves the right to suspend or revoke licences granted as above, should such certified aircraft be deemed by him as a result of such examination to be unsafe.

"9. Ground Engineers certifying flying machines or engines as airworthy after overhaul, must be in a position to certify that all the conditions required for the inspection of subsequent aircraft during construction that apply to the overhaul have been carried out. The Secretary of State reserves the right to suspend or revoke the licence of the Ground Engineer responsible for certifying that the overhaul has been correctly carried out, should a test inspection be deemed by the former to indicate that the flying machine is not airworthy."

A Suggestion.

One would, therefore, suggest that in the present darkness of our inexperience insurance policies should be issued for short periods, for example, three months, and should be renewable for similar periods at perhaps a slightly higher premium, so long as it can be shown that the official inspections prove the machines to be airworthy, and that replacement have been made as required.

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AIRCRAFT IN PARLIAMENT

The following oral answers were given on April 30th :—

PARIS-BORDEAUX POSTAL AEROPLANE.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether his attention has been called to the burning of the Paris-Bordeaux postal aeroplane on the 7th instant; and whether he will cause experiments to be made with a view to the utilisation of more steel and less inflammable materials in the construction of civilian aircraft?

Mr. PRATT (Lord of the Treasury) : I am not aware of the actual cause of the accident referred to, but in the great majority of such cases fire is caused primarily by petrol. The substitution of metal for framework and fabric would reduce only slightly the risk of fire or the probability of injury to personnel Experiments on the lines suggested are actually being made, but till further knowledge is obtained—and this will take some time—I do not anticipate that it will be practicable to employ metal extensively in aircraft construction. The risk of fire from petrol is being reduced in English aeroplanes by various improvements which are being introduced.

CIVIL AVIATION DEPARTMENT.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether he can now make a statement as to the staff and work of the Civil Aviation Department?

Mr. PRATT : The provisional staff for the Department of Civil Aviation has been put forward by the Controller-General, and his proposals are now being considered by the Reorganisation Committee preparatory to obtaining Treasury sanction for the organisation as a whole.

Meantime provisional Treasury sanction has been obtained for some of the higher posts in the Department, and the Controller-General is carrying on with a nucleus staff lent by the Royal Air Force and composed of officers who have during the war gained the necessary experience in the various directions required.

The work which the Department of Civil Aviation will at present undertake may be broadly divided into four heads, of which I am circulating a full description with the Official Report, as it is too long for oral answer.

The following is the description referred to in the last paragraph of the foregoing answer :—

(i.) For general consideration, co-ordination, and planning, including that of air routes both at home and abroad. For examining and advising on the broad aspects of schemes for commercial aviation. The branch will have two main sub-divisions : one to deal with questions concerning the United Kingdom and the other with similar matters arising overseas.

(ii.) To obtain, co-ordinate, and issue technical and non-technical information of value to the industry and the other branches of the Department through the Controller-General to supply information to the Royal Air Force and all other services concerned. In this branch three sub-divisions are being formed : one to deal with non-technical information, the second with technical subjects, and the third to co-ordinate and issue information of every kind and to deal with publicity generally.

(iii.) The third branch will be known as the "Communications" Branch, and its duties will consist in giving technical advice and assistance to aerial navigation in regard to navigation questions and all forms of signals and communications, including wireless, directional and otherwise, visual signals and land lines. This branch will also be responsible for work in connection with aerial surveys and for the preparation and issue of special maps and charts necessary for aerial navigation. It will have two main sub-divisions, one to deal with signals in a broad sense, and the other with navigation, charts, maps, and survey.

(iv.) The fourth branch will deal with questions relating to the inspection and organisation of all aerodromes used for civil purposes, and with the licensing and registration of aerodromes, aircraft, pilots, and technical personnel employed in civil aviation. It will also carry out the investigation of accidents and their causes and the compilation of technical reports and records relating to this subject This branch will have three main divisions. The first will deal with the inspection and organisation of aerodromes, and airship and seaplane stations; the second with the licensing and registration of aerodromes, aircraft, and personnel; and the third with accidents.

In addition to these four branches it is proposed that there should be a Meteorological Section directly under the Controller-General. This section would deal with the location and supervision of local meteorological centres and stations, the issue of forecasts, warnings, and upper-air information, and generally with the meteorology of air routes. It would also carry out special investigations into climatic conditions generally, taking care to co-ordinate its operations with any other services concerned. At present the general question of the organisation of the meteorological services is under consideration by the Cabinet, but pending a decision the Controller-General has taken over the meteorological branch which served the Royal Air Force during the War, and the personnel of this branch are being lent provisionally to his Department, which supplies all information required by the Royal Air Force.

* * *

The following oral answer was given on May 1st :—

MISSING AIRMAN (LIEUTENANT MARS).

Mr. ROTTOMLEY (by private notice) asked the Minister for Air whether he has any further information as to the fate of the missing airman, Lieut. Mars?

The UNDER SECRETARY OF STATE FOR AIR (Major-General Seely) : Yes. Lieut. Mars, one of the officers of the Communications Squadron, left Nivelles, near Brussels, on June 22nd, bound for Kenley. He was observed by an officer in another aeroplane crossing the Channel, but as he failed to arrive inquiries were made at all the aerodromes to which it was thought he might be gone, and the Channel was searched and no trace of him was found. What happened was that he turned back in mid-Channel, apparently owing to engine trouble, and endeavoured to reach Nivelles, but was forced to land in a remote country district. I assume that he notified what had happened to those in the district where he landed, but through some mistake the notification was not passed on. Full inquiry is being made on this point. I am glad to say that this officer is alive and well.

* * *

The following written answers were given on May 1st :—

ROYAL AIR FORCE.—MOTOR-CARS.

Mr. PRESTON asked the Under Secretary of State for the Air Ministry whether large numbers of motor cars are still being purchased each week by the Royal Air Force; whether it is necessary for the Royal Air Force to have so many additional motor cars; and, if so, whether he can arrange that motor cars for which the Army have no longer any use can be transferred to the Royal Air Force, and thus save the expense of purchasing new cars?

Major-Gen. SEELY : All contracts for M.T. were cancelled after the Armistice, and no new vehicles have been delivered to the Royal Air Force since the middle of January last. The remaining parts of the question, therefore, do not arise.

DISMANTLING AEROPLANES, FARNBOROUGH.

Lieut.-Col. Sir S. HOARE asked the Under Secretary of State to the Air Ministry whether German prisoners have been, or are now, employed in dismantling and scrapping aeroplanes at Cove Camp, Farnborough; whether many of these 'planes are new 'planes, if so, why they are being dismantled; and whether some of the 'planes so dealt with are still in their factory wrappings, and some which have been used could easily be repaired?

Major-Gen. SEELY : The answer to the first part of the question is in the affirmative. A certain number of new machines have been reduced to produce at Farnborough. They are all of types which are obsolete for present purposes and for which there was no prospect of profitable disposal. No standard machines which it would have been economical to repair have been thus dealt with. I have satisfied myself, after careful inquiry, that the cost to the State of dealing with these machines in this way is less than that of housing and maintaining them with a view to sale

AEROPLANE CONSTRUCTION (CYPRESS).

Mr. REMER asked the Secretary of State for War whether he has had inquiries made into the circumstances how cypress came to be sanctioned for use on aeroplanes contrary to all the expert advice given by timber opinion; how many pilots' lives were lost through this unsuitable timber being used; what was the cost to the nation of this colossal blunder, and whether, in order to avoid such occurrences in future, he will appoint a trade committee to fully investigate and advise on the proper woods to be used in aeroplane construction, having regard to the bearing this matter has on the future safety in civilian and military flying?

Major-Gen. SEELY : Owing to the shortage of the best tried types of wood, the use of cypress for aeroplanes was for a time sanctioned by the responsible Technical Department on expert advice to meet war necessities. One fatal accident was held to be partly, but not wholly, attributable to the use of this wood, which has now been discontinued. The best independent expert opinion is already at the disposal of the Air Ministry on the subject of woods for aeroplane construction, and I do not think that there is any occasion for the appointment of a committee such as is suggested in the last part of the question

CIVIL FLYING.

Mr. A. M. SAMUEL asked the Under Secretary of State to the Air Ministry whether permission to private owners to fly aircraft shall be accorded only subject to their insuring themselves against liability for damage, so that innocent sufferers may be certain of recovering loss for proved damage to the commission of which they have not contributed?

Major-Gen. SEELY : Every possible safeguard has been provided in the regulations for civil flying to prevent loss and damage to the public. The working of the Regulations will be carefully watched, but at present I do not think it would be advisable to adopt my hon. friend's suggestion.

Mr. A. M. SAMUEL asked the Under Secretary of State to the Air Ministry whether Government-owned and privately-owned aircraft are liable in times of peace for damage accidently done by them to life and property?

Major-Gen. SEELY : There is now no special law applying to damage done by aircraft, and therefore responsibility for damage of the nature referred to in my hon friend's question must be determined by the ordinary law unless and until fresh legislation is made

AIR ROUTES (PORTSMOUTH).

Major Sir B. FALLE asked the Under Secretary of State to the Air Ministry why Portsmouth, the first naval port and dockyard of the country, has been left out of the scheme of the Air Ministry; and if he is aware that Portsmouth is one of the largest towns on the South Coast and has some magnificent alighting ground for aeroplanes?

Major-Gen. SEELY : There is no fully-equipped aerodrome in the immediate vicinity of Portsmouth. The air routes recently published are based on existing aerodromes where facilities in the shape of accommodation and personnel may be made available. Should the Portsmouth borough authorities have in view a suitable site, an officer of the Air Ministry will be sent to view it and discuss the possibility of its inclusion in the list of approved aerodromes.

AEROPLANE WINGS (DOPE RECOVERY).

Col. Sir ALEXANDER SPROT asked the Under Secretary of State to the Air Ministry whether the plant which the Government was in process of erecting at Farnborough last autumn for the recovery of dope from scrap aeroplane wings has been completed, if so, has it been decided to work the plant; if not, are the Government going to sell it; what sum has been expended on the plant; what quantity of scrap fabric has been treated; has the recovered dope been found satisfactory; why are the Government selling off the scrap to the public when they have a plant for recovery of the dope; and what is the name of the official in charge of the plant?

Mr. KELLAWAY : The plant in question has not yet been completed; when completed it will be worked by the Government. Up to the present a sum of about £1,500 has been expended on the plant. Only a small quantity of scrap fabric has so far been treated experimentally. The treatment has proved successful. The officer at present in charge of the plant is Dr. J. E. Ramsbotham.

THE CANADIAN AIR BOARD.

In the Dominion House of Commons the Government Bill creating an Air Board to control aeronautics in Canada was read for the first time. A Minister of the Crown will preside over the Board, on which will be represented the Departments of Militia and Naval Service. Authority will be given to the Board to make the necessary regulations to undertake technical research and to grant licences to pilots and for commercial services.

AERONAUTICS and The LAW

A REMARKABLE COINCIDENCE.

There must be telepathic communication between Mr. J. T. Tussaud and **"The Imp"!**

The former, on May Day, told in the "Evening News" the story of his purchase in 1898 of certain copper plates etched by Queen Victoria and the Prince Consort.

On the previous day was published in THE AEROPLANE an account by "The Imp" of the stir in Society and the Courts made by the threatened publication of etchings from just such copper plates in 1848.

The coincidence does not stop there. For "The Imp" in his article happened to refer to Mr. J. T. Tussaud in another connection, yet had not the remotest idea that Mr. J. T. Tussaud even knew of these etchings, nor did "The Imp" himself know of the existence of the copper plates!

Some curious legal questions are raised by Mr. Tussaud's disclosures. It appears that all public knowledge of the artistic efforts of the Queen and Her Consort in the production of these etchings was intended to have been prevented, and the etchings and a descriptive catalogue of them consigned to oblivion by the various injunctions obtained against the defendants Strange and J. T. Judge.

SOME CURIOUS LEGAL QUESTIONS.

Can His Majesty the King claim to recover those plates which on the authority of Prince Albert v. Strange and the admission of Mr. Tussaud were etched by His Grandfather and Grandmother, and up to 1848 had never been published by them nor are likely to have been since? Or if the King cannot claim their possession can he claim to have them destroyed? Can he claim destruction of all copies of the "Evening News" which contained Mr. Tussaud's article? Is it not as much a description of the etchings as the catalogue printed by Strange?

Yet another point. The compiler of the cataiogue, J. T. Judge, seems to have confined himself to eulogy.

"This royal and most interesting collection is now submitted to the inspection of the public under the firm persuasion and in the full confidence that Her Majesty's loyal and affectionate subjects will highly admire and duly appreciate the eminent artistic talent and acquirements of both Her Majesty and her illustrious Consort His Royal Highness Prince Albert.

"You must not be the grave of your deserving; England must know
The value of her own. 'Twere a concealment
Worse than a theft, no less than a traducement
To hide your doings." —SHAKESPEARE.

"CONSCIENTIOUS WORK."

Mr. Tussaud ventures on criticism:—

"Although not altogether faultless, from an artistic point of view, the work is most conscientiously executed, showing how painstaking was the Queen even in comparatively trivial matters."

Is that a libel? Fair comment, mayhap, but can it be said to be "on a matter of *public* interest"? The subject-matter of the criticism was an unpublished work which the Courts in 1848 held thte authors entitled to withhold from all *public* description. There seems little ground for supposing that the authors subsequently abandoned this right.

These legal conundra are doubtless of merely theoretical interest, seeing that Mr. Tussaud deserves congratulation and not censure for his acquisition of the copper plates and for his interesting article in which he gives an account of them.

The legal importance of Prince Albert v. Strange is that it established the right of the author or composer of any unpublished work to withhold it from publication.

Its interest in connection with aeronautics is illustrated by a case put in tthe course of the argument. "If a party publish a drawing of a house or a tree belonging to another person, can the owner restrain him by an injunction because his privacy was invaded?" If a paper publishes air photographs of private houses, private crashes or parks, can the owner restrain such publication on the ground of "Mind your own business"? Seemingly not, but the taking of aerial photographs and their reproduction for gain is a legitimate enterprise open to all the world now that flying has become general.

THE LINCOLN IMP.

THE USQUE AD CŒLUM DOCTRINE.

The following interesting letter has been received:—

Sir,—The article in the March 12th issue, as a complete refutation of the "usque ad cœlum" doctrine, however interesting in its research, is, to say the least of it, inconclusive and incomplete.

The matter requires careful consideration. The doctrine is far too deeply embodied in our law to be rightly brushed aside, and Parliament is essentially wise in seeking to deal with it betimes.

It presents two aspects of vital importance to the future of Aerial Navigation, viz. (1) the private rights of private owners and their lessees, and (2) the territorial sovereignty of the State or the right of the National State to assert its territorial sovereignty and control over the air spaces above its dominions terrestrial and aqueous.

This latter is of the utmost importance in relation to all world flying and commercial enterprise in the air.

Should the "usque ad cœlum" doctrine be asserted by National States of perfect and also of imperfect sovereignty? Few can doubt that its assertion and maintenance is essential to the adequate preservation of national security. The experiences of the war, and the great developments of the art of photography, which renders it possible to obtain accurate impressions of the earth at any altitude, are alone sufficient to demonstrate the need of such assertion.

No State of perfect sovereignty, especially one obsessed by the ideas of aggression such as prevailed in Germany before the war could, without loss of status, surrender such an essential attribute of its sovereignty. The "usque ad cœlum" doctrine, both from an international and from a commercial point of view, must in the future become one of ever-increasing importance. From a commercial point, in the loss of time which must be involved in the interruption of flights if, in the absence of international conventions to the contrary, aircraft carriers of goods or passengers, are compelled, by the municipal laws of the several Sttates over whose territories it is necessary to fly on any given voyage, to land at the frontiers, and make reports of themselves and their mission, and subject themselves to customs house inspection.

From a rational point of view, for the reasons of which those already indicated seem sufficiently to illustrate the importance, our own Government, fully alive to these considerations, has fully and effectively asserted its sovereign rights, "usque ad cœlum," and with such an example of the vitality of this maxim of our law, he is a bold writer that sets himself the task of its "complete refutation."

To-day our law prohibits, in asserting its complete sovereign rights, all flying or aerial navigation, except such as it expressly authorises or permits, in the air spaces over the whole area of the United Kingdom, and over the whole coast-line and territorial waters thereof.

Aircraft coming from abroad are expressly prohibited from entering the kingdom at any point save only such as are definitely chosen and assigned to be such entrances; and even then are subjected by our law to complete State control at the moment of commencing the voyage, at the moment of reaching the frontiers of our land, and in their future movements and flights in, through, and about the air spaces over our land. So vigorous is the assertion of our territorial sovereignty, "usque ad cœlum."

Private rights in this matter are but derivative from the greater right of national sovereignty. For whatever private rights exist in the air or in the infinite spaces above the earth through which the air moves such private right of ownership or possession must be originally derived from the sovereign rights.

Where the sovereign or those who held under him made grant of land or its surface, he, according to our law, parted with the subjacent earth in the shape of soils, minerals, waters not flowing in defined streams; but did he part with the air, and the superincumbent atmosphere, did he part with air spaces lying above and resting upon the land surface subject of his grant?

"The ordinary rule of law is that whoever has got the solum, the site, is owner of everything up to the sky and down to the centre of the earth." So said Vice-Chancellor James in 1870, in a very interesting case relating to conflicting claims of ownership to the superincumbent air and air spaces lying above a site in Eastcheap and Philpot Lane.

So, again, in 1901, when a railway company claimed the right to maintain telegraph wires over a piece of land under which they had rights of tunnelling, and in respect of which wires they had previously made judgment to the defendant, owner of the solum or site, under agreement with him, it was said: "That ownership of the surface gives ownership of everything above

the surface and of everything below, cujus est solum ejus est usque ad cœlum." And Mr. Justice Byrne held that possession of the surface prima facie gives title to all above and below—and that the defendant had shown title to the surface and *the space* above, and had actually exercised such a right of ownership *in the space above,* as to have leased a right to the plaintiffs themselves to carry wires over the land.

And so of old time it has been held and written that the maxim is good and forms a principle of our law. So in 18 Ed. III a man had his writ of nuisance, for that a neighbour had built a house over and above the spouts of the plaintiff's house, and so in 8 James I judgment was given for plaintiff in nuisance for that defendants had built a house overhanging part of the plaintiff's house, and by overbuilding had deprived plaintiff of the air and prevented him from building his own house higher, and the maxim expressly referred to and applied.

Ownership and possession of the superincumbent space lying above the site is essential to the full enjoyment of the site or surface of the earth itself. That is the foundation upon which the essential justice of the rule depends.

The spaces above are vertically incapable of limitation. At what height, or at what point in space, can boundaries be fixed? The pathless, boundless spaces are in this aspect incapable of local limitations. The rights of private owners in all such spaces of the air are not only recognised by our law, but are protected by action lying in trespass and nuisance, and infringements of them restrained or compensated by damages or injunction.

So in the Eastcheap-Philpot Lane case. Not only was the action based on trespass, and an injunction claimed, but by the order of the Court a declaration of ownership was made. So, also, in the telegraph wire case an injunction was granted to restrain the railway company from entering and trespassing upon the land and from permitting to remain over *or above* the land any telegraph wires or lines or other things belonging to the company.

But in the air itself it may be doubted whether there is any property. The rights to air is analogous to those in running water. There is no private ownership in them. Though in this the cases are not all easy to reconcile in relation to air.

The water of a running stream is publici juris each successive proprietor has a right to use it in passing, so that he does not foul it for his neighbours, but it is the property of no man. It is in perpetual motion, and is not susceptible of appropriation, and if it were, as it has rightly been said, it would be greatly to the detriment of the public interest that it should be so brought into private ownership.

So also is it with light and so also with air. Baron Parke puts it that "These also are bestowed by Providence for the common benefit of man, and so long as the reasonable use by one man of this common property does not do active and perceptible damage to that of another in a similar use no action will lie."

A wrongful use which would amount to or create a nuisance would be restrained or damages granted. But any claim of right to ownership of the free untrammelled currents of the wind and the air cannot be sustained; neither can any such be acquired or created by prescription, grant or covenant, unless perchance it be to some current of air passing through some definite and restricted channel. And so Lord Justice Brook puts it in Harrod v. De Pinner, 87 C.D. 262. "The passage of undefined air gives rise to no rights." So, also, it was held in Webb v. Bird, in 1861, and confirmed in Exchequer Chamber, that the right to the passage of air is not an exitant, and that a grant of a right to the free and uninterrupted passage of the currents of wind and air cannot be presumed.

It may, however, be pointed out, that there are from time to time various dicta and opinions expressed, the language of which might justify the contention that private rights in the air itself or in a column of air vertical above a close are recognised by our law.

It may be that these go too far, but it is noticeable that in 1870 Vice-Chancellor James in the Eastcheap case found that the owners of the house in Eastcheap were the owners of everything else, including *"the column of air"* upon which the trespass was supposed to have been made, and actually made an order as to the ownership and proprietary right in "the column of air above the site."

These matters are of great public and commercial importance at the present day, whether the word public connotes the State or the generality of the community. Trespass to property or person, and nuisance may easily arise in multitudinous forms as the result of aerial navigation. Remedies by damages and injunctions must be preserved. But the commercial needs of a new and far-reaching system of transport must be provided for, and private rights must be limited to give scope to these, when they come into complete antagonism.

Thus it might wisely be provided that the mere flight of aircraft through the air spaces over the land should not of itself in our law constitute a trespass, or give right to a cause of action.

The principle, not the tag, "cujus est solum ejus est usque ad cœlum" is active, vigorous, and must be maintained.

H. BICKMORE.

RESCUED BY AIR.

A STORY OF AERIAL ADVENTURE.

[Fiction daily becomes more technical and more inaccurate. With which preliminary observation, and without any apologies to the daily, weekly or monthly Press, the following story is inflicted upon a long-suffering public.]

Rupert and Bertie had been bosom friends ever since—as "joy-sticks"—they had together learnt to fly at Adastral House. Rupert was, perhaps, the finest pilot that even this celebrated school has yet produced. Few could fly so high or so fast, and none could fly so long.

Usually the first to leave the aerodrome (as the big tent that houses all the machines is called), he was invariably the last to return. There could be seen no finer sight than Rupert descending in a spinning nose-dive.

Bertie was nearly as good a pilot, but he suffered from laziness and would frequently let Rupert tow him home rather than have the trouble of flying his "motor-bus" himself.

Many were the adventures these two had in their journeys over Potsdam. Sometimes they would meet with a Fokker, as our aviators call the gigantic German triplanes, and then—pausing only to light cigarettes—they would bank towards the foe and send him crashing to the earth, using either the deadly incendiary bombs or the camera-gun which shoots and photographs the enemy simultaneously.

It is hardly necessary to say that both had been decorated, Bertie with the Military Order and Rupert with the Distinguished Service Cross.

One morning Rupert walked into the dining mess. He was the "quirk" or junior Flight Lieutenant in the Wing, yet such was the respect he inspired that all rose on his entrance.

"Cheero, old things!" said Rupert. "Where is Bertie?"

"On duty, I fancy!" replied a grave looking Flight Sergeant, "for I heard him order his 'plane.'" Rupert touched the bell—a subaltern appeared.

"My Blériot, please, at once!" he cried, as he donned his goggles. Rupert saluted, and left the dining mess.

When he reached the "hangar," or flying ground, willing hands were at work on his aeroplane; one man was inflating the wings, another was doping the carburettor, while others were seeing to the thousand and one things so necessary before a flight is made. Rupert climbed into his seat and adjusted his parachute.

"Switch off!" cried the head air mechanic, who had the reputation of being the best Squadron Commander in the Royal Flying Service. "Contact!" answered Rupert, who was always scrupulously particular in these little matters of drill. The engine gave a roar and he left the ground.

Up and up he soared until he was but a speck to the watchers below. He glanced at his "pitot tube"—the needle pointed to 10,000 ft. He lighted his pipe and lay back comfortably in his seat, as the "plane" headed straight for Berlin. "I wonder where old Bertie is!" he kept saying to himself, but not a sign could be seen of Bertie or his fast Wright monoplane.

An hour's steady flying brought him to the Prussian Capital. For some time he hung motionless, scanning the busy streets below. Then suddenly his gaze became rigidly fixed on the Unter den Linden. Surely he knew that walk! Yes, it was Bertie! His chum was being led in chains to some place of execution. With Rupert, to see was to think—to think, to act. Pushing forward his throttle and closing his control lever, he dropped like a stone. When within a few feet of the ground, he looped twice to attract Bertie's attention.

"Quick, Bertie!" he shouted. "There is not a moment to lose."

Recognising his chum, with a shout of joy Bertie turned round quickly and stunned the nearest of his escort with the butt end of his sword; the man fell dead. Meanwhile, Rupert, steering his aeroplane with one hand, with the other took a machine-gun from its holster and shot the remainder of the escort with unerring accuracy.

"Jump in, old hat!" shouted Rupert, and then he remembered Bertie's chains. There was only one thing to be done. "Stand quite still, Bertie!" he cried, and took careful aim. There was a loud report, the noise of falling fetters, and his friend stood free. Without waiting to be told, Bertie vaulted over the empennage and into the tail boom, where he calmly sat down and lighted a cigarette. Rising in a steep spiral, Rupert headed for home. The game was won!

They landed and went straight in to dinner.

"Did you manage to wangle any stalls?" asked the Sergeant Major.

"A few!" answered Bertie.

"And you enjoyed yourselves?"

"Oh! Not half!" responded Rupert with a merry laugh. "We had quite a cushy strafe!"

G. K. G. K.

PARIS NOTES

Paris, May 3rd.

The Exit of Colonel Dhé.

There is general regret in the aviation world here at the sudden exit of Colonel Dhé, because he was a man who was not content to let his department be run by his bureaucratic subordinates. There is no great resentment at the choice of General Duval for the post of Director of Aeronautics, as he did excellent work as Chief of Army Aeronautics during the war, but it is felt to be a retrogressive step to appoint a man noted for his "militariness" to be in charge of aviation at a time when every effort should be made to put commercial and civilian aviation in the ascendant position.

A Giant Hydravion.

It is probable that the first French machine to attempt a North Atlantic crossing will be a giant hydravion constructed near Bordeaux. Successful trials have already been carried out. It has a span of 23 metres, a length of 13 metres, and a central hull. It can carry 2,000 litres of petrol, and its motive power is a 500 h.p. Sunbeam, turning a four-bladed airscrew. Burri, a pre-war aviator, carried out the trials. It was constructed by Messrs. Bonneville, Musset, Dufau, Caussegne.

A Safety Device.

Messrs. Voisin have lately constructed a non-inflammable petrol tank, the invention of Messrs. Quintric and Lemort; its first trials are reported to have been successful.

The Voisin firm have a new four-engined machine on the stocks. It is designed to carry sixteen passengers, at a speed of 150 kms. an hour.

A monument is to be erected at Vichy to the memory of Gilbert; the sculptor is M. Georges Dubois.

The "Ligue des Pilotes-Aviateurs" have just published their twelfth list of members, which takes them from 1550 to 1600.

M. Esnault-Pelteries' works at Lyon-Monplaisir are constructing a large aerobus with three motors, which is intended to transport mails and passengers.

Every week one is advised of the formation of new companies intending to exploit various routes for aerial transportation. The latest of these is "La Compagnie Aérienne Française," whose offices are at 126, Rue de Provence, Paris, the first administrators being Messrs. H. Balleyguier, Cahen-d'Anvers, A. Caron, F. Gros, P. Lescop, E. Pierra, and F. Robbe.

Mme. Jane Hervieu intends to attempt to make a height record as soon as the present bad weather has passed.

The Official Way.

When the authorities here are reproached regarding their slowness in organising civilian aviation they reply, "Wait a bit. War machines must undergo modifications which cannot be done in one day," but when it is suggested that the Huns be allowed to keep a few aeroplanes just to satisfy them, these same authorities object. "Stop," they say. "Don't you know that in one night a civilian aeroplane can be transformed into a war machine?"

Civilian and Commercial Aviation.

The death of Védrines did not prevent the Goliath taking her usual complement of passengers to Brussels and returning with an equal number last week-end. The trip was undertaken notwithstanding the bad weather.

Cruelty to an Aeroplane.

M. Gainot's aeroplane, piloted by Constantini and carrying ten passengers, of whom two are ladies, has arrived at Toulouse after jaunting over most of southern France. It is now being tuned up afresh in M. Latecoère's works. This was necessary because Constantini has a habit of leaving it out in all weathers. One would not treat a motor car in such a brutal fashion, so why an aeroplane, which is considerably more fragile and susceptible?

Adventurous Flights.

The three Italian pilots who crossed the Alps last week recrossed last Thursday. They left Lyons when a 45 m.ph. wind was blowing, encountered a snowstorm, and landed near Turin after two and a half hours' flight. They were on a 600 h.p. Caproni military machine.

Swiss Civilian Aviation.

On April 28th the aerial post commenced between Dubendorf, Berne, and Lausanne. The first machine left Dubendorf at 10.30, reached Kirchlindach Aerodrome at Berne at 12 midday, Lausanne (Blecherette Aerodrome) at 1.15, left again at 3 o'clock, reached Berne 3.50, and Dubendorf at 5.20. The transference of mails and packages between the aerodromes and the stations of Zurich, Berne, and Lausanne is carried out by motor-cyclists. Packets or letters must not exceed 250 grammes in weight, and are charged a surtax of 50c, which is indicated by a special aviation stamp which shows in red the badge of military Swiss aviation. The aerial post can also be used for the conveyance of newspapers. The surtax is not reimbursable if the flight is not made or only partly made, but packages will be sent on by the next mail train.

The Funeral of Vedrines.

In the presence of a large crowd the earthly remains of Védrines were laid to rest with Military Honours in the Pantin Cemetery, Paris. His mechanic, Guillain, was buried with him. The same day as they were buried, the "Journal" published what is undoubtedly the last article he wrote, and in which he rendered homage to Pégoud, whom he described as the man who taught the world how to fly. He thought that without the stunt flying of Pégoud, France would have been deprived of the prowess of Fonck, Guynemer, Nungesser, etc.

A False Move.

There seems but little doubt that Védrines' fatal accident was due to a false manœuvre on his part. As has already been explained, Védrines, diverted from his pre-arranged itinerary, was following the valley of the Rhine with a very strong wind in his direction of flight. It must here be stated that Védrines, in piloting a machine of the size of the C23, was as much out of his element as would be a motor cyclist driving a five-ton lorry for the first time, and it is common knowledge here that the C23 is not the easiest machine of its class, especially with regard to its landing qualities. Whilst Védrines was flying at a fairly low altitude his right-hand motor failed completely, and, loaded or superloaded as the machine was, he was unable to sustain his altitude, so decided to land. The only suitable ground that he could see was a clover field, with a vineyard touching one side and impossible fields on the other.

From the point where his motor stopped Vedrines commenced a wide circle, a flat left-hand turn, losing altitude the while. He seems to have commenced jettisoning various removable articles and to have started to empty his right reservoir, and probably tried to continue his second left-hand turn, in order to land in the clover field face to wind, but being much too low for this, he was obliged to land in the vineyard in front of the clover field either on one wing (probably the right) or on the wheels, no one will ever know, and subsequently overturned and was killed by being pinned underneath an engine.

Unfortunately within two hours of the accident the local populace had souvenired two-thirds of the removable "bois cassée," leaving only the longerons, wing spars, motors and things too heavy to be carried away.

The C23 has a landing speed of 80 kms. per hour normally; the wind was blowing at 40 k.p.h., which meant that Védrines landed, with a machine superloaded, at 120 kms. p.h. instead of 40 kms

A Problem to be Solved.

The advent of the multimotor machine was hailed as the saviour of aviation, inasmuch as, should one motor stop, it would not be necessary to land, or if one decided to land then the other or others would be sufficient to provide control over a machine manœuvring for position. It would seem, however, that, on the contrary, the multi-engined machine opens up problems of its own, at any rate as regards navigation. Védrines, deprived of the power of his right motor, made a left-hand turn. Was such a manœuvre correct? Some pilots believe that when one motor stops, to avoid a spin one should turn "on" the working motor, i.e., use it as the pivotal point on which to swing round the rest of the machine. Surely this is a point the correctness of which it is advisable to establish without further delay?—F. T. N.

The Explosion of "Forlanini 5."

The complete destruction by an explosion of "Forlanini 5"—the last but one of the series—while having the top of her envelope attended to in her shed at Baggio, Milan, after a complete overhaul and the fitting of more powerful engines, is on a par with all the other unlucky and inexplicable disasters which have persecuted Ing. Forlanini.

The O.C. (Major Priccolo) and the O.C. the station (there are three hangars, in one of which F.6 is housed) both state that no engine was running at the time. The officers and crew were all in the shed, and the ship was nearly ready for trials of the new arrangements and improvements.

As was the case when the "City of Milan" exploded, the people in the vicinity were not hurt, but three unfortunate men on the top of the vessel lost their lives.

F.5 took an active part in the war, and had carried out 29 bombing raids. She displaced 18,000 cubic metres, had a speed of 78 kilometres an hour with only 500 h.p., and had carried 60 people. She dated from 1917.—T. S. H.

BRAINS versus SUPERFICIAL SMARTNESS.

"The Imp" likes the "Snipe." There is no shilly-shally about him. He does not damn with faint praise. Nor praise with faint dams. He just dams and there is an end o't. To parody his C.O., he calls drilling and discipline "a lot of d——d theoretical rot." His band of enthusiastic civilians were "handicapped more than helped by the purely military element."

The "Snipe" is absolutely right in what he says. He speaks as one "who has been through the mill and from practical experience." This claim rings very true and his illustrations simply reek of petrol and oil.

What the "Snipe" Omits.

But the "Snipe" is absolutely wrong in what he omits. He speaks as an advocate to demolish his adversary's case and put his own on a pedestal. His advocacy is of a high order. But over-fervent for a judge.

In this age-long controversy about discipline "The Imp" does not claim to be impartial. The bias of his mind may safely be left to the discernment of the reader. But he believes he can see *cons* as well as *pros* on each side. And he would like to temper with mercy the stern denunciations of the "Snipe."

The "Snipe" was as fortunate in his civil associates as he was unfortunate in his military. Let us regroup them under the two heads.

The tradesmen he was set over were good at their trades, first-class fitters, expert engine-tuners, satisfactory and skilled mechanics, bright original minds, men of natural talent and equally natural enthusiasm. In spite of physical deformities and poor physique, at their own work they were enthusiasts; their hearts were in their jobs; there was no grousing over long hours. The technical officers, too, were highly specialised, and the pilots well qualified.

A Lot of D——d Rot.

But the soldiers were wash-outs. The C.O., though an officer of a very famous infantry regiment, wounded in 1914, thought theory "a lot of d——d rot," believed in smartness before brains, habitually abused the men under his command in language unbecoming, etc., and was guilty of a piece of great inhumanity to one, at the least, of them.

The Adjutant was a pilot who had succeeded in obtaining a ground job, and was determined to keep it; he made a hobby of fire drills on the busiest mornings, and for his serious work dispensed daily hell in penny numbers with a twopenny edition on Sundays. A notorious Serjt.-Major was specially obtained to assist in keeping the station incandescent, and nobly earned his pay in this task. Of the intermediate ranks the "Snipe" tells us nothing, but the few airmen who were soldiers, were mechanical wash-outs.

Youthful Adjutants.

The "Snipe" encountered also other Adjutants, pilots aged about 22 years who had lost their nerve for flying, carried little weight with other pilots, had no natural dignity nor influence with the men. They were only made Adjutants because they had no special knowledge to enable them to qualify for the technical branches, and as they assumed a hectoring attitude they were cordially disliked by everybody. Truly the "Snipe" was not fortunate in his military associates!

To quit irony for a moment, "The Imp" agrees with the "Snipe" when he claims there is no exaggeration in this account. It is the truth. It is nothing but the truth. But it is not the whole truth.

"The Imp," too, has been through the mill. He has belonged to "a b—— rabble," has subscribed to the penny numbers of hell, and has not escaped the twopenny Sunday coloured edition. He has had more than a bowing acquaintance with the gentry the "Snipe" so vividly portrays from the C.O. to the clockwork soldier-man who is a mechanical wash-out. He has found it impossible to make capable men understand why they should spend valuable time over drill or cook-house fatigue, or to enjoy it himself or derive much benefit from it.

"The Imp" More Fortunate than the "Snipe."

But, more fortunate than the "Snipe," "The Imp" has been commanded by an ex-Army Officer, who had also been an Adjutant, and who was *not* "about 22"; who, having a ground job, was *not* "determined to keep it," but spontaneously flew on active service; he did not think theory "a lot of d——d rot," but encouraged it greatly; he believed in both smartness and brains, never abused the men under his command (but broke them if need be), and though strict and severe was never guilty of inhumanity. His hut having caught fire, "The Imp" ventured to ask him whether it was by spontaneous combustion and was not dismissed His Majesty's Service with ignominy! Though a strict disciplinarian, he had a mania for work but not for drill.

The Discipline of the Guards.

"The Imp," unlike the "Snipe," knows an ex-Guardee Adjutant to whom the discipline of the Guards is a sacred subject, and that of the R.A.F. an obscene one. Though a sorely wounded Infantry Officer, and not a tired Pilot, he occasionally flies as an Observer. His occasional drills are not made a hobby and his conception of the duties of an Adjutant appears to comprise help instead of hindrance of others. Finally, though severe and exacting, and, to "The Imp's" view, sometimes stubborn, he inspires fear without profanity, in which he never indulges.

"The Imp" has known several disciplinary Sergeant-Majors, and doubts if any of them can have been called popular while he held that position. But he has heard good spoken of some of them after they had left it. He never met quite such a brute as the "Snipe" had the misfortune to encounter, and hopes he never will.

Smartness that is not "Eye-wash."

"The Imp" has been hit by the lead which the abnormally smart saluting-man was swinging. It is now beginning to dawn on him why the smart soldier was never without the equipment which "The Imp" was accused of having "lost by neglect." But "The Imp" has also met soldiers whose smartness was not eye-wash, but a personal asset of great value, to them and to others, though, no doubt, painfully acquired.

The R.A.F. is a field full of tares which some enemy has sown. But it is a wheat-field all the same, and will ripen to harvest. Give it all the sun that you can, yet it will still need the discipline of the frost and the rain. Burn the tares later on.

The problem of the R.A.F. is the problem of personnel, i.e., the problem of character. Honesty of purpose seems to "The Imp" the only golden key which can unlock the closed door of its future. It possesses one supreme advantage over every other branch of the Service in times of peace. It is possible for it to employ that acid test of character—danger.

The Lincoln Imp.

ARTISTIC VERISIMILITUDE.

The following paragraph may brighten a dull moment:—

War-swept France to be Shown at Kelly Field.

On the evening of April 12th a great aerial program will be shown on Kelly Field, during which the horrors of war, as carried on by the Huns, will be depicted in the aerial bombardment of defenceless cities, the looting and burning of homes, and the carrying away of captives of the peoples of these cities. Never before in America has anything of the kind ever been shown. The performance will start at twilight, just as the people are returning to their homes. As night falls the city will be shelled by heavy artillery, followed by a bombardment by German planes. As the houses burst into flames, the enemy troops will charge into the city, capturing and killing the people. But while the enemy planes hover over the city on their mission of destruction, a squadron of Allied ships will suddenly sweep down from the sky and attack them. During this battle of the air every strategy known to defensive and offensive aerial combat will be enacted. As the Battle of the Clouds draws towards an end, with the Allies victorious, the American infantry will "go over the top" and drive out the Huns.

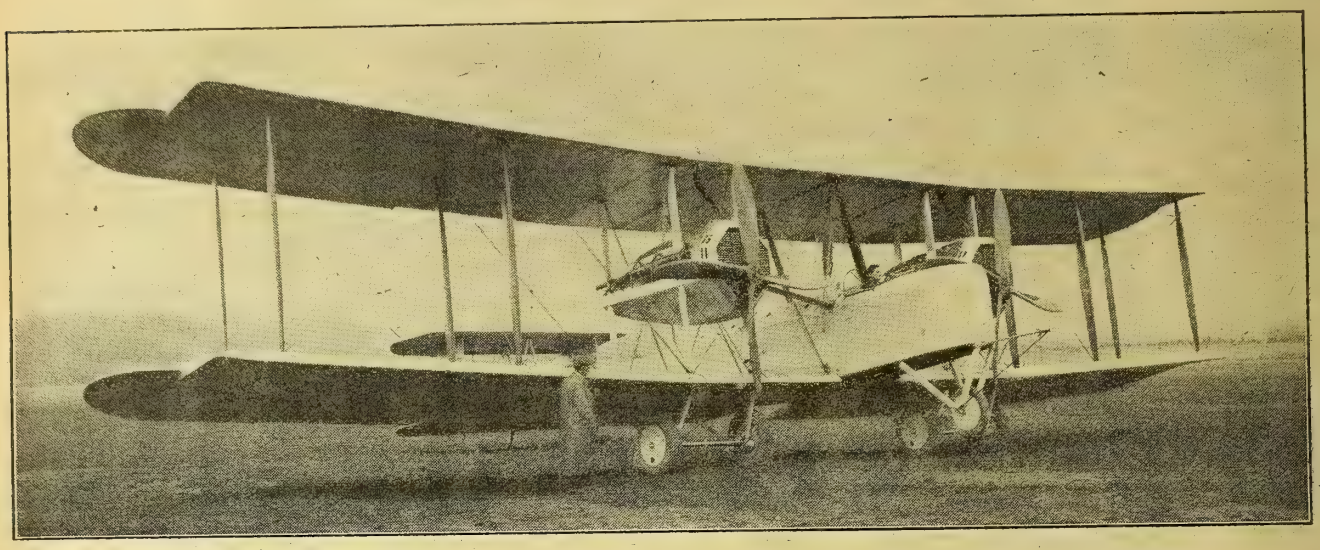
[The foregoing paragraph is taken from an official publication of the American Air Service, and illustrates excellently the difference between American methods and those prevalent in this effete old country. One can imagine the popularity which would be obtained if a similar demonstration were arranged at, say, Hendon or Hounslow, and the number of volunteers that there would be for the imitation Hun army if the lootings, burning, and carrying away of captives were permitted on a thoroughly realistic scale.

One is under the impression, despite this paragraph, that something very much of the kind, except for the aerial bombardment, has been seen in America on a variety of occasions when that country has been in a state of war, but America has one's sympathy in not having also had the privilege of being bombed from the air as have the countries of the European belligerents. At the same time, one cannot recall an instance in which the Huns have bombed defenceless cities. One is under the impression that all *our* cities, at any rate, have been rather heavily defended. If they have not, it has been the fault of the Government of the country, and not the will of the people.

An interesting point arises as to how the spectator was to witness this great battle in the air, seeing that the demonstration was to start at twilight, the town was to be shelled at nightfall, and the aerial battle was to take place afterwards. It is also curious to find (in an official military publication) that strategy is to be included—and in a dog-fight at that. One has always understood that operations in a dog-fight concerned tactics rather than strategy.

The final sentence, at any rate, conveys the idea that the demonstration will be true to life in demonstrating the American infantry going over the top with the Allies victorious. One only regrets, for the honour of the American Army, that the American infantry did not go over the top when the Allies were other than victorious and had greater need of their support.—Ed.]

THE TRANS-ATLANTIC COMPETITION.



The Vickers "Vimy" Biplane (two 350 h.p. Rolls-Royce Engines) now entered for the Atlantic Flight.

So far better news is to hand concerning the various competitors. It was stated on several occasions during the week that the Martinsyde and Sopwith machines were to start, but always the weather was against them, and no start was made.

The American Naval flying people who are to attempt the flight have made a great deal of show with announcements concerning test flights, preparations, and various measures for safety, but when one comes to read these accounts more closely the similarity to a hundred other and previous accounts is very forcible.

Dr. Alexander Robinson, the Postmaster-General at St. John's, is stated to have sealed a mail and handed it to Mr. Raynham for conveyance across the Atlantic. The stamps are specially surcharged "First Trans-Atlantic Aerial Mail" on the ordinary three-cents stamps. To prevent forgery each stamp is initialled by the Postmaster-General.

A Vickers Entry.

On May 5th, Vickers, Ltd., formally entered a "Vimy" biplane for the trans-Atlantic Competition.

The construction of the trans-Atlantic "Vimy" has now been completed at the Weybridge Aeroplane Works of Vickers, Ltd. This aeroplane is practically similar in every respect to the standard "Vimy" Bomber as supplied to His Majesty's Government.

Two standard 350 h.p. Rolls-Royce engines are installed. The capacity of the petrol tanks has been increased to 865 gallons, and the lubricating oil tanks to 50 gallons, and with this quantity of fuel the aeroplane has a range of 2,440 miles. The maximum speed is over 100 miles per hour, but during the flight across the Atlantic the engines will be throttled down to an average cruising speed of 90 miles per hour.

The span of the "Vimy" is 67 feet, and overall length 42 feet 8 inches. The chord of the planes is 10 feet 6 inches.

A wireless telegraphy set capable of sending and receiving messages over long distances will be carried, and the pilot and navigator will wear electrically heated clothing.

The pilot is Capt. J. Alcock, D.S.C., R.A.F., late R.N.A.S., and the navigator, Lieut. Arthur Whitten Brown, A.M.I.E.E., M.I.M.E., A.M.F.A.I.E., R.A.F.

The preliminary flights were successfully carried out at Brooklands Aerodrome, Surrey, by these two officers, who expressed themselves completely satisfied with these tests. The Rolls-Royce engines ran perfectly, and the aeroplane left the ground with its load of 4 tons of petrol and oil after running a very short distance on the ground.

The aeroplane has now been dismantled and packed in cases. It is awaiting shipment to Newfoundland, and will be accompanied by the pilot, navigator, and mechanics with their full equipment.

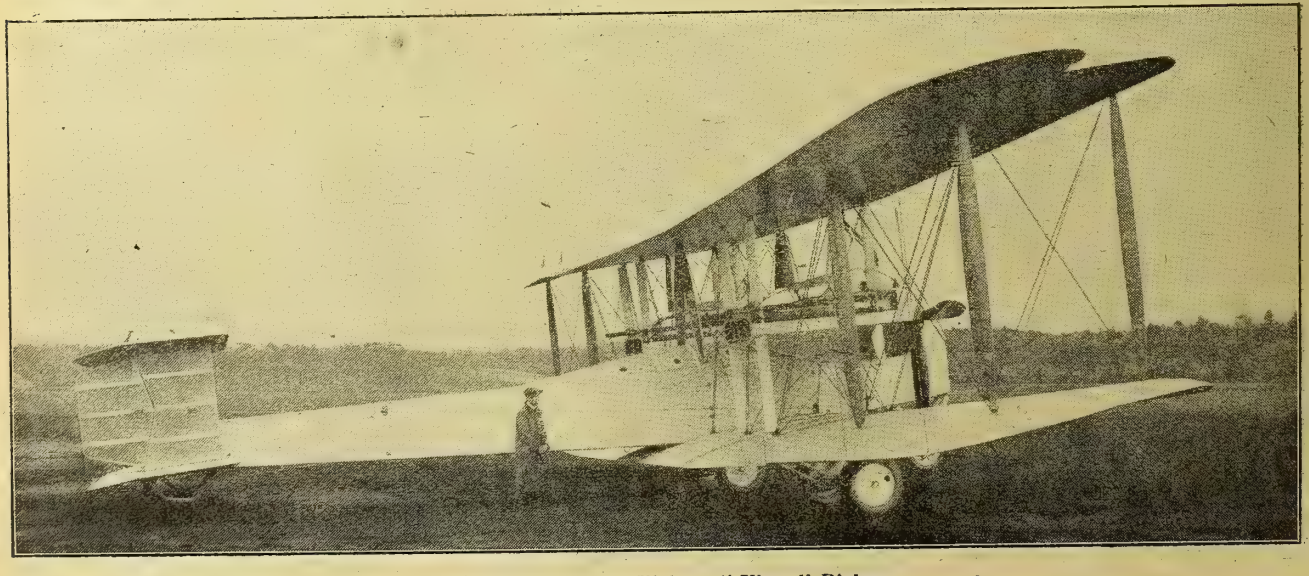
This machine is to be known in the future as the Vickers "Vimy-Roils."

The American Machines.

Two of the American flying-boats were seriously damaged by fire on May 5th, just previous to their departure for Newfoundland. Two wings of the N.C.1 were completely destroyed, and the lower elevator and tail plane of the N.C.4 were badly damaged.

The fire was caused by a spark from an electrically driven pump falling on a drum of petrol, which took fire, the flames quickly spreading along the hose pipe leading to the N.C.1, which was in process of having her tanks filled ready for the start. The fire quickly spread to N.C.4 close by, and although the sailors, working regardless of danger, extinguished the fire in a few minutes, the inflammable material of which the machines are built burned so quickly that they were unable to prevent serious damage from being done.

It is stated that the machines can be repaired, but that the departure of the two damaged ones must be delayed.



Another View of the Vickers "Vimy" Biplane.

THE TARRANT TRIPLANE.

On May 5th the assembled Press of Great Britain was collectively introduced in propria persona to the giant Tarrant triplane, of which one has read so much in the Press recently.

Mr. Tarrant was well known to all Army people, if not to the mere public, long before he engaged in aviation, as the designer of the Tarrant Portable Hut, one of the neatest and most useful things of its kind. Mr. Tarrant has also to his credit a number of other extremely practical inventions all concerned with the efficient use of timber, so it was somewhat natural that he should ultimately turn his attention to aircraft construction. Of this particular form of aircraft construction, a more detailed account will be given next week. Meantime, it must suffice to say that the Tarrant triplane conveyed a very favourable impression as an engineering job, and one hopes to be able to record its aerodynamic successes before very long.

The Help of the R.A.E.

After visiting the machine the assembled company was entertained to lunch by Mr. Tarrant, who, like many practical people is a man of deeds rather than words. In reply to the toast of his health, proposed by Mr. Powell, Mr. Tarrant said that the machine had originally been designed for the express purpose of bombing Berlin, but that he hoped that it would be equally useful for more peaceful purposes. Mr. Tarrant laid particular stress on the very great assistance which he had received from everybody concerned with the Royal Aircraft Establishment at Farnborough in the construction of the machine. Mr. Sydney Smith, the Superintendent, had placed every facility at his disposal, and Major Turner, second in command at the R.A.E., had given an immense amount of his personal time and attention to the constructional work in the machine.

Major Turner, replying to the toast of his health, proposed by Mr. Tarrant, gave a most interesting and humorous account of the difficulties which they had met in building the machine and of the way in which they had been overcome, and he emphasised the fact that everybody at the Royal Aircraft Establishment was anxious to do their best to help forward the progress of aviation in this country.

Those who have long been connected with aviation will be interested to learn that the two pilots who are to carry out the tests of the machine are Captain F. G. Dunn, A.F.C., who will be remembered as one of the early pilots at Hendon before the war, and Captain P. T. Rawlings, D.S.C., who shared with Major Savory the honours and perils of the first journey from London to Constantinople in one of the early Handley Page's.

Very great assistance has been given in the detail design and construction by Captain T. M. Wilson, of the Air Ministry.

Technical Points.

The Tarrant triplane represents one of the many attempts at "Giant" aeroplane construction started during the latter part of the war. Owing to the Armistice, it is now being adapted for passenger and commercial work.

The root idea that predominates in the Tarrant machine is the adaptation of the principle of the "Warren" girder in wood, which allows of an immense amount of standardisation. The fuselage is built up on the German principle of formers spaced equally along a series of longerons, but in this case the longerons are constructed in the excellent and original Tarrant girder system, the whole being covered with two-ply and fabric.

The formers or rings are similarly built up on the Tarrant girder principle, and between them are an equal number of lighter formers. Although this construction is slightly heavier than the more conventional form of wire-braced fuselage, the additional strength obtained from the girder construction, coupled with the entire absence of cross-bracing wires, lends itself more particularly to commercial and passenger work, where the absence of any internal cross-bracing, etc., is a decided advantage.

The fuselage is attached to the wings between the middle and bottom planes by means of two sloping centre struts which pass right through the fuselage, meeting at a point at the centre of the lower plane.

The top and bottom planes are of equal length, but the middle plane has an overhang which is braced to the upper end of the outside set of interplane struts by a pair of struts. Balanced ailerons are also fitted to this middle plane, the balanced portion extending the whole length of the aileron. The total span is 130 feet.

The interplane struts are continuous, passing through the middle plane, thus giving greater rigidity to the whole structure.

The Power Plant.

The power units consist of six Napier "Lion" engines of 500 h.p. each, mounted three on either side of the fuselage, two tandem-wise on the lower plane driving a pusher and a tractor respectively, and one on the middle plane, directly above the lower engines, driving a tractor airscrew. The engines are started on the well-known Napier principle, and can be completely controlled from an engineer's switchboard immediately in rear of the pilot's cockpit.

Under the floor of the engineer's cabin is the main petrol collector, and provision is made for the engineer to climb out onto the wings through a hatchway, so that he can attend to any small adjustments to the engines as may be necessary.

The Controls.

The tail unit is of the biplane variety, fitted with an inter elevator between the main elevators. The inter and lower elevators are both balanced, and are inter-connected by struts, and are connected to the control column. The upper elevator is used solely for trimming the machine, and is controlled by two wheels, fitted low down on the right and left respectively of each pilot. The fairing of the inter-tail struts form the two fins, behind which are hinged two balanced rudders.

One separate undercarriage is fitted under each nest of engines, and consists of three wheels on an axle, which is carried at the centre of a beam. This is attached to another beam, which forms the lower member of the chassis structure, by means of shock absorbrs.

The two pilots are situated in the nose of the machine, the controls being completely duplicated.

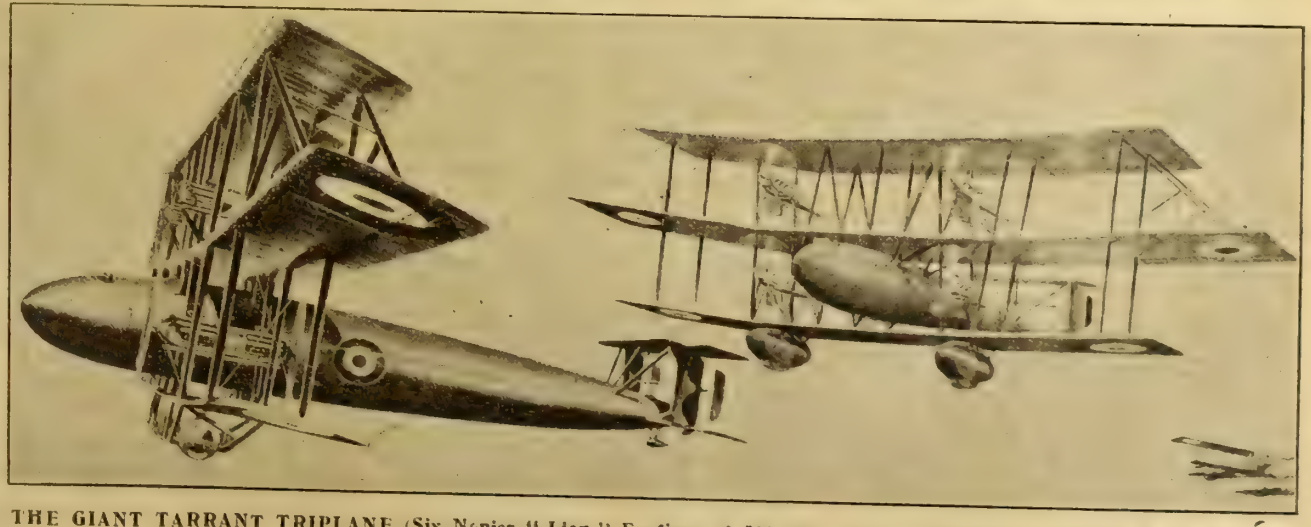
Ailerons are operated by means of a wheel with a sprocket and chain; elevators by a fore and aft motion of the wheel and control column, and the rudders by means of the usual rudder-bar.

At present the machine is being assembled in the balloon shed at Farnborough, which was, together with every assistance and facility, placed at Mr. Tarrant's disposal by the Air Ministry.

Obviously, the machine is rather too huge to be managed whilst on the ground by man-power, so that it is at present rigged on three trollies, one under each chassis, and one under the tail skid. These trollies run on railway lines out on to the aerodrome, the lines running in a shallow cutting so that the wheels are on a level with the ground, and the machine can take off the trollies direct into the air, assuming that the wind is in the right direction.

It is hoped that the machine will be ready for its trial flights in about a week or ten days' time the results of which will be watched with great interest.

One hopes to describe the machine in greater detail next week.



THE GIANT TARRANT TRIPLANE (Six Napier "Lion" Engines of 500 h.p. each). Schematic Drawings of the Side and Front Views.

A DISCUSSION AT THE ROYAL AERONAUTICAL SOCIETY.

In a recent issue of The Aeroplane there appeared extracts from a lecture on "Lighter-than-Air Craft" given by Lt.-Col. T. B. Cave-Browne-Cave, C.M.G., R.A.F., at a meeting of the Royal Aeronautical Society on March 26th.

The discussion that followed this lecture was so interesting that it was considered that more space should be devoted to it than could be given at the time. The report was therefore held over, and is now printed.

Non-Rigid and Rigid Types Compared.

Mr. Cole said he thought those who had to do with the design of airships were convinced that the only successful development of lighter-than-air craft would be by means of the rigid type, or perhaps the large rigid, with the smaller non-rigid for certain purposes.

The Lecturer stated that the non-rigid airship, having no hull structure, would, if the same size as a rigid airship, have a considerably greater proportion of available lift. He thought no one but an enthusiastic amateur would think that a non-rigid airship could be compared with a high-capacity rigid. The maximum limit of capacity of the non-rigid was stated to be 500,000 cubic feet. The ability to carry a useful load equal to the weight of the ship was expressed as 50 per cent. disposable lift, but disposable lift was something like the League of Nations; it was talked about glibly, but few people knew exactly what it meant.

The Lecturer showed that it depended upon the difference between the density of the air and the hydrogen, and different authorities had different standards for that density. It was estimated at one time as 72.5; in 1914 it was assumed to be 68.6; the French used the figure of 70.14; and Col. Cave used 64.4. He (Mr. Cole) was taking 68 as the standard representing the actual conditions of airships in this country.

The weight of the machinery depended on the horse-power, and that depended on the speed required. The weight of the ship depended greatly on the speed for which it was designed. The maximum speed for the non-rigid shown on the screen was stated to be 50 knots, and the maximum speed for the rigid of the same capacity was 70 knots.

If one wanted to make the non-rigid of the size shown on the screen (340,000 cubic feet) up to the 70 knots, the engines would have to be trebled, and the disposable lift, instead of being 35 per cent., would be minus 20 per cent. Any comparison between the rigid and non-rigid on the basis of speed for weight was absurd.

The speed of the non-rigid was limited by the fact that the nose went in. As had been shown, it was necessary to stiffen the nose. A speed above 50 knots was not practicable for non-rigids. There was no limit for the rigid except as to speed for a given horse-power.

The Lecturer said there was much to be gained by carrying a given weight in several small ships rather than in one large one. That meant that it was better to carry a large load in several cross-Channel steamers than in a vessel like the "Mauretania," but a big ship was meant to carry a big load. The small airship was in danger of being overtaken by the large aeroplane.

There were rigids with a disposable lift of about 58 per cent., and they could travel 70 miles an hour. The Germans had designed one which would have a disposable lift of 80 per cent., but that was an expensive figure. We were only at the beginning of rigid airship design, and there was no factor to limit its development, whereas there was a limit to the size of the non-rigid.

Major Pritchard's Criticism.

Major J. E. M. Pritchard said Col. Cave seemed to have been led away by his natural enthusiasm for non-rigids into dealing almost entirely with that type, and this gave the false impression that the future development would be along the lines of the non-rigid, whereas the rigid would have a far greater future.

It was not to be wondered at that Col. Cave should be unconsciously biased in favour of the non-rigid, as he had been largely responsible for its development, until, at the time of the Armistice, Great Britain had a fleet of the most efficient non-rigid airships in the world.

A striking advantage of the rigid was its speed. Out of the six main factors in transport, viz., speed, cost, carrying capacity, regularity, safety, and comfort, the claim of aircraft for an assured future must be based on speed. The maximum speed for non-rigid airships was about 56 miles an hour, while the corresponding rigids had a speed of 77 miles, and a speed of 90 miles was in view with the larger rigids, while with non-rigids it was doubtful if a speed of more than 60 miles an hour could be obtained.

As the size of an airship increased the percentage of the gross lift necessary for machinery to obtain a given speed decreased proportionally to the two-third power. The latest type of 2¼ million of cubic feet capacity rigids possessed a disposable lift of 58 per cent., and a speed of 77 miles an hour had already been mentioned, against a corresponding latest type of non-rigid, with disposable lift of only 35 per cent. and a maximum speed of only 56 miles.

If the power units of the rigids were reduced so that their maximum speed were reduced to that of the non-rigids, the disposable lift would rise to nearly 70 per cent.

A rigid equivalent to Col. Cave's hypothetical 500,000 cubic feet non-rigid would have disposable lift 60 per cent. and speed 90 m.p.h., and, if it were fitted with engines to give only 54 miles an hour, a range of some 15,000 miles would be obtained, which could not be obtained by the 500,000 non-rigid, even if the weight of the structure were a minus quantity to the extent of over twice the gross lift of the whole ship.

This lack of range also affected heavier-than-air craft, and it was doubtful whether any heavier-than-air craft would be developed for some years to come which would have a maximum range exceeding 3,000 miles at a speed of, say, 90 m.p.h., and when the range was limited to a commercial range of about one-third the aeroplane and non-rigid became limited to non-stop flights of under 1,000 miles, with the balance of speed in favour of the aeroplane.

The advantages of the rigid were that no special arrangements had to be made to maintain pressure in the gasbags, which was difficult in non-rigids when making changes in height of 1,000 feet; a rigid ship of great length, being divided into separate components, could take up an appreciable angle without excessive pressure occurring at the upper end; ample and convenient stowage was provided by the keel, whereas in the non-rigid freight or fuel had to be stowed in cars or in fabric fittings in or on the envelope; a comparatively inexpensive outer covering prevented deterioration of the gas-containers from rain and sunshine, while in the non-rigid the envelope was exposed; and gaseous super-heating was less in rigids, owing to the air space between the outer cover and the gasbags.

Lt.-Col. Heckstall Smith's Views.

Lt.-Col. S. Heckstall Smith said he hoped that was one of the first of many meetings they would have on the subject of airships. We were just on the verge of one of the greatest developments in transport that had ever been dreamed of, and that was transport by airship.

It struck him our airship friends were rather like the schoolboy who tried to add a nut to an apple and found the result was a lemon. Why the non-rigid and the rigid should be compared, or why the relative uses of the "Mauretania" and a lot of paddle-boats need be compared he could not understand.

Suppose he had to carry goods across the sandy desert where an aeroplane could not be used and the distance was not sufficient to warrant using a 5 million cubic feet or 2½ million cubic feet rigid airship, although the non-rigid could not compete with the rigid, it might easily compete with the camel both as to speed and disposable lift. It had also been suggested that a useful function of the non-rigid was travelling at night, when gas was not lost owing to the fact that the temperature was low. Where distances of only 200 or 300 miles had to be travelled, and the ground was impossible for aeroplanes, and there were no railways to compete with, the non-rigid airship might be used although one would not attempt to use it in flying from South America to the Cape or from the Cape to Australia—which would be a common route for airships in the future. That was especially work for the big non-rigid.

He was glad to see so many engineers present, as there was an immense amount of work for everybody on this great problem of the rigid, the non-rigid, and the aeroplane. Each had its own function, and they were not likely to be mixed up.

The Hun had been in front of us on airships and behind us on aeroplanes, and we were now rapidly overtaking him on airships. He had no doubt that, with the engineering knowledge this country possessed, we should go ahead.

Capt. Walpole's Comments.

Capt. G. S. Walpole said he spoke from the point of view of the man who had spent the whole of his active service—which, unfortunately, was very short—as a pilot. Lighter-than-air craft had the capacity necessary for long journeys, and for such purposes there was nothing to compete with the airship, and there were public duties to be done by aircraft which could not be done by the type of aeroplane we now had.

For especially long journeys a large rigid would be essential. He referred to the kind of thing Col. Heckstall Smith had outlined—exploring in an island like Tasmania. Only one-third of that island had been surveyed. It was unsurveyable by ordinary means, but with a small non-rigid he thought a fair job could be made of it.

Inspectors of agriculture could also survey agricultural land in this country from dirigibles, and in Australia they could be applied to locating wild horses before bringing them in. Some

kind of non-rigid might also be used for air police purposes. He had hoped to hear how the large German rigids got to such extraordinary heights without losing lift, and also that Col. Cave would have told them how H. G. Wells's prophecy about men going inside the gasbags had actually become a fact.

Mr. Gibbon's Plea for All Classes.

Mr. Gibbon said he had been glad to hear several speakers put in a plea for all classes of airships. There were divergent classes required. They all had their functions. Pleas for all classes and peace amongst their family led to good work and tended to that effort, which was what they wanted.

One or two speakers had been disappointed that Col. Cave, with his great knowledge of airship work, had not carried the subject a little further in some points, but he (Mr. Gibbon) had good reason to know that, unfortunately, there was a much-hated person called the Censor, who put certain restrictions on what Col. Cave was willing to disclose and discuss, and he did not want the blame to rest on Col. Cave.

As Col. Heckstall Smith said, the subject was just going to develop, and develop rapidly. If anyone could persuade the financial branch to take a more liberal and just view of the situation, they would do a great and good work.

Room for Every Type.

The Chairman said he would like to associate himself with the remarks of the last one or two speakers. There was room for the rigid, the non-rigid, the aeroplane, and the flying boat in the future for commercial purposes. He thought the airship would do the very long distance oversea routes, and that the aeroplane and seaplane would work on the shorter routes both by land and sea.

There was a great future for all classes, rigids, non-rigids, and aeroplanes, and it was not a question of one or the other. As regarded the Government assistance that would be forthcoming, it was difficult to state to-day what that would be, but the question was being given very careful consideration at the present moment. Some very valuable experiments in mooring out airships, water recovery, and long endurance flights would be carried out by the Government. The Government would probably also supply two of the latest airships—Rigid 33 and 34, which had just been produced—for long endurance flights over the Atlantic. They would probably cross to America in the spring when the weather was suitable. Those ships would not compete for the £10,000 prize offered by the "Daily Mail," but when the time came they would show what airships could do in the way of long endurance flights.

Lt.-Col. Cave-Browne-Cave's Reply.

Lt.-Col. Cave-Browne-Cave, replying to the discussion, said he felt very strongly that the development of airships was far from a one-man show. He was extremely glad that a considerable number of those who had been concerned in the developments that had been made were present to see how the Society appreciated their work.

The first two speakers, who dealt with rigid airships, read a totally wrong meaning into the paper. He was perfectly prepared to admit that so far as carrying large loads and travelling long distances at high speeds were concerned the rigid had it absolutely, but for carrying smaller loads shorter distances, and perhaps at smaller speeds, the non-rigid had a large field.

For many naval purposes a non-rigid could be built to fulfil the requirements. The details carried out in the North Sea by German Zeppelins could almost all have been carried out by our own North Sea class.

The Germans started ahead of us in non-rigid construction, but for some reason they dropped it. The question of the non-rigid and the rigid was similar to many engineering questions, such as the Diesel engine and the turbine. As the size of the Diesel increased the mechanical troubles increased, and the turbine was found more suitable for the higher powers. At some horse-powers the turbine became the best prime-mover, but development in the Diesel engine pushed the line of demarcation up, and the turbine pushed it down, and the border line between the two varied as it did in the case of the rigid and non-rigid airships.

His calculations, referred to by Mr. Cole, were based on the lift of 64.5 lbs. per 1,000 cubic feet of hydrogen, which was found to be the average figure in practice. He was glad his critics limited the capacity of the non-rigid to 500,000 and the speed to 50 miles, which were more courageous estimates than he would have made. In reply to Capt. Walpole he said the German airships did lose lift and had to pour water out.



A method of harbouring an Airship in a Wood. This was described in the lecture by Lieut.-Col. Cave-Browne-Cave.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

War Office, April 30th.

Additional Mentions in Despatches.

France.

The name of the undermentioned officer is to be added to those brought to notice for distinguished and gallant services and devotion to duty by Field-Marshal Sir Douglas Haig, K.T., G.C.B., G.C.V.O., K.C.I.E., Commander-in-Chief of the British Armies in France, in his despatch of November 8th, 1918 :—

Seely, Col. (T./Maj.-Gen.) The Rt. Hon J. E. B., C.B., C.M.G., D.S.O., T.D., M.P.

Air Ministry, April 29th.

R.A.F.—The following temp. appointment is made :—Staff Officer, 2nd Cl. (Q).—Capt. A. H. S. Baker, Nov. 18th, 1918.

Flying Branch.—Capt. D. G. Donald to be actg. Maj. whilst empld. as Maj. (A.), April 4th; Capt. G. Donald, D.F.C., to be actg. Maj., whilst empld. as Maj. (A. and S.), from Aug. 30th, 1918, to Feb. 12th (substituted for notification in "Gazette," April 8th).

Lt. L. G. Robinson, M.C., to be actg. Capt. whilst empld. as Capt. (A.), Sept. 1st, 1918.

Lt. (actg. Capt.) E. Burney, M.C., to be Lt. (A.), and relinquishes the actg. rank of Capt., from (S.O.), April 9th.

Sec. Lts. to be Lts. :—F. J. H. Ayscough, Aug. 27th, 1918; G. Kidd, March 28th.

J. J. W. Nelmes (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (K.B.), Oct. 20th, 1918; A. R. Turner (Lt., York and Lanc. R., Spec. Res.) is granted a temp. commn. as Sec. Lt. (A.), Sept. 28th, 1918, and to be Hon. Lt. (substituted for notification in "Gazette," Oct. 25th, 1918); 42270 F./Cdt. W. S. Lawson is granted a temp. commn. as Sec. Lt. (A.), Oct. 24th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. (Hon. Maj.) G. P. Howe (Maj., Alb. R.), Feb. 24th; Lt. L. H. Scott (Lt., Can. Eng.), March 16th; Lt. (actg. Capt.) G. E. G Craig (Capt., Brit. Col. R.), March 17th; Lt. E. L. O'Leary, M.C. (Lt., Can. F.A.), March 18th; Sec. Lt. (Hon. Lt.) T Pitkethly, M.M. (Lt., Quebec R.), March 20th.

The following are transferred to unempld. list :—Sec. Lt. S. C. Barron, Jan. 17th; Lt. J. Turner, Feb. 4th, Sec. Lt. (Hon. Lt.) J. T. H. Jackson (R.E.), Feb. 6th; Lt. G. H. C. G. Holt, Feb 12th; Lt. R. Neall, Feb. 13th; Lt. M. A. Fisher-Brown, Lt. (actg. Capt.) J. Oliver, A.F.C., Feb. 14th; Sec. Lt. (Hon. Lt.) W. Duce, Feb. 15th; Sec. Lt. D. C Bristow, Feb. 16th; Lt. R. A. Burnand, M.C., Feb. 20th; Lt. W. R. Baker, Feb. 25th; Lt. W. G. Barlow, Feb. 26th; Sec. Lt. (Hon. Lt.) R. C. Crook (R.F.A., T.F.), Feb. 28th; Lt. A. A. Baerlein, Sec. Lt. C. A. Newham, March 1st; Sec. Lt. J. Bennie (R. Scots, T.F.), March 4th; Capt. J. C. Liddle, Lt. G. K. Mappin, March 5th; Lt. (Hon. Capt.) W. H. Costello (R.G.A., T.F.), March 7th; Lt. G. M. Brooke, Sec. Lt. A. Berry, March 11th; Sec. Lt. P C. Brazier, March 14th; Lt. G. C. Burnside, March 16th; Lt. (actg. Capt.) M. A. Newnham, D.F.C., March 18th; Sec. Lt. P Robertson, March 19th; Lt. A. L. Newell, March 20th; Sec. Lt. (Hon. Lt.) J. M. Brown, Sec. Lt. A. B. Bennett, Sec. Lt. MacA. Bexon, Lt. R. Milner, March 21st; Lt. G. D. Batcup, Lt. V. C Morris, March 23rd; Maj. A. M. Morison, Lt. L. R. B. Spence, March 27th; Lt. L. H. Sutton, March 28th (substituted for notification in "Gazette," April 4th); Maj. B. Binyon, O.B.E., Lt. R. Beresford (S. Staffs. R.), March 29th; Sec. Lt. L. S. Clarke, Sec. Lt. H. H. B. Newberry, March 30th; Lt. D M. Murray, Sec. Lt. T. Raines, Sec. Lt. F. H. Turner, March 31st; Lt. T. W. E. Brogden, Lt. (actg. Capt.) H. S. Holman, Capt. R. McN. Keirstead, April 2nd; Lt. G. H. Bastin (substituted for notification in "Gazette," April 18th); Sec. Lt. V. Nutter, Sec. Lt. S. Rawlings (Essex R.), Maj. O. Stewart, M.C., A.F.C. (Midd'x R.), April 3rd; Lt. W. S. Aulton, Sec. Lt. N. M. Dales, Lt. D. C. Eglinton, M.C., Sec. Lt. A. L. Silverson, Capt. P. Tremlett, April 4th; Sec. Lt. R. M. Atwater, Sec. Lt. A. V. Dearden, Sec. Lt. C. G. Henderson, Sec. Lt. G. K. Hodgetts, Sec. Lt. F. C. McAdams, Lt. (actg. Capt.) D. L. Nutt, Lt. J. H. O'Connell, D.F.C., Sec. Lt. A. M. Taylor, Sec. Lt. C. S. P. Wallace, April 5th; Capt. H. E. Bagot, Lt. R. H. Fenner, Sec. Lt. E. H. Weatherell, April 6th; Sec. Lt. S. J. Bailey, Lt. G. T. Cooke, Lt. G. H. S. Mackenzie, Sec. Lt. B. G. Stubbs, April 7th; Sec. Lt. P. Alderton, Lt. J. L. Benrenisti, Sec. Lt. H. Buttin, Sec. Lt. (Hon. Lt.) F. J. Burton, Sec. Lt. B. H. Clarke, Lt. H. D. Davies, Sec. Lt. (actg. Lt.) W. F. Dollery, D.F.C., Capt. H. G. Hall, Lt. S. T. Lowe, Lt. J. H. Moore, Lt. M. F. Mousley, Lt. G. A. Mountain, Sec. Lt. C. McH. H. Suterland (Gordon Highrs.), Lt. J. O. Simpson, A.F.C., Sec. Lt. F. H. Snoxell, Sec. Lt. H Vannstone, Capt. J. R. Walker, April 8th; Sec. Lt. R. L. Bonham, Sec. Lt. G. B. H. Baker, Sec. Lt. A. Bentley, Lt. A. R Brown, Capt. L. H. Brake, Lt. W. G. M. Browne, Lt. J. Buckley, Sec. Lt. W. Berwick, Sec. Lt. O. H. Brown, Sec. Lt. G. H. A. Cordwent, Sec. Lt. H. St. C. Duncan, Sec. Lt. S. D. Evans, Sec. Lt. C. O. Hinks, Lt. (actg. Capt.) D. R. Mackie, Sec. Lt. (Hon. Lt.) H. A. H. Mould, Lt. F. A. Nethercott, Sec. Lt. G. Norriss, Sec. Lt. V. H. Newton, Sec. Lt. C. Radcliffe, Sec. Lt. H. Rae, Sec. Lt. H. R. F. Richardson, Lt. E. W. Swann, Lt. R. E. Summerfield, Sec. Lt. J. M. Theaker, April 9th; Lt. D. Asserman, Sec. Lt. K. R. Bennie, Sec. Lt. J. W. Brown, Lt. (actg. Capt.) N. S. Beswick, Lt. F. E. Bridges, Lt. A. A. Bathurst, Sec. Lt. S. Coates, Lt. W. English, Sec. Lt. (Hon. Lt.) T. R. Evans, Capt. B. Mews, Sec. Lt. D. Morford, Lt. J. M. J. Moore, M.C., Sec. Lt. R. G. Nicholls, Lt. E. A. Srodniski, April 10th; Sec. Lt. T. Allan, Maj. J. Blackwood, Sec. Lt. C. Beardmore, Lt. (actg. Capt.) O. C. Bridgeman, M.C., Capt. J. L. Carlin, Capt. J. S. Collie, Lt. A. S. Colley, Sec. Lt. A. E. Clark, Lt. (actg. Capt.) H. Fall, D.F.C., Lt. J. W. Greenshields, Lt. R. W. S. Middleton, Sec. Lt. C. E. Millson, Lt. R. Munro, Sec. Lt. G. B. Murray, Lt. B. B. Muckleston, Sec. Lt. L. W. Norman, Lt. S. A. Oudes, M.C., Maj. H. MacD. O'Malley, Sec. Lt. W. A. Robertson, Lt. T. S. Smith, April 11th; Lt. (Hon. Capt.) A. W. Beamand, Lt. J. H. Broadway, M.C., Sec. Lt. J. Cooke, Sec. Lt. A. J. Cunningham, Sec. Lt. H. Chapman, Sec. Lt. E. Dear, Lt. A. S. McGuffie, Sec. Lt. E. Nordberg, Sec. Lt. D. Richmond, Sec. Lt. (actg. Capt.) J. H. Sprott, D.F.C., Lt. U. G. A. Tonge, Sec. Lt. C. O. Thompson, Sec Lt. J. H. Yalden, April 12th; Capt. F. R. Arthur, Sec. Lt. E. F. Adams, Sec. Lt. K. Ashton, Sec. Lt. R. W. Baker, Sec. Lt. J. B. Bennett, Lt. A. G. Beattie, Sec. Lt. W. H. Brown, Sec. Lt. J. A. T. Bryant, Lt. A. W. Blowes, Sec Lt. A. J. Brewin, Sec. Lt. C. F. Breckon, Sec. Lt. W. A. Chase, Lt. T. J. Cook, Lt. G. B. Dixon, Sec. Lt. P. Dickens, Sec. Lt. D. McI. Easton, Sec. Lt. R. H. Foss, Lt. E. V. Gibson, Lt. A. W. Gourlet, Lt. R. M. Grice, Lt. R. C. Guest, Lt. H. H. Gatfield, Lt. W. E. Huxtable, Sec. Lt. E. T. Jones, Sec. Lt. R. T. Norton, Sec. Lt. L. F. R. Ollington, Sec. Lt. L. W. Ouellette, Sec. Lt. B. O. Oughton, Sec. Lt. T. J. Ruston, Sec Lt. C. A. Roxburgh, Lt. W. S. Shaw (W. Rid. R.), Sec. Lt. T. Townson, Sec. Lt. F. B. Whittle, April 13th; Sec. Lt. (Hon. Lt.) L. Brown, Lt. Hon. A. R. Boyle, A.F.C., Sec. Lt. D. L. Brocklesby, A.F.C., Lt. J. I. Bernstein, Capt. H. L. Trydale-Biscol, Lt. J. C. Bateman, Lt. C. S. Bissett, Sec. Lt. J. A. Cogan, Lt. G. A. Forsgate, Lt. E. V. Giles, Lt. W. J. Mussared, Lt. E. Nathan, Lt. M. Newcomb, Lt. H. E. Pettit, Lt. C. B. Stringer, April 14th; Lt. C. Beagle (Manch. R.), Sec. Lt. H. H. Botting, Lt. R. E. Britton, Lt. A. Leslie-Moore, Sec. Lt. C. D. Metcalfe, Capt. J. Mitchell, Sec Lt. J. A. Mondor, Sec. Lt. (Hon. Lt.) E. H. MacManus, Sec. Lt. T. R. Moore, Lt. P. V. Moseley, Sec. Lt. O. M. Murphy, Lt. H. E. R. Nelson, Sec. Lt. F. R. Orriss, Lt. G. O. Smith, Sec. Lt. V. A. Shipman, Sec. Lt. W. V. Thomas, Sec. Lt. R. N. Wellington, April 15th; Sec. Lt. R. Galloway, Capt. (actg. Maj.) J. S. F. Morrison, Sec. Lt (Hon. Lt.) A. E. Overton, Sec. Lt. C. J. Sear, Lt. C. H. A. Willett, Sec. Lt. J. S. Warry, April 16th; Lt. E. F. Bates, Maj. (actg. Lt.-Col.) J. R. Bedwell, M.C., Sec. Lt. T. R. Bayston, Sec. Lt. A. E. Boggiano, Sec. Lt. H. L. Miller, Lt. G. Rodgers, Sec. Lt. C. Shaw, April 17th; Lt. (Hon. Capt.) R. G. H. Adams, Lt. (Hon. Capt.) L. E. Barry, Sec. Lt. E. A. Baker, Lt. A. R. Brassington, Capt. (actg. Maj.) J. De Francia, Sec. Lt. F. J. Farr, Sec. Lt. W. J. Gibson, Sec. Lt. H. R. Gomersall, Lt. F. G. S. Musson, Sec. Lt. W. G. Miller, Lt. P. C. Morton, Sec. Lt. B. J. O'Meara, Sec. Lt. A. E. Osborn, Sec. Lt. K. M. Stewart, Lt. J. H. Wallace, April 18th; Sec. Lt. S. J. Bassett, Capt. T. G. G. Bolitho, M.C., D.F.C., Lt. E. Burton, Lt. L. Bertrand, Sec. Lt. H. J. Berry, Sec. Lt. J. O. P. Barrett, Sec. Lt. L. Bendelow, Sec. Lt. E. Bickley, Lt. K. C. Leslie, Lt. R. F. W. Moore, Sec. Lt. W. J. K. Shirlam, Lt. J. B. Sanderson, April 19th; Lt. (actg. Capt.) W. L. Douglas, M.C., Sec. Lt. J. S. Napper, Sec. Lt. F. Neal, April 20th; Lt. R. W. Birdsall, Sec. Lt. J. W. Brown, Sec. Lt. H. C. Glassford, Lt. B. F. Jackson, Sec. Lt. F. C. Moore, Sec. Lt. J. Olerenshaw, Sec. Lt. J. E. Wilkinson, April 21st; Sec. Lt. H. C. Armitt, Sec. Lt. W. Y. Bogle, Capt. W. H. Elliott, Sec. Lt. J. Greenwood, April 22nd; Sec. Lt. J. R. Devlin, April 23rd; Capt. D. E. Harkness, April 28th (substituted for notification in "Gazette," Feb. 7th); Sec. Lt. J. Bolton, Sec. Lt. S. Brown, Sec. Lt. (Hon. Lt.) R. Bowman, Sec. Lt. F. R. Chapman, Sec Lt. W. R. J. Cannon, Sec. Lt. B. R. Cozens, Sec. Lt. S. W. Cobb, Sec. Lt. D. O. Davies, Sec. Lt. K. D MacClure, Lt. P. A. MacDougall, M.C., Sec. Lt. M. P. McCaffrey, April 29th.

Capt. (actg. Maj.) W. G Barker, V.C., D.S.O., M.C., resigns his commn. and is permitted to retain the rank of Maj., April 29th

Capt. W. L. Graham relinquishes his commn. on account of ill-health and is permitted to retain his rank, April 30th; Capt. G M. Lord Torrington resigns his commn., April 30th; Lt. W. C. Greene relinquishes his commn. on account of ill-health and is permitted to retain his rank, April 30th; Sec. Lt. J. McDonald, D.F.C., relinquishes his commn. on account of wounds and is permitted to retain his rank, April 26th; Sec. Lt. C. R. Campbell is antedated in his appointment as Sec. Lt., Flying (A. and S.), April 16th, 1918.

The rank of Maj. (actg. Lt.-Col.) E. D. Horsfall is as now described, and not Maj. as stated in "Gazette," March 28th

The rank of Lt. H. S. Starkey is as now described, and not Sec. Lt. (Hon. Lt.) (actg. Lt.) as stated in "Gazette," April 4th.

The initials of Lt. B. W. Smyth-Pigott are as now described, and not E. W. as stated in "Gazette," April 11th.

The initial of L. Francis is as now described, and not L. E. as stated in "Gazette," March 25th.

The notification in "Gazette," March 28th concerning Lt. S. P. Tarrant is cancelled.

The notification in "Gazette," April 1st, concerning Capt. J. W. Alcock, D.S.C., is cancelled ("Gazette" notice of March 28th to remain).

The notification in "Gazette," April 25th, concerning Capt. W. Taylor is cancelled.

The notification concerning Sec. Lt. R C. Pattulo in "Gazette," Oct 8th, 1918, is cancelled.

Administrative Branch.—Lts. (A.) to be Lts. :—J. A. Atkins, R. F. Auerbach, S. P. Briggs, A. H. F. Brothers, G. T. W. Burkett, M.C., L. H. Clemetson, C. P. Creighton, S. L. Empson, W. Hunt, D. W. Paton, D.F.C., T. F. X. Smallwood, J. R. Webb (and to relinquish the actg. rank of Capt.), April 17th.

Lts. (O.) to be Lts. :—N. B. Arbuthnot, W. R. Ashwell, W. S. Aulton, M. Balston, A. N. Burrow, H. C. E. C. P. Dalrymple, C. R. Gross, April 17th.

Lt. W. J. Beach (London R., T.F.) is granted a temp. commn. as Lt., Sept. 13th, 1918.

S. H. Coronel is granted a temp. commn. as Sec. Lt., and to be actg Lt. whilst specially employed, April 29th.

J. H. Amers is granted a temp. commn. as Sec. Lt., Jan. 22nd.

The following are transferred to the unemployed list :—Sec. Lt. F. A. Needham, Sec. Lt. G. S. Nettleton, Feb. 15th; Capt. (Hon. Maj.) (actg. Lt.-Col.) H. B. Nutting, Feb. 21st; Lt. R. H. New, Feb. 22nd; Lt. W. D. Baird, Feb. 27th; Sec. Lt. H. Entwistle, March 17th; Sec. Lt. G. R. Morgan, March 19th; Sec. Lt. G. A. Osborne, March 27th; Maj. W. H. Yeatman-Biggs, March 28th; Lt. H. S. Murdock, March 29th; Sec. Lt. H. S. North, March 31st; Maj. V. C. H. Longstaffe, Sec. Lt. R. F. McQuarrie, Lt. A. L. Underwood, April 1st; Sec. Lt. G. Earl, April 2nd; Sec. Lt. (actg. Lt.) D. M. Brown, Lt. H. R. Edwards, April 3rd; Sec. Lt. N. B H. Cunningham, April 4th; Capt. J. O. W. G C. Chambers, Sec. Lt. (actg. Capt.) A. W. B. Medhurst, Sec. Lt. A. W. Todd, April 6th; Sec. Lt. F. C. Catchpole, April 8th; Lt. J. L. Callie, April 10th, Lt. H. S. Cudlip, Sec. Lt. L. M. Miller, Sec. Lt. H. Monkman, April 11th; Sec. Lt. C. F. Pearson, April 12th; Sec. Lt. F. C. Eldred, Sec. Lt. R. L. Gagnier, April 13th; Sec. Lt. H. Arnfield, Sec. Lt. (actg. Lt.) H. J. Cutter, Lt. (Hon. Capt.) (actg. Capt.) H. M. Parsons, Sec. Lt. I. R. Robertson, Capt. T. M Wheeler, April 14th; Lt. M. C. Coley, (Norf. R., T.F.), Sec. Lt. W. H. Cant, Lt. A. L. Grant, Sec. Lt. F. E. Rayner, Lt. N Smith, April 15th; Lt. R. C. Byass, April 18th; Sec. Lt. (actg. Lt.) L. M. Moss, April 19th; Sec. Lt. G. M. Nooman, Sec. Lt. J. C. Stone, April 22nd; Lt. (actg. Capt.) A. E. Neale, April 23rd; Sec. Lt. C. C. Moldram, April 27th; Lt. C. J. R. Milton, April 28th; Lt. J. R. Orrell, April 29th.

Lt. (actg. Capt.) C. G. Darwin is antedated in his appointment as actg. Capt., May 22nd, 1918.

The notification in "Gazette," Feb. 14th, concerning Lt. A. G. Horlock is cancelled.

TECHNICAL BRANCH.—Maj. A. S. Hellawell, O.B.E., to be actg Lt.-Col. whilst empld. as Lt.-Col., Grade (A), April 1st, 1918.

Capt. P. C. C. Passman to be graded for pay and allowances as Capt. whilst empld. as Capt., Grade (A), June 17th, 1918.

Lt. B. R. Bostock to be actg. Capt. whilst empld. as Capt., Grade (A), April 14th.

Lt. W. K. Manning to be Lt., Grade (B), from (O.), Jan. 13th

Lt. H. J. Dolan to be graded for pay and allowances as Lt. while empld. as Lt., Grade (B), Sept. 11th, 1918.

Sec. Lt. (Hon. Maj.) R. W. Hodges to be Lt., without pay and allowances of that rank, and to retain his hon. rank, Dec. 1st, 1918.

Sec. Lt. W. Wyatt to be actg. Lt. while empld. as Lt. (Grade A), Sept. 26th, 1918.

Sec. Lt. H. W. Hills to be Sec. Lt., Grade (A.), from (Ad.), March 2nd.

The following are transferred to the unemployed list:—Lt. W. T. Hope-Hawkins, Jan. 24th (substituted for notification in "Gazette" Feb. 14th); Lt. F. W. Nicholson, Feb. 14th; Lt. R. Barnes, Feb. 15th; Lt. (actg. Capt.) H. H. Mitchell, Feb. 22nd; Sec. Lt. H. J. Macready, March 23rd; Capt. A. P. Barry, Sec. Lt. L. R. Merifield, March 26th; Lt. A. E. Bartlett, March 28th; Lt. D. Fredman, Lt. E. H. Nurse, March 30th; Sec. Lt. P. J. Moyes, April 1st; Sec. Lt. C. R. Cunningham, April 2nd; Lt. A. Meyrick, Sec. Lt. J. W. Savage, Sec. Lt. G. A. Tandy, April 3rd; Capt. R. C. Boddie, Sec. Lt. A. W. Coaten, Lt. (actg Capt.) R. Cook, Lt. R. D. Owen, April 6th; Sec. Lt. C. Roden, April 7th; Capt. (actg. Maj.) H. B. Denton, Sec. Lt. C. R. Evans, Sec. Lt. A. G. Turner, April 8th; Lt. V. W. Allen, Sec. Lt. C. H. Ashworth, Lt. A. E. Fincher-Brookes, Capt. F. C. Starnes, April 9th; Lt. E. C. Fowler, Sec. Lt. A. J. Salmond, April 10th; Lt. J. R. Bedford, Capt. V. A. F. Bellamy, Sec. Lt. F. C. E. Burton, Sec. Lt. (actg Lt.) H. Chapman, Maj. G. J. Read (North Staffs. R.), April 11th; Sec. Lt. (Hon. Lt.) C. W. Burgess, Sec. Lt. F. A. Carter, Capt. R. P. Champness, Lt. (actg. Capt.) A. H. Edwards, Sec. Lt. J. M. England, Capt. F. P. Gardener, April 12th; Capt. A. F. Bruce, Lt. R. G. Shackel, April 13th; Sec. Lt. E. W. Bell, Lt. R. B. Bond, Sec. Lt. S. L. Boothroyd, Lt. (actg. Capt.) H. W. Brooks, Capt. J. D. Whitelaw, April 14th; Lt. (Hon. Maj.) W. E. Baker, Capt. W. O. Bentley, M.B.E., Sec. Lt. (Hon. Capt.) A. T. Cranmer, Sec. Lt (Hon. Lt.) R. W. V. Midlane, Capt. (actg. Maj.) L. Newman, O.B.E., April 15th; Capt. J. A. Baghino, Capt. C. R. D'Arcy, Capt. (actg. Maj.) H. R. Mosenthal, Capt. J. A. Rossi, April 16th; Capt. L. M. Ames, April 17th; Sec. Lt. (Hon. Lt.) A. J. Newling, April 18th; Lt. W. W. Sayer, April 19th; Sec. Lt. (actg. Capt.) W. Burrows, April 20th; Sec Lt (actg. Lt.) J. L. Bullimore, Lt. E. C. Deeth, Lt. W. H. G. Furnivall, April 21st; Sec. Lt. J. H. Everett, Sec. Lt. C. W. O'Brien, Capt. J. F. B. Vidal, April 22nd; Lt. W. F. C. Nason, April 23rd; Lt. A. Colledge, April 25th; Lt. W. B. L. Easton, April 29th.

PHYSICAL TRAINING BRANCH.—Capt. R. Northover is transferred to the unemployed list, March 1st.

MEDICAL BRANCH.—Capt. H. R. B. Hull to be actg. Maj., Nov. 18th, 1918 (substituted for notification in "Gazette," April 8th).

Hon. Lt.-Col. G. Dreyer relinquishes his commn. on ceasing to be employed, March 31st.

The following are transferred to unemployed list:—Capt. A. G. H. Moore, March 1st; Capt. W. R. Nasmyth, March 6th; Capt. J. Grimoldby, April 10th.

MEMORANDA.—F. J. Toulmin is granted a temp. hon. commn. as Capt. while specially empld. with the A.I.D., April 18th (substituted for notification which appeared in "Gazette," April 18th).

Temp. Hon. Sec. Lt. (Hon. Capt.) W. G. Adams relinquishes his commn. on ceasing to be employed, March 31st.

The following are transferred to the unempld. list:—Maj. (actg. Lt.-Col.) F. L. Scholte, O.B.E., from (S.O.), Feb. 6th; Sec Lt. (actg. Capt.) J. L. Brown, Feb. 15th; Maj. G. C. Neilson, from (S.O.) March 1st; Capt. (actg. Maj.) N. D. Newall, O.B.E., from (S.O.), March 15th; Capt. (actg. Maj.) C. G. Beatson, from (S.O.), Maj. R. E. Nicoll, from (S.O.), March 31st; Capt. W. Astell, from (S.O.), April 2nd; Maj. J. W. K. Allsop, from (S.O.), April 11th; Maj. H. K. Maxwell, from (S.O.), April 15th; Lt. (actg. Capt.) A. J. Clark, from (S.O.), Lt. (actg. Maj.) C. A. Mercer, from (S.O.), Capt. R. E. Ollerenshaw, from (S.O.), April 16th.

Maj. (actg. Col.) E. G. Mackenzie relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Col., April 30th.

The rank of Lt. (actg. Capt.) H. B. Langton (R.G.A.) is as now described, and not Sec. Lt. (actg. Capt.), as stated in "Gazette," Feb. 18th.

AIR MINISTRY, May 2nd.

R.A.F.—The following temporary appointment is made:—Graded for pay at Air Ministry rates, Staff Officer, 1st Cl. (Air.).—Lt.-Col. R. P. Ross, D.S.O., April 1st.

FLYING BRANCH.—Lt. (actg. Capt.) S. C. Iron is confirmed in his rank of Capt., May 2nd; Lt. G. H. Clifford to be Lt., from (Ad.), Sept. 3rd, 1918.

Sec. Lts. to be Lts.:—(Hon. Lt.) H. Sainsbury, April 13th, 1918; (Hon. Lt.) E. A. Collis, May 28th, 1918; W. G. Millar, July 30th, 1918; A. MacArthur, Dec. 27th, 1918.

P.F.O. H. E. Hudson (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (A. and S.), June 9th, 1918 (since killed).

Sec. Lt. H. F. Workman (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. Observer Officer, Sept. 13th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt.-Col. C. J. L'Estrange Malone, O.B.E. (Lt., Royal Navy), Dec. 28th, 1918; Lt. C. Osenton, A.F.C. (Lt., B. Col. R.), Feb. 6th; Lt. T. M. Kerruish (Lt., Manitoba R.), March 3rd; Sec. Lt. (Hon. Lt.) F. G. Gardiner (Lt., C. Ont. R.), Lt. J. E. Wood (Lt., Brit. Col. R.), March 16th; Sec. Lt. (Hon. Lt.) O. M. Martin (Lt., Manitoba R.), April 1st

The following are transferred to unempld list:—Sec. Lt. (Hon. Lt.) R. M. Fletcher, Jan. 9th; Lt. (Hon. Capt.) G. H. Simpson, Jan. 24th (substituted for notification in "Gazette," Feb. 20th); Sec. Lt. (Hon. Lt.) A. L. Benjamin, Jan. 30th; Lt. F. Thompson, Feb. 3rd; Maj. B. F. Fowler, Feb. 10th; Sec. Lt. T. J. Calnan, Sec. Lt F. A. L. Scar, Feb. 12th; Sec. Lt. W. H. McLauchlan, Feb. 13th; Sec. Lt. P. C. S. McCrea, Feb. 18th; Sec. Lt. W. F. Deeks, Feb. 20th; Lt. W. L. Hope, Feb. 22nd; Lt. R. W. Goodwin, Sec. Lt. G. W. Taylor, Feb 23rd; Capt. N. Crompton, Feb. 27th; Lt. D. J. Teepoorten, Feb. 28th; Capt. J. V. Sorsoleil, M.C., Sec. Lt. P. R. Tingley, March 12th; Sec. Lt. H. Andrews, March 21st; Capt. R. B. Freeland, March 22nd; Sec. Lt. A. S. Withers, March 23rd; Lt. (actg. Capt.) J. W. L. Birkbeck, Sec. Lt. D. G. Hood, Sec. Lt. J. C. Kyle, March 28th; Lt. S. W. Briggs, Sec Lt A. Harvey, March 29th; Capt. (actg. Maj.) T. O. Back (R.F.A., T.F.), Lt. A. G. Edwards Lt. (Hon. Capt.) (actg. Capt.) L. S. Ladd, Capt. A. C. Sharwood (substituted for notification in "Gazette," April 4th), March 30th; Lt. J. G. Hay, Capt. A. A. N. Haywood, Lt. H. R. Hutt, March 31st; Lt. (actg. Maj.) D. L. Blumenfield, Sec. Lt. J. S. Hasdell, Lt. L. C. Janett, Sec. Lt. R. W. Lewin, April 1st; Sec. Lt. M. C. Fraser, Lt. G. N. Goldie, April 2nd; Sec. Lt. J. K. Holdsworth, Lt. J. G. Hunter, Sec. Lt J. E. Lamb, Capt. (actg. Maj.) M. Lyon, April 3rd; Sec. Lt. H. J. Bradley, Capt. C. R. Cook, Sec. Lt. L. C. Filby, April 4th; Sec. Lt. J. R. Heming, Sec. Lt. (Hon. Lt.) A. Powell, April 5th; Lt. (actg. Capt.) H. D. Crompton, Sec. Lt. A. P. Knightbridge, April 6th; Sec. Lt. C. A. Hopkins, Lt. G. F. E. Harrison, Lt. H. L. Jones, Maj. J. C. P. Wood, April 7th; Capt. N. H. Dimmock, Sec. Lt. F. W. Haserick, Sec. Lt. G. T. Whitcomb, April 8th; Capt. S. Dalrymple, Lt. W. C. G. Geraghty, Sec. Lt. J. H. Holley, Lt. E. C. Kinghorn, Sec. Lt. F. L. Kirby, Sec. Lt. R. J. Lester, Capt. G. B. Robotham, D.F.C. (Notts and Derby R.), April 9th; Lt. P. C. Foster, Sec. Lt. J. Huson, Sec. Lt. H. S. S. McGill, Sec. Lt. H. Mitchell, Lt. G. G. Thomson, Sec. Lt. H. E. Whiteman, April 10th; Sec. Lt. W. G. Duncombe, Sec. Lt. J. Haigh, Sec. Lt. O. R. Hibbert, Lt. A. R. Milne-Henderson, Sec. Lt. R. C. Hunter, Sec. Lt. R. G. De Little, Sec. Lt. H. E. London, April 11th; Sec. Lt. D. C. Anderson, Sec. Lt. P. H. Bridges, Sec. Lt. (Hon. Lt.) S. R. Grover, Sec. Lt. C. W. Neill, Sec. Lt. O. C. Roberts, Sec. Lt. F. G. Smith, April 12th; Capt. W. L. Anderson, D.S.C., Sec. Lt. W. N. Broad, Sec. Lt. N. W. Churchill (substituted for notification in "Gazette," March 7th); Lt. (actg. Capt.) D. Dalgleish, Lt. E. M. Francis, Sec. Lt. K. L. Graham, Sec. Lt. M. E. Hall, Sec. Lt. H. A. Hinsperger, Sec. Lt. M. J. Hendrickson, Sec. Lt. W. H. Herold, Sec. Lt. C. S. Jefferson, Sec. Lt. A. G. Kettles, Sec Lt. N. H. Kilpatrick, Lt. F. I. Livingstone, Sec. Lt. G. M. Marshall, Lt. N. Middlebrook (Rif. Brig.), Sec. Lt. W. M. Nathan, Lt. G. L. Platts, Lt. S. S. B. Purves (Scot. Horse Yeo., T.F.), Lt. D. G. Reid, Sec. Lt. P. Smye, Lt. H. C. Stanyon, Sec. Lt. H. T. W. Sutherland, Sec. Lt. H. J. Shields, Sec. Lt. T. Swan, Lt. B. K. Sleightholm, Sec. Lt. G. Slater, Sec. Lt. H. H. Street, Sec. Lt. T. A. Sephton, Sec. Lieut. G. R. Toms, Sec. Lieut. G. W. Tisdale, April 13th; Sec. Lt. G. R. Bradley, Sec. Lt. (Hon. Lt.) E. H. Bennett, Sec. Lt. J. L. Custard, Sec. Lt. H. E. Cutler, Lt. C. E. G. Gill, Sec. Lt. W. Waddingham, Lt. L. A. Westcott, April 14th; Sec. Lt. A. G. Braham, Sec. Lt. W. K. Cole, Lt. K. E. Caldicott, Sec. Lt. W. C. V. Fowler, Lt. W. B. Giles, Lt. L. T. Hockley, Sec. Lt. C. B. Joy, Sec. Lt. K. P. Kirkwood, Sec. Lt. G. Lewis, Sec. Lt. H. C. G. Ligertwood, Sec Lt A. J. Lowry, Lt. A. McKean, Sec. Lt. W. A. McLeod, Sec. Lt. E. O. W. Mathews, Sec. Lt. D. G. Scovil, Sec. Lt. G. F. Sponenburg, Lt. T. B. Service, Sec. Lt. D. L. Thorburn, Sec. Lt. F. E. Vernon, April 15th; Sec. Lt. T. B. Alexander, Sec. Lt. G. E. Brooks, Lt. C. J. Clark, Lt. A. L. Clow, Lt. A. L. Challis, Sec. Lt. C. G. Knowles, Lt. F. H. Osborn (Scot. Horse Yeo., T.F.), Lt. G. J. R. Potter (R.F.A., T.F.), Sec. Lt W. G. Smith, Sec. Lt. W. Tinsley (Lond. R., T.F.), Sec. Lt. G. S. Thomas, Lt F. W. Verry, April 16th; Sec. Lt. S. Barker, Sec. Lt. A. J. Bridge, Sec. Lt. S. Burn, Sec. Lt. A. Barrington, Sec. Lt J. Bevan, Lt. R. A. Birch, Lt. A. H. Dempster, Capt H. D. Harman, M.C., Sec. Lt. R. J. D. S. Straw, April 17th; Sec. Lt. F. C. Andrews, Sec. Lt. J. C. Barns, Lt. L. A. Colbert, Sec. Lt. R. F. Daglish, Sec. Lt. E. Fearnside, Lt. (actg. Capt.) F. Hyde, M.C., Sec Lt. L. E. F. Paxton, April 18th; Capt. (actg. Maj.) G. M. Croil, April 20th; Sec. Lt. W. J. Bocking, Sec. Lt. S. A. Dismore, Lt. F. H. Lear (R. War. R., T.F.), Sec Lt. H. P. A. O'Mant, April 21st; Lt. R. P. Brailli, Capt. A. W. Kay, April 22nd; Sec. Lt. R. G. Carr, April 23rd; Sec. Lt. W. Fitzpatrick, Sec. Lt. A. E. Hole, Sec. Lt. F. R. James, Sec. Lt. H. S. Marfleet, April 29th, Sec Lt F. W. Fryer, April 30th.

Capt. B. A. Millard relinquishes his commn. on account of ill-health contracted on active service and is permitted to retain his rank, May 3rd.

Lt (Hon. Capt.) H. M. Rusworth (Lond., R.) relinquishes his commn. on account of ill-health, May 3rd (substituted for notification in "Gazette," March 15th).

The following Sec. Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank:—C. T. Cunningham, April 13th (substituted for notification in "Gazette," March 21st); D. F. Tysoe (caused by wounds), S. Pile, May 3rd.

The following Sec Lts. resign their commns.:—R. Mantegazza, G. McHardy, May 3rd.

Sec. Lt. D. G. Tory to take rank and prec. as if his appointment as Sec. Lt. bore date Oct. 1st, 1918.

The surname of Sec. Lt. W. G. Duncombe is as now described, and not as stated in "Gazette," Nov. 8th, 1918.

The Christian names of Lt. F. H. Berry are as now described, and not as stated in "Gazette," March 11th.

The surname of Lt. R. B. B. Siever, M.C., is as now described, and not Sovier as stated in "Gazette," March 21st.

The surname of Sec. Lt. E. J. Norris is as now described, and not Morris as stated in "Gazette," March 21st.

The notification in "Gazette," April 1st concerning Lt. M. P. Lafleur is cancelled.

The notification in "Gazette," Jan 17th concerning Lt. A. G. Bewes is cancelled (notification in "Gazette," Feb. 7th to remain).

ADMINISTRATIVE BRANCH.—Sec. Lt. (actg. Maj.) C. A. E. Lloyd to be Lt., and to retain his actg. rank, April 2nd, 1918.

Lt. (actg. Capt.) B. Turner retains the actg. rank of Capt. while empld. as Chemical Warfare and Explosive Expl. Officer, from March 20th to April 30th.

Sec. Lt. A. H. Hasler to be actg. Capt. while empld. as Capt., Nov. 15th, 1918 (substituted for notification in "Gazette," Sept. 11th, 1918).

Lts. (A.) to be Lts.:—H. S. Brackenbury, N. G. Caridia, C. H. Clifford, R. C. Day, C. F. Embleton, F. Green, N. A. Holmes, E. Hillary, P. N. Hoyle, H. H. Jones, G. Knight, R. C. F. Nailer, H. M. Paterson, H. F. Proctor, G. H. Raitt, G. Scarrett, H. B. Turner, F. H. Watts, R. Waugh, April 17th.

Capt. C. H. W. Godfrey to be Lt., from (A'ship), April 17th

Lt. T. H. J. Wright to be Lt., from (K.B.), April 17th.

Lts. (O.) to be Lts.:—L. J. S. Dowland, A. H. Lancaster, A. N. Nesbitt, A. D. Tatham, April 17th.

J. G. Haslan (T/Lt. and Qrmr.) is granted a temp. commn. as Lt., April 1st, 1918.

Lt. T. J. Southern (Yorks Hrs.) is granted a temp. commn. as Lt., April 17th, seny April 1st, 1918.

Sec. Lts. to be Lts.:—H. F. Phillips, May 4th, 1918; S. A. Gordon, Nov. 31st, 1918.

Sec. Lts. to be Sec. Lts., from (A.):—R. Cookson, E. T. A. Keitzman, M. H. McRae, April 17th.

Sec. Lts. to be Sec. Lts., from (A. and S.):—P. Rabinson, P. R. Cook (and to be Hon. Lt.), April 17th.

Sec. Lts. to be Sec. Lts., from (O.):—H. H. Creighton, T. A. Chilcott, W. S. Hedley, J. B. Russell, D.F.C., April 17th.

Sec. Lt. C. G. F. Carver to be Sec. Lt., from (K.B.), April 17th.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts.:—W. D. Tye, C. E. Briant, H. C. Bird, March 1st.

The following relinquish their commns. on ceasing to be empld.:—Lt. E. D. Whittles (Lt., R. War R.), July 13th, 1918; Lt. C. L. Hancock (Lt., Leicester R.), Nov. 24th, 1918.

The following are transferred to unempld. list:—Sec. Lt. R. E. Denton, Sec. Lt. H. W. F. Long, Feb 15th; Capt. A. C. Osman, Feb 21st; Sec. Lt. W. Bull, March 10th; Lt. (Hon. Capt.) (actg. Capt.) J. D. Lyons, March 31st; Lt. J. F. Gibson, Lt. H. W. Hamer, April 4th; Lt. H. W. Hill (R.F.A.), April 7th; Lt. M. Walker, April 8th; Sec. Lt. A. G. Masters, Sec. Lt. H. E. Rubie, April 11th; Sec. Lt. G. F. Layne, April 12th; Lt. S. T. Stephens, Sec. Lt. H. E. Snyder, April 13th; Lt. (Hon. Capt.) (actg. Capt.) C. W. Banks, April 14th; Sec. Lt. C. L. Pinker, April 15th; Lt. A. J. Williamson, April 16th; Capt. W. B. Bryans, Sec. Lt. J. L. Beattie, Capt. S. Watters, April 18th, Lt. (Hon. Capt.) D. F. Loftus, April 19th; Sec. Lt. M. W. Boot, April 20th; Lt. D. B. Brayshaw, April 24th; Lt. K. Mackenzie, April 30th.

Maj. R. H. Ferguson is removed from the R.A.F., April 30th.

Capt. (actg. Maj.) H. W. Morgan (Capt., K.R. Rif. C.) relinquishes his commn. on account of ill-health contracted on active service, May 3rd.

Sec. Lt. F. A. Crowe resigns his commn., May 3rd.

The rank of Lt. (actg. Capt.) G. C. Bateman is as now described, and not as stated in "Gazette," April 15th.

The date of appointment of Sec. Lt. C. W. Whitworth is Sept. 1st, 1918, and not Sept. 2nd as stated in "Gazette," Sept. 6th, 1918.

The notification in "Gazette," April 1st concerning Sec. Lt. A. H. Jarman is cancelled.

The notification in "Gazette," April 1st concerning Sec Lt. F. W. R. Johnson is cancelled.

The notification in "Gazette," Feb. 25th concerning Lt. (Hon. Capt.) G. H. Simpson is cancelled.

TECHNICAL BRANCH.—Sec. Lt. (actg. Lt.) W. W. Hammond to be actg. Capt. whilst empld. as Capt., Grade (A), Nov. 1st, 1918 (substituted for notification in "Gazette," Feb. 25th and March 14th).

Lt. H. V. Harle to be Lt., Grade (A), from (Ad.), Dec. 15th, 1918.

Lt. T. W. Cave, M.C., to be Lt., Grade (B), from (O), April 17th.

Sec. Lts. to be Lts., without pay and allowances of that rank:—(Hon. Lt.) T. McC. Yarwood, April 2nd, 1918; T. H. Sills, April 19th.

Sec. Lts. to be Sec. Lts., Grade (B), from (Ad.):—H. T. Miles, Oct. 1st, 1918; Sec. Lt S. W. Banfield, Oct. 30th, 1918; F. T. Harris March 24th.

Maj. T. O. H. Lees (Maj., R.M.L. Inf.) relinquishes his commn. on ceasing to be empld, April 7th.

Transferred to unempld. list:—Sec. Lt. (Hon. Lt.) R. Cornthwaite (Dorset R.), Feb. 25th; Maj. F. R. E. Davis, O.B.E., March 4th; Capt. M. D. Bousfield, March 15th; Capt. G. S. Boston, Capt. F. L. Bristow, March 28th; Capt. R. L. Charteris, March 29th; Maj. (actg. Lt.-Col.) R. Holloway, March 31st; Lt. H. H. Hussey, April 2nd; Lt. J. F. Adye, Maj. the Hon. M. Egerton, April 3rd; Capt. E. E. Haywood, April 6th; Sec. Lt. C. S. Hill, April 8th; Sec. Lt. A. E. Ainsworth, Sec. Lt. C. A. Wilkin, April 9th; Sec. Lt. C. F. Scholefield, April 11th; Lt. S. M. Barrett, Capt. S. McLaughlin, Sec. Lt. W. Pollard, Sec. Lt. H. D. Torres, April 12th; Sec. Lt. W. W. Grant, Sec. Lt. H. Hall, April 13th; Sec. Lt. J. E. Cade, April 14th; Sec. Lt. (actg. Lt.) S. J. Fountain, Lt. D. McI. Mitchell, April 15th; Sec. Lt. J. Crosbie, April 16th; Sec. Lt. F. B. Palmer, M.C., April 17th; Sec. Lt. I. Bawden, Sec. Lt. R. W. Letchford, April 21st.

The surname of Capt. (Hon. Maj.) W. R. G. Atkins is as now described, and not Atkinson as stated in "Gazette," of March 21st.

The rank of Lt. (actg. Capt.) A. R. B. Gill is as now described, and not Lt. as stated in "Gazette," April 15th.

The notification in "Gazette," March 11th, concerning Maj. F. R. E. Davies, O.B.E., is cancelled.

The notification in "Gazette," March 28th, concerning Maj. F. R. E. Davies, O.B.E., is cancelled.

The notification in "Gazette," Dec. 17th, 1918, concerning Lt. H. Stansfield is cancelled.

MOTOR BOAT BRANCH.—Capt. E. D. H. Robinson is transferred to unempld list, April 18th.

MEDICAL BRANCH.—P. C. Livinston is granted a temp. commn. as Capt., May 1st.

Transferred to unempld. list:—Capt. A. L. George, April 8th; Capt. A. G. Holman, April 9th; Lt. H. G. James, April 11th.

Capt. M. E. H. Wale relinquishes his commn. on account of ill-health and is permitted to retain his rank, May 3rd.

MEMORANDA.—J. S. T. Bradley (Maj., M.G.C.) is granted a temp. commn. as Maj., and to be temp Lt.-Col. whilst specially empld., Aug. 1st, 1918 (substituted for notification in "Gazette," Oct. 4th, 1918).

The following Overseas Cadets are granted temp. commns. as Sec. Lts., 316810 F. W. Anderson, 316811 N. A. Avery, 316797 W. H. Brown, 179573 W. D. Brown, 184186 A. A. Boon, 182,808 G. W. Brandon, 179486 W. H. B. Buckhurst, 182766 G. Carter, 184605 F. M. Clarke, 182587 W. G. Coull, 182598 S. A. Claghan, 316798 G. H. Christensen, 316818 F. S. Collier, 183586 M. W. Curtis, 316787 G. P. Deal, 316819 W. M. Elliott, 316444 E. H. Flowers, 182589 F. J. A. Fulton, 182592 S. Gallachan, 179488 A. V. Gladstone, 316802 D. C. Godfrey, 182594 R. M. D. Hall, 182593 C. D Handley, 180272 H. A. Hamilton, 316814 F. C. Harris, 317820 S. G. Hay, 316822 L. R. Henrys, 316821 B. J. Hair, 316823 L. B. Harris, 316812 J. R. Johnston, 182598 A. H. Keene, 316809 K. Kissling, 26849 J. Larkin, 316840 W. Littlejohn, 316824 W. T. Luxton, 110863 A. E. Matthews, 182599 M. A. Manhire, 184345 L. E. Maher, 175763 W. S. A. Mills, 316826 H. I. N. Melville, 316827 L. Myres, 316801 W. R. Macaulay, 182602 A. McArthur, 684476 J. E. McCarthy, 182601 A. E. W. McDonald, 316835 R. G. MacDonald, 316828 J. E. McDiarmid, 316801 I. A. McGregor, 316804 W. T. McKeague, 184636 J. Oliver, 316717 J. Parr, 184128 R. R. Parsons, 181866 M. J. Plaistowe, 316806 A. D. Poulton, 316805 C. W. Preece, 181059 A. S. Pursell, 179495 J. O. Richards, 182604, J. A. D. Ritchie, 316829 J. R. Richardson, 316830 W. G. Ross, 316807 E. Roe, 181789 E. L. Rose, 184,642 T. K. Russell, 316833 K. Simpson, 316831 L. W. Stewart, 184130 L. H. Stewart, 184644 E. N. H. Stewart, 184129 H. A. Stark, 316834 C. H. Taylor, 180310 A. F. Tasker, 35277 P. A. Turner, 316830 J. A. Taylor, 182606 N. L. Vale, 316836 R. J. Walker, 316837 G. G. N. White, 316,809 R. J. M. Webber, 316789 O. Warnock, 316800 D. Wingfield, 176841 C. T. Wildsmith, 184131 W. W. Withnell, 156582 S. A. Wilcox, 12939 J. P. Wilson, 316567 R. W. B. Young, 137885 E. W. Abrams, 176452 M. Adams, 182145 T. R. Abbott, 137886 E. Adendorff, 183851 F. L. Ashley, 182126 P. J. Atkinson, 182127 H. W. Atkinson, 183876 T. Andrews, 181902 J. R. Aird, 176451 J. Ashfield, 181874 J. E. Anderson, 181852 R. W. Amm, 6606 I. J. Allan, 184494 R. Anderson, 179699 P. R. Alston-Hole, 184741 C. Andrew, Z656 N. C. Archibald, 184245 G. L. R. Aspeling, 270415 D. M. Adlam, 27041 D. Avlam, 177136 W. B. C. Alderman, 442 H. A. Anderson, 184246. J. Ayliff, 12509 C. Anderson, 1287 L. H. Austin, 316576 H. V. Balden, 182298 V. C. Berrange, 182148 A. E. Bosman, 181856 G. W. Breakspeare, 182148 T. T. Bielski, 183852 G. C. Botts, 184497 H. J. Boullie, 181855 D. D. Bradfield, 184250 R. D. Bryce, 182281 V. Brown-Dennison, 182530 E. Bone, 178144 W. S. Bain, 181864 R. T. Barr, 178295, J. Burrus, 181854 L. M. Bassett, 182146 G. Borthwick, 176565 J. V. Bolton, 184209 F. Becker, 182833 A. V. Bramwell, 182129 C. R. Brooks, 185248 F. Basson, 182131 B. G. R. Baxter, 184496 R. C. Brien, 176453 T. W. Bruton, 182280 A. K. H. Brooke, 184742 D. B. Barbour, 182473 C. F. Baker, 61213 R. T. Beynon, 5329 A. Ballantyne, 435 P. W. Brown, 182147 W. A. R. Botha, 182226 J. D. Blomerus, 181877 D. E. Brereton, 176455 V. Beaumont, 184495 V. P. M. Berry, 183047 J. Bothwell, 182172 H. Blair, 184147 H. R. Burt, 178146 J. D. Boyd, Z636 C. D. E. Braine, 239 D. R. H. Broughton, 184792 F. J. Boogh, 7418 F. V. Beecham, 172 D. H. Baldwin, 316719 F. D. Blackmore, 184249 C. A. Blackburn, 184406 R. C. Bryan, 181152 M. P. Croxford, 182130 T. Caister, 181870 G. Clough, 182143 W. J. Callaghan, 182282 W. E. Casey 184499 F. P. Christie, 137905 H. Coen, 183854 T. M. Churcher, 183856 M. C. Coombs, 181878 R. S. Cowie, 184253 P. E. Chandley, 170716 H. S. Cross, 182132 E. C. Cross, 184252 N. Campkin, 182284 G. Chaplin, 182227 A. N. Copland, 183857 R. Cumming, 176462 M. C. Cooper, 182130 A. Connock, 184233 R. C. Cunliffe, 176461 F. K. A. Chappe, 183883 R. H. Cooper, 182285 J. H. E. Clark, 179718 V. H. Collins, 184498 D. N. Cheshire, 137923 J. Coughlan, 181208 D. T. Cockrane, 335 H. J. Chandler, 184210 R. H. Collett, 1151 H. Canard, 182151 C. G. A. Cory, 178155 P. M. Curtis, 982 F. C. Creed, 166 H. W. A. Cooper, 128978 D. Campbell, 310580 M. N. Clark, 176509 P. de Beyer, 176471 C. R. Dryer, 181880 J. F. du Toit, 316584 R. A. Douglas, 181858 A. J. E. de Smidt, 182186 J. C. Donohoe, 182088 H. S. Downham, 184500 E. E. Durham, 183608 H. E. De Smidt, 182141 H. W. Donoban, 182240 J. H. Densham, 182154 O. B. Duckles, 182206 H. A. Davies, 182259 P. L. Drost, 182157 W. A. Dawson, 182155 R. E. Dick, 137959 V. R. Day, 182156 J. A. Dalziel, 183605 J. H. Deenik, 183879 W. T. Dowie, 181859 E. J. Davis, 2911 G. Ducie, 18254 J. F. Dykman, 181860 J. H. Darroll, 180024 B. B. Davis, 316582 F. C. Dalley, 182286, J. B. Davis, 182229 E. Earl, 184501 J. L. Edwards, 182275 D. Erasmus, 176472 A. H. Elton, 184502 D. C. Eaton, 181869 D. Edwards, 182208 E. G. Egling, 176480 R. G. Elliott-Troy, 176514 C. C. Elliott, 182274 P. H. B. Everett, 182142 A. Egan, 183858 C. S. Erswell, 184255 V. R. Estment, 1662 A. Edwards, 316793 C. W. S. Fisher, 182159 A. W. Freemantle, 184256 L. W. Frewen, 182158 F. W. Fraser, 182241 C. Ferraris, 176518 G. P. Faul, 183880 R. W. Fairall, 182187 H. J. Field, 182173 E. F. Frances, 184503 R. K. Fletcher, 176521 C. R. Fletcher, 176920 D. V. Fiddien-Green, 184257 W. Fowler, 182138 S. A. Fish, 137961 A. J. Fraser, 184506 C. E. Fincham, 176567 L. C. Flanders, 184506 R. Fisher, 1308 W. N. Frames, 104521 A. E. Field, 184511 V. R. Gordon, 179474 W. A. Geard, 181891 E. A. Geraghty, 181871 A. R. Gray, 182288 F. D. Grant, 184507 R. B. Garland, 184508 L. P. Grey, 182161 J. D. A. Green, 182230 J. L. Gillispie, 182513 C. V. Groom, 184258 R. F. Gainsford, 182160 E. C. C. Gedye, 182174 V. C. Gibson, 182189 J. R. Gibson, 176523 C. D Gowing, 18209 S. F. Grinstead, 182243 J. B Grant, 184512 D. Gottlieb, 184509 R. Gilbert, 181862 R. A. Graham, 176531 J. M. Green, 182242 C. J. R. Gunning, 184259 E. B. Gill, 182188 A. Gummie, 184510 A. C. Gowlett, 4738 R. C. Greener, 73835 A. L. Gordon, 184419 G. Geddes, 316595 W. F. N. Harward, 180828 A. G. Huntley, 184490 E. A. Harlow, 184263 F. J. Hellier, 182211 L. W. Hurd, 182162 C. E. Hill, 181841 V. R. J. Henman, 182245 J. C. Hurry, 184514 M. C. Hanna, 17654 A. O. Hassall, 182190 C. Hill, 184518 S. W. Hartwell, 184519 R. A. Hesom, 184260 H. Halkney, 183861 W. N. Hallett, 184261 G. C. Hangar, 182246 W. B. Hendry, 181872 S. Heard, 182090 N. R. Hooper, 182125 O. L. Harvey, 183862 A. P. Horak, 184262 C. Hill, 183860 J. G. Hoal, 176543 J. B. D. Herbert, 182210 H. W. Hart, 184520 E. J. Hurry, 12315 H. H. Higgs, 182289 S. D. Holmes, 183882 G. L. Handley, 100601 T. H. Houghton, 176895 E. Hodgson, 184515 E. C. Hale, 184481 V. F. Hall, 184793 P. E. B. Holliwell, 184516, S. R. Harrison, 184517 J. W. Hastie, 178175 W. H. Hudson, 182247 D. Hamilton, 176541 W. J. Hodson, 184368 G. L. Ingham, 182089 J. G. Jacobs, 183883 F. I. Judd, 182210 H. Jones, 184522 S. H. Jones, 184523 G. L. Jobling, 52040 C. J. S. Jolliffe, 180042 W. A. Kirsten, 182213 G. O. Kelly, 182260 V. Kenmuir, 182135 C. A. Kelsey-Harvey, 182232 J. King, 184265 V. O. C. King, 182531 A. E. Klernander, 182231 J. H. Kennedy, 181948 J. Klue, 182249 A. J. Kulling, 182248 H. D. Kenmuir, 1586 B. T. Koch, 183885 C. L. Lamb, 183834 N. Le Roux, 184462 H. A. Law, 184525 W. Laurie, 182109 L. L. Lavin, 182153 L. Larkin, 182233 T. Lockyer, 182112 N. J. Latz, 182234 A. W. Leitch, 182261 H. Lumsden, 184526 C. J. Laver, 182192 J. Lister, 182110 G. Leeson, 184527 J. Lowe, 182111 A. Lloyd, 184528 J. Love, 182263 L. C. Lawson, 920 I. C. G. Lawrie, 181846 A. W. Lewis, Feb. 15th.

Capt. W. Benn, D.S.O., D.S.C., relinquishes his commn. on being elected M.P. Dec. 28th, 1918.

Temp. Hon. Capt. J. E. Valentine relinquishes his commn. on ceasing to be empld., Feb. 16th.

Capt. J. P. Cherry (Dur. L.I.) relinquishes his commn. on ceasing to be empld., March 15th.

Transferred to unemployed list:—Capt. D. L. Cox, from (S.O.), Jan. 31st; Capt. (actg. Maj.) A. D. Pearce, from (S.O.), March 29th; Maj. G. D. Pryor, from (S.O.), April 7th; Capt. L. E. Lander, from (S.O.), April 8th; Capt. (actg. Maj.) P. Laing, from (S.O.), April 12th; Capt. R. A. B. Orlebar, from (S.O.), April 15th.

Notification in "Gazette," Sept. 10th, 1918, concerning Sec Lt (Hon. Lt.) A. Ward is cancelled.

FROM THE COURT CIRCULAR.

WINDSOR CASTLE, May 3rd.

The King witnessed the triumphal march of the Dominion troops past Buckingham Palace this afternoon.

In attendance upon his Majesty was the Right Hon. Winston Spencer Churchill, M.P., Secretary of State for War and Air.

ADMIRALTY APPOINTMENTS.

The following appointments have been made:—

May 1st.—Lieut.-Commr A. I. Powell to "Argus" (April 20th)

Bosns.—S. Austin to "Argus" (April 30th).

May 5th.—R.N.R.—Mids. (temp.) St. J. A. D. Garniss to "Argus" (May 3rd).

PERSONAL NOTICES.

NAVAL.

MARRIAGE.

STEPHENS—FINN.—On April 26th, at St. Matthias' Church, Richmond, Surrey, Capt. Maurice Hugh Stephens, R.A.F. (late R.N.A.S.), was married to Marjorie Isabel, younger daughter of the late Alexander Finn and Mrs. Finn, of 2, Park Road, Richmond, Surrey, by the Rev. H. D. L. Viener, Captain-in-Chief, R.A.F., assisted by the Rev. B. Harvey.

MILITARY.

DEATH.

GRIMWOOD.—Bertie C. R. Grimwood, R.F.A., attd. R.F.C., who was reported missing on Nov. 7th, 1917, is now presumed killed. He was the only son of Herbert Ruffell Grimwood, Esq., of Villa Thoüin, Florence, and grandson of the late Jeffery Grimwood Grimwood, Esq., of 29, Ennismore Gardens, S.W., and Woodham Mortimer, Essex.

MARRIAGES.

TOTTENHAM—BOWEN PERKINS.—On April 30th, at the Holy Cross Church, Cowbridge, Harold W. L. Tottenham, late Rifle Brigade and R.A.F., only surviving son of Charles Tottenham, D.L., and the Honourable Mrs. Tottenham, Tudenham, Mullingar, was married to Veronica, only daughter of Doctor and Mrs. Bowen Perkins, of Tilbury and Dinas Cross, Pembrokeshire, by the Rev. L. J. Hopkin James, uncle of the bride, assisted by the Rev. W. F. Evans and the Rev. D. M. Davies.

WRIGHT—GOSFORD.—On April 26th, at Kensington,

Lieut. Horace Charles Wright, late R.A.F., was married to Hilda, youngest daughter of Mr. and Mrs. T. W. Gosford, of Evesham, Worcestershire.

Mr. Wright will be remembered as one of the very early members of the Royal Flying Corps, and one of the first N.C.O. pilots. He was invalided out of the Service comparatively early in the war, and did some useful training work as Civilian Manager of an aerodrome near Birmingham. On recovering his health he re-enlisted in the Flying Corps, and, in a comparatively short time, won a commission. He was recently demobilised, and is now engaged in organising an extensive scheme of Civil Aviation.

AIR FORCE.

Deaths.

KNOTT.—An aeroplane taking Major-General Sir F. H. Sykes, Controller-General of Civil Aviation, to Paris, met with an accident on May 3rd at Kenley. The pilot, Captain E. M. Knott, A.F.C., R.A.F., was killed. Major-General Sir F. H. Sykes was badly shaken, but was able to motor to London. He was removed in the evening to a private nursing home.

The accident occurred at a height of about 50 ft., within a few seconds after the machine had begun to lift from the ground. The engine suddenly gave out, and the machine crashed to the ground. General Sykes scrambled out of the machine, and himself extricated Captain Knott, but the latter was so severely injured that he died on his way to the hospital.

Captain E. M. Knott was a picked man, and had seen oversea service. He had been an instructor, and had crossed the Channel many times.

Captain E. Middleton Knott, A.F.C., R.A.F., was the only son of Dr. and Mrs. Knott, of Sutton Coldfield, and was 20 years of age.

PERRIN AND HAYNE.—Major Maurice Nasmith Perrin, R.A.F.M.S., medical officer at Castle Bromwich Aerodrome, and Capt. Hayne, R.A.F., were killed in a flying accident on April 28th.

They were flying a Bristol fighter and when 150 ft. up the machine fell to earth. Capt. Hayne was killed at once, and Major Perrin died from his injuries in hospital the same night.

SALMOND AND HARWOOD.—Lieut. Frederick Salmond, R.A.F., and Lieut. Gearld Harwood were killed while flying in Sussex on May 2nd. They had just left Ford Aerodrome when the accident occurred. The third occupant of the aeroplane, Lieut. de Gersigny, was slightly injured.

Engagements.

DRUDGE—TRENOWATH.—The engagement is announced of Capt. George Frederick Drudge, R.A.F., of "The Avenue," Freshwater, Isle of Wight, and Nellie, eldest daughter of Mr. and Mrs. W. Trenowath, of "Ouse House," King's Lynn, Norfolk.

KEMPT—SNOW.—A marriage has been arranged between Capt. W. E. Kemp, A.F.C., R.A.F., only son of Mr. Ernest Kemp, of Buenos Aires, and Margery Olga (Peggie), only daughter of the late Colonel E. Brighouse Snow, R.M.L.I., and of Mrs. Brighouse Snow, 8, Pont Street, S.W.

Marriages.

CRAWFORD—MANNERS.—On April 23rd, in Bassingthorpe, Capt. Charles Crawford, R.A.F., youngest son of A. A. and Mrs. Crawford, Bombay and Zurich, was married to Winifrede, youngest daughter of the late A. W. J. M. Manners and Mrs. Manners, Bassingthorpe, by the Rev. E. M. Tweed.

FURMIDGE—BRIGHT.—On April 28th, at St. George's, Hanover Square, Lieut. Percy Ward Furmidge, 1st South African Infantry, of Kimberley, S. Africa, second son of the late Mr. S. Furmidge, and of Mrs. S. Furmidge, of Kimberley, was married by licence to Sylvia Salwey Bright, W.R.A.F., elder daughter of Dr. and Mrs. A. L. Bright, of 3, Royal Crescent, Brighton, by the Rev. T. J. James, M.A., M.C., Vicar of St. Anne's, Brighton.

GRABOWSKY-ATHERSTONE—HALES.—On April 28th, at St. Mary Abbot's, Kensington, Capt. Noel Grabowsky-Atherstone, A.F.C., R.A.F., eldest son of C. Grabowsky, of Shandon, N.B., was married to Evelyn Susanna Atherstone, elder daughter of Lieut.-Colonel H. M. A. Hales, Gloucestershire Regt., by the Rev. A. L. Keith.

GUINEY—PASSY.—On April 29th, at St. Peter's, Cranley Gardens, Lieut. Ronald Mortimer Guiney, R.A.F., was married to Helen Dorothy Irene, elder daughter of the late Lieut.-Col. H. E. Passy and Mrs. Passy, by the Rev. C. S. Woodward, Vicar.

PACKE—BARCLAY.—On April 24th, at Holy Trinity Church, Hertford Heath, Capt. Edward E. Packe, R.A.F., son of the late Rev. W. J. Packe, of Wickham Bishop, was married to Claudia Lilian, daughter of the Rev. and Mrs. Charles W. Barclay, of The Vicarage, Hertford Heath, Herts, by the Rev. Charles W. Barclay, father of the bride, assisted by the Rev. E. H. Fellows, cousin of the bridgegroom.

Birth.

REDGRAVE.—On April 25th, at St. Stephen's Avenue, Ealing, to Muriel, wife of Capt. Gilbert Redgrave, R.A.F.—a son.

AIRCRAFT IN THE DARDANELLES OPERATIONS.

The following, which were published on May 3rd, are extracts from the enclosure contained in a letter from Vice-Admiral S. H. Carden, R.N., to the Secretary of the Admiralty, dated March 17th, 1915, and describing operations against the Turks at the Dardanelles :—

"The attack on the defences of the Dardanelles commenced on Feb. 19th, 1915.

"Air reconnaissance on the 17th, 18th, and on the 19th confirmed information in our possession with regard to forts Nos. 1, 3, 4, and 6, except that an additional gun was shown in eastern bastion of fort No. 6.

"Seaplanes also reported that some minor earthworks and trenches appeared to have been extensively prepared for the defence of possible landing places.

"The 'Vengeance' (flag of Rear-Admiral de Robeck) was ordered to take station as convenient to observe the fire of her division.

"Feb. 19th, 0.55.—A seaplane was ordered off to spot for 'Vengeance,' but owing to wireless troubles in seaplane no results were obtained. From Feb. 20th to 24th inclusive the weather was too rough to continue operations, and no reconnaissance by seaplane was possible.

"Feb. 25th.—The weather being favourable, operations were resumed. No seaplanes took part, the sea being too rough for them to rise off the water.

"Feb. 26th.—Seaplanes carried out reconnaissances inside Straits, in order to locate batteries, etc. Amongst other details they reported battery 8 now contains eight guns. Many positions for guns have been prepared on both shores.

"March 3rd.—Seaplanes carried out useful reconnaissances, without, however, being able to locate batteries firing at the ships.

"March 4th.—Seaplanes reconnoitred the vicinity of ports and villages near them in the morning and reported no movements of troops. Seaplanes attempted to locate the enemy's trenches without success, descending to 2,000 ft. in their efforts to distinguish the positions; one seaplane was hit twenty-eight times and another eight times.

"March 5th.—Three seaplanes were sent off to spot for fall of shot. One met with an accident, and the second was forced to return on account of her pilot being wounded by a rifle bullet. In consequence they were not of assistance in firing.

"March 8th.—Weather too misty for seaplanes to do any spotting.

"March 10th.—'Irresistible,' 'Dublin,' 'Ark Royal' off Bulair. . . . The seaplanes were unable to fly owing to rough weather.

"March 11th.—Seaplanes carried out reconnaissance for the ships operating off Bulair."

The following are extracts from the enclosure contained in a letter from Vice-Admiral de Robeck to the Secretary of the Admiralty, dated March 26th, 1915 :—

"Report of operations carried out by the Allied British and French Fleets off the Dardanelles on March 17th and 18th, 1915. (All times are local, i.e., two hours fast on G.M.T.)

"March 18th, 1.38 p.m.—Seaplanes reported fort No. 16 firing; 19 hit; 17 hit but firing; new battery at Kephez Point not manned; battery south of Suandere River firing.

"2.31.—Seaplane over forts at 1 p.m. reported troops at Kephez Point. Forts Nos. 13, 16, 17, and 19 all manned and firing. 'Saunders' also firing."

The R.A.F. Mail Service.

One of the R.A.F. aerial mail service routes now being operated in France is that between Maisonceile and Cologne—a distance of 225 miles. The unit responsible for this service is 110 Squadron, and during a recent three weeks, in spite of almost the worst possible weather conditions, there have only been three days when the weather actually prevented the mails being carried.

During this period 465 bags of mail have been carried to Cologne, and on only one occasion has there been a forced landing.

Some idea of the weather conditions prevailing may be gathered from the fact that on the majority of days on which the mails were carried, from March 1st onwards, it was found impossible to continue the training of the homing pigeons attached to the unit. Moreover, as it was necessary to fly through driving rain specially protected propellers had to be supplied as the rain so seriously damaged the ordinary type during one journey that they became unsafe for further use.

Rain and thick clouds have not on any occasion prevented the squadron from flying, but thick ground mist and low fog have been the most serious difficulty.

The average time for all flights for the whole distance is 2 hours and 16 minutes, and the record up to date is 1 hour and 45 minutes. The machines in use are D.H.9 A's.

As the route was a new one to nearly all the pilots engaged, and considering the extremely adverse weather conditions, it is felt that the performance of 110 Squadron is particularly creditable.

BRITISH AIRSHIP BUILDING.

Sir,—The Air Ministry lately issued a report as to the possibilities of the big rigid airship commercially, and talk with a glib tongue of the—at present—mythical "R38," but to be quite fair to the public they should also issue an account showing how little progress has been made during the last four years, and how such progress was made during the first three years when real practical flying men were at the head of affairs, as Captain Strasser was in Germany up to the date of his death in "L70."

The last British rigid off the stocks to prove of any service at all was some nine months ago, and in this ship it was only possible to incorporate some of the ideas gained in the wrecked Zeppelins.

A ship which left its building station a few days before the Armistice was started with all the Huns' ideas in our possession. yet she has had but about nine hours' flying to her credit with a very low maximum height. She has not been able to reach her patrol station, and the official verdict has just been issued to scrap her.

The man-in-the-street will have no faith in this snail pace of progress, and unless a very great improvement is made the Germans will certainly keep the long lead, which our Commission who recently visited their sheds admit they have a right to claim.

Soon after war was declared, a gentleman, through whose efforts the ships of our Navy are to-day coated with special steel, endeavoured to interest the Powers that Were in rigid airship building. On failing to do this he built a small rigid at his own expense, although he was warned as to the size of his craft being too small. He built the hull, made the gas bags and outer cover, bought the engines, and made the car, only to be informed that the ship would not be purchased because it would not ascend to 2,000 ft. In spite of the value of the ship for any experimental work, even though it would not go up a foot, it was allowed to lie in its shed and rot.

Three years after, a ship made of the same material and costing nearly £300,000, is scrapped through a defect that could have easily been proved in the earlier ship.

Is it not a fact that our airship instructors are so at enmity with each other, and each jealous of his neighbour, that the whole progress of lighter-than-air craft is considerably hampered?

Is the scrapping of this new ship to pass unnoticed and without those responsible paying the usual penalty when public money has been exploited in such a manner? What confidence can the workers, to say nothing of the flyers, have in such designers of the future? It is time a sweep was made.

(Signed) "A Disgusted Worker."

A GERMAN VIEW.

According to Mr. Arno Dosch Fleurot, the New York "World's" correspondent in Germany, who had been on a visit to Friedrichshafen, Baron von Guttenburg, the nephew of the late Count von Zeppelin, stated that Great Britain and America would probably divide the air routes of the world, and continued:—

Germany is now ahead of every other country in dirigibles, but her hands are bound on account of losing the war. We are two years ahead of England's latest dirigible, R.33, with whom she evidently expects to cross the Atlantic. From the published details I believe that the R.33 is of the same type as the German 43, which was brought down in England two years ago.

Baron von Guttenberg appears to consider it possible that the air routes of Europe, Africa, and Asia will be controlled by Great Britain, while America will control both the American and the Pacific. He expects that the normal Pacific route will be from San Francisco to Honolulu and Australia, and then north to Japan and back, and is sure that flights anywhere on the earth are feasible.

Baron von Guttenberg commanded a Zeppelin for three years, and he claims to be the inventor of a device which he calls a periscope, consisting of a long cable lowered from a Zeppelin with an observer at the bottom. This enabled a German dirigible to pass over a protecting cloud while the observer below directed operations. He remarked:—

"I always did the observing myself. Once in a flight over Calais I was able to come so low that I could make out a railway station by the slight reflection from lanterns on the earth. I was amused afterwards when I read that bicyclists coming from Dunkirk had been arrested because they were supposed to have given me directions. London was wonderfully successful in concealing herself, only the shape of the Thames gave it away."

It is also stated in the same report that Mr. Fleurot was shown the Zeppelin—it is not clear whether airship or aeroplane—with which Baron von Guttenberg hopes to cross the Atlantic.

THE GRIEVANCES OF FLIGHT CADETS.

Sir,—Having seen "J. R. L.'s" grouse in the April 30th issue of The Aeroplane, I feel justified in placing my case before you, which is as follows:—

I graduated "B" on Nov. 18th, 1918, as a flying officer in Cairo, and appeared in Wing Orders as a "2/Lieut.: Flying 'A' with effect from above date." It also stated in these orders that I was removed from the ranks on being granted a commission. Papers were then given me which enabled me to open an account at Cox's. I graduated "C" as a Scout Pilot on 20/1/19.

Everything went smoothly up to the time that I came home for duty as a 2/Lieut., when I reported to the Air Ministry and was granted a month's overseas leave as an officer.

I then proceeded to Cox's to inspect my accounts, and was told there that as I graduated "B" after the Armistice, I had not been gazetted, and that I was, therefore, graded as a Flight Cadet.

I need not attempt to describe my feelings on hearing this news! My principal cause for complaint is that I was living and doing duty as an Officer from Nov. 18th, 1918, until I arrived in London (Feb. 18th, 1919), and yet I was not informed during that period as to the actual state of affairs.

Naturally, all my friends and relatives, as well as my pre-war employers, knew that I was an Officer, and I think you can imagine the humiliation I felt in having to tell them afterwards that I was still only a Flight Cadet.

On making inquiries at the Air Ministry re my commission, I was informed that the G.O.C., Middle East, had been invested with powers to grant commissions to pupils during hostilities, but that they (the Air Ministry) had sent out instructions after the Armistice cancelling this order. Does it take three months for orders to reach Egypt?

Again, I have not drawn any flying pay since Nov 30th, 1918, and cannot obtain any satisfaction re same. All the various Pay Officers say is that they know nothing about it.

I think you will agree that I, and several other pilots, who are in the same boat as myself, have good cause to grouse.

E. D. B.

P.S.—I am an English Cadet, unfortunately, and, therefore, have no High Commissioner to take over my case as have the Colonial Cadets.

A HANDY MAN.

Does anybody want a thoroughly good reliable man as gatekeeper at an aerodrome, or on a private estate? An ex-R.F.C. sergeant mechanic, one of the pioneers of aviation in this country, is looking for a job involving responsibility and trustworthiness, either in the service of a company or of a private individual. His wife is capable of looking after household affairs, or a small canteen or restaurant. Any inquiries should be addressed, G. S. c/o The Aeroplane, 166, Piccadilly, W.1.

AN ADDRESS WANTED.

Will the writer of a letter from Faversham, who signs himself "Anxious," kindly communicate his name and address to the Editor of The Aeroplane. Without them, it is impossible to answer his questions.



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ON THE REGULATION OF CIVIL AVIATION IN THE BRITISH ISLES.

(PART II.)

As indicated last week, Schedule III of the Regulations deals with the subject of "Certificates of Airworthiness." This Schedule and the Directions relating thereto deal with "Passenger Aircraft," which presumably include mail-carrying aircraft. There is no reference to the airworthiness of privately owned aircraft.

This strikes one as allowing rather too much liberty to mad-headed inventors or ignorant experimenters. So far as one can see there is nothing to prevent any individual, or company, from building a thoroughly dangerous machine and flying it to the public danger. It is well to bear this in mind when reading the Regulations, of which Schedule III is as follows:—

SCHEDULE III.

Certificates of Airworthiness for Passenger Aircraft, and Periodical Overhaul and Examination of such Aircraft.

GENERAL.

1. A certificate of airworthiness in respect of one aircraft of any type (hereinafter referred to as "a type aircraft") will be issued by the Secretary of State in accordance with the conditions set out in this schedule at a charge of five guineas.

2. After the issue of a certificate of airworthiness to a type aircraft, any further aircraft of that type will be inspected for airworthiness by employees of the constructor, under arrangements approved by the Secretary of State, and if the aircraft in respect of which a certificate of airworthiness is desired conforms in all essential respects with the type aircraft, and is of satisfactory workmanship and materials, a certificate of airworthiness will be issued in respect of such aircraft by the Secretary of State at a charge of one guinea:

Provided that the Secretary of State may take steps to test the inspection made by the employees of a constructor, and if such test inspection, in his opinion, warrants such a course, may order a further inspection to be carried out by any person or persons duly authorised by him, and to issue or refuse a certificate, as he may decide, after such inspection, or to refuse to issue certificates of airworthiness in respect of further aircraft of the same type as that subjected to such test inspection that have been or may be constructed by the particular constructor.

3. Licences to competent persons for the purpose of this schedule shall be granted by the Secretary of State on compliance with such conditions as he may direct

TYPE AIRCRAFT.

4. A certificate of airworthiness will not be granted for any type of passenger aircraft until the following conditions stipulated below have been fulfilled:—

(a) The design has been approved by the Secretary of State in regard to safety;

(b) The construction has been so approved in regard to workmanship and material used; and

(c) A satisfactory demonstration in accordance with the directions of the Secretary of State has been made in flying trials that the aircraft is safe for the purpose for which it is intended.

THE CORRESPONDING DIRECTIONS.

The Directions corresponding to the foregoing Regulations read as follows:—

III.—CERTIFICATES OF AIRWORTHINESS.

1. With reference to Regulation 2 (1) and Schedule III, applications for certificates of airworthiness should be made to the Secretary, Air Ministry, London, W.C.2.

2. Application forms will be supplied on demand.

Type Aircraft.

3. Subsequent to the forwarding to the Secretary, Air Ministry, of an application form duly completed for a certificate of airworthiness for a type aircraft, the applicant shall forward to the Director of Research, Air Ministry, general arrangement drawings of the proposed aircraft, together with such particulars of load, fuel, engines, etc., as will enable a preliminary opinion to be formed as to general safety.

4. The applicant shall forward subsequently such drawings and particulars of the proposed aircraft as may be necessary for the checking in detail of the safety of the aircraft.

The information and drawings required for this purpose should be, where, applicable, in accordance with forms to be supplied on application. (C.O. Forms 12 and 13.)

(Blue prints or rough sketches may be sufficient to enable the said checking to proceed, provided they are fully dimensioned.)

5. The applicant may proceed with the construction of any part or parts of the aircraft as and when these are approved by the Secretary of State.

6. The workmanship and materials of construction of the aircraft shall be approved by the Secretary of State in accordance with detailed directions in para. 20 below.

7. On completion of the aircraft, flying trials will be carried out by the applicant's or constructor's pilot in the presence of representatives of the Secretary of State.

8. After the satisfactory completion of the check calculations, inspection, and applicant's flying trials, and after any modifications considered necessary for safety have been completed to the satisfaction of the Secretary of State, the applicant will be instructed to deliver the aircraft to the official aerodrome for official trials.

9. At any time prior to the delivery of the aircraft for official trials, modifications to the aircraft may be made by the applicant, provided that full particulars and drawings of the proposed modifications are first submitted to the Director of Research, Air Ministry, and that such as affect the safety of the aircraft are approved by the Secretary of State.

10. During official trials, which may be attended by a limited number of representatives of the applicant, the aircraft will be in the charge of the representatives of the Secretary of State, but the Secretary of State and/or his representatives shall not be liable for any loss or damage caused to such aircraft during official trials.

11. If any modifications are considered by the Secretary of State to be necessary for the safety as a result of such official trials, such modifications shall be carried out by the applicant, and on completion thereof the aircraft shall be delivered, if required, for further official trials.

12. On the completion of official trials the applicant will be notified, and reports on calculations and tests will be supplied to him by the Secretary of State on application. The aircraft will either be handed over to the applicant at the official aerodrome for removal, or will be delivered by an official pilot to an aerodrome selected by the applicant, and approved by the Secretary of State

13. On the satisfactory completion of the official trials, and after the completion to the satisfaction of the Secretary of State of any modifications considered necessary for safety, a certificate of airworthiness will be issued. Prior to the issue of such certificate the applicant shall deliver to the Director of Research, Air Ministry, a complete set of working drawings (process tracings) of the aircraft.

Subsequent Aircraft.

14. Following the receipt by the Secretary, Air Ministry, of an application form, duly completed, certificates of airworthiness for subsequent aircraft which conform in all essential respects with a type aircraft for which a certificate of airworthiness has previously been issued will be granted subject to the following conditions and procedure.

15. The applicant may make modifications (including change of engine type) to the aircraft and may depart from the approved complete set of working drawings (process tracings) of the type aircraft that are in the possession of the Secretary of State; but full particulars and drawings of the proposed modifications shall first be delivered to the Director of Research, Air Ministry, and such as affect the safety of the aircraft shall be approved by the Secretary of State.

16. During the construction of the aircraft the inspection of the workmanship, construction, and materials shall be as approved by the Secretary of State in accordance with detailed directions in para. 21 below.

17. In the case of an aircraft, which in the opinion of the Secretary of State differs considerably from the type aircraft, or in the case of an aircraft built by a constructor not familiar with the type aircraft, on completion of the aircraft, the Secretary of State may require flying trials to be carried out, by the applicant's or constructor's pilot, in the presence of his representatives, and/or may require the aircraft to be delivered to the official aerodrome for additional trials. The procedure in this case will be in accordance with the procedure governing similar trials in the case of a type aircraft, as laid down in paras. 10, 11, and 12 hereof.

18. On the satisfactory completion of the aircraft and of any trials that may be required by the Secretary of State, and when any modifications considered necessary for safety have been completed to the satisfaction of the Secretary of State, a certificate of airworthiness will be issued.

Prior to the issue of such certificate, the applicant shall deliver to the Director of Research, Air Ministry, a complete set of working drawings (process tracings) of any modifications to or departure from the type aircraft.

19. In the foregoing directions the term "aircraft" includes the aircraft and all equipment (unless the context otherwise implies), except that working drawings will not be required for engines or equipment of approved types.

Method of Approval of Workmanship and Materials.

20. Type Aircraft.

(*a*) Inspection of type aircraft will be carried out by representatives of the Secretary of State.

(*b*) The Director of Aircraft Inspection will accept wherever in his opinion possible the inspection of details, components and/or materials for type aircraft made by the employees of the constructor under the supervision of his representative, but each component will be finally inspected and approved by a representative of the Director of Inspection, who will co-operate with the constructor's inspecting staff.

Constructors must notify Director of Aircraft Inspection seven days before commencing work on any part of the aircraft, the inspection of which is necessary prior to further work.

(*c*) The constructor must also fulfil the conditions detailed hereunder for subsequent aircraft.

21. Subsequent Aircraft.

(*a*) Constructors must satisfy the Secretary of State that their inspecting staff is such as to ensure that aircraft passed by them conform in all essential respects to the type design.

(*b*) Constructors must purchase material to the specifications approved for the type design, and must arrange that each and every batch of such material is proved to comply with such specifications by suitable examination, sampling and testing, as may be approved by the Director of Aircraft Inspection.

(*c*) Constructors must make such arrangements at their works as will preclude the use of material other than that approved as in para. (*b*) above.

(*d*) Constructors' inspecting staffs, referred to in 21 (*a*) above, must stamp or otherwise provide means for the identification of each and every detail, in such a way that the individual responsible for such approval can subsequently be traced, selective inspection being adopted where considered possible.

(*e*) Constructors must issue only details or parts approved as in para. (*d*) above to the shops for assembly into components.

(*f*) Constructors must maintain an efficient process inspection during such work of assembly, and record such inspection on a process card for each component. Every component must be finally inspected by a qualified member of their inspecting staff, who will stamp the component in such a way that he may afterwards be identified, and will also sign the process card.

(*g*) Constructor's methods of carrying out the following operations must be approved by the Director of Aircraft Inspection, or other recognised authority, viz.: Heat-treatment of steel, seasoning and conversion of timber, glueing of important parts, and doping.

(*h*) Constructors must ensure that all instruments and other parts affecting airworthiness purchased from sub-contractors have been inspected and approved in accordance with these conditions.

(*i*) Constructors (aircraft or engine as may be arranged) must ensure that all engines have been inspected and approved in accordance with these conditions, and, further, that they have satisfactorily undergone such bench tests as are required by the Secretary of State, and for this purpose that suitable test stands and accessories are provided to the satisfaction of the Director of Aircraft Inspection.

(*j*) Aircraft constructors must carry out an efficient inspection of the installation of all engines, instruments, and parts that are fitted by them into the aircraft, such inspection to ensure that they function correctly, the individual responsible being indicated by a signature on the process card referred to above.

(*k*) Constructors must limit the power of their inspection staff to grant concessions to matters which do not affect the weight, the strength, or the functioning of the part. Should any of these points be affected, the matter must be referred to the designer of the aircraft, and, if affecting the type design, to the Director of Research as laid down for modifications to type designs.

Comments.

Here at the very beginning we have, in paragraph 3, matter for a very pretty argument. The applicant for a certificate of airworthiness "*shall* forward to the Director of Research, Air Ministry, general arrangement drawings of the proposed aircraft," etc., etc. In other words he *shall* give away to Government officials all the tricks of his trade, which may—and, judging from war-time experience, very probably will—be given away to his competitors before his "Type Aircraft" is ready for the market.

As against this, the omission of all mention of private machines makes it possible for a constructor to build his "Type Aircraft" and test it as a private machine. If it proves to be satisfactory he can then submit the necessary drawings, calculations, and so forth, and proceed in the required formal manner with the next machine of the type. So that actually the second machine of the type becomes the "Type Aircraft."

In fact if he has the courage to back his opinions he can build a dozen or a hundred machines as "private" aircraft before submitting his designs for official approval (and private circulation—again judging from war experience). Then, despite the usual official delays which are bound to occur when at last the Department of Research passes his "Type Aircraft" for public service, he will be ready with a whole batch of machines for the market, before his competitors are ready to equal or beat his latest products.

The Gentle Art of Wangling.

The one thing which this war and its endless—and generally idiotic—Government control has taught us is the gentle art of wangling. And here at the very beginning of the technical side of Civil Aviation is a splendid example of attempted Government interference which simply asks for a wangle to get round it.

After which the kindly permission given in paragraph 5 is merely funny. But these Directions give one an uncomfortable feeling that some of the officials of the Technical Department, fearing that they may not be able to find a job in civilian employ, have fixed up a little wangle of their own, so that they may keep their Government jobs, and presumably their R.A.F. ranks and rates of pay.

It would be of interest to know whether the people in the Department of Research—who, so far as one knows, have never produced anything of value to the progress of aeronautics—are to bear Service rank, or whether they are to be mere civilian officials. There is nothing in the Directions to indicate which they will be. There is much virtue in a uniform and a brass hat when dealing with civilian business men who are dependent on official approval or on official orders for their livelihood.

The Proof of the Pudding.

Paragraph 4 of Schedule III of the Regulations is

excellent in itself, but the first seven paragraphs of this section of the Directions strike one as being entirely unnecessary, and as being invented solely to provide work for people who could not earn a living outside a Government Department. The whole seven could have been boiled down into a statement to the effect that anybody is at liberty to build a passenger aircraft, but that before it can ply for hire it must be approved as stated by the officials appointed for the purpose.

The proof of this lies in a case which has actually occurred. A certain firm has altered its standard two-seater so that it seats four passengers in addition to the pilot. The Air Ministry authorities only license it to carry two passengers and pilot, with the present type of engine—wherein one agrees with them entirely. But that does not prevent the owner of one of these machines from taking up five non-paying passengers and himself as pilot, just to prove to his own satisfaction that it can carry six people and therefore is safe with five.

The Matter of Tests.

Another point which deserves attention is concerned with paragraphs 8 and 10 of Section III of the Directions. The "Type Aircraft" is to be delivered to the official aerodrome for the official trials (paragraph 8), but the Government shall not be liable for damage during official trials (paragraph 10). If the official trials are to be adequate they must be made by an official pilot—so much is mere common sense—and paragraph 12 says that the machine will be delivered by an official pilot to the applicant after its tests. But if the machine is wrecked by an official pilot, or burnt by official carelessness, or smashed in a collision on the ground by a Government machine, the owner pays.

At this rate aircraft building looks like being a paying game, does it not? Or else somebody is out to help the insurance companies. In either case the official tests are likely to be an expensive entertainment for the makers of aircraft.

Contrasts in Methods.

Yet another point concerns the whole system of official tests. Type tests may take a few days, or they may be spread over months, according to the competence or honesty of the officials concerned with them.

For example the type tests of seaplanes and other R.N.A.S. machines at the Isle of Grain were put through in a day or two by clever R.N.A.S. pilots under keen and efficient officers. If the Navy found itself towards the end of the war without seaplanes fit to beat the Brandenburgers it was no fault of the people at Grain, who had passed and approved types which were better than the Brandenburgers before the latter ever appeared over the North Sea.

On the other hand the R.F.C. technical people ran their affairs so badly that type tests took months. The pilots and officers of the actual test aerodromes did their work thoroughly well, but the people who had to deal with their results fiddled and footled about with figures and calculations, and demanded further tests and details thereof till machines were out of date before they came into service, or else they never came in at all.



CROSSING THE ANDES.—An authentic photograph of Lieut. Cortinez (Chilean Army) crossing the Andes on April 4th, from Santiago (Chile) to Mendoza (Argentine) and back, reaching a height of nearly 20,000 feet. The machine was a Bristol monoplane presented by the British to the Chilean Government. The photograph was taken in a low pass at 13,000 feet, and illustrates the nature of the Andean country. It is, therefore, of special interest in connection with Commander Dyott's forthcoming lecture to the Royal Aeronautical Society, to which reference is made on page 1908.

Thus the F. type Martinsyde, the fastest machine in the world by some 20 miles an hour, and the best climber, was put in for test about the Summer of 1917, and the geniuses of the Technical Department had just made up their minds to approve it when the Armistice was signed. Similarly the Bat "Bantam" was submitted for test about the Autumn of 1917, and was admitted by all the test pilots at Farnborough and Martlesham to be by far the most easily manœuvrable fighting machine and the best prospective "Hun-getter" they had ever flown. Yet the paper people at the Bolo House and Bolshevik Mansions (as the commandeered office in Kingsway were called) played about with it to such an extent that it was never put into production at all.

What one wants to know is whether the future of our Commercial aircraft is to depend on clear-headed practical businesslike people such as those who have been running things at the Isle of Grain and Martlesham, or whether it is to be hampered by a lot of academic idiots in the Research Department (late of the Technical Department), so that our foreign competitors are to be allowed to get ahead of us? Perhaps the Civil Aviation Department of the Air Ministry will be so good as to issue supplementary Directions making this clear.

Subsequent Aircraft.

There can be no quarrel with paragraphs 14 to 19 of the Directions. The requirement of paragraph 17 that machines built by "a constructor not familiar with the type aircraft"—*id est* a sub-contractor—shall be submitted to type-trials is quite reasonable, assuming that the trials are in accordance with the methods of Grain and Martlesham, and not with those of Bolshevik Mansions.

But here again it will be necessary to keep an eye on the Technical Department lest their delays of modifications (paragraph 15) give our competitors abroad a lead on us. It seems well that we have an Air Party in Parliament to keep on stirring up laggard officials.

Methods of Approval.

The whole of paragraphs 20 and 21 deal with the work of the Peace-time A.I.D. Though the A.I.D. during the war has come in for much abuse—chiefly deserved—the Department founded by the late and ever-to-be-regretted Colonel Fulton retains much of his tradition and has done much good work. It remains to be seen whether those who have carried on the Fulton tradition under General Bagnall-Wild will remain in Peace-time, or whether the A.I.D. will become—as the Technical Department threatens to become—merely a refuge for incompetents who cannot find jobs as civilians.

One hears satisfactory rumours about the department, as, for example, that it is to return to the Admiralty method of inspection, under which the completed machine or engine is inspected and the whole job condemned if a part is wrong. If true this is excellent news, for it means decreasing the number of officials, and so it means that those who remain can be of the best quality.

Half, or more than half, the trouble in the A.I.D. was due to the thousands of officials employed, mostly of limited intelligence, for whom it was necessary to lay down masses of rules of procedure which seriously hampered the work of the small percentage who possessed intelligence. Now it should be possible to abolish procedure and depend on the intelligence of a few skilled men.

Also, if a manufacturer is going to have a whole machine scrapped on account of a defective detail he is going to be a heap more careful about his detail work than he was when every bit of his machine was inspected and stamped A.I.D. before it was assembled. In those days if a bad piece of detail work necessitated the taking asunder of a complete machine, the Government paid, because the bad piece had been passed A.I.D. Under the Admiralty, and one hopes the new A.I.D., scheme the maker would pay.

Though the Directions do not specifically state that this method of inspection is to be adopted, paragraph 21 makes it fairly clear that such is the scheme as concerns the inspection of "Subsequent Aircraft." Apparently, and very rightly, "Type Aircraft" are to be inspected in detail.

The Next Instalment.

Considerations of space forbid further discussion of the Regulations and Directions this week, so one postpones till next week the very important Regulations concerning the Periodic Overhaul of Aircraft, and of Examination before each Flight, together with the Directions concerning "Persons Competent to Undertake Periodical Inspection and Overhaul and Examination before Each Flight to Aircraft." There is much of interest in these sections, especially in the question of who is a competent person and who is not.—C. G. G.

(To be continued.)

THE AUSTRALIAN £10,000 FLIGHT.

It is now nearly eight weeks since Major-General Sir Frederick Sykes announced at the dinner of the Society of British Aircraft Constructors that the Australian Government had offered a prize of £10,000 to the first Australian aviator to fly from England to Australia. Until May 12th, when the "Times" published a paragraph on the subject, nothing further had been heard about competition for this prize, but those who are on the inside of things know that several Australian pilots intend to try and win that prize, and that one at least of them had begun making his arrangements to fly to Australia some weeks before the Australian Government offered a prize at all.

The "Times" paragraph reads as follows:—

FLIGHT FROM ENGLAND TO AUSTRALIA.

Another £10,000 Prize.

The preliminary conditions of the Australian Government's offer of a £10,000 prize for the first Australian airman to fly from Great Britain to the Commonwealth have been arranged at a conference attended by representatives of Mr. Andrew Fisher, High Commissioner for Australia in London, the Royal Aero Club, and the Air Ministry.

The prize, which must be won before Dec. 31st, 1920, is open only to Australians in seaplanes, flying-boats, or aeroplanes of all-British make. The distance, varying from 15,000 to 17,000 miles, according to the route, must be completed in 720 hours. A disabled machine may be towed a total distance of 100 miles, but no further than 20 miles at any one time.

It is probable that the route chosen by aeroplane pilots will be as follows:—Hounslow, Paris, Lyons, Nice, Genoa, Rome, Cyprus or Rhodes, Damascus, Bagdad, Basra, Karachi, Calcutta, Rangoon, Penang, Singapore, Batavia, Kupan (Timor), and Port Darwin (North Australia).

The reason why nothing has been said in this paper about the preparations made by these pilots is that, being men who are in deadly earnest, they did not want one to talk about what they are going to do, but wanted to do it first and talk about it afterwards.

The reason why nothing has been heard from the Air Ministry about the flight is the obvious one that nothing much can be said about it until the International Aero-

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nautical Convention has been signed, sealed, and delivered, but one happens to know that a number of officials at the Air Ministry have expended considerable time and trouble in obtaining information which will be of use to the pilots who intend to try to win the £10,000. These officials deserve every commendation for the good work they have done in this direction.

What does seem to need some explanation, however, is that nothing has been heard from the Royal Aero Club concerning the proposed flight. As the Governing Body of the Sport of Aviation it was to be assumed that the Aero Club would have some hand in formulating rules, and one gathers that within the last few days some attempt has been made in this direction. It is, however, an interesting subject for debate whether the Royal Aero Club has actually any *locus standi* at all in the matter of this flight.

The Australian Government made a definite straight offer to pay £10,000 to the first Australian aviator who flies from England to Australia. No conditions were attached to the offer, and no time was specified at which or within which the pilot endeavouring to win the prize should make his attempt.

It would obviously be necessary for the pilot to prove that he had flown the distance and had not covered it by boat or by rail, or that he had not had his machine transported across the Arabian desert by a camel caravan, for example; but beyond these necessary checks on the good faith of the pilots, one cannot see that anybody has any right to lay down any regulations at all.

Unwarranted Interference.

There is some talk of the Royal Aero Club laying down definite regulations, as, for example, that no competitor may start before a certain date, and that every competitor must report himself at certain definite places, which in motor-racing parlance would be called "controls." Such regulations as these are directly in contravention of the spirit of the Australian Government's offer.

Fixing a date before which competitors may not start means that competitors who have had the enterprise and energy to make their preparations early will be deliberately handicapped in favour of others. It might even prevent a very clever and energetic competitor from starting and winning the prize on his own hook while competitors backed by big commercial concerns were laying plans and making preparations for costly assistance at stated points, and so it would give them an unfair advantage over a lone-hand sportsman.

Fixing certain "controls" would be equally an interference with the spirit of the competition, in that the competition was obviously intended to encourage enterprise and good piloting. Therefore the really clever and daring pilot who chose to lay his own course would, in the case of fixed "controls," be handicapped by being compelled to follow an official course which, as in the previous case, would be all in favour of a less daring or less skilful competitor backed by big commercial concerns.

The only rules which are necessary for the competition are that the pilot shall leave England and arrive in Australia and shall prove to the satisfaction of the Australian Government that he made his journey by air.

Even the date of the opening of International Flying under the International Aeronautical Convention does not matter very much, because if one competitor has the enterprise to go to the Embassies of the various countries over which he must pass (which are practically only France, Italy, and the Dutch East Indies, and perhaps Greece), and if he can get a permit to fly over those countries on this particular flight, there is no reason why he should not do so. In fact, he should be encouraged to do so, because a certain amount of flying has already been done, despite the fact that the International Convention has not been signed.

For instance, though one may be wrong, one is under the impression that when Sir Woodman Burbidge flew to Brussels on an Airco machine he was not actually flying on Government service and that he was not flying in a Service machine. It would be interesting to know whether he even obtained a special permit from the Belgian Government to fly over Belgian territory, or whether it was assumed, as it reasonably might be, that as he was going to Brussels for the benefit of trade with Belgium, no such permit would be necessary.

Taking all these points into consideration, one fails utterly to see why any competitor who has had the enterprise and energy to make his preparations during the past few weeks should be prevented by the Air Ministry or the Royal Aero Club from starting to-day or to-morrow if he is ready.

Furthermore, though one has always been entirely a supporter of the Royal Aero Club in its well-meant attempts in the past to regulate the sport of flying in this country, one cannot see that it has any place whatever in the regulating of a flight for a prize offered by an Allied Government to one of its own subjects. As a matter of International courtesy, the Aero Club ought naturally to do everything it can to assist the competitors in starting from this country, but, so far as one can gather, the Aero Club's efforts hitherto appear to have been directed rather to preventing the competitors from starting at once from this country.

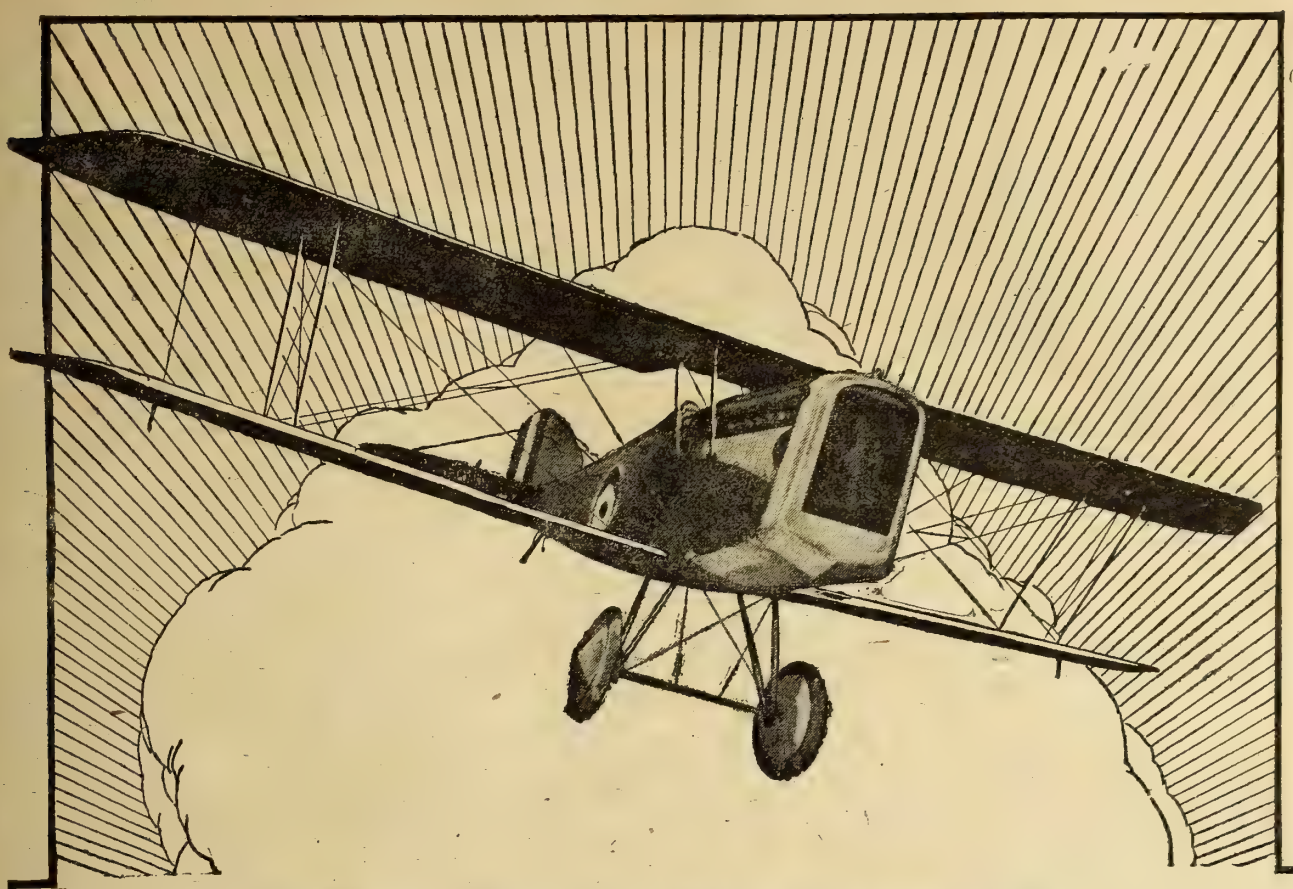
Colonial Independence.

It would be quite interesting to see what would happen if the High Commissioner of the Australian Commonwealth were to take a personal interest in the matter and request the Air Ministry to issue a special permit to Australian pilots authorising them to leave this country by air on their way to Australia, and if he were also to approach the French, Italian, and Dutch Governments, asking them for permits authorising the said Australian aviators to pass over their territory on their way to Australia.

Officers of the Australian Flying Corps are not actually under the Air Ministry at all, and would only have to obtain permission from the Australian Army authorities to leave the country in the ordinary way, and if backed by their own national authorities they should have very little difficulty in getting flying permits from the Air Ministry. One imagines that Australians actually serving in the R.A.F. would also have very little difficulty in getting permission if backed by their own authorities.

One draws attention to these various points in the interests of aviation as a whole, for it is fairly obvious that the sooner attempts to win the Australian prize begin the better it will be for aviation in Australia. As one has said, several Australian pilots have their preparations well advanced, and one at least has been actually ready to start for over a week, so that not only the Government authorities but the Aero Club officials are actually hindering enterprise.

Further delays will mean that instead of the competitors reaching the Indian and Malayan sections of their journey at the best time of the year, they will reach the tropics at the monsoon period, when they are very much more likely to be lost, or at any rate wrecked on the way, than they would have been if they had been able to start at any time during the past month. One hopes, therefore, that those who are concerned with the handling of this matter will give it their prompt attention and will do their very best to assist enterprise instead of hampering it.—C. G. G.



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THE PEACE TERMS.

The following is taken from the official abstract of the Peace Terms published on May 8th :—

SECTION V.

MILITARY, NAVAL, AND AIR CLAUSES.

"In order to render possible the initiation of a general limitation of the armaments of all nations, Germany undertakes directly to observe the military, naval, and air clauses which follow."

AIR.

The air clauses provide that the armed forces of Germany must not include any military or naval air forces. Germany is, however, to be allowed to maintain a maximum of 100 unarmed seaplanes up to October 1st, 1919, to be exclusively employed in searching for submarine mines. The entire personnel of the air forces in Germany is to be demobilised within two months, except for a total of 1,000 men, including officers, which may be retained up to October.

The aircraft of the Allied and Associated Powers are to enjoy full liberty of passage and landing over and in the territory and territorial waters of Germany until January 1st, 1923, unless prior to that date Germany is admitted to the League of Nations or is permitted to adhere to the International Air Convention.

The manufacture of aircraft and parts of aircraft is forbidden throughout Germany for six months.

All military and naval aircraft (including dirigibles) and aeronautical material are to be delivered to the Allied and Associated Governments within three months, except for the 100 seaplanes already specified.

THE ROYAL AERO CLUB.

ENTRANCE FEE AND SUBSCRIPTION FOR NEW MEMBERS.

In accordance with the resolution passed unanimously at the annual general meeting of the Royal Aero Club, on March 31st, 1919, the subscription for members elected on or after May 31st, 1919, will be £7 7s per annum and the entrance fee, £5 5s.

CLUB BEDROOMS.

The House Committee at its meeting on April 28th, 1919, decided that the price of bedrooms on and after May 1st, 1919, should be 6s. per night.

THE FLYING SERVICES FUND.

A meeting of the Flying Services Fund Committee was held on Wednesday, April 30th, 1919, when there were present :— Brig.-Gen. R. H. More, C.M.G., in the chair, Mr. Chester Fox, Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., and Mr. Harold E. Perrin, Secretary.

GRANTS AND ALLOWANCES.

The following grants and allowances were made :—

(33) A continued allowance of £2 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps who had been killed on active service

(53) A continued allowance of £4 a month for six months to the mother of a Leading Mechanic in the Royal Naval Air Service who had been killed on active service.

(65) A continued allowance of £3 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force who had been killed on active service.

(82) A continued allowance of £2 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Flying Corps who had been killed on active service.

(84) A continued allowance of £2 a month for six months to the widow of a Serjeant in the Royal Flying Corps who had been killed on active service.

(100) A continued allowance of £3 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Flying Corps who had died on active service.

(105) A continued allowance of £2 a month for six months to the mother of a Cadet in the Royal Air Force who had died on active service.

(147) The school fees up to £20 per annum of the son of the mother of a Cadet in the Royal Air Force who had died on aetive service.

(165) An allowance of £2 a month for six months to an ex-Serjeant in the Royal Air Force who had been incapacitated on active service.

(167) An allowance of £5 a month for six months to the widow of a Captain in the Royal Air Force who had died on active service.

(176) An allowance of £2 a month for three months to the widow of a Driver in the Royal Air Force who had died on active service.

(178) A grant of £10 and an allowance of £5 a month for six months to the widow of a Serjeant Mechanic in the Royal Flying Corps who had been killed on active srevice.

(180) An allowance of £2 a month for six months to the mother of a Private in the Royal Air Force who had been killed on active service.

(185) An allowance of £2 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Flying Corps who had died on active service.

(186) An allowance of £2 a month for six months to the mother of a Private in the Royal Air Force who had been killed on active service.

(190) An allowance of £1 a month for six months to the mother of a 2nd Class Air Mechanic in the Royal Air Force who had died on active service.

(191) A grant of £5 and an allowance of £3 a month for six months to an ex-Sec. Lieutenant in the Royal Air Force who had been incapacitated on active service.

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SUBSCRIPTIONS.

Total subscriptions received to April 22nd, 1919, £14,966 1s. 1d.; proceeds of entertainments held by R.A.F. Units in the Field, 904 francs, £35 8s 9d.; total, May 6th, 1919, £15,001 9s. 10d.

R.N. ARMOURED CARS OLD BOYS' ASSOCIATION.

All officers and men who have at any time served with the R.N. Armoured Cars and who have not joined the R.N. Armoured Cars Old Boys' Association are requested to send their names and addresses to Lieut.-Commdr. H. E. Perrin, Royal Aero Club, 3, Clifford Street, London, W.1.

FLYING IN PERU AND BOLIVIA.

Those who are interested in commercial flying as such should make a note of the fact that on May 28th Squadron Commander Dyott, late R.N.A.S., will deliver a lecture to the Royal Aeronautical Society on "Flying in South America."

Commander Dyott was invalided out of the R.N.A.S. in 1916, and by way of recovering his health made an extended tour in Peru, Brazil and Bolivia, crossing the Andes a number of times and penetrating into the hitherto unexplored country of the Upper Amazon. In the course of his travels he took a number of photographs and films, and he intends to show these as illustrating the conditions which prevail in that part of the country.

If one considered the pictures by themselves one would conclude that there is no opening whatever for flying in that area, but Commander Dyott has made a special study of the possibilities for aviation in that part of the world and will, one believes, convince his audience that aeroplanes, seaplanes, and flying-boats will play a large part in its development.

The lecture will be held, as usual, at the Royal Society of Arts, John Street, Adelphi, and tickets may be obtained from Mr. W. Barnard Faraday, The Royal Aeronautical Society of Great Britain, 7, Albemarle Street, W.1.

A FLIGHT TO INDIA.

On May 8th, during the flight of five British bombing aeroplanes from London to India, one of them was forced to land at Givry-sur-Orbize, in the district of Chalon, owing to engine trouble. The machine struck a tree as it was descending and nose-dived into a field. The pilot was injured.


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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

And Quite Right, too.

The following paragraphs from the "Globe" of May 10th deserve the attention of all concerned with flying. Not only do they indicate how little the daily news-sheets will defend aviation, but they are, in fact, sound sense in themselves:—

"STUNTS."

The Prince of Wales is so modest and charming that he probably has little conception of the value of his own life in the eyes of other people. Otherwise he would not indulge in "the wild evolutions of a high-flying aeroplane," of which we get a sensational account in a morning newspaper which regards flying as the whole duty of man—at any rate, of young man. According to our contemporary, the Prince of Wales embarked in a "stunting" 'plane with Colonel W. G. Barker, V.C., D.S.O., M.C., R.A.F., who, at the Heir-Apparent's "express wish," gave him "an experience of all the latest flying thrills." The Colonel is one of the most famous flyers, with a wonderful war record, but a permanently disabled arm. He is described as the "Prince of Stunters."

"COMMERCIAL FLYING."

The Prince of Wales is a most gallant young man, and it is only natural that an "air stunt" should have an attraction for him. Nevertheless, we venture to protest at his indulging in this most dangerous sport at the present time, thereby encouraging his contemporaries to do the same. During the war we had to grin and bear the appalling toll on our young man power. It was the inevitable price of victory. It was their glory to pay it. But we are appalled at the really shocking waste of life since the "cease fire" sounded, which we owe to what in peace-time is little better than a craze. Almost every day one opens the paper to read some hideous air tragedy in which the victims are necessarily the most precious part of the nation—all the more precious after our losses of the last five years. "Commercial flying" has already too much to answer for.

Off the Map.

A correspondent relates the following characteristic story:—

A certain number of men have been detailed to proceed to the Azores as a "ground party" for the coming Atlantic flight and were dispatched to Blandford to be equipped. When they returned it was found that they had been fitted out with fur coats, fur helmets and leather waistcoats! In fact all the North Pole gear!

One now expects to hear of a ground party proceeding to Iceland duly equipped with drill uniforms, sun helmets and refrigerators for the preparation of iced drinks.

The Dangers of Journalism.

A writer in the "Daily News" is responsible for the following, which appears to have escaped the attention of the aeronautical editor:—

"There are people who think Peace-flying as safe as motoring, and others who regard it as a sort of acrobatic performance only attempted by fools. Flying is neither a bird's paradise nor a series of blazing fires, desperate falls, and terrible crashes, although, so far as its dangers are concerned, it is best that the public should be told the truth rather than it should gain the impression that it is 'dead-safe' only to be alarmed later by evidence to the contrary.

"The commonest cause of accidents is engine trouble in taking off. If an aeroplane is about 100 feet up and just over some houses, with more houses in front, and the engine 'conks out,' what can the pilot do? At best he can 'Immelmann turn' and try to get back and land again; but even this, if it is not well done, may cause a side-slip."

The article is headed: "Is Peace-flying Dangerous?" The answer is in the affirmative, if, under the circumstance, specified pilots attempt Immelmann turns at a height of 100 feet with conked out engines, especially if they are "just over some houses, with more houses in front"—presumably, sky scrapers.

One's sympathy would be reserved for the houses.

Or might Exchange for Bath Chair.

The following advertisement appeared in a publication devoted to motor-cycling matter:—

"Aeroplane. 1916 Avro scout, fitted with 3-cylinder 35 h.p. air-cooled engine, in perfect order, £40, or sell engine separately; would take motor-cycle exchange."

Kamerad!

The following priceless information has been received by U.S. wireless from Atlantic City:—

"Earl C. Hansen, of California, who has been serving in the radio division of the steam engineering department of the United States Navy, explained to the Pan-American Aeronautical Convention his invention to enable aviators to land even in the densest place, and always to keep in touch with their stations. He explained that the device is a modification of the wireless telephone, enabling aviators, while aloft, to transmit direct to newspapers news from the scene of happening.

"One invention he described as an electric 'scent,' by means of which aviators are able to fly directly over a station and receive electric waves over a powerful wireless telephone attachment, indicating always the exact altitude.

"Major Reed G. Landis described a new rubber-coated propeller, said to be exceptionally durable."

This is the sort of thing that makes one feel inclined to leave aeronautical journalism and turn to the cultivation of vegetable marrows. Really America is not playing the game when she discharges a broadside like this across the Atlantic. One can endure the first paragraph dealing with the wireless telephone that enables aviators to land in the densest places, but the electric "scent" and the rubber-coated propeller are too great a strain on war-worn nerves. After all, the Press Censor had his uses.

Like a Victorian Duchess.

The "Times" in its report of the march of the Dominion troops through London made the following picturesque remarks:—

"It was while the Canadians were marching by that the throb of engines was heard in the sky; and, looking up, one could see the aerial escort of 14 aeroplanes of the Canadian Ais Force. The first seven were arranged in what is called "artillery formation," shaped like an arrowhead; behind came a formation of three and a formation of four; and this disposition was wonderfully maintained while the planes circled about overhead, coming and going throughout all the rest of the march. And for a short time an aerial monster, the airship T.14, floated magnificently about, rising and dipping like a stately Victorian duchess, and gleaming in the bright air."

One hopes that the compliment will not make the T.14 unduly proud. And what is the Canadian Ais Force?—For once one is dumb.

"If!"

(An adaptation of Mr. Kipling's poem to meet the requirements of the Ack Emma.)

If you can keep your head when all around you
Are clamouring to tell you how it's done;
If you can let Fate's heavy hammer pound you,
And keep your face turned ever to the sun.
If you can fight—and not grow tired of fighting,
Nor deem the odds too great, the strife too long;
Or being slighted, don't give way to slighting,
But greet your grim reverses with a song.

If you can rise ere yet the dawn comes creeping
On ghostly pinions, through the Eastern sky;
If you can slog when all the squadron's sleeping,
And make your breakfast off an antique pie.
If you can combat duties mean and sordid,
That selfish slackers may not soil their hands;
And see another for your toil rewarded,
Nor meet one friendly soul that understands.

If you consider duty more than pleasure,
And set your shoulder gamely to the wheel;
If you can sacrifice your hard-earned leisure,
And ever bend your back to forge the steel.
If you can take commands from those above you
Who were your office-boys in days gone by,
And make each surly sergeant learn to love you,
Because, like Washington, you never lie.

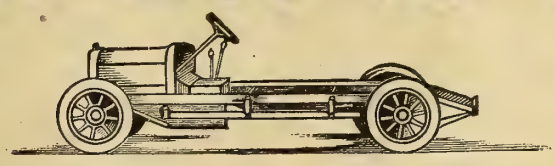
If you can see conceited fools promoted,
While none put down the mighty from their seat;
If the ideals on which you dreamed and doted
Go crashing down in ruins at your feet.
If you can jog along on Life's broad highway,
Submitting to misfortunes in a mass;
Content to live your life in some dull byway,
You'll be a hero—*and a blithering ass!*

—G. R. S.

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The WORLD of AERONAUTICS (continued)

An Invitation to an Orgy.

Invitations to R.A.F. Squadron dinners are cold and colourless compared with the American method of bidding guests to a feast. The following is an example of the American invitation. Except for the deletion of names it is printed in full, as each word is beyond price :—

Some poor simp has said the war is over. He's wrong, all wrong. We have yet to fight the battle of New York. Here's the big idea. All aviators, those who flew and those who wanted to and only talked about it, are invited to attend a grand, great and glorious dinner on May 3rd of this year—we say this year as being before July 1st, given by those ancient and dishonourable members of the Montmartre and the Rue Brey Club.

Mr. R——, of 58th Street and 8th Avenue, out of the kindness of his heart, has consented to stage the fight at his gilded palace of crime at the merely nominal fee of eight bucks per plate and person. Be not alarmed, O ye of faint heart and fainter purse, for the said double four includes all the necessaries, including ambulances, a huge dinner accompanied by all the liquor one can drink, a nigger jazz band, the ravishingly beautiful, voluptuous women of R——'s cabaret, who will do their little tricks, smokes and all.

Eight measly little beans covers even the breakages. There will be much and many liquor, also music, and as for women, bring your address books. There will be a special telephone girl on duty for that purpose after 12. Please answer at once, signifying your intention of coming, and tell your flying friends to ask for tickets, too.

The number of guests is limited to 150, so get your applications and checks in early. Make checks payable to Lieut. —— or Lieut. ——, care of the American Flying Club, 11, East 38th Street. Let's make this the greatest souse party of the century. An orgy that will go down into the history of the New York Police Department as the wildest ever staged. The police are fixed.

Signed, COMMITTEE.

P.S.—As a mere detail for your own protection all tickets must be paid for before noon on Saturday, May 3rd. There will be no comeback. Dinner is at 7.30.

Mr. Bonar Law's Return.

Mr. Bonar Law arrived at his official residence during the afternoon of May 8th, having flown back from France to England.

Revenge.

Demobilised subalterns from the Royal Air Force, who wish to "get their own back" on their erstwhile Colonels and Majors, are asked to note than an even more efficient method than hissing them when they appear on the stage has been discovered.

It is generally known that certain Field Officers are acting as pilots for firms specialising in joy-rides. A delightful effect may be obtained if a demobbed subaltern quietly and unobtrusively slips a sixpenny-bit into the pilot's hand at the conclusion of a flight.—G. D.

A Bad Case.

Lieut. Arthur Venables Clarke, 26, R.A.F., was charged on remand at Bow Street with stealing an officer's trench coat, belonging to Lieut. C. D. Lang, R.A.F.

Lieut. Lang missed the coat from his room at the Imperial Hotel on March 30th, and later the same day saw Clarke wearing it in the doorway of the hotel.

Clarke was further charged with obtaining £10, £5, and £3 by worthless cheques. He pleaded guilty to all the charges, and was sentenced to six months in the second division.

An official of Messrs. Cox's Bank said that before Clarke's account was closed some 70 or 80 of his cheques presented in Egypt were returned, and since then about 60 cheques have been presented.

The Heyday of Pessimists.

Capt. A. Illingworth, R.A.F., in an address at Newcastle on commercial aviation, said it was somewhat unfortunate that he should be speaking on the subject in the heyday of pessimists.

Those who were against civilian aviation were pointing in triumph to the other side of the Atlantic, where there were at present several aviators storm-bound and unable to start for the "Trans-Atlantic Stakes." But the same type of pessimist had existed during the whole history of the commercial development of transport, and commercial aviation was really only a day old. In five years aviation had made tremendous progress and to day it was safe and sure. Before aviation could develop, as it must eventually develop, there must be a sense of security. Last year in the training of R.A.F. pilots for every fatal accident 93,000 miles were flown. That would compare very favourably with other means of transport.

Will the Air Ministry confirm the statement that 93,000 miles were flown for every fatal accident?

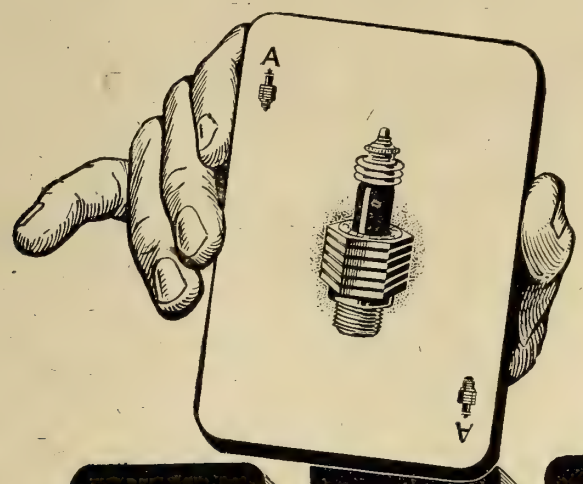
24 T.S. R.A.F. Dinner.

A dinner will be held in London on May 21st for the 24th T.S. R.A.F., Netheravon, 1917-18. All instructors and pupils wishing to attend should write to Lieut. Startup, Birchbank, Christchurch Road, Hampstead, N.W.3.





IN NEWFOUNDLAND.—Above is seen Mr. Raynham's Martinsyde biplane (Rolls-Royce engine) being wheeled out for a trial flight at Quidi Vidi. In the lower picture it is seen getting ready to start. THE AEROPLANE is indebted to Mr. Percy Noël, of the "Chicago Daily News," and formerly of the pioneer American aviation paper, "Aero and Hydro," for these and other pictures from Newfoundland.



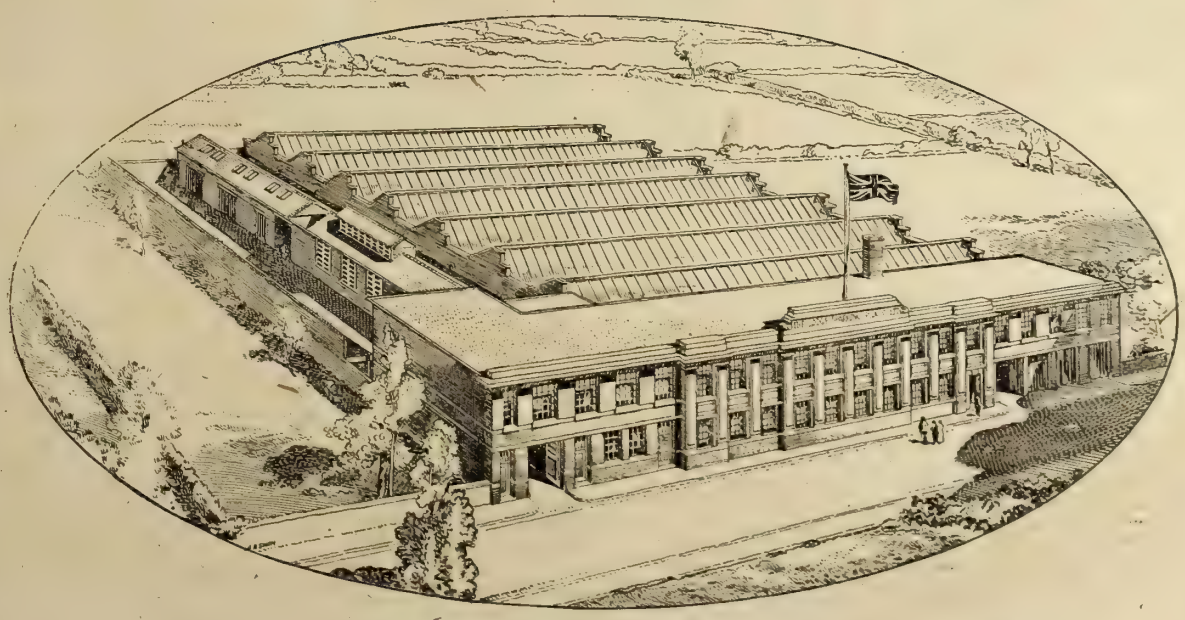
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The WORLD of AERONAUTICS (continued)

Those Doctors Again.

The following Press communiqué has been received from the Air Ministry :—

A special Medical Examination is necessary before a pilot can be granted a licence covering the carrying of passengers or goods for hire or reward.

Applicants should communicate in writing with the President of the Aviation Candidates Medical Board, 9, Arkwright Road, Hampstead, N.W., asking for an appointment, at least 48 hours before the time they desire to present themselves for examination. A fee of £1 1s. will be charged for the examination, which will take place normally between 2 p.m. and 4 p.m. on any day except Saturday and Sunday.

The fee is payable at the time of examination.

If found medically fit a certificate to that effect will be given to the candidate, who should then forward it, together with his application for licence, to the Secretary, Air Ministry (C.G., C.A.).

When first communicating with the President of the Board, candidates should be careful to give their surnames and Christian names, together with information regarding their previous Service (if any) in the Royal Air Force.

Flying over the Battlefields.

From the "Daily Express" of May 18th :—

I learn that arrangements are being made for civilians to view the battlefields of France from the air. Aircraft are being fitted with special cabins that will permit comfortable observation, and will fly as low as safety permits over the Somme battlefield, the Chemin des Dames, and the Ypres salient. This is all part of the programme being arranged by a company which is running "tours de luxe" in the war zone. A member of the Paris Embassy staff has a finger in the pie!

[This was proposed during the first six months of the war by an officer of the R.F.C.—Ed.]

The Handley Page Squadron's R.N.A.S. Dinner.

Will any officers who served overseas with the Handley Page Squadron, R.N.A.S., under Commr. J. T. Babington, D.S.O., R.N., and who wish to attend a Re-union Dinner at the Ritz Hotel on May 28th, please communicate with Capt. H. Mason, R.A.F., Eriskay, Warlingham, Surrey?

59 Squadron's Dinner.

Will any members of the 59th Squadron, B.E.F., wishing to attend a Dinner on Saturday, May 24th, please communicate with Lieut. Wilcox, Worthy Down, Winchester?

49 Squadron's Dinner.

A Re-union Dinner of the 49th Squadron, R.A.F., will shortly be held in London. Will those wishing to attend write to Major Benning, No. 11 T.D.S., Old Sarum, Salisbury, before May 22nd.

The Independent Air Force Dinner.

A dinner will be held on June 14th at the Savoy Hotel at 7.30 p.m. for 8 p.m., for all Officers who served at any time with the Independent Air Force.

All those wishing to attend should communicate with Major W. G. P. Young, Room No. 668, Air Ministry, London, W.C.2, on or before June 1st, enclosing cheque for two guineas. Evening dress or uniform.

Major De Havilland in Spain.

On May 5th Major de Havilland flew from Madrid to Barcelona and back. With a favourable wind the outward journey was made in thirty minutes. The express train takes 15 hours. Attention should be drawn to the fact that the machine Major de Havilland is flying is most probably a single-seater of the fighter type. No big passenger machine could do the journey quite so quickly, and one cannot always count on a following wind. Even so the time taken by air would be considerably less than that taken by the train.

A Warning.

Under the heading "Essential Military Precautions Forgotten in the Treaty,' the "Matin" dwells on the fact that civil aircraft can immediately be transformed into bombing aircraft, and adds :—

"No article forbids the German metal industry, of which we know the power, to construct an army of airships and aeroplanes disguised as commercial aircraft. It is evident we cannot suppress German aviation, or exclude Germany from the great aerial traffic which, within a quarter of a century, will circulate over the world, and the limitation of the number or size of her aircraft would also be inefficacious.

"But the Allies should insist on remaining masters of the air until the day on which Germany gives security for her repentance and pacifism. The air should become the property of the League of Nations, and an air police under inter-Allied auspices could then protect the civilised world from its greatest peril. There are thousands of paragraphs in the Treaty dealing with the military precautions, but the essential precaution has been omitted. As the Treaty has not been signed, there is still time to avert the danger."

Exclusive News.

The New York publication "Flying" often gives exclusive news from Great Britain. The following is an example :—

"London, March 17.—The airship section of the Royal Air Force will not compete in any trans-Atlantic air race, but the two recently launched naval airships belonging to this section will undertake the voyage as a training test when some defects discovered in their trials have been remedied.

"Probably one airship will try to cross between Scotland and Newfoundland by parachute, returning to Great Britain on a non-stop voyage. The other vessel will probably cross by the Southern route, from Africa to Florida.

"The Admiralty officials, it is stated, do not expect that either attempt will be made before May."

The accuracy of the forecast is remarkable, as before May no attempt was made by any airship to cross the Atlantic by parachute.

When Language is Inadequate.

According to a Reuter telegram, Lieut. Ormer L. Locklear, an American aviator who has performed the feat of leaping from one aeroplane to another while in full flight, declares that it is all very simple.

He is reported to have said : "When my pilot is running smoothly at not less than 5,000 ft. I climb down to the axle of the ground wheels under the plane, and sit there and wait for the second machine to fly under me. When it is directly under me and both machines are going virtually at the same speed, I drop about 2 ft. One foot slips instantly under an iron support for an exhaust pipe. Then I grab it with my hands. That's all—if you do it perfectly."

In these pages there recently appeared some photographs of an aviator climbing about a machine in flight, and one was moved to make the comment that the feats indicated "imbecility in excelsis." After reading the above one sympathises with the motor-'bus driver who could not make an effective retort because his opponent had used all the best words.

Two Long-Distance Flights.

Two long-distance flights were made on May 9th by Handley Page aeroplanes. The first machine, piloted by Major Foot, R.A.F., left the aerodrome at Cricklewood at six o'clock, and visited Bournemouth, the Isle of Wight, Portsmouth, and Southampton, landing at Eastleigh at 8.30, after a non-stop flight of about 200 miles. The second machine, with Lieut. H. M. D. Walker, R.A.F., as pilot, left Cricklewood also at six o'clock, journeyed to Cardiff and Swansea, and returned to Bristol, landing at nine o'clock, the distance travelled being about 250 miles.

The Sale of German Aircraft.

According to a report issued on May 12th, General Nudant, on behalf of the Allied Governments, has informed the German Armistice Commission that all sales of German aeroplanes to foreigners are forbidden, and has demanded that immediate steps be taken to put a stop to such sales.

Which seems rather unreasonable, for if Germany is not to sell her products, how is she to pay her War Indemnity?

Unconvincing.

Major-General Seely, Under Secretary for the Air Ministry, speaking at the Iron and Steel Institute Jubilee celebration, May 8th, said : "A better steel was the one thing that would make air travel really safe and efficient. If the manufacturers would produce an engine at one pound per horse-power, or even half a pound per horse-power, he would guarantee that air travel would be made more safe and profitable than any other method."

But would an improvement in the quality of steel allow the designer of aeronautical engines to effect such great reduction in weight? One has one's doubts. Does Major-General Seely imagine that "better steel" would enable designers to cut down the weight of parts by, say, 75 per cent. or more? And is not the term "better" somewhat vague? There are many different grades of steel for different purposes. The steel used for making the hair-spring of a wrist-watch might not be suitable for making exhaust valves for an air-cooled engine, but one cannot say that one grade is "better" than another.

The remark of the genial Scot who said that there is no bad whisky, though some is better than others, is clear, because one presumes that he regarded whisky as useful for only one purpose. He did not intend to burn it in a spirit lamp in order to make tea, or to run a motor-cycle on it. If he had said there is no bad steel, but some is better than others, the remark would have been absurd, unless he stated the purpose to which it was to be applied.

As to the statement that, given a lighter engine, air travel could be made safer and more profitable than any other method, one can only say that it is unconvincing.

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PARIS NOTES

For some time prior to the war M. Robert Peugeot had on offer a prize of 10,000 francs to be awarded to the first man who produced a successful aviette. In order to encourage latent enthusiasm and any promising designs M. Peugeot has notified the Press that his offer still holds good. Regular readers of my notes will be aware that quite a lot of interest is taken in the aviette not only in France, but in Switzerland and Italy, so there is the possibility of the contest becoming international. The prize will be awarded to the first person who raises a machine off the ground by natural physical force—i.e., muscular effort—and who travels a distance of 10 metres.

The Organism of Civil Aviation.

As Colonel Dhé has been replaced by General Duval, it was to be expected that Lieut.-Col. Leclerc should be superseded by an officer of higher rank. Lieut.-Col. Leclerc was appointed Organiser of Civil Aviation in January of this year, and has therefore not had long enough at his work for the results to be immediately apparent. Nevertheless, the Aircraft, and particularly the fast-developing Aerial Transport Industries recognise that they owe their present development solely to his energy. He it was who conceived the idea of creating trunk airways from State resources and dividing up the landing grounds into aerogares, etc., the various routes to be exploited by private companies. The scheme has progressed so well that the Posts and Telegraphs Department have laid before the Chamber a request for another five million francs (£200,000) in order that they may organise and establish four more aerial post lines. As the project has been admitted by the Treasury, who are responsible for the Budget, it is almost sure to receive the approval of the Chamber.

Up to the present the Postal Authorities have been working four lines: Paris-Le Havre, Paris-Lille, Paris-Brussels, and (in course of organisation) Paris-London. Of these four routes, three have been, or will be, taken over by private companies (Paris-Lille by La Compagnie des Messageries Aériennes); there only remains the Paris-London, which will surely be quickly taken up by a private concern, possibly Farman. In view of this the Postal Authorities propose to initiate an airway from Paris to Nice in two stages, one Paris-Lyons with relay machines at Auxerre and Dijon, and the other from Lyons to Nice, possibly with one relay.

Aerial Activity.

The Compagnie des Messageries Aériennes, which is the Bréguet-Blériot-Caudron-Borel combine, are running their daily service to Lille. Packages are carried at a fee of 1.25 fr. per 50 grammes (just over one pound). Tassel, one of their pilots, left Paris for Lille last Tuesday in a snow and hail storm. The Compagnie Francaise de Navigation Aérienne are another new concern, and they have placed the technical direction of the concern in the hands of Lieut. Georges Madon, one of the foremost French aces. Then there is the Compagnie des Grands-Express Aériennes, established by Lieut. Villier and other officers of the French Service d'Aviation: their offices are 3, Rue d'Anjou, Paris. This firm is about to conclude a contract with the Government for the transportation of 150 Bréguet machines from Paris to Casablanca by the overland-and-short-sea route. Fifteen to twenty pilots will be employed. They also propose to start a London-Paris service as soon as conditions allow.

An Aerial Postage Stamp.

The French Postal Authorities propose to charge a surtax of 75 cs. on packets of 500 grammes, 1 fr. from 500-800 grammes, and 1.25 above that weight, on packages or letters carried by aerial post. A special stamp is being printed at the Boulevard Brune Works, designed by M. Léon Ruffe. In the centre of the design is the head of Capt. Guynemer; on the left a view of Issy-les-Moulineaux, the cradle of French aviation; and on the right an aeroplane flying over the Seine. The stamp is to be issued in three colours for the different denominations—black, blue, and red respectively. It will not be issued to the public, but will be affixed to correspondence by the Post Office to show that the proper fee has been paid.

A Reunion of Ministries.

It is possible that France will have an Air Ministry. It is not to be called by that name at present, but as all the weather-cocks are pointing in the same direction everyone is hoping they will stay in the same position. M. Daniel-Vincent will preside over a reunion having for its object the study of "the concentration of all aeronautical services under one direction." M. Daniel-Vincent is a French Deputy and one-time Under Secretary for Aeronautics. At his reunion will be represented the Ministries of War, Marine, Colonies, Public Works, Commerce, Posts and Telegraphs, Finance, and Work.

It will be responsible for:—

1. The placing of orders for and distribution of materials.
2. Organisation in France and her colonies of general trunk airways; a trunk radio-telegraphic system; the centralisation and distribution of meteorological reports.
3. Study of the best means of helping private companies: subsidies to accord them, contracts, etc.
4. Aerial law in all its aspects.
5. The collation of information on foreign aviation.

The Committee of the Chambre Syndicale des Negociants d'Automobiles decided to send a deputation to General Duval on the question of the sudden cessation of work and consequent discharge of aeroplane machine and engine repairers, without notice and without explanation. They demanded that work should be given out equally and that old Government contractors should not be passed over in favour of newcomers.

A League of Pilots.

Last week I mentioned that the "Ligue les Pilotes Aviateurs" had a membership of 1,500; this week it is the turn of "L'Union Nationale des Combattants de l'Air," who claim 1,700 adherents. Its offices are in the same building as the French Aero Club, 35, Rue Francois Premier. All the notable Aces are on the administrative council or holding office. The aims of the Union are to (1) establish contact between all who served with a combatant flying unit at the front, (2) to help members so far as possible, (3) to help them to find appointments according to their aptitude or wishes, (4) to establish a situation-bureau for mechanic-members of the Union. It is an organisation worthy of the support it has already obtained.

The Casualties.

During the first six months of 1918 French aviation sustained cruel losses. Whilst the infantry losses amount to 51 per cent., those of aviation attained 71.3 per cent., divided up between pilots and observers on the front only (i.e., not including accidents elsewhere). The killed were 16 per cent., wounded 25.8 per cent., missing 29.4 per cent. (75 per cent. of the latter are dead). One hundred and sixteen pilots were killed in air fights and 218 in accidents! In the above figures no account is taken of gunners, bombers, or mechanics.

The Goliath's Climb.

The Farman products are well to the fore. On May 5th, at 5.32 in the afternoon, the Goliath left Toussus-le-Noble to attempt the height record with 25 passengers. The machine returned to earth at 7.14 p.m., having risen to a height of 5,100 metres (about 15,500 ft.). The climb took 1 hr. 25 mins., and the descent 25 mins. Twelve degrees of frost (Cent.) were registered at the highest point. Capt. Cassin, of the French Aero Club, registered it as a record. Well over four tons were carried, as will be seen by a glance at the following:—

25 men at 130 lbs. each	1,625 kilos.
Net weight of machine	2,009 ,,
Petrol	350 ,,
Oil	30 ,,
	4,005 ,,

By means of a very simple calculation "L'Auto" is at pains to rejoice over the fact (*sic*) that the Goliath lifts 6 ks. 600 gr. per h.p., whereas the Handley Page only lifts 4 kilos per h.p. Their calculation would seem to be very loosely made, especially in view of the fact that they rely on Boussoutrot's statement that the engines were only run at half-speed.

The comparison is interesting of the last three height records on the Goliath:—

Apr. 1st— 5 passngrs., 6,300 m. in 1 h. 5 min., frost 40° (Cent.)
Apr. 3rd—14 passngrs., 6,200 m. in 1 h. 5 min., frost 31° (Cent.)
May 5th—25 passngrs., 5,100 m. in 1 h. 25 min., frost 12° (Cent.)

F. T. N.

Italian News.

Christenings.

The powers that rule have consented to a general wish that the late Major Angelo Berardi's dirigible may be called by his name. The Contocelle Aerodrome is to be known as the Francesco Baracca Aerodrome. A number of influential people went out there from the capital the other day for the re-naming.

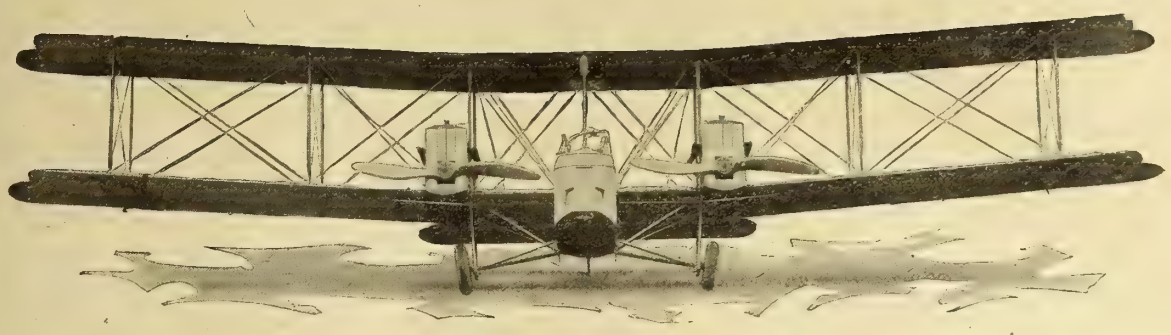
A Resignation.

The resignation of General Monis from the post of Director-General of Aeronautics, which occurred some weeks back, is being discussed. It is said that he could not obtain sufficient funds to carry out what he considered essential for the wellbeing of the Italian aero trade. Major Siebert is to succeed him in the post, and also as representative of Italian interests at the Allied International Conference on Aerial Transport at Paris.

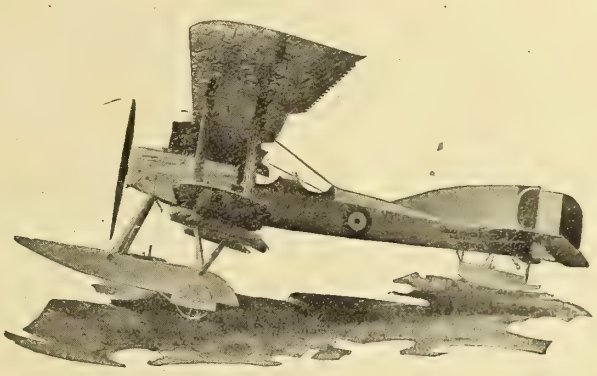
A Route to be Avoided.

The unnecessary crossing of the Alps might well be forbidden nowadays when everybody knows it is possible. Perhaps the Paris Conference will decide which is the more suitable route from that city to Italy. It appears that the Riviera coast route is the official Italo-French Government way to be used by their postal Pilots.—T. S. H.

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BRAINS v. SUPERFICIAL SMARTNESS.

A Reply by Roger Bayons.

What is discipline? The means employed to obtain co-ordination and precision of action in large bodies of men working for a common object. In its proper application it prevents duplication of effort, gives self-reliance to all under its spell and inculcates in all ranks the principle that success in war is gained only by prompt obedience to orders given by higher authority.

It is at times a misunderstood word. There are those who read into discipline merely a parade smartness in which the satisfaction of the eye covers all the defects that might be revealed to the brain if that rare organ were employed with skill. Precision of movement when on the square and a close imitation of the habits and virtues of an automaton are not the only essentials necessary in the evolution and growth of discipline.

When in earlier times the races of the world fought with careless joy, discipline was a thing unknown. Each fought as an individual and attained success in accordance with his prowess. Success or defeat to his side was, however, decided by other factors, of which Fortune was not the least. Then in due course came men with orderly brains and discipline began to grow in some armies. A common movement on the simplest lines took the place of the disorder attendant on individual effort. The Romans, orderly and well trained, swept the earth, defeating with entire impartiality the feeble savages of Eastern Europe and the Teuton giants of the North. They proved that discipline counted for many battalions in war, and that small armies well trained might with impunity engage in action vastly superior hordes of untrained savages. And so through history the principle has remained unaltered.

It is, of course, idle to suggest that mechanics in such a service as the Royal Air Force should be expected to carry out the complicated manœuvres of a Guards' parade ground with efficiency and skill. They are not intended for that part of life. That is the duty of the infantry. But it can at least be expected that they should be smart in appearance—they cannot always hope to be clean—and that they should carry out their orders with swift obedience and precision. They are not expected to assemble engines by numbers nor can much ceremonial be carried out in an aeroplane hangar.

The "Snipe" in his article directed against either brains or superficial smartness—I am not sure which: both are dangerous—quotes many instances in his experience of the Royal Air Force of time wasted and work delayed by an over-indulgence in the manners and methods of the parade ground.

He speaks of a serjeant-major who addressed his men with vigour, if not always with courtesy. He was in the habit of calling them "b—dy rabble," much to their annoyance. But nevertheless it was probably an accurate description. Nor is a station similar to "a school for young ladies." But most of his instances refer to the vagaries of an O.C., who, even though an infantryman, was certainly unfitted to command men. Possibly his regiment had discovered this at an earlier date and had passed him on to a newer service more tolerant of inefficiency. If the "Snipe's" account is unexaggerated, the station to which he was attached was certainly an haven of rest for technical officers, as their men were always engaged on non-technical work.

But there is a vast difference between this manner of existence and a well-disciplined station doing that work for which it was formed.

Even mechanics, however Bolshevistic their ideals may be, should go "on the square" in the ordinary way for a sufficient period to teach them self-respect and their duties to higher authority. After that, with the exception of such daily parades, probably not more than two, as are necessary, the mechanic might revert to type and be as dirty and as happy as he pleased. Nevertheless, he must do his fair share of the work as a part of a unit.

Technical officers are fond of saying that private engineering firms get more work done in a given time than does the Army. No greater fallacy ever existed. When one deducts the time allotted to meals, necessary and unnecessary, to criticisms or eulogies on the shop stewards, and to the general dissemination of mild revolutionary principles, the number of hours' honest work done by the average civilian mechanic is surprisingly small. The day's work done by Service mechanics is at least thorough and no time in the working day is wasted.

"The Snipe" says in his fourth paragraph that an abnormally smart airman is invariably a "wash-out" as a mechanic. I deny this flatly and from personal experience of the Service mechanic as a class. He may not look like a mechanic because he is not habitually dirty and has acquired a high degree of self-respect, but on the average his work will be as clean and well finished as he is himself.

Clearly one cannot expect discipline if inefficient officers are left in charge of stations, but if officers of proved ability are employed and are supported by junior officers properly trained and educated in the ways of the Service, it is possible to inculcate the proper spirit. That station will then be more efficient than others in which discipline is at a discount and the methods of engineering are used as a substitute.

THE FLIGHTS TO AND FROM MADRID.

The four-engined Handley Page bomber F 7139 left Ramsgate on May 6th for Madrid with six persons on board. The machine landed at Biarritz on the same afternoon, but was held up for a few days by adverse weather conditions. The flight to Madrid was made on May 11th. The machine was commanded by Major C. H. Darley, D.S.C., D.F.C., R.A.F., with Lieut. Kilburn, R.A.F., as second pilot, and Lieut. Murray, R.A.F., as observer. Three mechanics were carried.

Three other aeroplanes also left Biggin Hill aerodrome on May 7th to fly to Madrid. They were two D.H.4's, one piloted by Lieut.-Col. W. D. Beatty, R.A.F., the other by Capt. Square, R.A.F., and a Bristol Fighter piloted by Major Payne, R.A.F. All these machines were fitted with Rolls-Royce engines. Colonel Beatty crossed the Channel between Beachy Head and Fécamp, and Tours was reached at 10.57. Leaving Tours at 1.50, Pau was reached at 4.40. Between London and Pau there was good average flying weather. Starting from Pau at 6 p.m., he encountered a storm amongst the mountains above San Sebastian, and he was obliged to return, finishing the journey the following day. Lieut. Jeffrey went as passenger with Col. Beatty.

Major Payne, on the Bristol Fighter, landed in the province of Soria on May 8th. It is stated he is the first British aviator to enter Spain by air.

A telegram from San Sebastian reports that Captain Square and Lieut. Anderson, R.A.F., his observer, in the second "D.H.4" machine, landed at Hendaye (on the French side of the Spanish frontier) at 6.30 p.m. on May 9th, having left Tours at 10.5 a.m. and passing over Pau at 6.5 p.m. The aviators arrived in Madrid at 7.40 on the same day, landing at Cuatro Vientos Aerodrome.

Col. Beatty, with Lieut. Jeffreys as observer, accomplished the return flight on May 12th in less than 12 hours in a D.H.4 machine. They left Madrid at 6.15 a.m., and arrived at Kenley Aerodrome at 6.10 p.m., stopping on the way at Pau and Tours for petrol, and covering a distance of 987 miles.

Lt.-Col. Beatty is one of the pioneer military pilots of the King's Service. When a Sapper officer he took his certificate (No. 89) on an Avro biplane on May 30th, 1911, at Brooklands. As he is 35 years of age and has been flying for eight years he is a standing disproof of the idea that flying is a young man's game to be played only for a year or two.

Colonel Beatty has had a distinguished war career. He went to France with the first four squadrons, and after a year or so of active service he was brought back to assist the production of aircraft. In 1917 he deliberately took a step down in rank so as to command a squadron in the field. Again he was brought back, this time to put practical sense into the Technical Department, and towards the end of the war he again escaped from England to go on active service. Like so many of the best people in the R.F.C., Col. Beatty is an Irishman, and of the same family as Admiral Beatty.

A FLIGHT FROM PARIS TO COPENHAGEN.

Lieutenant Krause Jensen, the French military aviator, flew from Paris to Copenhagen in eight and three-quarter hours, a non-stop flight of 683 miles. Lieutenant Jensen flew a Breguet biplane, and was accompanied by Lieutenant Sabouret. They were carrying despatches from Paris. The trip was made *via* Antwerp, Helgoland Bay, and Jutland.

ANOTHER RECORD CLAIMED.

M. Sadi Lecomte, the French aviator, flying a monoplane of an unstated type, climbed to 8,200 metres in one hour thirty minutes on May 9th. This, it is claimed, has broken the previous record of July 14th, 1914, made by the Austrian aviator, Herr Oelerich.

AN APPOINTMENT.

According to the "Daily Express," among the recent appointments to H.M.S. "Lion" (flag of Vice-Admiral Sir Roger Keyes) is that of Lieut.-Commander Richard Bell Davies, V.C., D.S.O., R.N. Lieut.-Comdr. Davies was in the pre-war R.N.A.S. At the outbreak of war he served in Flanders and Gallipoli. He resigned his commission in the Air Force some months ago, and returned to the Royal Navy.

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HATS, BRASS, TO ACHIEVE.

By "The Snipe."

Some men are born to brass hats, some achieve brass hats, and some have brass hats thrust upon them.

But all are not bold who glitter.

Having given some study to the subject, one has come to the conclusion that brass is for the brazen.

Let us consider the three methods of attaining brassiness, and in order to do so let us translate the language of Shakespeare into the literary style of the Service. Thus:—

A. Hats, brass, to be born to. . . . This method involves little more than a careful choice of parents

B. Hats, brass, to achieve. . . . See Appendix X. Para. 11. Sub-para. C.

C. Hats, brass, to have thrust upon. . . . This does not occur in actual practice.

One may proceed, therefore, to B.

Appendix X. Para. 11, Sub-Para. C, Hats, Brass, to Achieve.

Promotion is by merit only. This means that the person who desires a "hat, brass, one, officer for the use of," must show merit. It does not imply that he must *have* merit, but merely that he must *show* it. Better results are often achieved by showing the result of some other person's work than by trying to do the work oneself, for it must always be remembered that the more work one does the more chances one has to make mistakes, and the less time one devotes to work the more opportunities one has to criticise other people.

In the Service there are two classes: the strafer and the strafed. It is the latter class that does the work; the former too often gathers the resultant honours.

I remember very vividly the case of a very painstaking officer. He was so unfortunate as to accept delivery of certain metal from an aviating Hun in 1915. The surgeons considered that he would have a better chance of recovery with one leg than with two, but he thought he would rather have two legs in the grave than leave one in the hospital. Consequently, he suffered from blood-poisoning and nearly qualified for wings for the second time.

But not quite.

Eventually he recovered and was passed by the Medical Board as fit for ground duties.

Enthusiasm only Equalled by Ignorance.

Now some flying officers when they cease to fly lose interest. They appear to consider a ground job beneath their dignity, and as good work cannot be done unless the heart is in it, they perform their duties very unsatisfactorily indeed. But this one was not of the sullen type. As he was not allowed to fly, he threw himself heart and soul into his new job with an enthusiasm that was only equalled by his ignorance. He toiled from reveille until the small hours when wiser men are calculating their losses at auction bridge. Never was there such a glutton for work, and, consequently, he made mistakes. When the mistakes were discovered, he had nobody to blame. Thus he broke one of the fundamental principles.

Compared to Sodom and Gomorrah.

His job was that of forming a new station somewhere in England. When he arrived at the appointed place he found himself in a land that would have made Sodom and Gomorrah, at the time when they were enduring the historic air raid, seem desirable resorts.

This place which had been chosen as the site of an aerodrome consisted mainly of furze bushes and small trees. Three or four times a week the furze bushes caught fire: which would have been an advantage if the authorities had not consigned to the Station a number of aeroplanes and a vast store of bombs before the furze had been removed.

A number of men had been drafted to the Station, but there were no tents. In these days aeroplanes were usually delivered in large cases which were on no account to be destroyed or cut in any way. The officer in question used these cases as huts for his men. But no sooner had he got his Ack Emmas under shelter than a begilded Inspector arrived, and, in the name of sanitation, demanded that windows of a stated size should be cut on opposite sides of the cases in order that a current of air might pass through.

Two days later there arrived a letter from H.Q. saying that it was not understood why the regulations regarding the ventilation of huts had not been complied with, and requesting that the name of the officer responsible should be sent. In the meantime the windows were to be cut.

The order was obeyed and two days later there arrived another letter from H.Q. stating that the aeroplanes sent had been dispatched in error, and that they were to be dismantled, re-packed in their cases, which must be intact, and returned.

These were only a few of the troubles.

In course of time some tents arrived. The fact that they bore such names as "Somme View," "Earwig Villa" and "Mosquito Mansions," indicated that they had been to the Front, and when the first rainstorm broke it became apparent why they had been sent home.

Other inspecting officers arrived and condemned the tents, but did not say how they were to be replaced, and H.Q. asked why the men were not accommodated in the huts (cases, aeroplane), which had been returned according to order. The name of the officer responsible would be sent, and this was to be regarded as urgent.

But the officer in question was not broken—yet. Though H.Q. kept him occupied for the half of every day on the work of explaining what he had and had not done the day before, he steadily overcame one difficulty after another.

His cooking arrangements, boilers and ovens made of petrol and oil cans are still mentioned with respect by fellow-officers, but H.Q. desired to know by what authority the cans were converted to culinary uses, and again demanded that the name of the responsible officer be sent. This was to be regarded as being more urgent than any other matters whatsoever. A Brig.-General would visit the station to inspect.

The Brig.-General's Disapproval.

The Brig.-General came, talked spaciously regarding discipline, the necessity of obeying orders and regulations to the letter, and the vital importance of saluting smartly. Having lived most of his life in comfortable old-established purely military Stations where men on the Peace establishment lived in brick-built, well-warmed barracks with whitened steps and window-sills, he did not approve. He hinted that disciplinary action might be necessary with regard to the cans and the aeroplane cases, and demanded a victim.

Observe how the officer in question was sinking deeper into the purée. He had done the work himself.

The Brig.-General said that it would be necessary to send a Staff officer to inspect the technical accounts, and another to investigate the method of accounting for Q.M. stores.

As the weather had become warmer, and as a visit to the Station involved a pleasant motor-car run from London, these officers duly arrived. They were both elderly Majors, and as one had been a clerk in an old-established Bank, and the other in an Insurance Office before the war, they were obviously competent to deal with the accounting for oil cans and engine spares dumped on a piece of waste ground.

But in these matters the ex-flying officer had them cold, simply because—having no offices, and having, so far, nobody on the Station who knew anything about the sinuosities of R.F.C. accounting—he had no books, forms or tally-cards to show.

The Majors said they would have to report, so once more a letter arrived from H.Q. saying that "It was not understood," and that "action would be taken."

The Hard Work almost Finished.

But by this time the hard work that had been done in the intervals between the visits of inspecting officers, was beginning to show results. The men had tents, and the means had been found of making these waterproof by the time the order arrived to return them to store. The men were well fed and cheerful. Two hangars had been rigged, and enough ground cleared to enable machines to leave the floor and return to it.

But, concurrently, those reports of inspecting officers were percolating through department after department at H.Q. annotated "Passed to you, please," "For your attention and necessary action," "For your remarks, please," "Not this department. Passed to X.Y.Z3." "Referred back. Please note Minute XIV."

And so on.

Possibly not fewer than one hundred of the Staff were concerned in the slaughter of the Strafed—*id est*, the unfortunate, who was trying to do the work.

And at last the blow fell.

There arrived at the Station another officer to take command. He looked, saw that the hard work had been done, and, having some knowledge of inspecting officers, proceeded to supply the desired eye-wash. He placed stones round the tents and whitewashed the stones, he bought geraniums and had them planted round the Orderly Tent, and he had an R.F.C. flag made. He had the fire extinguishers painted a violent red, and got a local sign-painter to write FIRE in corpulent letters on red boards.

Once more the Brig.-General came, and the new O.C. provided the right lunch and made a personal matter of providing flowers for the table.

Also, there was wine.

And after the wine the whitewashed stones, the geraniums (or should it be gerania?), the flag, and the ardently coloured fire extinguishers did the work they were intended to do. The Brig.-General was delighted, and the result was that Lincoln, Bennett and Co. received an order for a perfectly good brass hat for the O.C. who knew the art of mixing eyewash.

Is this perfectly untrue picture too vivid in its colours, *mes enfants*?

Dim them if you will, but there are some among you who will feel no desire to view them through smoked glasses.

AIRCRAFT IN PARLIAMENT

The following written answer was given an May 5th :--

INTERNATIONAL AERIAL NAVIGATION.

Mr. ROWLANDS asked the Under Secretary of State to the Air Ministry whether a Report of the Proceedings of the Commission on International Aerial Navigation has been published; and, if so, where can it be obtained?

Maj.-Gen. SEELY: The sessions of the Commission in question are still proceeding, and no report has been as yet published

* * *

The following oral answers were given on May 7th :—

ROYAL AIR FORCE (PAY)

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether any new rates of pay for the Royal Air Force are contemplated; whether the question has yet received Treasury or Government approval; and whether it can be anticipated when the new rates of pay will be published?

The UNDER SECRETARY OF STATE FOR AIR (General Seely): Revised rates of pay for officers and men of the Royal Air Force are being considered. Until the detailed rates have been considered by the Government in conjunction with those for the other Services, no definite date for their publication can be stated, but I am aware of the importance of an early settlement

CONTROLLER OF CIVIL AVIATION.

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether his proposals for the staff of the Controller of Civil Aviation have in any way been subject to revision from the Treasury; whether he will publish what his original proposals were; and what section of the staff has been omitted on account of Treasury pressure?

General SEELY: It would be contrary to precedent and to the public interest to make communications necessarily passing between the Treasury and other Government Departments with regard to expenditure the subject of discussion in the House.

TIMBER FOR AEROPLANES.

Mr. REMER asked the Under Secretary of State to the Air Ministry whether the present advisers as to the timber required on aeroplanes are the same officials who sanctioned the use of cypress during the War; why the many warnings of practical timber merchants as to the use of this wood were disregarded; and what was the cost of scrapping machines made of this wood after the use of cypress had been prohibited?

General SEELY: The answer to the first part of the question is in the negative. Considerable changes in the personnel of the Technical Department have taken place owing to the return of officials to their civil occupations. As regards the second part of the question, I would refer the hon. Member to the answer given to him on this subject on the 1st instant. I am endeavouring to obtain details as to the cost of substitution of other woods for cypress in the machines concerned and will communicate with the hon. Member as soon as possible

The Replies to the following Questions were not received in time for inclusion in the Official Report yesterday.

COMMERCIAL AEROPLANES (HUMBER).

Lieut.-Commdr. KENWORTHY asked the Under Secretary of State to the Air Ministry why the landing-place for commercial aeroplanes in the Humber district has been chosen at New Holland, on the opposite side of the river to Hull, and whether he will consider the early establishment of a commercial aerodrome on the north side of the Humber near to Hull?

The UNDER SECRETARY OF STATE FOR AIR (Maj.-Gen. Seely): New Holland was selected as the aerodrome best suited in the neighbourhood of Hull for the combined needs of civil and military aviation. As civil aviation develops it is probable that its interests may require another site, and, if so, the Air Ministry will be very ready to reconsider the matter.

Lieut.-Commdr. KENWORTHY: Is the right hon. gentleman aware that that is half an hour from Hull across the River?

Maj.-Gen. SEELY: Oh, yes; I am well aware of that; but it was the first available site, so we selected it. If at a later date it is desired to change, an officer of the Air Force will be sent to investigate.

Lieut.-Commdr. KENWORTHY: Will this station be the aerodrome from which to fly across the North Sea?

Maj.-Gen. SEELY: I cannot say that without notice.

BRITISH COMMERCIAL INTERESTS—SOUTH AMERICAN REPUBLICS

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether he is aware that the French Government are supplying surplus aircraft to the South American Republics; and whether action is being taken to ensure that British commercial interests receive adequate furtherance in these areas?

Maj.-Gen. SEELY: I am informed that the French have sent a certain number of aeroplanes to one of the South American Republics. With regard to the second part of the question, facilities have been granted to various firms who were desirous of sending their representatives to South America, and these representatives are now in various parts of that continent. In addition, fully equipped missions are about to be sent to various countries.

ROYAL AIR FORCE—COLONIAL CADETS.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry (1) how many Colonial cadets were in training at the date of the Armistice; and how many have received the gratuity and the uniform allowance of £50; and (2) what is the position of Colonial cadets who have put in for a deferred passage; and whether they are able to draw their allowance for kit, etc., in the meantime?

Maj.-Gen. SEELY: I propose to reply to these questions together. As a rather long statement is required to make the position clear. I propose, with my hon. friend's permission, to circulate the answer in the Official Report

The following is the Answer referred to :--

The number of Colonial cadets in training with the Royal Air Force at the date of the Armistice was about 5,187.

Overseas cadets who accepted deferred repatriation and were demobilised before February 15th, 1919, will be granted honorary commissions in the Royal Air Force, and the same outfit allowances as those given to Imperial cadets, which are as follows: £50, less the value of any issues in kind, to those cadets who qualified as observers or passed qualification "B" before January 1st, 1919

Those cadets who did not so qualify will be reimbursed for expenditure incurred on account of outfit up to a limit of £35, less the value of any issues in kind. Overseas cadets who accepted deferred repatriation after February 15th, 1919, will be given temporary commissions in the Royal Air Force from that date until the date of their demobilisation and an outfit allowance of £50, less the value of any issues in kind. A large number of cadets, in anticipation of being commissioned, purchased outfit and signed orders on Messrs. Cox and Company authorising them to pay the bills incurred from the outfit allowance which would become due to them on being commissioned. The amount of these orders will be deducted from the amount of the outfit allowance in each case.

As regards the issue of the additional pay, outfit allowance, etc., to these cadets, as well as to the other Overseas cadets who did not accept deferred repatriation, it has not been possible in the time available to obtain all the required information and to effect the necessary adjustments in the cadets' accounts to arrive at the balance that may be due to them, but this will shortly be accomplished. Many of the cadets concerned are paid by the Dominion Forces or have been returned to the Dominion Forces for repatriation, from whom nominal rolls are being obtained giving the necessary information for calculating the amount of additional pay and outfit allowance to which these cadets now become entitled. In the meantime substantial advances on account of pay and outfit allowance have been made to cadets prior to embarkation, and the balance of their accounts will be remitted to them as soon as possible.

Mr. BILLING: Will the right. hon. and gallant gentleman give his personal attention to the question of the payment of these cadets, and the various other ratings? Is he aware that on about five different occasions during the war the uniform was changed, and this heavily penalised the poorer cadets?

Maj.-Gen. SEELY: I have given personal attention to the matter, and will continue to do so. It is a difficult question. But I think the answer I will circulate will show that a good deal has been done

MAJOR BATCHELOR'S DEATH.

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether he will state the official number of the Handley Page aeroplane on which Major Batchelor, Royal Air Force, was killed at Andover; and whether it was one of the machines which had been left in the open at Hendon aerodrome for so long?

Maj.-Gen. SEELY: The official number of this machine was F 3748. It had not at any period during its stay at Hendon been stored in the open.

LIEUTENANT MARS.

Mr. BOTTOMLEY asked the Under Secretary of State to the Air Ministry whether, as the result of the further inquiries into the circumstances which led to the premature announcement that Lieut. Mars, Royal Air Force, was missing, he can say in what remote part of France the airman descended, when the news of his safety was received, and why it was withheld from the public until a question was put in the House; whether, in fact, Lieut. Mars had been seen flying over the North Sea; whether he was at the Brussels aerodrome during the time of the alleged flight; and, if so, who is responsible for the premature notification to his relatives and for the expense of sending destroyers and seaplanes to scour the North Sea for his body?

Maj.-Gen. SEELY: I have ordered a Court of Inquiry into this case. Perhaps my hon. friend will postpone his question until the finding reaches me.

Capt. WEDGWOOD BENN: Was this machine carrying wireless at the time of the flight?

Major-Gen. SEELY: That I do not carry in my mind

Mr. BOTTOMLEY: In what remote part of France did the boy land?

Major-Gen. SEELY: I did say in a remote part of France, but I find it is not so remote: As my hon. friend will remember, he gave me no time to prepare an answer. He did not put his question on the Paper. I gave him all the information I could get. Meantime I had ordered an inquiry, and as soon as I get the result of it I will let him know. It is the case that the boy is alive and well. Unfortunately, a good deal of public money was wasted. I will find out the reason

Mr. BOTTOMLEY: As a matter of fact did the boy leave the aerodrome at all?

Major-Gen. SEELY: As a matter of fact, yes; but he came back to a different one.

Mr. MANVILLE asked the Secretary of State for War whether he is aware that dissatisfaction exists as to the steps which are being taken by the Air Ministry to ascertain the fate of missing airmen; and whether any steps are being taken to press the German authorities to inquire more thoroughly from their Army medical service for further lists of British wounded?

Major-Gen. SEELY: I fully sympathise with the anxiety felt upon this matter by relatives and friends of missing airmen and can assure my hon. friend that every step likely to produce useful results is being taken by the Air Ministry. As regards the second part of the question, I would refer my hon. friend to an answer given by the Secretary of State for War to the hon. Member for Stratford on April 30th.

ROYAL AIR FORCE—BONUS.

Lieut.-Col. MALONE asked the Secretary of State for War whether Royal Air Force officers and men who have not yet been demobilised and who are not volunteers for the Army of Occupation are receiving the increased rate of pay from February 1st; whether he is aware that temporary naval officers of the Royal Naval Volunteer Reserve who are in an analogous position are receiving all the benefits referred to, and whether he will take steps to put the pay of such officers of the Royal Air Force on an equal footing?

Major-Gen. SEELY: Full bonus is being given in all cases from May 1st. The cases in which it may be given in arrear to officers and men who are in course of demobilisation, but have not been demobilsed on May 1st, are under consideration. An early decision will be given.

WOMEN'S ROYAL AIR FORCE.

Lieut.-Col. MOORE-BRABAZON asked the Under Secretary of State to the Air Ministry what is the policy to be adopted as to the continuation or otherwise of the Women's Royal Air Force; whether he is aware that many drivers, after two years of successful driving, are being dismissed as incompetent and men with no experience at all taken in lieu, and will he take steps to put a stop to this practice?

Major-Gen. SEELY: The question of the continuance or otherwise of the Women's Royal Air Force as a part of the permanent Royal Air Force has not been decided. No women drivers have recently been dismissed for incompetence, but a certain number have been replaced by men as men have become available for work for which they are thought to be more suitable than women.

* * *

The following oral answer was given on May 8th :—

MISS DOUGLAS-PENNANT.

Brig.-Gen. Sir OWEN THOMAS asked the Prime Minister whether, before Miss Douglas-Pennant's dismissal, a strict inquiry was made into alleged complaints against her; if so, whether Miss Douglas-Pennant

and her chief, Major-General Sir Godfrey Paine, were aware of such inquiry; and if he will inform the House whether Miss Douglas-Pennant was given an opportunity of hearing and answering the charges against her.

The SECRETARY OF STATE FOR WAR (Mr. Churchill): I have been asked to answer this question. I can add nothing to the full statement which I made on March 13th in the Debate on the Air Force Estimates as to the circumstances in which Miss Douglas-Pennant's appointment was terminated.

Sir O. THOMAS: I should like to ask the right hon. gentleman whether he is aware that a Member of this House was officially informed by the Secretary for the Air Ministry that such an inquiry was held?

Mr. CHURCHILL: I said that I can add nothing to what I have already said in Debate, but I would remind my hon. friend that I expressed my willingness to publish the correspondence which has taken place on this subject if I were pressed to do so by those who are acting for Miss Douglas-Pennant.

Lieut.-Col MALONE: Is the right hon. gentleman aware that Sir William Robertson, Secretary of the Air Ministry, has endeavoured to influence the opinion of Members of this House with regard to this case, and does he consider that is proper work for this official?

Mr. CHURCHILL: I am not aware of anything of the sort, and I do not know what "influencing opinion" means. It is certainly not proper to bring up such a matter in relation to a question to which it has no reference.

Sir O. THOMAS: Will my right hon. friend inquire whether such an inquiry has been held?

Mr. CHURCHILL: No, Sir; as I say, I have been conducting a correspondence with this lady on the subject of an inquiry, and I am quite prepared to lay the correspondence on the Table if her friends desire it to be laid.

ROYAL AIR FORCE—PARACHUTES.

Mr. CLOUGH asked the Under Secretary of State to the Air Ministry whether his Department is, in view of accidents, devoting special attention to the feasibility of providing all aeroplanes with parachutes; and whether he can make any statement on the subject?

Major-Gen. SEELY: Experiments in the provision of parachutes for aircraft are being pressed on, and considerable results have been attained. The hon. Member can rest assured that all possibilities in regard to the use of parachutes will be explored by the Air Ministry.

AIRCRAFT MANUFACTURING COMPANY.

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether he will state the number of applications which have been made by the Aircraft Manufacturing Company and allied companies under the control of Mr. Holt Thomas for the services of important officers or officials from the Royal Air Force; whether he will state the names of those officers or officials who have been released and the positions which they hold in the company; and whether he is aware of any Government official or officials who hold interests in the Holt-Thomas group?

Major-Gen. SEELY: No application has been received by the Air Ministry from the Aircraft Manufacturing Company for the services of officers serving in the Royal Air Force or the Air Ministry. Two senior officers of the Royal Air Force and one official of standing have joined or are joining the company after terminating their connection with the public service, but I am not aware of the positions offered to them. As regards the third part of the question, I have no information.

SURPLUS AEROPLANES.

Lieut.-Col. MOORE-BRABAZON asked the Under Secretary of State to the Air Ministry whether he will arrange with the Treasury that the Disposal Board carry out the recommendations of the Civil Aerial Transport Committee with regard to the selling of aeroplanes at a reduced price (Appendix IV., paragraph 10, Sub-section B) to substantial companies, with a view to helping commercial aeronautics from a national point of view?

Major-Gen. SEELY: The recommendation referred to is one which with other cognate questions is at present receiving the close attention of the Air Ministry.

DEMOBILISATION (DEFERRED PAYMENT SYSTEM).

Major HENDERSON asked the Secretary of State for War whether the deferred scheme of payment on demobilisation for men of the Royal Air Force applies to men stationed with the British Expeditionary Force; and, if so, whether he is aware that some Royal Air Force demobilisation officers with the British Expeditionary Force are not aware that this scheme exists?

Major-Gen. SEELY: The Deferred Payment system has now been cancelled as it has served its purpose. It was not applied to men demobilised from abroad; all such men were (and are being) dealt with under the ordinary procedure.

ATLANTIC FLIGHT.

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether the prospective Atlantic fliers were recently interrogated by the Air Ministry as to their reasons for delay in crossing the Atlantic; and whether he will state the general policy of the Government towards this flight?

Major-Gen. SEELY: The answer to the first part of the question is in the negative. Far from urging on the attempt the attitude of the Air Ministry has been, and is, to enjoin caution upon those engaged in this enterprise. The officers who are attempting the flight are not under the control of the Air Ministry, but nevertheless every possible information has been furnished to them and every assistance given with regard to navigation and wireless instruments which can make the venture safer. I may be allowed to add that the record of fearless endurance of everyone of the British competitors is such that they can well afford to decide on the practicability of the flight without fear of cavil.

DANGEROUS FLYING.

The following is taken from the "Daily Express" of May 12th. Comment is unnecessary:—

An unfortunate incident occurred at Hounslow Aerodrome on Sunday afternoon.

Shortly after a "Blackbird" machine had reached Hounslow from Gosport and started again for Leeds, a machine appeared over the aerodrome, apparently in distress. People waiting their turns for flights felt much alarm, some retiring under cover to avoid witnessing the inevitable accident.

Rockets were sent up from the ground, adding to the sense of alarm, and all flying was suspended.

The machine did not crash, however. It landed, in obedience to the orders conveyed by the rockets, and the pilots, military officers from Kenley, were put under arrest for dangerous "stunting" at low altitudes.

Flying then restarted.

THE TRANSATLANTIC COMPETITION.

The Atlantic flight competitors are still delayed by adverse weather, and there is little news to report. The Handley Page biplane arrived at St. John's on May 10th. Three American flying boats left Rockaway Naval Air Station for Halifax on May 8th, but only two of them arrived, the third, N.C. 4, being forced to alight off the Maine coast with engine trouble.

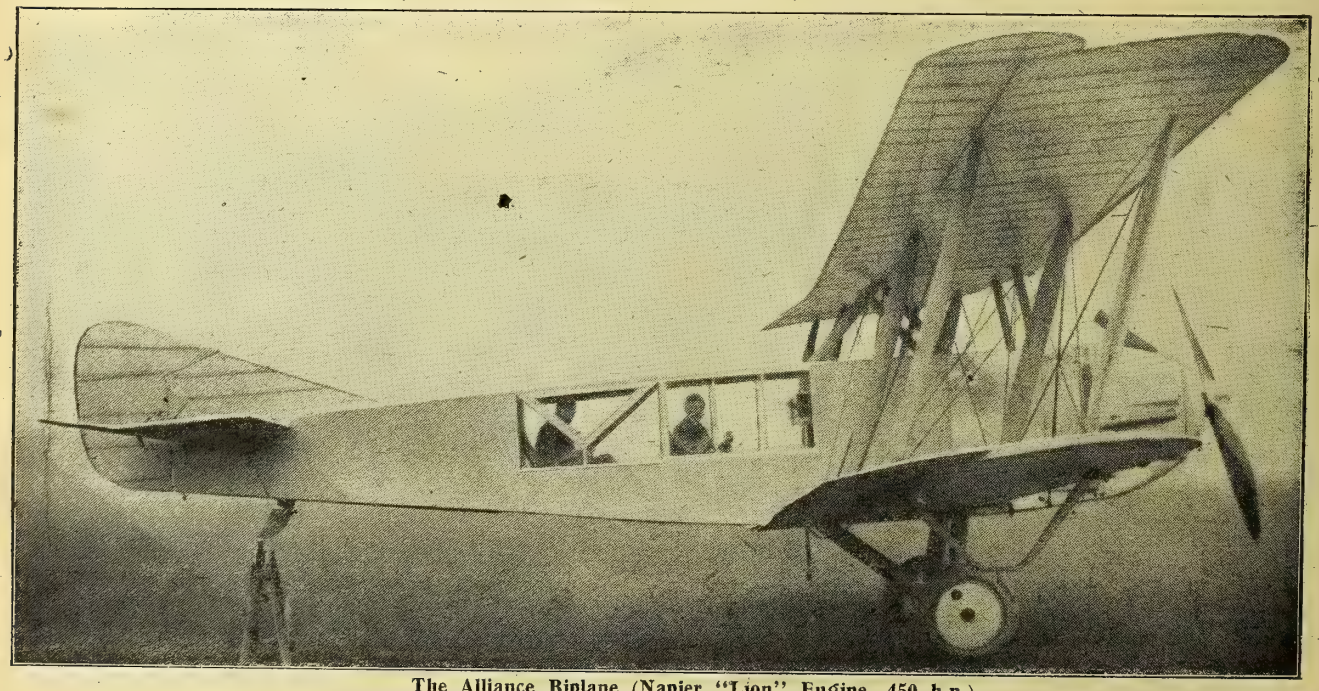
A New Entry.

Boulton and Paul, Ltd., of Norwich, have entered a second machine for the competition which is stated to be in all respects similar to their first entry.

The Alliance Machine.

Some details of the Alliance entry were announced on May 10th. The machine is a biplane designed by Mr. J. A. Peters, the pilot. The navigator is Capt. W. R. Curtis. The following are said to be official figures:—Span, 53 ft.; overall length, 33 ft. 6 in.; plane area, 700 ft.; total weight, 7,400 lbs.; useful load, 4,800 lbs.; petrol, 500 gallons; oil, 50 gallons; flying range, 3,000 miles; maximum speed, 140 m.p.h.; landing speed, 45 m.p.h.; engine, Napier "Lion"; horse-power, 450.

It is understood that the American airship C.5, now at Montauk Point, 110 miles from New York City, will leave during the week for Trepassey. There is a possibility of her making the voyage to the Azores.



The Alliance Biplane (Napier "Lion" Engine, 450 h.p.).

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THE WEEKLY COMMENTARY.

The descriptions of the machines of the Aircraft Manufacturing Company's De H. series, which begin in this issue, are a continuation of the articles on Modern British Aircraft. A number of the earlier types can perhaps not be described strictly as modern aircraft. Nevertheless, the work of Captain De Havilland has had so important an influence on the trend of modern design that the inclusion of the specifications of these machines is felt to be justified.

Some details of the work of the Steel Wing Company will be found in an article in this issue. This firm was certainly one of the first in the world successfully to attack the problems of steel wing construction, and the brief description of the methods employed and the difficulties successfully overcome will, it is believed, be found to be of great interest.

Steel construction for aircraft is bound to become of increasing importance, because the absence of any liability to warp and distort under varying climatic conditions, which is inevitable with a light wooden structure, is thereby avoided, and because with increasing size in the machine the difficulty of obtaining suitable wood increases very rapidly, whereas the difficulties of combining the necessary local strength without undue weight in a steel construction diminishes as the size of the structural members increases.

An article dealing with the construction of the large Tarrant triplane will be found on page 1959 of this issue. The methods of construction of the spars of this machine are novel, as applied to wood.

The adoption of such a form of construction has a direct bearing upon the question of steel construction alluded to above. The effect of a more economical distribution of the material employed in wood spars is really to increase the limits of size at which a wooden spar can be used economically, and to make the problem of metal spar design to compete with the wooden type even more difficult than it now is.

In this connection, whilst it must be admitted that the Tarrant construction is extremely ingenious, and ought to save a considerable amount of weight, full advantage of it does not appear to have been taken in the case of the machine described.

The weights which are given by the makers for the component units appear to be abnormally high, particularly those for the wings and the fuselage. Doubtless this is purposeful, the machine being purely experimental, and a considerable improvement in this respect may be expected with increasing practical experience.

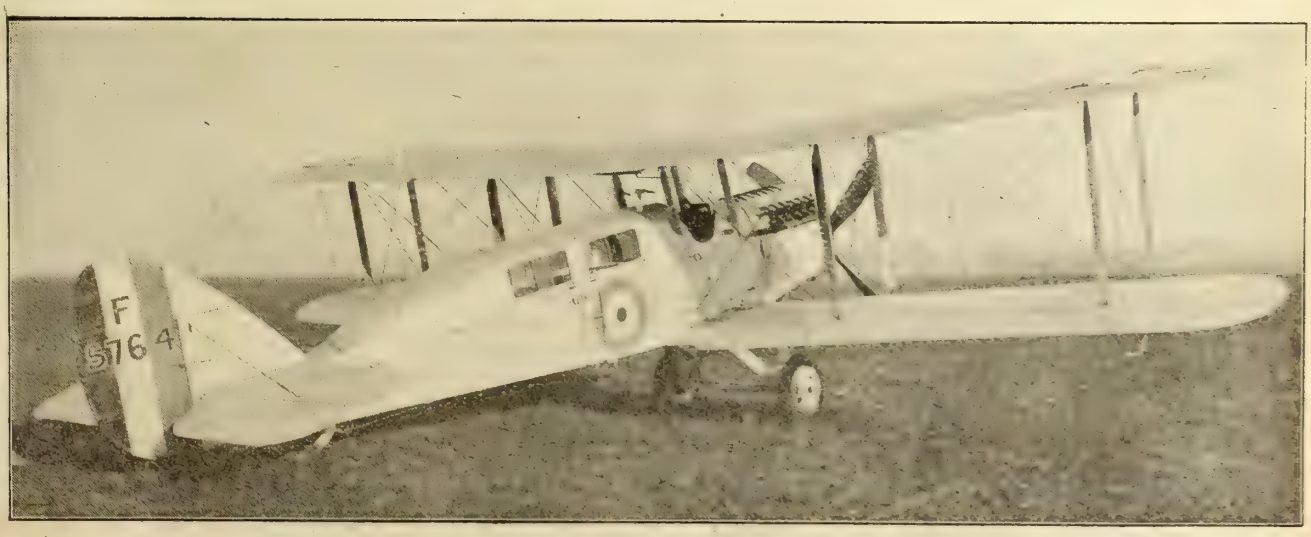
MODERN BRITISH AEROPLANES.

III.—The Aircraft Manufacturing Co., Ltd.

The Aircraft Manufacturing Co., Ltd., was founded in 1912 by Mr. Holt Thomas, who held the sole manufacturing rights in the United Kingdom for the designs of Henri and Maurice Farman.

During 1914 Mr. Holt Thomas secured the services of Capt. Geoffrey de Havilland, R.F.C., as the firm's designer-in-chief, and has produced the series of extraordinarily successful machines which have made Capt. de Havilland's initials famous.

As a matter of general interest, and for purposes of reference, specifications of the whole of the "De H." series are included in the following descriptions, but no illustrations are given of the older types of this make. With the exception of the De H.3 and the D.H.1a, of which there appears to be no illustrations extant, all these machines have been illustrated in the back numbers of THE AEROPLANE.



An "Airco" De H4 (375-h.p. "Eagle" Rolls-Royce) converted to Passenger Carrying purposes.

THE AIRCO DE H.1.

The first of the series, produced just before the declaration of war, was a two-seater Renault-engined "pusher" machine.

SPECIFICATION.

Type of machine	Biplane " Pusher."
Name or type No. of machine	De H.1.
Span	41 ft.
Gap, maximum and minimum	5 ft. 7 ins.
Overall length	28 ft. 11⅝ ins.
Maximum height	11 ft. 4 ins.
Chord	5 ft. 6 ins.
Total surface of wings, including centre plane and ailerons	409.3 sq. ft.
Span of tail	12 ft. 5½ ins.
Total area of tail (empennage)	80.45 sq. ft.
Area of elevators	11.0 sq. ft. each.
Area of rudder	16.15 sq. ft.
Area of fin	4.05 sq. ft.
Area of each aileron	18.0 sq. ft.
Engine type and h.p.	80 h.p. Renault.
Airscrew, diam., pitch and revs.	9.03 dia.; 9.2 pitch; 870 revs.
Weight of machine empty	1,356 lbs.
Weight of machine full load	2,044 lbs.
Load per sq. ft.	4.99 lbs.
Weight per h.p. full load	25.5 lbs.
Tank capacity in gallons	30 gallons.
PERFORMANCE—	
Speed low down	78 m.p.h.
Landing speed	41 m.p.h.
Climb—	
To 3,500 feet	11¼ mins.
Disposable load apart from fuel	420 lbs.
Total weight of machine loaded	2,044 lbs.

THE AIRCO DE H.1.A.

This was a modified DeH.1 fitted with a 120 Beardmore engine in place of the original Renault.

SPECIFICATION.

Type of machine	Biplane " Pusher."
Name or type No. of machine	De H.1a.
Span	41 ft.
Gap, maximum and minimum	5 ft. 7 ins.
Overall length	28 ft. 11¼ ins.
Maximum height	11 ft. 2 ins.
Chord	5 ft. 6 ins.
Total surface of wings, including centre plane and ailerons	409.3 sq. ft.
Span of tail	12 ft. 3 ins.
Total area of tail (empennage)	79.9 sq. ft.
Area of elevators	11.0 sq. ft. each.
Area of rudder	15.6 sq. ft.
Area of fin	4.65 sq. ft.
Area of each aileron	18.0 sq. ft.
Engine type and h.p.	120 h.p. Beardmore.
Airscrew, diam., pitch and revs.	9.03 dia., 9.2 pitch, 1,350 revs.
Weight of machine empty	1,672 lbs.
Weight of machine full load	2,400 lbs.
Load per sq. ft.	5.87 lbs.
Weight per h.p. full load	18.45 lbs.
Tank capacity in gallons	33 gallons.
PERFORMANCE—	
Speed low down	89 m.p.h.
Landing speed	49 m.p.h.
Climb—	
To 3,500 feet	6.45 mins.
Disposable load apart from fuel	420 lbs.

THE AIRCO DE H.2.

The DeH.2 was produced in 1915 to meet the need for a high-speed single-seater fighter.

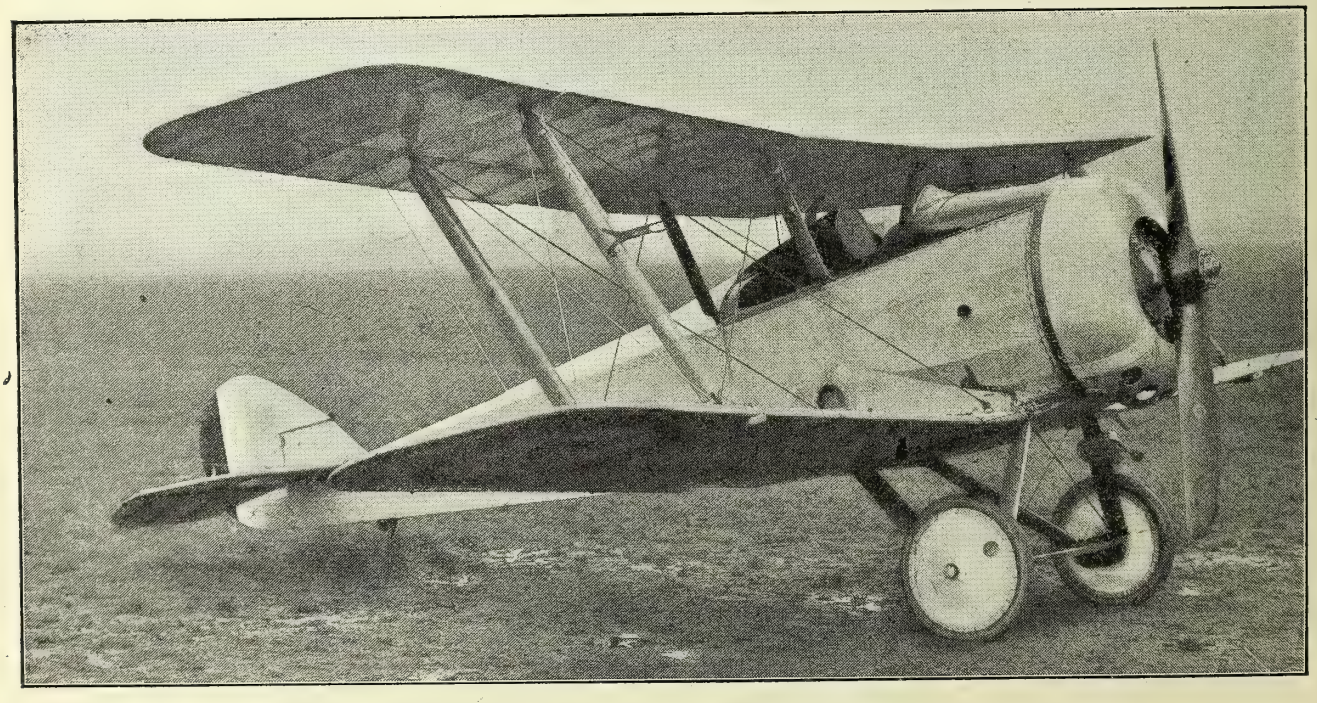
At that time the synchronised machine-gun firing through the airscrew had not been developed in this country, and consequently the high-speed tractor single-seater was of very little use for fighting purposes.

This machine was therefore an attempt to combine a high performance with the unobstructed use of a machine-gun firing straight ahead, which is possible with a machine of the "pusher" type.

In this respect the DeH.2 was extraordinarily successful. During 1915 and the early part of 1916 this type of machine gave an excellent account of itself on the Western Front, but was displaced by machines of the "tractor" type when the use of synchronised guns became general.

SPECIFICATION.

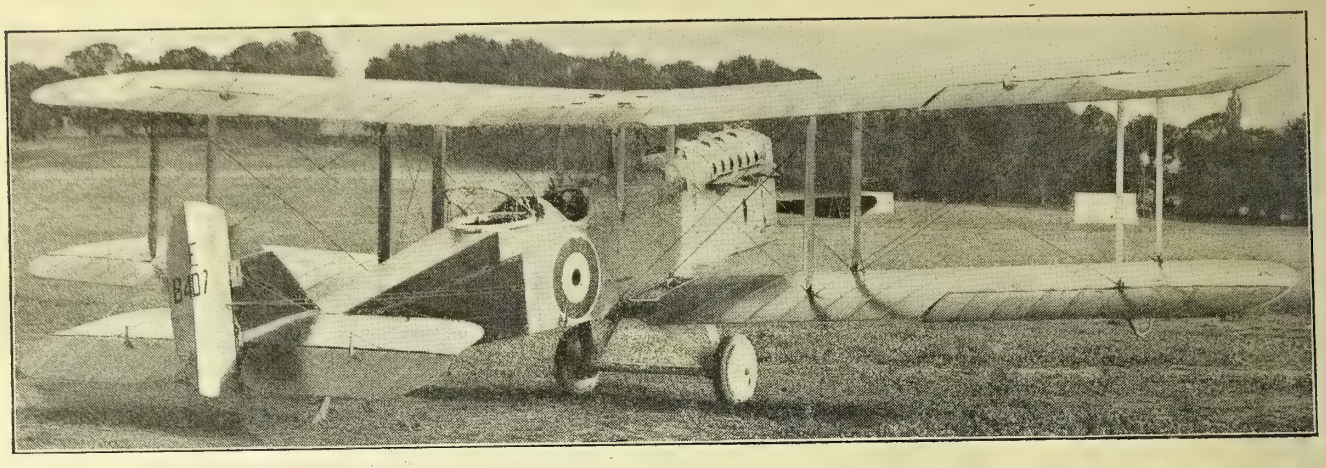
Type of machine	Biplane " Pusher."
Name or type No. of machine	De H.2.
Span	28 ft. 0½ ins.
Gap, maximum and minimum	4 ft. 6 ins.
Overall length	25 ft. 2½ ins.
Maximum height	9 ft. 6½ ins.
Chord	4 ft. 9 ins.
Total surface of wings, including centre plane and ailerons	228.0 sq. ft.
Span of tail	10 ft. 3 ins.
Total area of tail (empennage)	56.5 sq. ft.
Area of elevators	6.8 sq. ft. each.
Area of rudder	13.5 sq. ft.
Area of fin	2.4 sq. ft.
Area of each aileron	9.7 sq. ft.
Engine type and h.p.	100 h.p. Gnôme.
Airscrew, diam., pitch and revs.	8.0 dia., 7.7 pitch, 1,350 revs.
Weight of machine empty	896 lbs.
Weight of machine full load	1,320 lbs.
Load per sq. ft.	5.8 lbs.
Weight per h.p. full load	13.2 lbs.
Tank capacity in gallons	22.4 gallons.
PERFORMANCE—	
Speed low down	93 m.p.h.
Landing speed	45 m.p.h.



Three-quarter Front View of the Airco De H.5 (110 h.p. Le Rhône Engine).



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



Three-quarter View from Rear, "Airco" De H.9A (400-h.p. Liberty Engine).

Climb—
To 6,500 feet ..... 8:40 mins.
Disposable load apart from fuel 213 lbs.
Total weight of machine loaded 1,320 lbs.

THE AIRCO DE H.3.

This machine, produced in 1915, was never put into service. It is of interest, however, as one of the earliest attempts at building a twin-engined machine, and as the ancestor of the DeH.10.

SPECIFICATION.

Type of machine	Biplane " Pusher " (2 engines)
Name or type No. of machine ...	De H.3.
Span	60 ft. 10 ins.
Gap, maximum and minimum ...	7 ft.
Overall length	36 ft. 10 ins.
Maximum height	14 ft. 6 ins.
Chord	6 ft. 9 ins.
Total surface of wings, including centre plane and ailerons	790.0 sq. ft.
Span of tail	23 ft. 2 ins.
Total area of tail (empennage)...	164.0 sq. ft.
Area of elevators	25.5 sq. ft. each.
Area of rudder	22.0 sq. ft.
Area of fin	13.0 sq. ft.
Area of each aileron	30.7 sq. ft.
Engine type and h.p.	**Two 120 h.p. Beardmore.**
Airscrew, diam., pitch and revs.	9.03 dia., 9.18 pitch, 1,400 rev
Weight of machine empty	3,982 lbs.
Weight of machine full load ...	5,776 lbs.
Load per sq. ft.	7.3 lbs.
Weight per h.p. full load	22.2 lbs.
Tank capacity in gallons	**140 gallons**
Performance—	
Speed low down	95 m.p.h
Climb—	
To 6,500 feet	24 mins.
Landing speed	53 m.p.h.
Disposable load apart from fuel	711 lbs.
Total weight of machine loaded	5,776 lbs.

THE AIRCO DE H.4.

The DeH.4 was the first really high-speed British general utility machine of the medium weight type fitted with a high-power stationary engine. In the original form produced in 1916—fitted with a B.H.P. engine of 240 h.p.—the DeH.4 had a speed greater than, and a climb and ceiling little if at all inferior to, that of the best of the rotary-engined single-seater fighters of that date.

It was thus possible to use these machines for reconnaissance and photographic work over the lines without the need for a fighter escort, since their excellent performance, and the fact that they were fitted with a gun ring in the after seat in addition to a synchronised gun firing through the airscrew, put them upon at least equal terms with any existing type of enemy fighter.

The later editions of the same type fitted with "Eagle" Rolls-Royce engines, were considerably more valuable, and were extensively used for day bombing, in addition to reconnaisance work.

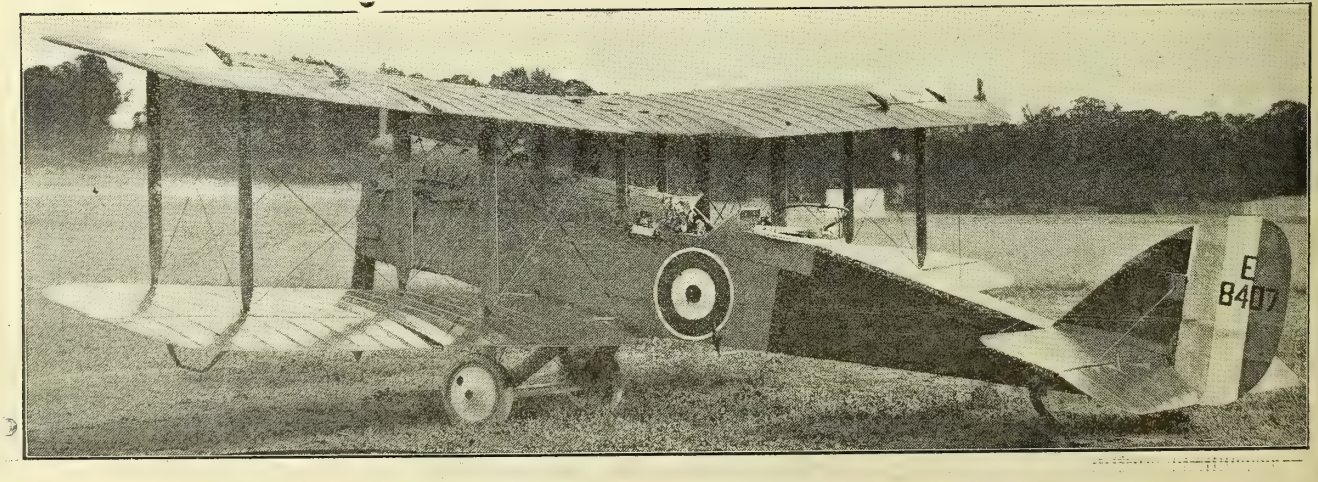
From a structural point of view this machine is chiefly remarkable for the very extensive use which is made of three-ply wood in the fuselage.

From the nose to aft of the passenger's seat the fuselage is devoid of wire bracing, a three-ply covering serving the purpose. Not only is this the case, but the whole of the engine mountings are built of ply-wood, which takes the place of the metal plates commonly used for such purposes.

It is thus possible to put bullet holes through almost any part of the front end of the fuselage without seriously impairing the strength of the structure—whereas with the usual methods of construction a single lucky shot may destroy an important bracing, or cut out the flange of an engine plate, and seriously weaken the structure.

SPECIFICATION.

Type of machine	Biplane " Tractor."
Name or type No. of machine ...	De H.4.
Span	42 ft. 4⅝ ins
Gap, maximum and minimum ...	5 ft. 6 ins.
Overall length	30 ft.
Maximum height	11 ft. 4⅛ ins.
Chord	5 ft. 6 ins.
Total surface of wings, including centre plane and ailerons	434.0 sq. ft.
Span of tail	14 ft.
Total area of tail (empennage)...	81.1 sq. ft.
Area of elevators	12.0 sq. ft. each.
Area of rudder	13.7 sq. ft.
Area of fin	5.4 sq. ft.
Area of each aileron	20.5 sq. ft.
Engine type and h.p.	240 h.p. B.H.P.



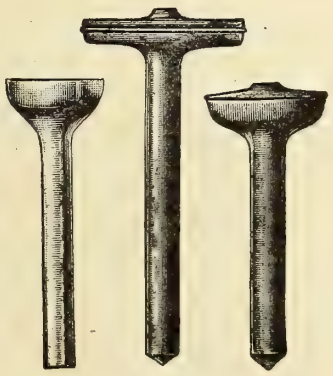
Another View of the "Airco" De H.9A (400-h.p. Liberty Engine).

Aero Engine VALVES.

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Scottish Steel and Tool Works,
NEEPSEND,
SHEFFIELD.

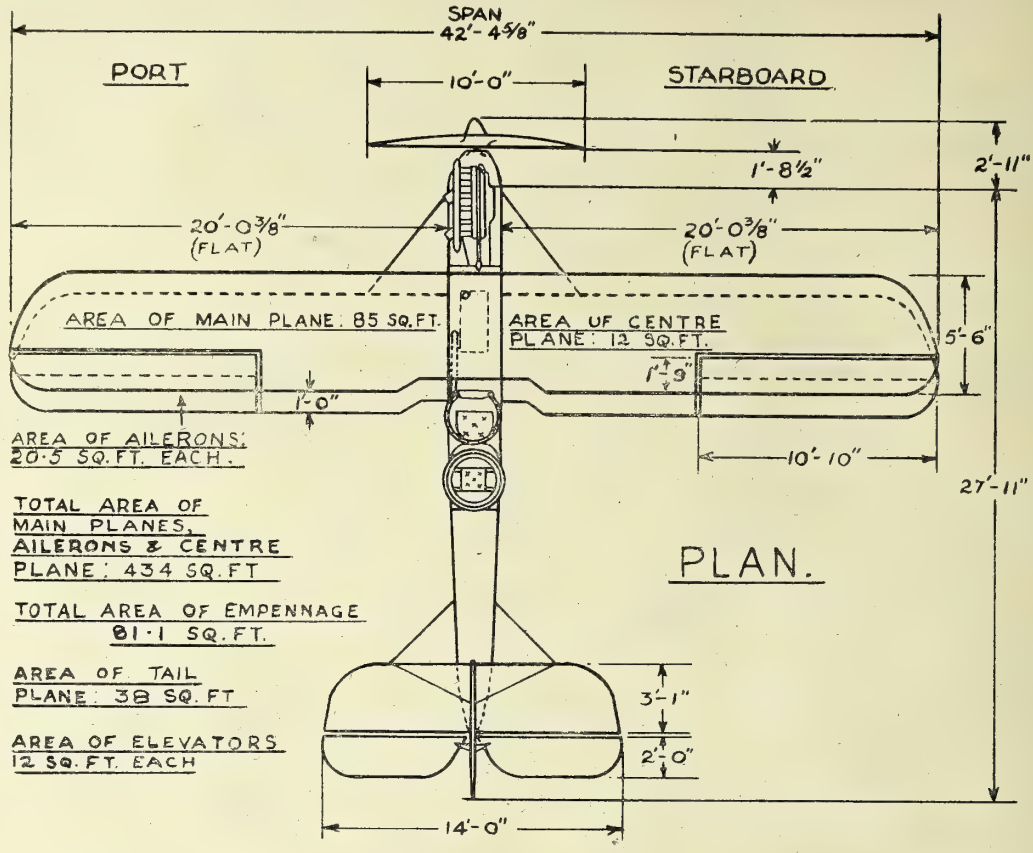
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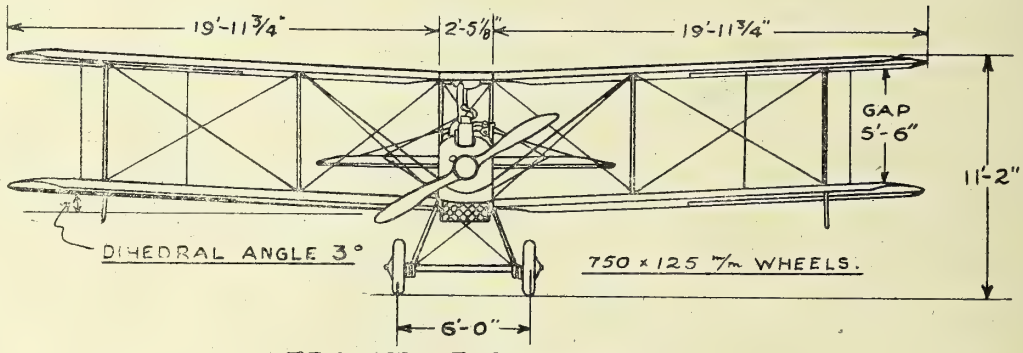


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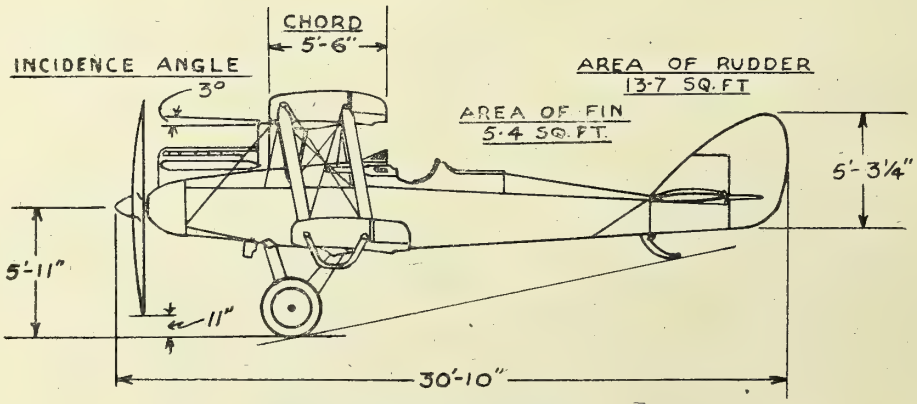
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FRONT ELEVATION.

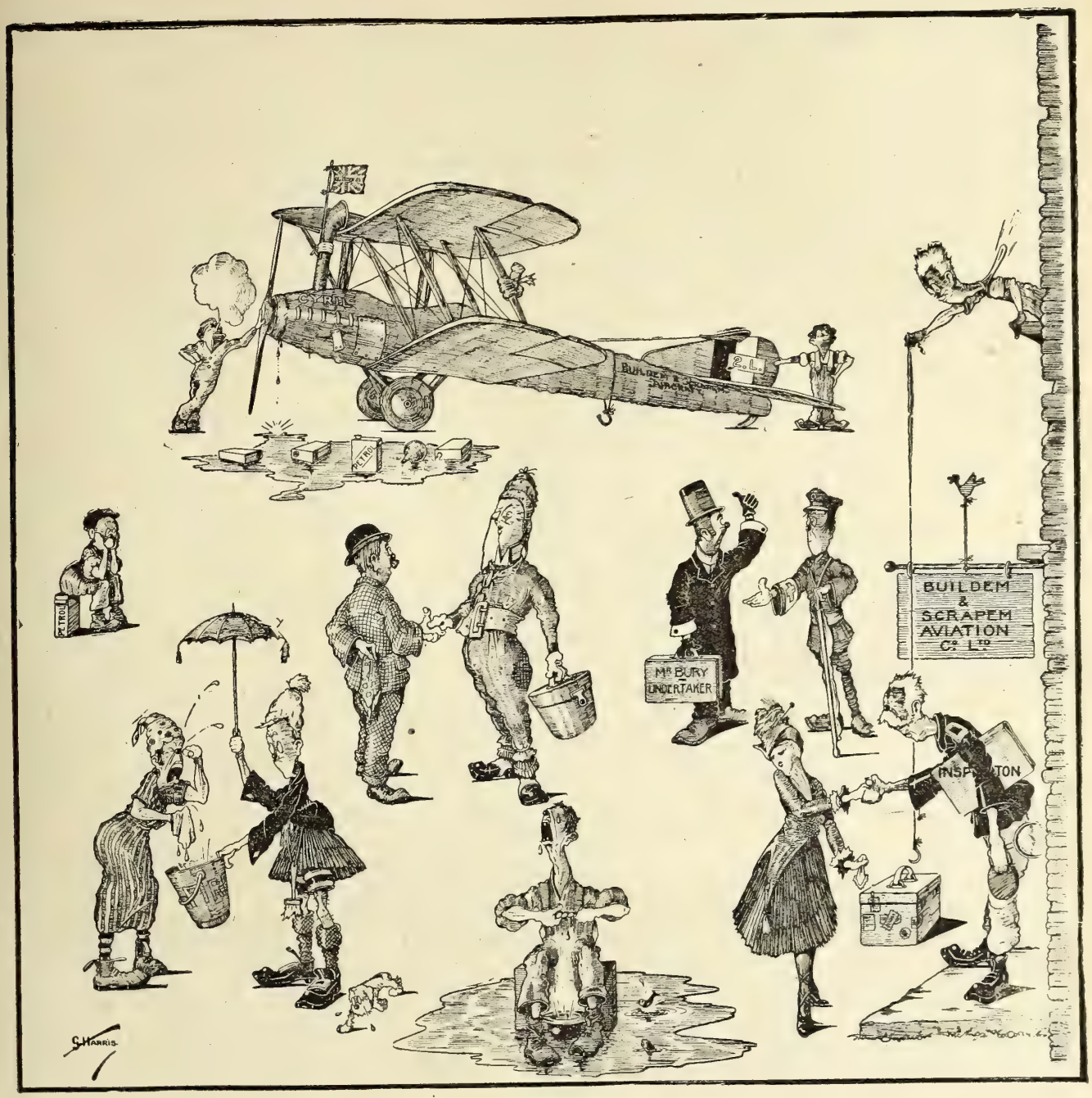


SIDE ELEVATION

FORD-JONES/19

DE H.9.

SCALE OF FEET.
0 1 2 3 4 5 6 7 8 9 10



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Airscrew, diam., pitch and revs.	8.75 dia., 8.2 pitch, 1,355 rev.
Weight of machine empty	2,302 lbs.
Weight of machine full load ...	3,400 lbs.
Load per sq. ft.	7.84 lbs.
Weight per h.p. full load	14.35 lbs.
Tank capacity in gallons.....	66 gallons.
PERFORMANCE—	
Speed low down	120 m.p.h.
Landing speed	52 m.p.h.
Climb—	
To 6,500 feet	8 mins.
To 10,000 feet	14.10 mins.
To 15,000 feet	29.15 mins.

WITH ROLLS-ROYCE "EAGLE" ENGINE (375 h.p.)

PERFORMANCE—	
Speed low down	136½ m.p.h.
Climb—	
To 6,500 feet	5.15 mins.
To 10,000 feet	9 mins.
To 15,000 feet	16.30 mins.
Disposable load apart from fuel	578 lbs.
Total weight of machine loaded	3,400 lbs.

THE AIRCO DE H.5.

This machine, produced late in 1916, and extensively used at the front in 1917, was in the main an effort to produce a single-seater fighter in which the pilot's view upwards and forward was not entirely blanketed by the top wing.

For this reason the top wing was staggered backwards very considerably, and the pilot's cockpit was put beneath the leading edge of that wing. In spite of the loss of efficiency which results from this backward stagger, Capt. De Havilland, by careful attention to the reduction of head resistance and weight, succeeded in producing a machine with a very good all-round performance.

SPECIFICATION.

Type of machine	Biplane "Tractor."
Name or type No. of machine ...	De H.5.
Span	25 ft. 8 ins.
Gap, maximum and minimum ...	4 ft. 9 ins.
Overall length	22 ft.
Maximum height	9 ft. 1½ ins.
Chord	4 ft. 6 ins.
Total surface of wings, including centre plane and ailerons	212.1 sq. ft.
Span of tail	8 ft. 4½ ins.
Total area of tail (empennage)...	34.1 sq. ft.
Area of elevators	6.1 sq. ft. each.
Area of rudder	6.3 sq. ft.
Area of fin	2.2 sq. ft.
Area of each aileron	11.6 sq. ft.
Engine type and h.p.	110 h.p. Le Rhône.
Airscrew, diam., pitch and revs.	8.5 dia., 8.33 pitch, 1,295 revs.
Weight of machine empty	1,012 lbs.
Weight of machine full load ...	1,492 lbs.
Load per sq. ft.	7.03 lbs.
Weight per h.p. full load	13.57 lbs.
Tank capacity in gallons.....	25 gallons.
PERFORMANCE—	
Speed at 10,000 feet	102 m.p.h.
Speed at 15,000 feet	89 m.p.h.
Landing speed	50 m.p.h.
Disposable load apart from fuel	260 lbs.
Total weight of machine loaded	1,492 lbs.

THE AIRCO DE H.6.

The DeH.6 was produced as an elementary training machine for pilots, and to meet requirements fundamentally different from those which are desirable in machines for war use.

High performance was not desired, was in fact rather to be avoided. Cheapness and simplicity and strength of construction, together with ease in repair, and a low landing speed, were of primary importance.

As a result of these considerations, the DeH.6, vulgarly known alternatively as the "Clutching Hand" or the "Sky Hook," has very few of those rather expensive refinements of form which characterise most modern machines.

It has, in fact, rather the appearance of having been built by the mile, and cut off to order, which is, of course, a testimony to the thoroughness with which the desired simplicity has been reached in the design.

SPECIFICATION.

Type of machine	Biplane "Tractor."
Name or type No. of machine ...	De H.6.
Span	35 ft. 11 ins.
Gap, maximum and minimum ...	5 ft. 8½ ins.
Overall length	27 ft. 3½ ins.
Maximum height	10 ft. 9½ ins.
Chord	6 ft. 4 ins.
Total surface of wings, including centre plane and ailerons	436.3 sq. ft.
Span of tail	12 ft.
Total area of tail (empennage)...	81.0 sq. ft.
Area of elevators	13.0 sq. ft. each.
Area of rudder	12.0 sq. ft.
Area of fin	5.5 sq. ft.
Area of each aileron	19.0 sq. ft.
Engine type and h.p.	100 h.p. R.A.F. 1A.
Airscrew, diam., pitch and revs.	9.085 dia., 10.0 pitch, 1,800. revs.
Weight of machine empty	1,460 lbs.
Weight of machine full load ...	2,027 lbs.
Load per sq. ft.	4.64 lbs.
Weight per h.p. full load	20.27 lbs.
Tank capacity in gallons	26 gallons.
PERFORMANCE—	
Speed low down	66 m.p.h.
Landing speed	39 m.p.h.
Climb—	
To 6,500 feet	29 mins.
Disposable load apart from fuel	360 lbs.
Total weight of machine loaded	2,027 lbs.

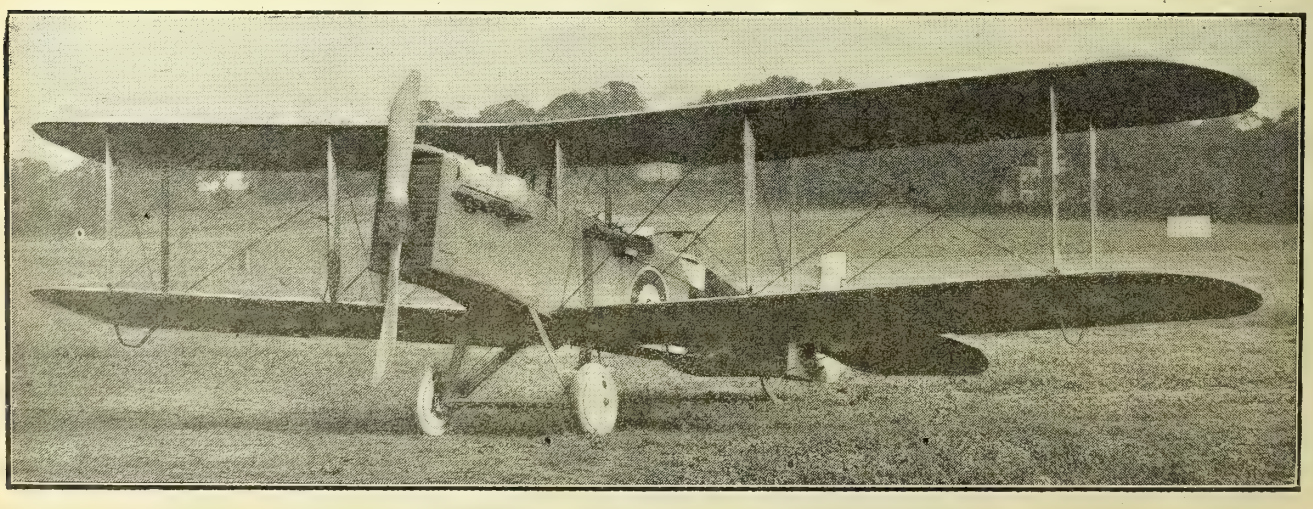
THE AIRCO DE H.9.

This machine is a modification of the DeH.4 intended for bombing work. The main alterations are that the pilot's cockpit has been moved from beneath the centre section to just behind the trailing edge thereof, leaving space for bombs in the fuselage, that the engine centre line has been slightly raised, and the chassis somewhat shortened, and that the nose radiator has been replaced by a vertical water tank and a radiator in the bottom of the fuselage.

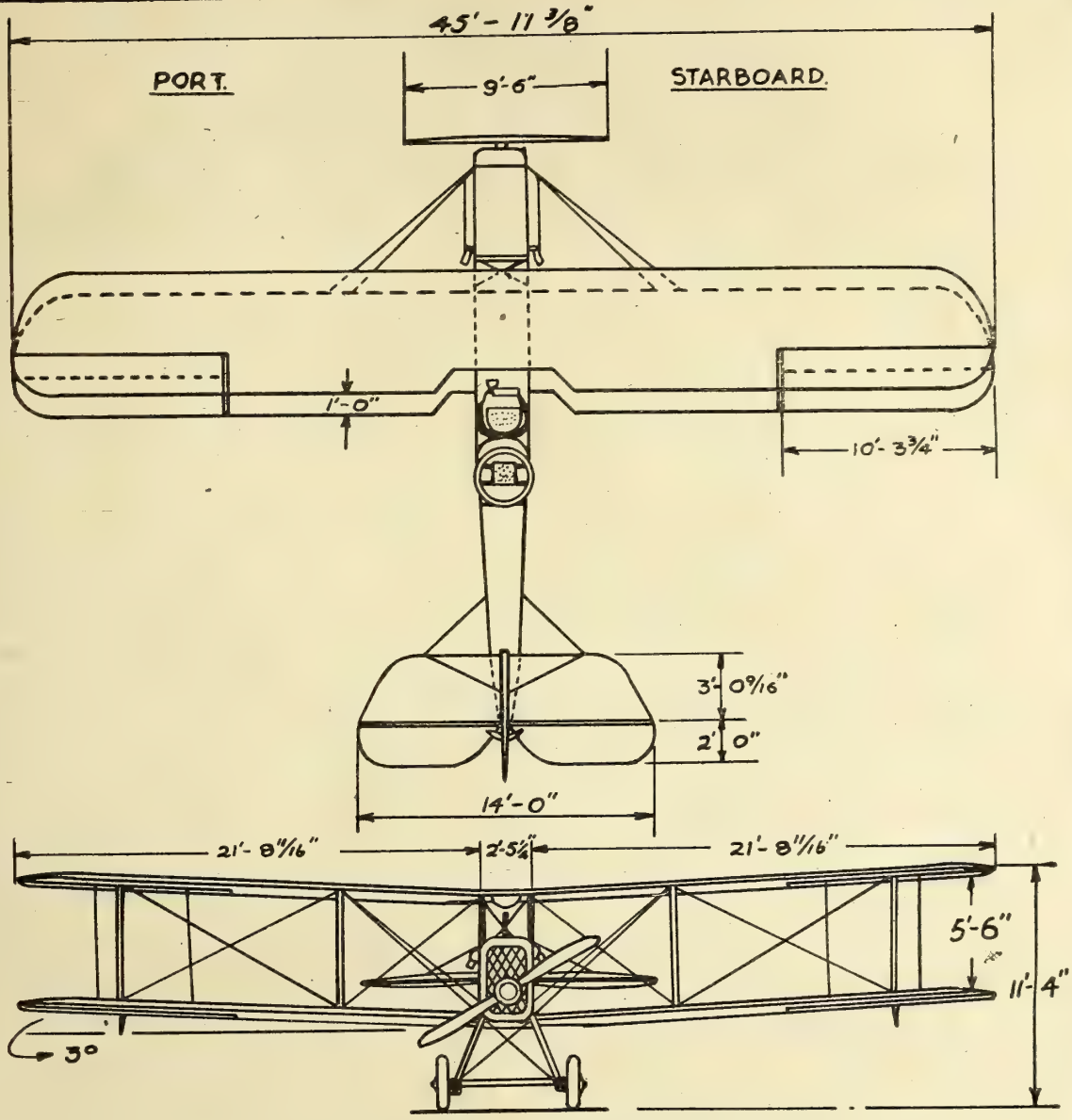
The total weight empty has been reduced by about 100 lbs., the tank capacity is somewhat increased, and the total load carried has been increased by about 500 lbs., at the cost of a slight loss in speed and climb, and an increase in the landing speed.

SPECIFICATION.

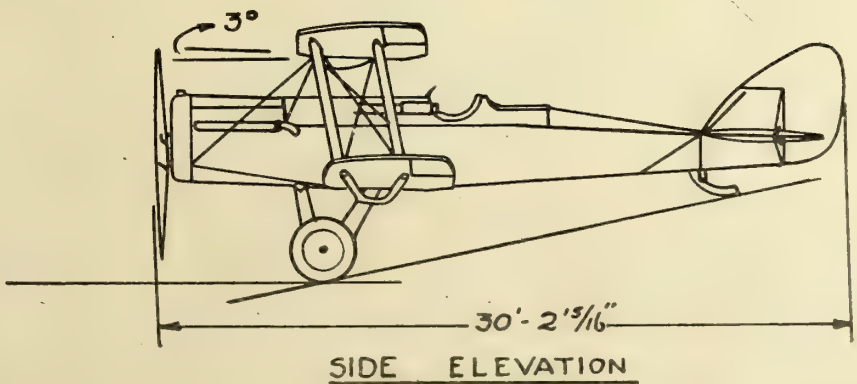
Type of machine	Biplane "Tractor."
Name or type No. of machine ...	De H.9.
Span	42 ft. 4⅝ ins.
Gap, maximum and minimum ...	5 ft. 6 ins.
Overall length	30 ft. 10 ins.



Three-quarter Front View, the De H.9A. (Liberty Engine).



FRONT ELEVATION.



SIDE ELEVATION

SCALE OF FEET.
0 1 2 3 4 5 6 7 8 9 10

DeH 9A.

(400 H.P. LIBERTY 'TWELVE')

Ford-Jones, 19.

Maximum height	11 ft. 2 ins.
Chord	5 ft. 6 ins.
Total surface of wings, including centre plane and ailerons	434.0 sq. ft.
Span of tail	14 ft.
Total area of tail (empennage)...	81.1 sq. ft.
Area of elevators	12.0 sq. ft. each.
Area of rudder	13.7 sq. ft.
Area of fin	5.4 sq. ft.
Area of each aileron	20.5 sq. ft.
Engine type and h.p.	240 h.p. B.H.P.
Airscrew, diam., pitch and revs.	9.5 dia., 6.9 pitch, 1,525 revs.
Weight of machine empty	2,200 lbs
Weight of machine full load	3,890 lbs.
Load per sq. ft.	8.95 lbs.
Weight per h.p. full load	16.2 lbs.
Tank capacity in gallons	74 gallons.
Performance—	
Speed at 10,000 feet	110½ m.p.h.
Speed at 15,000 feet	102 m.p.h.
Landing speed	57 m.p.h.
Disposable load apart from fuel	1,121 lbs.
Total weight of machine loaded	3,890 lbs.

THE AIRCO DE H.9A.

This machine is an enlarged DeH.9, designed for the 375 h.p. Rolls, or the 400 h.p. Liberty. The span and the total surface have been somewhat increased, and the nose radiator has returned. Otherwise there is little alteration.

SPECIFICATION.

Type of machine	Biplane "Tractor."
Name or type No. of machine	De H.9a.
Span	45 ft. 11⅜ ins.
Gap, maximum and minimum	5 ft. 6 ins.
Overall length	30 ft. 3 ins.
Maximum height	11 ft. 4 ins.
Chord	5 ft. 9 ins.
Total surface of wings, including centre plane and ailerons	486.73 sq. ft.
Span of tail	14 ft.
Total area of tail (empennage)...	80.1 sq. ft.
Area of elevators	12.0 sq. ft. each.
Area of rudder	13.7 sq. ft.
Area of fin	5.4 sq. ft.
Area of each aileron	18.59 sq. ft.
Engine type and h.p.	375 h.p. Rolls-Royce or 400 Liberty.
Airscrew, diam., pitch and revs.	10.0 diam., 12.3 pitch, 1,780. revs.
Weight of machine empty	2,656 lbs.
Weight of machine full load	4,815 lbs.
Load per sq. ft.	9.89 lbs.
Weight per h.p. full load	12.8 lbs., 12.03 lbs.
Tank capacity in gallons	112 gallons.
Performance—Rolls-Royce 375 h.p. Engine	
Speed at 10,000 feet	110½ m.p.h.
Landing speed	59 m.p.h.
Climb—	
To 6,500 feet	11 mins.
To 10,000 feet	20.6 mins.
Disposable load apart from fuel	1,199 lbs.
Total weight of machine loaded	4,815 lbs.

Note.—If less weight is carried a speed of 125½ m.p.h. is attained at 10,000 feet, and 116 m.p.h. at 15,000 feet.

(To be continued.)

DEMOBILISED FACTORIES.

Apropos the shutting down of the National Aircraft Factory at Whaddon, near Croydon, the following letter has been received:—

"Only those who knew what a fine Aircraft Factory this was, as I did, and that only a very short time ago was it actually completed and equipped with the most modern machinery for turning out complete an enormous number of aeroplanes, can realise what a terrible waste of plant this is for the construction necessary for the immediate future of Civil Aerial Transport.

"As a regular reader of your paper, I ask your opinion of this. Is it yet another instance of colossal official blundering, and can this kind of thing be avoided? Could not one of the large budding Civil Aerial Transport companies with capital enough acquire this ex-National Aircraft Factory for turning out airships, if needs be, as well as the Civil Transport type of 'plane'?"

The writer of the foregoing letter evidently lets his keenness as an engineer overcome his foresight as a business man.

If these National Aircraft Factories were continued they would naturally be employed on building aeroplanes of official design, and it has been proved by bitter experience that in aircraft, as in everything else, official designs are lamentably inferior to contemporary commercial designs produced under the spur of competition. It would be particularly damaging to the future of aviation if National Factories were allowed to have anything to do with the construction of aircraft for Civil Aerial Transport.

It would, in fact, pay the country better to burn the factory and melt the machinery down as scrap than to continue it as a National Factory under official control. In the former case a mere matter of two million pounds would be lost to the country, and in the other more than that in millions per annum would be wasted by incompetent officials, and irremediable harm would be done to the whole future of British Aeronautics. The old Royal Aircraft Factory at Farnborough, for example, must have cost this country many millions of pounds.

As regards the suggestion that one of the big Civil Aerial Transport companies should acquire this ex-National Aircraft Factory. The suggestion has something to recommend it, but it is well to point out that the actual transport companies will probably not build their own machines. In all other species of transport operating companies are invariably distinct from the producers of the vehicles which they use, with, perhaps, the sole exception of railway companies, who build their own locomotives and coaches. Even this, however, is not an invariable rule, as is proved by the number of firms which manufacture railway trucks and engines. For example, Harland & Wolff's do not run steamship lines and the Cunard Company do not build steamships.

It seems probable, however, that the majority of the aircraft-producing firms already possess factories which are more than capable of filling all needs for the next four or five years, and in that case it seems likely that the National Aircraft Factories will be turned on in the near future to produce goods of greater immediate general utility than aircraft are likely to be for a while.

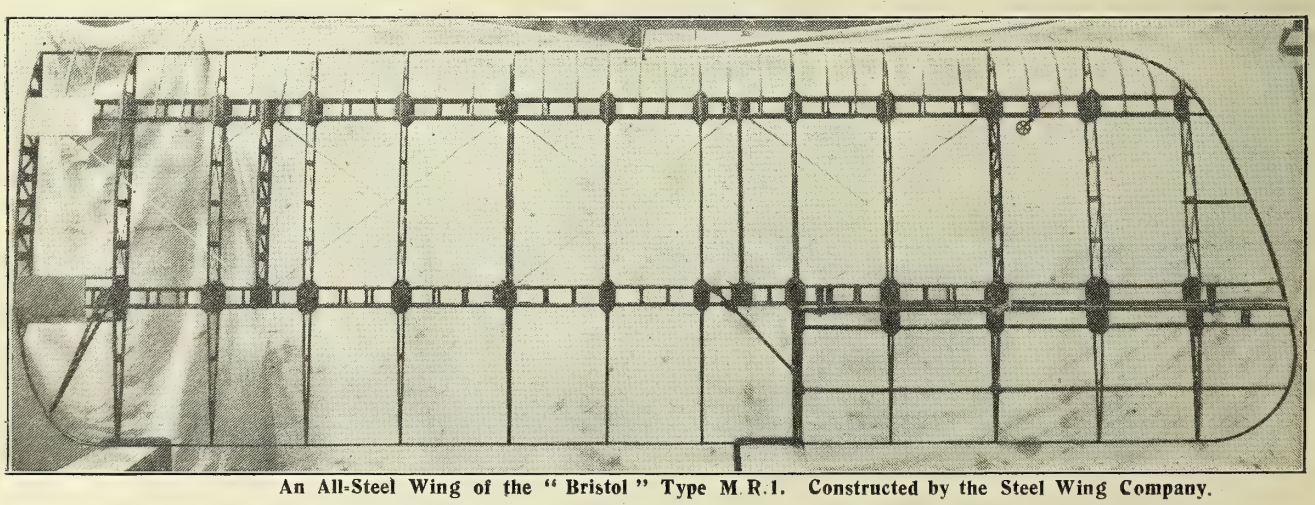
Meantime, the Whaddon factory is being put to excellent use as a Salvage Depot, and is definitely saving many thousands of pounds for the Nation. One hopes to describe its activities at an early date.

AN AMERICAN SUPERCHARGER.

According to an American journal, the B.F. Sturtevant Co. showed, amongst their exhibits at the American Aeronautical Exhibition, an arrangement for feeding the carburetter of an aero engine with air at constant pressure, so maintaining the engine power at high altitudes. The plant consists of an air pump driven from the crankshaft by a slipping belt.

The pump speed is controlled by some mechanism whose action is not described in understandable terms, but which tightens up the belt as the atmospheric pressure decreases.

This appears to be a simple—if somewhat crude—solution of this difficulty.



An All-Steel Wing of the "Bristol" Type M.R.1. Constructed by the Steel Wing Company.

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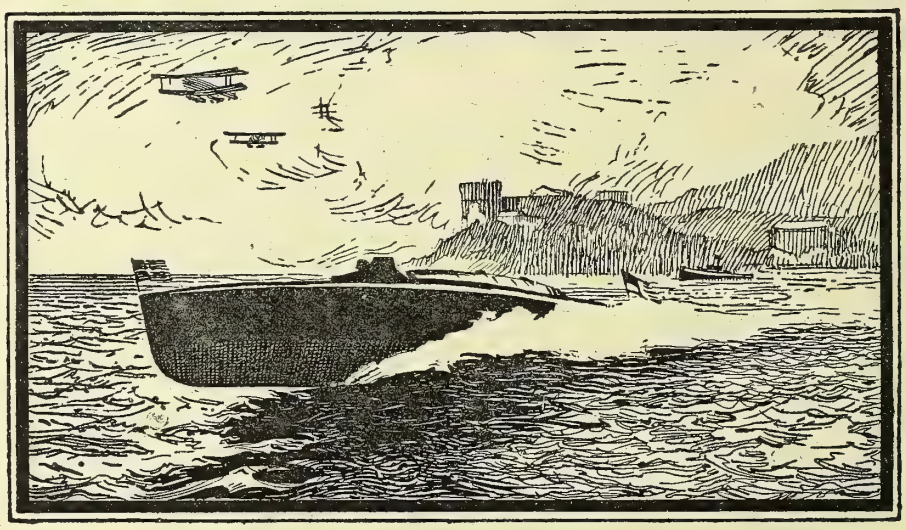
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STEEL WING CONSTRUCTION.

It is now many years since certain classes of alleged engineers acquired the custom of scoffing at the designers of aircraft for their habits of employing such a material as timber for structural work and held forth upon the merits of steel. Generally speaking, these early criticisms were founded on a complete ignorance of the qualities of timber, and a failure to realise the inherent difficulties of steel construction for so light a structure as that of the aeroplane.

These difficulties almost all arise from the fact that to produce members of the light weight necessary for aeroplane construction in steel it is necessary to use the material in the form of very thin sheet.

By using steel in this form it is comparativeiy simple to design spars no heavier than and equally as strong as wooden spars when only the primary stresses are taken into account, but when secondary stresses are considered it is difficult to secure the necessary stiffness locally to prevent buckling of webs and flanges

The desired result may be obtained by suitably corrugating the sheet material before building up the spars.

This involves laying down rolling plants and rolls for the purpose—since the owners of rolling plants have almost invariably refused to undertake the rolling of the type of section required, particularly in high tensile steels, and the cost of producing steel spars becomes excessive, unless really large quantities of any one type of spar are to be manufactured.

The acute shortage of good aeroplane timber during the latter years of the war led the Department of Aircraft Production to encourage the design and manufacture of metal wing spars, and, since there were excellent prospects of really large production orders for successful designs, the question of the preliminary cost of the experimental spars became unimportant.

Amongst those who have produced solutions of the problem, The Steel Wing Company, of 48a, Gillingham Street, S.W.1, appear to have achieved complete success.

This firm had attacked the problem of steel wing construction long before the awakening of the official mind to the importance of the matter, and as early as 1912 had produced experimental spars wherein the required local strength was obtained by the use of longitudinal corrugations in the flanges—actually in the form of flanges made of trough sections of thin steel riveted to webs of a light alloy, which was itself corrugated to provide the needed local stiffening.

This type of spar gave excellent results on test, but was rather heavier than was desirable.

The alloy webs were then replaced by steel strips, with deep vertical corrugations, which were riveted together in pairs, through the bottom of the vertical grooves formed in them, with pairs of sections forming top and bottom flanges

Various modifications of the pitch and depth of the corrugations in the web were tried, including the use of webs with diagonal corrugations riveted together with the corrugations sloping in opposite directions, with the object of reducing the amount of extra metal required to provide the local stiffening necessary, and to allow of a more effective rivet spacing.

At the moment a type of box spar with each flange made in one strip of steel with rolled longitudinal corrugations, riveted to two vertical strip webs has been adopted. The exact form of the webs is varied to suit the conditions.

Very largely the forms employed have been limited by the difficulties already referred to of rolling or drawing the sections desired, and to the surmounting of these difficulties the Steel Wing Company have devoted great care and attention.

Quite a number of firms have succeeded in producing, with more or less success, steel spars for wings, but the Steel Wing Co. have not been content with this, but have successfully produced wings with skeletons which are all steel.

Their earliest practical success was the manufacture of an all-steel wing for the B.E.2E, which gave very satisfactory results. They compared favourably with the standard wings.

This effort was followed by the equally successful manufacture of wings for other types of B.E., and when the Bristol Co. were producing the all-metal M.R.1, the Steel Wing Co. were entrusted with the design of the wings for this machine. A photograph of this wing is given, from which it will be noticed that the spars are really twin very narrow I sections, tied together at the top and bottom.

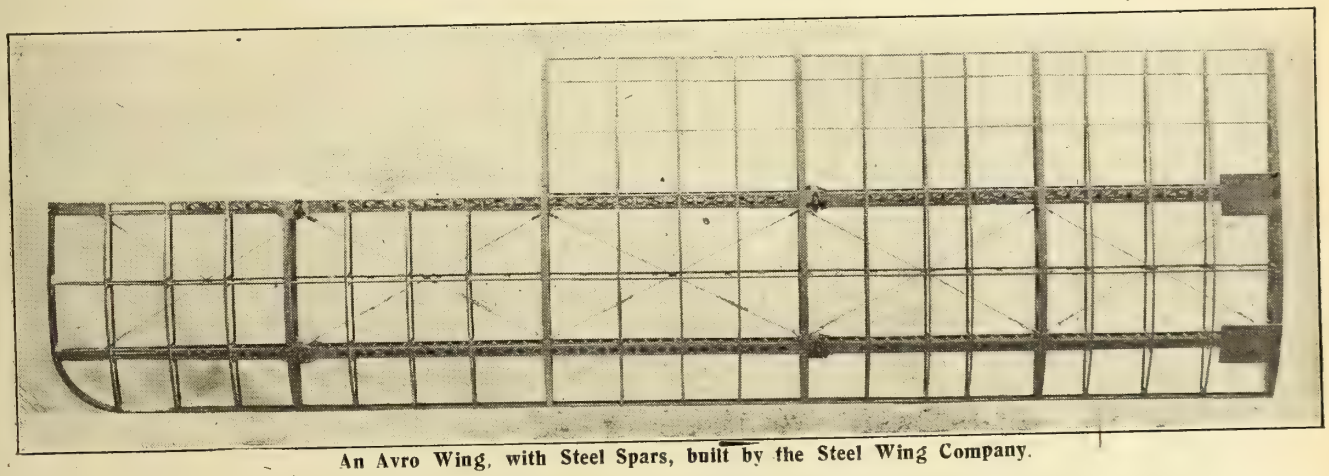
The machine originally selected by the Department of Aircraft Production as that for which steel spars were to be designed and tested was the Standard Avro Training machine.

Other considerations apart, this machine is of a distinctly light type, and the successful production of steel spars for such a machine is evidence of even greater possibilities for heavier classes of machines.

The first type of spar successfully built by the Steel Wing Co. for the Avro really consisted of twin I sections tied together across their top and bottom flanges.

Each I of the beam consisted of a steel strip with deep transverse (vertical) corrugations, with a thin channel riveted to the web at top and bottom.

To the top and bottom of the two I's thus formed there were riveted strips of steel stamped out in such wise as to leave a double diagonal bracing between the two vertical members.



An Avro Wing, with Steel Spars, built by the Steel Wing Company.

This type of spar has been used in a number of Avro wings, both in conjunction with the ordinary type of wooden rib, as shown in one of the photographs, and with steel ribs. Wings of the all-steel type are in daily use on experimental Avros and have given every satisfaction.

The assembly of this type of spar called for a considerable amount of labour, and to diminish this a new design, of which a sketch is attached, has been developed.

This newer type is a fairly simple box spar, of which the top and bottom flanges are of a rolled corrugated section, riveted to pressed webs. The assembly of this type of spar is very simple, and all the rivets are easily accessible for closing up.

The history of the development of the successful type of construction here referred to is extremely interesting, and in a further article on the subject it is hoped to trace this history step by step through all its stages.

FULL-SIZE TESTS.

It is reported that the American Bureau of Standards has decided to attack the problem of making accurate tests of full-size aeroplanes, and to that end has commenced work upon the development of instruments designed to record, simultaneously, engine speed and torque, airscrew thrust and machine air speed, angle of incidence, and inclination of flight path.

Efforts in this direction were long ago made by the Royal Aircraft Establishment—unfortunately without conspicuous success, and so far as can be determined such attempts have been abandoned.



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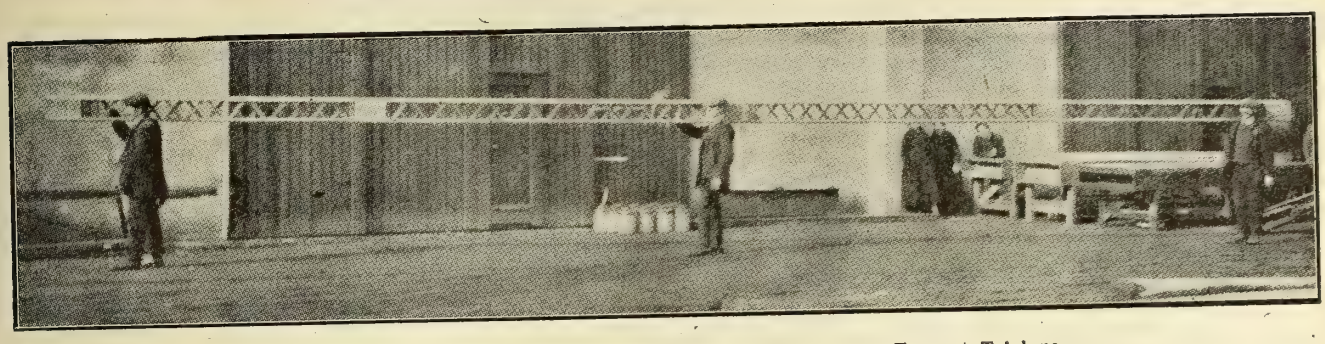
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THE TARRANT "TABOR" TRIPLANE.



A Complete Spar for one Section of a Wing of the Tarrant Triplane.

A general description of the Tarrant triplane was given in The Aeroplane of May 7th. The following account deals in more detail with the novel constructional methods employed.

The most interesting point in the whole machine is the novel wooden girder construction, which must be considered as an attempt on the part of the adherents of wood construction to meet the growing tendency towards the use of metal construction, by adopting a distribution of material very similar to that commonly employed in metal structures.

Wing Structure.

The machine is a triplane with wings of R.A.F.15 section, loaded to approximately 9 lbs. per sq. ft.

The ribs are of standard type, made of spruce, and weigh on the average 2 lbs. 3 ozs. per rib. They are spaced 15 ins. apart with two intermediate nose riblets. The leading and trailing edges are of wood.

With spars of the dimensions necessary for a machine of this size, it is difficult to make them of the box construction adopted on most other large machines, because the sides of such boxes, to take the loads economically, would be so thin that there would be a great risk of local buckling. Consequently, a new type of construction has been used.

The spar consists of two Warren girders displaced relatively to each other. The detailed construction is clearly shown in the accompanying sketch. It is evident that with this construction short lengths of timber can be used to the best advantage. The tail plane spars, fuselage longitudinals and formers are all constructed in a similar manner.

It is estimated that these spars are some 10 per cent. lighter than a corresponding box section, because for practical reasons the sides and flanges of the boxes cannot be made thinner than 5/16 in.

This construction lends itself very well to fitting packing blocks for the clips, and also to the fixing of the ribs. The latter are attached by means of tongues which pass through the spar and thus transfer the shear from the ribs to the spar without any risk of the flanges of the former pulling away from the latter.

The interplane struts, which are of built-up Oregon pine, are of a square section, faired off to streamline section with plywood. All interplane struts, except the sloping centre section struts, are of similar construction.

Few fittings in the wings embody any special feature, the only unusual detail being the method adopted for taking off the incidence wires. This is done by means of a kind of box with a central web, the latter forming the lug for the fork end.

Ailerons.

The ailerons are fitted to the centre plane only, and are approximately 100 sq. ft. each, are of a balanced type, the balanced portion extending the whole length of the aileron, which is about 23 ft. in length. To reduce the chord of the aileron a false spar is overhung from the main spar with stout box ribs projecting to take the hinges. The chord of the ailerons is 3 ft. 9 ins., and the hinge line is 9 ins. inside the leading edge of the aileron.

Fuselage.

The fuselage is of a monocoque construction, and is attached to the wings between the middle and bottom planes. The centre sloping struts, which are a pair of steel tubes faired off, pass straight through the body, and the side loads are taken off these struts at the top of the fuselage by inclined struts running to the junction of the engine struts and the centre plane, and at the bottom by wires to the bottom of the engine struts. Two pairs of specially stout rings are built into the body where these struts pass through it, and thus the loads here are distributed over a large area.

The body is built up on a series of main rings made on a system similar to that used for the spars, with intermediate series of lighter single rings or formers. Longitudinals run from the nose to the tail of the body and are constructed in such a way that neither the rings nor the longitudinals are cut away where the two intersect To get a flush surface on the outside the longitudinals are packed up level with the flanges of the braced rings. The method used is shown in a sketch.

Over the parallel portion of the body the longitudinals are built up like the spars, but aft of this the inner flange of the longitudinal tapers down and forms a single member which extends to the end of the body.

The skin is made of two-ply. This is built on formers in four quarter rounds, the thickness varying from 5 m/m. to 3 m/m. The four sections are scarfed together and the whole skin is screwed to the longerons, formers and rings, and covered with fabric, varnished and enamelled.

Most of the petrol is carried in the body in tanks at the sides and top of the fuselage, leaving the centre of the body clear.

Controls.

The controls are duplicated throughout, with two rudder bars, and two aileron and elevator controls side by side. Immediately

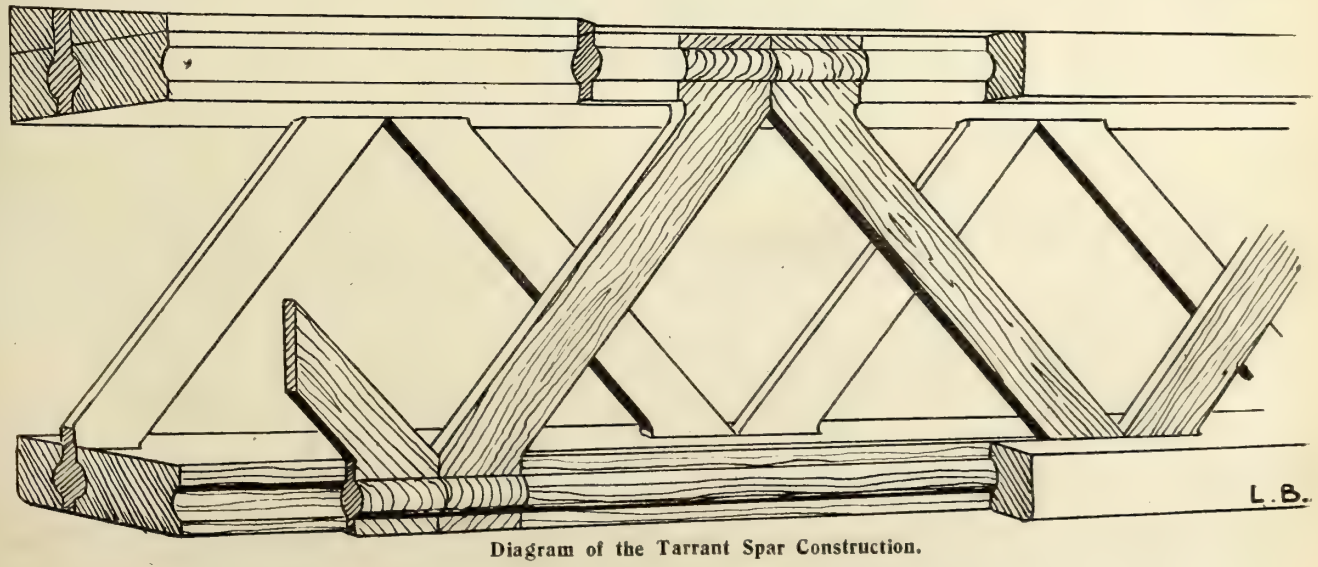
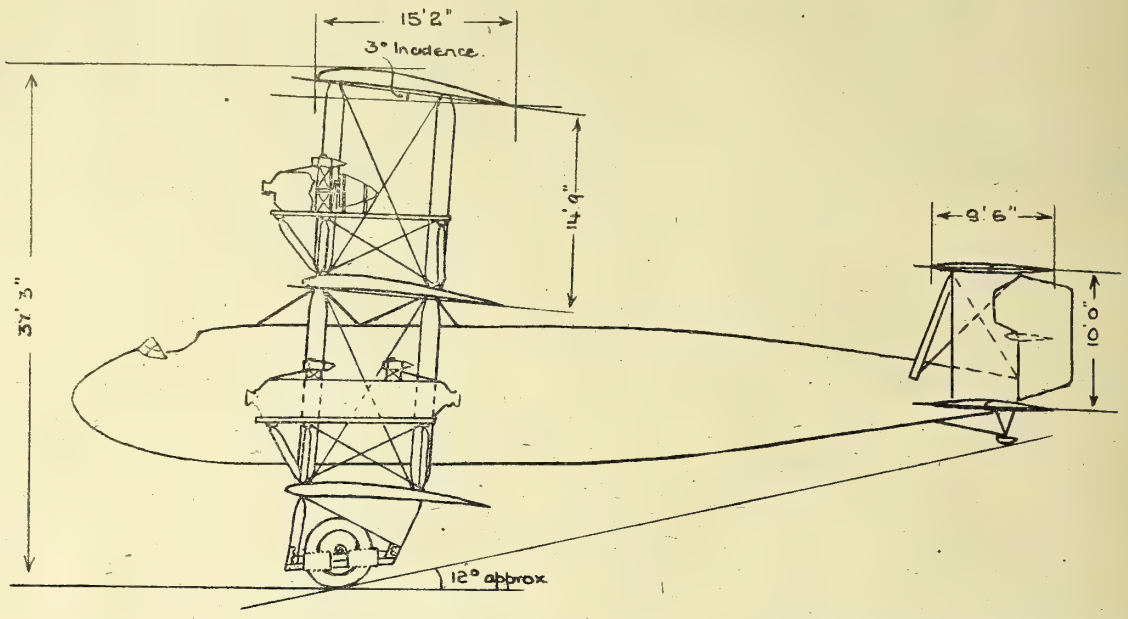
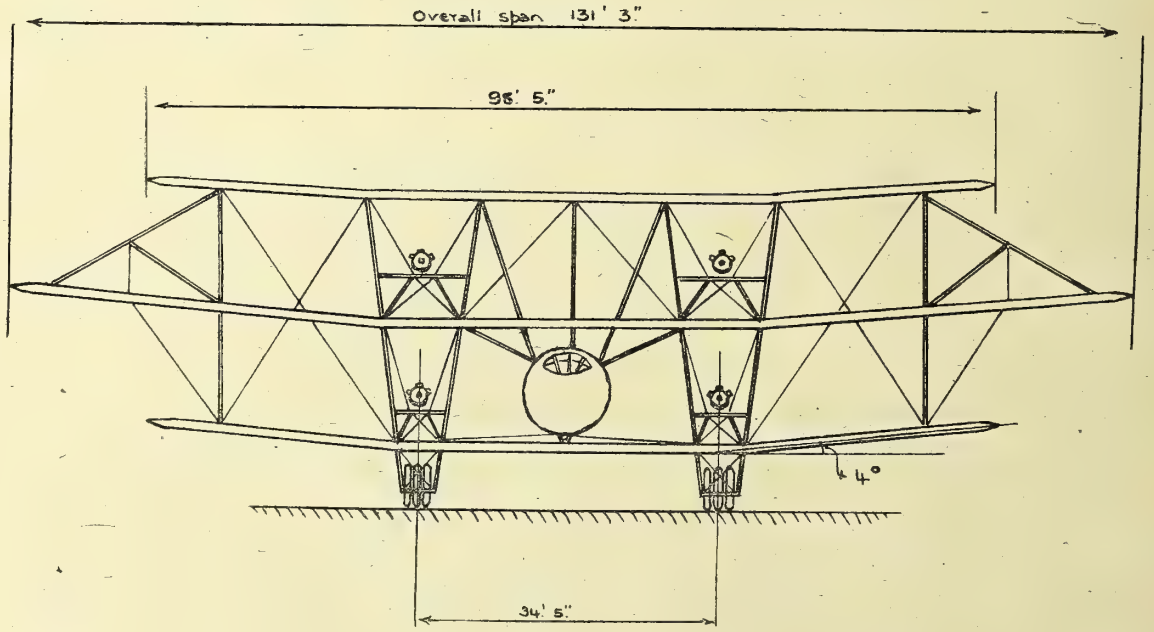


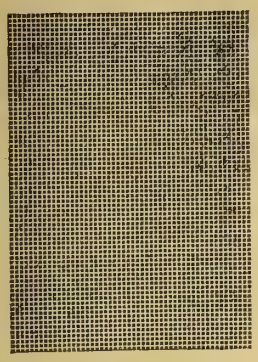
Diagram of the Tarrant Spar Construction.



~ TARRANT ~
TRIPLANE.
6-500 HP NAPIER-"LION".



LEONARD BRIDGMAN



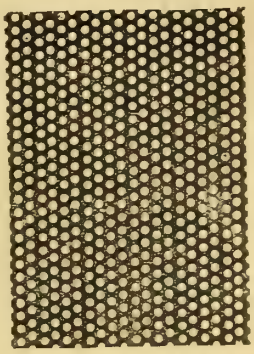
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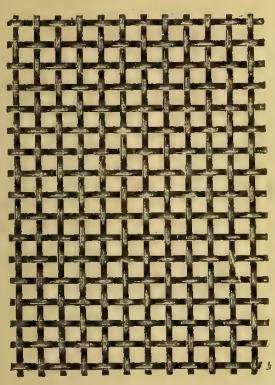
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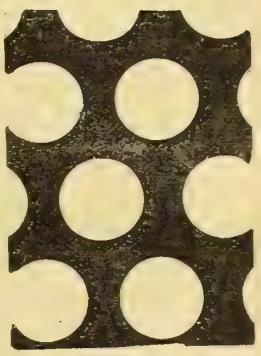
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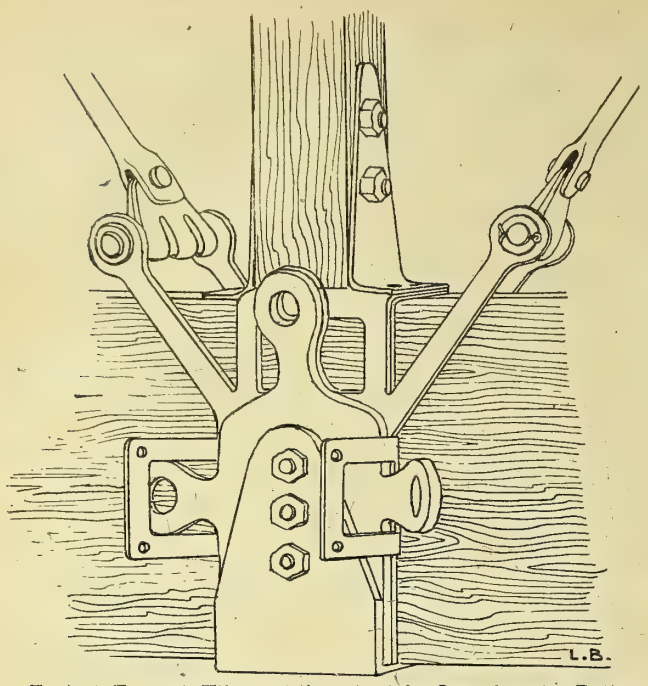
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SHEFFIELD.



A Typical Tarrant Wing Fitting, in this Case for the Bottom Central Strut.

behind the pilots is a partition which carries all the engine controls, and at the bottom of this board are two collecting tanks for the petrol systems for the upper and lower engine systems respectively. This partition forms the front of the engineer's cabin, and in the rear of this under the floor is the main petrol collecting tank, through which all petrol from the main tanks passes on the way to the engines.

The engines can be started from the cockpit by the Napier system, which has already been described in The Aeroplane.

Tail Unit.

The tail unit is of the biplane type with an inter-elevator fitted between the planes, and immediately below the main elevators. The inter-elevator, which is a balanced surface, is connected to the lower elevator, also balanced, by means of struts. These two are connected to the control column.

For trimming the machine, the top elevator is connected to a pair of inter-connected hand wheels in the pilot's cockpit, which are situated one on the outside of each pilot's seat.

The interplane struts on the tail plane form the structure for the two fins behind which are fixed two balanced rudders.

Tail Skid.

The tail skid consists of a large shoe connected by means of a rubber shock absorber to four struts at the end of the fuselage which form a base for attaching the rubbering.

Chassis.

The chassis consists of two separate units, each placed below the engines. There are three wheels on each axle, the axle being carried at the centre of a beam built up of platework and attached to another beam of similar construction, which forms the lower member of the chassis structure, by means of the shock absorber.

Engines.

The six engines, each a Napier "Lion" of 500 h.p., are arranged as follows :—

One set of two in tandem with tractor and pusher airscrews are mounted on each side of the fuselage between the bottom and middle planes, and two single engines driving tractor airscrews are carried vertically above the tondem engines between the middle and top planes. All engine bearers and mountings are made of spruce.

The tractor airscrews are two-bladed, 12 ft. 6 ins. diameter, and the pusher airscrews are four-bladed, 10 ft. 7½ ins. diameter.

Each engine is fitted with two magnetos, the earth wires for each magneto being carried straight to a double switch on the engineer's control-board. From these switches leads are taken to a master-switch in the pilot's cockpit, by which the whole 12 magnetos may be cut out at once.

The radiators are situated under the engines, and are fitted with radiator shutters to control the temperature of the water.

The machine is so designed that with full load a speed of over 90 miles per hour can be obtained with two engines cut out, and as starting devices are fitted in the cockpits and as the engines can be started in the air, it is possible to alternately have two engines stopped, or just "ticking over."

Fully loaded, the machine weighs approximately 45,000 lbs. Of this 19,000 is disposable load. Tanks are fitted for 10,000 lbs. of petrol, leaving 9,000 lbs. available for passengers and cargo.

Performance.

With this load, and under full power, it is estimated that a speed of over 110 m.p.h. will be obtained and that a ceiling or "maximum height obtainable" of 13,000 feet can be reached.

The estimated figures of climb are as follows :—

Climb to 5,000 feet in 10½ minutes.
Climb to 10,000 feet in 33½ minutes.
Climb to 13,000 feet in just over one hour.

The 10,000 lbs. of petrol is sufficient for 8 hours' flight at an average speed of 113½ m.p.h. or a distance of 906 miles. If the engines be throttled down, or only four engines used at once, the duration can be increased to 12 hours at an average speed of 91½ m.p.h., giving a range of 1,090 miles. By still further throttling down, and flying at the "cruising" or most economical, speed, a distance of 1,200 miles can be covered.

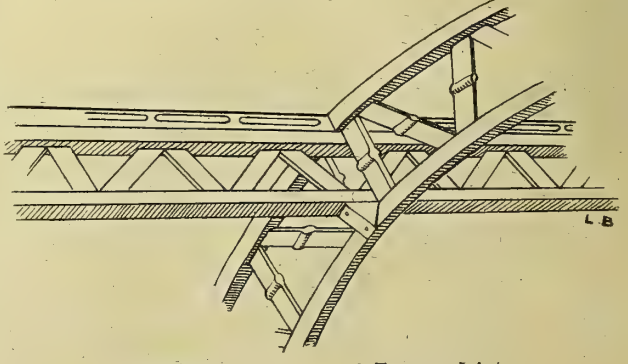
General Specification.

The following is a detailed list of the leading dimensions and weights :—

Engines.—Six 500 h.p. Napier "Lion."
Span.—Middle plane, 131 ft. 3 ins.; top and bottom plane, 98 ft. 5 ins.
Total Surface of Wings.—4,950 sq. ft.
Overall Height.—37 ft. 3 ins.
Overall Length.—73 ft. 2 ins.
Body—Round Streamline.—Maximum diameter, 11 ft.
Gap (Top and Middle Planes).—14 ft. 9 ins.
Gap (Middle and Bottom Planes).—14 ft. 9 ins.
Chord.—15 ft. 2 ins.
Dihedral.—4 degs. on all planes.
Area of Ailerons—on Middle Plane only.—105 sq. ft. each = 210 sq. ft. total.
Area of Fin.—42 sq. ft. each; total, 84 sq. ft.
Area of Rudders.—31 sq. ft. each; total, 62 sq. ft.
Area of Tail Planes.—184 sq. ft. each; total, 368 sq. ft.
Area of Elevators.—81 sq. ft. each; total, 162 sq. ft.
Area of Inter Elevator.—54 sq. ft.
Span of Tail Planes.—30 ft.
Gap of Tail Planes.—10 ft.
Wings are set at 3 degs. to the body.
Top tail plane at 2 degs. to the body.
Bottom tail plane at 0 deg. to the body.

Weights.

	lbs.	
Top plane	1903	
Bottom plane	2691	
Middle plane	1833	
Interplane struts	2543	
External bracing wires	608	
Total		9578 lbs.
Tail planes	334	
Elevators	117	
Fins	98	
Rudders	40	
Total		589 lbs.
Fuselage (including bomb girders)	3590	
Chassis	2582	
Tail skid	60	
Controls	501	
Total		6733 lbs.
Engine, propellers, radiators, water, etc.	7200	,,
Engine accessories	650	,,
Petrol and tanks (1600 galls.)	12662	,,
Oil and tanks, etc. (92 galls.)	1050	,,
Crew (five)	1080	,,
W.T.	100	,,
Guns and ammunition	380	,,
Bombs and gears	4650	,,
Total	44672	,,



Fuselage Longeron and Former Joint.

THE AIRCRAFT TRADER

MARKET TOPICS.

Prices are for Quantities on Usual Terms.

May 8th, 1919.

COPPER.—This market is very quiet since the holidays, and although there has been a little activity this week, business is far from brisk. Prices are, however, fairly firm, but there is not much confidence being shown. The present level of prices for Ingot Copper is fairly reasonable, and there does not appear to be any reason why buyers should not begin to make larger purchases; there is a slight increase in the demand, but nothing worth speaking about, and it is reported that U.S.A. producers have reduced their production to about 30 per cent. There does not appear to be anything to gain by waiting. On the other hand, there are indications that the market will harden within the next two or three months.

The position in U.S.A. is very dull, and although some buyers have been in the market, the quantities bought were very small, and consumers are still buying hand-to-mouth. An American report states that it was expected that when business has been resumed with the Central Powers, their approximate requirements will be about 10,000 tons per month. It is also reported that the French Government's prohibition against metal imports has hindered credit facilities up to $50,000,000 being accepted from America by certain French interests.

The last report of Government stocks shows a reduction of 2,600 tons; it is certainly not satisfactory, as it was reported that consumers had taken large quantities.

Comparative Prices.

	Per Ton. £ s. d.
To-day (May 7th)	76 10 0
Last month	79 5 0
Highest price, 1918	122 10 0
Lowest price, 1918	100 0 0

TIN.—This market is not quite so sensitive, but lacks activity. The Eastern situation is being eagerly watched, and it is rumoured that business has been transacted in U.S.A., and although the American embargo on imports has not been lifted, it is quite possible that American buyers have been making purchases in anticipation of the removal of the restrictions. The situation generally is not very satisfactory, and although prices continue fairly firm, the outlook is not very certain.

Comparative Prices.

	Per Ton. £ s. d.
To-day (May 7th)	228 15 0
Last month	227 2 0
Highest price, 1918	399 0 0
Lowest price, 1918	240 0 0

LEAD.—Recent arrivals have been fairly large, and although the market is not very brisk, buyers are more in evidence. The consumption of Lead is apparently increasing, and the next Government stock report is awaited with interest. The general condition of the market is fairly satisfactory and shows signs of stability.

STEEL.—Prior to April 30th, this market was in a state of stagnation, owing to the uncertainty of prices due to the withdrawal of all subsidies in connection with the manufacture of Iron and Steel, including all Iron Ore, Coke and Pig Iron, and the cessation of the control of prices and allocations of all descriptions of Metallurgical Coke Iron, Steel Scrap, Cinders, Scoll, Iron Ore, Pig Iron, Manufactured Iron and Steel Tinned Plates, which ceased on that date.

It should be stated that the subsidies in question have caused the prices of Pig Iron, Manufactured Iron, and Steel to be restricted to prices which are less than the actual level at which they would have been sold. Steps were taken by the Ministry to prevent hoarding of subsidised material, and no maker, merchant or other stockholder of any description holding stocks at April 30th, which exceed 100 tons more than the stock held by them on Oct. 31st, 1915, or Oct. 31st, 1918, whichever is the greater, will be compelled to pay to the Ministry a drawback of 30s. per ton.

It was expected in some quarters that the price of Steel would be advanced approximately £5 per ton. However, the advance is only £2 10s. to £3 per ton, and, even then, it will have a serious effect on the Steel market, and it is practically certain that it will result in bringing business to a standstill; in fact, certain influential authorities are already predicting that prices must come down. If they do not, it is difficult to see how Steel makers and firms manufacturing finished articles from Steel can avoid losing a very large amount of business.

The latter can, of course, buy from U.S.A.; in fact, it is stated that one order for 1,000 tons of Steel has already been accepted by an American firm, and it is also reported that some of the rolling mills intend buying billets from U.S.A., the assertion being made that the price is approximately 30s. per ton cheaper than the price quoted here.

It will be seen from the foregoing that the position is anything but satisfactory, and at present very little business is being done. It is even suggested that it would do no harm to have an inquiry into the prices of Steel on the lines of the Coal Commission. This suggestion certainly commends itself, and if the country is to maintain its export trade, and also capture the trade which, prior to the war, went to Germany, one of the necessary steps will be the adjustment of Steel prices to enable firms to meet competition, particularly American.

Very little business is being done in High-speed and Crucible Cast Steels, as the stocks which the majority of firms held are only being absorbed, as very few are working "all out" on their Peace programme.

No official notification has been received that official prices for Aircraft Steels have been withdrawn, and some definite information should be circulated, throwing light on this point. For the time being the official prices of Alloy Steels to Air Ministry Specifications are quoted in the monthly price list.

TIMBER.—Prior to the holidays, the Timber market was in a state of stagnation, and buyers were holding aloof, evidently expecting a still further decline in values. Since then, however, there has been a little more interest shown, and although prices may decline a little further, it is more likely that the market will begin to harden.

This is undoubtedly the case with Mahogany and Walnut. Although, in some quarters, there is an idea that there will be a further decline in value, there is not much ground for this expectation, as the demand is undoubtedly on the increase, and as soon as the Timber-consuming Industries are working on their full scale Peace programme, the demand will be very considerable, and it must not be forgotten that it is still very difficult to obtain shipping facilities, and there does not appear to be much prospect in the near future of this difficulty being overcome.

In fact, the general opinion is that it will be some considerable time before the position is easier. This means that the demand will be greater than the available supply, and the result will be a general stiffening in values.

It has been announced by the Board of Trade that the Controller of Timber Supplies does not require firms to make the monthly return of Timber stocks, the order under which these returns were made having been cancelled as from March 31st; no returns are required after the end of March.

There are very large stocks of Silver Spruce in the country, and it is expected that they will be put up for sale during this month. Intending buyers should be very careful indeed, as some of the Timber which has been purchased by the Government buyers is of very bad quality, and is perfectly unfit for aeroplane construction.

FABRIC.—It is difficult to understand why the Air Ministry are taking such a long time to inform the public what they intend to do with the huge stocks of Fabric which were purchased for aeroplane construction. It must also be noted that they have not officially withdrawn the fabric control, and it is, therefore, assumed that constructors must still make application to the Air Ministry for any supplies they require, presumably, at the official price which has been ruling for some time.

This appears to be very unsatisfactory, seeing that some merchants have been purchasing Fabric at approximately 1s. 6d. per yard, and are quite prepared to sell the material to aeroplane constructors at anything from 1s. 8d. to 2s. 3d. per yard.

Although the Air Ministry have not officially withdrawn their control from Fabric, there does not appear to be any reason why constructors should not avail themselves of offers of this description, assuming, of course, that the Fabric is of suitable quality and will pass inspection. It must be admitted that some of the material is not quite up to the Government standard, and care must be exercised in making purchases.

THE MONTHLY MARKET PRICE LIST.

May 8th, 1919.

The prices given below are the prices ruling on the above date.

Aluminium.

Ingot ..... £150 per ton.*

BRASS.

Sheets	13⅝d. per lb.
Strip	11⅝d. per lb.
Wire	12d. per lb.
Tubes	14¼d. per lb.
Castings	14d. per lb.
Turning Rod	9½d. per lb.
Brazed Tubes	15¾d. per lb.

COPPER.

Ingot, Standard, Cash	£76 per ton*
Ingot, Standard, 3 mos.	£76 5s. per ton.*
Best Selected (Net)	£81 per ton
Sheets	£114 per ton
Wire	11d. per lb.
Tubes, S.D.	15⅜d. per lb.
Tubes, Brazed	15⅝d. per lb.
Rivets	1s. 9½d. per lb., basis.

FABRIC.*

Linen, R.A.F., 17C, Spec., 36 in. wide, 3s. 1d. p. yd.
Linen, R.A.F., 17C, Spec., 38in. wide, 3s. 3d. p. yd.
Linen, R.A.F., 17C, Spec., 42 in. wide, 3s. 7d. p. yd.
Spaced, R.A.F., 17C, Spec., 37½ in. wide, 2s. 1d. p. yd.

GUN METAL.

Castings, Plain ..... 1s. 7d. to 2s. per lb.

LEAD.*

Virgin Pig	£24 per ton, c.i.f.
Virgin Pig	£25 per ton, ex stores.
Sheets	£39 per ton, D/d.
Pipes	£39 10s. per ton.
Dry White	£51 per ton, less 5 per cent.
White in Oil, Grnd.	£61 15s. per ton (lots over 5 cwt. less 5 per cent.)
Red	£45 10s. per ton, less 2½ per cent.

NICKEL.

Nickel ..... £195 per ton.

PHOSPHOR BRONZE.

Ingots, 5 cwt., and under ..... £122 to £145. (Subject to Copper and Tin Fluctuations.)
Castings ..... 1s. 3d. to 1s. 6½d. per lb.

PHOSPHOR COPPER.

Ton lots ..... £140 to £146

SILVER.

Silver ..... 48 11-16d. per oz.

SOLDER.

Plumber's	100s.
Tinman's	126s.

STEEL.

High Speed, 14 p. cent., Tungsten, 3s. 4d. p. lb., basis*†
High Speed, 18 per cent., Tungsten, 3s. 11d. p. lb. basis.

ALLOY STEELS TO AIR MINISTRY SPECIFICATIONS.

Round and Square :—

Specification No. S2	£86
Specification No. S2 (bright-drawn)	£115
Specification No. S8	£86
Specification No. S10	£70
Specification No. S12	£75
Specification No. S14	£43
Specification No. S15	£70
Specification No. S16	£70
Specification No. S17	£75
Specification No. S18 (oil-hardened)	£86
Specification No. K1	£75
Specification No. K2	£75
Specification No. K3	£86

The above prices are for ¼ in. to 5/16 in. only, other sizes are proportionate.

HEXAGONS.

	.455 and .525	.601 and .710
Specification S2	£79	£77
Specification S8	£79	£77
Specification S2 (bright-drawn),	£112	£112
Specification S8 (bright-drawn),	£112	£112

SPELTER.

English f.o.b., Birmingham ..... £35 5s.

TIN.

Tin £227

TINPLATES.

Tinplate ..... 35s., basis, f.c.t.

TIMBER.

	Merchantss.
Silver Spruce	10s. 4d., c.f.†
English Ash—	
Selected Logs	7s. 6d., c.f., f.o.r.
Selected Lengths and Thicknesses of Plank	10s. 6d., c.f., f.o.r.
Mahogany	1s. 3d. to 2s.
Walnut	1s. 6d.

ZINC.

Zinc sheets (America), £65 to £70, f.o.b., New York.

SCRAP MATERIALS (LONDON PRICES).

Description.	Price per ton.
Aluminium	£70 0 0
Brass, Heavy Selected	58 0 0
Copper, Clean	74 0 0
Copper, Brazing	62 0 0
Gun-metal, Scrap	72 0 0
Lead, no Draft	22 0 0
Zinc, Old	27 0 0

* Official Prices. † Includes Parcel Inspection only. ‡ Prices include Delivery in the U.K.

CANCELLATION OF CONTRACTS.

An official report from Washington gives the following summary of the values of cancellations and suspensions of contracts up to March 22nd, 1919 :—

	Value. Dols.	Per cent. of total.
Engines and spare parts	266,961,771	54
Aeroplanes and spare parts	165,288,590	33
Chemicals and chemical plants	18,648,239	4
Instruments and accessories	10,761,081	2
Balloons and supplies	10,071,035	2
Fabrics, lumber and metals	7,977,445	2
Miscellaneous	13,634,218	3
Total	493,342,379	

NOT A PENNY-A-LINE AIR LINE—ONE HOPES.

The following announcement has been received from America. Unfortunately, the company have not made it clear whether they refer to an aeroplane or an airship.

The Lawson Air Line Transportation Company has just been incorporated under the laws of the State of Wisconsin for the purpose of manufacturing and operating a passenger-carrying aircraft. Alfred W. Lawson, the general manager of the Lawson Aircraft Corporation, of Green Bay, Wisconsin, has been elected President of the Company.

A plant has already been secured in Milwaukee, and work is now being carried out on a new ship that will sarry 20 passengers. This has been designed and is being built under the direction of Mr. Lawson. It is expected that the new ship will be ready by July 1st.

It is Mr. Lawson's intention to operate a regular air line service between Chicago and New York to begin with and later on to extend this line from Chicago to San Francisco, thereby making a trans-continental route for Commercial aircraft transportation.

STARTING AND LIGHTING BATTERIES.

The Hart Accumulator Company, Limited, of Stratford, have just issued an illustrated price list of Starting and Lighting Batteries for motor-car work. These batteries are made up in standard sets for 6 and 12 volts, and in sizes the overall dimensions are such that they are interchangeable with the starting batteries fitted to most American-made cars.

In addition to the standard sizes, special batteries can be made up to order.

A very complete list of spare parts for the standard batteries is included in the list.

The firm will be pleased to forward a copy of the list to any reader of The Aeroplane who is interested. The firm's address is :—The Hart Accumulator Company, Limited, Marshgate Lane, Stratford, London.

THE TOOLS OF THE TRADE.

Those readers of The Aeroplane who are interested in draughtsmanship will be pleased to learn that the American Lead Pencil Co. has now put on the market the "Venus" Tracing Cloth Eraser, which shows good results. Full particulars can be obtained from 173/5, Lower Clapton Road, London E.5, or the erasers can be obtained from most stationers and drawing office suppliers.

THE RESIGNATION OF MR. W. E. CHESTER.

It is announced that Mr. W. Ewart Chester, F.R.G.S., who was the founder of the firm, has resigned his position as managing director of the Davidson Aviation Co., Hammersmith, W., in order to enter the motor-car business, and with this object in view he is developing a site at Hill Street, Richmond, to be known as the London Automobile Co., with a West End branch for the sale and distribution of motor vehicles, etc.

Why does the farseeing Aeroplane Builder think of "DOPE" AND "CELLON" at one and the same time?

This is a riddle which requires no guessing. The answer is obvious. "CELLON" is

"THE DOPE OF PROVED EFFICIENCY."

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"GWYNNE, LONDON."

COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

PUSSIGRAMS, ETC.

By "MEDWAY."

Mr. Holt Thomas is a man of many ideas, the latest of which is, I believe, the "Aerogram." It appears that the aerogram is a message delivered in three stages. It is conveyed from the sender to a neighbouring aerodrome by telephone; it is then put into writing and is conveyed by aeroplane to a second aerodrome situated conveniently near to the point of destination. The third and last stage is the final transmission of the message by telephone from the second aerodrome to its destination.

Let us examine the process critically.

During the first stage there is the possibility of delay owing to congestion on the telephone lines leading to the aerodrome and owing to the vagaries of telephone operators. There is also a risk that the message will be taken down incorrectly by the operator at the aerodrome. We all know how easy it is for a verbal message to become distorted. I remember, for instance, the telephonic communication to a technical paper of an item of news to the effect that the county surveyor had purchased a steam roller for use in some particular district. The paper attributed the purchase to the Countess of Ayr, and commented favourably upon her generosity and public-spirited action.

A Mutilated Message.

Again, one has heard stories of the distortion of verbally transmitted messages at the front. There was, for example, the case of the officer in the front lines who sent back the message, "Send reinforcements; am going to advance." This reached headquarters in the form of "Send three and fourpence; am going to a dance."

These little examples may serve to show what might possibly happen to an aerogram during the first stage of its transmission. Exactly the same possibilities recur during the third stage.

The message, having reached the first aerodrome, is written down in handwriting which may or may not be strictly legible. At this stage we have at least a short delay. We obviously cannot dispatch an aeroplane immediately to convey one message. In fact, a reasonable aerogram service could only be justified if the number of messages handled were very large. Mr. Holt Thomas suggests an hourly aerial service between London and Paris. Under this arrangement there would be an average delay of rather over half an hour at the first aerodrome. This estimate takes no account of irregularities of service due to unfavourable weather or other causes.

Difficulties.

The duration of the second stage, assuming freedom from delays or accidents, would be in direct proportion to the distance to be covered. On arrival of the aeroplane at the second aerodrome, the messages must be sorted out and dealt with in rotation. Several hundreds of messages could not all be transmitted to their recipients simultaneously and immediately. Here again there would consequently be a delay which would certainly average at least half an hour.

At this point we have the possibility that the operator entrusted with the final telephoning of the message will mis-read it. As already mentioned, we also have the possibility that the man at the other end will take it down incorrectly.

Thus the whole process appears to be one which involves a series of delays, inevitable if not lengthy, and a number of opportunities of distorting the message so as to make it unintelligible or misleading. The system is obviously one which no one would dream of using for short-distance local work. Over very long journeys, indeed, it could not compare with the cable system for speed. In intermediate cases its popularity would hinge entirely on the inefficiency of the cable communications. If the cables were not overworked, they would be quicker as well as more direct.

Rivals in Speed.

The reader will probably have gathered from the above remarks that I have no very high opinion of the prospects of the aerogram as a direct competitor of the cablegram or the long-distance telephone. The proposition is not on all fours with that of the aerial post to foreign countries. The latter would make no pretensions to rival the cable in the matter of speed. It would merely afford a means of communication intermediate between the cable and the ordinary mail service in respect both of speed and of cost.

In this intermediate capacity it has an obvious and legitimate sphere of usefulness. Moreover, the aerial post would allow of the rapid transmission of signed documents. The aerogram system in this respect would have no advantage over the telegram or telephone. It could not be used for the legal completion of any contract.

In short, the aerogram idea strikes me as being far-fetched, and I have not dealt with it at so much length on its merits, but rather as an example of a principle which appears to me to be faulty.

When we have something new and useful put at our disposal, it is wisest in the first instance to employ that thing, whatever it may be, for the purposes to which it is obviously best fitted. It seems to me that it is a mistake to hunt around for some oblique and doubtful sphere of utility.

A Use for the Harmless, Necessary Cat.

For instance, the average man who owns a cat keeps that animal either because it looks comfortable, or else on the supposition that it will catch mice. Probably this supposition is all wrong, but, if the cat is too well fed to hunt, there is still a good chance that mice will keep away from its vicinity.

Now I can imagine an ingenious person contemplating his cat and evolving something on the following lines:

"The obvious uses of this cat are strictly limited; can I not think of some other use to which it can be put? Possibly I could get some hints from the Proverbs. We are told that a cat may look at a king, but there appears to be no commercial advantage that can be exploited as a result of this faculty. We are also

told that a cat has nine lives. This suggests its use for some purpose in connection with which comparative immortality would be of value. We know from hearsay if not from experience that a cat has a homing instinct; if he is removed from home he will find his way back.

A System of Pussigrams.

"Why should we not therefore evolve a system of pussigrams. Cat depôts could be established, let us say, in the neighbourhood of the Bank and of South Kensington Museum. Consignments of cats can then be delivered on the outward journeys at regular intervals. For example, a Bank cat will be supplied to South Kensington. An official of the Museum desirous of communicating with the Bank will attach his message to the cat and leave the door open. The cat will do the rest. On arrival at the Bank a clerk will detach the message and butter the cat's paws. Next day Carter Paterson will call and convey the reluctant cat back again to South Kensington."

I admit that this process is a somewhat complicated one. I have, however, myself dispatched a letter from South Kensington to the Bank which has taken not less than three days to reach its destination. A cat would obviously do the journey more quickly, barring accidents.

The fact of the matter is that most useful appliances, including aeroplanes and cats, can be best employed on their own obvious jobs, and not in an attempt to utilise their peculiar capabilities in strange and distorted ways. There are plenty of legitimate and evident openings for the commercial aeroplane, and we need not go out to hunt for queer uses for it, particularly as in so doing we are apt to give the impression that more obvious and tangible uses do not exist.

POST-BELLUM POLICIES.

By The Special Commissioner of "The Aeroplane."

Major Gordon Watney.

Major Gordon Watney is disturbing. I left him with the Labour and economic situations revolving round him in my head.

In discussing aeronautics these problems are bound to occur as they bear on the cost of producing aeroplanes on a commercial basis. If the initial cost of the machine be high, it follows that the rates chargeable must be correspondingly high, and the aeroplane suffers in competition with the already established routes.

Present-Day Difficulties.

So far, no one knows the working costs of an aeroplane line, and it is not in its favour to commence such an undertaking when labour and material are at their high water-mark, as is apparently the case at the present time. How long the situation will last is problematical, but its effect is bound to be felt, as it is almost sure to deter manufacturers from beginning commercial machine programmes, and the honest company promoter, if such there be, from applying his capital to the purchase of machines. Rather will they both wait until such time as the labour market settles itself on a reasonable basis, bringing with that the proper economic prices for materials.

Then the aeroplane will be built on its proper commercial and economic basis. What the period of time will be before all this occurs it is impossible to forecast. That it is delaying the development of the strictly commercial machine is evident from the reluctance of manufacturers to embark on any large experimental work, and the tendency to adapt machines designed for war to the necessities of peace.

Add to this the uncertainty of future Government regulations, and is it to be wondered that the trade marks time?

A Labour Storm.

Of the two, it is probable that the Governmental issue will be settled first. If the miners' action is but the wind before a labour storm, the delay caused to commercial ventures will be serious. Major Watney pointed out that the value of money has also to become settled, mentioning the ridiculous cost of cars and instancing some absurd cases of what members of the purchasing public are capable in the motor business.

The trouble is that these absurdities are so common that we all continue to hear of them from every side. Major Watney is very much afraid of excessive Government inspection, and says that it would hamper the development of the Industry immensely. He is more in favour of heavily penalising the contractor for any accidents occurring, which he believes would result in much greater business freedom, and, at the same time, ensure building to specification.

Working Expenses of Aerial Transport.

Reverting for a moment to the high labour costs; Major Watney considers that the working expenses of aerial transport companies will be out of all proportion to capital charges, engines repairs and overhauls he cites as being items that will figure largely therein, though war methods of affecting such repairs are no standard to take as an example.

He was illuminating on the latter subject, but it only touches the commercial question from the point of view of knowing what to avoid. Here his experience must be very complete. He says, too, that the speed of transport will be a dominating factor in aerially carried cargoes. For example, if a manufacturer can get his goods delivered in one-quarter of the time taken by other forms of transport, it will be a proportionate saving to him and to the person to whom the goods are delivered.

It really amounts to saving interest on capital lying idle, and also bringing it to an earning state so much sooner; these two points are not analogous, as the earning capacity of money represented by engines, for example, is higher than that of invested capital.

An Entirely False Demand.

Altogether, Major Watney makes one think of the whole question from the point of view of the business man, and in doing so forces realisation that the aeroplane trade owes its position to-day to an entirely false demand, and further, that prices for the finished article are the result of increased wages and material costs largely created by this very demand. Here, then, is an initial difficulty for this "short-clothes" Industry to overcome, and it is no easy one. Much depends on safe finance that its emergence from this and other difficulties shall be speedy and sound. If there is any slipshod element it is bound to set back development.

That there is an opportunity to be seized, no one doubts, but a large number of our builders have sprung into being during the days of the war, and it is only during those days that the pioneer manufacturers have succeeded in making profits in any way commensurate with their capital. Looking back at what it has come through in pre-war days, no one can doubt the vitality of this Industry, but it must adjust itself to new conditions. This may bring with it a number of failures; in fact, it probably will, and, I suppose, it will also end in the survival of the fittest.

ERRATA.

Sir,—With reference to your article on the post-bellum policy of the "Nieuport" and General Aircraft Company, I presume the little rhyme at the head of the article refers to your Special Commissioner, as the "new and original views" are evidently his and not mine.

He suggests that this Company is going "to confine itself to land machines" and still further confine itself to "a semi-large machine" at that. This, I may say at once, is not my policy. To *confine* oneself to anything at this stage of Commercial Aeronautics would be somewhat short-sighted, to say the least of it, and, anyway, we are undertaking an active programme which covers a wide range from a single-seated machine at a very low price to two-seaters, four-seaters, and twelve-seaters, also at prices which will appeal to the buyer.

Why your imaginative Special Commissioner should think that I am not pleased at the prospect of turning to commercial machines, I cannot imagine, as, to my mind, there is no more attractive problem in Aeronautics than the development of the Commercial Industry.

Again, I do not hold the pessimistic views with regard to the life of aeroplanes that your Special Commissioner suggests, and, although it might be wise to write off 50 per cent. with our present knowledge, I think that 100 per cent. to be unnecessary.

He winds up by saying—"Taking it all round, it appears that the policy of the Nieuport Company is to be chiefly concerned with Military rather than Commercial Aeronautics," and, he adds, that it is apparent that it is from War machines "that the Company is expecting to make its profits in the future." Again, I should like to differ from the "new and original views" of your Special Commissioner, and if I may be allowed to so differ. I should like to express the hope that this Company may make quite reasonable profits out of commercial machines. Anyway, we are going to build a lot of commercial machines, and I am not a philanthropist, and I trust my Estimating Department is capable of performing its proper function.

(Signed) S. Heckstall Smith, Major.
General Manager, The "Nieuport" and General Aircraft Co., Ltd.

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CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

Messrs. Leopold Walford (London) Limited, 29, Great St. Helens, E.C.3, have been appointed Official Freight and Passenger Agents by Messrs. Handley Page Limited for their Aerial Services to All Parts of the World. At an early date Messrs. Walford will announce full particulars of the various services and rates. The numerous organisations of Messrs. Walford in the United Kingdom, France, Canada, United States, Australia, India, Africa, Italy, Japan, China, South America, etc., will be at the service of the public in combination with their Shipping and Forwarding Offices.

Seven aeroplane manufacturers have applied to the Brighton Corporation for permission to ply for hire, with seaplanes and aeroplanes, from Brighton.

The matter is under the consideration of a committee (Aero Sub-Committee) composed of four members of the Council.

Among the applicants are the Gosport Aircraft Company and the Navarro Aviation Company.

The fuselage of the big Handley Page passenger aeroplane which was recently exhibited at Selfridge's has been taken to Southsea, where it is to be shown for the benefit of the Mayor of Portsmouth's War Memorial Fund. It is now understood that in the summer passenger flights will be made at Southsea by Handley Page machines.

One gathers that the Hendon Aerodrome has now been vacated by the Royal Air Force and handed back to the Grahame-White Company, Ltd. The Communication Wing for the Peace Conference has been transferred to Kenley Aerodrome, Surrey.

On May 6th a Handley Page aeroplane, piloted by Lieut.-Col. Douglas, R.A.F., and Lieut. Warneford, R.A.F., left Turnhouse Aerodrome, west of Edinburgh, for Manchester. Mr. Blackwood, the publisher, was a passenger. Owing to adverse weather the machine was unable to fly beyond Penrith, where a landing was made.

Colonel Douglas is stated to have said that he did not think business flying would ever be carried on north of the Forth, owing to the unsuitability of the mountainous country for forced landing purposes.

At a meeting of the Blackpool Town Council on May 6th, Alderman Thos. Bickerstaffe objected to the public being barred from parts of the beach, in order that aircraft may alight thereon. Alderman Heap said that eventually a proper aerodrome would be provided, and that the firm, which is to begin a flying service from this town on May 10th, have been entrusted with this matter. An amendment referring the matter back was defeated.

During the past week copies of the "Daily Mail" and "Evening News" have been dropped from a Handley Page biplane every day by parachute at various coastal and inland towns. The list of these places includes:—Southend, Margate, Broadstairs, Ramsgate, Deal, and Folkestone for the "Evening News," and Southampton, Bournemouth, Ryde, Portsmouth, Eastleigh, Cardiff, Swansea, and Bristol for the "Daily Mail." The Manchester edition of the "Daily Mail" was taken to Carlisle and Edinburgh by aeroplane on May 8th.

Three occupants of a Handley Page machine, carrying newspapers from Manchester to Scotland on May 12th, met with a mishap some miles north of Carlisle at Harker. The machine had descended owing to engine trouble, but later an attempt was made to resume the flight. In rising the machine struck a bank, and nose-dived into the ground.

The pilot, Capt. William Shakespeare, R.A.F., of Worcester, suffered a crushed lung and extensive bruises, and since his removal to a nursing home at Carlisle it is reported that hemorrhage has developed. The observer, Major Orde Lees, R.A.F., was removed to Fuschill War Hospital, and the other occupant, Miss Boyden, had her lip cut and front teeth knocked out.

On Saturday, May 10th, there was inaugurated a passenger aeroplane service between Manchester and Blackpool. Four Avro machines, having for passengers members of the Blackpool Corporation, left the Alexandra Park Aerodrome, Manchester, late in the afternoon, and the "trial trippers" were treated to a perfect and uneventful journey, arriving in Blackpool in about 40 minutes. They passed over Southport during the trip.

A good crowd assembled at the aerodrome, special permission having been granted to allow the public to have a fair view of the operations.

The four machines got well away, but one had to return on account of engine trouble. A fresh start, however, was made without further mishap.

The party consisted of Councillors Bean, Boden, and Seigenson, the Town Clerk (Mr. Harbottle), and Mr Pringle (the Chief Constable). Mr. Lord, director of the Avro firm, accompanied the party.

The return journey was completed uneventfully.—J. G. B.

During the week-end a good number of flights were made, both from Hounslow and Hendon. A. V. Roe and Co., Ltd., at Hounslow made a charge of half a guinea for flights, and the Grahame-White Company at Hendon made the same charge.

The first commercial aeroplane to reach Leeds arrived at Roundhay, outside the city, on May 10th. The machine, a Blackburn aeroplane, was piloted by Mr. R. W. Kenworthy, a well-known Yorkshire pilot. He had flown from Portsmouth to Hounslow in 40 minutes, and from Hounslow to Leeds in an hour and three-quarters, carrying goods for the Blackburn Aeroplane Company.

It is proposed to have "an aeroplane week" at Tunbridge Wells, when residents will be afforded the opportunity of making flights.

Canada.

Mr. Grant Hall, vice-president of the Canadian Pacific Railway, explaining the reasons of the company's application for an Air Charter, said:—

Although at present aerial transport is a distinctly expensive matter, the progress that is being made, both in aeroplanes and dirigibles, is so rapid that a company such as the Canadian Pacific should be ready to enter the field as soon as air transport comes within the range of practical politics. Although there are areas in Canada which will for a long time present difficulties, particularly to air pilots, there are other areas which conform to the requirements of experts. Take, for instance, the Western prairies, which offer the conditions described by General Seely as vital—namely, regions where there is plenty of wide space combined with almost complete absence of the airman's real enemies, mist and fog. In such districts air travelling might be made profitable.

The first aerial transport company began business at Vancouver on May 9th. A landing-ground of 26 acres has been obtained and sheds been erected. Three two-seater machines are available for pleasure and commercial flights. The pilots and mechanics are ex-R.A.F. men.

Australia.

A private firm at Melbourne has instituted daily aeroplane flights, passengers paying from three to five guineas for the flight. Flying instruction classes are being formed.

Germany.

A flight has been made from Berlin to Copenhagen, and thence to Stockholm, by the first German passenger aeroplane, piloted by Herr Sablatnig, who will be remembered as one of the earliest aeroplane constructors in Germany.

Herr Sablatnig recently flew from Copenhagen to Johannisthal (near Berlin) in two hours and twenty-four minutes.

Italy.

Permission has been obtained from the Director-General of Aeronautics to introduce a postal service Rome-Naples-Foggia-Brindisi. The service between Naples and Brindisi will be run in order to connect with the steamers from Macedonia and the Levant, and it is not considered desirable to take ordinary correspondence by this means of transport, which will be limited to express and official correspondence.—T. S. H.

Scandinavia.

The first aeroplane to fly from Holland to Denmark arrived at Copenhagen at 5.40 p.m. on May 4th, having started at 10.30 a.m. the same morning. The machine, a seaplane, with Lieutenants Backer and Bakker on board, made one descent on the sea during its journey.

A committee has been appointed by the Swedish Government to inquire into the steps to be taken to establish a regular aerial service.

Brazil.

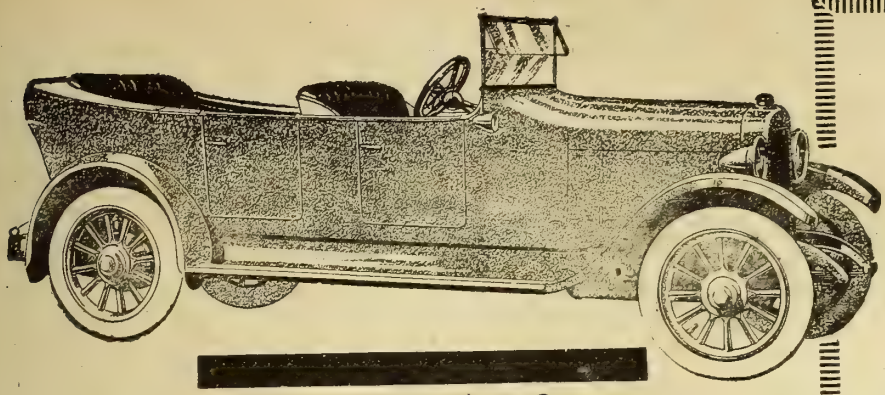
According to a Reuter's message dated April 25th a decree authorising the establishment of aerial transport lines has been signed. The decree allows goods and passengers to be carried between Brazil and other countries. Monopoly is not to be allowed. It is understood that an Italo-Brazilian company has submitted suggestions for various aerial routes radiating from Rio de Janeiro. Rio Grande de Sul and the State of Amazonas will be served.

A COMPLIMENTARY DINNER.

Sir Samuel Waring is to be entertained by the staff of Messrs. Waring and Gillow, Ltd., at a complimentary dinner, at the Connaught Rooms on May 16th, to mark the honour recently conferred on him by the King.

AERIAL TOURS.

Thomas Cook and Son are issuing a booklet entitled "Aerial Travel for Business and Pleasure," in which the firm announce their appointment as official passenger agents for the principal companies operating aerial lines. Some interesting "Notes on Passenger Aeroplanes" contained in the booklet are illustrated with photographs of Handley Page, Grahame-White, and Aircraft Manufacturing Company's passenger machines.



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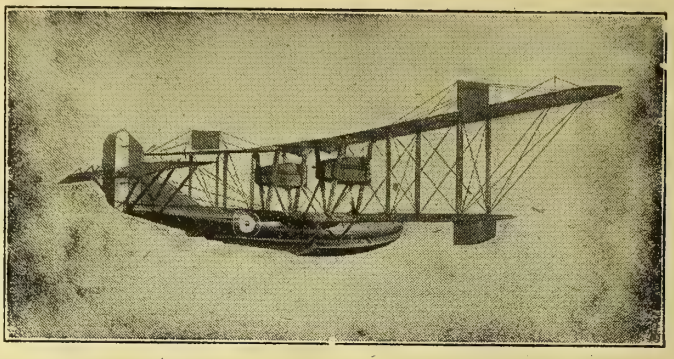
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AIRCRAFT FINANCE

THE BUDGET AND AVIATION.

The Chancellor of the Exchequer did not breathe a word on the subject of aviation or the Aircraft Industry in his memorable Budget speech. One need not shed crocodile tears at this slight, as the brewers and distillers are doing because they imagine they have to pay for the war, which aircraft also helped to win.

The Excess Profits Question.

However, the petrol nuisance has gone; the import of magnetos is still prohibited; and the Excess Profits Duty is reduced by one-half of the former maximum scale. The petrol question is important in a way, and the magneto business significant politically; but the fact that Colonial Preference is to be initiated—which is essentially a new and important departure in State economics—provides plenty of scope for a discussion of the Excess Profits Duty, and other things.

Preference.

If there is to be Colonial Preference in respect of ordinary trade, why not a revision of the principle governing the taxation of domestic industry? Preferential treatment might be accorded advantageously to those young and new industries which, in spite of—or because of the war—have secured a real foothold on the commercial world.

Charity Begins at Home.

Admittedly there may be a big gulf between tariff questions and preferential treatment for any individual group of industries; but the underlying principle is really the same. Indeed, as charity should begin at home, a case for preferential treatment of the Aircraft Industry is somewhat parochial in some aspects, and is not difficult to substantiate.

Preferential Treatment for Aircraft.

Under the present scheme certain industries are granted concessions in respect of the incidence of the Excess Profits Duty. But this is scarcely sufficient; the Aircraft Industry might be relieved of all liability for Excess Profits Duty, to the advantage of the country at large as well as to its own particular advantage.

Spoon Feeding Is Helpful.

Its peculiar position warrants such a demand. It was given birth primarily for the benefit of the nation with the object of clinching the war. Naturally enough, it was spoon-fed to a certain extent, and received tender financial nursing; the benefits have not all been to the State, it must be confessed, for there was a lot of profit made by the public.

Yet before it has really reached adolescence it is forced to struggle for existence and attain permanency like some poor orphan; and at the same time there is still a liability for Excess Profits Duty. Candidly one cannot by any stretch of the imagination believe that the State will receive much, if anything at all, in the way of Excess Profits Duty from aircraft. The State, which was the principal customer, has whittled down its orders to next to nothing.

Peace Profits and War Capitalisation.

It is farcical in the circumstances for the Aircraft Industry to have the preferential datum line in respect of excess profit liability. But this brings out the point that on the war-time-created capitalisation peace profits must necessarily be attenuated, comparatively speaking. At least they promise to be so until the transition period is passed; then one will be able to judge better the real position and divine the relation between war-time capitalisation and the profit-earning capacity of peace-time.

The Growing Nervousness of Investors.

Many investors who sank money into aviation ventures are fidgetting about the future; this nervousness is natural enough; with the drastic reduction in Government orders, they fear that, unless commercial aviation develops by leaps and bounds, their capital is in jeopardy. Perhaps they are unduly nervous.

Some Measures of Relief.

Assuming that there should prove to be a liability for the Excess Profits Duty, surely in the exceptional circumstances it would be unjust for the State to enforce its claim. On the contrary, it would not be unreasonable to ask the State, which did so much towards the upbuilding of the Industry, to devise some measures of relief, if not actual pecuniary assistance, calculated to stimulate initiative and foster development. A few more years of spoon-feeding on sound lines would be productive of much benefit, and the expense would not be considerable.

The Policy of the U.S. Government.

It is the transition period that will really test the Industry. In this connection one is entitled to refer to the policy adopted by the United States Government. To prevent a collapse of the aircraft manufacturing industry built up during the war, the war department proposes to be very liberal in its treatment of the companies, especially in regard to the placing of new orders.

This statement may be a rather generous interpretation of what is actually intended by the authorities, but evidently it is proposed to give such a measure of support that will enable the industry to carry on through the period of reorganisation, reconstruction and adaptation to changed conditions.

A Good Example.

If the United States intends to foster their industry by artificial means, there is a just claim for similar treatment by our own Government; indeed, our claim is more pressing because the Industry in this country has advanced further, and gives promise of attaining perfection quicker.

A Necessary Warning.

In conclusion one feels that it is imperative for the Industry to be on its best behaviour. Certain sections of the Press are criticising some embryonic scheme of a grandiose character, now apparently being hatched in a financial incubator.

Reasonable development schemes on sound and practicable lines are needful; they must be encouraged as much as possible. It is different with highfalutin' projects; too optimistic in conception and beyond the physical capacity of aviation, these deserve to be snubbed as much as possible. They may cause incalculable mischief.

W. J. Davies.

CURRENT TOPICS.

The Sunbeam's Success.

While aircraft shares themselves have been rather slack and uninteresting, there has been quite a lot of activity in some of the semi-aircraft descriptions at rising prices. The Sunbeam Motor Company, by the way, prepared an issue of £350,000 in the form of 5 per cent. tax-free Debenture stock, which, being offered at par, proved an immediate success.

What the Stock Exchange Expects.

This, incidentally, is one of many new capital issues on the tapis. There are literally hundreds to come. Industry throughout the country is ripe for amazing developments, in the opinion of competent observers, and, provided the labour position is not unduly disturbing, great things are expected. This is reflected in the Stock Exchange, where many industrial securities are booming. The buoyancy of oil shares is maintained too, and though it is not logical to expect a trade boom simultaneously with a liveliness in the House, some people expect the paradox.

The British Gold Shell Ring Company.

A meeting of the creditors was held last week, when the liquidator reported that the company was incorporated on March 31st, 1913, for the purpose of manufacturing gold shell jewellery such as was produced in the United States. The capital was £4,000, of which £2,000 was issued and paid up. Debentures were issued in 1914, for £2,886, and were subsequently increased by a further £2,000, but later the debentures were reduced to £880, and this amount was at present outstanding.

Later on the company ceased doing the business for which it was originally formed, and went into the aircraft business, applying itself to the manufacture of steel shackles. When the Armistice was announced, however, the business of the company was naturally affected, and the goods produced could not be disposed of.

There was at present a claim of over £10,000 against the Government. The assets amounted to £21,573, and on paper this showed a surplus of £3,318. The claims of the unsecured creditors amounted to £11,868.

A resolution was passed in favour of the appointment of Mr. A. G. Westacott, of Fenchurch Street, as co-liquidator with Mr. Hichens, and a committee of inspection was also appointed.

A Dope Inventor's Affairs.

At an adjourned sitting for investigating the affairs of Walter James Stevenson, Charing Cross Hotel, Strand, W.C., the statement of affairs disclosed liabilities £1,496 and assets upon which no realisable value was placed. The debtor is the inventor of an acetate cellulose. The examination had stood adjourned to enable the creditors to vote upon a proposal which had been lodged by the debtor for the payment of a composition of 10s. in the £ to all unsecured creditors. In his report upon that proposal the Official Receiver had stated that the only asset was a patent, the value of which the debtor treated as unascertained. At present the Official Receiver had no independent information as to whether the invention was realisable. If, however, it proved on investigation to be of little or no value, the terms of the debtor's proposal providing for a cash payment appeared to present advantages over an administration of the estate in bankruptcy. At the meeting of creditors convened to consider that proposal, a resolution was passed accepting it, and in due course it will come before the Court for approval. The Official Receiver now stated that the creditors, having entertained the debtor's proposal, he did not wish to put any further questions to him, and the Registrar thereupon ordered the examination to be concluded.

Vickers' Latest Acquisition.

Vickers have taken preliminary steps to secure a controlling interest in W. T. Glover and Co., insulated wire manufacturers, of Manchester, by an exchange of shares.

Armstrong's Forward Policy.

By the way, Armstrong, Whitworth and Co. are also fully alive to the possibilities of an aggressive peace programme. With a view to securing a proper proportion of commercial engineering to balance other engineering work, a subsidiary has been formed under the title of the Armstrong-Whitworth Development Co. This company, it is emphasised, has been formed for the particular object of keeping up with leading concerns for the purpose of reconstruction development. The company is intimately related now to the Siddeley Deasy Co.

More New Ventures.

There appears to be a fresh outburst of new company regulations concerned with aeronautics. The majority are small and evidently the object in some cases is simply to secure a name.

MORTGAGES, CHARGES AND SATISFACTIONS

Aero Mechanical Co., Ltd.—Mortgage on order from Aircraft Manufacturing Co., Ltd. Dated March 28th, 1919, supplemental to mortgage dated Nov. 1st, 1918. Holders: National Provincial Bank of England.

NEW COMPANIES.

Tubbs, Lewis and Co., Ltd.—Private company. Registered April 24th. Capital, £250,000 in £1 shares. To take over the business of manufacturers of elastic webs, cords and braids, pins, needles, buttons, ornaments, smallwares, fishing lines, health exercisers, grip dumbells, shock absorbers, aeroplane parts, etc., carried on at Abbey, Langford, Lew and Charfield Mills, Wotton-under-Edge, Glos., and at 29-30, Noble Street, and Charterhouse Buildings, E.C., as "Tubbs, Lewis and Co." First directors:—S. W. Tubbs, 9, Hanover Terrace, Regent's Park, N.W., L. Tubbs, 7, Kilderpore Gardens, Hampstead, N.W. Solicitor: W. T. A. Rayner, Moorgate Station Chambers, E.C.

Cambrian Aerial Transport, Ltd.—Private company. Registered April 28th. Capital £100 in £1 shares. To establish and maintain aircraft lines and services, etc. First directors:—T. W. David, Ely Rise, Cardiff, timber importer; D. M. Rees, Benton House, Whitchurch, wire rope manufacturer; F. L. Demery, The Rectory, Penarth, aircraft manager.

Capac Co., Ltd.—Private company. Registered May 7th. Capital £5,000 in £1 shares. Manufacturers of and dealers in airships, aeroplanes and aircraft of all kinds, motor-cars and vehicles of every description, and to enter into an agreement with G. Richards. The subscribers (each with one share) are:—F. Snelling, 89, Dovercourt Road, Dulwich, S.E.22, law clerk; B. H. Gower, 136, Colney Hatch Lane, Muswell Hill, N.10, solicitor's managing clerk. Governing director: G. Richards, The Grange, Heronsgate, Ricksmanworth. Registered office: 2, Woodstock Street, Hanover Square, W.

RECEIVERSHIPS (APPOINTMENT OR RELEASE).

Highgate Aircraft Co., Ltd.—A notice of the appointment of S.E. Nixon, of Pauntley Street, Archway Road, N., as receiver and manager on April 2nd, 1919, under powers contained in debentures dated 1916-1918.

THE FIRST REAL BUSINESS FLIGHT.

Boulton and Paul, of Norwich, have a 100-year-old business as contractors and engineers, and in this branch of their business they have already been making use of their aeroplanes.

The first business trip was made before noon on May 1st. A Bury St. Edmund's firm was negotiating an important contract for the extension of their premises which involved a large constructional engineering order and wished to consult a representative of Boulton and Paul on the business. The Sales Manager the firm was anxious to send had his time closely filled with numerous appointments and business, and although the journey from Norwich is a short one it would have consumed the greater part of a business day to go to and fro and carry out the required discussion. A Boulton and Paul "P.6" two-seater machine was called into service, the Sales Manager was embarked, and in 20 minutes was landed at Bury St. Edmund's. The trip resulted in the firm securing a satisfactory contract.

The machine used is one which Boulton and Paul have adopted as the cheapest and most convenient for just such business trips as the one instanced. It is fitted with a 90 h.p. "R.A.F." engine, has a speed of over 100 miles per hour, carries fuel for a 300-mile flight, and can be sold at £600.

ANOTHER STRIKE.

A strike has broken out among the woodworkers at several of the London Aircraft factories, the Aircraft Manufacturing Company, Hendon, and the Handley Page works being at present those chiefly involved. It is stated that the strike is the outcome of a decision reached at a joint conference of woodworkers some time ago that notice should be given in May terminating the system of payment by results, which was strongly encouraged during the war by the Ministry of Munitions.

The Union principally concerned is the Amalgamated Society of Carpenters, Cabinetmakeers, and Joiners, which has protested throughout against a continuation of the system, although some of its branches, containing an exceptional number of skilled men, have shown no desire to return to the system of current price rates.

Among the majority of woodworkers there is a keen desire, now that normal commercial activities are being developed, that time rates generally should take the place of all bonus systems, and the present discontent is an endeavour to obtain recognition of a principle which will have to be faced and accepted if good relationships are to be established in the industry.

FOR CHARITY'S SAKE.

The Women's Auxiliary Force are holding an All-Star Matinee at the St. James's Theatre on Friday, May 23rd, at 2.30 p.m., under the gracious support and patronage of H.M. Queen Alexandra in aid of the Women's Auxiliary Force Home Clubs for the Royal Air Force and other Service men.

The following well-known artistes have kindly consented to appear:—Miss Mary Moore, Miss Lilian Braithwaite, Mr. Dawson Milward, Mme. Mackenzie Fairfax, Mr. Mark Hambourg, Miss Eva Moore, Miss Violet Lorraine, Mr. Charles Coburn and Miss Amy Sherwin's "All-Nations Song-Pictures."

Tickets from 2s. to £1 1s. may be obtained from Box Office, St. James's Theatre; Women's Auxiliary Force, 172, Buckingham Palace Road, S.W.1, and the usual agents.

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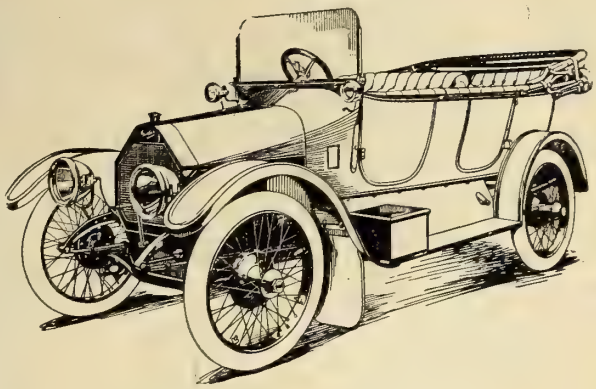
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NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

Admiralty, April 26th.

R.M.L.I.—Maj. T. O. H. Lees, A.F.C., returns to Corps duty from Secd. List (R.A.F.), and is borne supy. to estbt., April 7th.

Maj. T. O. H. Lees, A.F.C., is placed on the Retd. List at his own request, under the provs. of Order in Council of Nov. 29th, 1881, April 25th.

R.M. Forces.—Maj. T. O. H. Lees, A.F.C., is appointed to the Res. of Officers, R.M., April 25th.

War Office, May 6th.

Regular Forces.—Establishments.—R.F.C, Mil. Wing.—The following appointments are made:—Flight Commdr.—Temp. Lt. W. D. Patrick (Gen. List), from a Flying Officer, and to be temp. Capt. whilst so empld., Jan. 4th, 1918. Equipment Officer, 3rd Cl.—Lt. W. E. Jones (Spec. Res.), March 1st, 1918.

Royal Regiment of Artillery.—R.G.A.—Maj. J. A. E. Edwards (Lt.-Col., R.A.F.) retires on ret. pay, May 7th.

Air Ministry, May 6th.

R.A.F.—The following temp. appointment is made:—Area Commdr. —Col. (actg. Maj.-Gen.) A. V. Vyvyan, C.B., D.S.O., relinquishes the actg. rank of Maj.-Gen. and to be actg. Brig.-Gen. while so empld., April 26th.

Flying Branch.—Capts. to be graded for purposes of pay and allowances as Capts. (A'ship.):—H. T. Jones, July 2nd, 1918; A. S. Elliott, D.S.C., from Aug. 14th, 1918, to March 18th; H.°C. Irwin, to Jan. 31st; G. F. Meager, A.F.C., Nov. 8th, 1918; L. Whitworth, A.F.C., from Nov. 15th, 1918, to March 18th; H. A. H. Lectham, Nov. 25th, 1918; G. S. Greenland, Nov. 26th, 1918; S. E. Taylor, D.S.C., Dec. 6th, 1918.

Sec. Lts. to be Lts.:—A. A. Malcolm, L. B. Stewart, April 2nd, 1918; C. P. Sisley, May 13th, 1918; E. C. Richards, Dec. 27th, 1918; P. W Watson, Feb. 1st.

Sec. Lt. J. S. Harrison to be actg. Lt. while empld. as Lt., from Sept. 26th, 1918, to April 30th.

Lt. S. Fremlin (Lt., I.A.R.O.) relinquishes his commn. on reverting to the I.A.R.O., March 21st.

The following relinquish their commns. on ceasing to be empld.:—Lt. R. M. Grant (Lt., Canadians), Jan. 9th; Lt. T. B. M. Brown (Lt., R.F.A.), Jan. 10th; Lt. W. A. Watson (Lt., Alb. R.), Feb. 11th; Sec. Lt. (Hon. Lt.) R. B. Francis (Lt., Can. M.G.C.), Lt. J. R. Law (Capt., Can. A.S.C.), Feb. 17th; Lt. W. K. Whittle (W. Yorks R.), Feb. 19th; Lt. J. A. Dickie (Lt., Manitoba R), March 5th; Lt. H. W. Underhill (Lt., R.G.A.), March 11th; Lt (Hon Capt.) F. G. H. Manville, M.C. (Capt., Sask. R.), March 13th; Lt. G. A. Mercer (Lt., Can. Cyclist C.) ,March 21st; Sec. Lt. (Hon. Lt.) H. F. Hicks (Lt., Nova Scotia R.), March 27th; Lt. D. J. Stewart (Lt., York and Lancs. R.), April 9th; Lt. (Hon. Capt.) S. A. Flavelle (Capt., E. Ont. R.), April 14th.

Transferred to unempld. list:—Lt. (actg. Capt.) D. Sutherland, Jan. 14th; Lt. B. Stevenson, Jan. 22nd; Capt. C. G. Sturt, A.F.C., Jan 26th; Lt. J. R. Spyaul, Jan. 28th; Capt. W. A. Scott, D.S.C., D.F.C., Feb. 4th; Lt. (actg. Capt.) E. Swale, D.F.C., Feb. 5th; Lt. C. S. Scobie, Lt. A. A. Sevastopulo, Feb. 8th; Sec. Lt. T. Madoc-Jones, Feb. 10th; Sec. Lt. C. V. Lock, Feb. 13th; Capt. A. Lindley, Feb. 15th; Sec. Lt. H. M. D. Speagell, Feb. 18th; Lt. (actg. Capt.) M. G. W. Stewart, D.F.C., Feb. 19th; Sec. Lt. T. D. Sterland, Feb. 22nd; Sec Lt. D. E. Gray, Feb. 23rd (substituted for notification in "Gazette," Feb. 18th); Lt. V. Smith, Sec. Lt. L. Sharp, Feb. 24th: Lt. B. C. Selfe, Feb 27th; Sec. Lt. W. A. Souter, March 1st; Lt. H. T. Matthews, Capt. S. B. Smith, M.C., March 11th; Sec. Lt. V. H. Mather, March 13th; Lt. D. M. Allan, March 15th; Sec. Lt. B. Tamyiriantz, March 18th; Lt. F. V. Chapman, March 23rd; Lt. (actg. Capt.) A. H. Curtis, March 25th; Sec. Lt. (Hon. Lt.) H. Terrell, March 27th; Sec. Lt. F. Chambers, Lt R. B. M. Jenkins (R.F.A., T.F.), March 28th; Sec. Lt. W. G. A. Bird, March 31st; Sec. Lt. S. H. Bazeley, Lt. G. W. Hales, Lt. M. M. Kaizur, Sec. Lt. F. Stringer, April 2nd: Maj. J. A. Crook, Sec. Lt. W. A. C. Haines, Sec. Lt. (Hon. Lt.) B. Jacobs, M.C. (E. Kent R.), Lt. H. B. Milling, Sec. Lt. T. Searle, April 3rd: Lt. B. S. Cole, Lt. (actg. Capt.) S. C. Joseph, D.F.C., Lt. H. A. Johnston, Lt. C. L. Stubbs, April 4th; Sec. Lt. T. F. Thorogood, Sec Lt. L. G. Tearle, April 5th; Lt. (actg. Capt.) G. J. H. Lascelles, Lt. K. A. W. Leighton, Capt. B. B. Toms, April 6th; Lt. B. S. B. Baylis (York and Lancs. R.), April 7th; Lt. C. G. Bushe, Lt. C. P. Donnison, Sec. Lt. E. S. Eilley, Lt. (Hon. Capt.) T. E. Lander (High L. Inf.), Capt. G. Smethurst, Lt. H. H. Storey (R.E., T.F.), April 8th; Sec. Lt. A. Betterley, Lt. W. Briggs, Lt. E. W. Hutchings, Sec. Lt. L. Kehoe, Lt. F. B. B. Shand, Sec. Lt. E. G. F. Salmon, Sec. Lt. N. E. Swan, Lt. P. E. Turner, Sec. Lt. J. F. L. Wood, April 9th; Lt. C. J. F. Lester, Sec. Lt. J. R. Traves, April 10th; Sec. Lt. J. G. Caygill. Lt. H. F. Chapman, Sec. Lt. (Hon. Capt.) S. T. Goodman, M.C., D.C.M., Sec. Lt. G. C. Lacey, Sec. Lt. (Hon. Lt.) T. Sandilands, Lt. F. A. Smith, A.F.C., Lt. G. T. Thorman, Sec. Lt. (Hon. Lt.) E. G. Tyler, April 11th; Sec. Lt. C. H. Askwith, Lt. R. Collopy, Sec. Lt. (Hon. Lt.) E. W. Collis, Sec. Lt. L. G. Catkrall, Lt. T. A. Doran, Lt. K. Don, Sec. Lt. W. Grayson, Capt. (actg. Maj.) T. Hinshelwood, D.S.C., D.F.C.: Lt. (actg. Capt.) R. E. Heath (Welsh R.), Sec. Lt. (Hon. Lt.) A. P. Hitchens (R.E.), Sec. Lt. W. B. Warneford, April 12th; Lt. B. C. L. Barton, Lt (actg. Capt.) G. W. Bulmer, M.C., Sec. Lt. C. Burnett, Sec. Lt. D. F. Brooks, Sec. Lt. F. O. Bovill, Lt. R. T. A. Cupiss, Sec. Lt. J. M. Caldwell, Sec Lt. A. T. Cross, Sec. Lt. E. B. Driver, Sec. Lt. (Hon. Lt.) C. B. Hayes, M.C., Sec. Lt. W. H. Irvine, Sec. Lt. H. Proudlove, Sec. Lt H. J. Randall, Sec. Lt. W. Roberts, Sec. Lt. C. J. Rogers, Sec. Lt. K. S. Rankin, Sec. Lt. W. E. Surman, Sec. Lt. R. E. Standfield, Sec. Lt. J. S. Selak, Sec. Lt. W H. Taylor, Capt. R. M H. Young, Lt. T. J. Young, April 13th, Lt. J. A. Beesley, Sec. Lt. G. W. Baguley, Capt. H. S. Bompas, Sec. Lt. C. H. Berry, Lt. P. R. Crowe, Sec. Lt. T. D. Goord, Sec. Lt. L. W. Pooley, Sec. Lt. L. W. S. Smith, Sec. Lt. (Hon. Lt.) R. R. Thompson, Lt. D. G. Williams, Capt. F. R. Walker, April 14th; Sec. Lt. H. E. Anderson, Lt. (actg. Capt.) F. Belway, D.F.C., Lt. W. N. Breingan, Sec. Lt A. Callender, Sec. Lt. F. Coates, Lt. W. R. Coventry, Sec. Lt. W. G. Cairns, Lt. H. S. Chapman, Sec. Lt. H. Clarke, Sec. Lt. J. Crawford, Sec. Lt. R. D. Connor, Sec. Lt. S. A. Gluning, Capt. G. H. Hackwill, M.C., Sec. Lt. R. W. Hill, Lt. W. B. Kellogg, Capt. J. L. Kerry, D.S.C., Sec. Lt. S. R. Robertson, Sec. Lt. G. Scott, Lt. H. T. Thompson (R.F.A.), Lt. D. J. Wiston, April 15th; Sec. Lt. J. C. Bishop, Sec. Lt. W. E. Blake, Lt D. S. Cramb, Sec. Lt. P. C. Cary, Lt. M. Faure, Sec. Lt. S. Engel, Lt. D. J. W. Gray, Sec. Lt. (Hon. Lt.) S. T. Jerome, M.C., Sec. Lt. J. G. Kershaw, Capt E. A. Mossop, Sec. Lt. E. A. Radcliffe (L'pool R.), Sec. Lt. G. A. Sheeley, April 16th; Lt. W. H. Askew, Capt. E. L. B. Buchanan, Capt. R. E. Bryson, M.C., Sec. Lt. B. L. Clift, Sec. Lt. H. Crossley, Capt. (actg. Maj.) W. J. Calderwood, Lt. (actg. Capt.) L. P. Coombes, D.F.C., Sec. Lt. W. C. Hart, Lt. R. Neish, Sec. Lt. I. N. Rees, Sec. Lt. C. E. Standish, Lt. L. A. Sterling, M.C. (R.F.A.), Capt. G. C. Walker, April 17th; Lt. R. H. Barratt, Lt. (actg. Capt.) D. C. M. Brooks, Capt. P. C. Campbell, M.C. (Arg. and Suth'd Highrs.), Lt. C. S. Hallinghurst, M.C., Lt. H. R. Hastings, Sec. Lt. F. H. Langmaid, Capt. R. J. M. de St. Leger, Sec. Lt. G. R. Robinson, Lt. C. H. Weir (Royal Scots), Lt. W A. Wheeler, Sec. Lt. J. H. W. Wilcox, April 18th; Lt. H. R. Caffyn, Sec. Lt. H. Connell, Lt. T. P. N. Stack, April 19th, Sec. Lt. T. Alfred, Lt. F. F. H. Bryan, Sec. Lt. J. J. Comerfield, Sec. Lt. E. H. Duffy, Sec. Lt M. Dearman, Sec. Lt. A. E. Huffer, Sec. Lt. D B. Hughes, Sec. Lt. H. G. H. Lowe, April 20th; Sec. Lt. R. Begg, Sec. Lt E. A. Bowyer, Sec. Lt. B. R. A. H. Davies, Sec. Lt. T. T. Hazelwood, Sec Lt G. N. G. Hamilton, Lt. H. R. Leach, Sec. Lt. W. Nightingale, Sec. Lt. H. T. Taylor, Sec. Lt. F. F. Weingott, April 21st; Sec. Lt. J. Appleby, Sec. Lt. (Hon. Lt.) R. W. Glassborow, Sec. Lt. S. T. Marshall, Sec. Lt. R. H. Walker, Sec. Lt. S. J. Winis, April 22nd; Sec. Lt W. R. Ayling, Capt. (actg. Maj.) J. A. Coats, A.F.C., Sec. Lt. F. E. Collins, Lt. F. M. Williams, April 23rd; Sec. Lt. W. T. Annan, Lt D. S. Atkinson, Lt. G. A. Bateson, Sec. Lt. L. G Brown, Sec Lt B. A. Bird, Sec. Lt. G. R. Bartlett, Lt. A. E. Bruce, Sec. Lt. V. F. Bendrodt, Lt. L. W Boland, Sec. Lt J. W. Barus, Sec. Lt. A. E. Buckingham, Sec. Lt. J. G. Clayton, Sec. Lt. W. T. Carew, Sec. Lt. M. J. Carroll, Sec. Lt. E. O Champagne, Sec. Lt. C. A. Chisholm, Sec. Lt. S A. Church, Sec. Lt. G. D. Churchward, Sec. Lt. C. H. Church, Sec. Lt. R. E. Vale, April 24th; Lt G. Allsop, Sec. Lt. (actg. Maj.) W. C. Bersey, Lt. (actg. Capt.) J. E. Burgess, Sec. Lt. B. D. Bolas, Sec. Lt. R. A. Button, Sec. Lt. H. C. Collis, April 25th; Sec. Lt. F. F. Bates, Lt. R. E. Butler, April 26th; Sec. Lt. (Hon. Lt.) S. H. Hodges (Lanc. Fus.), Sec. Lt. G. E. D. Low, Sec. Lt. G. Tattersall, Sec. Lt. A. C. Taylor, Sec. Lt. I. H. Turkington, Sec. Lt. (Hon. Lt.) W. R. Trounce, April 29th; Capt. A. M. Van der Byl, May 1st; Lt. K. Norwood (N. Lancs R.), May 4th; Lt. C. A. Mason, May 5th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—F. H. Johnson, March 22nd; J. D. M. Miller (contracted on active service), April 22nd (substituted for notification in "Gazette," Jan. 7th).

Lt. A. F. Platt is dismissed the Service, his Majesty having no further occasion for his services as an officer, April 7th.

Sec. Lt. W. T. Morrison resigns his commn., May 7th.

The initials of Lt. E. W. O. Hall are as now described, and not E. O. W. as stated in "Gazette," March 7th.

The initials of Lt. A. L. Mouger are as now described, and not N. L. as stated in "Gazette," April 13th.

The notification in "Gazette," Dec. 31st, 1918, concerning Sec. Lt E. Dumville is cancelled.

The notification in "Gazette," Dec. 13th, 1918, concerning Sec. Lt. E. H. Searle is cancelled.

The notification in "Gazette," April 18th, concerning Lt. J. Davidson is cancelled.

The notification in "Gazette," March 21st, concerning Sec. Lt. F. Johnson is cancelled.

The notification in "Gazette," March 28th, concerning Lt H. J. Collar is cancelled.

The notification in "Gazette," Feb. 14th, concerning Lt. S. R. Mantle is cancelled.

The notification in "Gazette," April 1st, concerning Sec Lt S. E. King is cancelled.

The notification in "Gazette," April 1st, concerning Sec. Lt. (Hon. Lt.) D. Millar is cancelled.

Administrative Branch.—To be Majs. and relinquish the grading for purposes of pay as (S.O.):—Capt. (actg. Maj.) N. A. Daniell, Jan. 7th; Maj. W. J. King, M.C., Feb. 3rd: Capt. (Hon. Maj.) (actg. Maj.) R. H. Howell to be Maj. from (S.O.), Nov. 18th, 1918.

Capt. (actg. Maj.) J. Selwyn to be Capt., and relinquishes the actg. rank of Maj. from (S.O.) from Oct. 26th, 1918, to Dec. 20th, 1918.

Lt. G. A Miller to be actg. Capt. whilst empld. as Capt., from Aug. 8th, 1918, to April 30th.

C. B. Stead (Lt., R.H.A., T.F.) is granted a temp. commn. as Lt., Oct 1st, 1918, and to be actg. Capt. whilst empld as Capt. from Oct. 1st, 1918, to April 30th (substituted for notification in "Gazette," Feb. 11th).

Lts. (A.) to be Lts.:—W. U. Hughes, H. Macpherson, April 17th.

Lt. C. C. Duffield to be Lt. from (T.), Oct 2nd, 1918 (substituted for notification in "Gazette," April 4th).

Sec. Lt. F. Sumpter to be Lt., April 2nd, 1918.

Sec. Lt. T. Mann to be Sec. Lt., from (A. and S.), April 17th.

Sec. Lt. C. H. Bartlett (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., April 1st, 1918.

Lt. F. A. Perren (Sec. Lt., Hamp. R.) relinquishes his commn. on ceasing to be empld., Nov. 18th, 1918.

Transferred to unempld. list:—Lt. E. A. Smirke, M.C., Jan. 24th; Sec. Lt. R. Sharrock, Jan. 26th; Lt. P. W. Sim, Jan. 29th; Lt. (actg. Capt.) C. A. Pelham, Feb. 1st; Sec. Lt. (Hon. Lt.) D. Millar, Feb. 6th; Sec. Lt. (Hon. Lt.) C. N. Leeston-Smith, Feb. 11th; Sec. Lt W. C. E. Skelton, Feb. 13th; Sec. Lt. H. B. Stubbs, Feb. 16th: Lt. R. G. Taylor, Feb. 27th; Capt. (actg. Maj.) P. C. Suckling, March 6th: Sec. Lt. J. F. C. Smith, March 11th; Sec. Lt. T. H. Roberts, March 12th; Lt (actg. Capt.) W. C. Short, March 17th; Lt (Hon. Capt.) R. S. McGregor-Shenherd, March 21st; Sec. Lt. (actg. Lt.) H. S. Counsell, Sec. Lt. E. Smith, April 1st; Capt. R. C. Campbell (Somerset L.I., T.F.), April 2nd: Sec. Lt. E. R. F. Cole, Capt. J. A. Shepherd, April 3rd; Sec. Lt. J. G. Campbell, Lt. C. R. R. Gidney, April 4th; Sec. Lt. C. L. H. Johnson, Lt (actg. Capt.) T. F. Legard, April 6th; Sec. Lt. W. C. Rankin, April 9th: Sec. Lt. A. D. Tomsett, Sec. Lt. I. C. Thomson, April 11th: Lt (actg. Capt.) G. E. Gillett, Lt. P. S. L. Lee, Sec. Lt. L. K. Rayner, April 12th; L. D. M. K. Masendaz, Sec. Lt. A. Midgley, Sec. Lt. G. D. Nokes, April 13th; Sec. Lt. F. C. Taylor, April 14th; Lt A. B. Cox (Northants R.), Lt. M. A. Hancock, Sec. Lt E. W. Liddiard, Sec. Lt H. Taylor, April 15th: Lt. (actg. Capt.) W. H. Dean, Sec. Lt. A. W. Garnett, Lt. H. V. M. Hoskins, April 16th; Sec. Lt. C. Beard, Sec. Lt (actg. Lt.) J. E. Dawes, Sec. Lt H. B. Twissell, April 17th; Lt. D. M. Blackwood, Lt. A. L. Crow, Capt. W. N. Goldsmith, Sec. Lt. F. G.

Kitson, April 18th; Lt. A. C. Illingworth, April 19th; Lt. J. D. Davidson, April 20th; Lt. T. E. Blackater, Sec. Lt. H. Varney, April 21st; Lt. M. C. Mossop, A.F.C., April 22nd; Lt. K. M. Cattley, April 23rd; Lt. (actg. Capt.) H. K. Ballantine, Sec. Lt. J. J. Browne, Capt. W. R. Corfield, M.C., April 25th; Maj. (actg. Lt.-Col.) J. M. Boyd, Sec. Lt. R. O. Cook, Sec. Lt. C. Ham, May 1st.

Lt. H. H. Marks relinquishes his commn. on account of ill-health and is permitted to retain his rank, May 7th.

The following Sec. Lts. resign their commns.:—R. M. Ross, H. Worley, May 7th.

Sec. Lt. J. P. Smith is dismissed the Service, his Majesty having no further occasion for his services, March 6th.

The notification in "Gazette," April 8th, concerning Sec. Lt. V. T. Lloyd-Davis is cancelled.

The initials of W. J. Wreford are as now described and not as stated in "Gazette," March 18th.

The notification in "Gazette," Nov. 22nd, 1918, concerning Lt. (actg. Capt.) J. F. Byrom is cancelled.

TECHNICAL BRANCH.—Lt. (actg Capt.) G. A. Heath relinquishes the actg. rank of Capt., Grade (B), on ceasing to be empld. as Capt., April 23rd.

Lt. W. Bourne to be graded for pay as Lt., Grade (B), March 20th.

Sec. Lt. R. R. Crosby to be Lt., with pay and allowances of that rank, Feb. 28th (substituted for notification in "Gazette," Feb. 28th).

Sec. Lts. to be Lts., without pay and allowances of that rank:—C. C. Duffield, April 2nd, 1918 (substituted for notification in "Gazette" March 7th); (Hon. Lt.) H. J. Gilbert, April 3rd, 1918; H. C. Baker, March 1st.

Maj. S. J. Lacey, O.B.E. (Lt.-Commdr., R.N.) relinquishes his commn. on ceasing to be empld., March 20th.

Transferred to unempld. list:—Sec. Lt. T. H. Sutherland, Jan. 15th; Sec. Lt. G. Williams, Jan. 17th; Lt. F. G. Seabrooke, Jan. 21st; Sec. Lt. M. B. Barrand, Feb. 3rd; Lt. (Hon. Capt.) R. P. Gosnell, Feb. 4th; Lt. G. Carr, Feb. 11th; Sec. Lt. (actg. Lt.) (actg. Capt.) R. L. Burdon-Sanderson, Feb. 21st; Capt. C. R. E. Pope, Feb. 25th; Lt. C. R. Skinner, March 1st; Capt. W. E. Smith, March 2nd; Capt. M. G. Millar, March 4th; Capt. A. E. Squire, March 17th; Lt. E. G. Thompson, March 21th, Lt. (actg. Capt.) W. L. Joseph, March 29th; Capt. G. H. Tilly, March 30th; Capt. (actg. Maj.) J. D. Drysdale, O.B.E., March 31st; Capt. G. T. R. Hill, M.C., April 1st; Lt. R. W. Langmaid, April 4th; Capt. C. Hayes, April 5th; Lt. N. Goodwin, April 7th; Lt. A. H. Cabeldu, Sec. Lt. F. E. Smyth, April 8th; Lt. V. F. J. Barker, Maj. L. W. F. Turner, April 9th; Sec. Lt. R. E. Lane, Sec. Lt. W. A. Todd, April 10th; Lt. S. H. Tigg, Capt. T. M. Wilson, April 11th; Sec. Lt. R. J. Berry, Sec. Lt. W. F. Peirs, Sec. Lt. F. Batterbury, April 12th; Lt. J. L. Cuthbertson, Capt. A. S. Ince, D.S.C., April 14th; Sec. Lt. (actg. Capt.) C. B. Nicol, Sec. Lt. R. A. Wells, April 14th; Sec. Lt. A. J. Bull, Sec. Lt. W. G. T. Blois, Sec. Lt. C. W. Cornell, Sec. Lt. (actg. Lt.) A. F. Loveday, Sec. Lt. S. Pope, April 15th; Sec. Lt. G. Ackermann, Lt. H. B. Howe, Sec. Lt. F. A. Wood, April 16th; Lt. H. A. Moncrieff, April 17th; Sec. Lt. R. J. Rogers, April 18th; Sec. Lt. (Hon. Lt.) F. Baxter, Capt. C. D. Butler, Lt. J. H. Darrah, April 23rd; Lt. (actg. Capt.) W. H. Farnell, April 24th; Capt. E. E. Benest, April 27th; Lt. W. McTaylor, Lt.-Col. H. T. Tizard, A.F.C., April 29th.

Sec. Lt. (Hon. Lt.) A. Dobner relinquishes his commn. on account of ill-health, May 7th.

The date Lt. E. H. Fitchew relinquishes his commn. is July 28th, 1918, and not as stated in "Gazette," July 30th, 1918.

The Christian names and surname of Sec. Lt. Andrew John Brown are as now described, and not A. J. Brown, M.C., as stated in "Gazette," April 8th.

The notification in "Gazette," Sept. 17th, 1918, concerning Lt. B. B. Lemon is cancelled.

MEDICAL BRANCH.—Transferred to unempld. list:—Lt. L. E. Stamm, Feb. 21st; Capt. J. B. Stevenson, Feb. 25th; Maj. A. H. Hogarth, April 23rd.

Maj. A. Paling relinquishes his commn. on account of ill-health, May 5th.

CHAPLAINS BRANCH.—Asst. Principal Chapln. for Wesleyans.—Rev. A. S. Bishop (Chapln., 4th Class, A.C.D.) is granted a temp commn. as Chapln. with relative rank of Capt., and is granted the relative rank of Maj., whilst empld. as Asst. Principal Chapln., Jan. 1st.

Transferred to unempld. list:—Col. the Rev. W. J. Selby, M.A., April 4th; Capt. J. H. Bentley, April 12th.

MEMORANDA.—The following Overseas Cadets are granted temp. commns. as Sec. Lts.:—7661 W. Lyall, 182262 L. G. Livingstone, 184529 H. J. Linder, 181846 Z. A. W. Lewis, 179631 J. B. Long, 926 E. C. Lyttle, 182235 M. D. Miller, 182294 C. V. Merriman, 184269 E. R. Miller, 183865 R. V. Mansfield, 182702 H. W. Marchant, 182215 B. L. Melville, 182887 J. L. Munro, 182250 E. D. Moses, 182264 O. V. Melville, 182265 A. E. Marshall, 182115 R. G. Murray, 182292 A. S. Manchip, 184538 C. B. Miles, 184535 C. V. Marshall, 182091 F. L. Morris, 183864 J. W. McCaskill, 184271 D. J. Muir, 183128 W. C. Mitchell, 184531 H. C. McCallum, 181864 C. S. Milne, 181873 A. S. Milne, 184537 F. Martin, 184540 G. Muller, 184267 J. McInnich, 172214 F. A. Mackay, 180378 P. F. Moffatt, 182267 A. H. Maish, 176584 H. H. Miller, 184530 W. McKenzie, 182111 L. Maytham, 182201 A. E. Manchip, 184270 A. Morris, 182144 A. Michelsohn, 137812 H. McLeod, 182216 C. Meth, 182266 D. S. Mannion, 184541 R. Musson, 182203 A. Martin, 183886 A. McDonald, 176577 L. McGennis, 193364 J. W. R. Miller, 184580 C. Mortimer, 184263 D. H. Mellet, 176724 S. B. Muller, 182295 W. B. Mills, 208 J. F. Mabberley, 182251 C. H. MacLean, 182276 C. McInich, 182214 F. A. Mackay, 180378 P. F. Moffat, 182267 A. H. Maish, 1539 J. H. Mitchell, 11654 R. M. McLaren, 184539 J. C. Moore, 1276 W. McLaughlin, 182116 A. Nathan, 182164 V. V. Nel, 183341 T. Le G. Nel, 184542 B. T. C. Norton, 184543 L. A. Norenius, 183342 F. R. Nel, 182193 J. H. Nel, 183867 C. H. J. Nel, 182194 S. H. Oeriel, 184544 C. Oberhauser, 182195 F. O'Donovon, 182530 J. D. Oldman-Brownlee, 180722 F. W. F. Purcell, 11765 W. W. Paterson, 180803 E. V. Pett, 184222 M. Poplak, 181836 W. Peacock, 182117 L. Perry, 182197 J. C. Prior, 182095 W. J. Pullock, 182218 W. J. Paul, 182093 W. Picking, 182253 H. R. Pearce, 183287 H. E. Poyall, 182092 J. Palmer, 183888 G. D. Parkin, 182296 C. Palvie, 182118 C. S. Potgieter, 182236 H. M. Patrick, 182177 A. D. Pickering, 182268 C. A. Packman, 182269 J. K. Packman, 183889 A. J. Ponton, 1591 S. A. Page, 6503 E. Parkinson, 182252 A. J. O. Peters, 176517 J. Quibb, 176606 T. C. Robertson, 176509 G. T. Richards, 182198 E. Russell, 182007 S. Roseburg, 182255 C. M. Riley, 182165 J. D. Roussouw, 183891 J. L. Rogers, 184548 O. W. Ryley, 184289 A. G. Randall, 182096 W. J. Randall, 182200 C. G. Rickett, 182116 D. J. Rocher, 182167 C. G. Rocher, 316611 W. H. Rethman, 183893 L. B. Ratenbach, 182201 W. J. Roberts 182179 F. E. Rosebrook, 182199 A. A. Rynhoud, 182237 P. L. Ruiter, 183607 R. H. Ross, 184274 G. Richter, 184733 G. M. Robertson, 7669 S. G. Roberts, 182219 F. B. P. Randall, 182 R. H. Rogers, 89454 R. M. Shimmin, 137952 R. H. Stevens, 184549 L. L. Sawyer, 182181 A. P. E. Sinclair, 178209 I. Simon, 182121 A. Smith, 184554 G. C. Southgate, 184553 H. B. Stroebel, 182102 S. Smith, 183897 T. Shepherd, 182099 L. Seligsohn, 182221 A. Sparks, 184483 G. D. Scott, 182202 H. B. Steyne, 182271 W. H. Smithers, 182120 H. W. Stevenson, 183898 E. E. Stuart, 182894 E. Stewart, 178212 J. D. Struthers, 182533 S. L. Smith, 182122 V. C. Schofield, 184076 W. M. Spurgeon, 182101 H. K. Smith, 182534 B. P. Steytler, 183895 G. C. Stafford, 182238 F. C. Strobel, 12447 L. G. L. Salew, 184845 P. J. Schravensande, 184240 S. W. Smith, 326 G. R. Smuts, 185872 A. J. Stone, 176612 J. F. Sandeman, 137946 A. C. Sheppard, 182180 A. S. Sheriffs, 182100 C. P. Smith, 178213 M. S. Stryne, 80 B. H. Schmidt, 192 H. D. W. Smith, 184275 J. B. M. Tannahill, 183901 D. W. H. Thorold, 184558 C. E. Taylor, 184276 O. Tarr, 182182 K. Truman, 184277 B. E. Tuck, 183905 O. Tucker, 316816 L. J. Tucker, 180545 E. C. Thompson, 184557 A. B. Tod, 183907 R. W. G. Tutton, 183902 O. E. S. Tutton, 184555 A. R. Templeton, 182123 R. E. Thorp, 183900 P. Toens, 316621 A. G. Tugg, 120 C. L. J. Truran, 182277 C. S. Van Ryneveld, 184559 H. Van Graan, 182136 J. A. Van Niekerk, 182244 H. S. Venter, 182203 A. K. Van Niekerk, 180077 W. K. Van der Spuy, 10383 N. A. A. Van Vurren, 182168 P. Vallentine, 181285 F. Van Breda, 182257 C. P. Vice, 11769 A. R. Veysie, 179225 A. L. Wynne, 184280 G. Whittaker, 184278 G. S. Way, 182169 R. W. Walker, 184560 T. R. Walters, 184562 E. Woolmore, 183907 H. D. Wood, 182258 R. C. Wilson, 184561 C. H. Wright, 192183 J. B. Wood, 182225 T. C. Wood, 184279 S. Whittaker, 184280 G. Whittaker, 180000 J. F. Wege, 184281 J. W. Wiggill, 183358 L. W. Widdicombe, 1094 R. Wakeford, 4805 B. R. Wainwright, 111144 J. D. Wolfe, 182204 H. H. Wood, 176619 D. Wood, 131 R. T. Wimmer, 11535 F. H. G. Waller, 182184 C. Yeats, 182137 B. Yankleson, 183908 R. A. Young, 182106 D. M. Young, 182297 S. R. Young, 177907 E. L. Youngleson, 117613 D. Ashworth, 177683 W. H. Bushe, 153683 G. G. Brown, 184565 E. C. Curtiss, 178620 L. de Silva, 177776 R. Devertillil, 175183 J. W. Gay, 171480 A. H. Geary, 161679 H. J. Hall, 276196 J. D. Haddock, 100337 W. F. MacCunn, 117811 E. S. O'Connor, 316527 E. T. Fellnet, 180848 A. B. Perkins, 182332 S. F. Rodriguez, 117599 W. Stuart, 110125 E. D. Shepherd, 181325 A. M. Thomson, 182419 D. Weatherstone, 173518 R. E. Wilder, 154937 A. M. Watt, 316113 J. P. Young, 128347 J. Carmichael, 137906 A. W. C. Daly, 137927 C. W. A. Doherty, 3637 A. P. Dutoit 175163 C. J. Dutoit, 176866 H. M. S. Edwards, 1637 E. W. Eyles, 176538 E. B. A. Gilson, 740 J. W. Goff, 178182 I. Kaliski, 178900 W. A. Lawrenson, 170681 H. G. Lovell, 176564 E. R. Mowat, 137918 G. Olive, 176602 N. G. H. Raw, 178317 H. Rothstein, 182178 W. H. Robinson, 178211 J. W. Simpson, 17175 F. J. Thring, 179139 D. Checkley, 180256 O. M. Coverdale, 170487 W. P. Coles, 179142 W. D. Dunlop, 179144 A. Fyfe, 179146 D. T. Goodson, 179136 C. M. Gordon, 179152 F. Hazlett, 170490 I. H. M. Keith, 179492 H. W. MacFarlane, 179478 J. W. McKendry, 179158 D. MacKay, 170491 K. A. MacKenzie, 179173 L. A. S. Sheriff, 179373 R. J. Sinclair, 179172 G. A. Smith, 178181 A. G. Webster, 170497 L. K. Wilson, 179153 J. B. Moncrieff, 179180 J. B. Wilson, 179167 B. I. Orr, 316346 D. C. Abbott, 172130 H. A. Aylen, 172280 R. E. Alexander, 316347 A. Anderson 178765 G. Adams, 154590 G. W. Ashley, 171279 J. Aird, 171784 H. Ainsworth, 153988 F. R. Appleton, 172634 H. J. Archibald, 316322 E. C. Arbogast, 172239 F. W. Ainger, 172626 F. W. Anderson, 526597 H. W. Aslin, 154732 D. Anderson, 172030 W. Blackman, 519336 E. E. Brown, 784206 K. Buell, 506449 H. Ball, 523153 A. L. Barker, 70712 J. Barlow, 316247 C. T. Browne, 172039 V. M. Burns, 171996 D. J. Berryhill, 1260429 H. H. Boyle, 154365 R. G. Brinsmead, 316006 J. E. Briggs, 427574 G. N. Brittin, 154214 P. A. Bessette, 1477 G. A. Broder, 171820 W. H. Blais, 688184 E. T. Batchelor, 171654 C. J. Browne, 316359 F. W. Burnip, 316961 W. J. Burgess, 171498 J. A. Barette, 171629 P. B. Burgwin, 181508 A. R. Beverley-Giddings, 171090 C. H. Boucher, 171111 S. Bentley, 171092 T. F. Barrett, 154731 J. V. Braga, 67328 T. G. Black, 176802 J. C. Brault, 154443 J. J. Butler, 170789 W. H. Booker, 172247 N. J. Betournay, 170764 E. L. Brien, 154675 G. H. Barber, 171045 J. H. Bradberry, 512268 E. J. Buckman, 525082 F. G. Boyes, 316107 H. C. Bridger, 42797 G. Bristow, 73008 D. Bergin, 154906 L. N. Benedict, 303458 A. E. Brown, 171917 W. E. Bothwell, 171845 W. J. Baxter, 172088 E. G. Bullinger, 154151 F. Butcher, 154224 D. M. Buell, 171904 P. M. Beale, 513390 T. Barrett, 171055 D. M. Bower, 316131 C. C. Bowers, 12580 A. Bullard, 17103 H. L. Chisholm, 172147 H. T. Connor, 540009 R. W. Cameron, 171985 W. J. Chinnick, 324917 G. A. Clark, 500280 P. Crook, 316269 A. C. Clarry, 14817 S. J. D. Clack, 171518 A. Crum, 183600 K. Campbell, 59153 W. Charles, 153984 J. R. Clarke, 376216 J. T. Chapman, 542484 A. Chapman, 316283 H. F. Cannon, 1261372 G. M. Campbell, 316868 R. J. Carson, 316867 J. E. Carson, 79056 F. L. Connon, 172169 S. M. Cook, 523591 G. L. Christie, 172403 D. H. Clarke, 172405 J. F. Cole, 171849 L. H. Creber, 171401 W. E. Craig, 461536 H. N. S. Coombes, 154721 J. W. Carter, 172567 H. S. Charrette, 172022 J. W. Campbell, 83795 A. Chesser, 171581 C. S. Chapman, 171400 L. C. Cleveland, 172165 L. H. D. Clarke, 171453 F. A. Curran, 316353 R. J. Crane, 154859 D. M. Calder, 154709 P. W. Cockroft, 120083 C. R. Downman, 316350 W. M. Digby, 171517 R. A. Dundas, 171179 C. S. Davies, 03570 P. A. Dubrule, 172163 H. C. Davison, 316360 J. E. Durham, 154602 D. Doxsee, 767282 R. L. Denny, 316062 H. Dixon, 541913 L. Downton, 126370 L. G. Day, 303447 L. A. Drew, 171788 J. V. O. Duchesneau, 171931 P. De Caillaux, 172238 J. C. Edmond, 170819 G. F. Evans, 171923 D. G. Elliott, 171875 E. W. Edwards, 171558 L. A. Ellis, 316362 W. H. Edwards, 181703 W. T. Eoff, 183601 J. H. Eaton, 11106 R. Edmiston, 154434 F. H. Emmerson, 171872 T. P. Edworthy, 316326 A. L. Feron, 759 W. S. Farrell, 516163 D. R. Fick, 171162 E. Foisey, 171906 A. Fleming, 171470 R. B. Finch, 771454 A. Farquhar, 154707 G. H. Furze, 172092 V. V. Freeze, 541560 E. S. Fletcher, 171896 W. C. Fritz, 302971 W. Gray, 171161 J. K. Gordon, 50050 C. D. Glenister, 108246 W. M. Gordon, 316206 C. F. Gervan 171768 H. W. Gee, 170804 H. F. Gyles, 171584 B. B. Greene, 174795 C. F. Gillon, 316183 C. J. Greene, 706934 L. J. Gannon, 540393 A. Goldwell, 316185 H. H. Gregg, 172291 W. N. Graham, 406072 A. F. Gibbons, 171577 A. G. Glendinning, 170629 L. Gauer, 171770 H. Gilker, 153622 R. W. Grant, 171512 T. E. Glancey, 157685 A. C. Gamer, 172892 P. H. Griffin, 70400 A. E. Griffiths, 316288 W. E. Gordon, 316310 G. Harris, 172157 W. Hume, 316071 H. A. Hetherington, 107296 C. E. Huntley, 142201 W. N. Hopper, 171848 J. B. Harrington, 50452 H. H. Herron, 316165 A. W. Hudson, 316025 F. Hanson, 172333 R. E. Henley, 316049 A. Halliwell, 113281 F. B. Harvard, 10130 R. H. Hawken, 2004233 W. B. M. Haldane, 171617 D. T. Hird, 751231 S. M. Hinshaw, Feb. 5th.

Temp. Hon. Lt. F. Read relinquishes his commn. on ceasing to be empld., March 16th.

The following are transferred to unempld. list:—Lt. (actg. Capt.) P. H. Barr, from (S.O.), March 28th; Lt. (Hon. Capt.) (actg. Capt.) W. T. Taylor, from (S.O.), April 2nd; Capt. (actg. Maj.) F. H. Tyas, from (S.O.), April 14th; Capt. F. C. Hogarth, from (S.O.), April 15th; Lt. (actg. Capt.) L. S. Kiggell, from (S.O.), April 16th; Maj. J. Rubie, O.B.E., from (O.S.), April 18th; Sec. Lt. (Hon. Lt.) (actg. Lt.) T. F. Lewis, from (S.O.), April 25th; Lt. (actg. Capt.) E. E. Colquhoun, M.B.E., from (S.O.); Capt. (actg. Maj.) R. D. Law (W. Yorks R.), from (S.O.), April 30th.

Lt.-Col. I. A. E. Edwards, C.M.G., resigns his commn. and is permitted to retain his rank, May 7th.

AIR MINISTRY, May 9th.

R.A.F.—The following temp. appointments are made:—Group Commdr.—Lt.-Col. A. M. Longmore, D.S.O., and to be actg. Col. while so empld., vice Lt.-Col. C. F. de S. Murphy, May 5th.

Staff Officer, 2nd Cl.—(O.)—Capt. O. H. Frost, M.C., May 1st.

FLYING BRANCH.—Lt.-Col. C. R. Finch-Noyes, D.S.O., A.F.C., to be Lt.-Col. (A. and S.), from (S.O.), March 5th to April 20th.

Maj. (actg. Lt.-Col.) E. H. M. O'Farrell to be Maj. (A.), and relinquishes the actg. rank of Lt.-Col. on reduction of estbt., April 13th.

Capt. T. O. Stadd, D.F.C., to be actg. Maj. while empld. as Maj. (A.), Oct. 24th, 1918, to April 30th.

Capts. to be actg. Majs. whilst empld. as Majs. (A'ship.):—W. E. G. Warneford, from June 17th, 1918, to Jan. 31st; A. H. Wann, from Nov. 17th, 1918, to April 30th.

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The following Capts. (actg. Majs.) relinquish the actg. rank of Maj. on reduction of establishment :—M. S. Marsden (A.), H. J. Segrave (A.), S. St. G. C. Belfield (K.B.), April 13th.

Lts. to be actg. Capts. whilst empld. as Capts. :—C. G. Wigglesworth, A.F.C. (A'ship), Aug. 1st, 1918, to Jan. 31st; J. H. Bentham (A. and S.), June 1st, 1918, to Nov. 11th, 1918.

The following Lts. (actg. Capts.) (A.) relinquish the actg. rank of Capt. on reduction of establishment :—E. J. A. Burke, A. L. Chick, A.F.C., J. S. Chick, M.C., J. M. Glaisher, D.F.C., G. V. Howard, R. E. Heath, L. H. Jones, F. S. McClurg, R. J. Rodwell, G. H. Russell, D.F.C., R. N. Swann, W.S.C. Smith, F. B. Wilson, April 13th.

Sec. Lt. H. Lloyd-Williams to be Lt., Sept. 28th, 1918.

Sec. Lt. A. C. T. Isaac (late Gen. List, R.F.C., on prob.) is confirmed in his rank of Sec. Lt. (A.), Sept. 1st, 1918.

Sec. Lt. W. W. J. Debenham (late Gen. List, R.F.C., on prob.) is confirmed in his rank of Sec. Lt. (A.), Sept. 27th, 1918.

J. Morton, A.F.C. (temp. Sec. Lt., K.R. Rif.) is granted a temp. commn. as Sec. Lt. (A.), Aug. 1st, 1918.

P.F.O. J. G. Stitt (late R.N.A.S.) is granted a temp. commn as Sec. Lt. (A.), Nov. 10th, 1918.

F./Cdt. W. Davies is granted a temp. commn. as Sec. Lt. (O.), Nov. 3rd, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. A. C. Campbell, June 15th, 1918; Lt. A. L. A. Kane (Lt., Nova Scotia R.), Dec. 16th, 1918; Lt. (Hon. Capt.) N. McL. Sanders (Capt., Can. A.S.C.), Jan. 23rd; Sec. Lt. (Hon. Capt.) C. C. Gilbert (Capt., N.Zealand Otago R.), Feb. 10th; Maj. F. H. M. Codville, M.C. (Maj., R. Can. Dragoons), March 2nd; Sec. Lt. J. Rudkin, M.C. (Sec. Lt., R.W. Surr. R.), March 31st; Capt. P. G. Lateman (Capt., Lond. R.), April 9th; Lt. J. D. Barnes (Lt., Dud. L.I., T.F.), April 12th; Lt. G. F. Bell (Lt., Yorks. R., T.F.), April 14th.

Transferred to unempld. list :—Sec. Lt. A. Schofield, Jan. 20th; Lt. G. C. Smale, Sec. Lt. E. D. Trask, R.F.A., Feb. 4th; Lt. S. Yates, Feb. 10th; Sec. Lt. C. S. Williams, Feb. 11th; Lt. F. W. Mathias, M.C., Feb. 14th; Sec. Lt. A. Sommerfelt, Feb. 15th; Lt. C. B. Boughton, March 1st; Sec. Lt. W. P. Bryden, March 5th; Lt. N. H. Bowie, March 7th; Sec. Lt. (Hon. Capt.) M. C. Bulteel (R. Scots), Lt. A. C. Saunders, March 19th; Sec. Lt. (Hon. Lt.) G. B. Savi, March 21st; Sec. Lt. C. H. L. Needham, March 22nd; Lt. H. J. Walkerdine, M.C., Sec. Lt. T. L. Wood, March 23rd; Lt. F. A. Barley (R.G.A.), March 24th; Lt. E. L. Shaw, Lt. A. P. C. Wigan, Lt. R. M. Whitmore, A.F.C., Lt. J. R. Wilson, March 25th; Sec. Lt. (Hon. Lt.) D. R. Sharman, Sec. Lt. C. E. Watson, Lt. F. J. Westfield, March 26th; Lt. W. M. Strathearn, Sec. Lt. A. S. Vaughan, March 27th; Lt. S. H. Bingham, Sec. Lt. F. G. Rossiter, Lt. (actg. Capt.) H. Wickett, D.F.C., Lt. H. E. Wortley, March 28th; Lt. (Hon. Capt.) L. R. Speakman, March 29th; Sec. Lt. G. C. Macklem, Sec. Lt. B. H. Stretton, April 1st; Sec. Lt. M. Bonser, Sec. Lt. R. A. Gibbs, Lt. J. W. Smith, Lt. K. S. Wood, April 2nd; Capt. H. P. Dean, Sec. Lt. A. Spotswood, April 3rd; Sec. Lt. C. G. Shapland, April 4th; Sec. Lt. (Hon. Lt.) G. N. Snowball, Sec. Lt. F. Skelly, Sec. Lt. D. G. Searls, April 5th; Capt. J. P. Colin, M.C., Capt. (actg. Maj.) G. Knight, M.C., Lt. A. J. Watson, April 6th; Sec. Lt. S. Scott, Sec. Lt. G. Wilton, April 7th; Lt. L. D. Brown, Sec. Lt. J. A. Gilchrist, Sec. Lt. J. Sheach, Sec. Lt. F. O. Townsend, Sec. Lt. W. E. Sanger, April 8th; Lt. N. Knight, Sec. Lt. A. T. Sprangle, D.F.C., Sec. Lt. A. E. V. Sadd, Sec. Lt. B. Spaven, Lt. H. M. Schlotel, Lt. R. M. Strang, Sec. Lt. R. J. Tomson, Sec. Lt. R. W. Walls, April 9th; Sec. Lt. G. R. S. Browne, Sec. Lt. W. E. Gandell, Sec. Lt. H. H. Senior, Lt. (actg. Capt.) G. J. Scaramanga, Lt. A. J. Todd (N. Staffs. R., T.F.), April 10th; Lt. G. H. H. Box, Lt. P. Douglas, Sec. Lt. G. M. Strachan, Sec. Lt. (Hon. Lt.) M. C. Sexton, Sec. Lt. O. J. Stevenson, Sec. Lt. E. G. Tyler, April 11th; Lt. E. W. Fleming, Lt. H. J. Horsey, Lt. S. Yates, Capt. S. R. Stammers, A.F.C., April 12th; Lt. L. Booth, Capt. A. C. Burt, Sec. Lt. W. G. Cooke, Sec. Lt. R. E. La Doucer, Lt. T. B. Fenwick, Sec. Lt. S. G. Floate, Lt. C. C. Grant-Baker, Lt. W. H. Leete, D.F.C., Lt. J. J. McKenna, Sec. Lt. A. W. Sumpter, Sec. Lt. W. R. Tomlinson, Sec. Lt. H. C. Tallboy, April 13th; Lt. E. J. Bailey, Maj. (actg. Lt.-Col.) R. Chadwick, M.C., D.C.M., Sec. Lt. W. L. Lewis, Lt. H. B. Macdonald, Lt. R. A. Markwick, Sec. Lt. H. L. Shearer, Sec. Lt. L. A. Whiting, Sec. Lt. S. H. Wheatley, April 14th; Sec. Lt. J. de F. Bailey, Sec. Lt. G. H. Bodington, Sec. Lt. T. S. Chilton, Sec. Lt. H. J. Cramphorn, Lt. H. S. Hayward, Sec. Lt. H. S. Manterfield, Lt. G. W. Miller, Sec. Lt. B. G. Pool, Sec. Lt. E. R. Sanderson, Sec. Lt. J. Sayner, Lt. C. W. Snook, Lt. W. F. V. Stephenson, Sec. Lt. C. J. Sanders, Capt. D. A. Tuck, Lt. J. H. Waugh, Lt. E. F. Wilson, Sec. Lt. R. N. Wellington, April 15th; Sec. Lt. W. G. Clarke, Sec. Lt. J. Cooke, Sec. Lt. C. N. Davies, Sec. Lt. H. A. Denny, Sec. Lt. W. H. Holton, Sec. Lt. W. J. Offord, Lt. P. W. Penney, Capt. N. H. Starbuck, Lt. R. M. C. Smith, Sec. Lt. J. E. Stalley, Lt. G. Thompson, Sec. Lt. R. Tickle, Sec. Lt. M. W. White, Lt. A. S. White, Lt. H. S. Woodman, April 16th; Sec. Lt. H. V. Askham, Sec. Lt. G. P. Alexander, Sec. Lt. J. A. Beard, Sec. Lt. R. J. Browning, Sec. Lt. W. Cooper, Lt. F. J. Fogarty, Lt. R. A. Fleck, Sec. Lt. T. Lamb, Lt. J. K. Pollitt, Sec. Lt. W. E. Sulway, Lt. A. G. Tooth, Lt. F. A. Taylor, Sec. Lt. A. J. M. Tuck, Sec. Lt. C. L. Tench, Sec. Lt. W. H. Whale, Sec. Lt. G. Warhurst, April 17th; Sec. Lt. J. A. Bauer, Lt. A. A. M. Buschmann, Lt. (actg. Capt.) J. Collier, D.F.C., Sec. Lt. W. H. Dawkes, Sec. Lt. (Hon. Lt.) R. Michaelis, Lt. M. McGall, Sec. Lt. J. N. Marshbank, Sec. Lt. E. A. Pudney, Capt. F. E. Sargood, Sec. Lt. G. Wright, April 18th; Lt. C. G. Kitchingman, Lt. G. S. Lewtas, Capt. P. B. Silk, April 19th; Lt. (actg. Capt.) E. S. T. Cole, Sec. Lt. S. J. Manser, Sec. Lt. A. MacG. Mitchell, Lt. E. Wilson, Sec. Lt. P. J. Waller, Sec. Lt. A. G. White, April 20th; Sec. Lt. F. W. Le Blanc, Lt. V. R. Blow, Lt. W. F. Davenport, Lt. (actg. Capt.) W. H. Farrow, D.F.C., Sec. Lt. R. G. T. Giddens, Sec. Lt. C. E. Krouse, Lt. E. A. Peters, Lt. (actg. Capt.) P. Pike, Sec. Lt. A. D. M. Spear, Sec. Lt. O. S. Winfield, April 21st; Sec. Lt. L. L. Bridgeman, Sec. Lt. R. G. Bradbury, Sec. Lt. T. M. Cornish, Sec. Lt. J. E. H. Chadwick, Lt. R. Caldecott, Lt. H. J. Crofts, Sec. Lt. L. A. Drain, Sec. Lt. J. W. Hicks, Lt. H. M. Hutton, Sec. Lt. B. Louttit, Sec. Lt. D. R. Pettigrew, Sec. Lt. S. Toby, Lt. J. B. Weir, Sec. Lt. C. Wealthall, Lt. A. J. Yates, April 22nd; Lt. A. M. Bain, Sec. Lt. A. E. Bedborough, Lt. G. W. G. Cass, Sec. Lt. (Hon. Lt.) J. Christie, Sec. Lt. A. R. Turner, Lt. L. G. Taylor, April 23rd; Sec. Lt. W. H. Anderson, Sec. Lt. S. Abrines, Sec. Lt. T. G. Braine, Lt. C. C. Butler, Lt. E. E. Butler, Sec. Lt. A. Clarke, Sec. Lt. F. R. Greenwood, Sec. Lt. A. W. Gilbert, Sec. Lt. M. D. Moore, Sec. Lt. W. G. McGruther, Sec. Lt. J. G. Millar, Lt. (actg. Capt.) E. E. Morris, Lt. F. H. Prime, Sec. Lt. (Hon. Lt.) E. F. Smallbone, R.F.A., Lt. G. N. Sellers, D.F.C., Sec. Lt. N. C. Shergold, Sec. Lt. W. H. Welsh, April 24th; Sec. Lt. C. E. F. Arthur, Sec. Lt. C. M. Barter, Sec. Lt. R. A. Broadbank, Lt. (actg. Capt.) L. G. Banks, Lt. G. H. Baker, Lt. (actg. Capt.) C. L. Bruce, Lt. (actg. Capt.) E. L. Crowe; Sec. Lt. D. M. David, Lt. L. W. King, Sec. Lt. (Hon. Lt.) L. W. Morgan, Sec. Lt. F. D. R. McLaren, Sec. Lt. L. R. Marsh, Sec. Lt. A. L. Stewardson, Sec. Lt. F. W. Trench, Sec. Lt. F. G. Thomas, Sec. Lt. (Hon. Lt.) J. C. Thompson, Lt. F. R. I. Wickham, Sec. Lt. F. J. Wise, Sec. Lt. A. R. B. Woodiwiss, April 25th; Sec. Lt. A. H. Barber, Lt. B. B. Ball, Lt. R. W. Cash, Sec. Lt. E. L. Chafe, Sec. Lt. C. E. Little, Sec. Lt. L. S. McCullagh, Sec. Lt. A. C. Precious, Sec. Lt. H. E. Varley, Sec. Lt. K. K. White, Lt. C. H. Wallis, Sec. Lt. G. West, April 26th; Sec. Lt. (Hon. Lt.) F. H. Butler, Sec. Lt. N. H. Bain, Sec. Lt. M. Saynor, April 27th; Sec. Lt. D. D. H. Craig, Sec. Lt. (Hon. Lt.) N. Peters, Lt. H. C. Reeve, April 28th; Capt. A. V. Bowater, Lt. F. A. Barratt, Lt. R. G. Clough, Maj. B. P. Greenwood, Capt. G. D. F. Keddie, Sec. Lt. (Hon. Lt.) C. H. Scaddon (York and Lanc. R.), Sec. Lt. G. J. Sansum, Sec. Lt. F. W. Swain, Sec. Lt. S. L. Simpson, April 29th; Lt. (actg. Capt.) C. R. Alston, Sec. Lt. A. Bates, Sec. Lt. H. Cahill, Lt. (actg. Capt.) D. M. McGoun, M.C., Capt. P. C. C. Passman, Maj. (actg. Lt.-Col.) A. K. Tyler, O.B.E., May 1st; Lt. J. A. Amor, May 2nd; Sec. Lt. P. M. Barr, Lt. F. J. Dawson, Sec. Lt. H. MacD. Starke, D.F.C., May 8th; Sec. Lt. L. J. Bradley, May 9th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—C. H. Dunster (contracted on active service), April 24th; F. E. Robinson (contracted on active service), April 4th (substituted for notification in "Gazette," Jan. 17th); F. Green (substituted for notification in "Gazette," Dec. 6th, 1918), J. A. Harkin (substituted for notification in the "Gazette" of Feb. 25th), May 9th.

Lt. J. N. Raby resigns his commn., May 9th.

Sec. Lt. F. T. Mollard relinquishes his commn. on account of ill-health, May 10th (substituted for notification in "Gazette," Jan. 14th.

Lt. R. J. Stallard to take rank and prec. as if his appointment as Lt. bore date Oct. 1st, 1918.

The following Sec. Lts. are dismissed the Service :—J. N. MacDonald, for absence without leave, Dec. 2nd, 1918; J. B. Wickham, April 16th.

G. A. Thompson is antedated in his appointment as Sec. Lt. (A), Aug. 27th, 1918.

The appointment of Sec. Lt. R. C. Van Der Ben, M.C., is antedated to Sept. 2nd, 1918.

The surname of Sec. Lt. C. Walter is as now described, and not as stated in "Gazette," June 14th, 1918.

The notification in "Gazette," Feb. 25th, concerning Lt. H. G. Smith (Nova Scotia R.) is cancelled.

The notification in "Gazette," March 4th, concerning Sec. Lt. R. Clark is cancelled.

Administrative Branch.—Lt. (Hon. Capt.) (actg. Capt.) C. H. Lewis to be actg. Maj. whilst empld. as Maj., from Jan. 12th to April 30th.

Capt. S. M. Wood to be Capt., from (S.O.), May 1st.

Lt. E. Winter to be actg. Capt. whilst employed as Capt. from Oct. 18th, 1918, to April 30th.

Lt. (hon. Capt.) (actg. Capt.) G. Chetwynd-Stapylton relinquishes the actg rank of Capt on reduction of establishment, April 13th.

K. E. Clayton (temp. Capt., Somerset L.I.), is granted a temp. commn. as Lt., Aug. 10th, 1918, and to be hon. Capt., with seny. from April 1st, 1918.

Lt. (actg. Capt.) A. A. Denison, M.B.E., M.C., to be Lt., and relinquishes the actg. rank of Capt. on ceasing to be employed as Capt., (A), April 17th.

Lts. (A) to be Lts. :—C. L. De Beer, L. Duffus, H. Hammond, M.C., J. McM. McLennan, D.F.C., F. F. Morris, G. D. Rowden, E. S. C. Sen., G. M. Smith, A. D. Whitehead, April 17th.

H. D. Evans, April 24th.

Lt. W. E. Wright to be Lt., from (K.B.), April 17th.

Lts. (O.) to be Lts. :—N. T. Berrington, J. M. Brisbane, M.C. W. M. E. Chester, M.C., April 17th.

Sec. Lt. H. J. Young to be Lt., Dec. 21st, 1918.

Sec. Lt. (Hon. Capt.) C. J. P. Copner to be actg. Lt. whilst empld. as Lt., from (K.B.), from July 29th, 1918, to April 30th (substituted for notification in "Gazette," Dec. 31st, 1918).

Sec. Lt. S. H. Coronel to be actg. Lt. whilst specially employed from April 29th to April 30th.

Sec. Lt. T. H. Hesketh to be Sec. Lt., from (A), April 17th.

Sec. Lt. H. H. Ffrench to be Sec. Lt., from (O), April 17th.

A. Buckley is granted a temp. commn. as Sec. Lt., April 30th, 1918.

The following Lts. relinquish their commns. on ceasing to be empld. :—Capt. F. C. Barrett (Fife and Forfar Yeo.), Feb. 25th; Lt. J. P. D. Mostyn (Lt., R. Suss. R.), March 6th; Lt. F. H. Ward (W. Yorks R., T.F.), March 7th; Lt. R. St. J. Hartley (Devon R.), March 12th; Lt. J. E. S. P. Bradford, M.C. (W. Rid. R.), April 19th, Lt. W. A. Waterman (Border R.), April 24th.

Transferred to the unempld list :—Lt. H. Beer, Feb. 14th; Lt. R. K. Knowles, March 21st; Lt. L. A. Weston, March 26th; Sec. Lt. C. E. Sainsbury, March 27th; Sec. Lt. R. H. P. West, March 29th; Sec. Lt. S. J. Stagg, March 31st; Capt. (actg. Maj.) J. Dickinson, April 1st; Lt. (actg. Capt.) T. Davis, Lt. (Hon. Capt.) H. G. Southon, Lt. (Hon. Capt.) S. W. Southwood, Lt. N. F. Spurr, April 9th; Sec. Lt. L. C. Hatton, April 10th; Sec. Lt. (Hon. Lt.) E. D. Edwards, April 11th; Sec. Lt. G. K. Austin, Lt. (actg. Capt.) J. N. Stephens, April 12th; Sec. Lt. L. C. Shepherd, April 15th; Sec. Lt. R. E. Edwards, Sec. Lt. C. H. Westwater, April 14th; Capt. B. F. Ayrton, Sec. Lt. W. Brennan, Sec. Lt. (hon. Lt.) L. R. Ellwood, Lt. (hon. Capt.) J. A. Mansfield, Lt. T. C. F. Paice, Sec. Lt. E. G. Stott, April 15th; Lt. R. K. Fletcher, Sec. Lt. C. A. Henshaw, Sec. Lt. (actg. Capt.) A. E. Marriott, Lt. A. S. Windsor, April 16th; Lt. J. A. Kirker, Sec. Lt. M. R. Skinner, April 18th; Lt. L. W. H. Bertie, April 10th; Lt. W. H. Chatham, Sec. Lt. R. E. Clark, Sec. Lt. J. G. Collins, Sec. Lt. G. M. Coull, Sec. Lt. (Hon. Lt.) C. B. Marshall, Sec. Lt. H. N. Sauer, April 22nd; Sec. Lt. S. E. Baile, Sec. Lt. R. T. Bark, April 23rd; Lt. D. E. Morrison, April 24th; Lt. (actg. Capt.) D. F. B. Shinwright, April 25th; Sec. Lt. F. H. Wall, April 26th; Lt. (actg. Capt.) F. B. Beddington, Sec. Lt. C. W. Slarke, May 1st.

Sec. Lt. C. E. Goodrum relinquishes his commn. on account of ill-health contracted on active service, Nov. 1st, 1918 (substituted for notification in "Gazette," Jan. 21st).

Sec. Lt. J. R. McCormack is removed the Service, his Majesty having no further occasion for his services as an officer, Feb. 28th.

Sec. Lt. S. G. Coates is removed the Service for absence without leave, Sept. 13th, 1918.

The notification in "Gazette," April 11th, concerning Lt. (actg. Capt.) D. H. Robertson, A.F.C., is cancelled.

The notification in "Gazette," April 8th, concerning Sec. Lt. S. D. Good is cancelled.

Technical Branch.—Maj. (actg. Lt.-Col.) C. Barber to be Maj., and relinquishes the actg. rank of Lt.-Col., March 20th.

Maj. C. Barber to be graded for purposes of pay and allowances of Lt.-Col., Grade (B), April 22nd.

Lt. (actg. Capt.) H. A. Braddock to be graded for pay and allowances of Capt. while empld. as Capt., Grade (A), April 1st.

Lt. L. F. de Peyrecave to be actg. Capt. while specially empld. at the Ministry of Munitions from Aug. 17th, 1918, to April 30th.

Lt. W. J. Bunting to be actg. Capt. while empld. as Capt., Grade (B), from Nov. 1st, 1918, to April 30th.

Sec. Lt. (Hon. Lt.) A. Ward to be actg. Capt. while specially empld. at the Ministry of Munitions from Aug. 25th, 1918, to April 30th.

Sec. Lt. B. H. Sagar to be actg. Capt. while holding a special appointment at the Ministry of Munitions from Dec. 1st, 1918, to April 30th.

Sec. Lt. (actg. Capt.) S. K. D'A. de Ferrars to be Lt., April 5th, 1918.

Sec. Lts. to be Lts. without pay and allowances of that rank :—(Hon. Lt.) R. V. Weekes, May 23rd, 1918; C. B. Stamp, Oct. 13th, 1918.

Sec. Lt. H. G. Murphy to be actg. Lt. while empld. as Lt., Grade (B), from Dec. 3rd, 1918, to April 30th.

Sec. Lts. to be Sec. Lts. (Grade A) from (A.O.) :—H. D. Olson, Nov. 26th, 1918 (substituted for notification in "Gazette," Dec. 13th, 1918); P. F. Jessop, Jan. 1st; A. E. Chester, Feb. 21st.

Sec. Lts. to be Sec. Lts., Grade (B) from (A.O.) :—A. N. Ramsey, Jan. 16th; J. G. Smithson, April 29th.

Sec. Lt. E. G. Grafton (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., Grade (B), Feb. 18th.

Transferred to unempld. list:—Sec. Lt. J. R. Salmon, Feb. 23rd; Lt. J. F. B. Smith, March 6th; Sec. Lt. R. O. Cherry, March 8th; Sec. Lt. E. B. Gray, Sec. Lt. T. H. Swarbrick, March 21st; Lt. (actg. Capt.) W. D. Squire, March 25th; Sec. Lt. G. E. H. Smith, March 29th; Maj. A. E. Snape, Capt. W. Shearer, March 31st; Sec. Lt. R. J. Hibberd, April 1st (substituted for notification in "Gazette," April 11th); Capt. (Hon. Maj.) (actg. Maj.) G. S. M. Taylor, April 2nd; Capt J. W. Gordon, April 6th; Capt. R. G. Shire, April 9th; Sec. Lt. G. G. Kirby, April 5th; Sec. Lt. F. C. Starkey, April 11th; Capt. L. W. Carr, Sec. Lt. C. J. Skidmore-Jones, Sec. Lt. H. G. Moon, Sec. Lt. G. H. Saunders, April 12th; Sec. Lt. V. C. Crook, Sec. Lt. J. D. E. Symons, April 13th; Capt. D. H. Kemp, Sec. Lt. B. O. Nash, Lt. F. J. Standerwick, April 15th; Sec. Lt. (actg. Lt.) J. Anderson, Sec. Lt. V. J. Atterton, Sec. Lt. W. Blakemore, Sec. Lt. (Hon. Lt.) V. E. Faning, Lt. C. G. A. R. Spry, Lt. F. M. Pepper, Lt. A. L. Simms, April 16th; Sec. Lt. (actg. Capt.) A. J. Corbitt, Lt. J. W. Clark, April 17th; Sec. Lt. (actg. Lt.) E. W. Dexter, Sec. Lt. H. J. Neill, April 19th; Sec. Lt. (Hon. Lt.) E. W. Hallam, April 21st; Lt. W. C. Cambray, M.C., April 22nd; Sec. Lt. C. P. E. Cheffins, Sec. Lt. D. H. Fenner, Sec. Lt. O. E. C. Taylor, Capt. J. M. Macaulay, Lt. (actg. Capt.) S. A. Mitchell, April 23rd; Maj. (actg. Lt.-Col.) A. H. W. Skitt, April 24th; Lt. (actg. Capt.) L. T. Beddow, Sec. Lt. (Hon. Lt.) B. J. Mitchell, Capt. S. E. Spencer, April 25th; Capt. P. A. Smee, April 27th; Capt. (actg. Maj.) W. Park, May 1st; Sec. Lt. J. Tannadine, May 7th.

Sec. Lt. W. N. Edwards to take rank and prec. as if his appointment as Sec. Lt. bore date Oct. 1st, 1918.

Sec. Lt. C. W. O'Brien resigns his commn., May 10th.

The notification in "Gazette," Feb. 25th, concerning Sec. Lt. P. H. C. Martin is cancelled.

MEDICAL BRANCH.—E. L. Sergeant is granted a temp. commn. as Lt. May 8th.

Transferred to unempld. list: Capt. M. R. O. Wilson, April 6th; Capt. (actg. Maj.) A. Scott-Turner, April 8th; Lt. G. M. Wishart, April 16th; Lt. B. R. B. Truman, I. M. Thomson, April 17th; Capt. S. Robertson, April 25th.

DENTAL BRANCH.—Lt. V. E. Mills is transferred to the unempld. list, April 17th.

MEMORANDA.—All officers of the Royal Air Force holding actg. rank relinquish such rank with effect from May 1st and revert to their substantive ranks as shown in the Monthly Air Force List, with the exception of officers belonging to the forces engaged in operations in Russia, the undermentioned officers who will hold the actg. rank stated against their names and other officers who may hereafter be gazetted to actg. rank:—

To be actg. Brig.-Gens.:—Col. A. V. Vyvyan, C.B., D.S.O., whilst empld. as an Area Comdr.; Col. P. W. Game, C.B., D.S.O., whilst empld. as a Director; Col. O. Swann, C.B., whilst holding an independent comd.; Col. B. H. H. Cooke, C.M.G., D.S.O., whilst officiating as an Area Comdr.; Col. H. R. M. Brooke-Popham, C.M.G., D.S.O., A.F.C., whilst empld. as a Director; Col. E. M. Maitland, C.M.G., D.S.O., whilst specially empld.; Col. C. L. Lambe, C.M.G., D.S.O., whilst empld. as Director; Col. J. M. Steel, C.B.E., whilst empld. as a Brig.-Gen. Air Staff; Col. C. A. H. Longcroft, C.M.G., D.S.O., A.F.C., whilst empld. as an Area Commdr.; Col. T. I. Webb-Bowen, C.M.G., whilst empld. as an Area Commdr.; Col. L. E. O. Charlton, C.B., C.M.G., D.S.O., whilst empld. as an Air Attaché; Col. R. M. Groves, C.B., D.S.O., A.F.C., whilst empld. as Deputy Chief of the Air Staff; Col. J. H. W. Becke, C.M.G., D.S.O., whilst empld. as Brig. Commdr.; Col. R. E. T. Hogg, C.M.G., C.I.E., whilst empld. as Brig. Commdr.; Col. E. L. Gerrard, C.M.G., D.S.O., whilst holding an independent commd.; Col. M. H. G. Fell, C.B., C.M.G., whilst empld. as a Director; Col. P. R. C. Groves, D.S.O., whilst specially empld.; Lt.-Col. R. K. Bagnall-Wild, C.M.G., whilst empld. as a Director; Lt.-Col. P. L. W. Herbert, C.M.G., whilst officiating in commd. of the R.A.F. in the Middle East; Lt.-Col. N. D. K. MacEwen, C.M.G., D.S.O., whilst holding an independent commd.; Lt.-Col. C. C. Marindin, D.S.O., whilst empld. as a Director.

To retain relative rank of Brig.-Gen.:—Rev. H. D. L. Vienet, M.A., while empld. as Chaplin-in-Chief.

To be actg. Cols.:—Lt.-Col. R. C. S. Hunt; Lt.-Col. C. R. Samson, D.S.O., A.F.C.; Lt.-Col. R. H. Clark-Hall, D.S.O.; Lt.-Col. R. D. S. Stoney, C.B.E., while empld. at the Central Pay Office; Lt.-Col. A. M. Longmore, D.S.O.; Lt.-Col. A. W. C. McFall, while empld. as permanent President of Courts Martial; Lt.-Col. F. H. G. Playfair, while empld. as permanent President of Courts Martial; Lt.-Col. I. Curtiss; Lt.-Col. A. V. Bettington, C.M.G., while specially empld.; Maj. W. P. Alexander, while empld. as permanent President of Courts Martial; Maj. H. C. Ellis, C.B.E., while in charge of the Gen. Services Pay Office.

To retain the relative rank of Col.:—Rev. R. E. V. Hanson, M.A., while empld. as Deputy Chaplain-in-Chief; Rev. S. L. Clarke, M.A., B.Sc., while empld. as Deputy Chaplain-in-Chief; Rev. S. J. Jones, M.C., while empld. as Principal Chaplain; Rev. H. Dey, D.S.O., while empld. as Principal Chaplain; Rev. R. Hall, while empld. as Principal Chaplain; Rev. W. Moffat, while empld. as Principal Chaplain.

To be actg. Lt.-Cols.:—Maj. E. R. Peal, O.B.E., D.S.C., while specially empld.; Maj. W. D. S. Sanday, D.S.O., M.C., while empld. as an Air Attaché; Maj. E. R. C. Nanson, D.S.O., A.F.C., while comng. a Group; Maj. H. A. Moore, C.B.E., M.C., while empld. as Staff Officer, 1st Cl.; Maj. Sir N. R. A. D. Leslie, Bt., C.B.E., while empld. as an Air Attaché; Maj. D. Mackenzie, while empld. as Permanent President of Courts Martial; Maj. H. B. Bonning, while empld. as Officer in Charge of Records; Maj. S. J. Goble, D.S.O., O.B.E., D.S.C., while specially empld.; Maj. D. Harries, A.F.C., while specially empld.; Maj. H. C. T. Langdon, while empld. as Principal Med. Officer of an Area; Capt. E. S. Halford, O.B.E., while specially empld.

To be actg. Majs.:—Capt. C. L. Bullock, O.B.E., while specially empld.; Capt. G. F. Clark, while empld. as Area Representative on Quartering Committees; Capt. A. S. C. Maclaren, M.C., A.F.C., while specially empld.; Capt. R. F. S. Leslie, D.S.C., D.F.C., whilst specially empld.; Capt. D. C. James, whilst specially empld.; Capt. W. J. King, D.C.M., while empld. as Area Representative on Quartering Committees; Lt. W. H. Holroyd, whilst empld. at the Central Pay Office; Lt. D. G. Northam, whilst empld. as Area Representative on Quartering Committees; Lt. C. J. Brockbank, whilst empld. at R.A.F. Record Office; Sec. Lt. A. R. Fulton, whilst specially empld.

To be actg. Capts.:—Lt. G. F. Ansell, whilst empld. at the Central Pay Office; Lt. W. H. Lyall, M.B.E., whilst empld. at the Central Pay Office; Sec. Lt. C. T. Johnson, whilst empld. at the Central Pay Office; Sec. Lt. A. E. M. Fortescue, M.B.E., whilst empld. at the Gen. Services Pay Office; Sec. Lt. E. S. Peters, whilst employed at the Gen. Services Pay Office; Sec. Lt. I. Wardle, whilst empld. at the Central Pay Office; Sec. Lt. S. W. Hodgkinson, whilst empld. at the Gen. Services Pay Office; Lt. R. C. Vaughan, M.C., whilst empld. as Courts-Martial officer; Lt. G. Norrington, whilst empld. as Courts-Martial Officer; Lt. M. J. Norton, whilst empld. as Courts-Martial Officer; Lt. A. B. Langridge, whilst empld. as Courts-Martial Officer; Lt. E. S. C. Brooks, whilst empld. as Courts-Martial Officer; Sec. Lt. J. H. Slingsby, whilst empld. as Courts-Martial Officer; Sec. Lt. G. T. Armitage, whilst empld. as Courts-Martial Officer; Sec. Lt. J. E. H. Cochrane, whilst empld. as Courts-Martial Officer.

To be actg. Lts.—Sec. Lt. W. F. Swan whilst empld. at the Central Pay Office; Sec. Lt. F. T. L. Avis, whilst empld. at the Central Pay Office; Sec. Lt. F. C. Bird, whilst empld. at the Central Pay Office; Sec. Lt. E. G. Boone, whilst empld. at the Central Pay Office; Sec. Lt. W. G. Chate, whilst empld. at the Central Office; Sec. Lt. F. W. Healey, whilst empld. at the Central Pay Office; Sec. Lt. L. J. Marden, whilst empld. at the Central Pay Office; Sec. Lt. J. L. Saxton, whilst empld. at the Central Pay Office; Sec. Lt. H. Balls, whilst empld. at the Central Pay Office; Sec. Lt. S. J. Croad, whilst empld. at the Gen. Services Pay Office.

The following Overseas Cadets are granted temp. commns. as Sec. Lts.: 154858 H. W. Hales, 316211 D. Hudson, 171463 S. Holmes, 316170 E. C. Hatch, 223370 T. J. Hanranhan, 316063 J. H. Hewson, 116676 E. Hills, 71813 H. N. Hurle, 172400 J. A. Hoey, 4677 C. C. Harvie, 171877 C. Hughes, 171281 L. B. Harris, 775714 C. B. Horton, 513825 R. D. Huddar, 513162 W. J. Ham, 171925 J. Hudson, 316296 E. L. Hollver, 331246 J. Innes, 316276 S. S. Jones, 316191 P. G. Jordan, 171920 J. J. Jaffe, P/1415 W. Johnson, 154619 T. C. Jobin, 172199 E. A. Jamieson, 181335 S. G. Jones, 284 J. H. Judd, 316370 H. R. Jenks, 172590 E. S. Kielly, 316176 U. C. Knaggs, 181606 H. R. Kitchen, 540020 G. M. Keely, 154796 W. W. Kline, 1048332 A. Kidd, 898313 H. E. Keith, 653431 A. P. Knechtel, 316110 C. Kennedy, 172226 J. P. La Chapelle, 910909 R. Leitch, 154989 A. A. Lee, 170783 E. W. Lemire, 171833 A. Le Blanc, 171914 J. D. Latham, 171897 J. S. Laurie, 2813 D. Low, 17130 N. M. Lee, 172244 J. D. Lebonte, 925297 B. N. Laubach, 171924 W. Lloyd, 172607 S. M. Leigh, 154717 A. B. Lackie, 172602 H. Ludgate, 171806 W. A. Mason, 171287 K. D. MacMillan, 171928 E. McNutt, 171939 A. McGougan, 184660 G. D. Mann, 316349 W. H. McKenzie, 316226 C. W. Morrow, 171682 H. A. Macdonald, 316168 R. I. Mark, 476330 W. A. Munday, 153851 H. C. Mahee, 171494 E. C. Mapson, 154772 C. P. McCrimmon, 171573 D. N. Mooney, 28763 J. S. Moysey, 510255 G. I. McIntosh, 214213 J. F. M. Muir, 503372 J. K. MacNeill, 154386 W. J. Maddigan, 172104 G. Milson, 171167 M. L. Moore, 171813 J. S. McArthur, 4802 H. C. McFayden, 171114 F. H. McCormick, 316007 R. M. Myers, 316289 D. J. McIntosh, 117088 F. G. McKinnon, 126008 R. J. McMurray, 331666 G. F. Mott, 172096 L. MacClashan, 376167 E. D. McDougal, 153113 G. L. McLachlan, 171505 J. McDonald, 404904 C. McNally, 153632 W. J. McLelland, 170850 J. C. McNeill, 313264 W. C. McKinaly, 706184 R. J. McCloskey, 316004 D. Mitchell, 171392 E. W. McTaggart, 524490 W. McKenzie, 316951 R. G. Milne, 304595 C. V. McFarlane, 171597 L. MacLachlan, 171968 G. A. McMann, 487395 T. W. McPhee, 171909 S. R. Masten, 173005 H. B. Moore, 154984 N. A. Marshall, 172506 W. J. MacDonald, 154823 R. D. McNeillis, 316033 J. A. McCleave, 171363 F. J. Maguire, 172146 C. G. Morehouse, 152728 M. Merterson, 181336, J. W. McDonald, 316013 E. H. A. Martin, 123870 M. W. Manson, 316375 A. G. Muir, 154353 W. McHenry, 415602 J. W. Mackay, 170811 F. J. McCloskey, 316379 E. E. Miller, 171172 H. S. Martindale, 081788 W. R. McCullough, 316228 H. C. Norris, 316010 L. P. Newton, 170679 G. W. Norman, 154140 W. G. Nixon, 316186 A. J. Nesbitt, 171831 W. A. North, 171655 C. H. O'Meara, 171099 J. J. C. O'Ryan, 316242 J. B. O'Neill, 171427 A. K. Owen, 172332 T. B. O'Conner, 172095 W. E. F. Owens, 331189 W. C. Osbourne, 218827 D. H. Overy, 170773 W. A. Peterson, 316193 D. Piggott, 511861 H. W. Peacocke, 171758 H. Poole, 510190 E. D. Palmer, 257510 H. C. Perry, 154922 W. L. Phinn, 1051665 R. Pearsall, 154802 H. S. Penfold, 171763 J. I. Peters, 170787 J. R. Proctor, 171554 A. F. Popplewell, 748903 E. St. J. Paquette, 430190 W. W. Pettigrew, 136239 J. S. Robinson, 513586 H. E. Ryerson, P.222 J. W. Randolph, 172491 H. L. Rousseau, 154045 A. J. Rankine, 171840 W. Rennie, 316114 G. N. Rivers, 172011 R. N. Ripley, 154744 J. A. Rea, 123869 C. H. Reed, 171482 N. Rookwood, 92866 J. W. Regan, 51 F. G. Robins, 154881 O. E. Rogers, 524577 G. Redgrave, 171950 R. F. Remnant, 171732 D. Richardson, 171657 J. C. Rimmington, 316011 C. G. Roome, 171571 W. H. Richards, 157112 A. E. Ribey, 154702 W. B. Reid, 318981 A. Smith, 170845 J. A. Semple, 154274 C. J. Short, 154943 W. Smythe, 730731 H. J. Schorse, 316363 R. W. Smith, 535685 L. Smallwood, 171847 R. A. Swallow, 154323 S. P. Stuart, 154693 J. C. Simpson, 171998 H. D. Stanley, 316328 W. F. Seller, 135568 A. S. Simpson, 316243 F. S. Seaborne, 531122 R. H. Spick, 171528 J. Stacey, 316240 J. M. Seek, 316150 R. Squarebriggs, 22294 B. Schurman, 152369 R. G. Simpson, 151774 O. M. Schwindt, 171348 R. B. Stewart, 171173 G. W. Shuff, 171761 W. Strangeway, 154668 G. U. Smith, 528664 M. Smale, 316302 T. W. Spraggon, 137794 R. Smith, 171669 R. W. Smith, 171889 J. R. Sharp, 171910 C. H. Sifton, 132522 S. W. Shaw, 263 R. Sheard, 172102 C. H. Tatum, 252401 C. H. Theedom, 438239 F. L. Thomas, 154279 C. M. Tobin, 316041 S. S. Thompson, 171873 A. S. Townsend, 709268 J. E. Tye, 316032 G. M. Townsend, 154579 J. M. Treleaven, 1261637 R. D. Taylor, 153347 J. Townsend, 172160 R. G. Thompson, 171809 W. Tarlton, 154 A. S. Thomas, 219532 G. K. Thompson, 171469 R. J. Tuffnail, 171612 P. D. L. Vahey, 181613 R. P. Valtier, 172133 P. A. Valois, 316251 L. Weber, 172059 C. A. Weir, 303353 A. O. Wilson, 540254 A. O. Winter, 907082 R. White, 171126 F. G. Wallace, 316272 L. West, 171626 A. C. Wilson, 154853 A. R. Woodhouse, 316372 T. J. Wilson, 171152 F. Williams, 172426 V. F. Way, 778233 M. E. Watts, 316274 C. J. Wrigglesworth, 318620 W. Walker, 154698 L. A. Workman, M/2152852 F. White, 171534 J. A. Weir, 164722 J. E. Worth, 154885 N. E. Ward, 147805 O. Willows, 172010 F. L. Woodruff, 172028 H. Welch, 153556 G. Watson, 316348 J. P. Weagant, 316666 F. H. White, 316099 A. O. Wilson, 316374 A. S. Window, 190319 E. M. Webber, 303065 R. B. Watson, 171641 H. White, Feb. 15th.

Temp. Hon. Capt. H. Longton relinquishes his commn. on ceasing to be empld., April 16th.

Transferred to the unempld. list:—Lt. (actg. Capt.) J. M. Watson (S.O.), March 25th; Lt. (actg. Capt.) G. C. Wingrove (S.O.), March 31st; Lt. (Hon. Capt.) (actg. Capt.) W. T. Taylor (S.O.), April 2nd; Capt. (actg. Maj.) M. H. Davies, M.C. (S.O.), April 4th; Capt. (actg. Lt.-Col.) T. M. Eggar, O.B.E. (S.O.), April 15th; Lt. (actg. Capt.) W. B. Garrett, from (S.O.); Capt. S. D. Felkin, M.B.E., from (S.O.), Maj. (actg. Lt.-Col.) S. R. Lowcock, from (S.O.), Capt. C. A. Slater, from (S.O.), April 16th; Capt. (actg. Maj.) C. L. D. Willcox, from (S.O.), Capt. (actg. Maj.) G. Whale, from (S.O.), April 22rd; Capt. L. P. D. Cooper, from (S.O.), Lt. (Hon. Capt.) (actg. Maj.) F. Lindsay, from (S.O.), April 24th; Capt. R. D. Hallam, from (S.O.), April 28th; Maj. C. W. Gamble, O.B.E., from (S.O.), April 29th; Capt. (actg. Maj.) H. H. Walmsley, from (S.O.), April 30th; Maj. C. F. Krabbe, O.B.E., from (S.O.), Capt. J. E. Morris, from (S.O.), May 1st.

Capt. (Hon. Maj.) W. G. M. Sarel (Rif. Bde.), from (S.O.), relinquishes his commn. on account of ill-health, May 7th.

Lt. J. More resigns his commn., May 10th.

FROM THE COURT CIRCULAR.

WINDSOR CASTLE, May 8th.

The King, attended by the Gentlemen in Waiting, went to London this morning.

His Majesty held an Investiture in the Quadrangle of Buckingham Palace at 11 o'clock.

The following were severally introduced into the presence of His Majesty, when the King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

THE DISTINGUISHED SERVICE ORDER.—Major Hugh Reilly, Indian Army, attached R.A.F.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE (MILITARY DIVI-

sion).—Officers.—Major Chester Duffus, R.A.F. (also received the Military Cross); Philip Hoyland, R.A.F.

His Majesty then conferred decorations as follows:—

The Distinguished Service Cross.—Captain Edward Burling, R.A.F.

The Military Cross.—Maj. George Gardner, (Yorkshire R.), attd. R.A.F.; Capt. John Brown, R.A.F.; Capt. Herbert Drewitt, R.A.F.; Capt. Leslie Edwards (Middx R.), attd. R.A.F.; Capt. Robert Kirkman, R.A.F.; Lieut. Stafford Jackson, R.A.F.; Lieut. Arthur Lancashire, R.A.F.; Lieut. Raoul Lacovich, R.A.F.

ADMIRALTY APPOINTMENTS.

The following appointments have been made:—

May 7th.—Art. Engr.—J. Welham, to "Furious," (May 5th).

May 8th.—R.N.R.—Lieuts.—W. T. Lane, to "Pegasus," (April 17th).

OFFICIAL COMMUNIQUES.

The Secretary of State for India makes the following announcement:

May 9th.—Indian agitators are stated, in a report received from Afghan sources, to have pledged themselves to attack on aircraft and mechanical transport and to incendiarism.

* * *

The India Office issued the following communiqué on May 12th:—

Since the official statement was published on May 8th regarding recent developments on the Afghan border, further telegrams have been received from the Government of India on the subject. On May 9th the Government of India reported that the Afghans were receiving large reinforcements, and had advanced their positions to the heights of Ashrafai Khel, overlooking Landi Kotal. On May 10th the Government of India telegraphed as follows:—

On the morning of May 9th our advanced forces at Landi Kotal expelled Afghans from positions in vicinity of that locality. Aeroplanes co-operated and bombed Loi Dakka with good results. Enemy are still in position to the west about Khar Gali. Our casualties were slight.

THE CASUALTY LIST.

MILITARY.

Reported May 13th.

Previously reported Missing, now reported Killed.—McFerran, Lt. T. M., R.F.C.

PERSONAL NOTICES.

NAVAL.

Birth.

LONGMORE.—On May 6th, at Witley Manor, Godalming, the wife of Colonel A. M. Longmore, D.S.O., R.A.F. (late Wing Comdr., R.N.), of a son.

MILITARY.

Deaths.

BEANLANDS.—Capt. Bernard Paul Gascoigne Beanlands, M.C., R.A.F., who died on May 8th, at Northolt, was the son of the late Canon Beanlands, rector of Christ Church Cathedral, Victoria, B.C., and Mrs. Beanlands. He was 21 years of age.

ROBINSON.—Major Hugh Huntley Robinson, M.C. and bar, R.A.F.M.S., 9th Wing, R.A.F. (late M.O. 21st London Regt.), who was killed on May 3rd in an aeroplane accident at Mons, was the second son of Dr. and Mrs. H. Shapter Robinson, of "Crantock," Denham Road, Epsom. He was 29 years of age.

Engagements.

COPEMAN—CLAYTON.—The marriage of Major Martin George Byard Copeman, Leicestershire Regt. and R.A.F., son of the late Mr. and Mrs. Thomas Copeman, of Aylsham, Norfolk, to Ianthe, daughter of the late Capt. John William Clayton, 13th Hussars, and Mrs. Clayton, of 8, Onslow Gardens, S.W., and Felpham House, Sussex, will take place at St. James's, Piccadilly, on May 26th, at 2.30.

GRINNELL-MILNE—VAN BLOKLAND.—A marriage has been arranged, and will shortly take place very quietly, between Capt. Douglas Grinnell-Milne, late Royal Fusiliers and R.A.F., elder son of Mr. George Grinnell-Milne, 23, Ennismore Gardens, and Madame la Baronne Olga Beelearts van Blokland, of The Hague.

LESLIE—SEWELL.—The engagement is announced between Lieut.-Colonel Sir Norman Leslie, Bt., C.B.E., Central India Horse and R.A.F., Air Attaché to the British Embassy, Paris, only son of the late Sir Charles Henry Leslie, Bt., Indian Army, and Betty Elise, second daughter of Mr. J. T. B. Sewell, C.B.E., LL.D., and Mrs. Sewell, of 47, Boulevard Lannes, Paris.

MACFARLANE — ATKINSON.—The engagement is announced of Lieut. Ruthven M. C. Macfarlane, M.C., R.F.A., attd. R.A.F., son of Mr. and Mrs. Ruthven Macfarlane, of Anerley, Eastbourne, and Muriel, younger daughter of the Rev. and Mrs. F. Atkinson, of Blackwater House, The College, Eastbourne.

ST. AUBYN KING—DEMUTH.—A marriage has been arranged, and will shortly take place, between Major J. St. Aubyn King, Indian Army and R.A.F., and Jeanne, only daughter of Mr. and Mrs. W. E. Demuth, late of Nyasaland.

Birth.

PALMER.—On May 6th, at Glentworth, Tenby, the wife of Major L. E. Palmer, York and Lancaster Regt., attd. R.A.F., of a son.

AIR FORCE.

Deaths.

ADAMS.—Capt. Allen Percy Adams, D.F.C., R.A.F., who died in Mesopotamia on March 6th, was the only son of Colonel and Mrs. P. Adams, of Oaklands, Halstead, Essex.

DAVIS.—Sec. Lieut. Davis, R.A.F., was killed while flying an aeroplane near Crail, Fife. The aeroplane crashed into the gable of a building and caught fire. Mr. Davis' home was in Essex.

EVANS, STOKES, AND FILLMORE.—The bodies of Capt. L. L. Meredith Evans, R.A.F., Sec. Lieut. A. Stokes, R.A.F., and Serjeant Reginald Frank Fillmore, R.A.F., were picked up in the Channel off Dover on the evening of May 10th by a destroyer on patrol duty and were landed at Dover.

Mr. Stokes and Serjeant Fillmore had left Lympne during the morning on a Bristol Fighter, and had flown to an aerodrome near Ostend. They met Capt. Evans, who wished to return to England and was accordingly taken on board as a passenger. The machine left for England at about three o'clock in the afternoon. The weather was fine and all went well until the machine was within a few miles of the Kent coast, when it fell into the sea. A fishing vessel at once gave information, and a destroyer was dispatched from Dover to the spot between Littlestone and Lympne. The bodies were found floating together, but there were no signs of the machine. It was stated that the accident was due to engine trouble.

At the inquest held at Dover on May 12th a verdict of "Death from Immersion" was returned. It was stated in evidence that Mr. Stokes and Serjt. Fillmore flew the machine to France on May 9th, and that the Serjeant piloted the machine on the homeward journey. Although the machine was only a two-seater, and it was against orders to do so, Mr. Stokes and Capt. Evans travelled back with Serjt. Fillmore. They left the French Aerodrome at 3 o'clock but failed to reach Lympne. Some fishermen saw the bodies floating the next morning, but would have nothing to do with them, owing, it is thought, to superstition. Eventually Dover patrol destroyers and aeroplanes went in search and recovered the bodies. Watches on the bodies had all stopped at 3.40. The aviators were wearing the regulation lifebelt.

GARDNER.—In an accident near Leuchars, Fife, Lieut. David Gardner, R.A.F., was killed. The machine got into a spin and was wrecked. Mr. Gardner was an experienced aviator.

HARRISON.—Sec. Lieut. Cuthbert Harrison, R.A.F., was killed recently while learning to fly at Gosport. He was following another aeroplane piloted by an instructor, when his machine fell on the railway line between Fareham and Gosport. The petrol tank exploded.

KNOTT.—An inquest was held on May 7th at Kenley on Capt. E. N. Knott, A.F.C., R.A.F., aged 20, of Sutton Coldfield, wh



Will anyone recognising one or more of the above group, kindly communicate with Mrs. George Morton, 34, Earl Street, Toronto, giving information as to the identity of the Officers and their squadron and the place where the photograph was taken?

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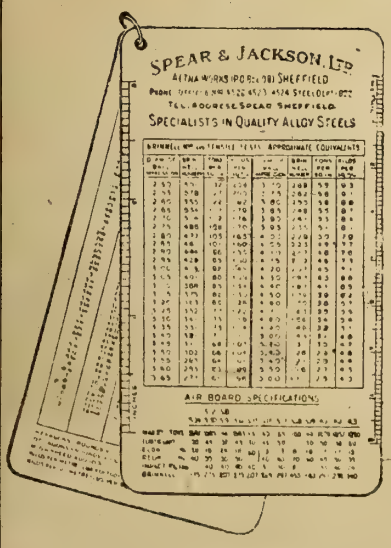
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was killed on May 3rd when starting for Paris accompanied by Major-General Sir F. H. Sykes, C.M.G., D.S.O., the Controller-General of Civil Aviation.

Lieut. A. W. Edwards, R.A.F., of the Paris Communication Squadron, who saw the machine leave, said he noticed the engine slowing down as the pilot took a climbing right-hand turn. When the machine was only about 30 feet in the air the engine stopped, and the machine then nose-dived and side-slipped to the ground. He attributed the accident entirely to engine failure.

The Coroner, Mr. F. J. Nightingale, in the absence of a jury, certified that death was accidental.

PARRY.—Flight Serjeant Parry, R.A.F., was killed near the Alexandra Park Aerodrome, Manchester, on May 3rd. He was testing a machine in preparation for a flight to France, and when about 200 ft. up it nose-dived and fell, and burst into flames. Rescuers rushed to the scene, but some minutes elapsed before the unfortunate pilot was extricated. He was badly burned, and died shortly afterwards. The machine was reduced to wreckage in a few minutes.

STACE.—Mr. A. H. B. Stace, R.A.F., who was killed while flying in France, on May 3rd, was the only son of Mr. and Mrs. H. P. Stace, of Brackley, Northants. He was 20 years of age.

TAYLOR.—Corporal Charles William Chamberlain Taylor, R.A.F., aged 18, of 78 Squadron, was recently killed at the Hornchurch Aerodrome, near Romford, by the accidental discharge of a rifle.

Cpl. Taylor, a second air mechanic named Bragg, and another non-commissioned officer were in the guard-room when Bragg picked up a rifle and began to examine it. Knowing that the weapon was loaded, the other non-commissioned officer told him to be careful; but Bragg replied that there was no danger, as the safety catch was on.

Whether the man was mistaken, or he accidentally released the catch is not known; but while he was handling the rifle it was discharged. Cpl. Taylor was shot in the back and died as he was being removed to the New Zealand convalescent camp at Grey Towers. Bragg was placed under arrest.

Cpl. Taylor is a son of Mr. John Taylor, Sheepcot, Bartestree, Herefordshire.

WHITE.—An inquest was held at Coventry on May 8th on the body of Serjeant-Mechanic White, R.A.F., who was killed by the collapse of the right wing of the machine in which he flew from Norwich to Coventry.

The jury returned a verdict that the collapse of the right wing of the aeroplane was due to the wood being affected by over-dryness—wood which ought not to have been used in aeroplane construction. They said, further, that there was criminal negligence by some person or official who was at present screened by the Department concerned.

The Coroner said the attitude of the Department in withholding information might come before the House of Commons.

Engagements.

DAVENPORT—BOLOMEY.—The engagement is announced between Lieut. William Frost Davenport, R.A.F., son of Mr. and Mrs. W. Davenport, Telford Avenue, Streatham Hill, S.W., and Marie Louise, only child of the late Henri Louis Bolomey, of Penkridge, and Mrs. H. Davenport, Fairmount, Cannock, Staffs.

DAWES—UPTON.—The marriage arranged between Capt. Richard Wilkinson Dawes, R.A.F., and Miss Ruby G. A. Upton will take place on Tuesday, June 3rd, at St. Mary's Church, Market Drayton, at two o'clock.

OMMANNEY—CHAMBERS.—The engagement is announced between Capt. Patrick Graem Nelson Ommanney, R.A.F., younger son of Admiral Sir Nelson Ommanney, K.B.E., C.B., and Lady Ommanney, to Pansy, eldest daughter of Major W. Grahame Chambers, R.A.F.

Marriages.

BEDDOW—HOLMES SCOTT.—On May 1st, at Hampstead Parish Church, Capt. Leslie Towne Beddow, R.A.F., elder son of J. Beddow, Esq., M.R.C.S., L.R.C.P, and Mrs Beddow, of Thorverton, near Exeter, was married to Doris Holmes Scott, D.A., W.R.A.F., widow of Capt. A. Holmes Scott, M.C., R.E., and only daughter of the late J. S. Clayton, M.D., F.R.C.S. Edin., and Mrs. Clayton, 97, Vicarage Road, Eastbourne, by the Right Rev. F. Goldsmith, D.D., Bishop of Willesden.

GAY—OLIVER.—On May 1st, at St. Matthew's, Ealing, Lieut. Bernard Clement Gay, R.A.F., only child of Mr. and Mrs. Gay, of Southampton, was married to Phyllis Grace, only child of Mr. and Mrs. E. A. Oliver, of Osborne House, The Common, Ealing.

KAUPER—HOOPER.—On May 12th, at Kingston Parish Church, Lieut. H. A. Kauper, R.A.F., was married to Beatrice, second daughter of Sub-Divisional Inspector Hooper, of the Kingston Sub-Division, Metropolitan Police, by the Rev. Basil Matthews.

SARSONS—BENT.—On May 6th, at St. Saviour's Church, Eastbourne, Capt Arthur W. Sarsons, R.A.F., was married to Sybil Maude, daughter of J. Bent, Esq., Eastbourne, by the Rev. C. T. Bent, uncle of the bride.

TAYLOR—RATCLIFFE.—On May 7th, at St. Barnabas's Church, Clapham, Sec. Lieut. Cyril Taylor, R.A.F., was married to Dorothy Winifred Ratcliffe, by the Rev. Max Williams.

Births.

HORTON.—On May 6th, at 28, Magdalen Road, Ripon, the wife of the Rev. H. Ellis Horton, late Chaplain, R.A.F., of a daughter.

JENSEN.—On May 8th, at 1, Sutton Court, Chiswick, to Gwynifrid (née Palmer), the wife of Capt. J. Jensen, R.A.F.—a daughter.

* * *

Capt. Warman, R.A.F., and Lieut. McPherson, R.A.F., two Canadian officers, were seriously injured at Lower Edmonton, on May 8th. The officers had started from Chingford, and when over Lower Edmonton engine trouble developed, and the pilot, Mr. McPherson, tried to land. The machine collided with a gate and overturned, the occupants were pinned beneath the aeroplane, and were unconscious when found.

DEMOBILISATION OF AIRMEN.

Numerous complaints are being received from a certain class of demobilised men of the R.A.F. to the effect that their accounts have not yet been finally settled up. Probably this is due to the fact that these men have not fully appreciated the special arrangements made on their demobilisation, and to which they themselves assented in writing.

During January, 1919, there was considerable impatience on the part of the men of the force to be demobilised at the earliest possible moment, but it would have been beyond the power of any pay office to deal with the accounts of the large numbers who wished to be demobilised during the usual twenty-eight days' furlough as laid down.

It was thereupon decided that men in excess of the number that could be dealt with on the ordinary procedure would be demobilised if they so wished provided they signed an agreement under which they received before leaving their units twenty-eight days' furlough pay and ration allowance, an advance of £2 against their gratuity, and £2 12s. 6d. allowance for civilian clothing, but undertook not to ask for a final settlement of their accounts within a period of three calendar months from the date on which their twenty-eight days' furlough expired.

This system was brought into force on Jan. 28th, and a large number of men were demobilised under it during the ensuing three months. The men accepted the system voluntarily, and signed a personal statement to that effect.

As a matter of fact, these outstanding accounts are being settled well in advance of the dates specified, and, in necessitous cases, provisional advances in cash are made to applicants. Special steps also have been taken to have all outstanding cases settled with as little delay as possible. They are being dealt with in order of date, and it is expected that the latest will have been cleared early in June.

The system, having served its original purpose, has now been cancelled, and all men of the R.A.F. demobilising are being settled within the usual period of twenty-eight days.

AIRCRAFT IN AFGHANISTAN.

Concerning the use of aircraft in the Afghan rising, the "Daily Express" published on May 10th the opinion of a certain officer. The following remarks are extracted:—

"Aeroplanes will be of great service both for reconnaissance work and bombing. By this means we can ascertain the strength and whereabouts of the tribal gatherings. The improvement in modern armament has greatly increased our capacity for dealing with these risings.

"I cannot say what effect the use of aeroplanes will have on the Afghans, but if there is religion at the back of this movement they will stand a lot. Aeroplanes were very successfully employed in the Mahsud rising of 1917, which quickly collapsed."

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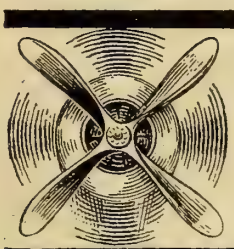
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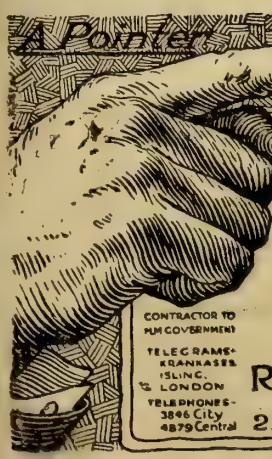


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ATHLETICS IN THE R.A.F.

In a return game at Fulham on May 5th the Overseas R.A.F. repeated their victory of last week against the R.A.F. (England), but, while they again scored six times, their opponents replied with three instead of one goal. The England team twice took the lead by the aid of Lee and Pick, Adams and Morris in turn equalising, while Fox made the score 3 all after Adams had put Overseas in front. Each goal had narrow escapes before Masterson—left quite unmarked—scored the first of three more points for Overseas, the last two being obtained when England, having lost Crook, who was injured, relied upon one back. Adams got a very good goal—his third of the match—and, from a centre by him, another was claimed by Morris. A few hundred people watched a game which was notable for the heavy scoring.

R.A.F. Boxing.

On May 14th (to-day) the R.A.F. boxing champions will do battle at the Northampton Institute in a tournament in which the best fighters in all the Services will compete.

On April 30th the R.A.F. boxers met in the gymnasium of the Cranwell Aerodrome in the presence of more than 1,000 officers and men. Brig.-Gen. F. R. Scarlett awarded the prizes. The following are the results of the finals :—

Officers.

Feather Weight.—Sec. Lieut. C. E. Hodgkinson, 3 Group, Cambridge, beat Sec. Lieut. T. Stroud, B.E.F., France.
Light.—Capt. P. W. Smith, 3 Group, Cambridge, beat Sec. Lieut. R. J. Gee, France.
Welter.—Sec. Lieut. S. J. Mason, France, beat Lieut. R. A. Y. Simpson, New Romney.
Light Heavy.—Capt. T. Roberts, France, beat Capt. B. J. Brady, Cranwell. Capt. Brady retired owing to a fractured thumb.
Middle.—Lieut. W. B. Clarke, 3 Group, Cambridge, beat Sec. Lieut. K. P. McIntee, 11 T.D.S., Old Sarum.
Heavy.—Lieut. G. H. Price, C.F.S., Upavon, beat Capt. H. Usher, Gullane.

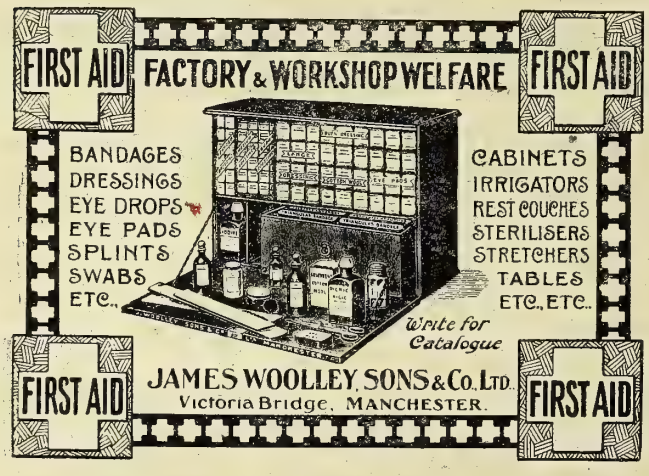
Other Ranks.

Fly Weight.—A.C. Stelfox, 7 T.D.S., Feltwell, beat A.C. Fullbrook, E. and P. Depôt, Chingford.
Bantam.—Serjt. H. Groves, France, beat A.C. J. Hannan, 9 A.A.P., Newcastle.
Feather.—A.C. S. Bennett, 167 Squadron, Bircham Newton, beat A.C. Elderton, Armament School, Uxbridge.
Light.—Serjt. Stone, France, beat A.C. Clancy, Isle of Grain.
Welter.—Serjt. Swinnerton, France, beat Corpl. Winfield, France.
Middle.—Corpl. Garratt, France, beat Serjt. Spoors, 73 Wing, Yarmouth.

Cross-Country Running.

An eight miles relay race, organised by the Southern Counties' Cross-Country Association for military units, was held at Hackbridge on May 7th.

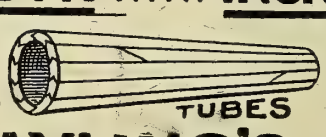
The conditions were that four from each team had to run two miles each way. The 14th Reserve Battery, R.F.A. (Larkhill) finished first and completed the eight miles in 41 min. 23 2-5 sec. The S.A.R.D. (Farnborough) were second in 41 min. 44 4-5 sec. The best time was accomplished by Air-Mechanic Nicks, R.A.F. (Farnborough), who ran his two miles in 10 min. 1 2-5 sec.



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ON THE REGULATION OF CIVIL AVIATION IN THE BRITISH ISLES.

(PART III.)

PERIODIC OVERHAUL AND EXAMINATION.

The remaining paragraphs of Schedule III of the Regulations read as follows:—

SCHEDULE III—(*continued*).

PERIODIC OVERHAUL.

5. All passenger aircraft must be inspected, overhauled and certified as airworthy by competent persons appointed by the owners or users of them, and licensed for the purpose under this schedule, at such times as the Secretary of State may direct, and such certificate or certificates must be produced to the Secretary of State on demand.

6. Aircraft inspected, overhauled or certified as provided in the foregoing paragraph may be inspected by authorised representatives of the Secretary of State, and the Secretary of State is entitled under these regulations to cancel or suspend the certificate of airworthiness of any aircraft deemed to be unsafe as a result of such inspection.

EXAMINATION BEFORE EACH FLIGHT.

7. No passenger aircraft carrying passengers shall on any day proceed on any journey unless it has previously been inspected at least once on that day by a competent person licensed for the purpose under this schedule, who shall not be the pilot of the particular machine.

8. If such competent person is satisfied that the aircraft is fit in every way for the flight or flights proposed, he shall sign in duplicate a certificate to that effect, which certificate shall be countersigned by another person in the employment of the owner, giving the time and date of such certification. For this purpose the countersignature of the pilot may be accepted.

9. One copy of each certificate will be retained by the owner of the aircraft, and the duplicate copy must be carried on the aircraft.

10. The pilot will be responsible for seeing that the aircraft, before commencing any flight, is, in his opinion, in a satisfactory condition, and does not carry more than the load specified in the certificate of airworthiness, and must sign a certificate to that effect.

In paragraph 5 one appears to be up against either loose wording in drafting the Regulations, or else against a rather peculiar piece of law. Apparently "all passenger aircraft" (besides being inspected and certified as airworthy) are to be "overhauled . . . . by competent persons appointed by the owners or users of them, and licensed for the purpose under this schedule." If the word "overhaul" means what it is generally taken to mean, this paragraph implies that every mechanic who overhauls a passenger machine must be "licensed for the purpose."

One is by no means opposed to the idea of licensed mechanics, but it is at any rate startlingly new. The examination of mechanics prior to licensing them should be an entertaining process, especially if the examiners are R.A.F. officials, full of military dignity, and if the examinees are undisciplined mechanics with Bolshevist tendencies of the kind so energetically defended by certain contributors to the current controversy in this paper on Brains (alleged) versus Discipline.

The corresponding Directions on this point are interesting, but not enlightening, as will be seen later.

None will quarrel with paragraph 6, for obviously there must be some competent authority—which means not necessarily a competent person, but merely a person invested with power—to cancel or suspend certificates issued by mere licensed inspectors.

Examination before each flight, as specified in paragraphs 7 to 10, is also a reasonable provision for the safety of the public. A passenger machine should be inspected at least once a day. But this single inspection daily is quite a relief after the idea current before the issue of the Regulations, that every machine was to be inspected after every flight.

One had visions of excited inspectors dashing out onto an aerodrome to inspect a "joy-ride" machine after each ten-minute trip with its load of half-guinea passengers, and hurrying over the job so as not to delay the departure of the next load. Or, alternatively, one imagined the very officious inspector who would insist on each machine being brought back to its shed for an examination lasting an hour, although the flight had only lasted ten minutes. Now apparently, after the machine has had its one inspection of the day, the pilot can bump it and bounce it and strain it as much as he likes, and none will bother to see whether he has buckled an undercarriage strut or cracked an axle—unless, of course, one of the "authorised representatives of the Secretary of State" (paragraph 6) comes along and interferes with him.

So far so good. We will now consider the Regulations, which read thus:—

IV.—Persons competent to undertake periodical inspection and overhaul and examination before each flight of Aircraft.

1. With reference to Regulation 2 (1) and Schedule III (3 and 5-10), the following is the procedure for any person desirous of being licensed as a competent person, hereinafter referred to as "ground engineer," to undertake the inspection of periodic overhauls of aircraft required to be certified as airworthy, or as a competent person to examine such aircraft before each flight.

2. Application for licences should be made to the Secretary, Air Ministry, London, W.C.2.

3. Application forms will be supplied on demand.

4. Subsequent to the forwarding to the Secretary, Air Ministry, of an Application Form for a Ground Engineer's Licence, the candidate will be requested to report to a local representative of the Director of Aircraft Inspection for examination. At this examination the candidate will be required to submit proof:—

(a) That he is not less than 21 years of age.

(b) That he has served at least two years as a mechanic or engineer on internal combustion engines, or a like period on aircraft construction or maintenance, or a period of not under three years on joint aero, engine and aircraft construction or maintenance.

5. A candidate may apply to be licensed as a Ground Engineer to overhaul and inspect *all* Flying Machines and/or engines after overhaul and each day before flight; or may apply for a licence limited to the inspection of *any* named type or types of Flying Machine or engine either after overhaul and/or each day before flight.

6. Candidates will be required to submit proof of knowledge:—

(a) For Engines: Of the general principles of internal com-

bustion engines applied to aircraft, including the general principles of ignition, carburation, lubrication and cooling; knowledge of the inspection, testing and adjustments necessary for the installation and functioning of the complete power unit in the aircraft; and the capacity to supervise, or inspect running repairs and/or overhaul of particular engines.

(b) For Flying Machines: The general principles of construction, rigging, trueing-up and adjustment of flying machines; a detailed knowledge of construction, adjustments, maintenance and final inspection of the flying machine's components; and the capacity to supervise, or inspect running repairs, and/or the overhaul of specified types of flying machines.

7. The examination may be in part written, and in part oral. Candidates may be required to give practical proof of knowledge.

8. Aircraft certified daily by such Licensed Ground Engineers will be periodically re-inspected by a person or persons duly authorised by the Secretary of State, who reserves the right to suspend or revoke licences granted as above, should such certified aircraft be deemed by him as a result of such examination to be unsafe.

9. Ground Engineers certifying Flying Machines or engines as airworthy after overhaul, must be in a position to certify that all the conditions required for the inspection of subsequent aircraft during construction that apply to the overhaul have been carried out. The Secretary of State reserves the right to suspend or revoke the licence of the Ground Engineer responsible for certifying that the overhaul has been correctly carried out, should a test inspection be deemed by the former to indicate that the Flying Machine is not airworthy.

10. Ground Engineers' licences will be issued at a charge of 5s., and will be valid for a period of 12 months, and will then be subject to renewal. The Secretary of State reserves the right to re-examine the candidate for renewal, if considered necessary.

11. In the event of any applicant being required to undergo a practical examination, a further fee of one guinea will be charged.

12. Certificate No.....

PILOT'S CERTIFICATE OF GENERAL FITNESS OF AIRCRAFT BEFORE FLIGHT.

Flying Machine Type.....Registration No.....
Preparatory to Flight from.....on.....Time to .....

LOADING.

Total weight of the Aircraft including all items of load does not exceed.....lbs.

Loading (including placing of passengers) such that the centre of gravity of the Aircraft is within the specified limits.....
Petrol, Oil and Water sufficient for proposed journey.....

OFFICERS AND CREW.

NAME.	DUTY.	LICENCE NO.
.....		
.....		
.....		

Number of passengers.....

This Aircraft is *considered fit* in every way for the proposed journey.

Signed.....
Date.....

13. Certificate No.....

DAILY CERTIFICATE OF SAFETY OF AIRCRAFT.

Flying Machine Type.....Registered No.....
Inspection at .....on.....time.....

I hereby certify that I have this day examined the above Flying Machine and that I consider it safe in every way for flights today when loaded as specified in the Certificate of Airworthiness.

Signed ..... (Ground Engineer).
Date.....

I hereby certify that I have this day examined the engines, engine installations and accessories of the above Flying Machine, and that in my opinion they are in every way safe for flights today.

Signed..... (Ground Engineer).
Countersigned.....
Date.....

NOTE.—Both certificates may be signed by the same individual if licensed for both Flying Machines and Engines.

COMPETENT PERSONS.

Please note, for a start, that a person "licensed as a competent person" or "ground engineer" differs from a "competent authority" in that the former must evidently possess knowledge, or at any rate experience, whereas the latter need only possess authority. And be it noted also that, though the Directions give a good deal of useful information about how to acquire certificates of competence, they leave one very much in a fog as to that matter of overhaul to which one has already referred.

For example, paragraph 1 distinctly refers to ground engineers as being licensed to undertake the "inspection of periodic overhauls." But paragraph 5 says clearly that a candidate may apply to be licensed "to overhaul . . . all Flying Machines and/or engines after overhaul." Perhaps the Air Ministry will be so good as to explain when, why, where, and how a Flying Machine and/or engine is to be overhauled after overhaul.

It seems to be something of a work of supererogation, rather like digging up seeds to see whether they are growing properly. That is if the word overhaul means in the Air Ministry what it means in an engineering shop. But perhaps it does not.

In an engineering shop an overhaul means taking a machine to pieces, scrapping all the dud parts, putting in new stuff, and making it as good as or better than new. From time to time one has heard that the staff at the Air Ministry or of the Technical Department, Air Group, Ministry of Munitions, was being thoroughly overhauled. In those cases it has generally meant promoting the duds to still higher authority, turning out a few really good people, bringing in a lot more incompetents, making the whole of the machinery more cumbersome, and generally producing a worse state of affairs than existed before.

So perhaps overhauling a machine after overhaul may appear necessary to those familiar with the habits of the Ministries of Air and Munitions, but unfamiliar with workshop practice. However, things at the Air Ministry itself are changing, for General Trenchard is back at work, and seems to be conducting an overhaul (according to workshop practice) of the last overhaul (according to Air Ministry practice), so perhaps this may be a happy augury for future overhauls of and by Air Ministry officials. Nevertheless it would be well to have an explanation of this curious paragraph 5.

LIMITED LICENCES.

The idea of dividing the licences of Ground Engineers into two classes—*id est*, those for *all types* of machines and/or engines, and those limited to specified types—seems quite sound. The number of men who are competent to inspect all types must be extremely small, whereas there must be a sufficient number who are specialists on certain types. Personally one would much rather trust oneself in a machine which had been inspected by a man who was a specialist on that type than in one certified by one of those glib-tongued Jacks-of-all-Trades who make up in self-confidence for what they lack in genuine knowledge.

Every machine and every engine has its own curious little tricks, and it takes a man a long time to learn all the tricks of any one make. One saw the truth of this statement often enough during the war, when engine mechanics who could get the last ounce of power out of one make of engine and keep it running for weeks without overhaul (according to workshop practice) proved to be utter failures when turned onto a new type.

AN ENGINE STORY.

More or less apropos which there is a very amusing yarn told by one of our cleverest engine designers. It seems that certain of his engines were in use at a certain R.A.F. station, which must be nameless, not because there is a war still in progress theoretically, but because any indication of its whereabouts, or even as to whether it was concerned with seaplanes or land machines, might bring a crop of libel actions from the C.O., the engineer officer, all the pilots, and all the engine mechanics.

The only people who are not libelled by the story are the observers, the mess servants, the station cook, and the local W.R.A.Fs.

According to the story, the station had done no flying for weeks, and when the Air Ministry gently enquired why, the station replied that they could not get the proper revs. (*Anglicé*, revolutions per minute) out of their engines, which in proper official language the station damned in heaps. Therefore the Air Ministry wrote to the makers of the engines and said, "What about it?" or words to that effect.

The engine-makers therefore sent one of their ground engineer specialists down to the station to investigate. When he arrived, the machines were all pulled out of the sheds tail first, the engines were started up, and, sure enough, they all failed to give the revs. which were considered necessary before the machines could be passed as fit to fly.

The firm's engineer, instead of starting juggling with carburetter jets, magneto timing, and such things, just turned up his nose, sniffed at the wind a bit, looked at the scenery, and then asked, "Do you always test your engines in this position?" He was assured that they did, because, as they explained to him, if the machines were turned round, the blast from the airscrews would blow into the sheds and kick up a dust, and possibly blow the backs out of the sheds.

With the utmost civility, and rather with the apologetic air of one who was asking a superior person to humour a little personal foible, he suggested that a machine should be turned round with its tail to the shed, and that the engine should then be tried again. Very kindly the authorities of the station gave way to him. A machine was turned round, the engine was started—and the needle of the revolution indicator proceeded to run right off the map.

Then the mere ground engineer humbly pointed out that in that particular locality the wind blew permanently and strongly in one direction—one must not say which, for fear of the law of libel. And that direction happened to be straight into the face of the sheds. Consequently, so long as the machines stood with their tails to the wind, the engines were being asked to supply power for the airscrews to push a thirty-mile-an-hour wind backwards before they really began to get their revolutions at all. When the machines were turned head-to-wind the wind then helped the screws to turn, and so the engines gave more revs. than were necessary.

After which—according to the story—the station retired into corners and kicked itself *privatim et seriatim*. Then it went out and flew like a lot of little dickie-birds. And the Air Ministry was very pleased with it.

This is really a very difficult story to tell, because if one expresses belief in it one is libelling most of the people on the station, and if one expresses disbelief one is libelling the engine-maker. One can only hope that neither the personnel of the station nor the engine-maker will fancy that they recognise themselves and proceed to fit the cap on their own heads in order to vindicate their service or professional honour. For the story ought to be told in the interests of Civil Aviation, because it shows that the Ground Engineer "limited to the inspection of *any* named type or types of . . . engine" (*vide* paragraph 5) ought to have a fair amount of common gumption as well as being an "expert" in his own line of business.

Examinations.

The subject-matter for the proposed examinations offers much opportunity for comment, but one will refrain, pending the institution of the actual examinations. When one hears a bit more about the way in which these examinations are conducted, and by whom, one may have more to say on the subject. It is to be hoped in any case that they will be done better than were certain R.N.A.S. examinations for the promotion of ratings, when one of the cleverest riggers of the most modern scouts was ploughed for promotion to Petty Officer because he could not tell his examiner off-hand the proper angle of incidence of a "long-horn" Maurice Farman, a type of machine which he had never seen, because it was obsolete before he even joined the Service,



THE R.A.F. IN NORTHERN RUSSIA.—An R.E.8 about to land after the first fall of snow.

and a type which appeared to be the only machine that the examining officer knew.

It is of interest to note that the examination "may be in part written and in part oral" (*vide* paragraph 7). Some of the best all-round mechanics concerned with aviation, men of the very type most desirable as ground engineer inspectors of passenger aircraft, can do very little more than sign their names. At any rate they could certainly not write the answers to an examination paper.

The last man one wants on this job is the examination wallah, or the over-educated, long-haired, long-tied, long-coated, and long-tongued Bolshevik from a suburban polytechnic, who is just the kind of thing who would pass with flying colours a written examination of the kind indicated in paragraph 6, sub-paragraphs (*a*) and (*b*). He would probably answer all the questions in the examination and miss seeing all the defects in the aeroplanes.

The only proper sort of examination which is worth a hang for a job of this sort is one that is purely practical, something like the "trade" examinations which used to be run for would-be R.N.A.S. mechanics at the Crystal Palace, when Lieut.-Commander Markham, R.N.V.R., was in charge of affairs there.

The Certificates.

There seems little to which anybody can object in the specimen certificates shown in paragraphs 12 and 13. They throw a great deal of responsibility on the pilots and on the ground engineers, but this is all to the good, for the greater the responsibility the better will be the class of man who will take such responsibility.

Presumably if a man is running a little commercial aviation show of his own there is nothing to prevent him from being his own pilot, ground-engineer (flying machine), and ground engineer (engines), provided that he can pass all the required examinations. If he can do so he must be a very good all-round man, and so he deserves to be encouraged.

Marks on Aircraft.

From the vexed question of "competent persons," always one which is very difficult in a world composed of people the great majority of whom are quite wonderfully incompetent, the Regulations pass on to the comparatively simple matter of "Registration of Nationality Marks," which are labelled Schedule IV.

The Regulations on this subject read as follows :—

SCHEDULE IV.

Registration and Nationality Marks.

1. The registration and nationality marks shall be such as the Secretary of State may direct.

2. The registration and nationality marks should be affixed in black on a white ground in the following manner, and underlined with a black line :—

(*a*) Flying Machines.—The marks shall be painted once on the lower surface of the lower main planes, and once on the upper surface of the top main planes, the top of the letters to be towards the leading edge. They shall also be painted along each side of the fuselage between the main planes and the tail planes. In cases where the machine is not provided with a fuselage the marks shall be painted on the nacelle.

(*b*) Airships and Balloons.—In the case of airships the marks shall be painted near the maximum cross section on both sides and on the upper surface equidistant from the letters on the sides. In the case of balloons two marks shall be painted on the maximum horizontal circumference as far as possible from one another. In the case of airships the side marks shall be visible both from the sides and ground.

3. The nationality mark in the case of flying machines and airships shall also be painted on the port and starboard sides of the lower surface of the lowest tail planes or elevators and also on the upper surface of the top tail planes or elevators, whichever is the larger. It shall also be painted on both sides of the rudder, or on the outer sides of the outer rudders if more than one rudder is fitted.

In the case of balloons the nationality mark shall be painted on the basket.

4. In the case of flying machines the height of marks on the main planes and tail planes respectively shall be equal to four-fifths of the chord, and in the case of the rudder shall be as large as possible. The height of the marks on the fuselage or nacelle shall be equal to four-fifths of the depth of the narrowest part of that portion of the fuselage or nacelle on which the marks are painted.

In the case of airships the nationality mark painted on the tail plane shall be equal in height to four-fifths of the chord of the tail plane, and in the case of the rudder shall be as large as possible. The height of the other marks shall be equal to at least one-twelfth of the circumference at the maximum transverse cross-section of the airship.

In the case of balloons the height of the nationality mark shall be equal to four-fifths of the height of the basket, and the height of the other marks shall be equal to at least one-twelfth of the circumference of the balloon.

In the case of all aircraft the letters of the nationality and registration marks need not exceed eight feet in height.

5. The width of the numbers or letters shall be two-thirds of their height, and the thickness shall be one-sixth of their height. The numbers or letters shall be painted in plain block type and shall be uniform in shape and size. A space equal to half the width of the numbers or letters shall be left between each number or letter.

6. In the case of underlined letters the thickness of the lines shall be equal to the thickness of the letter. The space between the bottom of the letters and the line shall be equal to the thickness of the line.

7. Where the registration and nationality marks appear together a hyphen of a length equal to that of one of the numbers or letters shall be painted between the nationality mark and registration mark.

8. The registration and nationality marks shall be displayed to the best possible advantage, taking into consideration the constructional features of the aircraft. The marks must be kept clean and visible.

There are no Directions corresponding to these Regulations presumably because the Regulations are sufficiently explicit in themselves.

Much as one may dislike disfiguring a handsome machine by painting it all over with huge figures, it has been proved by the misbehaviour of young cads in the R.A.F. that such identification of aeroplanes is necessary and that marks as specified are the only kind which are of any use.

There was a howl from motorists about disfiguring their cars when car-numbers were first instituted, but now nobody worries about them, because our eyes are accustomed to the disfigurement. When all the regulations concerning numbers and nationality marks have been fulfilled the average aeroplane will look something like a dazzle-painted ship.

Incidentally, it would be interesting to try a few experiments as to how far a perfectly legal number on an aeroplane may be camouflaged by skilful dazzle-painting. One will see what some of one's artistic friends can do in the matter.

The hand of the comic policeman is seen in the old proviso that "the marks must be kept clean and visible." A glance at the under side of the lower plane of certain machines with rotary engines will elucidate the why and wherefore of this sting in the tail of Schedule IV. On the whole the aeroplane-owner might have been worse treated.

The Next Instalment.

The next instalment of the Regulations (Schedule V) deals with the interesting subject of Log Books, and Schedule VI with Prohibited Areas, also a matter for debate, so they had better be kept over till next week.

C. G. G.

(To be continued.)

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THE ATLANTIC ATTEMPTS AND THE AUSTRALIAN COMPETITION.

Technically the Atlantic Ocean remains uncrossed by air, but a number of very gallant aviators—to wit, Commander John Towers, U.S.N., and the crews of the American N.C. boats—have proved that, given favourable conditions, the crossing can be made. Which is just as much as everybody knew before, provided they knew anything of the history of aviation. And the pre-war German record of 24 hours 12 minutes remains, apparently, unbeaten.

Lord Northcliffe and his papers have had a goodly instalment of the advertisement which was presumably the object in offering the prize. And Civil Aviation has had about the worst possible advertisement, for now the ordinary reactionary person is confirmed in his or her belief that commercial aviation is what is vulgarly termed a "wash-out."

With all acknowledgment of the personal heroism of those aviators who made the attempt to fly across, one is compelled in plain honesty to say that it would have been better for the progress of aeronautics if their attempts had never been made. As heroes they are comparable with those who have tried to reach the Poles and have died in or survived the effort. And the practical use of success or failure in either competition is just about equal, at any rate to-day.

If the energy and care and ingenuity and hard work which have been wasted and are being wasted on trans-Atlantic attempts had been devoted to organising flying-boat services along the great rivers of the world, or to organising aeroplane services over the undeveloped plains of the world, we should by now be in a fair way towards capturing the world's aircraft business, and at the same time public belief in the usefulness of aircraft would be increased. As it is, thousands of pounds are being wasted and nobody is a ha'p'orth the better, except the Advertisement Department of the Northcliffe Press.

THE BUSINESS PROPOSITION.

Does anybody seriously believe that if Mr. Hawker had succeeded in reaching Ireland, or Brooklands, the Sopwith firm would have sold as many more aeroplanes as they would have sold if they had spent the same money in sending a well-equipped commercial mission to the Argentine or to China? M. Blériot flew the Channel in 1909. Does anybody buy Blériot machines to-day because he did so? In fact, is there such a thing as a Blériot machine to buy? If so, one is ignorant of its appearance.

Some day there will be a regular aerial service across the Atlantic, but it will not come because of the *Daily Mail* prize, nor through continual attempts to fly across the Atlantic. After M. Blériot staggered across the Channel and crashed at Dover with his engine's last splutter, and after M. Hubert Latham fell almost in Dover Harbour, people did not develop aeroplanes by keeping on trying to fly the Channel. They went on developing them over land. And, when over-land flying had proved that the odds were in favour of any decent aeroplane getting across the Channel, then and not till then did cross-Channel flying become a habit.

But even now aeroplanes fall into the Channel and drown their crews, as has happened too frequently of late. How much more ridiculous is it, therefore, to talk about regular trans-Atlantic services developing from the success of one heroic effort to be first across? M. Blériot's flight had at least the value of demonstrating for all to see that Great Britain was no longer an island. A flight across the Atlantic, if it succeeds, proves nothing that is not common knowledge already. If it fails it merely provides material for those who still scoff at the practical utility of aircraft.

THE BRITISH NAVY.

One is moved by certain questions in the House of Commons on Monday last—which questions will be found in their appropriate place on page 2078—to refer to the inactions of their Lordships of the Admiralty in this matter. The American Navy helped their aviators by spreading a chain of vessels along their route, so that the risk of life was reduced to the utmost. The British Navy pursued a course of masterly inactivity.

Such inactivity certainly cannot be attributed to lack of sportsmanship in the Navy itself, nor to fatigue owing to its activity during the war. Therefore the Admiralty itself is solely to blame for neglecting to equal the American proceedings. Nevertheless one cannot help recalling the story of the two soldiers who became a trifle bored with a bluejacket who had been holding forth in a public place on what the Navy had done. One turned to the other and asked, "Bill, wot did the Nivy do in the Great War?" Whereupon the other, with his nose inside his mug, replied scornfully, "The British Nivy drahned Lord Kitchener!"

One confesses to something of the same feeling towards their Lordships in this matter of what might have been done for the trans-Atlantic aviators and what was not done. For one cannot doubt that if either Mr. Hawker or Mr. Raynham had succeeded in his effort the Navy would have appropriated a goodly share of the credit by way of the navigating officer who accompanied him.

THE AUSTRALIAN CONTRAST.

Far more sensible than the Atlantic journey is the projected flight to Australia, for here we have merely the pioneering of a useful working air route which can be made of immediate service. It involves no needless risk, in that no stage of the flight calls for greater endurance than has been customary for pilots and their engines in the past two years.

One is glad to learn that the Royal Aero Club is now doing everything possible to assist the flight, and that such delays as have occurred are due to correspondence—necessary or unnecessary—between the Government of Australia and its representatives in Europe. It seems that this correspondence is being conducted by cable, and may be actually completed by this date, so that those competitors who are ready to start may get away in the next day or two.

At present one is under a pledge of secrecy as to the first competitor who is ready to start, as he desires to remain anonymous until he is actually well on his journey—a very fit and proper view of the matter and one worthy of all respect. One can merely say that he is an ex-officer of the R.N.A.S. who has a very fine active-service record.

Whether the first attempt to win the Australian prize is successful or not, the air line to Australia should be open for mails within the next six months, and when it opens it will fill a very useful purpose, in that it should carry mails to Australia in a week, as against a month by the best boats. There is no hope of a trans-Atlantic air-mail line being run regularly for some years to come, and even then it can only come if some great improvement is made in engines, or if some epoch-making invention comes to light which will revolutionise flying as the pneumatic tyre revolutionised road transport.

Therefore one states definitely the opinion—which, though personal, is shared by many experienced persons—that the trans-Atlantic attempts, though entirely heroic sporting efforts, are quite useless so far as the progress of aviation is concerned, whereas the flight to Australia is a sound business proposition which will be of immediate value to all concerned with flying, even though a few gallant men may lose their lives in blazing the trail for the regular civil air service. Meantime one wishes good luck to those who are to attempt to reach Australia by air.—C. G. G.



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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

A Royal Visitor.

King Albert, after a conference with the Belgian Premier, flew to England on May 15th. He arrived at Hawkinge Aerodrome, near Folkestone, at 4 p.m. and took tea at the officers' mess.

On May 16th two F.2A. machines (Rolls-Royce "Eagle" Mark VIII 350 h.p. engines), one carrying King Albert, left Folkestone for Dartmouth, Devonshire, King Albert's intention being to visit his son at the Royal Naval College. Both machines descended at Gosport for luncheon and proceeded later for Dartmouth, where they were expected at 3.30 p.m.

At 6.30 p.m., one machine came into the harbour carrying King Albert, Colonel Bigsworth, Capt. O'Brien, Lieut. Woolley, and a Belgian aide-de-camp. King Albert's son and Lieut. Hamilton were waiting in the Naval College launch and the King went to the college, where he was welcomed by Capt. Leatham.

The late arrival was due to engine trouble in King Albert's machine six miles from Dartmouth, which made it necessary for the machine to descend. H.M.S. "Sturgeon" and the other flying boat went to the spot, and King Albert was transferred from the disabled flying boat to the other at sea and continued his journey.

The Prince Albert's Flight.

On May 15th, Capt. H.R.H. the Prince Albert K.G., R.A.F., flew over London on a D.H.9 biplane with Lieut. King, R.A.F., as pilot. The course followed was that of the Thames to Dartford where a turn was made round the Joyce Green Aerodrome The machine then returned to its aerodrome.

The Advance of Civil Aeronautics.

The following appeared in the "Daily Mirror" last week:--

"No ball seems complete nowadays without its ration of toy balloons. The Venice Ball was no exception, and at one time I saw Brigadier-General Seely amusing himself with quite a number of them. Apparently it was not for nothing that he went to the Air Ministry."

One believes that quite a number of other highly-placed officers at the Air Ministry learned enough about practical aeronautics during the war to enable them to take part in these sports.

An Insult.

A correspondent of the "Daily Express" writes:—"The newest Alpine sport is mountaineering in monoplanes. Lieuts. Sider and Brunner, of the Swiss Army, starting from Thun, skimmed the summits of the Jungfrau and Matterhorn, and also other minor peaks yesterday" (May 14th).

It is a nasty one for the Matterhorn to find itself classed with minor peaks, and the Jungfrau, in spite of her name, has reached maturity.

The phrase "mountaineering by monoplanes" makes one wonder how the writer would have obtained his alliterative effect if a biplane had been used—one suggests "Bernese Oberland beaten by biplane."

The Failure of Science.

According to a U S wireless message "Eddie Stinson, while flying 700 ft. high at a speed of 70 miles per hour, dropped a crate of eggs without smashing any. The eggs were tossed over to test a new style of parachute."

The old housewife's method of cracking eggs on the side of a pudding basin seems to be the most effective after all.

One Hopes there will be no Jonahs.

The "Daily Mail" on May 15th rhapsodised over the new Tarrant triplane described in THE AEROPLANE of May 7th. The writer of the article was greatly impressed by the accommodation provided by the "body of the machine," which " is like a whale in length and girth, with a great blunt-ended nose." He writes:—

"The pilots will sit side by side in comfortable chairs, with a splendid view all round. The engineer will stand behind in his engine room. If passengers are carried, they can stroll, if they like, down the inside of the body."

The "Mail" should have explained why the pilots should sit, the engineer stand, and the passengers be instigated to stroll.

The public may be disappointed to hear that the engineer does not keep the six 500-h.p. Napier "Lion" engines in his "engine room" so that during their strolls inside the body of the whale they will not be able (as a member of the lay Press once put it) "to watch the pistons going up and down."

A Delicate Compliment.

An enterprising firm is advertising in a feminine paper the "Adastra" flying suit for women.—No charge is made for this advertisement. The suit is a combination garment somewhat of the Lidcot type, and a note is appended to the description to the effect that it may be worn with the Adastra skirt. Immediately below this appears the further statement that these garments will be worn by the Handley Page crew on their trans-Atlantic flight. This announcement appeared almost incredible to the present writer till a soldier-man made the brilliant suggestion that as Rear-Admiral Mark Kerr, R.N., the senior member of the Handley Page crew, had commanded the Greek Navy perhaps this was a delicate compliment to the national costume of our gallant Allies.

A Windfall.

The Rumanian Bureau at Berne reports that an aeroplane worth its weight in gold was captured recently at Zalan, in Transylvania, by Rumanian troops.

The aeroplane was bound from Moscow to Budapest, under the command of one Russian and one Austrian officer, and fell into the Rumanian lines because its engines stopped.

The machine was found to be full of Russian and Austrian gold and banknotes, and Bolshevist pamphlets in several languages. The officers were arrested, and the contents of the aeroplane confiscated.

There must have been a great many (depreciated) banknotes on board if the machine was "worth its weight in gold." Of course, the Bolshevist pamphlets may have been priceless, but they would hardly be negotiable even though the author had shown himself possessed of the genius to make a fool (or a knave) of himself in several languages.

A Quotation.

The "Daily Mail," announcing the closing at the end of May of the exhibition of "War in the Air" photographs at the Grafton Galleries, makes the following remarks:—

"When the airman looks down all sorts of riddles are made clear. The tactics of infantry become transparent. But it is when the airman is depicting his own kind of war, in which 'millions of fierce encountering angels fight,' that he produces the most thrilling photographs."

The number of flying officers employed during the war is gradually being revealed to us.

Hotel-keeping Extraordinary.

One learns with considerable interest that the Aeronautical Inspection Department has now taken over a suite of offices in the Grand Central Hotel, Belfast. Just why it should do so is not particularly clear seeing that Ireland is not to any extent an aircraft producing country. True, Harland and Wolff's, of Belfast, have been doing some excellent aircraft work, and quantities of aircraft accessories have been turned out by various engineering firms, large and small, but practically all the minor firms are returning to their ordinary occupations, and the A.I.D. must find most of its occupation gone. That being so, presumably there is the greater need for palatial offices in which unemployed A.I.D. officials may spend their time while waiting for six days in the week to draw their pay at the end of the sixth day.

The legend in Belfast is that the Grand Central Hotel was taken over by the Government by mistake thusly: A Government official went to Belfast from Bristol and received a telegram sent to him to Bristol and forwarded to Belfast, instructing him to take over the Grand Central Hotel, so he took over the Belfast Hotel when he was intended to take over the Bristol Hotel. At the time there was no Government Department to occupy it, so, the contents having been dispersed, the hotel did nothing for many weeks, although accommodation was badly needed by the inhabitants of the surrounding country. Later it became a kind of headquarters for W.A.A.C.'s, then it suffered a fevered occupancy as the headquarters of a frantic recruiting campaign instituted in the hope of staving off the conscription of Sinn Feiners. This campaign was stopped by the Armistice, but still the hotel was not demobilised, and it now appears to be the home of all sorts of odds and ends of nondescript departments and seemingly is populated by Government officials who have nothing to do, including the A.I.D., as previously stated. And Belfast wants to know why the Government is keeping the hotel instead of the usual licensed hotel-keeper.


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The WORLD of AERONAUTICS (continued)

The Licensing of "Personnel."

For the following one is indebted to a valued correspondent:—

"A pilot was exhibiting his prowess in the air for the edification of the proprietors of an Aircraft firm who were considering his application for a post as tester. His skill would have been patent to an equipment officer. Pilots with thousands of hours in their log-books looked on through blinding tears of admiration. Mechanics gasped with amazement at his daring. Newspaper reporters broke pencil point after pencil point in their efforts to describe his whirling manœuvres. Women screamed as he missed manslaughter by millimetres. The birds in the green trees became invisible through envy. The cows in the fields and the man from the Air Ministry gaped. The machine looped round a bridge, rolled through a hangar, flew on its back under a telegraph-wire and landed on a tarmac on one wheel.

Everybody breathed again except the Man from the Air Ministry, who smiled wisely. When the pilot asked for the verdict, he was refused the job. And when he asked why, the Man from the Air Ministry told him. His muscle balance was not commensurated with his refraction, and he had more than two dioptres of latent Hypermetropiá. E. L.

A Double Parachute Experiment.

On May 16th "Professor" W. Newell made a parachute descent at Cricklewood from a Handley Page Rolls-Royce machine. With a "Guardian Angel" parachute he jumped from the machine at a height of 2,000 feet, and after descending for about 500 feet dropped from this parachute with another one which landed him safely.

The performance may have been merely a stunt, but it seems to demonstrate the uses of pilot parachutes.

A New Parachute.

On May 9th Lieut. Emersen, an American officer, made a trial drop with a new type parachute over the sea of the Port of Anzio. Mr. Emersen, it is stated by Reuter, was provided with a collapsible pneumatic boat, into which he got after alighting on the water.

The Great Britain to Australia Competition.

The conditions of the competition for the flight from Great Britain to Australia are now officially announced as follows:—

A prize of £10,000 is to be awarded by the Federal Government to the first pilot of Australian nationality arriving from Great Britain before midnight on December 31st, 1920, within 720 consecutive hours from the time of starting, on an all-British aeroplane or seaplane.

The conditions also stipulate that all competitors must hand to the Royal Aero Club in London a week before the start an entrance fee of £100, which will be devoted to the Aero Club's expenses in conducting the competition, but any unexpended balance will be refunded to the competitors.

An L.A.D.A. Gathering.

Anything which will hold together in years to come those who have served the King during the present war is greatly to be desired, and none is more so than are the co-operative organisations of various Forces and units which have been formed for specific duties. Among these one of the most important is the L.A.D.A. Dinner Club, which held its first annual dinner on May 19th, the first anniversary of the day on which it finally defeated the Hun's aerial invaders. L.A.D.A., one may explain for the benefit of the uninitiated, stands for London Air Defence Area. As the dinner was purely a Service affair, naturally it cannot be reported as if it were a public event, but it is in the interests of the R.A.F. that a note should be made of its occurrence, and it is hoped that those members of the R.A.F. who served in the Sixth Brigade will join the Club in time for future re-unions.

Happily, Major.-Gen. Ashmore, C.B., C.M.G., M.V.O., who commanded L.A.D.A. from its formation, and who in this matter may be justly called "the organiser of victory," was able to take the chair. The way in which he was greeted by the mingled crowd of Sappers, Gunners, and R.A.F. officers (including the Sinn Feiners) representing the three corps which manned L.A.D.A., left no doubt as to the esteem in which they hold their G.O.C. General Ashmore referred to the early history of Air Defence, and to the primitive methods of early anti-aircraft gunnery—which, as he remarked, Mr. Churchill called "self-bombardment." He recalled the formation of L.A.D.A. and expressed his appreciation of the fine work done by the Gunners, by the Sappers with their search-lights and by the R.A.F. with their kite-balloon aprons and aeroplanes. The moral effect of the said aprons was evidently great, both on the Hun's and on our own people at home.

General Ashmore laid particular emphasis on the fact that as London is the finest aerial target in the world, and the most easily found, Air Defence must of necessity be a permanent institution. He said that just as the Navy had in the past protected this country from invasion, so our Air Defences would in future be our chief protection. We had evolved the most efficient science of aerial defence of any nation in the world, and yet that science was only in its infancy, so we must go on developing it.

Captain Stansfield, R.N., spoke for the early R.N.V.R. Air Defence Force, Lieut.-Col. T. C. R. Higgins, Lieut.-Col. Roxby, Lieut.-Col. Christie, and Major Baker for the R.A.F. (or, rather, the R.F.C.), Col. Lucas for the Gunners, Lieut.Col. de Putron for G.H.Q., G.B., and Major Whittaker for General Staff. Major Fooks, L.A.D.A. Staff, Secretary and Treasurer of the L.A.D.A. Dinner Club, made a touching appeal for support, and one hopes that all those who were present have now been duly touched for the amounts due.—C. G. G.

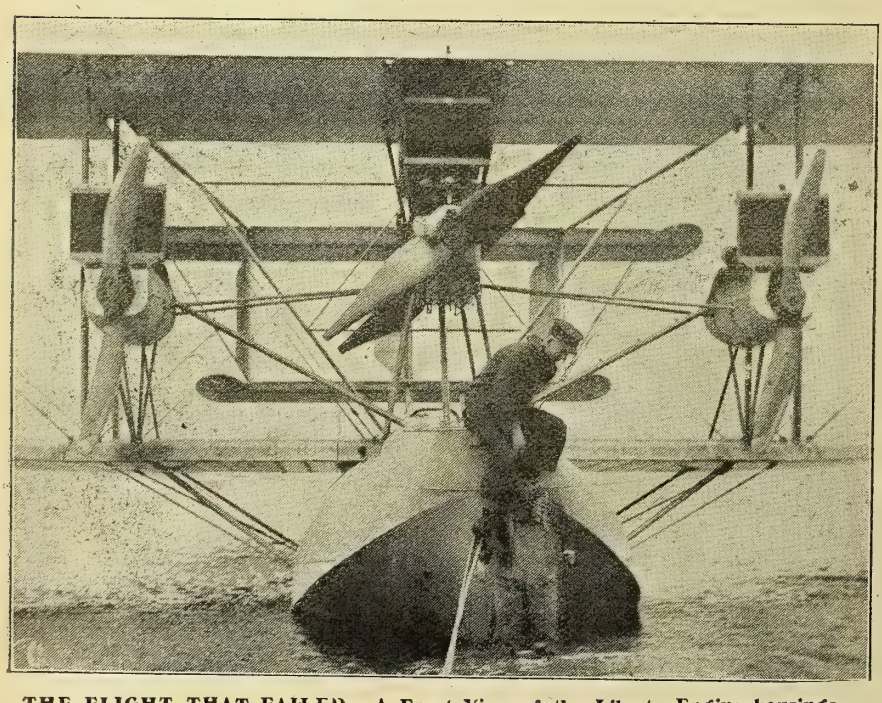
Flying in Peru and Bolivia.

Those who are interested in commercial flying as such should make a note of the fact that on May 28th Squadron Commander Dyott, late R.N.A.S., will deliver a lecture to the Royal Aeronautical Society on "Flying in South America."

Commander Dyott recently made an extended tour in Peru, Brazil and Bolivia, crossing the Andes a number of times and penetrating into the hitherto unexplored country of the Upper Amazon. In the course of his travels he took a number of photographs and films, and he intends to show these as illustrating the conditions which prevail in that part of the country.

If one considered the pictures by themselves one would conclude that there is no opening whatever for flying in that area, but Commander Dyott has made a special study of the possibilities for aviation in that part of the world, and will, one believes, convince his audience that aeroplanes, seaplanes, and flying-boats will play a large part in its development. He should be particularly interesting to those concerned with civil aviation.

The lecture will be held, as usual, at the Royal Society of Arts, John Street, Adelphi, and tickets may be obtained from Mr. W. Barnard Faraday, The Royal Aeronautical Society of Great Britain, 7, Albemarle Street, W.1.



THE FLIGHT THAT FAILED.—A Front View of the Liberty Engine housings and propeller of the N.C.III.

The American Aerial Service at Antwerp.

Colonel Gos and some officers of the American Army announced at the Town Hall at Amsterdam recently that they had been instructed to establish at Antwerp an American Military Aerial Service. The Communal administration has proposed two sites.

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The World of Aeronautics (continued)

A Good Flight.

The Swedish airman, Lieut. Elis Nordovist, made a good flight on May 13th. He covered nearly 625 miles in 8 hours 35 minutes in a Swedish-built Thulin aeroplane with a 90 h.p. Thulin engine.

The Death of Dr. Thulin.

On May 14th Dr. Enoch Thulin, a director of the Enoch Thulin Aeroplane Factory and the designer of the Thulin aeroplanes, was killed in an aeroplane accident off Landskrona by a fall from a height of about 3,000 ft.

A Night Flight.

In the darkness of the small hours of May 15th an aeroplane of the No. 1 Communication Squadron, R.A.F., carrying two passengers and nine bags of mails, flew from Kenley Aerodrome, near Croydon, to Paris against a powerful head wind in 4 hours 15 minutes.

The machine was a Handley Page bomber fitted with two 350 h.p. Rolls-Royce "Eagle" engines and piloted by Capt. George Chadwick, M.C., R.A.F. The navigator was Lieut. H. E. E Saunders, R.A.F. A start was made from Kenley at 1 a.m. and Paris was reached at 5.15 a.m.

For the first 80 miles—that is, until the machine was well over the Channel—Col. Primrose, commanding the squadron at Kenley, was in constant telephonic communication with the aeroplane.

The ground staff at Kenley overheard Capt. Chadwick speaking to the R.A.F. aerodrome at Lympne, on the Kentish coast, asking for lights to be displayed. Capt. Chadwick then told Col. Primrose he had passed Lympne, and a little later Capt. Chadwick was heard speaking to Marquise, on the Flanders coast.

Flying in Spain.

A Handley Page machine piloted by a British lieutenant-colonel arrived at Barcelona on May 17th from Madrid with 14 passengers The distance was covered in four hours. This machine is the first Handley Page to visit Barcelona.

The British aviators at Madrid have been received in audience by the King. The Queen and the Royal children visited the aerodrome on May 16th.

The Trial of R.33.

On May 16th the naval airship R 33 (Lieut.-Col. Hicks, R.A.F.), constructed by Sir W. C. Armstrong, Whitworth and Co., left Barlow aerodrome on a trial flight. Major Thomas, R.A.F., Captain Leetham, R.A.F., and Lieut. Hooley, R.A.F., were among those aboard. Captain Fairbairn Crawford represented the constructors. The flight was shortened owing to trouble with the elevator and rudder controls.

Balance in the Air.

Dr. Henry Head has written for the Medical Research Committee a paper on "The Sense of Stability and Balance in the Air" (Special Report Series, No. 28).

This paper is a critical analysis of certain phenomena which have been made a basis of acceptance or rejection of candidates for the Air Force.

"An identical stimulus can evoke," he writes, "in the same individual a varying response; what wonder that the action of the same physical forces may produce the most diverse effects upon different people." He cites the sensation which some people feel when descending in a lift. Some experience this, others do not, while "between these two extremes lie those who recognise this 'feeling' if the movement starts somewhat suddenly, but not under ordinary conditions.

"This sensation, like giddiness in the air, can be acquired. One young pilot knew nothing of any such 'feeling in the lift' until after an attack of influenza. . . . When he returned to duty 10 days later he found he had lost all confidence in the air, and was 'gripping his controls tightly and tensely.' "

Dr. Head does not pursue the subject of the effects of infection on the nervous system further than this, though other recent work would suggest that it is of first importance. He merely indicates that failure at a given time to pass a given test may not mean that a candidate is necessarily the victim of a permanent disease nor under a permanent disability.

"But, since it has been gained by practice, it can also be destroyed by any condition which lowers bodily or mental vigour; and this is the case not only with those who have adapted themselves to conditions in the air, but also with those in whom such confidence is innate."

Once this point of view is taken, it becomes obvious that the various tests which are considered in the report have a relative value only. Tremor, inability to stand on one foot with the eyes shut, giddiness when being rotated, and so on, may reveal the existence of some abnormal functional state. Their absence is not otherwise an indication of ability to fly. They may be quite temporary, or they may be due to some excess, e.g., alcohol, or at strain, in a healthy man.

A Voluntary Reserve Force.

The following letter has been received:—

Sir,—As it is apparent that the post-bellum R.A.F. will be quite small, it is useless to trust the Government to retain the supremacy in the air. The magnificent warning sounded by Sir Douglas Haig shows that he, like another great soldier (the late Lord Roberts), is able to see farther ahead than our politicians, as he is able to look forward to greater wars that are yet to come.

We are all aware that there are thousands of efficient R.A.F. officers who have been, or are being, demobilised against their will. The development of commercial aviation will not be sufficiently rapid to absorb these officers who are keen on aviation. Consequently, they will drift into other interests, and, in the course of a few years, we shall have lost what is the finest Reserve Air Force in the world.

May I suggest that those who are truly keen on the future of Britain in the Air should form themselves into a Volunteer Reserve.

I believe if a large number of the readers of The Aeroplane would express their willingness to serve in this Voluntary Reserve Force, it would be possible to arrange the details.

Possibly the authorities might be persuaded to turn over to the Voluntary Force some of the aerodromes which would otherwise be dismantled and to allot some of the machines that would otherwise be reduced to produce.

One remembers vividly how before the war, when Lord Roberts had forecasted the great upheaval which we have just lived through, a great effort was made to increase the Territorial Force, and to-day we recognise what those Territorials did for Britain in the black days of August, 1914. I want to see a similar Force composed of the best of young Britishers who served, or wish to serve in the R.A.F., and I sincerely believe that a few thousand pounds spent by the Government in the encouragement of such a Voluntary Reserve Force would save millions later on. May I ask you to throw your columns open to discussion of this scheme. One of the Old R.F.C.

[The suggestion contained in the letter was first made in The Aeroplane in April 1914. It would be interesting to hear the views of readers to-day, and correspondence upon the subject will be welcomed.—Ed.]

The Target Case.

Following on a claim for £10,000 brought before the Royal Commission on Awards to Inventors a fortnight ago, by Lieut. Power, R.A.F., with respect to an aerial target used to train flying officers in "spotting" for artillery, another claimant appeared before the Commissioners on May 19th in Major MacCallum, R.A.F., who urged that the invention was his.

Major MacCallum explained that he had seen reports in the papers that somebody had been claiming for an aerial target. "From the description of it," he proceeded, "I found it to be almost identical with the one I had going in the end of 1915, and have been using ever since."

Applicant said his target was in use at the School of Military Aeronautics at Reading while he was in command. He had never heard of the Power target until he saw the report in the papers. His target consisted of a representation of an actual piece of the front showing an area including Neuve Chapelle, Armentières, and Lille. His target was so realistic that airmen had mistaken photographs of it for photographs of the actual front.

The Chairman (Mr. Justice Sargant) pointed out that Lieut. Power had never claimed to be the first to introduce a reproduction of the actual scene as a training target.

The points for which he claimed on the ground of novelty was that, as the result of his system of illuminations, flashes could be produced anywhere and not at fixed points, however numerous. Secondly, that different areas could be photographed on the screen; and, thirdly, the fact that the apparatus was portable. Moreover, Lieut. Power's method or the adaptation of it had been used in about 330 cases.

Major MacCallum said that some 25,000 pupils were trained on his target, which was adopted at Oxford, and, he believed, also in Canada.

The Chairman said he had no doubt that the MacCallum target, being so much larger than the Power target, was in some respects better. But the great advantage of the Power target was its portability.

Major MacCallum said that as he was the inventor of the first target used for training the Air Forces he thought he had a right to claim.

The Chairman: Yes; but we have to sift out those claims and see if there is evidence of such exceptional merit as would justify us in making an *ex gratia* award.

Mr. Trevor Watson, for the Ministry of Munitions, said it was not disputed that there had been a substantial "user" by the authorities of Major MacCallum's invention, which had been continually in existence in the school at Reading from early in 1916 till after the date of the armistice.

The award of the Commissioners will be made known at a later date.

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PARIS NOTES

MAY 19th.

The Tour de France Aérien, to be held from August 24th to Sept. 1st, due to the initiative of the "Echo de Paris," will be a cross-country contest in the highest sense of the term. It will be held under the Sporting Commission of the French Aero Club, who have already decided on all the main conditions, controls, stages, and prizes. It is to be open to French or Allied competitors and machines. It is to be hoped that the British entrants will be numerous.

The following is a précis of the conditions and general information of interest to possible competitors :—

Each competitor will hand to the Aviation Commission of the French Aero Club before Aug. 9th, midday, two "barometres enregistreurs" which will be placed on their machines. One of these two will be considered as the official recording instrument.

Machines must be presented at the starting aerodrome before 6 p.m., Aug. 19th, for official sealing of vital parts, etc.

Competitors will be allowed to present spare parts, for stamping, to a quantity equal to the number of corresponding parts in the machine. During the contest these parts may be replaced providing that they have been carried in the machine during the flights.

The weight of the machine will be determined and admitted after a preliminary flight, during which the machine will fly with the intended load and must climb to 3,500 metres in one hour. During this flight there will be on board only the crew necessary to fly the machine. Passengers' weight will be replaced by ballast.

THE ROUTE.

1st Stage—Paris, Rouen, Angers, Le Havre, Deauville, Dinard.
2nd Stage—Angers, Romorantin, Bordeaux.
3rd Stage—Bordeaux, Marseilles.
4th Stage—Marseilles, Montpellier, Lyons.
5th Stage—Lyons, Strasburg, Metz.
6th Stage—Metz, Lille, Paris.

On the route will be established "flying controls."

At each stage the controls will be open for three days from 7 a.m. to 8 p.m. No departure will be allowed after 3 p.m.

The controls will be: Paris, Aug. 24th, 25th, 26th; Angers, Aug. 24th, 25th, 26th; Bordeaux, Aug. 26th, 27th, 28th; Marseilles, Aug. 27th, 28th, 29th; Lyons, Aug. 28th, 29th, 30th; Metz, Aug. 29th, 30th, 31st; Paris, Aug. 30th, 31st, Sept. 1st.

CLASSIFICATION.

The classification for prizes will be arrived at by adding together the points gained each day. Ten points will be given to the machine accomplishing the first stage without stop on the opening day. A machine arriving at the control the next day will only get 7 points.

Forced or accidental landings during a stage, and accidents, will be penalised as follows :—

Unauthorised landing, 1 point; change of part (outside conditions of Art. No. 4), wheel, airscrew, landing strut, stabiliser, rudder, axle, 1 point; radiator, 2 points; cylinder, 5 points; crankshaft, 5 points; wing, 5 points.

Every machine must accomplish the stages with at least a pilot and passenger (weight 65 kilos and minimum age 18 years). There will be *added* a quarter of a point for any passenger carried in addition to the above. Only passengers effecting the whole voyage will be counted.

PRIZES.

General Classification :—First prize, 20,000 francs; second, 15,000 francs; third, 10,000 francs; and fourth, 5,000 francs.

There will be a classification from Paris to end of first stage, from Paris to end of second stage, from Paris to end of third stage, and so forth. Each of these seven classifications will have a prize of: First, 3,000 francs; second, 2,000 francs; third, 1,000 francs; fourth, 1,000 francs; fifth, 1,000 francs; sixth, 1,000 francs; seventh, 1,000 francs.

MILITARY PILOTS.

Military pilots will be allowed to compete in accordance with special provisions approved by the military authorities.

All entries must be sent to the "Commission d'Aviation de l'Aéro Club de France" between June 2nd and 20th, accompanied by 1,000 francs, which is reimbursible if the machine completes the first stage. Entrants must acquaint the Commission before 6 p.m. of Aug. 11th with the names of pilot or pilots, licensed, who will partake in the contest.

In addition to the above contest I learn that the "Petit Journal" will organise a "Circuit des Champs de Bataille" between July 4th and 7th. The total distance to be covered will be 1,200 kms. in stages of 200 kms.

A NEW HEIGHT RECORD.

During the week Sadi Lecointe has raised the French height record to 8,400 metres, which is an advance of 450 metres on the last official one. He accomplished it on a 300 h.p. Hispano-Suiza Spad-Herbemont. This must not be confused with the present world's record held by an American and "homologed" at 8,670 metres, nor the unofficial world record of 9,272 metres by Captain Lang in January of last year.

The great French Ace, Fonck, who has not flown the last seven months, has gone into flying training in preparation for an attempt on the world's height record on a Nieuport-Hispano, 300 h.p.

TO THE MEMORY OF FALLEN AVIATORS.

France possibly holds the record for monuments erected to her fallen aviators, military and civil, beginning with the one to Captain Ferber on the Promenade at Boulogne-sur-Mer. The latest is one to Pégoud erected as the result of a subscription by "L'Auto." M. de Gastebois is the sculptor. Shortly, also, a monument to Guynemer will be unveiled at Nice.

HANDLEY PAGE ACTIVITY.

The Handley Page machines make good birds of passage. At all points of the compass in France they have been landing and leaving during the last week. Marseilles, Chalon, Lyons, Pau, and Tours are only a few of the points where their presence has been recorded. Maybe there is some connection between this activity and Mr. Handley Page's visit to Paris recently. Mr. H. White Smith, of the Bristol Company, was also an aeronautical visitor of interest. He came in the capacity of a delegate to the International Aeronautical Commission.

FLYING OVER TOWNS.

General satisfaction is expressed at the action of the French War Ministry in issuing orders that pilots of aeroplanes and airships shall not fly over large towns except at a height which will allow them to reach a suitable landing place in case of engine breakdown. They are forbidden to stunt over towns. They must not pass over Paris at all, unless in receipt of specific instructions, and they must not fly over racecourses, etc., or anywhere where a large number of people is assembled.

CIVILIAN AVIATION.

A new company that intends to start a Paris-London service on June 1st will commence it with one Goliath and four or five G.6's, which, being interpreted, are new Friedrichshafen biplanes handed over by the Boche to the French according to the terms of the Armistice. The Government is losing no time in getting them off their hands, and at good prices, too. This firm has also bought some G.3s and G.4s, likewise old Boche machines. The French pilots are very enthusiastic about them as regards their "maniability," some preferring the G.6 to the Goliath even, which is unquestionably the best machine of its class of French construction.

SWISS NEWS.

The works of the Aero School at Bellevaux have just produced a new machine called A.21, which has been tried at the Blecherette Aerodrome. It is a two-seater biplane with a carrying surface of 21 m. 50 square. Motive power is obtained from an 80 h.p. rotary engine.

The Schlieren Factory is constructing a new machine to the designs of Mr. Schaedler, himself an aviator.

A new aerodrome has been opened at Schwamendingen, near Dubendorf.

Geneva has its first private school of aeronautics, founded by one M. Fernand Zosso, an engineer. Diplomas and certificates will be delivered when studies are completed.

From 1914-1918 Swiss military aviators made 40,111 flights, representing 9,508 hours and 1,645,895 kilometres. Thus the work accomplished by the whole of Swiss military aviation probably does not equal that of four first-class Allied aviators.

A new machine has been constructed in the Federal works at Thoune, called the "Haefeli." It has a motor of 200 h.p. made by Wintertours, the locomotive people.

Geneva and Lausanne are struggling keenly to obtain from the Federal Committee the necessary money for the creation of a vast aviation field in the organisation of which each wishes to be first.

BELGIAN NEWS.

It is reported that civil aviation will commence on June 1st. It is certain that the first routes to be run will be Brussels-Paris and Brussels-London. Demobilised military pilots have already been offered jobs.

What is probably the first case of its kind is that of a Belgian aviator sentenced to death as a traitor for spying during the closing months of the war. His name is Bauwens, a pre-war pilot who took part in many meetings, chiefly in India.

La Banque d'Outremer has formed a syndicate with the idea of forming a powerful aircraft society to exploit aviation in the Congo as well as Belgium. All the big banks are concerned in the affair.


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THE TRANSATLANTIC COMPETITION.

Since the last issue of this paper two attempts to cross the Atlantic Ocean from Newfoundland to Great Britain have been made. One was partially successful in that half the flight—that stage to the Azores—was completed within the stated time. The other, by Hawker, has ended in failure.

It is appropriate at this moment to detail once again the machines entered (and ready to fly) for the competition, or intending to attempt to fly over the course without competing for the prize.

They are as follows:—

BRITISH.

Rolls-Martinsyde machine ("Raymor"). One 285-h.p. Rolls-Royce Falcon engine. Flight duration, 27 hours at 110-117 miles an hour.

Pilot, Mr. F P. Raynham.

Navigator, Captain C. W. F. Morgan, R.A.F.

Sopwith machine ("Atlantic").—One 320-h.p. Rolls-Royce Eagle Mark VIII. engine. Flight duration, 25 hours at 100-110 miles an hour.

Pilot, Mr. H. G. Hawker.

Navigator, Lieut.-Commander K. Mackenzie-Grieve, R.N.

AMERICAN.

Naval Seaplane N.C.1.—Four Liberty engines of 1,600 total horse-power. Flight duration, 20 hours at 70 miles an hour.

Commander, Commander J. H. Towers, U.S.N., and crew of four.

Naval Seaplane N.C.3.—Details as above.

Commander, Lieut.-Commander P. N. L. Bellinger, U.S.N., and crew of four.

Naval Seaplane N.C.4.—Details as above.

Commander, Lieutenant-Commander Read, U.S.N., and crew of four.

On Thursday, May 15th, the American seaplanes N.C.1 and N.C.3 made an abortive attempt to start on their long flight to the Azores, but as far as can be gathered they failed to rise from the water and had to return to port performing as motor boats.

The following evening the three machines left Trepassey Bay, Newfoundland, in the following order: N.C.3 at 6.6 p.m., N.C.4 at 6.7 p.m., and N.C.1 at 6.9 p.m. (American time). The entire course to the Azores was patrolled by American ships of war, which showed all lights throughout the night.

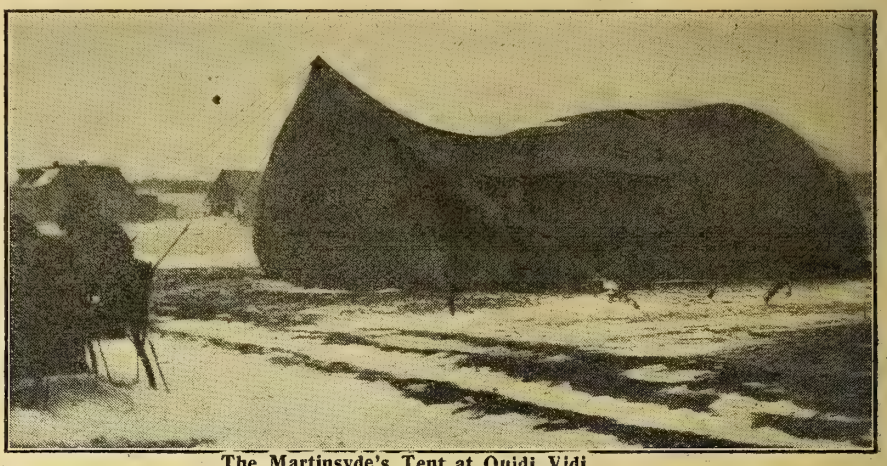
The N.C.4 flew without incident for 15 hrs. 13 mins., alighting at Horta, Fayal Island, Azores, at 1.25 p.m. Greenwich time. The distance flown was about 1,400 miles.

Lieutenant-Commander Read, U.S.N., flew at a height of 3,000 feet until after sighting the island of Corvo in the Azores. He then ran into a fog and consequently came down to a height of 200 feet, which he maintained until the end of the flight. He spoke continually to the patrol vessels by wireless and found no difficulty in keeping his course.

N.C.1 flew into a fog and had to alight 100 miles from Horta. Later in the day it was salved by the steamship "Iona." The machine itself was badly damaged in the attempt to tow it.

N.C.3, the least fortunate of the three, also flew off the course through the rising fog. This machine was missing for some time and was finally located on May 19th seven miles from Porta Delgada, proceeding to that place under her own power.

On May 18th, inspired by a determination not to be defeated by the American pilots, Mr. Hawker and Lt.-Commr. K. M. Grieve, R.N., left Newfoundland at 5.45 p.m. (Greenwich time). On his way out to sea he dropped the wheels of his chassis on the Quidi Vidi aerodrome, where Mr. Raynham was getting ready to start. He then passed out to sea, flying steadily in a favourable wind.



The Martinsyde's Tent at Quidi Vidi.

During the night the wind changed and blew strongly from the east thus reducing considerably the speed of the machine in relation to the earth.

Nothing was heard of the machine until late on Monday night, when the Admiralty received the following message from Castletown wireless station:—

"Sopwith machine down in 52 deg. 30 mins. north, 11 deg. west."

The position indicated is about forty miles west of Loop Head, at the mouth of the Shannon. It is understood, however, that no reliance whatever can be placed on this message. The Admiralty have instructed the Naval authorities at Queenstown to send out all the available vessels on the station to search over a wide area of sea west of Ireland.

Mr. Raynham and Captain Morgan, R.A.F., attempted to begin their flight at 7.15 p.m. (Greenwich mean time) on May 18th, from the Quidi Vidi aerodrome, Newfoundland. His machine rose after a run of a few hundred yards. While flying at a height of a few feet the machine struck a hummock in rough ground. The chassis buckled and the machine turned over and was very badly damaged. Pilot and passenger escaped almost without injury.

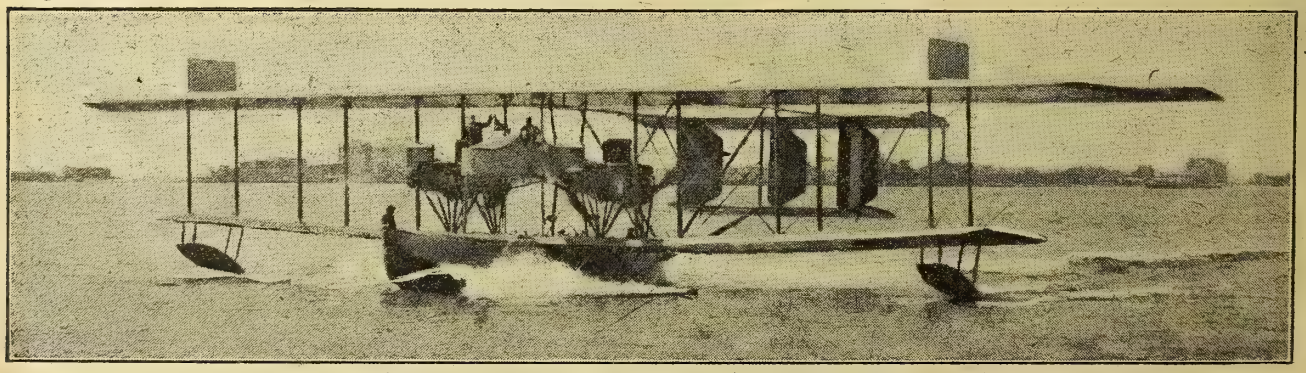
THE U.S. NAVAL AIRSHIP C.5.

The U.S. Naval airship C.5 left Long Island on May 14th and flew to St. John's, Newfoundland, the following day, after a flight of 25 hrs. 40 mins. The distance covered was 900 miles.

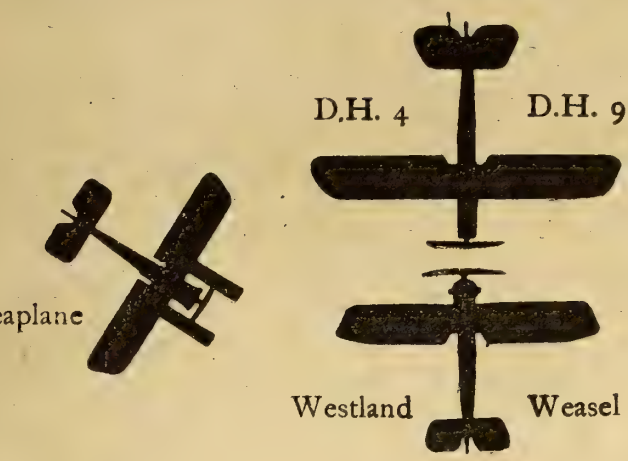
On the evening of the same day she broke adrift from her moorings, luckily without any of the crew on board, and drifted out to sea. Nothing has since been heard of her

The following particulars of the C.5 are of interest. Length 192 ft., diameter 42 ft., length of car 40 ft., engines, two six-cylinder 120 h.p. Union motors.

The crew said that the voyage from Montauk Point was uneventful until early in the morning. The weather was pleasant, and St. Pierre was sighted just after daybreak. Then the airship entered a belt of fog and rain, which drove her north-west over the interior beyond Placentia Bay, where she spent a couple of hours seeking to ascertain her position. Finally, about 9.30, she got in touch with the wireless telephone on the cruiser "Chicago," and reported herself, and by a suggestion from the ship was able to find Whitbourne Junction, a point on the railway line 60 miles distant, whence she made her way steadily to St. John's.



One of the U.S. Navy's Curtiss-built Flying Boats, alleged to have been used in the flight to the Azores.



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D.H. 9A



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TO MADRID AND BACK.

The following has been received from the Air Ministry :—

The flight of four British aeroplanes to Madrid is one of exceptional brilliance, demonstrating unmistakably the manner in which modern aircraft in the hands of clever and daring pilots can overcome the worst natural obstacles and the most extreme vagaries of the weather.

A flight over the Pyrenees is at any time no light undertaking, and in the circumstances in which it was performed by Lieut.-Col. W. D. Beatty on the outward journey from Pau to Madrid, at a time when thunderstorms, hail, rain and dense fog were encountered between heights ranging from 900 to 15,000 feet, it ranks high in the achievements of aviation.

Four machines took part in the venture. Two were of the D.H.4 type piloted by Lieut.-Col. Beatty and Capt. Square, carrying as observers Lieut. Jeffrey and Lieut. Anderson, respectively. The third was a Bristol Fighter piloted by Major Payne, accompanied by Major Coe, and the fourth machine was a V.1500 type Handley Page (four engines) with two pilots, Major Darley and Lieut. Kilburn, an observer, Lieut. Murray, and three mechanics. All of these machines were equipped with engines of Rolls-Royce type.

Flying in Bad Weather.

The big Handley Page was the first to leave England, starting early on Tuesday, the 6th, and, after an attempt to cross the Pyrenees in severe weather on the same day, turned back and made a successful landing in difficult conditions at Biarritz. Low clouds delayed further progress on that day.

Despite adverse local conditions the three lighter machines left Biggin Hill early the following morning, relying on weather reports which stated that blue sky might be expected in the Channel. Col. Beatty left the ground at 8.17 a.m., reaching the coast between Beachy Head and Seaford at 8.43 a.m. and striking the French coast east of Fecamp at 9.19 a.m. Over the Channel thick fog banks covered the sea and it was necessary to fly at 6,000 feet to avoid them. Tours, about 100 miles south-west of Paris, was reached by Col. Beatty at 10.59 after a flight of 275 miles in 2 hours 42 minutes. Visibility at Tours was poor on account of considerable cloud and haze.

The Bristol Fighter landed at 11.50 a.m., and as it was the slowest machine efforts were concentrated on it to refill the tanks and get it away with the others on the second stage of the journey. Col. Beatty's machine was unfortunately held up by the discovery of a break in the exhaust pipe which caused a delay of nearly an hour whilst the defect was temporarily repaired.

Pau was reached on the same afternoon and the necessity for further repairs to Col. Beatty's machine again delayed the immediate resumption of the flight.

It appeared unwise to attempt a non-stop flight to Madrid on the same evening, and it was therefore decided to endeavour to reach Vittoria. The Handley Page machine had found the weather near Biarritz too bad on the day before and was also at Pau, so that it was arranged to start in such order on the following morning that all four machines might arrive together at Madrid at about 10 o'clock.

This programme was by no means so simple a matter as the voyagers expected. The following extracts from Col. Beatty's report illustrate the difficulties which had to be surmounted before the Pyrenees could be passed.

Colonel Beatty's Report.

"I left Pau at 6 p.m., reaching S. Sebastian at 6.56 p.m., against a fairly strong head wind. For the last half hour the visibility over the hills had been very bad, and as fog clouds were blowing in from the sea, it was obviously going to be a question of minutes whether it would be possible to get across in front of these or not. The fog reached the mountains before me and I tried to go over it. At 7,000 feet I was still in dense cloud, and occasional clear holes showed that the 'dirt' of a thundery type ran up to at least 15,000 feet.

"Going back till I saw the coast I came down over S. Sebastian and tried to go under the fog.

"After a little way up the valley at about 900 feet it could be seen that the fog was getting lower and a couple of miles ahead was lying just on the bottom of the valley. A short way farther a fork enabled me to turn back towards S. Sebastian at 7.18 p.m. and I decided to return to Pau, arriving at 7.58. From Hendaye, oil trouble developed which was found next day to be due to dirt stopping up the filter and pipes. This was got right by 2 p.m. on the 8th, and I was just about to start again when the Handley Page which had set off about midday returned reporting hopeless weather near the coast with severe thunderstorms."

Meanwhile, Capt. Square on the other D.H.4 had landed at Hendaye on Wednesday evening owing to oil trouble, while the Bristol progressed as far as S. Sebastian,

Bad weather prevented another effort to cross until after midday on the 9th. Heavy rain had been falling all the morning, but a Nieuport machine which arrived from a neighbouring flying school reported blue sky towards the Pyrenees and a start appeared practicable. Col. Beatty's report describes how Madrid was reached through hail and dense mist.

Through Hail and Mist.

"At 3.11 p.m. we left the ground against a light N.E. wind. Climbing steadily to 7/8,000 feet, we went through the first low layer of cloud quickly, followed by Capt. Simon on his Nieuport. The ground was frequently visible till near the highest point we had to cross. Here we ran into a thick bank and, not getting through it after 5 to 10 minutes, started to climb above. We climbed to 15,000 feet through alternating nail and dense wet blankets of fog. As there was no sign at all of getting through and the hail was becoming more painful we started to descend.

"It was not easy to keep a good course as the clouds were very bumpy. The engine also was annoyed by the moisture and required a lot of nursing, dropping as much as 200 revs. at times. Descending to 7,000 the wing tips were still hardly visible. I had just decided not to risk descending lower and had started to turn back for Pau when we came out of the cloud into visibility somewhere in the Calahorra-Alfaro region.

"There are a good many possible landing grounds in the broad valleys in this region. From here the clouds were mostly at 5,000 with good visibility below them, and we kept fairly closely to our course of 240 degrees, keeping to the south when it became necessary to go off the course to avoid a hill. On one or two occasions we only scraped the tops of cols by feet at 4,500, especially at what I think was the Sierra Tabanera. . . . Striking the railway which runs south to Burgo de Osma, I followed it thinking it was one joining up with that in the valley of the Henares, and then turned to west along the Duero, imagining it was one of the west-running stretches of the river Henares. I soon found it ran too much to the north and suspected I was going towards Aranda.

"Consulting with Lieut. Jeffrey I turned on a 220 degrees course as he advised and soon confirmed our estimates of position by finding the Sierra de Ayllon. Torrelaguna was later identified after first identifying the river Lozoya.

"Just as we reached the west of Madrid the second main petrol tank gave out and we landed at 6.56 p.m. with only about two gallons left in the gravity tank."

The Arrival at Madrid.

All four of the machines had won through to Madrid on Sunday, the other pilots having followed the coastal route through S. Sebastian and Vittoria, and a demonstration flight with Spanish officers as passengers was carried out over the Spanish capital.

The weather conditions on Sunday gave every promise of good weather for the following day and arrangements were made by Col. Beatty for a start on the return flight as soon after daybreak as possible. Monday broke fine with good visibility, as is apparently normal in Spain, and Col. Beatty left the aerodrome at Cuatros Vientos at 6.15 a.m. on his memorable flight.

A route was chosen which avoided the difficult landing country on the direct line between Madrid and Pau. An examination of the map indicated that a route passing near Zaragoza and thence straight to Pic du Midi would probably be best for commercial aviation. Visibility was so good during this flight that the country could be carefully studied over a great area and the result of observation from the air fully confirmed this opinion.

It was found also that good landmarks exist to guide pilots over this route and, except for comparatively narrow stretches of Sierras, possible landing grounds were observed almost the whole of the way to Jaca. The only fog seen by Col. Beatty in Spain was in the valley of the Ebro, near Zaragoza.

When approaching the Pyrenees the aviator experienced the peculiar sensation of being considerably below their tops, although actually, when some distance off, his machine was at least 3,000 feet above the highest peak.

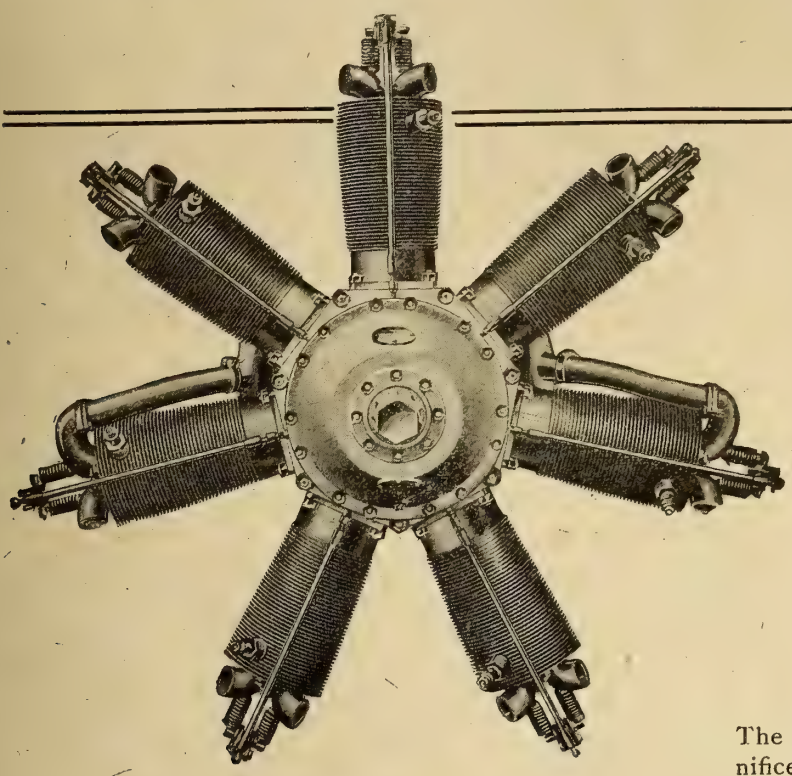
The return flight of Col. Beatty was uneventful, though remarkable for the fact that after leaving Tours the clouds were so thick that the ground was only occasionally seen and the flight to England was made almost entirely by following a compass bearing with due allowance for the wind. Fécamp on the French coast was momentarily observed through the clouds, and nothing more was seen until Eastbourne appeared directly below the machine, through a hole in the clouds.

From here onwards the clouds became thinner and more scattered. A landing was made at Kenley at 6.10 p.m., so that the journey was completed in just five minutes under the twelve hours, with two stops—at Pau and Tours.

The following are the times taken to cover each stage of the return trip, and the distances traversed :—

	Hrs.	Mins.	Miles.
Madrid to Pau	3	5	295
Pau to Tours	2	48	285
Tours to London	2	47	275
	8	40	855

The average ground speed of the machine was, therefore, 98.6 miles per hour, calculated from the above distances which represent the length of straight lines drawn from point to point. It was at first thought that Col. Beatty had followed the coastal route from Madrid to Pau, via Vittoria and S. Sebastian in which case the total distance would have been 987 miles as stated in the earlier reports.



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BRAINS v. SUPERFICIAL SMARTNESS.

A Reply to Roger Bayons.

"The toad beneath the harrow knows
Exactly where each tooth point goes.
The butterfly upon the road
Preaches contentment to that toad."

Even to those who have not read their Aeroplane with sufficient diligence to remember "Roger Bayons'" earlier pronouncements on military subjects it will be obvious that he is a soldier.

More earnest students will have discovered in his *dicta* evidence of his owning a well developed example of the "Staff" type of mind.

Thus even if he does not actually wear those encarnadined embellishments which would complete the analogy physically, his nimble detachment of mind from the hard facts of existence is evidence of a lepidopterous character.

As a soldier, he has seen discipline, so he knows what it is—but he has gone further—he has apparently looked it up in the dictionary and so knows what it is for, and there is obviously, to his mind, little more to be said upon the subject.

The Dawn of Understanding.

However, for a soldier, he is distinctly threatened with glimmerings of intelligence. It will be noticed that he does not propose to assemble aero engines by numbers. This is, at any rate, something to be thankful for.

As to mechanics—after the "necessary" parades—"let them revert to type and be as dirty as they please."

The Fundamental Trouble.

Here one reaches in very truth the essence of the matter.

The trouble with the soldier type of mind is that it does not desire to see the rank and file of the R.A.F. a body of smart mechanics, because the idea of such a combination is beyond the range of this type of intellect. They stop short at the idea of converting mechanics into second-rate imitations of infantrymen.

Usually the object of their efforts becomes useless either as a mechanic or as a soldier, and the result is visible to the nakedest of eyes in the disorderly and useless mob now forming the major portion of the alleged Air Force.

And its Typical Result.

Their nearest approach to success is "The Snipe's" ultra smart leadswinger, who, judging by precedent, may be expected to terminate a successful career of undiscovered crime by pleading his Service character in mitigation of his due punishment when he eventually appears in one of the civil courts.

To Point the Moral—without Adorning the Tale.

The following true story—though it has nothing to do with the Army, being in truth a purely Naval matter—has a certain bearing upon the matter now in dispute.

Most soldiers—I mean soldiers and not mere temporary officers of his Majesty's Army—would dispose of it by merely remarking, "Ah, but then that was the Navy"—and I quite realise that it will produce no effect where the effect is most needed.

A Tactful C.O.

In the early days of our late unpleasantness with our Teuton cousins the R.N.A.S. established an experimental factory staffed entirely by officers and men of that Service.

This establishment originally was run as an independent command, with its men housed in quarters of their own quite close to the workshops.

The Commanding Officer was a regular Naval Officer, possessed of sufficient sense not to interfere in the running of the establishment—except to award punishment and to sign letters.

Both these functions he discharged admirably, the first with a just firmness and the second with a discreet illegibility.

And a Competent Staff.

The rest of the officers were, with the exception of a warrant officer storekeeper, entirely civilian engineers put into uniform and all of them by the Grace of God without Naval or Military training, but possessed of a sense of decency and order. These officers were, in fact, responsible for the routine and discipline of the establishment.

A Reasonable Routine and the Natural Result.

Every morning after breakfast all hands fell in outside their quarters and were marched to the workshops in charge of the officer of the day.

There they were inspected and dismissed to their duties by him. Any man found at this inspection unshaved, dirty, or without proper overalls met the C.O. later on in the day.

Every evening after work all hands again fell in for inspection and marched home. The total time on parade and marching was under half an hour per day.

While this state of affairs lasted, all hands, with the exception of the one or two black sheep who can always be found in such a body, were clean, smart, and worked excellently. They respected their officers and showed that they respected them, both by the formal methods laid down in K.R. and A.I., and by more convincing ones.

It was extremely unusual to see a man lounging about after working hours in dirty working clothes, and offences of any kind were rare.

Paradise Lost.

Two years of this happy state of affairs was too much for the authorities.

The Commanding Officer was removed to another sphere of action, and the establishment was placed, for command and discipline, under an adjacent air station.

The men were removed from their own quarters to an extension of those at the air station, nearly a mile from their work, and the engineer officers were relieved of all but their technical duties.

"Discipline" at Work.

After breakfast the hands, in common with those of the air station, were on parade for 30 minutes. Three-quarters of them then spent 20 minutes marching to work. The remaining quarter were kept for a further hour's drill to "smarten them up."

Every evening they marched to the air station, where a quarter of an hour was spent in ingenious manœuvres designed to bring this body of men to their appointed place amongst the greater mass belonging to the air station, so that the total time spent on the homeward march became 35 minutes. Total time lost, as compared with the original routine, 1½ hours per man per day.

Discontent and Disorder Follow.

And at the end of three months they were as discontented as the present average of the R.A.F., their work had deteriorated, their standard of personal cleanliness had dropped to the minimum compatible with escaping reprimand from their disciplinarian officers, overalls disappeared, they wore their working clothes at work and after it, and they treated their Technical Officers with growing disrespect.

Control versus Command.

No soldier—probably, no sailor—can be expected to understand why, but any person who has had to exercise control, as distinct from command, over men, could have predicted this result.

The Toad.

A VISIT TO THE HOUSE OF BOLO.

By G. L. D.

If you are a pilot in the R.A.F. on the verge of demobilisation and wish to obtain some information, a graduation certificate, or some such similar thing, a most unprofitable day, very upsetting to the temper, can be spent at the great headquarters of everything aerial, Bolo House, Strand, W.C.2.

On arrival you fill up the usual inquiry form and pass, and then follow a Brownie along corridors, up a lift, more corridors, perhaps a few stairs for variety, and finally, when tired out, having walked many miles, your guide disappears

Do not try to follow her, or you will assuredly lose yourself, or perhaps enter a messengers' lobby, those sacred rooms where only messengers may tread, and there you will be stared at by many Brownies of all shapes and sizes, all drinking tea, until, covered with confusion, you flee and do not stop until you reach the end of a blind passage.

Then you think you will inquire the way. You inquire, but no one knows, and then it is best to go down to the entrance hall and start again.

When your guide disappears you should stay where you are, and then another Brownie will suddenly arrive from nowhere, whisper, "Follow me," and off you go again.

Eventually you arrive outside the great man's door and take your place at the end of a queue which lessens very slowly. You watch resplendent officers, ancient civilians, and beautiful girls rushing or sauntering to and fro, and wait.

If your luck is out, just before you are going to be interviewed the great man goes out, either to a conference or to lunch, and you are advised to return at a later hour. However, you may be lucky and get an interview, and then you will be told with regrets that that department does not deal with graduation certificates, and are advised to go and see Captain Smith-Porkins at the Adelphi Hotel.

After a long journey you arrive there. He is also very sorry for you but can be of no assistance—why not go to see Major Simpkins-Short in the Air Ministry?

If your patience is not then exhausted you go, and you may go much farther and eventually arrive back with surprise at the room from which you started. However, you will eventually learn that you must get your graduation certificate from the training squadron where you graduated, and as that has been disbanded and closed down you return home with a sorrowful heart and aching limbs.

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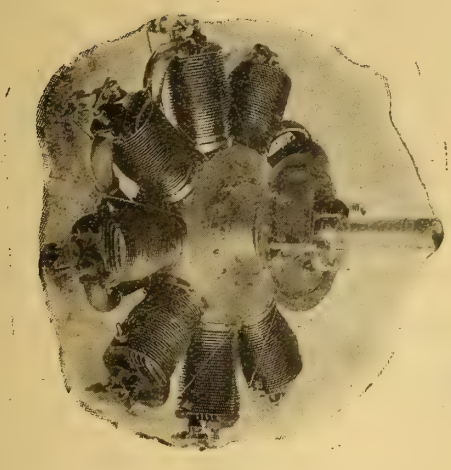
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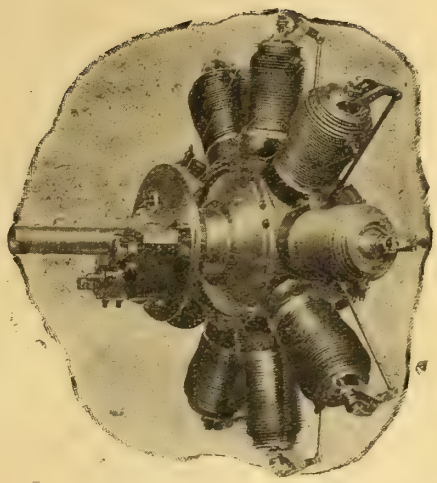
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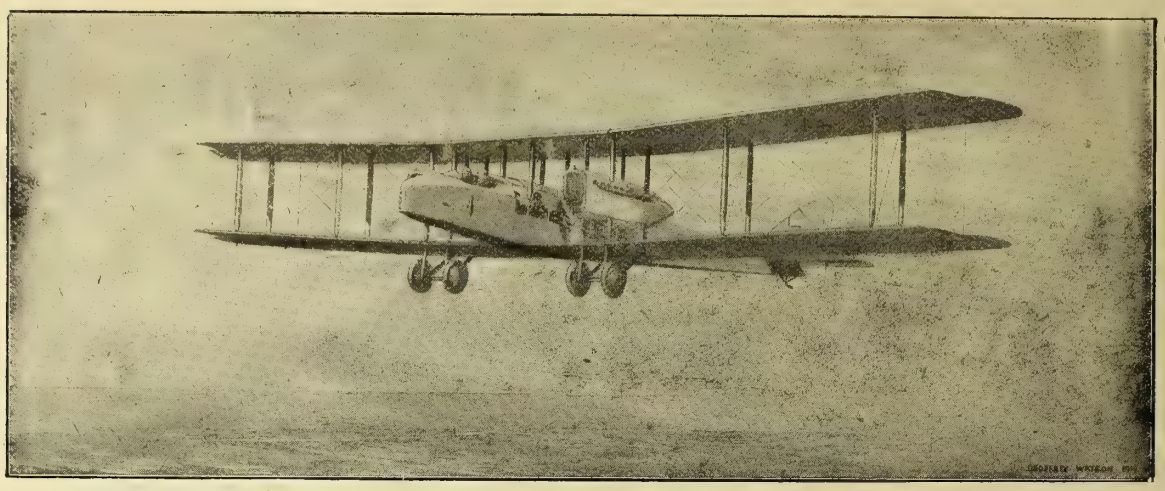
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THE WEEKLY COMMENTARY.

In continuation of the articles on Commercial Aircraft Design Captain Sayers contrasts a machine designed for the carriage of mails with the previously discussed passenger machine, and shows that, if the mail-carrier is designed for mail-carrying alone either a better performance with the same engine or an equal performance with a lower-powered engine can be obtained, as compared to the passenger type designed for the same total load.

Descriptions and illustrations of the De H. 10 and De H. 10a types of twin-engined machines conclude the instalment of "Modern British Aircraft" which refers to the products of the Aircraft Manufacturing Company, Ltd.

A further note on the history of the Steel Wing Company and their work in the development of all-steel construction appears on page 2036.

This should be read in conjunction with the abstract of Dr. Thurstan's paper on the Metal Construction of Aircraft, read before the Royal Aeronautical Society, which will also be found in this number.

It is of interest to note that the first attempts to build aircraft of steel, except those based on the use of steel tube, were financed by Mr. E. V. Sassoon, who in 1911 took up the patents of a Russian inventor named Mayro and developed them to a certain extent. It is claimed that the various Mayro patents cover the whole system of locally stiffening thin strip steel by longitudinal corrugations, and the Steel Wing Company's work is carried on under these and numerous other patents.

The Steel Wing Company's work therefore appears to be in direct and continuous succession from the earliest recorded attempts in this direction, and it is curious that Dr. Thurstan, whilst giving due credit to a number of other designers who have all more or less followed the same basic principles, should have omitted to mention the Steel Wing Company's work.

COMMERCIAL AIRCRAFT DESIGN.—XII.

MAIL CARRIERS.

By Capt. W. H. Sayers, late R.A.F.

It will now be considered what modifications could be made in the passenger-carrying machine which was described in the instalment of April 23rd and illustrated in Fig. 16, if the load to be carried consists of 1,200 lbs. of mails instead of 1,200 lbs. of passengers.

The average letter of commerce is about 4½ by 5½ ins., and of a thickness depending on the amount of enclosed paper. Roughly, if a pile of letters of these dimensions is made such that its height under slight pressure is one inch, the pile will be found to weigh from 8 to 10 ozs. This is roughly at the rate of 50 cu. ins. per lb. weight. For 1,200 lbs., therefore, the space required will be 60,000 cu. ins., or nearly 35 cu. ft. It will be remembered that the space occupied by the passenger cabin of Fig. 16 was 9 ft. by 3 ft. by 4 ft. 6 ins. = 121.5 cu. ft., or 3½ times as much.

Taking the same available cross section in the fuselage for useful load as in Fig. 16, i.e. 3 ft. by 4 ft. 6 ins., a total length of a little less than 3 ft. will suffice for the mail load.

This presupposes that letters are properly packed, and not merely thrown into sacks and dropped into the machine.

It is practically certain that such packing will be necessary, and that letters for aerial post will have to conform to certain standard envelope dimensions to facilitate packing, otherwise the cost of transport will increase. It may even be necessary to charge by bulk rather than by weight.

Since the load can be packed into so much shorter a length, it is obviously possible to bring all the loads closer up to the centre of gravity. The pilot's and mechanician's seats may be brought up to the trailing edge of the upper wing, and, as these seats can be high in the fuselage, a greater depth is available under their feet than that under the passengers' floor boards in the passenger machine.

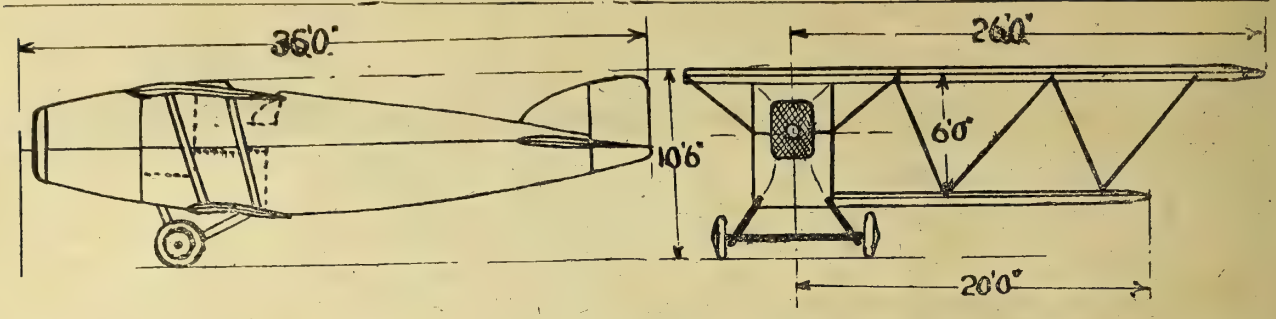
This allows for a deeper and therefore shorter petrol tank.

In the passenger machine there would be difficulties in the way of completely bracing the fuselage over the length occupied by the cabin, which would call for a heavy form of fuselage construction over this part. Also, seat bearers, seats, cushions, and particularly window glass would total up to a very considerable weight, which is no longer required if mails are the only load to be carried.

It is estimated that the saving which could thus be made in the weight of the fuselage and its fittings alone without altering the overall dimensions, will be about 300 lbs.

As a result of this saving it will become possible to reduce the wing surface the size of the tail plane, or the length of its lever arm, and even the weight of the chassis. Roughly, it should be possible to save from 450 to 500 lbs. in the total weight of the structure in this manner.

If the performance of the machine is of the greatest importance, and for mail work speed is likely to be a most vital matter, it will probably be advisable to content oneself with the saving already in view, and instal the same power plant of 600 h.p. which was used in the passenger machine, thus obtaining a rather better all-round performance.



HIGH SPEED MAILCARRIER.

SPAN-TOP, 52'0" - BOTTOM 40'0" - CHORD-TOP 9'0", BOTTOM 6'0", TOTAL AREA 645 SQ.FT.

TOTAL WEIGHT, 6750LBS, WEIGHT EMPTY 4070,- WT/SQ.FT - 10.5 LBS, WT/HP - 11.2 LBS.

Fig. 18.

This leads one to the machine sketched in Fig. 18, which differs very little in appearance from Fig. 16.

The fuselage has been slightly shortened, and has been moved slightly farther aft relatively to the wings, to bring the machine to approximately the same balance as the passenger carrier. The mails are carried in a compartment 3 ft. by 3 ft. by 4 ft. 6 ins., immediately aft the engine.

The upper plane span has been reduced from 55 ft. to 52 ft., the chord remaining unaltered. The lower wing has not been changed, and the gap is the same as in Fig. 16.

The total wing surface has been reduced by 30 sq. ft.

The total of weight for the same total of fuel and cargo has dropped from 7,200 lbs. to 6,750, the loading per sq. ft. is practically unaltered (10.5 lbs. against 10.6), and the weight per h.p. comes down from 12 to 11.2 lbs.

At this weight and with this power the machine should have a very considerable margin of spare power at 120 m.p.h., or a considerably higher maximum speed if flown at full power.

If increased top speed is not required, it would be possible to make the machine with somewhat lower h.p.—say 500. Assuming that the weight per h.p. and the fuel consumption per h.p. hour remain constant, the weight saved by this reduction of power would be 250 lbs. on the power plant and 200 lbs. on the weight of fuel for 4 hours—another 450 lbs. in all.

As a result of this saving, further reduction in the wing surface and tail area could be made, with a further saving in structure weight.

On this basis, adhering to the same general arrangements as in Figs. 16 and 18, a machine would be arrived at similar to Fig. 18, but of only 48 ft. 6 ins. span (top plane) and 37 ft. span (lower plane), and about 34 ft. long over all, with a total surface of 600 sq. ft., and an empty weight of 3,450 lbs., which, with 1,200 lbs. of mails and 1,050 lbs of fuel and crew of two, would bring the full load weight to 6,150 lbs.

This gives a loading of 10.25 lbs. per sq. ft. and of 12.3 lbs. per h.p.

On these figures the original specification of a landing speed of 45 m.h.p. and a maximum speed of 120 m.p.h. could both be attained.

In the case of either of these machines the attempt to build to the same specification in the twin-engined type of machine would lead to similar results to those which were found in the passenger-carrying type, without even so large an improvement in handiness fore and aft as would have resulted in that case, because the weights are concentrated fairly well in the mail carrier, and the extent to which the longitudinal weight distribution can be improved is accordingly reduced.

It will be seen that simply because passengers require an inordinate amount of room for their stowage, even as compared with such relatively bulky goods as mails, there is, for a machine of the size now under consideration, an increase in weight of the loaded machine from 6,150 lbs. to 7,200 lbs., or about 17 per cent., and an equivalent increase in the horse-power required for the same total useful load and the same performance.

These figures, if anything, underestimate the saving obtainable in the mail carrier, because, were one to commence the design *ab initio* of a mail-carrying machine for the outlined conditions it would probably be found profitable to attack the problem on quite different lines, and it might be found possible to still further economise in structural weight.

At the same time it is believed that the comparison between the two sets of machines, designed on as nearly as possible the same lines, will give a more vivid idea of the nature of the changes which result from the differing classes of load to be carried.

This effect will be found to hold over land machines of all sizes. It will be most important in very small machines, and will diminish in importance with increasing dimensions.

It will be of greater extent in machines carrying a light load per sq. ft. of wing surface than in those with heavy wing loading, because the increase of wing surface made necessary by the increased weight of the passenger accommodation will be greater, and therefore heavier, when light loadings are used than when heavily loaded wings can be used.

The disadvantages of the passenger-carrying class of machine will be greatly reduced in the case of flying boats, since the dimensions of the hull are fixed by considerations quite other than that of the nature of the load to be carried, and there will always be ample room therein for any weight of passengers which could be carried by the machine. Even in this class of machine the weight of seating arrangements and of glass look-out panels, etc., for the passengers may be an appreciable item.

With the conventional type of float seaplane the nature of the effect of the different types of load would be much as in land machines, since it is improbable that the Post Office would consent to mails being carried in compartments in the floats. Purely from the aeroplane point of view, there would be no serious objection to goods carried in this position, particularly if they were enclosed in water-tight cases of their own.

Were this arrangement adopted, the difference in favour of a cargo of a compact type as compared with passengers would be even greater than in the land machine, since, owing to the large reserve of buoyancy necessary in the floats, there would always be space in them for any load the machine could carry unless it were of very low specific gravity. Passengers could not be stowed in floats unless they were lying down.

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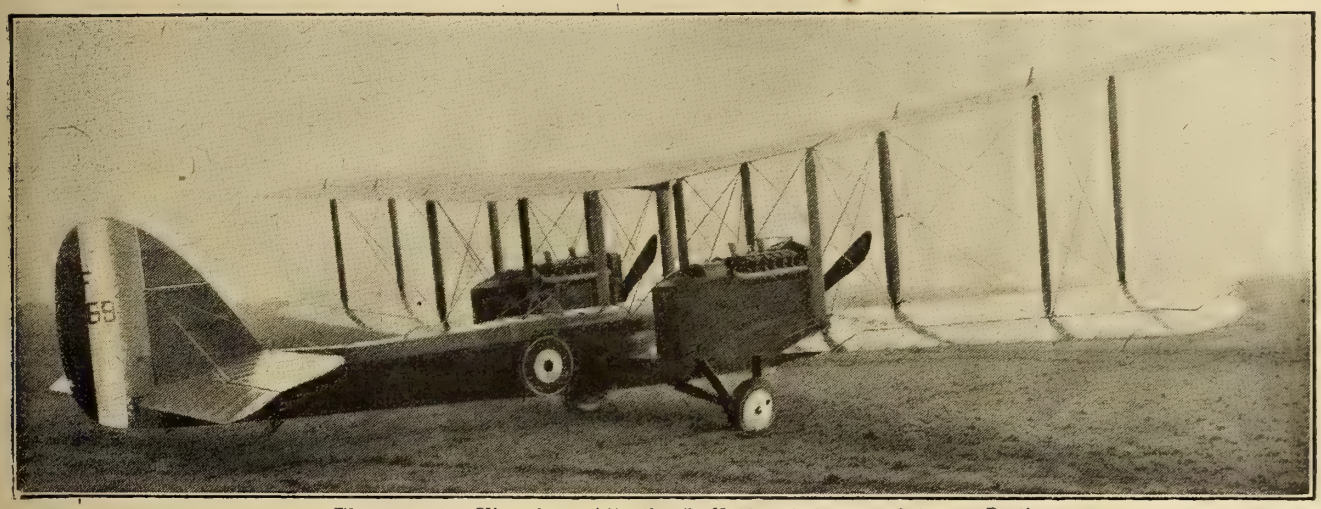
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III.—The Aircraft Manufacturing Co., Ltd.—(*Concluded*)



Three-quarter View from Aft—the DeH.10A (2 400-h.p. Liberty Engines).

THE AIRCO DE H.10 AND 10A.

The De H.10 was designed as a high-speed day bomber and made its first appearance towards the end of 1917. As has been already stated, it is essentially a development of the De H.3, from which it differs in that whereas the De H.3 was fitted with pusher airscrews, the De H.10 has tractor airscrews.

The most noticeable feature of this machine is the extremely low position of the fuselage, which is mainly below the bottom wing, and the curious mounting of the engines, overhung from one side of the outer centre section struts.

The De H.10A is a somewhat later type of the same machine. They differ mainly in that in the De H.10 the twin engines are mounted well up in the gap between the planes, and in the De H10a, the engine nacelles are actually on the bottom plane.

The alterations have resulted in a very marked increase in the speed of the type 10a, accompanied by an increase in the empty weight of the machine of nearly 140 lbs.

Both types proved their qualities on active service, before the cessation of hostilities, and it may be expected that with suitable modifications they will show their value even more fully as commercial machines in the near future.

SPECIFICATION.

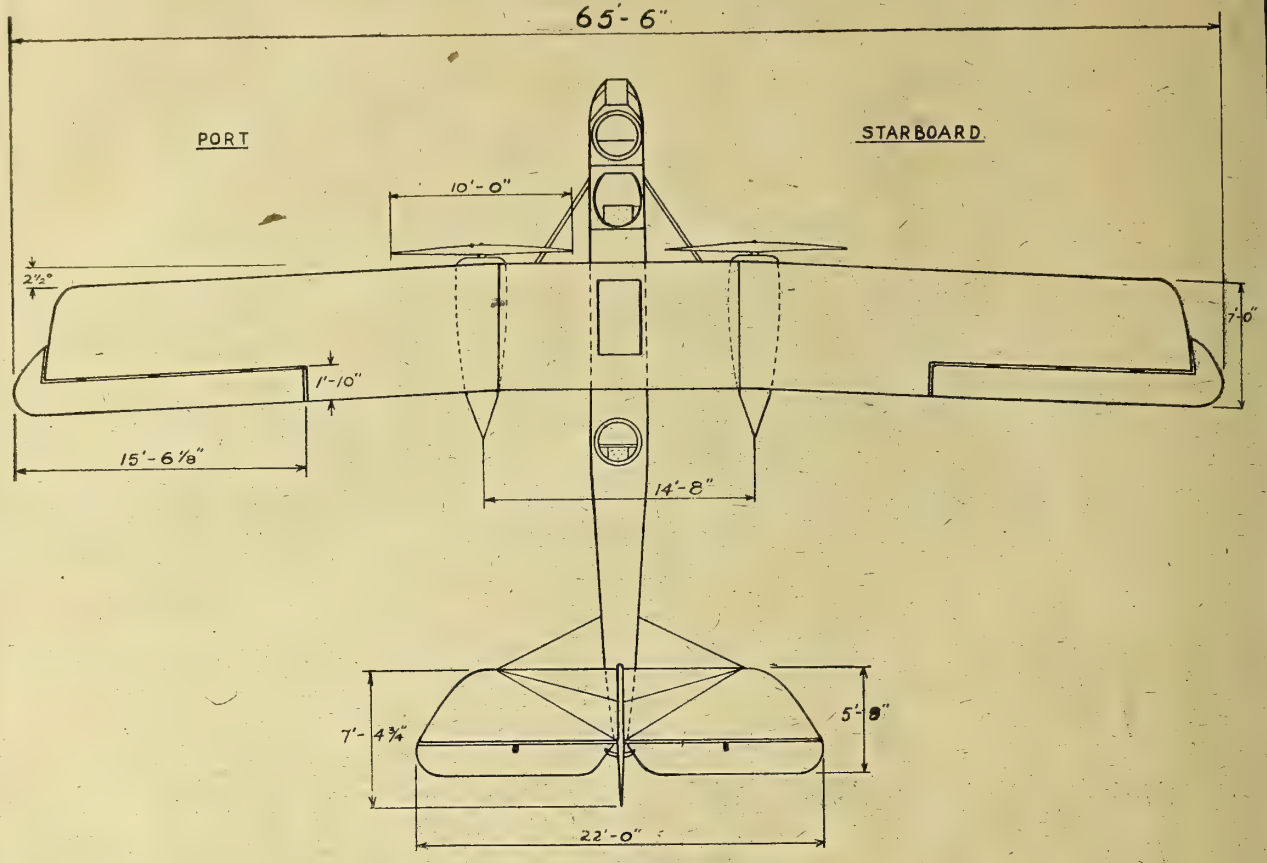
Type of machine	Biplane "Tractor."
Name or type No. of machine	De H.10.
Span	65 ft. 6 ins.
Gap, maximum and minimum	7 ft.
Overall length	39 ft. 7 7-16 ins.
Chord	7 ft.
Total surface of wings, including centre plane and ailerons	837.4 sq. ft.
Span of tail	22 ft.
Total area of tail	144.3 sq. ft.
Area of elevators	16.54 sq. ft. each.
Area of rudder	25.75 sq. ft.
Area of fin	10.0 sq. ft.
Area of each aileron	29.5 sq. ft.
Engine type and h.p.	Two 400 h.p. Liberty.
Airscrew, diam., pitch and revs.	10.0 dia., 7.3 pitch, 1,625 revs.
Weight of machine empty	5,355 lbs.
Weight of machine full load	8,500 lbs.
Weight per h.p. full load	10.6 lbs.
Tank capacity in gallons	215 gallons.
PERFORMANCE—	
Speed low down	117½ m.p.h.
Speed at 10,000 feet	115 m.p.h.
Speed at 15,000 feet	110 m.p.h.
Landing speed	62 m.p.h.
Disposable load apart from fuel	1,381 lbs.

THE AIRCO DE H.10A.

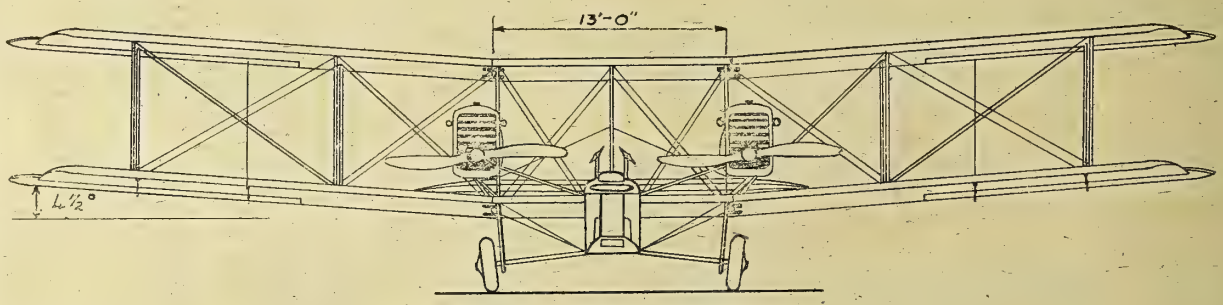
Type of machine	Biplane "Tractor."
Name or type No. of machine	De H.10a.
Span	65 ft. 6 ins.



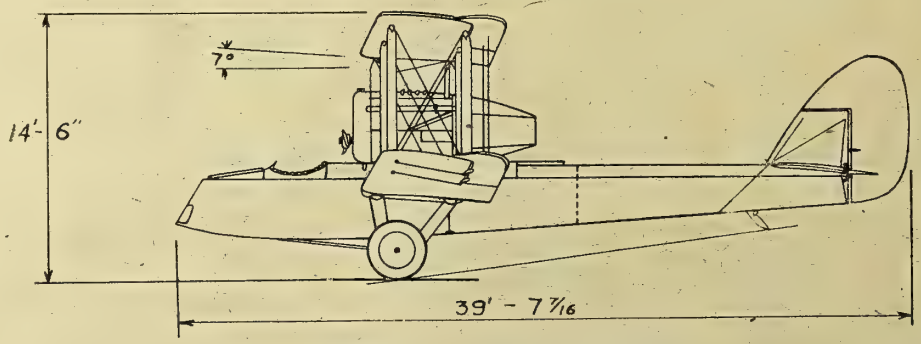
Three-quarter Front View, The Airco DeH.10 (2 Rolls-Royce "Eagle" Engines, each 360 h.p.).



PLAN.



FRONT ELEVATION



SIDE ELEVATION

DE H—10.

SCALE OF FEET.
0 1 2 3 4 5 6 7 8 9 10

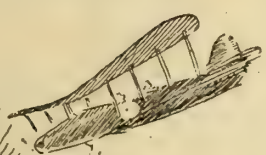
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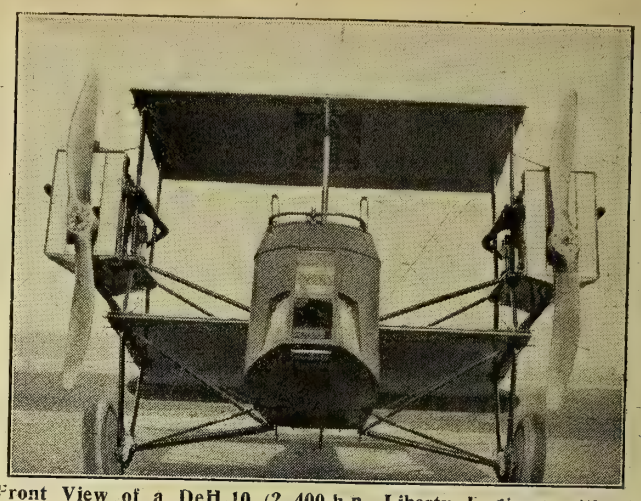


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Maximum height	14 ft. 6 ins.
Chord	7 ft.
Total surface of wings, including centre plane and ailerons	837.4 sq. ft.
Span of tail	22 ft.
Total area of tail.....	144.3 sq. ft.
Area of elevators	16.54 sq. ft. each.
Area of rudder	25.75 sq. ft.
Area of fin	10.0 sq. ft.
Area of each aileron	29.5 sq. ft.
Engine type and h.p.	Two 400 h.p. Liberty.
Airscrew, diam., pitch and revs.	10.0 dia., 7.3 pitch, 1,625 revs.
Weight of machine empty	5,488 lbs.
Weight of machine full load ...	8,500 lbs.
Weight per h.p. full load	10.6 lbs.
Tank capacity in gallons	215 gallons.
Performance—	
Speed low down	128 m.p.h.
Speed at 10,000 feet	124 m.p.h.
Speed at 15,000 feet	117 m.p.h.
Landing speed	62 m.p.h.
Disposable load apart from fuel	1,248 lbs.



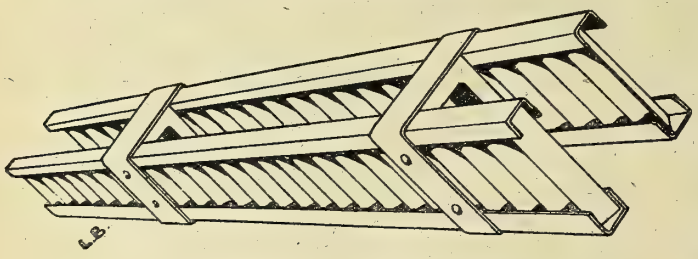
Front View of a DeH.10 (2 400-h.p. Liberty Engines) without Wings.

THE HISTORY OF THE STEEL WING COMPANY.

As was stated in a previous note (May 14th, 1919), the history of the development of the all-metal wings by the Steel Wing Company is of considerable interest, and by the courtesy of Mr. D. T. Mooney, the managing director of the firm, it is now possible to supplement that note by the following further particulars.

The whole of this firm's work has been based upon the use of spars built up of steel strip, of a thickness varying between 0.011 in. and 0.022 in., and upon the use of longitudinal corrugations in one form or another, to stiffen the flanges against local buckling.

The history of the enterprise dates back to 1909, and is based upon the work of Mr. J. Mayro, whose early patents are worked under licence by the Steel Wing Co. The firm still have in their possession an example of a steel spar built in 1912.



The Steel Wing Co.'s 1912 Steel Spar.

A sketch of this spar is given. In this case the longitudinal corrugations take the form of trough section strips, four in all, forming the flanges of a pair of I beams. The webs of each of these I's consist of another steel strip with short pitched vertical corrugations, of a depth equal to the inside width of the trough sections. The two I's are held together at intervals by rivets through a strap surrounding the whole spar, with an internal distance piece of aluminium between them.

In October, 1915, the R.F.C. urgently needed all-metal wing structures for use in the tropics, but the Metal Wing Company found it impossible to obtain supplies of suitable steel strip, and therefore turned their attention to the use of aluminium alloy.

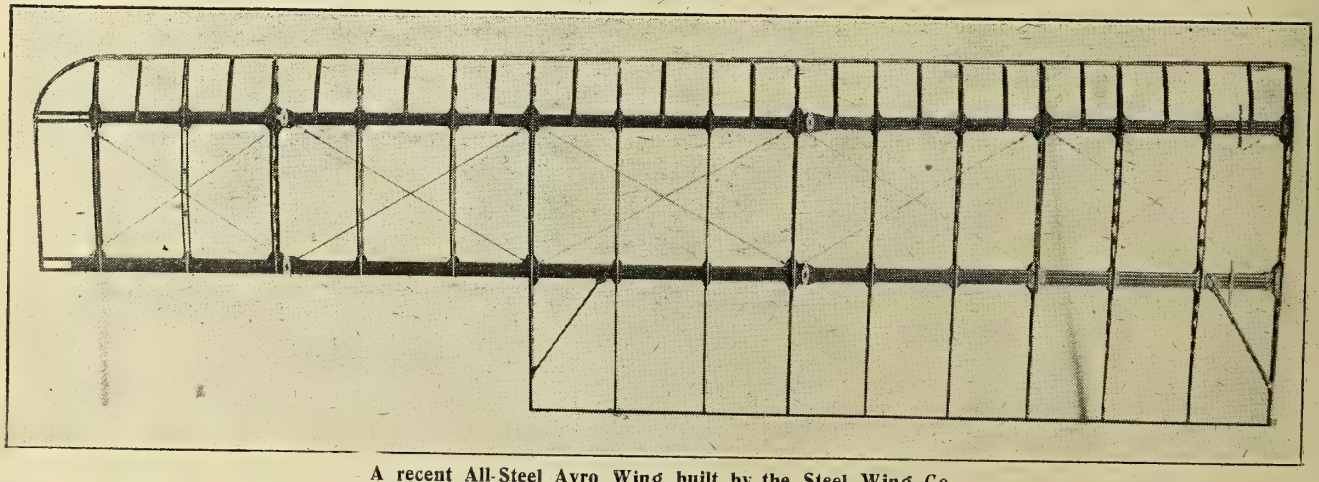
During 1916-17 they manufactured hundreds of ailerons built of corrugated alloy strip. These ailerons were lighter than wooden ones, and were up to strength requirements. They were used with completely satisfactory results under war conditions in the tropics and elsewhere.

In the meantime the firm made exhaustive tests of various types of steel, and, with the able assistance of Mr. Mackinder, of the well-known Sheffield steel makers, Kayser, Ellison and Co., Ltd., finally (early in 1917) obtained strip steel suitable for the manipulation necessary to produce the corrugated sections required.

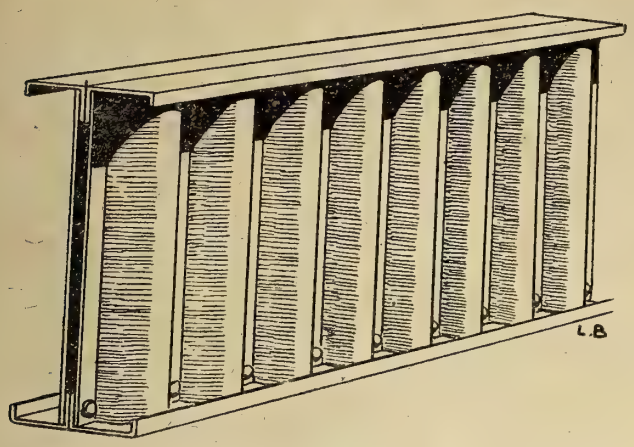
Once the right class of steel was hit upon the manufacturers rapidly improved its qualities, and they can now supply an almost ideal material for this particular work.

In May, 1917, the Steel Wing Company produced an all-metal wing for a B.E.2E., which, when tested at the Royal Aircraft Establishment at Farnborough, gave such promising results that the Department of Military Aeronautics asked the firm to manufacture a large number of steel wings for the B.E.2D type.

The complete B.E.2E wing was illustrated in the previous note, but a sketch showing the construction of these spars is given on the next page. In this case the spar is not all steel, as the double corrugated webs are of aluminium alloy. The top and bottom flanges and the rivets only were of steel.



A recent All-Steel Avro Wing built by the Steel Wing Co.



Sketch of the construction of the 1917 Steel and Aluminium Alloy B.E.2E Spar.

The specification for these wings called for a further improvement in the steel used, but this difficulty was speedily overcome, and in October, 1917, a complete B.E.2D. wing had been produced.

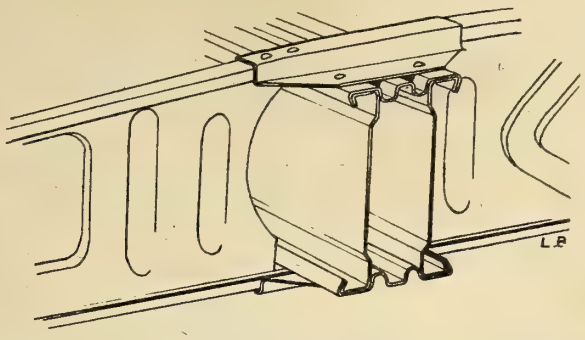
Just as this type of wing was going into production an urgent instruction was issued to the firm to produce all-steel wings for the Bristol all-metal M.R.1 type. These wings were ready within a few weeks and were tested officially in April, 1918.

At the end of February, 1918, the Technical Department of the Department of Aircraft Production formed a Metal Design section, under the charge of Lieut. (now Capt., R.A.F.) A. P. Thurstan, R.N.V.R., one of whose earliest activities was to institute a kind of competition for the design of metal wings for the Standard Avro training machines.

At the date of the Armistice quite a number of firms had submitted sample steel wing spars for the Avro, for this competition, but, so far as is known, no other firm had produced an all-steel Avro wing.

At an early stage in the revival of interest in metal construction the Steel Wing Co. had considered, made and tested spars employing tubular type booms, but these were abandoned because of the difficulties of attaching metal ribs to them.

All the spars actually used by this firm were designed to simplify such rib attachments and to facilitate erection and replacement. This difficulty has been very neatly solved by the use of saddle-plates, which bridge the spar and carry the separate sections of the ribs. The method is clearly shown in a sketch, and in a photograph of the unassembled portions of a rib which are reproduced.

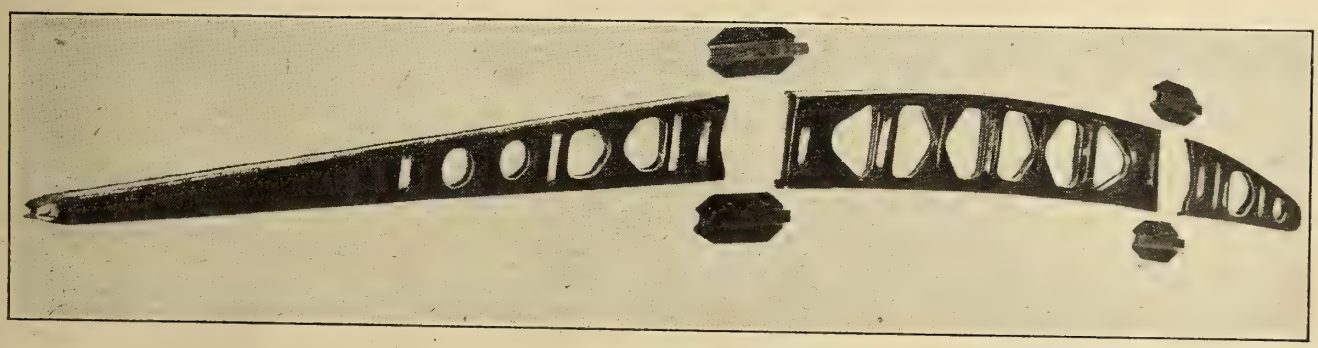


Sketch showing the simple Saddle-plate Method of attaching Steel Ribs to the Spar.

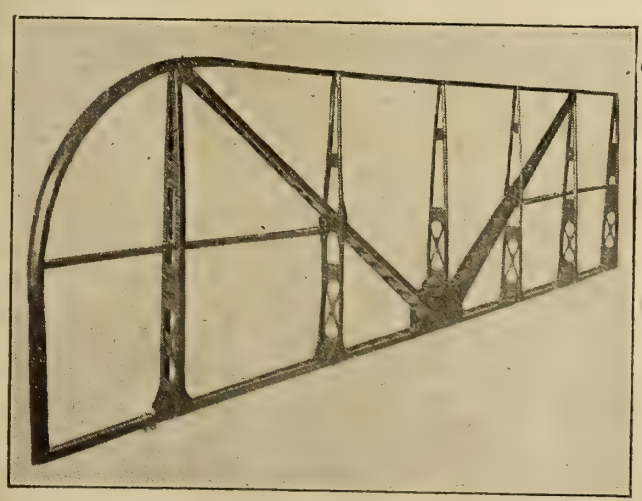
The first type of Avro wing produced by the Steel Wing Company when sand loaded, stood up to 9 times normal load without failure of the wings, and they were as light as the average wooden wings.

This type has been tested under flying conditions and has given complete satisfaction.

Since the Armistice two further improved types of Avro wing have been produced which are even lighter and stronger than the original type above referred to.



Photograph of an All-Steel Avro Rib and Saddle-plates. The Steel Wing Company.



An All-Steel Avro Aileron built by the Steel Wing Co.

ALL-METAL CONSTRUCTION.

Sir,—We notice in your issue of May 7th a statement by Mr. J. D. North, of Messrs. Boulton and Paul, to the effect that corrugated steel spars are liable to fail in secondary, and that in order to meet that tendency it will be necessary to make them somewhat heavier than wood.

This company has been for some years producing all-metal wings. We have—amongst others—produced wings for type Avro 504K. machine, which are lighter than the average wooden wings at present in use for that type of machine. These wings are satisfactory under flight conditions, and have been submitted to official static tests which showed a strength factor considerably greater than that required for wooden structures of the type. There was no failure of any part of the wing structure proper under such a load, the test in each case had to be discontinued owing to the failure of standard fittings which, owing to the greater strength of the steel wing structure, had apparently been tested beyond their designed strength.

There were, as Mr. North supposes, very considerable structural and other difficulties to be overcome before steel construction reached the stage indicated above.

Yours faithfully,

THE STEEL WING COMPANY, LIMITED.

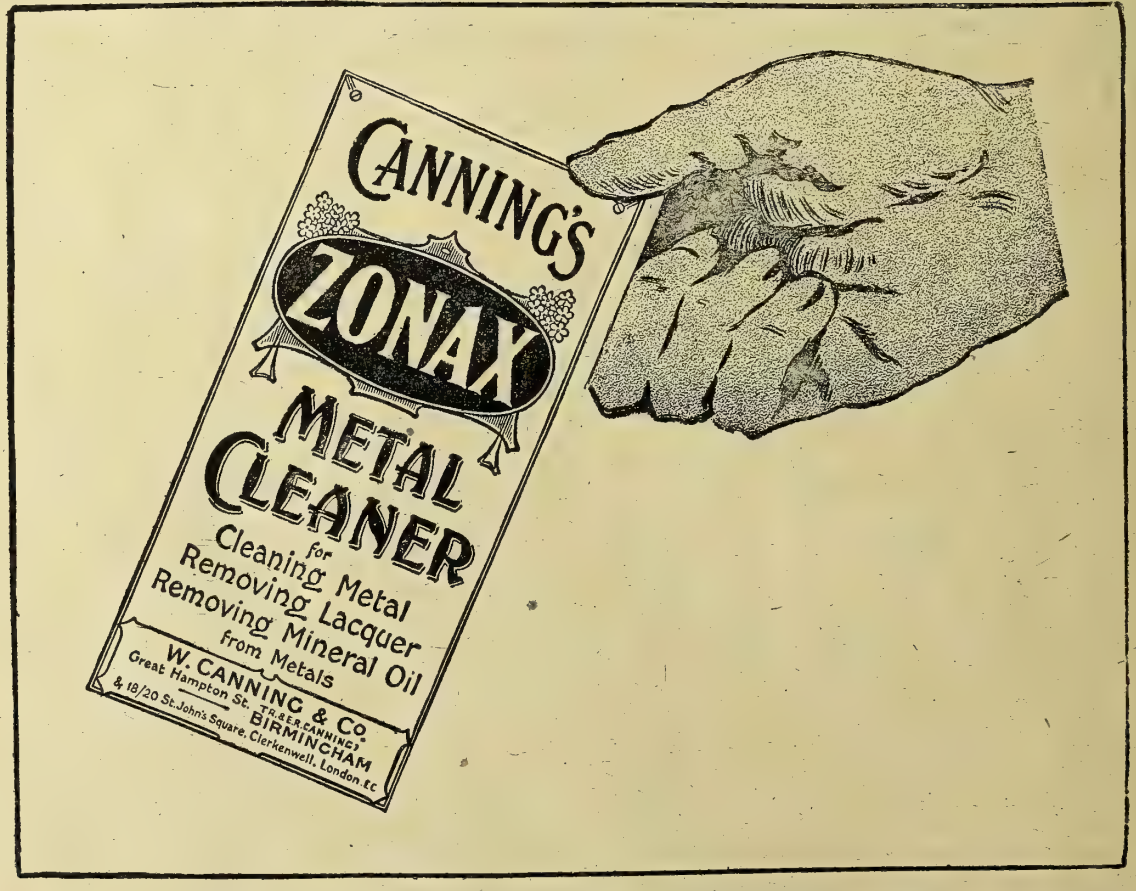
[It should be noted that the writer of this letter has apparently misunderstood Mr. North's statement. Mr. North said that the difficulty as to secondary failure could be overcome by corrugation at a slight increase of weight, i.e., at a slight increase as compared with the uncorrugated spar.—Ed.]



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THE METAL CONSTRUCTION OF AIRCRAFT.

The paper under the above title, read by Capt. A. P. Thurston, D.S.C., F.R.Ae.S., F.R.Met.S., M.I.A.E., late R.A.F., before the Royal Aeronautical Society on Wednesday last, May 14th, attracted a very numerous gathering.

Unfortunately the reading of the paper occupied so long a time that only a very few members were able to speak in the discussion.

The following is an abstract of the paper :—

This war has been fought with machines made of wood, a most unsatisfactory material from a constructional point of view. Wood warps and cracks; is unsuitable for tropical climates; splinters easily in a crash; is liable to transfix the aviators; is non homogeneous; uncertain in strength and weight; weakens rapidly when exposed to moisture; and is not produced in any quantity in this country.

On the other hand, metal does not splinter; it is much safer in a crash, the members hanging together and forming a shield to protect the aviators; its properties are known to a fine degree and may be relied upon; it can be produced in immense quantities; and, moreover, metal members after failure can still carry a considerable load.

A year ago over 1,000 all-metal machines had been used with success in the allied fighting line, but not one had been made in this country. Had the war extended into this year, however, a prodigious number of machines, made of steel and duralumin, would have been produced. The armistice stopped this.

It will probably taken ten or more years now before metal construction will have reached the stage of development that it would have reached in ten months under war conditions.

The advantages of metal construction are not confined to greater strength, lightness, reliability, and ultimate cheapness. Its use will enable many new developments to be made in the actual design of aircraft.

Heretofore, with a few notable exceptions, the vital members of the aircraft structure have been made of wood. The weight and strength of specimens from the same species differ greatly. Spars for one type of machine were found to vary in weight from 6½ lbs. to 16 lbs., and the strength varied in practically the same proportion. In addition, the strength decreases with the amount of moisture absorbed. Thus, the strength of spruce in compression decreases 230 lbs. per sq. inch per 1 per cent. of moisture between 10 per cent. and 25 per cent. moisture. Wooden machines sand tested under the very favourable conditions of a dry workshop therefore showed a much greater strength than in the field. A sodden machine in the tropics may have only half the strength of the same machine when tested in the workshop at home. Moreover, owing to the disposition of wood to warp or split, particularly under tropical conditions, a wooden machine quickly gets out of truth and requires trueing up. Wooden wings deflect a great deal under load, thus making it impossible to keep all portions at an efficient angle of incidence. For instance, in a single bay wooden machine under load it was found that the angle of incidence changed 1° under the struts, while in the middle of the bay the angle of incidence changed 2½ per cent. As this machine flew with an angle of incidence of not more than 1° it follows that some parts of the wing were lifting much more than other parts; moreover, the maximum loads were applied in the least favourable place, namely, in the middle of the bay.

At no distant date we may expect to see flying machines of not less than 100,000 to 200,000 lbs. and metal is the only substance from which such machines can be satisfactorily constructed. Metal machines have now been thoroughly tested in the air. They have been spun, rolled and looped and sand tested.

Basic Principles.

The metals which are immediately available for metal construction are steel and duralumin, other alloys should be available shortly.

The specific gravity of good dry spruce, grade A equals 0.45; the specific gravity of steel equals 7.8; the specific gravity of duralumin equals 2.7.

Young's modulus in bending for all steels approx., equals 13,600 tons sq. in.; duralumin. 5,500; spruce, A, 715. Hence, steel is 17 times heavier than good spruce, and duralumin is 6.

The strength of spruce in bending cannot be assumed greater than 5,500 lbs. sq. in. or 2.45 tons sq. in.

Hence, steel of 42 tons per sq. inch or duralumin of 14.7 tons per sq. inch are equal in pure bending, weight for weight, to grade A spruce, providing the full strength of the material can be developed.

The strength of a long strut or spar under combined bending and end load is governed by the modulus of elasticity

It follows that steel struts are, weight for weight, 1.1 times as strong as spruce, and that duralumin struts are 1.28 times as strong as spruce, provided the full strength of the metal is developed. These figures relate to the best wood obtainable under peace conditions, but they are much more favourable to metal when compared with wood available under war conditions.

Metal construction has the further advantage that the metal may be disposed at a greater average distance from the neutral axis.

It may be argued, since the modulus of elasticity of all grades of steel is approximately the same, that the grade of steel to be used in struts is of no importance. This is not so, because with mild steels small local damage causes failure, whereas with higher grade steel local damage is of minor importance.

Local Failure.

The metal used in the construction of metal aeroplanes must be extremely thin if it is to compete in weight with wood. The most useful thicknesses for steel have been found to be 0.015 in., 0.018 in. and 0.022 in.

Duralumin has the advantage over steel in that it is three times thicker, weight for weight. The chief difficulty with thin metal structures is local failure due to local flexure before the full strength of the material has been developed.

A preliminary series of tests were made by Major Wylie on square tubes having flat sides 1⅜ in. wide which was fifty times the thickness of the metal. The tube was heat treated to raise the elastic limit to above 80 tons per square inch, but when tested by bending the side in compression formed transverse corrugations at 25 tons per square inch, and these corrugations increased with increasing load, and finally caused failure at a stress of about 40 tons per square inch.

When tested in compression the tube failed completely at about 25 tons per square inch as soon as the corrugations appeared.

Further tests on circular tubes of the same thickness and of diameters varying from 1⅜ in. up to over 2 ins. were also made, and in all cases the circular tubes developed the full strength of the material. It is evident, therefore, that curved surfaces must be used instead of flat surfaces.

Materials. Steel Strip.

Thin steel strip is produced by cold rolling, as it is not economical to roll the material hot to less than 17 or 18 gauge.

The hot rolled strip is usually first pickled and then cold rolled to the thickness desired. As the metal is reduced in thickness it is hardened, and the tensile strength and yield point increased, and a point may be reached where the hardness is so great that it must be removed by annealing before further reduction.

By cold rolling a 0.3 to 0.35 per cent. carbon steel the tensile strength and yield point may be increased up to about 65 tons per square inch with practically no ductility.

If, however, the strip is tempered or "blued" for 15 or 20 minutes at a suitable temperature, the ductility may be increased to any desired amount according to the temperature, and the maximum breaking stress and yield point do not fall to that of the original cold worked figures until a temperature of 425 degs. to 450 degs. C. is reached.

One process of manufacture is, therefore, by cold rolling and "blueing" simple carbon steels. The process of rolling develops a grain in the material which cannot be removed even by complete annealing; strip steel is, therefore, unsuitable for bending or rolling into sharp angles and all strip steel designs should be formed of easy and continuous curves or corrugations. This is a second reason for longitudinal corrugations in design.

A second process of manufacturing steel strip is by continuous quenching and annealing low and medium carbon steel strip.

The third process, which has yielded excellent results, has been developed by Messrs. Kayser, Ellison and Co., Ltd. This process consists in hardening and tempering by a special process alloy steel strip. The resulting product is scoured by a special process and can be welded, punched, rolled and bent longitudinally and laterally without further heat treatment.

It is a pleasure to pay a tribute to the patriotic way in which Mr. Kayser, of Kayser, Ellison and Co., Ltd., together with the associated firms of Arthur Lee and Co., Ltd., and The Effingham Steel Co., and other manufacturers of Sheffield and district have tackled and solved successfully the problem of the evolution of metal strip suitable for aircraft construction.

The strength of metal constructions appears to be governed more by the yield point than by the ultimate strength, hence attention should be paid to obtaining a good yield point. Straight steel strip can now be obtained up to 5 in. wide, having yield points of 100 tons, 80 tons, 60 tons, or 40 tons.

Duralumin.

The second material available for metal construction is duralumin. This has many advantages over steel and a few disadvantages. Duralumin being three times lighter than steel it follows that the various members may be, weight for weight, three times thicker than steel members. Hence the difficulty in overcoming local failure due to local flexure is greatly reduced.

A prejudice appears to exist in certain quarters against duralumin owing to the fear of corrosion. Nearly every case of corrosion so far experienced in actual practice has been traced back to incorrect heat treatment, or to cold working after heat treatment.

The heat treatment of duralumin instead of being a disadvantage as is often supposed, is in actual point of fact of the greatest assistance in the practical working of the metal. This heat treatment is carried out by placing the member to be treated in a bath containing a mixture of potassium and sodium nitrates heated to a

temperature of 480 degrees C. In practice there is a fairly wide margin of temperature so long as 500 degrees C is not exceeded. At the end of this heating the article is removed from the bath and quenched out in water or non-acid oil.

Immediately after heat treatment the metal is found to be in a very soft and plastic condition and it may be pressed, forged, bent to the smallest radius, or in the case of warped sections straightened without any fear of damaging the metal. The metal now commences of itself to harden up, and in about an hour's time has reached about 26 tons tensile strength, with an elongation of about 15 per cent.

This process of hardening continues for a very long period, the strength slightly increasing at the expense of the elongation.

Heating duralumin to 300 degrees C. and then quenching out anneals the metal and it can be worked in any way desired. In order to give it back its strength it is necessary to heat treat it.

In practice it is usual to anneal any duralumin part it a number of operations have to be performed, and on the other hand to heat treat before final operation if this is not of too prolonged a nature, taking advantage of its abnormal condition immediately after heat treatment.

An actual example of the value of this property of duralumin in slowly hardening up after treatment occurs when duralumin is used for rivets. If an attempt were made to rivet these up in the ordinary hard condition they would crack badly. By heat treating them, however, and using them immediately after this, a perfect job may be made while they are soft, and within a very short time afterwards they have hardened up to their full strength.

If duralumin in the ordinary hard condition is bent to a small radius, there is a probability of incipient cracks developing on the surface of the metal at the bend. These cracks are the places where the corrosion begins. If the metal was properly heat treated before such bending, no injury would be caused to the surface of the metal, and no trouble would be experienced from corrosion. Duralumin sections cannot conveniently be drawn thicker than 0.2 in. Above this thickness the sections are extruded. It is advisable to use only drawn sections for constructional purposes.

Constructional Designs.

The structure of an aeroplane may be divided into two main portions: (a) The vital members, such as spars, struts, longerons and lift wires, and (b) the members giving form or bulk, such as ribs, ailerons, elevators, etc. The latter members present no great difficulty in competing with wood.

Metal designs are required for three main types of machine: (a) Small machines up to 3,000 lbs.; (b) intermediate machines from 10,000 to 15,000 lbs.; and (c) large machines of from 30,000 to 200,000 lbs.

The largest members in a machine are the wing spars and these present the greatest difficulties in construction—the next largest members are the struts. In this paper it is proposed to limit the description to these members for the above types.

Rudge Spars.

A section of the Rudge spar, developed from designs by Lieutenant-Commander H. Wylie, and suitable for the Avro machine, is shown in Fig. 1

In this spar an effective strength of 80 tons per square inch in the strut is utilised. To prevent local failure the strips have been formed into longitudinal corrugations, the radius of each corrugation being from 30 to 100 times the thickness of the metal, a smaller radius being used when the highest compressive stresses are to be withstood. These corrugations are so effective that the Rudge spar shown has developed a compressive stress of 83 tons per square inch in the flange, while the webs have remained intact under a shear stress of about 30 tons per square inch.

When tested at the Royal Aircraft Establishment it was found that this spar was ten per cent. lighter and 5 per cent. stronger than the wooden spar it was designed to replace.

Fig. 4 shows a modification of the Rudge spar for interme diate type machines.

The first step is to deepen the central corrugations in the webs so that they meet together, thus forming the section into two tubular units. Each web is formed of two pieces joined together at the neutral line. This is necessary in view of the limited width of strip available. The free ends of the flange are turned inwards so that the maximum stress is not developed at the free edge. This considerably increases the strength of the flange.

The best disposition of the free ends of the strip constitutes one of the problems of metal construction. The solution lies in placing the free ends in position where they will be stressed as little as possible. Failing this they must be locally supported.

Fig. 3 shows a modification of the Rudge spar for a larger machine.

With this type of spar the metal must be increased in thickness to retain sufficient stability. These sections are obviously weak about the waist and support must be given by cross frames, or formers, which suitably occur at each rib. With the addition of these frames the section is made stiff in all directions even when the strip composing it is of extreme thinness relative to its width. The flanges are supported in the middle by extending the web into contact with the inner surface.

Fig. 2 shows a modification of Fig. 1. The depth of the spar may be readily altered by varying the depth of the central corrugations of the webs, the minimum depth being obtained where the corrugations meet in the centre. In the event of the corrugations not meeting as in Fig. 4, it is necessary to join the webs together at intervals by a cross tubular member riveted to each.

Dunlop Spars.

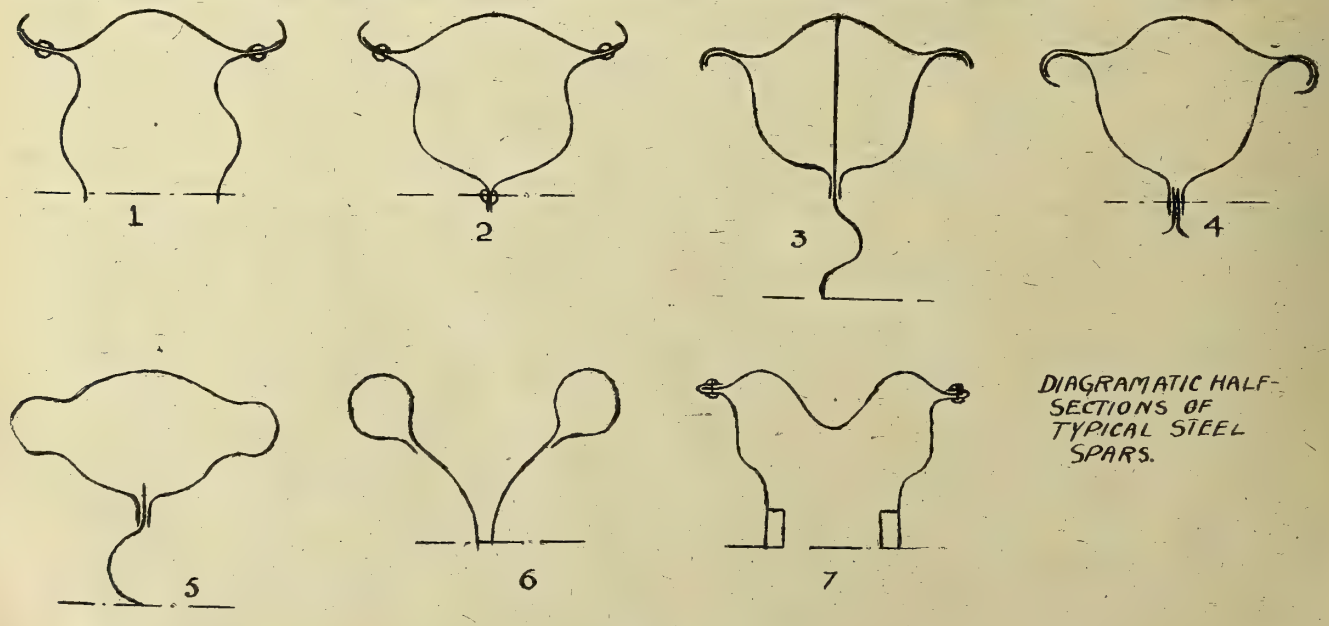
Several designs have been adopted to utilise spot or strip welding—this dispenses with the difficult, and at present somewhat expensive, process of riveting.

One such design, known as the Dunlop single spar, is shown in Fig. 5.

Three coils of strip of the required width are mounted on the rolling machine. After passing through the banks of rolls each strip emerges of the required shape and passes through guides which hold the strips while they are passed between two pairs of copper discs at the joints, a powerful current passes from one disc to the other through the steel strip. The resistance offered by the strip to the passage of this current is sufficient to raise the strip to welding temperature. The spar emerges complete from the machine at the rate of 9 feet per minute.

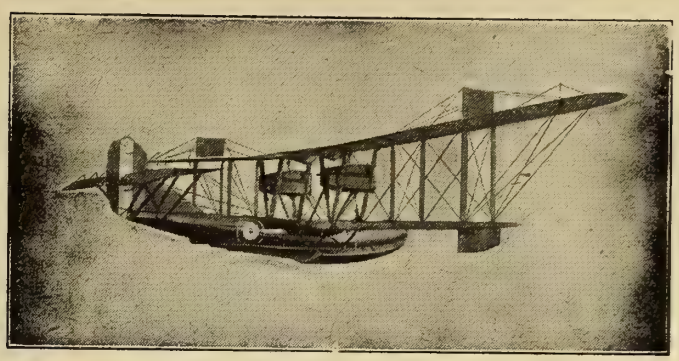
One great advantage of the Dunlop type of boom is the absence of the projecting ledges provided on the previous spars for connecting the component strips together. These ledges are liable to buckle when high longitudinal compression stresses are developed even if they be curved throughout and rolled round on the edges.

Fig. 6 illustrates a section known as the double Dunlop spar. The edges of two strips are rolled into tubes and strip welded, the intermediate portions of the strip being longitudinally corrugated. The formed strips are placed back to back and connected together



DIAGRAMATIC HALF-SECTIONS OF TYPICAL STEEL SPARS.

Figs. 1 to 7.



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by spot welding. This spar is in effect two bicycle rims placed back to back and connected together at the centre. As with the Dunlop single spar, it requires to be supported by frames or formers at intervals to prevent the individual booms from bending as struts transverse to the web.

This spar can be made as light as 0.5 lbs. per foot run and develops the same strength as a wooden spar of from 0.65 to 0.85 lbs. per foot run. This type of construction is the cheapest and simplest yet developed.

In the spar designs shown the strips run continuously throughout, no holes being cut to lighten the sections. This continuity is a feature and has great advantages, for it has been found in tests that destroying the continuity weakens the spar considerably. Lightness can be obtained with less sacrifice of strength by reducing the thickness and increasing the curvature of sections. From experience it would appear that spars with continuous webs can be made as light as with any system of trussing.

A second feature in the Dunlop designs is the absence of rivets and other means of connection along the lines of maximum stress.

Methods of Attaching Fittings.

Another problem of metal construction, presenting in fact almost as much difficulty as the actual design, is the attachment and design of fittings. Fittings and reinforcements are required whenever a load is applied in order to distribute that load. Thus, spars should be reinforced with boxes at the inner ends to distribute local bending moment due to inequalities of end loading. In addition, all fittings should preferably be attached to the neutral line.

Boulton and Paul Spars.

Very interesting experiments have been carried out by Boulton and Paul with a modified type of Ridge spar shown in Fig. 7.

The flange is provided with two corrugations having flat horizontal edges. The centre portions of the webs are stamped with flanged holes as in the early Rudge spars, and are provided with longitudinal corrugations above and below these holes. The edges of the web are doubled over to embrace the flat edges of the flanges, and the spar is completed by suitably placed rivets. This spar is extremely efficient under test.

Humber Spars.

The spars previously described have been made from rolled strip. A second alternative is to construct spars from metal sheet which can be obtained in lengths up to 10 ft. from firms such as Sankey's and Firth's.

Valuable and useful work has been carried out in developing this form of construction by Colonel J. A. Cole and Mr. Nibblet, of Humber's, Ltd. An original design from which this firm's design was developed was very courteously placed at their disposal by Captain Green, of Siddeley Deasy.

The first section, Fig. 8, was made of 25 gauge 31 ton steel sheet for both flange and web. The width of the flange was two inches and a stiffening bead or longitudinal corrugation was rolled in the centre of the flange throughout its length. The web was lightened by circular holes punched on either side of a longitudinal bead or corrugation in the centre of the web and slightly smaller than in the flange. The spar was made up of four lengths joined together by staggered lap joints, three of these lengths being identical, the fourth being tapered to suit the outer extremity of the wing.

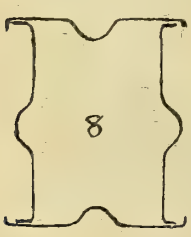
The ultimate section decided on was similar to the above, but of 35 ton steel with the flange and web of 26 gauge.

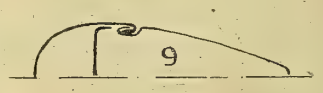
Struts.

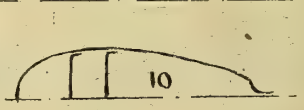
The solution of the strut problem is much simpler than that of the metal spar.

There are several principles which must be kept in mind in tackling the problem.

If a round steel tube is used it must obviously be provided with fairing back and front, which does not contribute greatly to the strength, but adds considerably to the weight; moreover, steel tubes of high quality are expensive. If the exterior of the metal strut is to be streamline, the moment of inertia about the minor axis will be much smaller than about the major axis. This does not lead to an efficient disposition of the metal. Moreover, the front and rear edges are sharply curved and hence self-supporting, whereas the sides are only slightly curved. The principle, therefore, to strive after is the provision of more metal at the sides and rigid supports for the sides.







This problem has been very successfully solved by C. A. Llewelyn Roberts, of the Birmingham Guild, and by Messrs. Sankey. Certain other designs are stronger and lighter than the best spruce or steel tube struts.

Fig. 9 shows the Birmingham Guild strut No. 4. This was designed to be constructed in two halves, the nose of the strut being designed to take the whole load. This nose was made in high tensile steel with a cross piece connected by electric spot welding.

The tail fairing was made of aluminium. The joint between the fairing and nose was made with a tinsmith's folded joint well hammered down. This strut weighed complete with end fittings 3 lbs. 1½ ozs., thus bringing the weight below that of the lightest Avro wood strut. On test, it supported a load of 0.75 tons on 66 inch centres, being 20 per cent. stronger than the Avro wood strut of nearest weight.

Fig. 10 shows Birmingham Guild strut No. 5. It is composed of three units only, a shell and two diaphrams. The production of this strut required no hand labour. The units are all blanked out and formed up in presses, being jigged together for spot welding, the whole of the electric spot welding being done in three-quarters of an hour. The actual cost of this strut in production is stated to be half that of wood. Its weight is 3.15 lbs. as against 3.25 lbs. for the wood strut. Its failing load on 69 inch ball centres is 0.77 tons as against 0.475 tons for the wooden strut.

Figures were also shown giving outline particulars of two types of streamline metal struts by the Birmingham Guild which are well suited for large machines. These were very similar to Fig. 10 in design.

These types of struts are suitable for lengths up to 25 ft. or over, and there is no limit to the load they can be designed to carry.

Hollow wooden struts made of grade A spruce are known to be unsuitable for tropical use. Moreover, for a given width, weight and length, hollow wooden struts have been found to be about 50 per cent. heavier than the double-diaphram strut described above.

A round steel tube with wood and fabric fairing is about 70 per cent. heavier than these struts. Solid drawn steel tubes of the sizes necessary for the largest machines are unobtainable.

Duralumin Machines. Vickers' Spars.

All the previous descriptions have especially related to steel constructions, but many of the constructions are suitable for duralumin. The problem of the duralumin machine of various types has been tackled successfully by Commander Craven and Messrs. Pratt and Temple, of Vickers, Ltd., starting from a suggested design courteously placed at the firm's disposal by Professor Lea, of Birmingham University.

Methods of Design and Calculation of Girder Spars.

In designing the most economical braced girder to withstand a certain definite system of loading, there are usually three points which have to be considered if the highest efficiency is to be obtained. These are:—

(a) The ratio of the over-all depth of the guide compared with its pin-jointed length. If the girder is made very deep the weight of the bracing (i.e., the web bracing—Ed.) becomes excessive while, on the other hand, if made too shallow, unnecessary weight has to be put into the main flanges or members. The maximum depth of the girder is usually limited by the section of the wing.

(b) The pitch of the web bracing. If this is too great, unnecessary weight has to be put in the main flanges. If the pitch is too small the bracing is unnecessarily heavy.

(c) The properties of the actual section used for the main flanges or members. If the member is made very thin it fails at a low stress by secondary flexure, while, on the other hand, if the flanges are made very thick compared with their width, the radius of gyration for a given sectional area is necessarily small in proportion to the pitch of the bracing, and hence fails at a low stress.

The effect of varying each of the above items has been very carefully investigated and general data obtained which enables not only the strength of any particular girder to be accurately calculated, but also the girder to be so proportioned as to allow the maximum efficiency, from the point of view of strength for weight, to be obtained.

For the details of the special applications of stress calculations given by Capt. Thurstan reference should be made to the actual paper. It should be noted that all the figures given in this part of the paper appear to refer solely to duralumin spars—though this is nowhere stated in the paper.

A number of slides of duralumin spars were shown of which it has not been possible to obtain reproductions up to the time of going to press.

Photographs of a duralumin Avro wing were shown after sand-loading to failure—at a load of 10.7 times the normal.

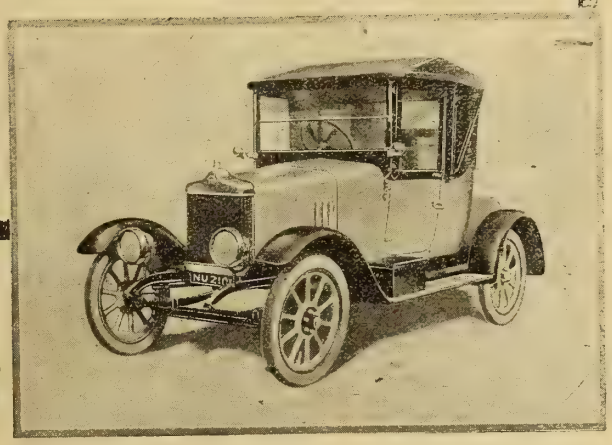
Method of Testing Specimens.

In investigating the suitability of a construction to withstand the loads which are to be put upon it care should be taken to reproduce as nearly as possible the conditions under which the specimen will be loaded in practice.

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Stability, Economy and Ample Power.

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Owner-Driver's: No. 8. The Farmer.

Owner-Driver's Opinion:

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Godbold's

ROK ROOFING

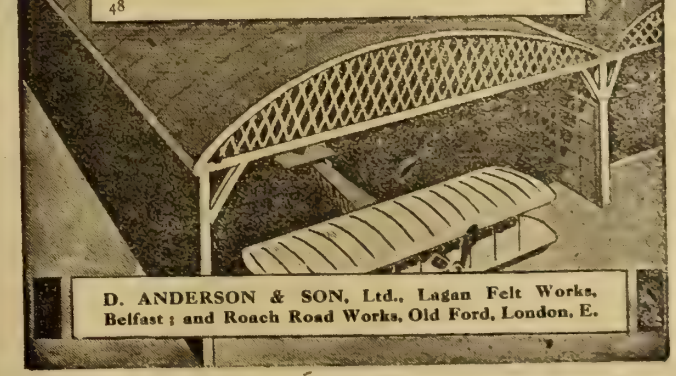
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Thus, the specimen should be subjected to the same bending moment and the end load as in practice. Reference has heretofore been made as to the serious errors which have been made in testing wooden specimens in pure bending instead of in combined bending and compression. The same errors may be made if the correct procedure is not followed in testing metal construction. In the first experimental stages of metal construction the author was unable to get certain manufacturers to construct specimens longer than three feet. Arrangements were therefore made to test these specimens in shackles. The height of the shackle was varied to give the correct proportions of end load to central bending movement.

As soon as circumstances would allow, and suitable designs had been selected from the large numbers tested, arrangements were made for the specimens to be made equal in length to the distance between the points of contraflexure in the actual span. The specimens were then tested so that the end load and the bending loads were applied in the correct ratio until failure occurred.

All this information now set forth has been obtained from private sources, but before leaving the Technical Department the author took action to place on record a much fuller account. This should now be available. He desires to record his indebtedness to General Weir and the authorities of the Air Ministry for permission to read this paper, and to tender his sincere thanks to his colleague, Major Wylie, R.A.F., who has been associated with the author in the development of metal construction throughout the country. He would also like to record his thanks to the various firms with whom he has been associated for their most courteous co-operation and for the ability and energy which they brought into requisition.

The Discussion.

After a brief request from the Chairman, Brigadier-Gen. R. K. Bagnall-Wilde, C.M.G., that speakers should be as brief in their remarks as possible, in view of the late hour, the discussion was opened by Major A. R. Low, R.A.F.

Major Low stated that he believed that he was responsible for the design of the first all-steel wing ever built in this country. This was whilst he was connected with Vickers Ltd.

The wing in question had tubular spars, and the weight thereof was enormous. It was therefore scrapped in favour of spruce construction. Messrs. Vickers in those days built a number of machines into whose construction steel entered largely. They succeeded in obtaining a supply of 45-ton steel tube for this work, but the supply ran out after the first machine.

Later, after considerable trouble, they were promised supplies of 40-ton tube, but it was necessary in practice to pass the material if it showed 37.5 tons on test, as otherwise they would have scrapped the lot. Germany at that time had ample supplies of 45-ton tube.

He believed that he had gained the reputation of having said that a machine larger than 5 tons could not be built. As a matter of fact he had not said anything of the sort. He had said that 5 tons was the limit unless the structure weights then (1912) obtained could be reduced. They had been reduced, and 15-ton machines were flying satisfactorily. If steel construction would allow the structure weight co-efficient to be reduced four-fold, as its advocates held, then the 60-ton machine would be as practicable as the 15-ton machine was to-day.

Mr. Pratt, of Vickers Ltd., said that he was primarily interested in duralumin construction. He confirmed Capt. Thurstan's statement that duralumin properly treated did not corrode. On rigid airships the actual corrosion was less than with steel under similar circumstances. Even were the actual rate of corrosion the same, since for equal weight and strength duralumin members were three times the bulk of steel, the proportionate loss in strength would be less in duralumin.

The use of duralumin was limited in its applications because riveting was the only satisfactory method of jointing. Experiments were in progress with spot welding this material, which promised success.

As to cost, although duralumin was more expensive for moderate sized machines, he believed that for 10 tons and upwards it would actually be cheaper, certainly for large production.

Major Wylie, R.A.F., after reciprocating Capt. Thurstan's tribute to his own work, joined issue with him on the subject of the relative rigidity of steel and wood spars. He (Major Wylie) believed flexibility to be advantageous, and that it was one of the good points of steel spars. Up to the elastic limit steel spars deflected less than wooden ones, but after that the steel spar bent much more than wooden ones before final failure. He did not quite understand Capt. Thurstan's remarks about the spar deflection on a machine flying at one degree. At that angle the centre of pressure would be aft, and the deflection of spars would increase the incidence in the centre of the bay. He also objected to the figures given by Capt. Thurstan for the modulus of elasticity for steel and duralumin—he thought they were too high.

Mr. Pratt here interposed the remark that the figure for the modulus of elasticity of duralumin was taken from the result of tests on actual spars. Used in conjunction with the formulæ given in the paper it gave deflections which agreed with tests. It was not the same value as that obtained from an ordinary test piece.

Dr. Hatfield said that his connection with Capt. Thurstan in this matter dated back two and a half years, when the question of suitable steel for aeroplane construction was gone into. The material did not then exist. Largely owing to the enthusiasm of Dr. Thurstan its preparation had been greatly facilitated.

A question not yet investigated arose from the fact that at great altitudes the temperatures became very low. Dr. Thurstan: As low as minus 30 degs. Cent.). The effect of this on strength of materials must be taken into account. He believed that steel would score heavily on this point. Down to even lower temperatures steel slowly increased in strength, with a slight loss of ductility. Wood, he believed, lost strength rapidly at very low temperatures.

Since duralumin was so profoundly affected by low temperature heat treatment, it seemed possible that it might behave very differently to steel.

What did Dr. Thurstan mean by his statement that mild steel was more adversely affected by local damage than was a high tensile steel? Generally a local imperfection led to a high local stress, and with a highly ductile steel local deformation allowed of a distribution of the stress. High tensile steel did not possess the required ductililty.

He would like to know how much of the experimental work Dr. Thurstan referred to was in the form of actual flying tests—or was it all laboratory work?

Mr. J. D. North (Messrs. Boulton and Paul) said that the work which had been done in metal construction was largely due to the efforts of Capt. Thurstan's Department.

During the war metal construction had blossomed in the sun of official approval, watered by a gentle dew of financial assistance. Would this state of affairs continue?

Mr. D. T. Mooney (the Steel Wing Company) said that the paper must be considered as classic. Capt. Thurstan said that one year ago, out of 1,000 Allied all-metal machines, not one was of British manufacture.

There was at least one British all-metal machine in existence over a year ago. He referred to the British M.R.1. The wings for this machine were built by the Steel Wing Company, and had given satisfactory results in the air.

Most of the metal spars shown that evening were intended for wings with wooden ribs, etc., and not for all-metal wings. His firm had abandoned spars having characteristics similar to some of the sections shown because of the difficulties of attaching metal ribs to them; and had developed spars which made such attachment simple. An all-steel Avro wing of their make, which, on test, had not failed at nine times normal loading, was assembled by two girls without skilled supervision. This type of wing had been subjected to all flying tests.

The Chairman, Brigadier-General Bagnall-Will, in reference to the question of local damage raised by Dr. Hatfield, wished to know what kind of local damage the lecturer referred to.

He also wished to emphasise the danger of tests made by pure bending. Tests should simulate working conditions. What tests had been made of the effects of stress reversal and vibration.

With reference to the lecturer's prejudice in favour of simple carbon steels, he was inclined to agree with the view that for the average user of steel, a material with the widest latitude in heat treatment had advantages. At the same time, during the war most firms had learnt to work alloy steels to the fine temperature limits necessary, and this danger was not now grave.

Capt. Thurstan's Reply.

In reply, Capt. Thurstan thanked the audience for their kind reception of his efforts. He would have liked to have replied at length, and to have asked a lot of questions.

In reply to General Bagnall-Wild, the class of local damage to which he referred was the small dent. Vibration tests had been made whilst metal wings were sand loaded.

With regard to Mr. Pratt's remarks upon cost, he thought it would be very foolish to take present-day costs as any guide at all. With improvement in design and with the development of automatic and semi-automatic machinery for the work the cost would fall rapidly.

He agreed with Major Wylie on the subject of rigidity versus flexibility. Major Wylie had explained what he (Capt. Thurstan) really meant. As to Major Wylie's bewilderment on the change of wing incidence with spar deflection, could not one neglect the centre of pressure? There was a change in the incidence, and it was bound to modify the load distribution. He confirmed Mr. Pratt's statement that the figures for the modulus of elasticity were ones found to give correct results when used in the expressions given in the paper.

He would like to spend an hour at least talking to Dr. Hatfield. The matter of the very low temperatures reached high up and their effect on the strength of materials certainly required investigation.

In the matter of local damage he referred really to dents such as would be produced in mild steel if a mechanic dropped a hammer upon a spar. If the spar were made of high tensile steel it would not dent under such conditions. (A good deal would here depend upon the particular mechanic, and the actual hammer.—Ed.)

After the usual vote of thanks to the lecturer, moved by the Chairman, General Ruck moved a vote of thanks to Brigadier-General Bagnall-Wild for having presided at the meeting, and the assembly dispersed.

THE AIRCRAFT TRADER

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

MAY 15th, 1919.

COPPER.—The price for Copper continues reasonable and firm, but buyers are not very active; in fact, sellers predominate. The recent return of Government stocks shows that the demand has been very unsatisfactory, and has not yet come up to expectations; the stocks have increased by 2,428 tons, the figures being—May 1st—51,130 tons; April 1st, 48,702 tons. In seeking for an explanation of the hesitancy which is being shown by buyers it is difficult to arrive at a satisfactory reason.

The most feasible suggestion is that buyers are not yet covering their requirements for a full scale Peace programme, because of the uncertainty of prices of other metals, such as Steel, Iron and Tin; even if this is the case, it is difficult to see why, with prices at their present level, buyers should continue to buy hand-to-mouth, as the tendency is for prices to harden and a substantial decline is very unlikely. The prices of demanufactured Copper are still out of proportion with Ingot Copper, but the demand is good.

The market in U.S.A. is in a state of stagnation, and buyers continue to buy hand-to-mouth, consequently stocks are accumulating, the demand being much less than the quantity produced, even at the reduced output.

COMPARATIVE PRICES.

	Per Ton. £ s. d.
To-day, May 13th	77 10 0
Last week	76 12 6
Last year	110 5 0
Average price, 1918	115 10 0

TIN.—This market is in a very unsatisfactory condition, and is still very sensitive, with the result that rapid fluctuations continue to take place. Last week prices commenced to harden and a rapid advance was made from £227 to £236 10s. This advance does not reflect the true position of the market, and is apparently only a temporary move.

Actual customers are very backward and continue to buy hand-to-mouth. There must be large stocks accumulating in the Straits, China and U.S.A., and, although in some quarters it is expected that there will be a huge demand from the Central Powers when Peace has been signed, it is doubtful whether it will come up to expectations, as it is practically certain that the German and Austrian Governments will control the purchase of raw materials for importation, further it is not certain that they will be in a financial position to make heavy purchases for some time.

The position in U.S.A. is about as unsatisfactory as it is here, and the outlook is very uncertain.

COMPARATIVE PRICES.

	Per Ton. £ s. d.
To-day, May 13th	236 10 0
Last week	227 17 6
Last year	375 0 0
Average price, 1918	329 10 0

LEAD.—The last report of Government stocks is very disappointing, and shows an increase of 12,556 tons over April, the figures being 109,012 tons on May 1st, and 96,456 tons on April 1st. It was certainly expected that there would be a reduction and the estimates of consumption for April were a little too optimistic. It must not be concluded that the consumption has declined; in fact, there has been an increase, but the arrivals have been in excess of consumption. Notwithstanding the large increase in stocks, the price continues firm, and there does not appear to be any hope of a reduction at present.

STEEL.—The condition of this market is very unsatisfactory, the prices which are being demanded are very high, and there is a feeling in some quarters that there is every possibility that there will be a reduction very soon. On the other hand, there are rumours that the price of fuel will shortly be advanced, and if this proves to be correct, it is more than likely that the prices of Iron and Steel will be affected. Generally speaking, the outlook is very uncertain, and it is difficult to say what will happen.

There is certainly an improvement in the demand for finished Steel, but the market for Aircraft Steels is lifeless, and the same remarks apply to High-speed Steel. It is doubtful whether America can seriously compete with English Steel makers for some time, owing to the difficulty in obtaining freight. They are, of course, in a position to compete for other export trade, and are, in fact, making great efforts to get a lion's share of the business.

TIMBER.—There has been a slight improvement in this market, but actual consumers are still hesitating, and this is not surprising, in view of the prices which are ruling at present. The prices paid for Mahogany at the recent sales have been on the high side, and unless there is a decline in values it is difficult to see how some of the trades are going to compete with foreign competition.

There has been very little Silver Spruce imported recently, and the quality of the material available in this country is far from satisfactory. It will, undoubtedly, be some time before there is a fair demand for this Timber, but firms who only hold small stocks should look ahead, as they will have difficulty in obtaining good supplies of first-class Timber from the stocks which are available at present.

It is not yet clear whether constructors are compelled to apply to the Air Ministry for their supplies; if it is still necessary to do this, then it is advisable to simply buy hand-to-mouth, as the Government stocks are far from satisfactory.

FABRIC.—It is understood that a small portion of the Government stocks have been disposed of, but the majority of the material is still held in store, and, apparently, it has not been decided what will be done with the material, although it is assumed that it will be put up for auction. If this is the case firms should ascertain if they will be allowed to use this material for commercial aeroplane construction, should it be purchased under the hammer.

It is understood that the material has been purchased at prices ranging as low as 1s. 6d. per yard, 36 ins. wide. As previously pointed out, the Government price is 3s. 1d. per yard, 36 ins. wide, and it is even expected that when the material is free from control prices will most likely advance.

A NEW CONSULTANT.

Mr. Eric Neal, A.F.R.Ae.S, who during the war has been in charge of R.A.F. special affairs in Paris, has joined forces with M. Leplanquais, formerly works manager of the Spad Company, and the partners intend practising in France and England as consulting aeronautical engineers, and in particular as surveyors for the aviation insurance companies. The partners are also undertaking to place manufacturing licences in France for British inventions and *vice versa*. Their address in Paris is—The Aircraft Improvements Company, 167, Rue Montmartre.

In addition to the work already mentioned, the partnership is prepared to place British business in Italy as well as in France, and is also arranging for the manufacture in Great Britain of the fireproof petrol tanks which have been used extensively and successfully in France.

COPPER COVERED CYLINDER FINS.

Mr. Granville Bradshaw, the designer of the A.B.C. engines, has obtained very successful results from air-cooled cylinders with a heavy coating of copper deposited on the fins. The effect of this copper deposit is to increase the rate of heat transference to the air, thus improving the cooling and avoiding such troubles as distortion due to overheating.

Large numbers of these engines have been ordered by the Air Ministry, and quite a number of sub-contracting firms have found considerable difficulty in securing an even deposit of copper over the surface of the fins right down to the bottom of the grooves on to the actual body of the cylinder.

A certain amount of success has been attained by some firms, but multifarious processes had to be adopted to obtain anything like the desired effect. The time taken in these processes was very considerable (up to 50 hrs. per cylinder), and this, of course, limited the output.

For the past few months the firm of Andrew Ness, Ltd., 115, High Holborn, W.C.2, have been making experiments with the electro deposition of copper on these cylinders and, in conjunction with their chemist, Mr. Quintin Marino, have now evolved a special process which enables them to obtain an absolutely even copper deposit upon the cylinder in from four to five hours.

In this process many of the operations required by the former methods become unnecessary, less plant is required, labour is cut down to a minimum, and the output per vat is enormously increased.

Besides undertaking the coppering of cylinders, Andrew Ness, Ltd., undertake the production of plant for general plating in all metals.

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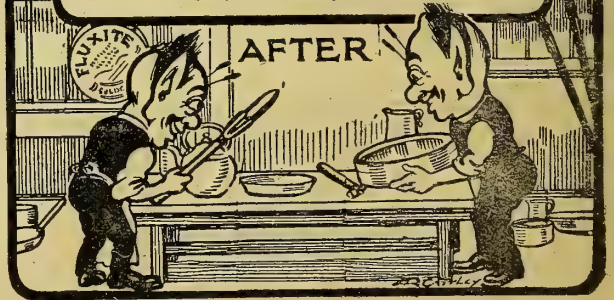


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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

THE AERIAL FUEL OF THE FUTURE.

Will it be an Alcohol Mixture?

BY "MEDWAY."

I have always been something of an enthusiast on the subject of alcohol fuel for internal-combustion engines. There have been plenty of attempts made to do something practical in the way of creating alcohol fuel supplies. They have one and all lacked any official support, mainly because the Customs and Excise and the distillery interests have been united in an endeavour to get nothing done.

REGARDED AS PERVERTED DIPSOMANIACS.

It is always easier to persuade the Government to do nothing than to coerce it into doing something. Hence the whole idea has more or less got into disrepute. The failure of the fuel to materialise has been attributed to some fault of its own, instead of to extraneous influences. Those who believe in it are in some quarters regarded as amiable idiots or else as perverted dipsomaniacs, who would rather get denatured alcohol than no alcohol at all.

However, before my readers accuse me of some congenital mental deficiency on account of my continued championship of the cause of alcohol fuel, let them consider what other people thought of *them* a few years ago when they ventured to suggest tentatively that aerial locomotion might perhaps be a practical factor in the future of transport. If it were not for people who kept on hammering, despite neglect and ridicule, much of the progress that has taken place in the last generation or so would have been delayed for a hundred years or more.

Some months back I mentioned in these columns the possibility of alcohol becoming *a* fuel, if not *the* fuel, of aircraft. I must confess, however, that one aspect of the proposition entirely escaped me at that time. Since then there has been formed an official Alcohol Motor Fuel Committee. Up to the present it has spent its time like most other official Committees in taking evidence to elicit facts already known; in organising its procedure, and in futile conversations.

WAITING FOR GOVERNMENT GRANT.

This is not altogether the fault of the Committee. I fancy that those of its members that know anything of the subject only joined it in the first instance because they hoped against hope that its formation meant the awakening of official interest, and that an early step would be the offer of a Government grant.

The holding of meetings and the taking of evidence cost nothing, so the Government is willing enough to allow this kind of thing to go on. The Committee is, however, unless I am misinformed, getting restive. The expenditure of time by its members may, and probably does, mean loss of money to them, so that they are disinclined to go on indefinitely. Meanwhile the expected grant does not materialise, and it looks as if we were no further forward than before.

Discussing these facts the other day with some people prominent in the motor vehicle world, and mainly from their point of view, the subject of commercial aeronautics came up as having a very important bearing upon the future demand for fuel. Even the thirstiest motor vehicle cannot rival R33 in absorbing sixty gallons of petrol an hour.

From the commercial point of view R33 is rather a small airship. We shall presently have aerial vessels crossing the Atlantic at an expenditure of not less than a hundred gallons of fuel an hour, or a total of perhaps fifteen to twenty tons for the trip. Before long there will be a good number of these ships. There will be also thousands and tens of thousands of aeroplanes working regularly in commercial service and for the carriage of mails, or passengers, or plying for hire as pleasure vehicles.

THE HANDICAP OF MONOPOLY.

Even before the war, when the immediate arrival of the aeroplane was not generally anticipated, motorists were very worried over the steady increase in the demand for fuel and the very slight increase, if increase existed at all, in the supply. They were beginning to realise that this supply was not inexhaustible, and, moreover, that it was inconveniently controlled by a very few people with the power of running up prices to any figures they fancied.

If the position was bad then, it must be infinitely worse now that we realise that aerial traffic is a rapidly growing institution. It seems clear that some big users of liquid fuel will have to do without petrol.

Here I get back to my old contention that alcohol is the only real solution of the difficulty. It can be produced year after year indefinitely and in any quantity. There are millions of acres of land suitable for the growing of alcohol crops, but at present valueless and uncultivated. There is an immense supply of labour available in countries where trade unions are not known and restriction of output has never been heard of.

ALCOHOL CROPS.

From the motorists' point of view, the big trouble in the way of using alcohol is first and foremost that he cannot get it, mainly because the Government will not let him. Assuming that this little difficulty were overcome and a certain amount of sense knocked into the heads of people whose one and only idea is the revenue from Customs and Excise, we could create the supplies of alcohol crops easily enough.

Admittedly, the growth of such crops in this country would be a miserable commercial undertaking. Such crops flourish where there is sunshine, more or less as a regular daily event and not as a kind of surprise once or twice a year. We could get alcohol from potatoes or beet grown here, but the cost would be prohibitive; land is too expensive, and so is labour.

It follows, then, that if we want big supplies we must grow them in tropical and sub-tropical lands, distil on the spot, and then use tankers for transport to this country. This would, of course, add to the expense enormously.

Further expense would be entailed by the system of distribution in detail, which would be needed if motorists had to depend on the fuel and expected to find supplies at every garage.

Is there, then, no use for alcohol as a fuel which would not involve this expensive transport and still more expensive distribution? I suggest that undoubtedly there is, but whether I am right or wrong depends on whether alcohol can be made the best, or at least a good, fuel for aircraft engines. Taken alone, it would probably be useless. It does not lend itself to employment in an engine designed to produce great power while being very compact and light.

Starting-Up Difficulties.

For starting up in cold weather it is positively beastly. When mixed with benzol or petrol, or both, it could probably be made usable, but not really good. The most promising suggestion up to the moment is in the direction of alcohol-ether mixtures. The ether can be got by a continuation of the process of the manufacture of alcohol itself, or, at any rate, from the same materials and in the same distillery. Ether is thoroughly volatile, and an engine can be started up on an alcohol-ether mixture in any weather and without any difficulty.

It is, therefore, reasonable to presume that we can get an alcohol fuel suitable for aircraft without necessarily mixing the alcohol with a fuel of the petrol or benzol order. If the idea were to collect all the supplies in this country, there would be no particular objection to a benzol mixture. The idea is, however, to do nothing of the kind.

My plan is rather to create the alcohol fuel supplies where they are needed. That is to say, at a number of points along all the great air routes of the Empire. A big proportion of the mileage of such routes must lie in more or less tropical countries. We have considerable freedom as to the location of our intermediate landing grounds, aerodromes, and depots. With a little intelligent planning, these could be placed at points around which alcohol could be grown in huge quantities. Distilleries could be set up upon the spot and a standard process employed in all these distilleries, so that the fuel obtained from all of them should be of one standard quality.

Saving of Transport.

Under this system there would be no question of transporting our fuel to all these points, many of them off the beaten track. At certain of the more convenient points, especially those near the sea-coast, we should extend our alcohol production so as to make it considerably more than enough to meet the need of the local aerial depot. From such points we should export to the terminal stations in this country. This would be the only transport needed for the whole fuel system.

We should, in fact, be reversing the ordinary process. Instead of exporting our fuel—after ourselves importing it—to the various depots on the aerial routes, we should make the bulk of those depots self-supporting and bring to Great Britain the surplus supplies from some of them.

A main aerial route would, in fact, offer ideal conditions under which to employ alcohol. No distribution to retailers would be necessary. Most of the fuel would be subject to no transport costs at all. We should have to meet merely the cost of production. By eliminating transport and distributing costs in this way we could undoubtedly get our supplies of an alcohol-ether or some other suitable mixture at a very much lower figure than we should have to pay for the cheapest and crudest petrol.

Aircraft Must Depend on Alcohol Fuel.

Some day or other, the great aerial routes, which will then be used by hundreds of aeroplanes and airships daily, will have to depend on alcohol fuel because other supplies will be exhausted. Why should we not take the bull by the horns and make up our minds to do now what we must certainly do later on. We should thus make our Imperial aerial traffic independent of imported fuels and effect a considerable decrease in the operating costs of aerial craft of all kinds. We should also assist the development of many valuable portions of the Empire not as yet opened up.

I ask my readers not to regard this proposal as wholly visionary and impracticable. If they think the matter over, they will, I believe, realise that at the most I am suggesting an organised attempt to accelerate a development which is inevitable and from all points of view absolutely desirable.

ENTERPRISE.

Real enterprise is shown in the following letter from Aerofilms, Ltd.:—

"Dear Sir,—We wish to draw your attention to our undertaking of aerial photography, and think it will interest you, as many topical subjects and events could be taken from the air, giving a novel and valuable effect.

"Machines can be supplied by us with aerial cameras and an expert aerial photographer for carrying out this work.

"We should be pleased at any time to quote you for aerial photographic work or to supply any further information, and wish to inform you that we shall be prepared to carry out orders from June 1st.

"(Signed) Yours faithfully, for Aerofilms, Ltd.,
"F. L. Wills (Managing Director)."

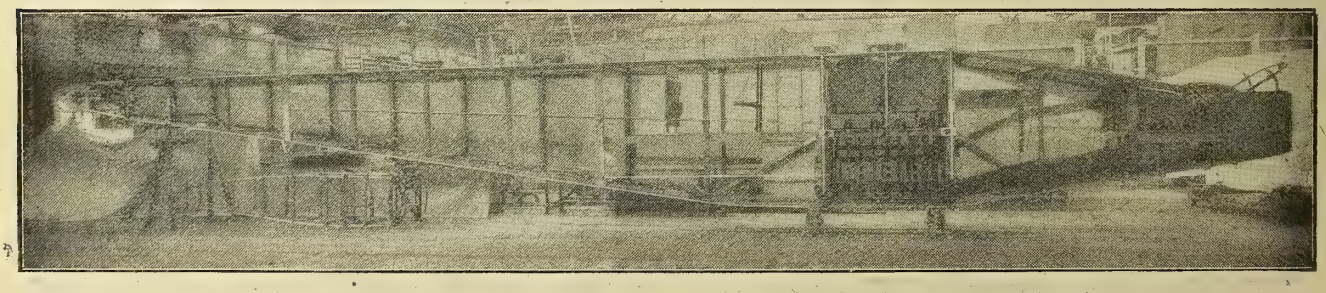
With the assistance of aerial photography the pictures of current events in the daily Press may well become more interesting than hitherto, where elevations only were possible. The other two directors of the firm are Mr. C. Grahame-White and Mr. H. W. Matthews, both directors of the Grahame-White Co.

FLAX CONTROL.

The responsibility for the Flax Control Board has, by a decision of the Cabinet, been transferred to the Board of Trade.

The present members of the Board are being invited to continue to act, with the following amended terms of reference:—"To promote and co-ordinate arrangements, whether by Government Departments or by private enterprise, for the supply and distribution of flax, flax seed, and flax manufactures for Government and civilian purposes, and to take such measures as may be necessary with regard thereto."

All communications with regard to the work of the Board should be addressed to Mr. P. Guedalla, Caxton House, Tothill Street, S.W.1.



A STUDY IN CONTRASTS.—A Handley Page fuselage with a Camel fuselage under its tail. Both built by the British Caudron Co., Ltd., of Cricklewood.

COPPERWORK FOR AEROPLANES

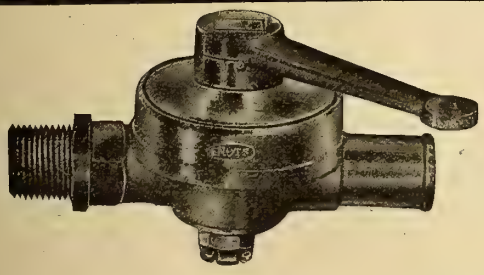
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Copper Induction Pipes—Cooling and Heating Coils.

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AIRCRAFT COMPONENTS
AS SUPPLIED TO
THE AIR BOARD, ADMIRALTY & WAR OFFICE
ON APPLICATION.

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CELLULOSE ACETATE & CHEMICALS

BRITISH CELLULOSE & CHEMICAL MANF'G. COMPANY, LIMITED,

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(Telephone: Willesden 2380.)

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Specially suited to Aerodrome Construction
Vents are Watertight and easily operated.

55 LIONEL ST BIRMINGHAM: 59 BERNERS ST LONDON, W.

FICTITIOUS FIGURES ON FLYING.

The following letters have been received:—

Sir,—I am anxious to add my measure to the "piffulent tosh" contributed to The Aeroplane by "Engineer Officer" and "Ex R.N.V.R." I will take "Engineer Officer's" arrangement of figures and give my own opinions against his.

As qualifications I may say that I am a civil engineer and have been intimately connected with aircraft during the years of the war.

Journey Contemplated.

Agreed that it is to be to a point 5,000 miles away with out and home route on one line and machines to be four-engined.

Speed.

Agreed at 100 miles per hour actual accomplished speed between points 5,000 miles apart. This, allowing time for changing mail bags, etc., must mean an average air speed of 105 miles per hour at least.

Load Carried.

The load at ¾ of a ton cannot be carried at the required speed by any officially tested machine in existence. The only four-engined machine capable of the speed contemplated is the Bristol Bomber. This machine, with a loading of 9 lbs. per sq. foot, equipped with Liberty engines, can attain a speed of 125 miles per hour and can carry about 20 cwt. actual useful load after deducting six hours' fuel and the necessary crew of five persons.

I assume that some sort of case will be required for containing the mail matter—this will weigh not less than 2 cwts. I also assume that some sort of light boat, with small motor to save both mail and crew, is necessary. This will weigh at least 5 cwts. The total weight available for mail after deducting these two items will now be 13 cwts.

I will further assume that the machines will fly at about 85 per cent. throttle and to allow this a further deduction of weight is considered necessary. This further deduction is assumed to be 2 cwts. The final weight available for mail is now 11 cwts. instead of 15 cwts., as stated by "Engineer Officer."

Time Available for Flying.

The stipulation that machines are to fly by day and night on 300 days a year is, in my opinion, quite impossible. It may be possible to carry out the first condition (although it is still in an embryonic stage), but I should judge that 100 flying days per year would be much nearer the mark for the second condition.

I should like to emphasise the fact that the number of flying days per year is the main factor governing the cost of commercial aviation, and recent events show that this number must not be over-estimated in this country at all events.

Time for Journey.—Agreed.

Flying Days per Year.—100, as above.

Machines' Endurance.—Agreed.

Machines Required.—Agreed.

Life of Machines.—I agree that the present machines will not be serviceable for more than one year, but anticipate metal construction to more than double this in the future.

Life of Engines.—I consider that this item is grossly underestimated by "Engineer Officer"—the life of a good modern engine is at least 500 hours with overhaul.

Cost of Machines per Year.—The cost per machine is agreed at £10,000 and motors at £2,000 each, making £18,000 per machine. I will assume that spare sets of engines for replacement are included in the five spare machines allowed for. The total cost of 25 machines will now be £450,000.

Of this total £200,000 represents engine value. I shall assume that 30 per cent. of the engine value is available for use in the following year, and that 10 per cent. of the machine value is also available. This gives a grand total of £365,000 for yearly expenditure on machines and engines.

Average Load.—0.55 ton as above.

Miles Flown per Year.—At 100 flying days per year the mileage is 240,000.

Ton Miles per Year.—132,000.

Petrol Used.—Agreed.

Oil Used.—Agreed.

Pilots.—Agreed.

Aerodromes.—Price agreed, but 11 will be required, not 10, as stated. The total cost will then be £110,000.

Insurance.—Agreed—but this is a problematical figure.

Offices.—Agreed—but 11 are required, and so total cost is now £33,000.

Engines, Riggers, Etc.—Agreed.

Car Services.—Agreed, but 11 are required, and so total cost is now £22,000.

Total Cost.

	£		Per Cent. of Total Cost.
Machines	365,000	=	42
Petrol	90,000	=	10
Oil	18,000	=	2
Pilots	25,000	=	3
Aerodromes	110,000	=	13
Insurance	100,000	=	11
Offices	33,000	=	4
Engineers, etc.	100,000	=	11
Car Services	22,000	=	4
	£863,000	=	100

= £6.54 per ton mile.

Assuming a profit of 30 per cent., the cost of flight per ton mile = £9.50, not £2.64, as stated by "Engineer Officer," and still less, the figure given by "Ex R.N.V.R."

Speed, indeed, must be paid for, but the conclusions arrived at by the Civil Aerial Transport Committee leave no room for doubt as to 100 miles per hour maintained average speed between points being the lowest possible commercial speed. At the figures given by me mail is still a possible paying proposition, but passenger-carrying is out of the question.

I might say, in conclusion, that a 5,000 mile journey will entail unknown difficulties in aerodromes, transport of food, petrol, etc., and that estimating for these difficulties is at best guess-work.

It might also be noted that the engine costs may be considered as of secondary importance. If the engines in foregoing figures are obtained for nothing, and last for ever, the total costs will be reduced by £200,000, reducing the ton-mile cost to £5.04—an absurd figure for passenger-carrying.

(Signed) "Commonsense."

Sir,—As one of your readers whose lot it has been to be associated with Aircraft during this war, I am interested in the discussion now taking place in The Aeroplane on the costs of flying. It strikes me, as an ounce of experience is worth a ton of theory, that some actual figures obtained from experience may be useful, and I am, therefore, sending them.

The first figures were estimated by an Officer lately in technical charge of a seaplane station. They probably represent the worst possible conditions, as the station in question was in a bad situation, and the number of flying hours was, therefore, very small. The number of crashes was also high, and the cost of sheds, largely unused, made this last figure abnormal.

Example No. 1.

	£
Land, yearly rental	3,000
Sheds, cost £250,000 at 10 years' life	25,000
Men's wages	15,000
Officers' wages	12,000
Lighting power, water, etc.	3,000
Plant cost £15,000 at 10 years' life	1,500
Officers' quarters	500
Men's quarters	500
Stores expended	2,000
Machines, 30 Shorts	60,000
Life, 1 year	122,500
Head Office charges, 15 per cent.	18,375
	140,875
Say	£140,000

Hours flying per year at 20 hours per month, 240; miles flown per year, 14,400; cost of flight per mile, £9.8 per mile; useful load carried, with 3 hours' fuel, 5 cwt.; cost per ton mile, £39.2.

Example No. 2.

An average pupil at a civilian flying school pays £75 to get his "ticket," and takes about 3 hours' tuition time to accomplish it. In the 3 hours he will fly not more than 180 miles, and the cost per mile will be 8s. 4d. per mile. The cost per ton mile is, therefore, £5. This figure is probably distinctly on the low side as a great part of the 3 hours is spent on the ground, or in landings with a "blipped" engine.

The two examples given, both estimated by Service Officers, show, roughly, both sides of the question, one where flying is carried out regardless of expense in war-time, and the other when it is done in Peace conditions, in an aerodrome, a share of whose expenses only have to be included in costs. The profits made on teaching flying by civilian schools are not large—the 30 per cent. figure quoted by "Engineer Officer" is certainly not exceeded even in a well-run school blessed with much good luck.

Commercial flying, on a definite mail route, must surely exceed the school figures, and I am inclined to believe in a figure of about £6 per ton mile as the price of flying for the next few years, at any rate. "A Would-be Aviator."

ROYAL AIR FORCE

RELIEF FORCE FOR RUSSIA

THE RELIEF FORCE which is being formed for SERVICE in NORTH and SOUTH RUSSIA will include the following trades: Fitters, Aeroplane Riggers, Armourers, Carpenters, Blacksmiths, Turners, Acetylene Welders, Coppersmiths, W/T Operators, M/T Drivers, Clerks, Storemen, Cooks, Photographers, Tailors, and in addition unskilled men.

Who May Join:

The force will be mainly composed of VOLUNTEERS drawn from the sources mentioned below:

(a) Demobilised and Discharged Trained Airmen or Soldiers.
(b) Trained Duration of War Airmen serving at home.
(c) Airmen at home serving on normal engagements or for 2, 3, 4, 8, and 12 years.

All men re-enlisting must be:

(a) Fully trained in the trade which they desire to join.
(b) Fit for General Service. (c) 19 years of age and over.

A discharged or demobilised airman, if accepted, will rejoin in the rank, substantive or acting, he held at the time he left the Air Force.

Pay and Allowances:

PAY, ALLOWANCES and BONUS as now given to men in the Armies of Occupation. On completion of the period of service all men will be given two months' leave or any longer period to which they may be entitled on full pay and allowances.

Period of Service:

The period of enlistment for recruits will be one year, or such shorter period as may be required, but no man who re-enlists for this duty will be kept longer than required for this special service.

Where to Enlist:

Qualified men should apply at once to the nearest Recruiting Depot at the following addresses:

4, HENRIETTA STREET, COVENT GARDEN, W.C.
8, TYNDALL'S PARK ROAD, CLIFTON, BRISTOL.
12, NEWPORT ROAD, CARDIFF.
CARLTON CHAMBERS, PARADISE STREET, BIRMINGHAM.
8, GEORGE STREET, NOTTINGHAM.
12, ABERCROMBY SQUARE, LIVERPOOL.
THE MOUNT, SPRINGFIELD MOUNT, LEEDS.
10, SYDENHAM TERRACE, NORTH ROAD, NEWCASTLE-ON-TYNE.
9, SOMERSET PLACE, SAUCHIEHALL STREET, GLASGOW.

CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

The following is an extract from Air Ministry Orders :—

516. CIVIL AVIATION.

It has been brought to the notice of the Air Ministry that companies are being promoted in connection with civil aviation after the war, and that prospectuses are being circulated by such companies amongst officers who are on the point of demobilisation. Before such officers invest their gratuities in such concerns it should be brought to their attention that the conditions governing post-war flying are still unsettled.

Officers are therefore advised to apply for information to the Air Ministry or to seek other skilled advice before investing their capital in response to appeals of this nature, certain of which may not be bona fide.

The " Times " makes the following comment thereon :—

It is the officer who is already demobilised and who has not been able to find a suitable appointment who is most likely to be led into investing his gratuity on promises of large and immediate returns from commercial aviation. Many of the young pilots who have done excellent work in the Royal Air Force during the war have naturally an unbounded belief in the future of flying, but have had no previous business experience and are not competent to judge of the soundness of a commercial undertaking. The established aviation firms have made large profits during the war and are not, therefore, in need of additional capital at the present juncture.

In view of the enormous amount of work still necessary before civil aircraft services can be put into practical operation, all new projects should be very carefully examined as to capitalisation and source of expected profits before investing capital.

According to the " Daily Express " of May 14th, a great deal of civilian flying had been done up to that date, even to the extent of taking passengers from Hounslow to Hamble, near Southampton, to a dance.

A Handley Page aeroplane (four Rolls-Royce engines) with four passengers left Glasgow at 2.30 p.m. on May 17th, and flew over Berwick, Newcastle, Durham, Doncaster, and Peterborough, reaching Hendon aerodrome a few minutes after nine o'clock, a distance of 515 miles having been covered in 6½ hours.

On the following morning it proceeded to Folkestone, the journey occupying 55 minutes. The pilot was Mr. Clifford B. Prodger, who, it is stated, is assisting in the organisation of a London-Paris passenger service.

A three-engined Caproni aeroplane, carrying a crew of eight, landed at Kenley Aerodrome, near Croydon, at 1.10 p.m. on May 19th, having left Turin the same morning.

India.

During the past few months the authorities have been arranging for aerodromes in the chief centres of India. It is believed that the Post Office would consider contracts for reliable aerial mail services, and many firms are said to be ready to organise companies for commercial purposes.

Sweden.

According to a report, Swedish Customs Commissioners have recommended that foreign aircraft be allowed to enter the country free of duty on the pilot's written undertaking to re-export the craft.

THE 35-h.p. AVRO SPORTING MODEL.

It is understood that this machine, to which reference was made in THE AEROPLANE a short while ago, made a satisfactory preliminary flight at Hamble on Saturday, May 10th.

It was then flown by Capt. Hicks, R.A.F., an Australian pilot.

The 35-h.p. Green engine, which has been considerably modified and fitted with aluminium pistons, ran extremely well, and showed itself capable of flying the machine when throttled down to 700-800 r.p.m.

Later information is to the effect that the machine has now been looped, rolled, and spun, and that it has climbed 3,000 ft. in six minutes at 78 m.p.h.

It must be considered quite a noteworthy achievement to have produced a machine with these characteristics fitted with so low-powered an engine, of the four-cylinder water-cooled type. This is the more so as the 35-h.p. Green engine dates back to at least 1910.

A NIGHT MAIL CARRYING EXPERIMENT.

An interesting experiment in night mail carrying has just been carried out by the R.A.F. authorities.

A D.H. 10 machine with two 412 h.p. Liberty engines from No. 120 Squadron left Hawkinge Aerodrome, near Folkestone, at 10.30 p.m., and, flying straight through without a stop, reached Cologne at 1.30 a.m. The machine was piloted by Capt. Barratt, with Lieut. Fitzmoriee as navigation officer and Lieut. Oliver as observer. The course taken covered about 300 miles, and as there was a fairly strong adverse wind the performance at an average speed of 100 m.p.h. was particularly good.

This squadron, in conjunction with No. 110 Squadron at Maisconelle, the transference point in France, has been responsible for the regular Folkestone-Cologne mail service which has been flown since March 1st.

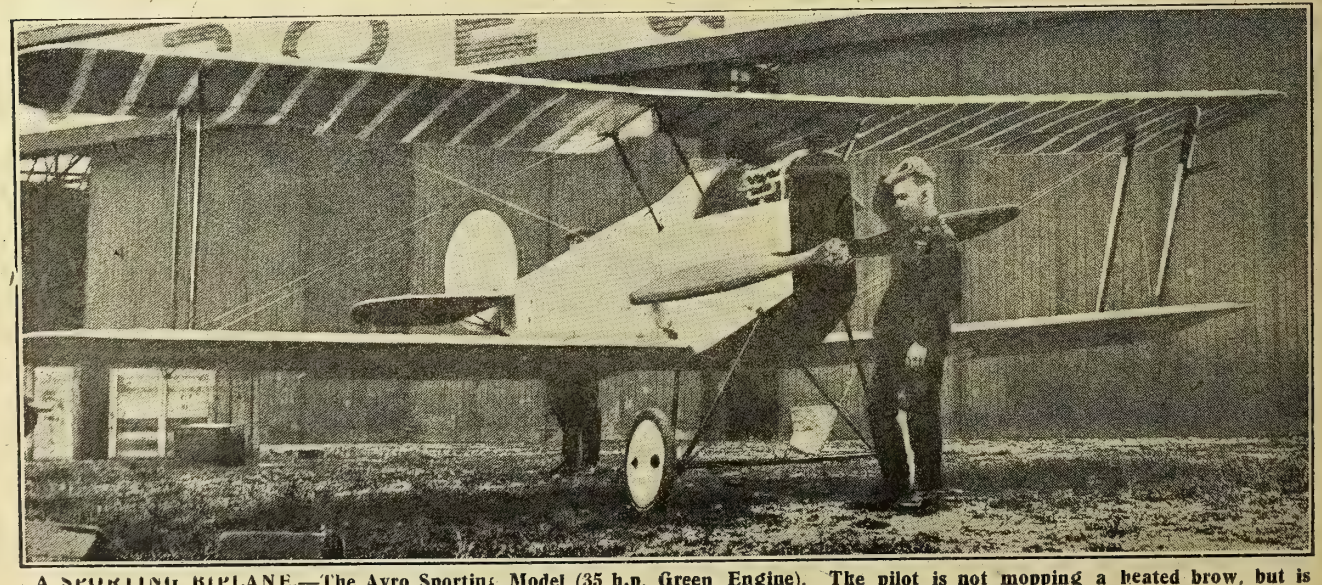
During the period March 1st-April 26th the squadron has carried no fewer than 1,634 bags of mails. In spite of exceptionally bad weather during a large portion of this period, particularly in March, there were only ten days upon which mails were not carried. The total number of mail flights made in these 47 days was 289.

A COMPLIMENTARY DINNER.

On May 16th, at the Connaught Rooms, Sir Samuel Waring, Bt., was entertained at a complimentary dinner by the directors and staff of Waring and Gillow, Ltd., for the purpose of congratulating him upon the baronetcy recently conferred upon him by the King. Some 500 members of the staff of the well-known business house were present. Sir Samuel Waring is interested in the Alliance Aircraft Co., the Bat Company, as well as in the W. and G. aeroplane works.

A CHANGE OF NAME.

The A.G.S. Manufacturers' Association, of 60, Haymarket, S.W.1, announce that it has been decided that the name shall be changed to the Association of Manufacturers of Aircraft Parts.



A SPORTING BIPLANE.—The Avro Sporting Model (35 h.p. Green Engine). The pilot is not mopping a heated brow, but is merely contemplating the machine. The engine really starts quite easily.

COMMERCIAL FLYING

JUST PUBLISHED

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INSURANCE COMPANIES for whom we can obtain the essential details of pilots' records.

PILOTS AND OTHERS whose interests we watch and whom we keep in touch with employment.

The first impression (printed in four languages and circulating in 30 different countries) has now been published, and will touch all possible classes of aeroplane users throughout the world.

PILOTS AND OTHERS who have not yet registered should write at once for necessary forms and conditions.

The Second Impression (much enlarged and containing British and Foreign Air Regulations, routes, maps, charts, list of aerodromes with facilities for civil flying, etc.) is now in the printers' hands and will shortly appear. Owing to its universal nature, it will henceforth appear as the **INTERNATIONAL AERIAL REGISTER. Price 7/6.**

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in this Country of any Factors or Manufacturers of small aircraft parts, including A.G.S., etc., and a complete list can be forwarded on request, but, as in the days of the War, customers will do well to forward lists of their requirements, which will be priced and returned in the course of post with information as to deliveries—ex stock or over a period. Ascol House also holds complete lists of the stocks of the majority of Aircraft Manufacturers in this Country, and if any parts are required immediately and do not happen to be in stock at Ascol House they can be drawn from these Manufacturers without delay. All parts are passed by A.I.D., but in accordance with recent regulations parts made at Ascol House in the future will have to be inspected at the Contractors' Works, being released from Ascol House for material only, rejections being credited if returned with A.I.D. Rejection Note within 14 days of delivery.

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AIRCRAFT FINANCE

MISCONCEPTIONS ABOUT AVIATION INSURANCE.

Either innate modesty, mental slackness, a distaste for new ideas, or a little of each seem to cause an unnecessary amount of perplexity and confusion in every commercial innovation or new departure. A case in point is that of the recently developed aviation insurance scheme.

MEAGRE OR PROLIX.

Some people, evidently unacquainted with the mathematically precise character of the business of insurance generally, and particularly of the new aviation departure, are loth to give adequate information or sufficiently precise or clear details of what they actually want covered by insurance, or, alternatively, are too prolix, without particularisation, in their proposals.

A SIMILE.

Now it is pretty obvious that just as the ordinary member of Lloyd's will quote what he considers a reasonable premium for the risk of twins or triplets commensurate with the characteristics, congenital or acquired, of the parents, so the underwriter who specialises in aviation risks must necessarily be made conversant with the character of the machine, the pilot, and the work contemplated.

ON STANDARDISATION.

It is quite unreasonable to expect the underwriter to quote a "flat" or uniform rate of premium irrespective of the quality of the machine, the qualifications of the pilot, and the nature of the flying. Aviation is not advanced to that stage, or anything approaching it, yet.

The time will come when standardisation has been approached, when freaks have been eliminated by the natural law of the survival of the fittest, and when, as a result of experience, the necessary collation of essential facts bearing upon the degree of risk has been made—and then it may become practicable to give a greater uniformity to the rates of premium.

ILLOGICAL ENTHUSIASM.

At present one cannot get away from the fact that commercial aviation is not beyond the experimental stage. Admittedly, it has progressed wonderfully during the past year or two, but to claim that it has approached physical or economic perfection would be symptomatic of mental blindness. The process of evolution is slow and tedious, especially to the enthusiast, and the wisdom contained in that old saw relating to the necessity of learning to walk before trying to run is apparent.

WHY SPECULATIVE RATES ARE HARMFUL.

So it is with the elaboration of the concomitant scheme of aviation insurance. The underwriter who quoted a "flat" rate to cover all and any risks without due regard to the machine, the pilot, and the nature of the flying would not be accepting business as a serious commercial proposition; he would be undertaking a gambling transaction. And if his experience was costly with heavy bills for damages to meet, it stands to reason that the next risk he was offered would be accepted only at a huge premium.

SOME ESSENTIAL CONSIDERATIONS.

Those who clamour for more uniformity of premiums on aviation insurance may be enthusiastically considering the interests of commercial aeronautics, but they are, nevertheless, illogical in their reasoning. Take ordinary shipping risks, now brought to a scale of mathematical perfection as the result of long experience and the elaboration and collation of essential facts: here there is a uniformity of premium rates admittedly, but it is true that the quotations differ, being determined by the quality of ship, the nature of the voyage and of the cargo. The differentiation is considerable.

CAPABILITIES THAT ARE UNPROVED AS YET.

Aviation can only expect this degree of uniformity when it has proved by actual experience, not by a year or so of military work and a lot of joy-riding, its capabilities as well as its limitations. The business of aviation insurance will develop and be elaborated and broadened with the progress of aviation itself, if it does not, of course, assist and stimulate aviation by advancing more rapidly, which is not at all unlikely.

NORMAL WEAR AND TEAR.

The rather tough problem of depreciation confronting aviation and aerial projects was discussed at length only a few weeks ago. Perhaps one ought to connect the erroneous impressions created by the 1/500th clause for each flying hour embodied in some of the policies. It needs explaining.

NO FIXED MAXIMUM "LIFE."

First of all let it be clearly understood that the 1/500th deduction in the claim for each flying hour is not a rigid and irreducible minimum; it is the mathematically calculated "life" of an average machine; in other words, an aeroplane after 500 hours' actual flying, with the innumerable landings and consequent jolts, is reckoned to be worn out.

VARIATIONS.

This is not an arbitrarily fixed "life," but is based on actual experience. Nor does it apply to every machine. Some are calculated to be good for 650 hours, and others less than 500 hours; it is a question determined by the nature of the flying, the type of machine and the engine, and the host of other considerations.

Briefly, this normal degree of wear and tear or depreciation is a common feature of insurance, and not one embodied solely into aviation risks. Surely no one would expect to be paid in full the original value of the machine, if, say, *it was worked to death at a great profit* to the owner for 490 hours and then came to grief. It would not then be worth its original value or anything like it. Such a practice would act as an incentive to fraud on the part of the person insured, who would be able to replace a worked-out machine at the expense of the underwriter; it would put a premium on inefficiency, too.

FRESH SURVEY AND RECLASSIFICATION.

But having explained this misunderstood clause it is equally necessary to explain the important reservations. If, say, a machine with a calculated "life" of 500 hours has been worked for 200 hours and then goes into the shop for complete overhaul and refit, the position is changed. Naturally the overhauling and refitting improves it physically and prolongs its "life." This being so, the Aviation Insurance Association, or any other competent authority in the business, will re-survey the machine and re-classify it, and the premium will be re-adjusted

accordingly. It is just the same as with Lloyd's Registry and Shipping. Insurance as a business requires such re-surveys; it is quite clear what would happen if once a classification of A1 at Lloyd's were attained the same classification were held if upkeep and maintenance were neglected.

THE ORIGINAL NUMBER DID NOT REMAIN.

It is well clearly to understand this question of the re-survey and classification of aeroplanes. There are locomotives, by the way, on the railways which have been re-built more than once since they were originally constructed. All that remains of the original work is nil; the distinguishing number is similar to the original christening title; the actual plate is often renewed also, with rebuilt in such and such a date supplementing the date of birth.

This is a matter of bookkeeping. A new locomotive would have to be charged to capital account; a renovated locomotive, new in every particular except the bestowal of a fresh distinguishing numeral may be charged to revenue. This might reasonably happen with aviation companies; it is not economically sound to debit to capital account indefinitely with renewals, repair, and replacements.

WM. J. DAVIS.

CURRENT TOPICS.

POOR WHITEHEAD RESULTS.

Recently the hawking of Whitehead Aircraft Company shares was referred to here. The report is now published, and provides no scope for enthusiasm. On the contrary, it is poor food for the shareholders. The profit is given at £19,686, out of which the interim dividend of £9,304 was paid on the preference shares, leaving £10,382. Out of this the final dividend on the preference shares is paid.

It is explained that the company has been a controlled establishment, its operations being entirely confined to work under Government contract, and large numbers of aeroplanes have been delivered. The 10 per cent. cumulative participating ordinary shares have been changing hands between 8s. 1½d. and 9s.

THE STRENGTH OF AIRCRAFT SHARES.

As a whole aircraft shares have not participated in the general buoyancy sweeping over the Stock Exchange, but there has been an awakening in Napiers. These jumped violently in anticipation of a bonus being belatedly proposed in respect of the past year's operations. Aircraft Manufacturing 7 per cent. Short Term Notes have been changing hands at 100 and 100½. Sunbeams have provided no excitement, while the new Handley Page shares keep moderately active at about 6d. discount.

THE ASTER ENGINEERING CO.

The Aster Engineering Co. made a profit last year of £30,302. The final dividend makes 10 per cent. for the year, free of tax, and £33,282 is carried forward, subject to liability for Excess Profit Duty.

THE TRIPLEX GLASS NEW ISSUE.

Naturally the new shares offered by the Triplex Safety Glass Co. on advantageous terms have been well subscribed. The old shares are selling about 40s., and the new shares with 15s. so far paid up at about 19s. As previously mentioned, the capital is increased to £200,000, and by the present operation the issued capital is 120,000 shares.

A PROMOTER'S AFFAIRS.

At the Bankruptcy Court an adjourned sitting was applied for the public examination of Robert Taylor, engineer's contractor, 97, New Bond-street, W. In association with others he had formed, or assisted in the formation of, a number of companies, mainly with the object of dealing in aircraft and component parts. The liabilities were returned at £50,853, of which £7,853 were expected to rank, and his assets valued at £40,000.

The Official Receiver said that the examination had stood adjourned to enable him to make certain inquiries, and the debtor to provide him with further information. Although he was satisfied that the debtor was making inquiries and trying to supply him with all the information required, a good deal was not yet forthcoming. Moreover, a company with which he had been connected, namely Associated Aircraft (Ltd.), had now gone into compulsory liquidation, and it would be necessary for the Official Receiver in Bankruptcy to examine the debtor with regard to his interest in that concern, as well as for the Official Receiver in company's winding-up to investigate the matter. Under the circumstances he asked for a further adjournment.

Mr. Registrar Mellor ordered the case to stand over until June 17th.

Mr. Ralph Raphael approved on the debtor's behalf.

SWEPT AND GARNISHED.

The following appeared in the "Times" of May 16th:—

Henlow Aircraft Repair Depot is swept and garnished. From the arid little plot in front of the offices which is being dug by military workmen to the piles of still smouldering "junk"—twisted wire and the ashes of incinerated spars—which one happens upon around corners, everything speaks of toilsome hours in clearing up. It is all very new and very recent. Major-General Lamb, R.A.F., Controller-General of Equipment, and Colonel Courtney, of the Salvage and Equipment Branch, visited the depot yesterday, made an inspection of the hangars in company with Lieut.-Col. Measures, the Commandant, and returned late in the afternoon.

Henlow was the subject of the principal disclosure of "X" in Wednesday's letter to the "Times." Certainly, there is nothing so flagitious to be seen there—now—as was witnessed at Farnborough. It gives the impression of well-ordered and circumspect management. There is not much old material lying about. Various reports circulate in the vicinity as to what has become of it, and one especially current is that aeroplane wood was used for weeks in the officers' messes at the depot, and for domestic use in Hitchin during a shortage of coal. A Hitchin dealer bought this as refuse from the depot at £1 per ton

The official admission is:—

New machines have been dismantled on the instructions of the Air Ministry. They were obsolete, and there was no market for them. They were stripped of fabric, their spare parts stored, and their metal fittings removed. As far as the wood is concerned, one fact must be borne in mind. The call on timber for aeroplane construction was so great during the war that seasoned material was soon exhausted, and the contractors had to subject the wood to artificial treatment. That rendered it useless for anything else. We only wish that somebody had come forward with a suggestion of how to employ it commercially.

The stuff comes to the depot by rail, and we have no option but to accept delivery. It may be dumped for a day or two, but is moved as soon as possible to its allotted place. What happens afterwards is solely a matter of instructions to us by the Ministry.

If it is asked, "These new machines had been passed by the Aircraft Inspection Department?" the answer is, "We have no concern with the policy of the Ministry."

Every other adverse statement affecting the depot was met with emphatic demur. "They will be officially denied, and denied very strongly," was the reply to each question. A complete "non possumus" confronts such inquiries at Henlow. Most of the people who knew about these things have departed, building has practically ceased, and splintered staves are no longer a need. The exhalation of reassurance about the place after General Lamb's visit yesterday could hardly be mistaken.

The erection of the Henlow depot was begun in August, 1918. It has now been completed, except for part of its electric power installation, and is about to be taken over by the Air Ministry from the contractors. Before the armistice it employed some 6,000 hands. These have now been reduced to about 1,200 men, mainly on account of demobilisation. It is apparently intended to maintain the depot as a permanent repair centre during peace time, with personnel consisting of discharged soldiers and sailors.

THE NEW AEROPLANE.

The "Daily Mail" published the following verses on May 17th:

"O! wondrous bird!" I cried,
"Destined one day to glide
In graceful fashion through the upper strata
Of our uncharted air,
Although I know not where
Because I lack the necessary data.

"Perchance you yet shall sweep
Across the Western deep
And wing your breathless way until you settle
On Chimborazo's crown
Or drift in spirals down
Upon the slopes of Popocatapetl.

"What wealth of human skill
Is lavished on thee still,
What expert and meticulous inspection.
What thought for stress and strain
To help thee to attain
The sum of every possible perfection!"

"Nay, nay," the 'plane replied,
"Your guess is somewhat wide,
For in the hour of birth my being ceases.
No farther shall I roam
Than Henlow Aerodrome,
Where eager hands shall hack me into pieces!"

TOUCHSTONE



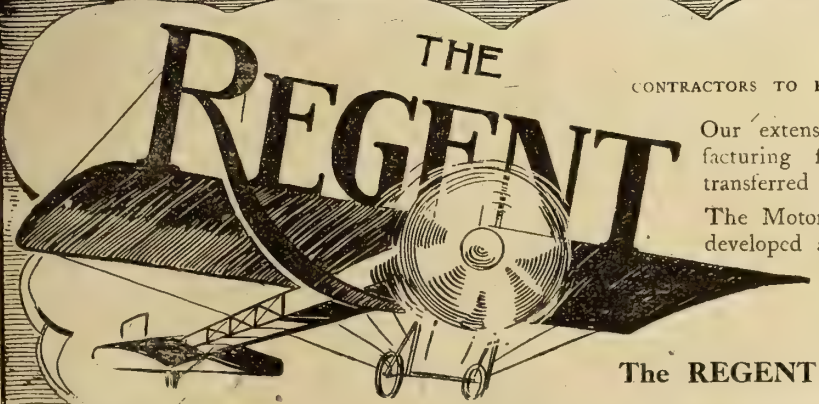
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AIRCRAFT IN PARLIAMENT

The following oral answers were given on May 12th :—

ROYAL AIR FORCE PREMISES.

Brig.-Gen. CROFT asked the First Commissioner of Works whether it is contemplated that certain premises at present occupied by the Central Prisoners of War Fund will be commandeered for the purposes of the Royal Air Force, and whether, having regard to the fact that these buildings are urgently needed for private purposes, he will take immediate steps to prevent such action on the part of the Royal Air Force, and to find quarters of a less extravagant character and less harmful to public interests.

Lieut.-Col. Sir J. HOPE asked whether the block of buildings at 4, Thurloe Place, South Kensington, recently occupied by the Central Prisoners of War Committee, was offered for sale by tender in January last, and the tender of an Army officer, crippled in the war, was accepted on February 15th, 1919, under the authority of the Government; whether the building has since been commandeered by the Air Force; and if, in view of these facts, the First Commissioner of Works will consider the justice of surrendering the premises

The FIRST COMMISSIONER OF WORKS (Sir Alfred Mond) : These premises being accommodation for the Royal Air Force, the matter is one for the Secretary of State for Air, to whom these questions should be addressed.

Sir J. POPE : Does the right hon. gentleman exercise no control over the commandeering of houses in London ?

Sir A. MOND : These premises are for military purposes, and not for civil accommodation. They were commandeered by the War Office, and the matter has nothing to do with my Department in any way.

General CROFT : Was the right hon. gentleman consulted when the Prisoners of War Department moved into this building ?

Sir A. MOND : No, Sir; the War Office commandeered the premises.

* * *

The following written answer was given on May 12th :—

ROYAL AIR FORCE PAY OFFICE—WOKING.

Lieut.-Col. Sir A. WARREN asked the Secretary of State for War if his attention had been called to the conduct of affairs at the Royal Air Force Pay Office at Woking, if he is aware that numerous complaints are being received as to the unbusinesslike methods in operation there, imposing much annoyance and hardship upon men entitled to pay; and if he will have the matter inquired into.

Lieut.-Col. ARCHER-SHEE asked the Secretary of State for War whether he is aware that many demobilised men of the Royal Air Force are complaining of the long delay in getting their gratuity and back pay; and whether he will take steps to ensure that the Royal Air Force Pay Office, Woking, clears up these men's accounts within a reasonable period after demobilisation.

Major-Gen. SEELY : The work of the Woking Pay Office has been under constant supervision, and all possible steps have been taken to speed up the clearance of the accounts. Arrears at one time existed owing to an increase in the rate of demobilisation, but those arrears have now been cleared up. The complaints received have been in many cases due to misunderstanding on the part of the men concerned of the deferred payment system. As previously stated, this system was introduced to enable men who were in a hurry to return to civil life to receive demobilisation in advance of the final settlement of their accounts. All men accepting the scheme signed a personal statement to the effect that the final balance due to them would not be claimed until three months after the expiration of their demobilisation furlough. In spite of this, numerous demands for immediate settlement are being received. In these cases the accounts are being settled several weeks earlier than was promised, and in necessitous cases advances are being made additional to those which were made to the men on leaving their units. The deferred payment system, having served its purpose, has now been cancelled.

* * *

The following oral answer was given on May 13th :—

CRAMLINGTON AERODROME.

Sir FRANCIS BLAKE asked the Secretary of State for War whether the construction of the aerodrome at Cramlington, Northumberland, is still being proceeded with; what number of men are being employed in such construction; what rates of pay and travelling allowances are being paid them, and whether it is the policy of the military authorities to establish a permanent station at this place.

The UNDER SECRETARY OF STATE FOR AIR (General Seely) : The answer to the first part of the question is in the negative, but twenty-two men are at present employed in clearing up materials. The rates of pay are those fixed by the Tyne and Blyth Conciliation Board for Building Trades. It is not intended to establish a permanent station.

* * *

The following written answers were given on May 13th :—

ROYAL AIR FORCE.—GRATUITIES.

Lieut.-Col. Sir F. HALL asked the Under Secretary of State to the Air Ministry whether warrant officers, late Royal Naval Air Service, who received the rank of second lieutenant at the amalgamation of the two services, the Royal Naval Air Service and Royal Flying Corps, on April 1st, 1918, are entitled to the same gratuities for time served as warrant officers, Royal Naval Air Service, as those laid down for temporary officers in the Royal Navy.

Major-Gen. SEELY : Temporary warrant officers of the Royal Naval Air Service who have been granted temporary commissions in the Royal Air Force are entitled to the same gratuities in respect of their warrant service as temporary officers in the Royal Navy.

ARMOURER'S ACCOUNT.

Mr. ALFRED SHORT asked the Financial Secretary of the War Office whether Samuel Taylor, late 407698, Armourer, C Squadron, Royal Flying Corps, A.M. School, Uxbridge, was discharged on February 6th; whether he has received neither back pay nor gratuity; and, if so, will he cause inquiry to be made and a settlement expedited.

Major-Gen SEELY : This man accepted the deferred settlement scheme whereby he received at the time of his dispersal twenty-eight days' pay and ration allowances, £2 12s. 6d plain clothes allowance, and an advance of £2 on account of his gratuity, pending the final settlement of his account within a period of four months from the date of his leaving his unit. The balance due on the final settlement of his account is now being paid.

STATION HOTEL STIRLING.

Major GLYN asked the Under Secretary of State to the Air Ministry whether immediate steps can be taken to release the Station Hotel, Stirling, from the control of the Air Service on account of the shortage of hotel accommodation, and the near approach of the summer season; and whether since last November the office staff of the Royal Air Force in Stirling has been reduced to such an extent that rooms formerly used in the hotel are now standing empty.

Major-Gen. SEELY : Orders have been given for the early relinquishment of these premises, and I expect that they will be vacated in the course of the next two or three weeks. At the moment all the available rooms in the hotel are occupied.

WOMEN'S ROYAL AIR FORCE.

Lord H. CAVENDISH-BENTINCK asked the Secretary of State for War how many women officers and members applied for enrolment in the Women's Royal Air Force during the time that Miss Douglas-Pennant was commandant of the Women's Royal Air Force ?

Mr. CHURCHILL : The number of enrolments (including transfers from the Women's Royal Naval Service and the Queen Mary's—Army Auxiliary Corps) during the period referred to were : Officers, 262 and other ranks, 15,128.

AERONAUTICAL INSPECTION DEPARTMENT.

Mr. MANVILLE asked the Parliamentary Secretary to the Ministry of Munitions (1) if he is aware that the demobilisation of the Aeronautical Inspection Department (Coventry District) is not being carried out in accordance with his statement in Parliament, i.e., that the residue to be retained would consist of discharged soldiers providing they possessed the necessary qualifications; (2) why Mr. Frank Holder, Coventry District (Engines), registered No. 5203, examiner-in-charge, grade 1, a discharged soldier with disabilities contracted during military service, has been discharged from his appointment notwithstanding that civilians are being retained in the Department.

Mr. KELLAWAY : The policy pursued by the Aeronautical Inspection Department is that indicated in the reply to the hon. and gallant Member for Fylde on Feb. 25th. I am making inquiries into the position in the Coventry district generally, and particularly respecting the case referred to in Question No. 98. I will communicate with my hon. friend in due course.

* * *

The following oral answers were given on May 14th :—

TALLAGHT AERODROME, DUBLIN.

Mr. ARCHDALE asked the Secretary of State for War if demobilised soldiers are not allowed to work at Tallaght Aerodrome, close to Dublin, unless they join the Transport Workers' Union or one of its branches, and if that body charges demobilised soldiers 10s. 6d. as fee because they have served, the ordinary fee being 2s. 6d.

The UNDER SECRETARY OF STATE FOR AIR (Major-Gen. Seely) : Difficulties have arisen at the aerodrome through the refusal of union men to work with non-union, but I am informed that no pressure is brought to bear on the latter to join the Transport Workers' Union, if they prefer to join some other recognised union. I am further informed that no distinction is made as regards fees for admission or re-admission to the Transport Workers' Union between ex-soldiers and other men.

Colonel ASHLEY : Were sixty or seventy demobilised soldiers requested by the Transport Workers' Union to join that union, and did the chief engineer call up the men and tell them that they must join or they would be discharged ?

Major-Gen. SEELY : There is always difficulty in securing the co-operation of those who are in a union and those who are not. In this case, so far as I can ascertain, the best steps have been taken.

Colonel ASHLEY : If the discharged men would form a union of their own, would not that get over the difficulty so far as the Air Department is concerned ?

Major-Gen. SEELY : If it is any recognised union all difficulties cease.

ROYAL AIR FORCE—DISABLED OFFICER (EMPLOYMENT).

Colonel YATE asked the Under Secretary of State to the Air Ministry whether he is aware that a wounded and disabled officer, who was a trained mechanical engineer and specialist in mechanical drawing before the war, who rose from second lieutenant in the Royal Field Artillery to the rank of major and battery commander during the war, and won the Military Cross, and who, after being wounded, was employed at the Air Ministry Drawing Office, Ministry of Munitions, Ap. D (D), was discharged on reduction of staff, while certain civilians were retained; and whether, under such circumstances, if he cannot retain this officer in the Air Ministry, he will obtain suitable employment for him in some other Government Department.

The FINANCIAL SECRETARY TO THE MINISTRY OF MUNITIONS (Mr. James Hope) : I am making inquiries into this case, and will communicate with my hon. and gallant friend as soon as they have been completed.

Colonel YATE : Can the hon. gentleman say whether the Air Ministry have given due consideration to wounded and disabled men ?

Mr. HOPE : I am answering for the Minister of Munitions, and cannot speak for the Air Ministry.

LIEUTENANTS (PAY).

Colonel DU PRE asked the Under Secretary of State to the Air Ministry whether the pay of a second lieutenant of the Royal Flying Corps was 12s. per day as equipment officer; whether on transfer to the Royal Air Force these officers received a form stating that their pay would not be reduced; and, if so, whether he can state why such an officer on promotion to lieutenant and appointment as court-martial officer was paid at the reduced rate of 11s. 6d. per day ?

General SEELY : The pay of a second lieutenant holding the appointment of equipment officer, third class, in the Royal Flying Corps was as stated in the question, and such officers, in common with others transferred to the Royal Air Force on its formation, were given an undertaking that they would not suffer in the matter of pay, so long as they continued to carry out duties similar to those falling to them prior to transfer. On vacating the appointment of equipment officer, on appointment as courts martial officer, an officer of the Royal Air Force would be transferred from the technical to the administrative

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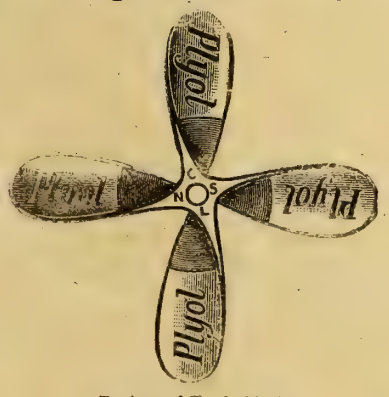
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A. Quite sound—could be used as containers.
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Weight per 100 yards ½in.– 31lbs. ⅝in.–43½lbs. ¾in.–71½lbs. 1in –111½lbs. 1¼in.–171bs. 1½in.–261bs. 2in.– 421bs.

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branch of the force, and would draw the rate of pay of his rank in that branch, whether higher or lower than his previous rate. If my hon. and gallant friend will communicate with me on any particular case he may have in mind, I will have its merits investigated.

* * *

The following written answer was given on May 14th :—

ROYAL AIR FORCE—KENNINGTON GARAGE.

Lieut.-Colonel MOORE-BRABAZON asked the Under Secretary of State to the Air Ministry whether he is aware that, in spite of the fact that the Women's Royal Air Force are asking for more drivers, women of long experience are being dismissed from Kennington; why it is that such action is being taken at Kennington alone; whether the employment of newly-enlisted men without previous experience, costing the State 14s. and 29s. a week more for light and heavy cars respectively, is in any way equitable or economical; whether he will take steps to see that the general management of the Kennington garage be investigated, both from the point of view of its attitude towards members of the Women's Royal Air Force and economy generally in personnel.

Major-Gen. SEELY : Any recent recruitments of women drivers have been for the Mobile Division of the Women's Royal Air Force. The dismissals at Kennington have been of women belonging to the Immobile Division, who can only be employed in the neighbourhood of their own homes, and they have been replaced, so far as possible, by demobilised Service men. I am advised that, taking all factors into account, this action tends to economy. With regard to the last part of the question, I am having special inquiries made.

* * *

The following oral answers were given on May 15th :—

AEROPLANES (DISPOSAL).

Lieut.-Colonel Sir SAMUEL HOARE asked the Under Secretary of State to the Air Ministry whether he can form any estimate of the loss involved to the State by the destruction, at the Cove Camp, Farnborough, of a number of new aeroplanes never used and many not even unpacked; and whether he could not find a market in neutral countries or amongst civilian purchasers for the sale of these brand new goods.

The UNDER SECRETARY OF STATE FOR AIR (Major-Gen. Seely) :

1. On the signing of the Armistice the Air Council had some 20,000 aeroplanes and seaplanes on charge, and machines were being produced at the rate of 4,000 a month. The storage available, including hirings which had to be given up, was insufficient to enable these numbers to be stored under cover as well as the new machines of which the Air Council would have to take delivery.

2. The Air Council had three alternatives :—

(1) To erect or hire buildings to store all serviceable machines, in the hopes that a market would be found for those not required by the Royal Air Force in peace.

(2) To break up the least valuable machines, sending the useful portions to the Disposal Board and selling the remaining material as scrap.

(3) To remove the instruments and engines, burn the machines and sell the metal remains as scrap.

3. The first alternative would have been very costly and the market for the older machines before they became unserviceable in store did not justify such a course. The third would have required less expenditure of labour, but the disposal authorities of the Ministry of Munitions considered that a market might be found for the salved parts, and the second alternative was, therefore, adopted by the Air Council.

4. The Air Council, in accordance with the policy they adopted, divided the machines into three classes :

(a) Standard machines for the Royal Air Force.

(b) Machines obsolete for use in the Royal Air Force in peace or war, but suitable for civil aviation.

(c) Machines obsolete for war purposes, and not suitable for civil flying.

5. On March 31st there were 15,700 machines of the first class; of these large numbers are surplus to the requirements of the Royal Air Force, and are available for sale. On the same date there were approximately 1,000 of the second class, also available for sale to the public. There were 3,600 of the third class still awaiting reduction to produce.

6. The disposal Board of the Ministry of Munitions are responsible for selling machines of class 1 and 2 not required by the Royal Air Force, but the Board have no large storage accommodation available, so that the machines for disposal usually remain in Royal Air Force storage until a market is found for them by the Board.

I am sending an officer to make sure that the policy of the Council is being efficiently carried out at Farnborough and Henlow, but I have no doubt that the policy adopted by the Air Council after the Armistice was sound, and involved the least possible cost to the State.

Lieut.-Col. MALONE : May I ask whether any attempt has been made to find a market for these machines in foreign countries and is he aware that some of these machines which have been destroyed are new machines straight from the manufacturers?

Major-Gen. SEELY : I deal with the question in the very long statement which I have read and I must apologise to the House for its length. The machines from which the engines are taken out and the rest disposed of by auction to the best bidder are machines which are not suitable for the Air Force and are not suitable for civilian flying. Some of these machines are quite new, but the science of flying progresses so quickly that many of them are now obsolete. It would be wrong to send our flying men in the Royal Air Force into the air on those machines and it would be equally wrong to release them for civilian flying. If we could have foreseen seven or eight or ten months what we know now we would not have made them, but that is inevitable.

Lieut.-Commdr. KENWORTHY : Have we come to the end of the obsolete machines, and what about the contracts.

Major-Gen. SEELY : We have practically come to the end of the obsolete machines. The question of the closing of the contracts is a matter for the Minister of Munitions and not the Air Force.

* * *

The following written answers were given on May 15th :—

ROYAL AIR FORCE—4, THURLOE PLACE, SOUTH KENSINGTON.

Major LANE-FOX asked the Under Secretary of State to the Air Ministry whether the block of buildings at 4, Thurloe Place, South Kensington, recently occupied by the Central Prisoners of War Committee, was offered for sale by tender in January last, and the tender of an Army officer, crippled in the War, was accepted on February 15th, 1919, under the authority of the Government; whether the building has since been commandeered by the Air Force; and if, in view of these facts, the premises can be released by his Department and handed over to the officer who has purchased them?

Major-Gen. SEELY : The answer to the first question is in the affirmative. When the offer to sell by tender was made it was expressly stated that the premises were at the time in occupation by the War Office under the Defence of the Realm Act. As my hon. and gallant friend is no doubt aware, tenure under these Acts may last up to a maximum period of five years after the duration of the War. At the time of the sale the premises were in occupation by the Central Prisoners of War organisation, and, when vacated by them, were taken over by the Royal Air Force by arrangement with his Majesty's Office of Works in order to release hotel property in accordance with the general policy of his Majesty's Government. Unless and until suitable accommodation at a less cost to the public can be made available, I am not prepared to take any action, and I see no ground on which the officer referred to by my hon. and gallant friend can claim to have a grievance.

TIMBER FOR AEROPLANES.

Mr. REMER asked the Secretary of State for War how many machines, manufactured and partly manufactured, had to be discarded owing to cypress being found an unsuitable wood for use on aeroplanes?

Major-Gen. SEELY : No machines had to be discarded for this reason, but the substitution of other woods involved the supply of about 900 main planes, 100 main spars, and fifty-five tail planes for machines on charges of the Royal Air Force. Substitutions were also required for machines in the hands of contractors, and particulars of these are being sought for in accordance with the undertaking given to my hon. Friend in answer to his previous question on the subject.

Mr. REMER asked the Secretary of State for War if he will give the names of his present advisers as to the most suitable woods necessary for use on aeroplanes; what were their pre-war occupations; and what practical experience of sawing and manufacturing timber they possess?

Major-Gen. SEELY : The Timber Committee of the Conjoint Board of Scientific Societies, in connection with the Royal Society, advises on the suitability of timber for aeroplanes. I will send my hon. friend a list of their names.

PARACHUTES.

Major PRESCOTT asked the Under Secretary of State to the Air Ministry whether his attention has been called to the verdict of death by misadventure returned by the coroner's jury at the inquest on Mr. Legh, who was recently killed in an aeroplane accident at Finchley; whether, in view of the fact that his life might have been spared had his machine been equipped with a parachute, he will so amend the Civil Air Regulations as to compel the provision of parachutes on aeroplanes used for civilian flying purposes; and whether there is any Regulation in force at the present time imposing a similar obligation in regard to Service aeroplanes as a safeguard for our airmen.

Major-Gen. SEELY : The answer to the first part of the question is in the affirmative. As regards the second and third parts, the provision of parachutes is, as I have previously stated, receiving the closest attention of the Air Ministry, but their development has not at present reached a stage in which compulsory universal provision would be either practicable or advantageous for military or civil aviation.

* * *

The following written answer was given on May 16th :—

ROYAL AIR FORCE—DEMOBILISED MAN'S ACCOUNT.

Mr. R. McNEILL asked the Under Secretary of State to the Air Ministry if he is aware that S. R. Williamson, No. 134984, Royal Air Force, who was demobilised on January 12th, 1919, has made five applications to the paymaster, the Royal Air Force, Woking, for a copy of his accounts, but has not yet succeeded in obtaining any reply except an acknowledgment, dated March 3rd, of the receipt of one of his letters; and that, although Williamson kept strict accounts while in the Service which show that at the date of his discharge he had a credit balance of £8 10s. 3d., he has been informed that there is a debit balance against him of £8 3s. 11d.; and if he will give instructions that Williamson shall be forthwith furnished with full details of his accounts to enable him to have the discrepancy investigated.

Major-Gen. SEELY : The matter is being investigated, and instructions have been issued for a complete statement of his account to be prepared and sent to S. R. Williamson

* * *

The following is from the "Times" newspaper, dated May 20th :—

MR. HAWKER'S FLIGHT.

On the motion for the adjournment, on May 19th,

Captain ELLIOT, in view of the great public interest in the matter, asked whether the Government had any information as to the progress of Mr. Hawker in his very gallant attempt to uphold the air supremacy of this country.

Colonel WILSON said he had taken steps to ascertain whether any information was available, and he was informed that the Government had none. He was sorry that he was not in a position to say that Mr. Hawker had arrived.

Captain ELLIOT expressed very deep disappointment with this reply. Speaking, as he thought he could to some extent, in the name of the people of this country, he wished to express the most unsparing condemnation of the Government for their action in this matter. He thought that the House, and he was sure that the country, would feel that the Government had been lamentably remiss and desperately careless of the honour of this country and of the life of a very gallant gentleman.

Mr. PRATT, Lord of the Treasury, said he could not allow the hon Member's remarks to go without a reply. He could not see in what way the hon. Member could hold the Government responsible. What the hon. Member had said would be brought to the attention of the Government at the earliest possible moment.

Captain WEDGWOOD BENN said that as the hon. gentlemen was on the Treasury Bench for the purpose of defending the Government, perhaps he would tell the House what action the Government took, whether by warnings issued or incitements offered, to get the trans-Atlantic race run. The hon. gentleman who raised the question had voiced the feeling of every one in this country of high admiration for the splendid spirit displayed by this gallant airman. Perhaps the hon. gentleman would explain what steps the Government took to assist in that enterprise

No reply was given



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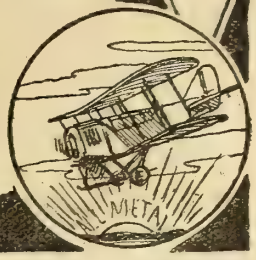
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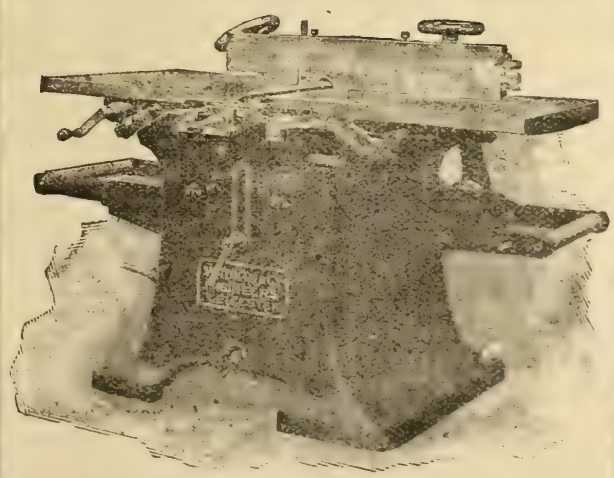
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AERONAUTICS and The LAW

A PILOT IN THE DOCK.

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"Air Heart."

The doctors, according to the papers, have contrived to create yet another disease of the nature of shell-shock. It is said to consist of a disturbance of the heart, either functional or organic, at the mere sight of an aeroplane. The patient suffers from faintness and similar symptoms of heart trouble and has usually been a spectator of a previous crash. A steep dive at the victim would intensify the symptoms and might even cause death. This announcement may be seasoned by the reader to suit his own liking, but it is of course undeniable that a sudden fright can cause illness and in some cases death.

"Putting the Gust up Them."

"Put them in fear," says the Psalmist, "that the heathen may know themselves to be but men." At the back of the aerial antics of the low-flying, crowd-diving, sensation-causing person miscalled a "stunt" pilot may lie the same proud motive; or the motive of being called a super-pilot by the heathen thus put in fear; but be the motive what it may, there is no moral justification for putting the King's lieges in peril or in fear without cause or excuse, whether they be "the Guards and such fellahs" who "use feet as propellers," or mere civilians taking the air, whether singly or in crowds.

In Terror of the Law.

But what concerns us in this column is not the righteous wrath of the victims, but the legal liability of the offender. What risk does a pilot run of being charged with murder or manslaughter who indulges in low stunting or even straightforward flying? Is he liable for frightening his passenger to death, or killing a spectator by terror?

Is he liable in damages in a civil court at the suit of the injured party or his dependents or representatives? What is his position with regard to sheep and other animals frightened by the passage of his craft? It is worth while to have some idea of what the law is on these and kindred subjects.

Culpable Homicide.

Homicide is the killing of one man by another. This simple fact being proved, the law starts with a presumption that the act of the person causing the death is murder; and unless the evidence given either for the prosecution or for the defence shows that the homicide was justifiable (as in war) or excusable (as in necessary self-defence), or that the absence of "malice," either express or implied, makes it manslaughter instead of murder, the homicide is murder.

The word "malice" in this sense is capable of being misunderstood. A man acts "maliciously" when he wilfully and without lawful excuse does that which he knows will injure another, even though he did it as a mere piece of mischief or so-called "practical joke"; further, he will be treated as knowing that his act will injure another if such injury is the natural consequence of the act.

For instance, a man with the intention of frightening the audience puts out the lights and blocks the exit of a theatre: in the panic which results someone is severely injured or killed, but not by the prisoner; his act is both "wilful" and "malicious"—not that he had any personal malice against the particular individual, but in the sense that he was doing an unlawful act calculated to injure and by which others were in fact injured. If the victim of the joke dies within a year and a day he is guilty of murder (R. v. Martin).

Death from Fright.

Take first the question of death from pure fright, the victim not being touched in any way; can his death be called the act of the person causing the fright? If so, it is homicide, and if it is culpable is either murder or manslaughter according as the fright was caused with or without "malice prepense." This question, strange to relate, seems still a moot point, not clearly decided one way or the other, in spite of the march of time since first it was mooted.

Doctors Disagree.

"If a man," says Lord Hale, "either by working upon the fancy of another, or possibly by harsh or unkind usage, puts another into such passion of grief or fear that the party either dies suddenly or contracts some disease whereof he dies, though, as the circumstances may be, this may be murder or manslaughter in the sight of God, yet, *in foro humano*, it cannot come under the judgment of felony because no external act of violence was offered whereof the common law can take notice, and secret things belong to God; and hence it was that before the statute of 1 Jac., cap. 12, witchcraft or fascination was not felony because it wanted a trial."

Great as is the authority of Lord Hale on the criminal law, his statement of it on this point has not passed unchallenged. Sir Fitzjames Stephen's comment has vigour and logic. "Lord Hale's reason" for this statement "is that secret things belong to God (i.e., I suppose because of the difficulty of proof). I suspect that the fear of encouraging prosecutions for witchcraft was the real reason of this rule. Dr. Wharton rationalises the rule thus: 'Death from nervous causes does not involve penal consequences.' This appears to me to substitute an arbitrary quasi-scientific rule for a bad rule founded on ignorance now dispelled.

"Suppose a man was intentionally killed by being kept awake till the nervous irritation of sleeplessness killed him, might not this be murder? Suppose a man kills a sick person intentionally by making a loud noise which wakes him when sleep gives him a chance of life; or suppose, knowing that a man has aneurism of the heart, his heir rushes into the room and roars in his ear 'Your wife is dead,' intending to kill, and killing him. Why are not these acts murder? They are no more 'secret things belonging to God' than the operation of arsenic.

"As to the fear that by admitting such acts are murder people might be rendered liable to prosecution by breaking the hearts of their fathers or wives by bad conduct, the answer is that such an event could never be proved. A long course of conduct gradually 'breaking a man's heart' could never be the direct and immediate cause of death. If it was, and if it was intended to have that effect, why should it not be murder?"

Died of a Broken Heart.

In a particularly atrocious case of a farmer striking his wife with a poker and turning her out of doors with circumstances of great aggravation (R. v. Murton), almost the last words the woman uttered were "The villain has broken my heart." The judge told the jury that if she died of a broken heart and from anguish at being turned out of her home it would not be a case of manslaughter, and human tribunals could take no cognizance of it as a criminal offence; "to constitute the crime of manslaughter there must have been some physical or corporal injury, negative or positive, as a blow or the deprivation of necessaries or the like." But this is *dictum*, not decision, since the jury found the farmer guilty of manslaughter by reason of his physical ill-usage of the wife.

Killing No Murder.

In his "Digest of Criminal Law" Stephen leaves the rule as Hale would have it, only qualified by an "it is said." "A person is not deemed to have committed homicide although his conduct may have caused death [it is said] when the death is caused without any definite bodily injury to the person killed." But Stephen's own opinion is reinforced by Russell on Crimes, who puts it this way: "It has been generally considered that there must be some actual corporal damage to the party. But on principle there seems no reason for holding that deliberate frightening to death is not at least manslaughter, and if a man does an act the probable consequence of which may be and eventually is death, such killing may be murder, although no blow is struck by himself and no killing may have been primarily intended."

An Indecisive Case.

The facts in Reg. v. Towers were that the accused came into a public-house rather intoxicated and on some quarrel with a young girl, who was nursing a baby of 4½ months, without touching the baby, pulled the girl's hair and made her scream. The screams so frightened the baby that it became black in the face and, later, had convulsions from the effects of which it died.

The accused was acquitted, and the only importance of the case arises from the ruling of the judge that the prisoner could be found guilty of manslaughter if the child would not have died but for the assault on the girl. "Murder," he told the jury, "cannot be committed upon a grown-up person by using language so strong or so violent as to cause that person to die. Therefore mere intimidation causing a person to die from fright by working upon his fancy is not murder," but owing to his express assumption for the purpose of his summing-up that "the law about working upon people by fright does not apply in the case of a child of such tender years as this," the judge's remarks on murder were nothing more than *dicta*.

Death from Nervous Causes.

It is therefore still a moot point, and uncertain, whether a verdict of "death from nervous causes" in the case of an ordinary adult killed by a fright maliciously or unlawfully given could be treated as a vedict of "guilty" on a charge of murder or manslaughter. Hence there is still a chance of acquittal for an air-hog who succeeds in just not touching a victim whom he frightens to death.

Fear is a Link in the Chain.

The problems which arise are quite different:—(A) If, though

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death results from nervous causes or fright, there is a definite bodily injury inflicted; or (B), if death results from a bodily injury, but fear forms a link in the chain of causation connecting the accused with the death. A few examples will make plain the point of these rather subtle distinctions.

ILLUSTRATIONS OF (A).

(1) A, knowing that B is suffering from disease of the heart and intending to kill B, gives B a slight push and thereby kills B. A commits murder.

(2) A, in the last illustration, pushes B unlawfully but without knowledge of his state of health or intention to kill him or do him grievous bodily harm. A commits manslaughter. If A laid his hand gently on B to attract his attention and by doing so startled and killed him, A's act would be no offence at all.

(3) A, knowing that B is suffering from disease of the heart and intending to kill B, stunts with B in the air and thereby kills B. *Semble* this is not an illustration of (A), but of "death from nervous causes," and it is doubtful if A commits murder or whether it is death by misadventure.

(4) A, in the last illustration, stunts B contrary to B's orders, but without knowledge of his state of health or intention to kill him or do him grievous bodily harm. The stunt results in a crash in which B is very slightly injured. B dies of shock. *Semble*, the stunt is a trespass against B, and A commits manslaughter. If the stunt was with B's permission, which it was lawful for B to give and A to act on, A's stunting would be no offence at all.

The first two illustrations are taken from Stephen's Digest, and though there is no authority for them they are doubtless good law. (3) and (4) are the Imp's inferences which have no weight in a court of law.

The proposition these four instances illustrate is that whenever a definite bodily injury is inflicted the wrongdoer may be guilty of culpable homicide, though the immediate cause of death is a nervous affection rather than the bodily injury. It therefore seems very far from logical not to treat as homicide a death caused by an identical affection of the nerves intentionally or unlawfully produced, but by other than bodily means—as by loss of sleep, bad news, or terror of aeroplanes.

ILLUSTRATIONS OF (B).

The second proposition—that death which results from bodily injury may be culpable homicide, although the connection of the accused with the death is traced through fear instead of violence—is illustrated (a) by cases where the actual injury is self-inflicted, and (b) by cases where it is inflicted by irresponsible agents such as animals or things.

SELF-INFLICTED INJURY.

In R. v. Evans the indictment charged that the prisoner killed his wife (1) by beating her, (2) by throwing her out of the window, (3) and (4), in effect, by so beating and threatening her that in terror she threw herself out of the window. The three judges were of opinion that if her death was occasioned partly by the blows and partly by the fall, yet if she was constrained by her husband's threats of further violence and from a well-grounded apprehension of his doing such further violence as would endanger her life, he was answerable for the consequences of the fall as much as if he had thrown her out of the window himself.

But the jury were of opinion that she threw herself out of the window from her own intemperance and not under the influence of the threats. In one of two precisely similar cases the Lord Chief Justice laid down that "if a man creates in another man's mind an immediate sense of danger which causes such person to try to escape and in so doing he injures himself, the person who creates such a state of mind is responsible for the injuries which result."

In the other case, R. v. Curley (1909), the prisoner said to a police officer, "I ran at her to hit her. I didn't quite touch her. Out she jumped," and Jelf, J., in the Court of Criminal Appeal, said "on that statement a verdict of murder might well have been returned, but it was mercifully reduced to one of manslaughter," and the conviction was confirmed.

Lord Coleridge, J., put this case: "If a person were standing at the edge of a cliff and another were to hold up his fist before him in a fighting manner, so that he fell over and was killed, it would be a case of manslaughter against that other," and on counsel submitting that it would not be so in law unless the prisoner knew the cliff was there, Channell, J., added: "In that case it might be murder."

In another summing-up a judge said: "A man may throw himself into a river in such circumstances as render it not a voluntary act, by reason of force applied either to the body or the mind. It becomes, then, the guilty act of him who compelled the deceased to take the step. But the apprehension must be of immediate violence and well grounded by the circumstances by which the deceased was surrounded, not that you must be satisfied that there was no other way of escape, but that it was such a step as a reasonable man might take."

The Imp knows a pilot who by way of finishing his first solo on a De H.6 bounced off another machine on the tarmac before landing more normally somewhere near the T. A mechanic was on some steps at the time filling the gravity tank of the other machine, and "from a well-grounded apprehension of immediate violence" he threw himself off the top plane and slightly injured his leg. Had the pilot not been a learner doing his best, but a malicious or criminally careless person playing the ass, he would have been liable for the injury, and if death had ensued would have been guilty of murder or manslaughter.

SUICIDE BY ARRANGEMENT.

In connection with self-inflicted injuries induced by fear, it is not irrelevant to point out that if anyone incites another person to commit suicide and such person does commit suicide, the one who incites is guilty of murder; and if two persons agree and attempt to commit suicide together, and one commits suicide and the other does not, the survivor is guilty of murder. So if a pilot and an observer were to agree to crash and die together, and the crash was so ill-judged that only one died of it, the other might carry out his part of the agreement by being hanged.

INJURY CAUSED BY STARTLED ANIMALS.

"If a man or boy in the street whip his horse to put him into speed," says Hale, "and run over a child and kill him, this is homicide and not *per infortunium*, and if he had rid so in a press of people with intent to do hurt and the horse had killed another it had been murder in the rider."

Again, "It is said," according to Hawkins, "that if a person happen to occasion the death of another inadvisedly doing any idle, wanton action which cannot but be attended with the manifest danger of some other, as by riding with a horse known to be used to kick among a multitude of people by which he means no more than to divert himself by putting them into a fright, he is guilty of murder." Hawkins gives this as an illustration of "such killing as happens in the execution of an unlawful action where no mischief was intended at all," but it seems (as Hale says) that the deliberate act ought to be to do hurt to somebody or else the killing will not be murder (R. v. Plummer).

A pilot who dived on a crowd for sport or to frighten the people, in the erroneous belief that he could avoid hurting any of them at all, would, according to Hawkins, be guilty of murdering any he killed, but according to Hale (which is the better opinion) probably only of manslaughter. Had he intended the least injury to anyone it would be murder, "though he knew not the party slain, for he had an ill-intent though that intent extended not to death."

To whip another's horse whereby he runs over a child and kills him is held to be accidental in the rider, for he has done nothing unlawful; but manslaughter in the person who whipped him, as Blackstone explains, "for the act was a trespass and at best a piece of idleness of inevitably dangerous consequence," and so it was adjudged in the case of R. v. Hickman.

On this analogy it would be culpable homicide to follow a hunt from the air and cause the death of a huntsman at the kill by diving on him for joy, thus causing his horse to throw him and bolt; and the same would be the case if cattle were similarly stampeded and trampled a child to death.

Hawkins, by the way, is extremely severe on anyone who would "go deliberately with a horse used to strike, or discharge a gun, among a multitude of people." He calls such a person "a wild beast and an enemy to mankind in general."

(To be continued.)

LOW FLYING.

The following is taken from the "Daily Express" of May 19th:—

A new and serious problem for cricketers has been created by the popularity of civilian flying.

At Lord's on Saturday, just when George Gunn and Lee, the Nottinghamshire batsmen, were nearing centuries, a giant Handley Page swept across the ground at a very low level, the roar of the engines completely disconcerting the players and causing a temporary stoppage of the game.

It was remarkable that Lee, who before had seemed firmly set, misplayed a ball a few overs later and was caught at the wicket. In the opinion of many spectators his downfall was due to the disturbing effect of the aeroplane.

On several occasions later during the afternoon other Handley Pages paid their unwelcome visits, the pilots evidently desiring to give their passengers close views of a Lord's cricket match from the air.

The umpires seemed no less disconcerted than the players. They could not very well order the aeroplanes off the field, for they were not actually on it, and even if they had the power they had no means of conveying warning messages to the aerial offenders.

Old cricket enthusiasts in the pavilion seats shook their heads and declared that the question of who owns the air over Lord's must be settled without delay.

Otherwise, when flying becomes still more popular, they foresaw such a series of alarming interruptions that serious cricket would become almost impossible.

AEROPLANE SALVAGE.

One of the most interesting of many well-meant attempts by Government Departments to save the money of the British taxpayer is that of the Salvage Department of the Air Group of the Ministry of Munitions—which Ministry apparently hopes some day to be a Ministry of Supply. Something has already been written of the work of the Aircraft Salvage Department offices in Kingsway. As a supplement to those notes one may now record that much salved material is being stored at the demobilised National Aircraft Factory at Whaddon, near Croydon.

Considered as a store the place is excellent. Captain Sperling, who is in command, has unusual organising powers, and combines with them very considerable ingenuity, as is proved by the clever mechanical arrangement of the aeroplanes and engines sent to Whaddon for storage. At any rate, the taxpayer's money will not be wasted through bad storage, bad handling, or bad arrangement of the aeroplanes, engines, and parts in his care.

Whether the place is ever likely to pay for its upkeep as a business proposition is a matter on which one would not care to express an opinion. It seems to depend entirely on whether there is a real market for the goods in store. Perhaps the position is best described in a letter from one who visited the store lately. The letter reads thus :—

"One presumes that the Salvage Stores at Whaddon were intended to save that most sacred and all-important Government deity, the Public Money. Which is a pity, because, as such at any rate, as far as one can see, they cannot succeed in their purpose. Not that that is the fault of Captain Sperling and his various assistants, for their work is carried on in a most exemplary manner.

"All the mess that comes along (which seems to be really mess, for the most part) is dumped in one of six hangars or a large workshop. The hangars are presumably to be moved some day, or devoted to other purposes, but the shop is a fixture, being somewhat too large and of too solid a nature to fold up and go into one's waistcoat pocket, and is to contain aeroplanes —minus the engines—stacked in the most harmless (to the machines) and economical manner possible. Various experiments in methods of storing the machines have been carried out, and from them wonderful calculations as to cubic space occupied have been made, so it seems probable that the best method has been discovered.

"At the present there are some D.H.9s (Airco 9s if preferred), S.E.5s, and Avros stored. They look very beautiful and orderly, and it is possible to get at any one of them without carting out all the other stock. In fact, any desired machine can be extracted by moving three others. There are, in addition to the afore-mentioned three types of machines, some Ack-Ws, D.H.9as, and Bristol fighters; also a couple of Handley Pages, remnants of the days when those animals used to be assembled there.

"Besides aeroplanes there are all manner of breeds and types of engines, all of which apparently go on a standard pattern support made out of otherwise useless material, such as scrapped wing-spars. In time the engines are all to be classified, cleaned, and stored, complete with pedigree and tale of wants and deficiencies. At present this has not gone very far.

"The Salvage Stores likewise keep the little bits of mess. These are all put into drawers (if small enough, otherwise they are stored in some other way) and can be found easily. What is absolutely useless is converted into raw material, and is to be sold as such.

"And every week a list of everything with which the place has dealt is furnished to Headquarters. So one can't criticise the methods employed—unfortunately (!).

"The principle, however, as a money-making affair seems unsound. There is likely to be a market for the domesticated and tamed aeroplane accessories, such as cushions, garden chairs, and tanks (not the walking type). Also there is likely to be a market for the raw material. And there may be a market for some of the tamer aeroplanes and some of the better aero-engines. And possibly, if they wait long enough, and the place is not burnt down by Bolshevists as a home of capital and authority, quite a large one for the spare parts.

"But there will be an awful lot that will just have to sit there till it rots, for one would not imagine that such machines as those of the daylight bomber type would become popular with the amateur who is in the habit of making forced landings. Neither would one imagine that many of the types of engines would become popular with anybody on the ground or above it. And it seems as if the price obtained for what is sold would fall some considerable distance short of the sums spent in wages.

"If, however, one might consider it as a kind of national charitable institute for disabled soldiers—which it really is, for it gives them a little work and much reward for it—the Salvage Depot at Whaddon would be a most praiseworthy and altogether admirable enterprise.

"That, however, would be against all the principles of a fatherly Government which saves its sons' money for itself and the use of its members. Besides, who ever heard of a British Government that rewarded men who fought for it and happened to be so foolish as to incapacitate themselves in so doing? The principle of doing so would be wrong, and would encourage recklessness.

"So the Salvage Stores had better be left as an example of Government operation which is very much less wrong in management than most."

Such is the view of one who is no respecter of Governments—at any rate of the modern kind. Naturally the store is not a money-making concern, but it is an earnest of effort to turn goods for which the nation has paid x millions of pounds into at any rate x thousands of pounds instead of x hundreds of pence. That is to say, by skilful storing and handling, an aeroplane which costs, say, £4,000 may be sold for a few hundreds of pounds, instead of being "reduced to produce" and sold as scrap metal and firewood for a few shillings.

Meantime the work of the stores is chiefly being done by disabled soldiers, many of them minus a leg or both legs. The worst cases are employed in sorting out the small parts of dissembled aeroplanes. The more able-bodied handle the machines and bigger parts. Some of them have done good work in building the standard-type engine racks out of sawed-off spars of condemned wings.

Apropos which it is of interest to note that the loyal and grateful woodworkers of the district have been threatening to strike because the smashed-up soldiers who are using saws, chisels, hammers, and screwdrivers are being taught to become "skilled men" within the Trade Union acceptance of the term. Apparently the good Trade Unionists are afraid lest these poor disabled lads shall be able to earn a living by hard work, and so oust from their position the trench-dodging slackers who stayed at home and drew big wages while the others lived perilously and fought gallantly to protect this country from invasion. It is on such occasions that one feels sorry that the Huns did not win the war. They, at any rate, would be no respecters of Trade Unions in a conquered country.

In any case, there is the store, and by it is an excellent aerodrome, so that the buyer of an aeroplane may test his mount before taking it away. These Stores are doing their best to salve some of the usable material, for the sake of the taxpayer's pocket, and for that one must be duly thankful.

AN AIRCRAFT SERVICE

On Saturday General Sir W. S. Brancker flew to Harrogate to meet the Mayor of Harrogate to discuss the question of the Aircraft Transport and Travel, Ltd., establishing an aerial service between London and Harrogate

General Brancker, who was piloted by Major Patteson, left Hendon in a three-seater Airco 9 at 9.45 a.m., arrived at Doncaster at 11.15 a.m., and took a further half-hour to reach Harrogate. The return trip, starting at 5.15 p.m., was made in 2 hours 10 minutes, thus enabling a further appointment to be kept in the evening.

It is interesting to note that had this trip been carried out by train, it would not have been possible to have got back to London before Sunday morning, and this would have involved travelling all night.

It is also interesting to note that this was the first machine to land at the Doncaster Aerodrome and make use of the facilities afforded by the R.A.F. there for commercial purposes.

EASTBOURNE ARRANGEMENTS

The Eastbourne Aviation Co., Ltd., have fixed up flying contracts at Eastbourne, Bexhill and Worthing, and other seaside resorts will be added to the list shortly. Seaplanes of the 184 Short and Avro types will be used for the work, which is expected to start about the middle of next week.

Major F. B. Fowler (late R.A.F.), who is Managing Director of the Eastbourne Aviation Company, is one of the pioneers of British aviation, and it is certain that any concern which is run under his management will be conducted on the safest and most satisfactory lines.

A GOSPORT TEST

The first "F.5" type flying boat with a span of 105 ft., fitted with two 350-h.p. Eagle Rolls-Royce, and built complete by the Gosport Aircraft Company, was successfully launched on Friday afternoon, 16th inst., and towed from the erecting sheds at Northam down the river to Southampton Water.

After a preliminary taxi round to warm up the engines, she got off with a short run of only about 60 yards, with a load of 190 gallons of petrol and a crew of five, including Mr. Charles Nicholson, a director, and Mr. M. H. Volk, engineer and general manager to the firm.

After carrying out in a most satisfactory manner the official test flight of about 35 minutes' duration, the passengers were disembarked and the machine was delivered by air to an East Coast air station the same evening.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

AIR MINISTRY, May 13th.

R.A.F.—The following temp. appointments are made:—Staff Officer, 2nd Cl.—(Q) Capt. C. A. Shaw, D.S.O., relinquishes the actg. rank of Lt.-Col., and to be actg. Maj. (from March 15th to April 30th), vice Lt. (Hon. Capt.) G. W. Frost

Staff Officer, 4th Cl.—(Air) Sec. Lt. T. J. Q. O'Hara, May 7th.

FLYING BRANCH.—Capt. (actg. Maj.) T. F. Hazel, D.S.O., M.C., D.F.C., to be Capt. (A.), and relinquishes the actg. rank of Maj., April 2nd.

Sec. Lt. M. G. Stewart (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (O.), April 23rd, 1918.

Sec. Lt. F. G. Gage (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (A.), July 15th, 1918.

P.F.O. H. L. Buckley (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (A. and S.), Oct. 12th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. J. H. Lowry, Oct. 7th, 1918; Lt. A. L. Stover (Lt., Manitoba R.), Dec. 13th, 1918; Lt. N. R. D. Henderson (Lt., Manitoba R.), Jan. 26th; Lt. (Hon. Capt.) W. D. Spero, Feb. 3rd; Lt. (actg. Capt.) J. A. Adam (Lt., B. Col. R.), Feb. 6th; Sec. Lt. (Hon. Lt.) C. T. Mee (Lt., Can. F. Art.), Feb. 11th; Sec. Lt. (Hon. Lt.) A. R. Beveridge (Lt., C. Ont. R.), March 15th; Lt. A. N. Jenks (Lt., Quebec R.), Lt. E. A. Plamondon (Lt., W. Ont. R.), March 17th; Lt. (Hon. Capt.) B. B. Bishop (Capt., Can. A.S.C.), Lt. F. L. Barclay (Cent. Ont. R.), March 18th; Sec. Lt. (Hon. Lt.) G. A. F. Riley (Lt., E. Ont. R.), Sec. Lt. J. P. Mackenzie (Lt., R. Regt. Art.), March 24th; Lt. R. F. Given (Lt., C. Ont. R.), Lt. H. C. McKinney (Lt., Quebec R.), Capt. V. E. Schweitzer (Capt., Manitoba R.), March 31st; Capt. G. R. L. Snow (Lt., R.N.), April 4th; Sec. Lt. (Hon. Lt.) C. E. Rattee (Lt., N. Brunswick R.), April 9th; Lt. C. A. Chisnall (Lt., Alberta R.), April 13th; Lt. R. M. Roberts (Lt., B. Col. R.), April 16th; Sec. Lt. (Hon. Lt.) L. R. McKenna (Lt., E. Ont. R.), April 25th.

Transferred to unempld. list:—Lt. G. Walker, Feb. 1st; Sec. Lt. J. Woods, Feb. 2nd; Sec. Lt. L. Eteson, Feb. 5th; Lt. G. E. W. Stevens, M.C. (E. Kent R., T.F.), Feb. 12th; Sec. Lt. A. Makins, Feb. 13th; Sec. Lt. E. C. Parkinson, Feb. 14th; Lt. J. G. H. De Roper, Feb. 17th; Lt. J. Davidson, Feb. 21st; Lt. G. B. Beatty, Feb. 28th; Lt. L. G. Legge-Wilkinson, Sec. Lt. A. L. Spracklin, March 1st; Sec. Lt. D. Macrae, March 5th; Lt. F. W. Pickup, D.F.C., March 8th; Lt. L. O. G. Whitefield, March 9th; Sec. Lt. G. Grainger, March 13th; Sec. Lt. G. K. Berry, March 15th; Lt. E. L. Wilson, March 25th; Sec. Lt. (Hon. Lt.) J. H. Partridge, Lt. R. I. Whiteley, March 26th; Lt. W. M. Phillips, March 27th; Lt. D. N. Reid (High. L.I.), March 28th; Sec. Lt. U. P. Perring, March 31st; Sec. Lt. A. G. Middleton, April 1st; Capt. F. J. Morse, April 2nd; Lt. R. S. Park, April 3rd; Lt. F. B. Pelly, Lt. (Hon. Capt.) (actg. Capt.) C. T. Philcox, D.F.C., April 4th; Lt. E. B. Hamel, Sec. Lt. T. W. H. Pearce, April 5th; Sec. Lt. J. C. Dalton, Lt. P. W. King, Capt. D. H. Robertson, A.F.C., April 6th; Sec. Lt. F. G. Miller, Sec. Lt. W. A. Peters, Lt. (Hon. Capt.) (actg. Capt.) W. Petre, April 7th; Lt. A. G. Fisher, Sec. Lt. F. J. Frape, Capt. (actg. Maj.) G. D. Gardner, M.C., Sec. Lt. H. A. Pank, Sec. Lt. H. Parsons, Sec. Lt. E. H. Peet, April 8th; Lt. W. E. Capley, Lt. G. J. Fowler, Lt. H. J. Griffiths, Sec. Lt. (Hon. Lt.) R. J. McNab, Sec. Lt. J. Pamplin, Lt. A. L. Pemberton, Lt. (actg. Capt.) W. S. Philcox, Sec. Lt. C. C. S. Preston, Lt. A. G. Taylor, Sec. Lt. W. R. Usher, Lt. W. Woodstock, April 9th; Sec. Lt. L. F. Cubitt, Sec. Lt. G. E. Davies, Sec. Lt. N. B. Harris, Sec. Lt. F. U. Hargreaves, Sec. Lt. N. F. Moxon, Lt. H. R. Owen, Sec. Lt. H. L. Page, Sec. Lt. A. Parsons, Sec. Lt. E. R. H. Pretlove, Sec. Lt. J. E. Pritchard, Sec. Lt. H. Pullan, D.F.C., April 10th; Sec. Lt. G. M. Fossick, Sec. Lt. E. H. De Heanme, Sec. Lt. R. McI. Gordon, D.F.C., Lt. L. W. Lowen, Sec. Lt. A. J. C. Overal, Lt. W. R. Patey, D.F.C., Lt. L. Patterson, M.C., Lt. T. F. Pilcher, Lt. J. N. Rutter, April 11th; Lt. J. T. Cameron, Sec. Lt. C. H. H. Cook, April 12th; Sec. Lt. T. L. Calvert, Sec. Lt. A. F. Head, Lt. C. E. Lacoste, Sec. Lt. A. M. McKay, Capt. C. E. Maslin, Sec. Lt. W. R. Mawhinney, Lt. M. Muller, Sec. Lt. R. H. Paterson, Sec. Lt. H. W. Pepper, Sec. Lt. E. G. Peter, Lt. (actg. Capt.) J. Phillips, Lt. V. G. H. Phillips, Lt. M. H. Press, Sec. Lt. J. A. G. Smith, Lt. W. Steer, Lt. T. F. Steele (Arg. and Suth'd Highrs.), April 13th; Lt. E. J. N. Brown, Lt. J. C. Clark, Sec. Lt. R. J. Glen, Lt. J. M. McClintock, Sec. Lt. G. A. May, Lt. A. T. Partridge, Capt. R. M. Plummer, Lt. J. M. Todd, D.F.C., April 14th; Sec. Lt. R. J. Bunning, Sec. Lt. J. P. Coleman, Lt. C. S. Frowd, Sec. Lt. R. Foy, Sec. Lt. J. Gerrard, Lt. O. S. Neill, Sec. Lt. (Hon. Lt.) J. S. Oliphant, Sec. Lt. G. E. Page, Lt. B. H. Parham, Sec. Lt. W. J. Parker, Lt. N. E. Parkes, Sec. Lt. A. Patchett, Sec. Lt. L. B. Patterson, Capt. B. A. Peck, Sec. Lt. L. R. Pedlow, Sec. Lt. C. B. Percy, Sec. Lt. C. T. Perrins, M.C., Lt. J. A. Pugh, Sec. Lt. T. W. Sleigh, Lt. F. E. Wyett, April 15th; Sec. Lt. C. H. Bizzell, Lt. B. Brewer, Sec. Lt. A. E. Chadwick (Durh. L.I.), Sec. Lt. G. Campbell, Maj. C. S. Duffus, O.B.E., M.C., Sec. Lt. W. A. Owens, D.F.C., Sec. Lt. L. A. R. Stedeford, Lt. E. E. Stammers, Capt. R. L. Truelove, Sec. Lt. C. Workman, Capt. F. W. Walker, D.S.C., A.F.C., Sec. Lt. H. A. Wessels, April 16th; Lt. A. R. Anthony, Lt. S. A. Bond, Sec. Lt. J. Boughey, Lt. F. Daltrey, Sec. Lt. E. T. Gregory, Sec. Lt. J. H. Guest, Sec. Lt. A. G. Palin, Lt. F. L. Pascoe, Lt. (actg. Capt.) E. F. Peacock, M.C., Capt. L. V. Pearkes, Captain A. C. Teesdale, April 17th; Captain P. E. Beasley, Sec. Lt. A. G. Cunningham, Sec. Lt. F. Coutts, Sec. Lt. N. E. Mustoe, Capt. I. P. R. Napier, M.C., Lt. S. McC. Peterkin, Lt. K. F. Piper, Sec. Lt. G. Todd, Sec. Lt. F. H. Turrell, April 18th; Sec. Lt. V. P. Donald, Sec. Lt. R. C. Love, Sec. Lt. A. H. Partner, Sec. Lt. W. A. Sabine, (Notts and Derby R.), Lt. J. B. Young, April 19th; Sec. Lt. (Hon. Lt.) G. J. Brown (K.O.S.B., T.F.), Sec. Lt. (Hon. Lt.) F. T. Howell, Sec. Lt. J. L. McI. Oliphant, Sec. Lt. J. Pender, Sec. Lt. G. F. Petch, Lt. F. R. Presland, Sec. Lt. J. Pritchard, April 20th; Sec. Lt. (Hon. Lt.) P. M. Ashton, Maj. (actg. Lt.-Col.) W. S. Douglas, M.C., D.F.C. (R.F.A.), Sec. Lt. H. C. Glassford (substituted for notification in "Gazette," April 29th), Lt. E. T. Maitland, Sec. Lt. C. H. B. Price, Sec. Lt. N. J. Spencer, Sec. Lt. T. Stewart, Sec. Lt. A. D. Watson, Sec. Lt. J. F. Wilby, April 21st; Sec. Lt. (Hon. Lt.) G. M. Ashmore, Sec. Lt. H. J. Challis, Lt. P. O. Davies, Sec. Lt. O. S. Evans, Sec. Lt. S. M. Farrell, Capt. R. W. Greenwood, Sec. Lt. S. Hammersley, Sec. Lt. H. H. R. Hanford, Sec. Lt. R. Mumford, Lt. A. V. Roger, Lt. L. A. Wykes, April 22nd; Sec. Lt. C. A. Atkins, Lt. D. H. Bridger, Sec. Lt. H. J. Clements, Lt. C. V. Clayton, Sec. Lt. B. Garrett, Sec. Lt. L. E. Gosden, Sec. Lt. E. E. Baskcombe-Harrison, Lt. D. H. Morris, Lt. J. S. Nicoll, Sec. Lt. R. W. Sinclair, Lt. (Hon. Capt.) G. W. Salt, Lt. G. E. Tennant (Yorks Hus., T.F.), Sec. Lt. A. C. Trowse, R.F.A., Lt. E. McL. Watson, April 2nd; Sec. Lt. C. F. Abbott, Lt. A. J. Bateman, Capt. (actg. Maj.) E. N. Clifton, Sec. Lt. T. H. A. Christie, Lt. F. B. G. Castleman, Sec. Lt. E. Dodgson, Sec. Lt. W. B. Esplen, Sec. Lt. J. R. Ferguson, Sec. Lt. J. C. Fairbairn, Lt. C. R. Gooding, Lt. W. C. Goudie, Sec. Lt. G. W. Green, Sec. Lt. G. C. Gage, Sec. Lt. F. McE. Gorman, Lt. G. F. Hyams, D.F.C., Sec. Lt. W. G. McGregor, Sec. Lt. J. M. May, Sec. Lt. N. W. McLellan, Capt. L. M. Martin-Jones, Sec. Lt. E. Mulcair, Lt. J. B. Mulvey, Lt. E. C. Potter, Sec. Lt. F. I. P. Pearce, Sec. Lt. M. N. Pegg, Sec. Lt. F. A. Fringle, Sec. Lt. H. B. Roy, Sec. Lt. J. W. Shand, Lt. H. McD. Sinclair, Lt. E. R. Tundell, Lt. F. E. Vipond, Sec. Lt. C. S. Wolton, Sec. Lt. P. H. B. Wood, April 24th; Sec. Lt. S. L. G. Beaufoy, Lt. D. A. Buchanan, Sec. Lt. C. F. Currington, Capt. J. F. Chisholm, D.S.C., D.F.C., Sec. Lt. J. R. Chisman, Lt. K. C. Cleaver, Sec. Lt. F. H. Cooper, Lt. C. R. Duggan, Sec. Lt. W. Mills, Sec. Lt. W. C. Nelson, Lt. H. Oldham, D.F.C., Sec. Lt. W. F. H. Parish, Lt. G. W. McA. Paterson, Lt. C. J. Pell, Capt. P. Pralie, Sec. Lt. J. H. Spracklin, Capt. W. H. Strettall-Miller, April 25th; Sec. Lt. D. A. Allan, Sec. Lt. R. M. Alston, Lt. F. R. Allen, Lt. P. K. Chapman, Sec. Lt. E. C. Coombes, Lt. (actg. Capt.) H. R. W. Ellison, D.F.C., Lt. H. R. Gates, Sec. Lt. C. R. Gains, Lt. M. G. Hallowes, Capt. N. C. Harrison, Sec. Lt. R. R. Hodges, Lt. C. H. Rice (Oxf. and Bucks), Sec. Lt. J. F. A. Segner, Sec. Lt. J. S. Swales, Sec. Lt. A. E. R. Trotman, Lt. A. Wedge, April 26th; Sec. Lt. H. C. Comben, Sec. Lt. G. Goodall, Lt. J. C. McCormick, Lt. P. R. Moore, Sec. Lt. R. A. Nicholas, Sec. Lt. P. S. Primrose, Sec. Lt. G. P. Smith, Lt. (actg. Capt.) L. R. Shoebottom, D.F.C., Sec. Lt. E. H. Sparshott, April 27th; Capt. P. E. Bayley, Sec. Lt. W. Blackburn, Sec. Lt. A. Dix, Sec. Lt. F. A. S. Fletcher, Sec. Lt. L. C. Le Maitre, Sec. Lt. F. E. A. MacDonnell, Sec. Lt. H. Mason, Sec. Lt. R. Niven, Lt. F. Planche-Hearn, Lt. E. A. Sawyer, Sec. Lt. W. N. V. Someren, April 28th; Lt. S. Adams, Sec. Lt. W. K. Buchan, Lt. R. Buchanan, Lt. A. H. Carman, Sec. Lt. C. S. Clarke, Sec. Lt. V. A. Cresner, Capt. R. E. A. Dash, Sec. Lt. T. A. Davidson, Lt. C. S. Devereux, Sec. Lt. H. W. Diss, Sec. Lt. G. G. Matthews, Lt. H. R. Milton, Lt. (actg. Capt.) J. D. D. Northwood, Lt. H. Nuttall, Capt. (actg. Maj.) A. H. Peck, D.S.O., Lt. W. E. Pepper, Sec. Lt. H. W. Phillips, Lt. (actg. Capt.) H. J. Pratt, Lt. H. C. Ridler (Lond. Yeo., T.F.), Lt. W. H. Relett, Sec. Lt. J. D. Sinclair, April 29th; Capt. T. P. M. Alexander, Sec. Lt. (Hon. Lt.) S. G. A. Brook, Lt. H. P. Blake, Lt. J. M. Bevan, Sec. Lt. T. W. Blaxter, Capt. (actg. Maj.) C. J. W. Crichton, Sec. Lt. H. O. Cuffe, Sec. Lt. C. W. Daggett, Sec. Lt. G. R. A. Dick, Sec. Lt. W. J. Diment, Lt. W. L. McIlwraith, Sec. Lt. (actg. Capt.) H. D. McLaren, D.F.C., Sec. Lt. J. R. Moorhouse, Sec. Lt. V. H. C. Pennell, Lt. H. M. Strachan, Sec. Lt. V. C. Varcoe, Sec. Lt. D. A. W. Weeks, April 30th; Lt. (actg. Capt.) L. B. Blaxland, Capt. A. T. Barker, D.F.C., Sec. Lt. L. G. Cole, Lt. T. E. Duffy, Sec. Lt. N. P. Field, Sec. Lt. B. E. Harmer, Lt. A. W. Martin, Lt. (actg. Capt.) W. H. Muirhead, Sec. Lt. J. St. G. B. Nolan, Sec. Lt. J. C. Paler, Lt. A. Perren, Sec. Lt. F. H. Pidgeon, Lt. T. Shepard, Capt. O. H. Weekes, Sec. Lt. I. A. Wright, May 1st; Sec. Lt. A. E. Alderslade, Sec. Lt. G. L. Barrett, Lt. R. Bellamy, Sec. Lt. E. Coult, Sec. Lt. (Hon. Lt.) C. R. Cook, Lt. J. J. Cox, Lt. G. D. Crowther, Lt. F. A. D. Gauntlett, Sec. Lt. W. J. Guppy, Sec. Lt. F. L. McHenry, Sec. Lt. J. H. Matthews, Lt. W. B. Mattinson, Lt. S. E. Meering, Sec. Lt. C. E. Merrett, Lt. C. E. Neath, Sec. Lt. M. Nicol, Sec. Lt. W. Mylam, Lt. F. N. R. Price, Sec. Lt. W. T. Richards, Capt. W. R. Winterbottom, May 2nd; Lt. F. T. Courtney, Lt. (actg. Capt.) P. Carpenter, D.S.O., M.C., May 3rd; Lt. C. E. Mott, Lt. D. B. Wooley, May 4th; Maj. B. C. Bell, D.S.O., D.S.C., Maj. V. D. Bell, O.B.E., May 6th; Sec. Lt. W. A. Allen, Sec. Lt. W. I. Boddy, Sec. Lt. O. H. Bertrand, Sec. Lt. O. H. Campbell, Sec. Lt. S. W. Gee, Lt. D. K. Glen, Sec. Lt. E. L. Millen, Sec. Lt. H. C. Mitchell, Sec. Lt. D. A. Morrow, Sec. Lt. J. A. Simmers, Sec. Lt. H. Wearne, May 8th; Lt. H. V. Barker, Sec. Lt. F. D. Cowan, Sec. Lt. F. W. Chambers, Sec. Lt. P. W. Ford, Sec. Lt. A. S. Farquhar, May 9th; Lt. F. A. Pumphrey, Sec. Lt. M. D. McTaggart, May 10th; Sec. Lt. J. F. Cavanagh, Sec. Lt. F. C. Shirtcliffe, May 12th; Lt. J. W. D. Melhuish, M.C. (Worc. R.), May 13th.

The following Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank:—E. F. Driver, April 1st, 1918 (substituted for notification in "Gazette," Jan. 7th); J. St. G. George (N. Staff. R.), May 3rd.

Lt. H. L. Yates resigns his commn., May 14th.

Sec. Lt. L. F. Chisenhall relinquishes his commn. on account of ill-health contracted on active service and is permitted to retain his rank, April 25th.

Sec. Lt. H. A. Bradshaw to take rank and prec. as if his appointment as Sec. Lt. bore date March 7th.

The initials and rank of Sec. Lt. F. H. J. Bull are as now described and not Lt. F. J. A. Bull as stated in "Gazette," Feb. 28th.

The notification in "Gazette," March 28th, concerning Sec. Lt. H. H. R. Hanford is cancelled.

The notification in "Gazette," April 4th, concerning Sec. Lt. N. V. Scott is cancelled.

ADMINISTRATIVE BRANCH.—Lt. (actg. Capt.) C. G. Darwin, M.C. (R.E.) is granted a temp. commn. as Lt., and to be actg. Capt. while so empld., May 22nd, 1918

Lts. (A.) to be Lts.:—T. H. Butler, April 1st, 1918 (substituted for notification concerning this officer which appeared in "Gazette," Feb. 21st; R. N. Swann, April 24th; C. J. Gillan, April 26th.

H. J. W. Fletcher (Lt., Northants R.) is granted a temp. commn. as Lt., Oct. 4th, 1918, seny. from April 1st, 1918.

Lt. J. A. Stedman (R.F.A., T.F.) is granted a temp. commn. as Lt., Oct. 28th, 1918 (substituted for notification concerning this officer which appeared in "Gazette," Jan. 7th).

Sec. Lts. to be Sec. Lts. from (A.):—H. West, Dec. 7th, 1918 (substituted for notification in "Gazette," Feb 14th); H. E. Barry, S. D. Connolly, N. F. Hoxie, F. H. Lane, W. P. Taltavall, April 17th; H. V. A. Salter, April 26th.

Sec. Lt. H. Castle-Mason to be Sec. Lt., from (A. and S.), April 17th.

Sec. Lts. to be Sec. Lts., from (O.):—G. F. Sharp, Nov. 22nd, 1918 (substituted for notification in "Gazette," Feb. 4th); E. C. Richards, April 17th; W. Robinson, April 28th; H. Cahill, April 29th.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. E. B. Sprowson, July 13th, 1918; Lt. S. H. H. Heaver (Ches. R.), Feb. 10th.

Transferred to unempld. list :—Capt. (actg. Maj.) C. H. Biddulph Pinchard, March 1st; Sec. Lt. G. H. Lilley, March 5th; Sec. Lt R. N. Playford, Sec. Lt. E. A. Scanes, March 30th; Lt. M. Weinberg, March 31st; Lt. F. Pascoe, April 3rd; Lt. C. E. Worthington, April 9th; Sec. Lt. E. Edwards (W. Yorks R.), April 12th; Lt. F. C. Rider, April 13th; Sec. Lt. W. C. Osborn, Sec. Lt. R. Wallace, April 14th; Sec. Lt. H. C. Chaplin, Sec. Lt. R. H. McLean, Sec. Lt. H. S. Mullen, Sec. Lt. (actg. Capt.) W. H. Nankivell, Lt. R. T. Penn, April 15th; Lt. (Hon. Capt.) J. F. C. Bennett, Sec. Lt. E. W. Deane, Sec. Lt. W. L. Evelcigh, Sec. Lt. A. F. Perkins, April 16th; Sec. Lt. F. W. P. Clark, Lt. F. Neall, Sec. Lt. T. R. Price, April 17th; Sec. Lt. T. F. Bunce, April 19th; Sec. Lt. F. Warham, April 22nd; Capt. S. C. Godfrey, M.C., Sec. Lt. V. H. Nunn, Lt. F. Wilkinson, April 23rd; Maj. R. C. Burton, Sec. Lt. W. H. Hadfield, Lt. J. C. L. Mercer, Sec. Lt. F. G. Norman, Lt. J. L. Garren, Lt. B. R. Perry, April 24th; Capt. W. R. Corfield, M.C., Lt. (Hon. Capt.) F. Dickinson, Sec. Lt. R. M. Doyle, Lt. L. W. Williams, D.S.O., April 25th; Sec. Lt. H. Chambers, Capt. R. E. H. Daniel, April 28th; Sec. Lt. J. Muir, Sec. Lt. V. D. Phillips, Lt. H. W. Piper, Lt. J. E. Price, April 29th; Sec. Lt. O. F. Bendall, Sec. Lt. W. D. Farrer, Sec. Lt. (Hon. Lt.) (actg. Capt.) R. J. R. Farrow, Sec. Lt. L. H. Pallister, April 30th; Lt. (actg. Capt.) L. E. Beales, Lt. (Hon. Capt.) J. W. Cook, Sec. Lt. W. H. Gardner, Sec. Lt. F. N. McDowell, Lt. (Hon. Capt.) F. F. McKenna, Maj. H. A. R. Norton, May 1st; Capt. R. Oxspring, M.C. (Yorks L.I.), Sec. Lt. H. A. Bartlett, May 2nd.

Sec. Lt. S. R. S. Burnett relinquishes his commn. on account of ill-health and retains his rank, May 6th (substituted for notification in "Gazette," Feb. 19th).

The surname of T. W. B. Hill is as now described and not T. W. B. Mill as stated in "Gazette," Feb. 4th.

The Christian name of Wilfred Bolt is as now described and not as stated in "Gazette," Jan. 31st.

The name of Sec. Lt. E. J. Syer is as now described and not as stated in "Gazette," March 25th.

The notification concerning Sec Lt W Pollock which appeared in "Gazette," Feb. 11th, is cancelled.

The notification in "Gazette," April 18th, concerning Sec. Lt. G. Jacob is cancelled.

The notification in "Gazette," May 2nd, concerning Lt H. B. Turner is cancelled.

TECHNICAL BRANCH.—Capt. (actg. Maj.) W. B. Cushion to be Maj., Grade (B), from (AD), May 6th, 1918.

W. J. F. Dutson (actg. Lt., R.N.V.R.) is granted a temp. commn. as Capt., April 1st, 1918 (since demobilised).

Lt. H. K. Gibson to be Lt. (Grade B), from (ND), Feb. 20th.

Sec. Lt. J. F. Groom to be Sec. Lt., Grade (A), from (AD), March 7th.

Sec. Lts. to be Sec. Lts., Grade (B), from (AD) :—D. Morton, Feb. 19th; J. H. Payne, Feb. 21st.

Lt. (Hon. Maj.) C. G. C. Hamilton, M.P. (Maj., Lon. R., T.F.), relinquishes his commn on ceasing to be empld., Jan. 31st.

Transferred to unempld. list :—Capt. W. Pollock, Jan. 25th; Sec. Lt. G. A. H. Wootton, March 24th; Maj. R. J. P. Briggs, Lt. J. S. Sutherland, March 31st; Lt. (actg. Capt.) D. R. Pye, April 1st; Lt. D. J. Parry, April 2nd; Sec. Lt. C. A. Pierpoint, Sec. Lt. J. Sewell, Capt. (actg. Maj.) R. V. Wynn, April 3rd; Lt. (actg. Capt.) A. S. F. Morris, Lt. D. S. Parsons, April 5th; Lt. P. Page, April 9th; Sec. Lt. L. H. S. Hardy, Capt. (actg. Maj.) F. E. Pike, April 10th; Lt. J. L. Morgan, Lt. M. Platt, April 11th; Lt. (actg. Capt.) F. Freeman, Capt. G. A. Lawlor, April 12th; Capt. S. C. Perryman, April 14th; Lt. C. J. Geddes, Sec. Lt. S. R. Lewis, Lt. J. E. Marriott, Sec. Lt. B. Moore, Lt. R. M. Pegge, Sec. Lt. E. S. Robilliard, Lt. A. H. Stevens, April 15th; Capt. L. Murphy, Lt. J. T. Thornhill, April 16th; Sec. Lt. J. A. Currie, Sec. Lt. H. G. Murphy, Sec. Lt. A. Musgrove, Sec. Lt. C. T. Parker, Sec. Lt. H. R. Stubbington, April 17th; Sec. Lt. A. D. Goodwin, Sec. Lt. J. Morris, Maj. T. Worswick, April 18th; Lt. H. L. Soulsby (R.H. and R.F.A., T.F.), April 20th; Lt. (actg. Capt.) R. J. Paton, April 21st; Capt. L. H. M. Bennett, April 22nd; Sec. Lt. D. Batwell, Sec. Lt. T. Doré, Lt. I. S. Thomas, April 23rd; Capt. A. C. Gilling, Capt. J. C. Murray, Sec. Lt. A. C. Nash, Lt. R. H. New, Lt. L. Norris, Maj. J. E. Rendle, April 24th; Sec. Lt. W. H. Clarke, Capt. S. W. Cooper, Lt. W. G. Foulds, Sec. Lt. (Hon. Lt.) P. H. Wellum, Sec. Lt. G. R. Willis, April 25th; Lt. (actg. Capt.) F. P. Allbutt, Sec. Lt. L. J. Nobbs, Capt. C. K. Shepherd, April 26th; Sec. Lt. P. J. Beeby, Capt. T. M. Wslion, April 27th; Sec. Lt. A. B. Wearing, April 28th; Lt.-Col. M. D. Methven, O.B.E., April 29th; Lt. (actg. Capt.) F. W. Brookes, Lt. A. H. Brown, Capt. T. B. Morley, Maj. T. V. Smith, M.C., Sec. Lt. St. J. C. S. Clerke, April 30th; Capt. J. C. Ainsworth, Sec. Lt. W. F. Dick, Maj. E. A. Falconer, Capt. (actg. Maj.) R. H. Nicholson, Capt. T. V. Oddie, Lt. E. V. Pemberton, May 1st; Lt. W. H. Bokenham, Sec. Lt. (Hon. Lt.) R. Buck, Codt. (actg. Maj.) R. McPhail, May 2nd; Capt. R. W. Patterson, May 3rd; Capt. E. W. Cook, May 5th, Lt. (actg. Capt.) R. G. Cookson, May 6th; Sec. Lt. C. H. Bunn, May 8th.

MEDICAL BRANCH.—Maj. H. Pritchard to be actg. Lt.-Col. while empld. as President, R.A.F., Invaliding Board, from Sept. 6th, 1918, to April 30th.

Transferred to unempld. list :—Capt. J. B. Stevenson, M.C., M.B. (R.A.M.C.), Feb. 25th; Capt. J. M. Wyatt, March 8th; Capt. W. G. Helsby, April 4th; Capt. R. M. Dannatt, April 26th; Capt. C. F. Graves, May 3rd.

MEMORANDA.—The following relinquish their commns. on ceasing to be empld. :—Temp. Hon. Lt. O. T. Jones, March 31st, Capt. C. W. C. Browne (Lt., R.N.), May 5th; Lt. (Hon. Capt.) F. Gay (late R.A.F.), and is permitted to retain rank of Capt., May 14th.

Transferred to unempld. list :—Lt. (actg. Capt.) G. A. Williams, from (S.O.), March 21st; Sec. Lt. G. F. Booth, March 27th; Capt. G. M. Part, from (S.O.), April 2nd; Lt.-Col. B. S. Foster, from (S.O.), April 11th; Capt. L. S. M. Pyke, from (S.O.), April 16th; Maj. (actg Lt.-Col.) G. S. Peacock, O.B.E., from (S.O.), April 23rd; Lt. (actg. Capt.) D. Blairman, from (S.O.), April 26th; Capt. (actg. Maj.) W. S. Scott, M.C., A.F.C. (Lancs. Fus.), from (S.O.), April 29th; Lt. (actg. Capt.) H. W. Eaton (R. Scots), from (S.O.), Capt. (actg. Lt.-Col.) W. G. Perrin, O.B.E., from (S.O.), April 30th; Capt. D. L. Abbott, from (S.O.), Capt (actg. Maj.) L. C. Coates, Capt. (actg. Maj.) F. S. A. Baker, from (S.O.), Capt. (actg. Maj.) E. J. Briscoe, from (S.O.), Maj. (actg. Lt.-Col.) R. D. Waterhouse, from (S.O.), Maj. J. B. F. Watson, from (S.O.), May 1st; Sec. Lt. (Hon. Lt.) (actg. Lt.) J. Baillie, M.C., from (S.O.), May 6th; Capt. (actg. Lt.-Col.) W. M. Cumming, from (S.O.), May 8th.

AIR MINISTRY, May 16th.

R.A.F.—The following temp. appointments are made :—Staff Officer, 1st Cl. (P.).—Lt.-Col. (actg. Brig.-Gen.) C. L. N. Newall, C.M.G., A.M., and to relinquish the actg. rank of Brig.-Gen., April 17th.

Staff Officers, 3rd Cl. (P.).—Lt. (actg. Capt.) D. N. Stewart-Savile, M.C., and to retain the actg. rank of Capt. whilst so empld., Jan. 3rd till April 30th. (Substituted for notification in "Gazette," April 25th. (Q.) Lt. (actg. Capt.) L. V. Boxer, Feb. 1st, and to retain the actg. rank of Capt. till April 30th.

FLYING BRANCH.—Maj. S. J. Goble, D.S.O., O.B.E., D.S.C., to be actg. Lt.-Col. whilst empld. as Lt.-Col. (A.), from March 15th to April 30th.

Capt. O. A. Butcher, D.S.C., to be Capt. (K.B.) from (S.O.), April 20th; Lt. I. Morgan to be actg. Capt. whilst empld as Capt. (K.B.), without pay and allowances of that rank, from March 20th to April 30th.

Lts. to be Lts. (A.) :—(D.) F. J. Williams, from (Ad.), Feb. 4th; H. C. G. Allen, from (S.O.), May 1st.

Sec. Lts. to be Lts. :—H. E. Fenwick, April 21st, 1918; (Hon. Lt.) W. Black, M.C., June 1st, 1918; J. W. Lissett, June 9th, 1918; W. T. Smith, Aug. 30th, 1918; H. M. Cartwright, March 9th.

Sec. Lt. (Hon. Lt.) N. F. Penruddocke to be Sec. Lt. (O.) from (Ad.), April 25th (and to be Hon. Lt.).

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. R. D. Brownlie, Dec. 28th, 1918 (substituted for notification in "Gazette," Dec. 13th, 1918); Lt. H. K. Thompson (Lt., C. Ont. R.), Jan. 10th; Lt. J. Macklem (Lt., R. Can. Dragoons), Jan. 20th; Lt. (Hon. Capt.) A. C. McKelvie (Suff. Yeo.), Jan. 29th; Lt. C. E. French (Lt., E. Ont. R.), Feb. 16th; Lt. (Hon. Capt.) P. R. White (Capt., E. Ont. R.), Feb. 18th; Lt. C. MacLaughlin (Lt., Can. F. Art.), Feb. 20th; Sec. Lt. G. C. Easton (Capt., Manitoba R.), Feb. 28th; Lt. (actg. Capt.) M. W. Richardson (Capt., C. Ont. R.), March 10th; Lt. A. St. J. Highstone (Lt., E. Ont. R.), March 17th; Lt. A. Goby (Lt., Sask. R.), March 18th; Sec. Lt. (Hon. Lt.) M. E. Patterson (Lt., Alb. R.), March 21st; Lt. G. B. Dixon, M.M. (Lt., Cent. Ont. R.), Lt. R. R. Haley (Lt., Nova Scotia R.), March 31st; Sec. Lt. A. C. Taylor (C. Ont R.), April 11th, Maj. G. C. O. Usborne (Maj., Can. M.G.C.), April 14th; Lt.-Col. G. C. St. P. du Bombasle (Capt., Nova Scotia R.), April 18th; Lt. S. Guillon (Lt., Sask. R.), April 21st; Maj. O. C. MacPherson (Maj., Can Engrs.), April 23rd; Lt. G. R. Thornley (Sec. Lt., Lancs. Fus.), April 30th.

The following are transferred to unempld. list :—Lt. A. E. West-Oram, Jan. 24th; Sec. Lt. S. A. Slater, Feb. 8th; Lt. T. Ulster, Feb. 11th; Sec. Lt. T. Nolan, Feb. 23rd; Lt. A. Buckley, Lt. R. J. Marshall, Feb. 28th; Sec. Lt. (Hon. Lt.) K. G. H. R. Gunn, Sec. Lt W. Partridge, March 2nd; Lt. H. S. Selvis, March 4th; Sec. Lt. A. Burns, March 5th; Capt. H. E. C. Plowden, March 18th; Lt. A. A. Mitchell, March 29th; Sec. Lt. S. A. Gulliver, Sec. Lt. J. V. Poulson, April 1st; Sec. Lt G. F. Bassett, Sec. Lt. (Hon. Lt.) R. H. Hampton, April 2nd; Lt. (Hon. Capt.) E. C. F. Ferreira, April 6th; Lt. J. C. Houston, April 8th; Lt. (Hon. Capt.) S. H. Holland, Sec. Lt. F. A. Parker, April 9th; Lt J. M. A. Ewer, Maj. P. G. Ross-Hume, April 10th; Lt. A. V. Gallie, Lt. A. R. Gibson, Sec. Lt. C. E. Pullen, Sec. Lt. T. V. Preedy, April 11th; Sec. Lt. F. W. Ford, April 12th; Lt. S. J. Hine, Capt G. A. Lascelles, Sec. Lt. D. L. Plumpton, Sec. Lt. A. K. Robinson, April 13th; Sec. Lt. F. S. E. Hall, Sec. Lt. A. Woodward, April 15th, Sec. Lt. G. B. Eldred, Sec. Lt. S. G. Fidoe, Sec. Lt. J. O'Flaherty, April 16th; Lt E. M. Ackery, Sec. Lt. L. B. Farmiloe, Sec. Lt. (Hon. Lt.) D. E. Prece, Sec. Lt. (Hon. Lt.) A. M. Pawsey, April 17th; Sec. Lt. R. W. F. Dunning, April 18th; Sec. Lt. W. O. Goldthorpe, Sec. Lt. E. H. Lyon-Hall, Sec. Lt. J. D. MacIntyre, Sec. Lt. W. H. Phethean, April 19th; Sec. Lt R. W. F. C. Frost, Sec. Lt. F. C. Hird, Sec. Lt. R. T. O. Hawthorne, Sec. Lt. W. E. B. Lyon, Lt. J. D. Watson, April 21st; Lt. N. A. C. Runnels-Moss, April 22nd; Lt. L. J. Anstey, Sec. Lt. W. L. Dixon, Sec. Lt. G. D. Dunthorn, Lt. (actg. Capt.) A. E. Hedges, April 23rd; Sec. Lt (Hon. Lt.) R. Girvan (Cameronians), Sec. Lt. J. Harston, Sec. Lt. T. M. MacIntyre, Sec. Lt. B. F. Ross, Lt. C. W. Thomas (B. Col. R.), Lt. A. W. Wood, April 24th; Sec. Lt. R. W. A. Bridgen, Sec. Lt. H. E. Givan, Lt L. N. Graham, Lt. R. F. Overbury, Sec. Lt. A. R. H. Young, April 25th; Sec Lt. (Hon. Lt.) S. Fleming, Lt. J. H. Baring-Gould, Sec. Lt. M. W. Gallop (R.F.A.), Lt B. Norcross, Sec. Lt. H. St. Clair, Lt. E. F. Terry, Sec. Lt. C. G. J. Whiteside, April 26th; Lt. A. V. Goble, April 27th; Lt. L. A. Colley, Sec. Lt. H. Ellis, Sec. Lt. F. A. Wilson, April 28th; Sec. Lt. L. C. Belcher, Sec. Lt. G. E. Ellams, Sec. Lt. H. J. Gambling, Sec. Lt. R. Latham, Sec. Lt. A. E. E. Lee, Sec. Lt. F. B. Robinson, Sec. Lt. T. J. Wilson, April 29th; Sec. Lt. S. E. Alexander, Capt. (actg. Maj.) T. J. Brampton, Lt. W. D. Clark, Sec. Lt. E. D. Evans, Lt. R. F. Freeland, Sec. Lt. T. H. H. Fuge, Sec. Lt. (actg. Capt.) O. Gibb, Lt. (actg. Capt.) H. Hercock, April 30th; Sec. Lt. W. H. S. Gee, Sec. Lt. R. M. Miller, Sec. Lt. J. B. MacIntyre, Sec. Lt. L. J. Oldfin, Lt. G. C. Pilgrim, Lt. (Hon. Capt.) C. K. Robinson, Lt. T. Shepard, Sec. Lt. C. Vinge, Sec. Lt. S. A. Williams, May 1st; Lt. J. A. Atkins, Lt. F. W. Bristow, Sec. Lt. M. Bennic, Sec. Lt. F. P. Chaplin, Lt. A. C. Edgley, Lt. S. W. Mountain, Capt. (actg. Maj.) W. E. G. Murray, Sec. Lt. W. Robinson, Lt. O. Williams, May 2nd; Sec. Lt. R. B. Gotch, Sec. Lt. W. J. McDonough, Sec. Lt. (Hon. Lt.) A. MacAskill, Sec. Lt W. J. Ramsbottom, Sec. Lt. N. P. Wood, Capt. G. Mackrell, May 3rd; Lt. (actg. Capt.) R. F. H. Norman, May 4th; Sec. Lt. N. S. Calder, Sec. Lt. W. M. Newton, May 5th; Sec. Lt. G. H. Greenwood, Lt. E. H. S. Morris, Lt. A. I. Meacham, Lt. O. L. Owen, May 6th; Lt. A. F. Ferguson, May 7th; Sec. Lt. B. T. Cato, Lt. R. N. Hayden, Sec. Lt. W. E. Hampel, Sec. Lt H. E. Hieatt, Sec. Lt. A. P. McAvory, Sec. Lt. J. R. L. McGowan, Sec. Lt. C. A. McIntosh, Sec. Lt. A. E. McNicoll, Sec. Lt. G. T. Young, May 8th; Lt. J. L. Drummond, May 8th.

Capt. D. F. Ellis relinquishes his commn. on account of ill-health and is permitted to retain his rank, May 2nd.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—M. D. G. Drummond (contracted on active service), R. W. Duff, contracted on active service), April 29th; A. Hartley, A. Impey, May 6th; Lt. (actg. Capt.) W. E. Holland, Scott. Horse Yeo., relinquishes his commn. on account of ill-health, May 5th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—A. Nicholson, April 24th (substituted for notification in "Gazette," Feb. 14th); W. T. Leonard (contracted on active service), May 1st; S. M. Myles (contracted on active service), May 3rd; W. A. Rann, May 8th; Sec. Lt. S. E. Calvert resigns his commn., May 17th; Sec. Lt. G. B. Noble is antedated in his appointment as Sec. Lt. (A.), Aug. 24th, 1918.

The surname of Sec. Lt. F. Wight is as now described, and not Wright as stated in "Gazette," April 1st.

The notification in "Gazette," Feb. 4th, concerning Lt. W. C. Marsh is cancelled.

The notification of March 25th concerning Sec. Lt. H. B. Hewat is cancelled.

The notification of April 4th concerning Lt. W. H. Gibson is cancelled.

ADMINISTRATIVE BRANCH.—Majs. to be Majs. from (S.O.) :—J. St. A. King, E. F. Hutchinson, May 1st; Capts. to be Capts., from (S.O.) :—E. Cameron, R. D. Hallam, April 1st; W. M. Cumming, May 1st; R. L. Allport, May 6th; Capt. E. P. Hardman, D.F.C., is confirmed in his rank of Capt., May 5th.

Lts. to be graded for purposes of pay and allowances as Capts. :—H. J. W. Fletcher (Hon. Capt.), E. V. Tarrant, May 1st.

Lts. to be actg. Capts. whilst empld. as Capts. :—H. J. W. Fletcher, from Jan. 4th to April 30th; (Hon. Capt.) E. V. Tarrant, from Jan. 27th to April 30th.

Sec. Lt. (Hon. Capt.) (actg. Capt.) E. Codyre to be Lt. and to retain his hon. rank, July 21st, 1918.

Lts. (actg. Capts.) to be Lts., from (F.), and relinquish their actg. rank of Capt. on ceasing to be empld. as Capts. :—M. R. Helliwell, April 17th; V. Wigg, April 28th

Lts. (A.) to be Lts.:—T. A. Akin, H. R. Caffyn, C. W. L. Calvert, F. W. C. Davies, C. I. Fletcher, G. S. Lee, B. FitzW. Levett, A. W. Symington, M.C., P. W. Smith, L. G. Taylor, N. J. Taylor, April 17th; Lt. L. C. Beaver to be Lt., from (A. and S.), April 17th

Lts. (O.) to be Lts.:—J. R. Currington, E. R. V. Callett, W. E. McLean, M.C., April 17th; Lt. L. A. Rees to be Lt., from (S.), April 1st.

Lts. to be Lts., from (S.O.):—D. Blairman, F. A. Corbett, Sec. Lt. A. H. Petch to be Sec. Lt., from (A.), April 17th

Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts.:—A. Tulloch, Sept. 2nd, 1918; F. J. Deane, Nov. 16th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. (Hon. Capt.) (actg. Capt.) W. S. Ford (E. Surr R.), Dec 6th, 1918; Capt. S. Morris (R.A.S.C.), March 4th; Capt. (actg. Maj.) G. H. C. the Earl of Rocksavage (Capt., 9th Lrs.), April 12th

The following are transferred to unempld. list:—Sec. Lt. (actg. Lt.) E. S. De Pass, Feb. 16th; Sec. Lt. F. C. B. Phillips, Feb. 17th; Sec. Lt. (actg. Capt.) L. Coombes (Northants R., T.F.), March 6th; Lt. F. W. Higgins, April 10th; Sec. Lt. R. F. Pull, April 15th; Lt. G. McMullen, Sec. Lt. J. H. Parry, April 26th; Sec. Lt. W. F. McManus, April 29th; Lt. (Hon. Capt.) H. M. Eldridge, M.C., Lt. A. Fowler, April 30th; Sec. Lt. W. D. Barnett, Sec. Lt. S. H. Wood, May 1st; Sec. Lt. (actg. Lt.) W. Warwick, May 2nd; Lt. T. J. Gillow, May 4th; Sec. Lt. J. A. Weatherley, May 5th.

Sec. Lt. J. G. Elliott relinquishes his commn. on account of ill-health, and is permitted to retain his rank, May 9th.

Sec. Lt. G. A. Beith is removed the Service, his Majesty having no further occasion for his services as an officer, Feb. 14th. The unit of Lt. H. Townsend (Durh. L.I.) is as now described, and not High. L.I. as stated in "Gazette," Nov. 1st, 1918.

The notification in "Gazette," Feb. 28th, concerning Lt. M. Helliwell is cancelled.

The notification in "Gazette," May 9th, concerning C. A. Henshaw is cancelled.

Technical Branch.—Maj. H. J. Newton-Clare, O.B.E., to be Maj., Grade (B), from (S.O.), May 1st.

Lt. J. A. Atkinson to be actg. Capt. while empld. as Capt., Grade (A.), June 1st, 1918 (substituted for notification concerning this officer which appeared in "Gazette," Feb. 11th).

Sec. Lts. (actg. Capts.) to be Lts., without pay and allowances of that rank, and to retain their actg. rank until April 30th:—J. M. McEntegart, Jan. 19th; J. R. Coulthard, April 23rd; Sec. Lt. J. Tunbridge to be Sec. Lt., Grade (B), from (AD), Jan. 4th.

Sec. Lt. W. E. Hunt (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., Grade (B), April 20th

The following are transferred to unempld. list:—Sec. Lt. G. G. C. Pigot, March 6th; Sec. Lt. C. W. Pidcock, March 8th; Lt. G. M. Denman, March 13th; Sec. Lt. W. H. Saunders, April 10th; Lt. (actg. Maj.) G. L. Chater (Norf. R.), Sec. Lt. F. Child, Lt. A. E. Lowry, April 14th; Sec. Lt. L. W. St. George, April 15th; Capt. G. J. G. Manning, April 16th; Sec. Lt. E. Gough, April 17th; Capt. L. R. Prichard, April 22nd; Lt. L. J. E. Genner, April 23rd; Sec. Lt. (Hon. Lt.) (actg. Capt.) P. M. George, Maj. A. F. Palmer, Capt. H. E. Powell, April 25th; Capt. (actg. Maj.) G. L. Paine, April 26th; Lt. (actg. Capt.) A. Armstrong, April 30th; Sec. Lt. F. G. Buck, Lt. W. J. Harris, Sec. Lt. C. Urmson, Sec. Lt. H. J. Wadkin, Sec. Lt. R. L. Wills, May 1st; Sec. Lt. (actg. Lt.) K. Gray, Lt. J. D. Richards, May 2nd; Lt. F. J. R. Perfitt, Lt. (actg. Capt.) C. M. Pletts, May 4th; Capt. C. B. Tidmarsh, May 6th; Lt. (actg. Capt.) A. W. Pine, May 7th; Lt. H. C. Perks, May 8th; Lt. J. W. McKee, May 10th; Maj. L. Y. K. Murray resigns his commn. and is permitted to retain his rank, May 17th.

The following relinquish their commns. on account of ill-health contracted on active service:—Lt. L. N. Page, May 6th, and is permitted to retain his rank, Lt. A. Dobner, May 7th; Sec. Lt. E. I. Davies, April 29th, and is permitted to retain his rank

Notification of Feb. 25th concerning Maj. H. F. Fisher is cancelled.

Medical Branch.—The following relinquish their commns. on ceasing to be empld.:—Hon. Lt.-Col. G. Dreyer, March 31st, and is permitted to retain the rank of Lt.-Col.; Maj. (actg. Lt.-Col.) R. H. McGiffen (Staff Surgeon, R.N.), Jan. 13th.

The following are transferred to the unempld. list:—Maj. P. H. Hadfield, April 1st; Capt. J. J. O'Mullane, April 24th, Maj. A. Paling relinquishes his commn. on account of ill-health, and is permitted to retain his rank, May 5th.

The notification of May 13th concerning Capt. C. F. Graves is cancelled.

Chaplain's Branch.—Capt. H. E. Horton is transferred to unempld. list, April 19th.

Memoranda.—Capt. A. F. Morris (Welsh R.) is granted the hon. rank of Maj., May 16th.

The following relinquish their commns. on ceasing to be empld.:—Temp. Hon. Lt. H. C. Smith, March 16th; Temp. Hon. Capt. M. Windsor, May 16th.

The following are transferred to unempld. list:—Capt. C. J. Foot, from (S.O.), Jan. 22nd; Capt. (actg. Maj.) P. N. Logan, O.B.E., from (S.O.), April 16th; Capt. (actg. Maj.) H. Eves, from (S.O.), April 24th; Sec. Lt. (Hon. Lt.) (actg. Maj.) P. M. Greenwood (D.L.I.), from (S.O.), April 27th; Lt. (actg. Capt.) F. C. E. Dimmick, from (S.O.); Capt. (actg. Maj.) G. G. Fairbairn (Glostr Yeo.), from (S.O.), May 1st; Maj. (actg. Lt.-Col.) A. J. Clark (Lond. R.), from (S.O.), May 2nd.

FROM THE COURT CIRCULAR.

Buckingham Palace, May 15th.

The King held an Investiture in the Quadrangle of the Palace at 11 o'clock.

The following were severally introduced into the presence of the King, when his Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

The Most Excellent Order of the British Empire.—Commander (Military Division):—Col. Ralph Stoney, R.A.F.

The Distinguished Service Order.—Maj. Arthur Jacob, R.A.F.

The Most Excellent Order of the British Empire.—Officer (Military Division):—Maj. the Hon. Maurice Baring, R.A.F.

His Majesty then conferred decorations as follows:—

The Military Cross.—Capt. Hugh Lloyd, R.A.F.; Lt. Arthur Burbury, York Reg., attd. R.A.F.; Lt. Richard Carles, Bedford Reg., attd. R.A.F.; Lt. Ewart Stock, R.A.F.

Buckingham Palace, May 17th

The following officers were severally introduced into the presence of the King, when his Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

The Most Distinguished Order of Saint Michael and Saint George.—Companion.—Col. Harold Briggs, R.A.F.

The Distinguished Service Order.—Lt.-Col. Jack Cunningham, R.A.F.; Maj. Allister Miller, R.A.F.; and Lt. Robert Lovemore, R.A.F.

The Most Excellent Order of the British Empire (Military Division).—Officer.—Maj. Philip Logan, R.A.F.

His Majesty then conferred decorations as follows:—

The Military Cross.—Capt. Beauchamp Boultbee, Gen. List, attd. R.A.F.; Capt. Brian Swift, R.A.M.C., attd. R.A.F.; Lt. Alfred Jones, R.G.A., attd. R.A.F.

ADMIRALTY APPOINTMENTS.

The following appointment has been made:—

May 19th.—Bosn.—T. Vale to "Furious," May 17th.

OFFICIAL COMMUNIQUES.

The India Office issued the following communiqués received from the Government of India on May 14th:—

May 12th.—Operations on May 11th included air reconnaissances in Bazar to Besewal and Kam Dakka. Bombing raids were carried out with effect.

Estimate enemy killed on 11th at least 100, including many Afghan regulars.

May 14th.—Dakka still reported evacuated as result of our air raids, and no movements of importance observed on Jalalabad road.

THE CASUALTY LIST.

AIR FORCE.

Reported May 19th

Accidentally Killed.—Adkins, Capt. R., R.A.F.
Batchelor, Maj. T. A., R.A.F.
Ritchie, Capt. S. E., R.A.F.
Tolley, Lt. C. R., R.A.F.
Whiteside, Lt. A. B., R.A.F.

Died of Injuries.—Baillie, Lt. W., R.A.F.
O'Reilly, Lt. N., R.A.F.

Repatriated.—Barker, Capt. E. R., R.A.F.; Bardgett, Lt. W. E., R.A.F.

PERSONAL NOTICES.

NAVAL.

Death.

HARRISON.—Major James Ingleby Harrison, R.A.F. (Lieut.-Commander, R.N.), who was previously reported missing, is now officially presumed to have been killed in action over Bruges on May 16th, 1918. He was the fourth son of the late Rev. J. J. Harrison (Chaplain, R.N.), and Mrs. Harrison, Boscastle, Cornwall, and was 36 years of age.

MILITARY.

Deaths.

BRITTOROUS.—Sec. Lieutenant Oswald George Brittorous, R.A.F., late S. W. Borderers and Civil Service, was reported missing after a squadron engagement east of Villiers-Bretonneux on May 15th, 1918, and is now presumed dead. Information subsequent to above date would be gratefully received by his parents at "Glenlyon," Rochdale Road, Blackley, Manchester. He was 19½ years of age.

JAMES.—Capt. Alyn Reginald James, Denbighshire Yeomanry, attd. R.F.C., who was previously reported missing, is now reported to have been killed on March 24th, 1918, near Amiens, while leading his flight. He was the second son of Mr. and Mrs. Percy James, Kilhendre, Gresford, North Wales, and was 23 years of age.

WARMAN.—Capt. Clive Wilson Warman, D.S.O., M.C., D.F.C., R.A.F., died on May 12th at the Edmonton Military Hospital, from injuries received in the aeroplane accident which occurred on May 8th when he and Lieut. Macpherson, R.A.F., were flying over the Edmonton Sewage Farm. The machine was seen to descend rapidly, and the two officers were buried beneath the wreckage. They were taken to the Edmonton Hospital, where they were found to be suffering from severe concussion.

An inquest was held at Edmonton Military Hospital on May 15th on the body of Capt. Warman.

On May 8th, Capt. Warman, as pilot, and Lieut. Macpherson, R.A.F., went for a flight from the Chingford Aerodrome. They had been doing a number of stunts and were attempting another when they appeared to nose-dive too close to the ground, with the result that machine struck a gate and turned over. Both Capt. Warman and Mr. Macpherson were taken to hospital suffering from severe concussion of the brain. Capt. Warman did not recover consciousness, and died on May 13th.

An officer from the aerodrome said he flew the same machine for 40 minutes on the previous day, and it was in perfect condition. Four persons who were sitting on the gate at the time of the accident were injured.

A verdict of "Accidental death" was returned.

Births.

COCHRANE.—On May 12th, at 12, Claremont Terrace, Glasgow, W., to Margarita MacIlvride, wife of Major J. A. Cochrane, M.C., R.A.F.—a son.

DENNIS.—On May 7th at Southsea, to Lydia (née Gorman),

the wife of Lieut. C. Noël Dennis, late R.F.C. and R.A.F.—a son.

SPRATT.—On May 7th, at 13, Prince's Gate, S.W.7, the wife of Capt. N. C. Spratt, R.A.F. (late R.F.C.), of a daughter.

AIR FORCE.

DEATHS.

DAVIS.—Sec. Lieut. Cecil Sealey Davis, R.A.F., who died on May 7th, at Crail, Fife, was the son of Mr. G. W. Davis, J.P., and Mrs. Davis, of Ilford, Essex. He was 19 years of age.

NORTON.—Mr. Ingleby Oddie, the Westminster coroner, held an inquiry on May 13th into the death of Lieut. George Norton, R.A.F., aged 21, a native of Lisbon, who died in the Empire Hospital for Officers, Vincent Square, S.W.

Capt. J. E. Simpson, R.A.F., said that on Oct. 30th, 1918, Mr. Norton was running into the aerodrome at New Romney, Kent, on a Bristol fighter (Rolls-Royce engine), with an observer. It was not a new biplane, but it had been examined the same day and found to be correct. Mr. Norton was coming in from a flight and, seeing a large number of people in the aerodrome who might have been less experienced than he was, and not wishing to frighten them, he came down very slowly and flat. He tried to restart his engine, but it did not respond, and the machine hit a bank and overturned into a ditch.

Mr. Norton fractured his spine, but the observer was not seriously hurt. He was in hospital in Shorncliffe till Dec. 6th, when he was transferred to London He was quite an experienced pilot, and had flown hundreds of miles. He had done 297 hours on this particular type of machine, besides others. There was nothing faulty with the machine; it was an error of judgment.

Capt. Charles Riddoch, R.A.M.C., said that Mr. Norton died on May 10th from the effects of a fracture of the spine.

The coroner recorded a verdict of "Accidental death through a fall from an aeroplane."

Lieut George Norton, R.A.F., was the second son of J. F. Norton, of Lisbon.

SALMON AND HARWOOD.—At an inquest on May 3rd it was stated that Lieut. Harwood, R.A.F., whose death was announced recently, had just taken one of the latest types of machine from London, and was making a short flight from Ford aerodrome with Lieut. Frederick Salmon, R.A.F., and Lieut. De Gersigney, R.A.F., as passengers. The machine had scarcely left the ground when the spectators noticed that it was not climbing as well as it should have done, the pilot evidently having trouble with the starboard engine. When the machine had nearly completed a semi-circle of the aerodrome, it suddenly went into a left-hand spin, and crashed to the earth from a height of nearly 100 feet. Both deceased officers had served in France, and they were experienced pilots. The accident was attributed to trouble with one engine, which had probably given out altogether, with the result that the other engine forced the machine into a fatal spin to the earth. Accidentally killed whilst flying was the coroner's verdict.

Lieut. Gerald Harwood, R.A.F., was the only son of Horace G. and Hilda Harwood, of "The Rookery," Chislehurst. He was 24 years of age.

SMITH.—Hugh Cassillis Smith, 78th Squadron, R.A.F., who was killed on May 15th while flying near Hornchurch Aerodrome, was the second son of Mr. and Mrs. Macdonald Smith, 41, Onslow Gardens, Muswell Hill. He was 19 years of age.

ENGAGEMENT.

ADAMS—ARBUTHNOTT.—The marriage arranged between Lieut.-Colonel W. Boys Adams, R.A.F., and Miss Enid Carnegy Arbuthnott will take place on Wednesday, July 2nd, at St. Paul's, Knightsbridge.

MARRIAGES.

FIRTH—HODGSON.—On April 29th, at Winchester Cathedral, John Charles Bradley Firth, late Major R.A.F., younger son of Mr. and Mrs. Bradley Firth, of Bishop's Sutton, Hants, was married to Ruth Eleanor, younger daughter of the Rev. J. H. Hodgson, of Dogmersfield Rectory, Hants, by the Rev. R. T. Marshall.

FAULKNER—REGAT. — On May 14th, 1919, at the Church of Our Lady, St. John's Wood, London, Harold Edward, late Lieut. R.A.F., younger son of Charles Robert Nicoll Faulkner, was married to Elsie Marie Josephine, third daughter of Joseph Henri Régat, of Brussels, by the Very Reverend Canon Brennan.

BIRTHS.

SQUIRE.—On May 11th, at Firbank, Hythe, to Dorothy, (née Walter), wife of Lieut. H. F. Squire, R.A.F., M.S., a son.

WILSON.—On May 15th, at Horsley Priory, Nailsworth, Gloucestershire, the wife of Major J. P. Wilson, I.C.S., A.F.C. (late R.A.F.), of a son.

ATHLETICS IN THE R.A.F.

The Imperial Services' Boxing Championships were concluded at the Northampton Institute on May 15th.

There was a better attendance than on the previous day, but it was still disappointing. H.R.H. the Prince of Wales, K.G., in the uniform of the Royal Scots Fusiliers, of which he is Honorary Colonel, watched the final bouts in the evening and presented the prizes to the winners.

RESULTS.

Officers' Fly-weights.—Final Bout.—Lieut. S. Wilson (Army) beat Capt. H. G. R. Malet (R.A.F.), on points.

Officers' Feather-weights.—Final Bout.—Sec. Lieut. C. E. Hodgkinson (R.A.F.) beat Lieut. M. Nathan (Army) on points.

Officers' Light-weights.—Final Bout.—Capt. F. W. Smith (R.A.F.) beat Lieut. Reynolds (R.N.) on points.

Officers' Welter-weights.—Final Bout.—Lieut. W. W. Shoales (Army) beat Lieut. S. J. Mason (R.A.F.) on points.

Officers' Middle-weights.—Final Bout.—Lieut. L. H. Bayley (R.N.) beat Sec Lieut. K. P. McIntee (R.A.F.) on points.

Officers' Light-heavy-weights.—Final Bout.—Lieut. Hanaran (R.N.) beat Capt. T. Roberts (R.A.F.) on points.

OTHER RANKS.

Fly-weights.—Final Bout.—Pte. R. Sellers (A.I.F.) beat Serjt. Groves (R.A.F.) on points.

Welter-weights. — Final Bout. — Serjt. Swinnerton ("Jim Prendy") (R.A.F.) beat Pte. Fred Housego (Army) on points.

Middle-weights.—Final Bout.—Seaman Larby (R.N.) be Cpl. Garrett (R.A.F.) on points.

The final tie in the Bulldog Challenge Cup competition attracted 10,000 spectators to the Fulham F.C. ground on Saturday, May 17th. They saw plenty of goals scored, but these were not distributed according to anticipation, as the Scots brought off a big surprise by winning the trophy by 5 goals to 2.

The R.A.F. had a powerful side out, its front rank consisting exclusively of first-class players, among them being Morris (the West Bromwich and Fulham centre), Bliss (Tottenham Hotspur), and Pick (Brentford), while in the half-back line there were three well-known League players in Bell, Cannon, and Beckerleg.

A Royal Air Force crew will compete for the King's Cup at Henley Regatta. This race is open only to crews of amateur oarsmen who have served in the Navy, Army, or Air Force of any country that fought for the Allied cause.

PERMANENT COMMISSIONS.

The following letter has been received:—

Sir,—With reference to your article in THE AEROPLANE, I beg to say that I was educated at a public school and applied for a permanent commission in the R.A.F., but was graded "C" (or 3 as per your article).

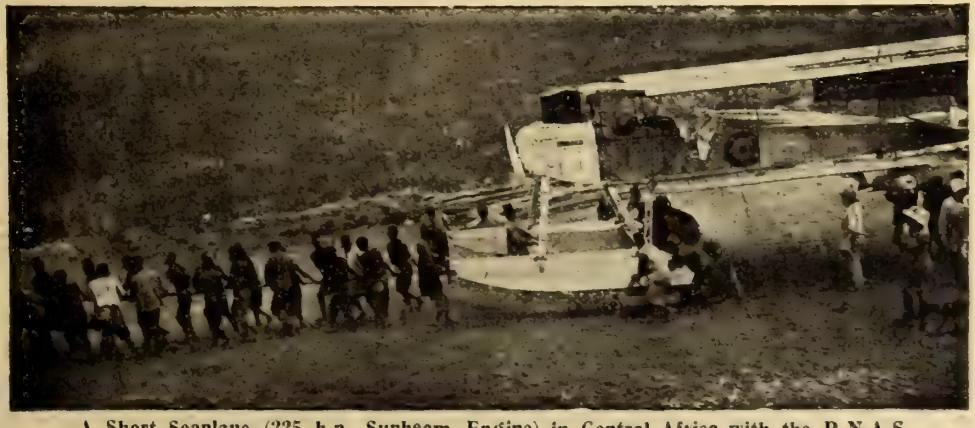
It would appear, therefore, that a public school education only entitles one to be placed in grade B (or 2) if one is *not* a proved fighting pilot (or is it if one is *not* an ex-R.N.A.S. pilot?)

If one happens to be an ex-R.N.A.S. pilot with considerable service, a good fighting record, a public school education, and to have joined young, the answer to an application for a permanent commission is to be demobilised with the contempt one deserves—at least, this is the experience of

R.N.A.S. Pilot.

FLYING TO EGYPT.

A British aeroplane with a crew of four Air Force aviators landed on May 18th at the Californie aviation ground at Nice. The machine came from Lille, and is on its way to Egypt.



A Short Seaplane (225 h.p. Sunbeam Engine) in Central Africa with the R.N.A.S.

THE ROYAL AERO CLUB.

Entrance Fee and Subscription for New Members.

In accordance with the resolution passed unanimously at the annual general meeting of the Royal Aero Club, on March 31st, 1919, the subscription for members elected on or after May 31st, 1919, will be £7 7s. per annum, and the entrance fee, £5 5s.

The Flight to Australia.

A meeting of the Technical Committee was held on Monday, May 5th, 1919, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair; Mr. Griffith Brewer, Lieut.-Col. D. Harries, Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Major R. H. Mayo, Lieut.-Col. Alec Ogilvie, and Mr. Howard T. Wright. In attendance: Lieut.-Col. Towler and Major Bernard, of the Air Ministry, and Mr. H. Fulton, Mr. A. R. Fenn, and Mr. C. V. Allen, of the Society of British Aircraft Constructors. Mr. Harold E. Perrin, Secretary.

The Committee considered the regulations governing the prize of £10,000 offered by the Australian Government for a flight from Great Britain to Australia.

The Flying Services Fund.

H.R.H. the Prince Albert, K.G., has been pleased to accept the Chairmanship of the Flying Services Fund.

At the present time nearly 200 widows and dependents of airmen are receiving benefits from the Fund, and the education of over 150 children is being undertaken.

A meeting of the Flying Services Fund Committee was held on Wednesday, May 7th, 1919, when there were present:—Brig.-Gen. R. H. More, C.M.G., in the Chair; Mr. Chester Fox and Mr. B. Stevenson, Assistant Secretary.

Grants and Allowances.

The following grants and allowances were made:—

(92) A continued allowance of £2 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps who had been killed on active service.

(103) A continued allowance of £1 10s. a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps who had been killed on active service.

(194) An allowance of £2 a month for six months to the mother of a 2nd Class Air Mechanic in the Royal Air Force who had died on active service.

(196) An allowance of £1 a month for six months to the mother of a Private in the Royal Air Force who had died on active service.

(198) An allowance of £4 a month for six months to the widow of a Captain in the Royal Air Force who had been killed on active service.

A Committee Meeting.

A special meeting of the Committee was held on Tuesday, May 13th, 1919, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair; Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Lieut.-Col. J. Dunville, R.A.F., Lieut.-Col. F. K. McClean, Brig.-Gen. E. M. Maitland, D.S.O., Lieut.-Col. Alec Ogilvie, and Mr. H. E. Perrin (Secretary).

Election of Members.

The following new members were elected:—

Major George Henry Abell, R.A.F.
Lieut. Ernest Allingham, R.A.F.
Capt. Joseph Dover Atkinson, R.A.F.
Philip Conway.
Major Cecil Hill Darley, R.A.F.
Cyril Joseph Feeny.
Capt. Gerald William Gathergood, R.A.F.
David Gill.
Capt. Lacy Norman Glaisby, R.A.F.
John Leonard Greener.
Capt. William Ernest Bertram Holland (Scottish Horse).
Norman Robert Melville.
Flight Lieut. Karel Muller (Royal Dutch Naval Air Service).
Capt. Sydney James Read, R.A.F.
Capt. John Guy Russell, R.A.S.C.
Charles Louis Scott.
Major George Herbert Scott, R.A.F.
Lieut. Cuthbert Henry Dolling Smith, R.A.F.
Capt. Fred Wilkinson (South Staffordshire Regt.)

The Rolls Memorial Library.

The following Committee was appointed to go into the question of purchasing books for the Club:—

Mr. C. G. Grey.
Major C. C. Turner.
Mr. Howard T. Wright.

World's Aeronautical Records.

A meeting of the Technical Committee was held on Tuesday, May 13th, 1919, when there were present:—Lieut.-Col. F. K. McClean, in the Chair; Mr. Griffith Brewer, Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., Major R. H. Mayo, Lieut.-Col. Mervyn O'Gorman, C.B., Lieut.-Col. Alec Ogilvie, Lieut.-Col. H. T. Tizard, Mr. Howard T. Wright, and Mr. Harold E. Perrin, Secretary.

The Committee fully discussed the question of World's Aeronautical Records with particular reference to the British performances put up during the war.

The regulations governing records recognised by the Fédération Aéronautique Internationale were also considered, and it was decided to put forward various suggestions for the alteration of these regulations at the Conference of the Fédération Aéronautique Internationale to be held in Paris on the 19th inst., at which the Club will be represented by:—

Lieut.-Col. F. K. McClean.
Lieut.-Col. Alec Ogilvie.
Lieut.-Col. Mervyn O'Gorman, C.B.
Mr. Harold E. Perrin (Secretary).

MORE GRIEVANCES OF CADETS.

The following letter has been received:—

Sir,—I have noticed in a recent issue of The Aeroplane a "grouse" from an overseas cadet. As a British cadet who was sent overseas may I trespass on your valuable space?

In January, 1918, having passed my cadet wing in England, I volunteered to complete my training in Egypt. I embarked with a draft of forty-nine other misguided youths on January 28th, landed in Egypt on February 13th, and after a wait of three weeks (March 6th) went to a S.M.A.

In spite of assurances, and in one case at least, a definite promise from those in authority, commissions never had been granted after S. of A. in Egypt. It was necessary to do two hours' solo flying. This rose to twenty hours with the Air Force Act, and as the climate did not suit me I was only able to complete about ten hours, with the result that I was demobilised as an F. Cadet.

Those who were wise enough not to come with us are now all full lieutenants or captains, and at least one is a major.

None of us were commissioned before the end of June, and in the meantime we received no tropical kit allowance and no issue of drill clothing or boots. Oh, to be a cadet on 10s. 6d. a week! I have only drawn the £9 granted by the cadet wing, and I have spent at least £70 during the time I have been a cadet, and because my tent was burnt down and all receipts with it, and I refitted myself from a native tailor who had never seen a receipt in his life, I shall probably receive nothing of the recently much advertised kit allowance.

On leaving the Cadet wing our places were taken by a crowd of civilians. Four months later some of them were *teaching* some of my draft to become observers! All our applications for ante-dating of commissions were approved by Middle East and rejected by Air Ministry.

Through being over keen on flying and through false assurances, I personally have lost £300-£400, in addition to loss of a position and prestige.

Is it any wonder that I and my friends are fed up with the (hot) Air Force?

1917 Cadet.

STUNTING OVER RACECOURSES.

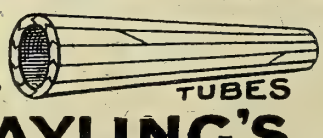
French aviators have been officially warned that they must no longer "stunt" over racecourses. Stunting has been one of the attractions at all recent meetings.—[To whom?—Ed.]

UNLIMITED LENGTH WITH INCREASED STRENGTH

PHONE PUTNEY 1730



SPARS STRUTS LONGERONS



TUBES

COMBINED METAL AND WOOD STRUTS



TELEGRAMS AYLING'S PUTNEY

PATENTEES & MAKERS AYLING'S RIVERSIDE PUTNEY, S.W.

MAY 28, 1919.

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U.S.A., 1 Year, $8.50c.

ON THE REGULATION OF CIVIL AVIATION IN THE BRITISH ISLES.

(PART IV.)

Schedule V of the Regulations deals with Log Books very briefly, as follows:—

SCHEDULE V.

LOG BOOKS.

1. Log books shall take the form of an aircraft log book, an engine log book, a journey log book, and a signal log book. If more than one engine is fitted a separate log book shall be provided for each engine.

2. Each log book shall be self-contained, but all log books shall be kept together in the aircraft in a waterproof bag of a pattern authorised by the Secretary of State.

3. The log books shall conform in all essentials to the patterns authorised by the Secretary of State, and shall contain such information and particulars as the Secretary of State may direct.

The Directions are but little longer, and read thusly:—

V.—INSTRUCTIONS FOR USE OF LOG BOOKS.

1. With reference to Regulation 2 (3) and Schedule V, the several log books should contain the information shown below.

2. The constructor should fill in and sign the original entries in the log book, as far as he is in a position to do so. Subsequent entries should be made and signed by the pilot or competent person.

3. A copy of the certificate of airworthiness should be kept in the pocket at the end of the aircraft log book.

4. All entries to be in ink, except in the case of journey and signal log books, the entries for these may be made in pencil in a rough notebook, but should be entered in ink in the log book every 24 hours.

In the event of any official investigation the rough notebook may be called for.

5. No erasures should be made in, nor pages torn from, any log book.

6. A copy of these instructions should be inserted in each log book.

I.—Journey Log.

(a) Type to which the aircraft belongs; its nationality and registration marks; the name, Christian names, nationality and residence of the owner; name of constructor and the carrying capacity.

(b) In addition for each journey:—

(i) The name, nationality and residence of the pilot and crew.

(ii) The place, date and hour of departure, the route followed, and all incidents en route, including landings and weather conditions.

II.—Aircraft Log.

(a) Type to which the aircraft belongs, its nationality and registration marks, the name, Christian names and nationality and residence of the owner, name of constructor and the carrying capacity, and capacity of tanks.

(b) Type and series number of engine, type of propeller, showing number, pitch, diameter and maker's name.

(c) Type of wireless apparatus fitted.

(d) Table showing the necessary rigging data for the information of persons in charge of the aircraft and of its maintenance.

(e) A fully detailed engineering record of the life of the aircraft, including all acceptance tests, overhauls, replacements, repairs and all work of a like nature (see specimen sheet, the form of which should be followed).

III.—Engine Log.

A separate log book shall be kept for each engine and shall always accompany the engine. It shall contain the following particulars:—

(a) Type of engine, series number, makers' name, power, normal and maximum revolutions of engine, date of acceptance and first date put into service; petrol consumption; oil consumption.

(b) Registration mark and type of aircraft in which the engine has been installed.

(c) A fully detailed engineering record of the life of the engine, including all acceptance tests, hours run, overhauls, replacements, repairs and all work of a like nature (see specimen sheet, the form of which should be followed.)

IV.—Signal Log.

(a) Type to which the aircraft belongs, its nationality and registration marks; the name, Christian names and nationality and residence of the owner.

(b) Place, date and time of the transmission or reception of any signal.

(c) Name or other indication of the person or station to whom a signal is sent or from whom a signal is received.

Considered quite seriously, it must be admitted that the keeping of these multifarious log-books is necessary to the proper conduct of civil aviation, though the work of making the entries day by day and journey by journey will be an infernal bore to those responsible for the job. Imagine the clerical work attached to a six-engined machine, which will have to carry nine log-bboks, each of which will have to be brought up to date once in every 24 hours.

Naturally every little trouble of each engine would have to be booked, and the only person who could do the booking would be the engineer in charge of the power-plant. One can imagine this unhappy individual wrestling with six refractory engines all day and sitting up all night writing an account of their ailments. Truly the engineer's life will not be a happy one.

During the war each engine had its own log-book, which, it was piously believed, was entered-up daily by the workshop officer in charge of that engine. One imagines that when more important work was in hand, such as keeping the machines in the air at all costs during the big German push in 1918, the officer in charge or his clerks occasionally forgot to enter-up the log-book. But as a rule each squadron had plenty of people—and a few to spare—to do its clerical work. The keeping of log-books in a civil aviation venture will be much more troublesome, for the ordinary commercial venture will not have the same excess of personnel.

It is possible that mistakes may occur in changing engines, for obviously when an engine is replaced the log-book of that engine must be extracted from the waterproof bag of the authorised pattern and handed out to the person who is to take charge of the engine. Care must be taken that the right log-book is transferred, otherwise all sorts of complications may follow. Thus is yet another task put upon the over-burdened practitioner of civil aviation.

A GREAT TASK.

Somehow there is something inexpressibly funny in the idea of "a waterproof bag of a pattern authorised by the Secretary of State." One can imagine Mr. Winston Churchill solemnly presiding over a Selection Committee composed of Mr. Finnigan of Bond Street, Mr. Barrett of Piccadilly, Mr. Foot of the Patent Trunks, Mr. Macintosh of Mackintosh's rubber works, and the leading bag merchants of the Burlington Arcade, to choose and authorise a sealed-pattern waterproof bag for log-books.

In practice probably the officially approved waterproof bag will repose empty under the pilot's seat, while the journey and signal log-books travel in the pilot's hip-pocket and the aircraft engine log-books in that of the chief engineer. That is unless the Controller-General of Civil Aviation appoints a special examiner of waterproof bags at each aerodrome to see that all aerial navigators comply with Paragraph 2, Schedule V, of the Regulations.

Perhaps the most humorous notion is that, though the waterproof bag must be of the authorised pattern (Paragraph 2), the actual log-books themselves need only "conform in all essentials to the patterns authorised," and may apparently be printed in any type, Italic, Gothic, Græco-Roman, or catch-as-catch-can style. One would have imagined that if there was one thing in which absolute uniformity would have been demanded, down to the most minute detail, it would have been the log-books.

A LOST OPPORTUNITY.

In this matter it seems that the Technical Department has missed a great opportunity of displaying its brain-waviness. Obviously each engine log-book should be inseparable from its engine, so that all chance of the mixing of engine logs may be avoided. Therefore the inclusion of engine log-books with all the others in a common waterproof bag (albeit authorised by the Secretary of State) is evidently absurd, and the obvious thing to do is to order that every engine shall have attached to it, as an integral part of its structure, a fireproof locker of a pattern authorised by the Secretary of State, in which the log-book of that particular engine shall be carried.

A little ingenuity of the kind so often displayed during the war by the T.D. could evolve a locker which would necessitate the redesigning of all engines intended for civil aviation, would add at least 20 lbs. to the weight of each engine, and would entail the removal of at least the carburetters every time the engineer wished to enter-up the log-book. It might even be possible to arrange it so that the magnetos also would have to be removed once in every 24 hours to make the required entries in the log-book. And perhaps it might also be possible so to arrange matters that it would be necessary to redesign the engine-bearers and housings of existing aeroplanes to fit the engines altered to accommodate the log-book, for that would entail altering the whole front of the fuselage of every civil aeroplane.

One fears, judging by the neglect of such an opportunity, that the Technical Department of to-day is losing interest in its job, for it is not maintaining the war-time form of the Bolo House and its even more effective adjunct, Bolshevik Mansions, situated in the Lenin Way, W.C.2, the later home of technical trouble. Or else the Technical Department is losing its nerve.

SOME URGENT QUESTIONS.

Taking them quite seriously, there is nothing much with which one can quarrel in the official requirements concerning the entries in the log-books. The entering-up of the Journey Logs will be a continual worry to organisers of joy-rides, who are required to enter the number of passengers carried in every trip of 10 minutes or so. And, judging by the Specimen Sheets published herewith, each of these little trips will mean a separate entry in the Aircraft Log also.

There is a point in connection with the Engine Log which deserves attention. Paragraph (c) requires a record of "hours run," as may be seen in the Specimen Sheet. But there is nothing to indicate whether this means running in the air only, or whether it includes running on the ground.

Some engines spend more time in running full bore on the ground or on the bench when being tuned-up than they do in the air. In some cases it is the fault of the engine, but in many cases it is the fault of the engine-tuner who is not content to leave well alone, but always tries to screw a few extra "revs." out of the unfortunate engine. Are these hours to be counted as "running," for purposes of calculating when the next overhaul is due, or are they not? The question is of considerable importance.

Also, in the case of joy-ride machines the question arises in another form. Machines with fixed engines (as opposed to rotaries) stand on the ground with their engines running slowly and their oil-pumps working—and supplying soot for the cylinders—while passengers are getting in and out. Though this slow running hardly causes any wear, it probably causes more soot in the cylinders than does running full bore, and so actually does more to cause a need for overhaul. Does it count in the "running time" or not? Perhaps the Air Ministry will issue a supplementary Direction on these points.

The Signal Log is a useful institution, for not only

(SPECIMEN.) **AIRCRAFT LOG.**

Date	Hour.	Commanding Officer.	Route.	Time in Air. Hours.	Time in Air. Mins.	Petrol consumed.	Oil consumed	Water consumed.	No. of passengers.	Repairs or Replacements.	Remarks.	Signature of authorised person.
			Brought forward								Time in the air since last overhaul:— hours. mins. ..... Date of:—	

Carried forward.....

is it a check on the alertness of the commander of the aircraft, but it is an equally good check on the vigilance of the watchers at the various signal stations. That is, of course, if the Air Ministry takes the trouble to compare the aircraft signal logs with the returns of signals from the various stations. This subject is really a matter for the Aerial Police Force, of which one hopes to hear something official before long.

PROHIBITED AREAS.

We may now pass on to the question of Prohibited Areas, to which is devoted Schedule VI of the Regulations. This reads as follows :—

SCHEDULE VI.

PROHIBITED AREAS.

1. Each of the places named or described in the following list, with the land and territorial waters surrounding such place to a distance of three statute miles in all directions from its boundary, shall be a prohibited area :—

Whole of Scapa Flow.
Kirkwall Town.
An area enclosed by straight lines joining the following points : Tor Ness, Rora Head, Inga Ness, Mull Head, Old Head (Orkney Islands).
Thurso Town.
Cromarty Ness.
Invergordon Pier.
Dalmore Village, near Invergordon.
Aberdeen Wireless Station.
Montrose Town.
Broughty Ferry Castle.
Inchkeith Island.
Rosyth Dockyard.
Pitfirrane Park.
Forth Bridge.
Tynemouth, North Pier Lighthouse.
Elswick Railway Station.
Killingholme Air Station.
Cleethorpes Wireless Station.
Louth Railway Station.
Landguard Point, Breakwater (Felixstowe).
Parkeston Quay.
Ipswich Wireless Station.
Osea Island.
Shoeburyness Church.
Fobbing Church.
Tilbury Fort.
Purfleet Railway Station.
Barking Creek Mouth.
Waltham Abbey Railway Station.
Enfield Lock Railway Station.
Chatham Dockyard.
Teapot Hard.
Chattenden Farm.
Allhallows Church.
Grain Martello Tower.
Sheerness Dockyard.
Dover Castle.
Archcliffe Fort.
Lydd Railway Station.
Newhaven Station Harbour Jetty.
Fort Cumberland.
Spithead : namely, the space between a line from Lee-on-Solent Pier to Wootton Point and a line from Southsea Castle to Seaview Pier.
Portsmouth Dockyard.
Cosham Railway Station.
Fareham Railway Station.
Culver Cliff, Naval Signal Station.
Needles Lighthouse.
Southampton Docks.
Marchwood Park.
Hurst Castle.
Osmington Church.
Weymouth Pier.
Portland Convict Prison.
Turnchapel Railway Station.
Plymstock Railway Station.
Keyham Dockyard.
Devonport Dockyard.
Saltash Railway Bridge.
Penlee Point.
Thorn Island (Milford Haven).
Pembroke Wireless Station.
Old Milford Railway Station.
St. Ann's Head.
Barrow-in-Furness Town Hall.
Stevenston Railway Station.
Greenock Pier.
So much of Loch Long as lies north of a line drawn due east from Knap Point.
Carrickfergus Railway Station.
Grey Point.
Spike Island.
Haulbowline Dockyard.

2. The prohibited areas are more particularly shown in a map issued for the purpose by the Secretary of State.

3. The officer to give the signals and take the action mentioned in section 2 of the Aerial Navigation Act, 1913, shall be a commissioned officer in His Majesty's Naval, Military, or Air Forces.

4. The signals which may be given when an aircraft flies, or attempts to fly, over any of the prohibited areas shall be as follows :—

By day : three discharges, at intervals of not less than ten seconds, of a projectile showing smoke on bursting.

By night : three discharges, at intervals of not less than ten seconds, of a projectile showing red stars or red lights.

5. On such signal being given, the aircraft shall immediately land at the nearest practicable spot ; provided that, if it be approaching or flying over any prohibited area, it shall not, in descending, advance further towards or into the area.

6. If an aircraft is unable to land immediately in response to the signal, owing to stress of weather or other unavoidable cause, it shall make the following signal :—

By day : show, from the place where they can be most clearly seen from below, a red triangular flag, together with two black balls superimposed vertically one above the other ;

By night : wave a white light, at the same time extinguishing the side lights ;

and shall, as soon as possible, land at the nearest practicable spot in the United Kingdom.

It may be noted that neither the "Order of the Secretary of State"—with which these articles began—nor Schedule VI itself deigns to explain why certain areas are prohibited. The whole thing is left delightfully nebulous, except for the plain statement that everything within three miles of the points specified in the foregoing list is in a prohibited area.

The only reference in the "Order" is under the heading "Penalties," No. 10, Paragraph (4), which says :—

"(4) Any aircraft which flies or attempts to fly over a prohibited area is liable to be fired on in accordance with section two of the Aerial Navigation Act, 1913, and the provisions of these regulations relating thereto."

(SPECIMEN.) **ENGINE LOG.**

Date.	Hour.	Engineer in charge.	Revs. per min.		Time run.	Defects found.	Particulars of overhaul or replacement.	Remarks.	Signature of authorised person.
			On ground.	In air (state climbing or level).				Time run since last overhaul :— hours. mins. ..... Date of :—	

From which one might surmise that the Government intends to maintain strong Archie batteries at or in all the areas mentioned in Schedule VI. If so, it will be an excellent thing for the A-A. Gunners, who rather feared that their occupations and their opportunities of practice have gone for ever. As it is, it seems that there will be plenty of work for them to do, for it is practically impossible for any aircraft to make an important journey in Great Britain without trespassing on one or other of these foolish areas.

Absurd Restrictions.

Frankly, the list of areas is absurd. For example, no seaplane, except a Government machine, may fly from Brighton to Bournemouth unless it goes outside the Isle of Wight, or at least three miles inland from Seaview, or three miles inland north of Cosham railway station.

Cutting out Spithead, and three miles west of Wootton and Lee, kills all flying over the Solent, which is the ideal area for sporting seaplanes. Cutting out a three-mile radius of Weymouth Pier kills all sporting flying in Weymouth Harbour, another almost ideal area. Cutting out the Forth Bridge spoils flying over the Forth. Cutting out Tynemouth and Elswick spoils the Tyne. Cutting out the Osea area spoils the Blackwater and Malden district. The Sheerness area kills the Medway as a school for water-fliers.

One cannot fly from Hastings to Brighton except by going three miles out to sea or three miles inland, because of Newhaven Harbour. One cannot fly over Plymouth Sound. One cannot fly over Milford Haven. One cannot fly over Loch Long. Spike Island and Haulbowline cut out the beautiful area of Queenstown Harbour.

And all this lest some enterprising foreign spy should take a few photographs of places which are already better known than the Bible to the Intelligence Department of every foreign nation.

Nearly all of this Prohibited Area business is too damned silly for words in these days. There was a little sense in it when the idea was started in 1910 or thereabouts, for there was a danger of the machines of the period falling into magazines and so forth. But to-day the whole scheme is merely ridiculous.

If the Naval and Military authorities—apparently it is almost entirely a matter of the Navy—are so keen on preventing anybody from photographing their old stores and barns and rocks and things they can use these buildings as a means of keeping their camouflage artists and dazzle painters in practice. The camouflage can be altered every two or three months, so as to make the last-taken photographs useless.

The Dazzle-Paint Humbug.

Incidentally, dazzle-painting aeroplane sheds is almost as silly as the Prohibited Areas. One happened to go to Hendon recently over the top of Hendon Hill instead of by the Edgeware Road for the first time in nearly five years. The sheds, which formerly faded away into the landscape now stand out in their motley paint till they are the only thing in the landscape. Many pilots have told one the same thing about other aerodromes. In fact they like dazzle-painting because, they say, it makes it so much easier to find the sheds in bad lights.

From that point of view dazzle-painting is useful, but as a camouflage it is futile. It would be interesting to know how many tons of precious paint have been wasted and how many able-bodied young men have been kept out of the trenches by this cleverly boomed humbug about dazzle-painting of buildings.

However, that has but little to do with the question of Prohibited Areas, except as suggesting another means by which the Navy can go on wasting public money which could be spent to better effect, as well as more intelligently, by other people—the Air Ministry for example.

No definite penalty is specified for flying over a Prohibited Area, except that the Archies may fire at the offender. The punishment seems to fit the crime, for the chances of being hit would be very minute, except perhaps in the London Air Defence Area, where the gunners are properly trained. The Naval gunners at the seaports could be (as a rule) trusted to miss a Zeppelin at 300 yards, unless it happened to be on the water, and then they would probably make quite good shooting at 17,000. One judges by Naval gunners' efforts to hit the Gallipoli Peninsula or anything else that is not actually on sea level.

Probably other penalties are specified in some out-of-the-way corner of the Act of 1913, but the sporting aviator will doubtless find ways of escaping those penalties, just as he eludes the Motor Car Act. But, as one has ventured to suggest as mildly as possible, nearly all of the Prohibited Area business is just about as idiotic as are the provisions of the said Motor Car Act.

The Next Instalment.

The next and, one hopes, the concluding section of these notes deals with "Rules as to Lights and Signals and Rules of the Air" and "Rules as to Aircraft Arriving in or Departing from the United Kingdom." Some of them are sensible, some silly, and some merely funny without being vulgar—as is the habit with our Laws.—C. G. G.

AN INTERNATIONAL EVENT FOR GREAT BRITAIN.

The Fédération Aéronautique Internationale has decided to revive the Schneider Cup Race this year. The competition was last won by Mr. (now Captain) C. Howard Pixton on a Sopwith Baby Seaplane (100 h.p. Monosoupape engine) at Monte Carlo early in 1914, so that this year the race will be held in British waters. It is worthy of note that this is the only International event ever won by a British aeroplane.

One gathers that the race will be held in September of this year, and that certain South Coast towns are being considered as the starting and turning points of the course. One suggests that the Southern holiday resorts should compete for the honour, and that those selected should put up subsidiary prizes for minor seaplane events, so as to organise a big "Seaplane Week" as an attraction for visitors.

The conditions of the race will be altered this year in a few important particulars. The total distance will be 200 nautical miles, instead of 150 nautical miles as formerly. Also the competitors will start when ordered to do so, at stated intervals—as in a motor-car road race—instead of starting when they please and merely flying against the watch. A competent Committee will decide whether the day is fit for flying or not.

As formerly, the competitors must cross the starting line in the air and must make two alightings on the water when they wish during the race.

Further details of the rules will be issued by the Royal Aero Club in due course.—C. G. G.

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ON THE TRANS-ATLANTIC ATTEMPT AND SOME CRITICISM.

Writing in the "Morning Post" of May 23rd, Mr. Massac Buist, who, before the war, did much good work for aviation by his articles in that excellent paper, sets forth to justify the trans-Atlantic flights, and devotes considerable space to an attack on THE AEROPLANE, which, however, he omits to mention by name, though he quotes direct from it. Here is what he says:—"In quarters the least expected, because nominally concerned wholly with championing aviation, we find it being argued that the missing heroes would have served the purpose of aeronautics better if they had never made their attempt, and that the energy, care, ingenuity, and hard work which have been wasted, and are being wasted, on Transatlantic attempts would have been much better devoted to organising flying-boat services along the great rivers of the world, and so on.

"As for the contention that enterprise devoted to the end of flying the Atlantic would have been much better diverted to organising flying-boat services along great rivers and so forth, it fails on the score of logic. The two undertakings call for quite a different class of enterprise. In the case of flying the Atlantic the specific endeavour is to demonstrate whether the range of action of the given machine is sufficient to link the New World with the Old by air route, and whether the science of aerial navigation pure and simple, without adventitious aid of any sort, is capable of enabling such a voyage to be made under carefully chosen weather conditions.

"Progress in aeronautics, as in other forms of travel, has been marked at every stage first by uncommercial achievement. Trans-ocean flying services of a commercial character will be the direct outcome of the essentially uncommercial and unsafe attempts of aviation pioneers engaged in such feats as endeavouring to fly the Atlantic in one stage."

One can only imagine that Mr. Buist wrote the foregoing as the result of being out of touch with aviation for so long—at any rate, one has not seen him more than once or twice in the last few years in those places where practical aviators meet and discuss the topics of the day. Nor, apparently, has he kept his ideas up to date by reading this paper regularly, for if so, he would not have referred to this as being an unexpected quarter from which to receive criticism of the trans-Atlantic flight.

At no time has this paper displayed any enthusiasm for the scheme, which it has always regarded purely as a newspaper stunt, just as it regarded the "Circuit of Britain" in 1911 as a newspaper stunt.

The prize offered for the Circuit of Britain could have been spent to far better purpose in encouraging British aviation, and the competition itself caused a set-back to flying because it displayed the unreliability of the aeroplanes of the period and disappointed the public. Also, it caused a number of comparatively poverty-stricken aeroplane firms to spend a lot of money which could have been put to better purposes in the interests of aviation.

The trans-Atlantic competition is precisely the same. The same amount of money could be put up for competitions which would do far more to improve British aircraft and would increase public belief in aviation. But—and there lies the crux of the whole matter—the Northcliffe Press would not receive the same amount of free advertisement in all contemporary newspapers.

The amount of money which is being spent by the competing firms in shipping machines and crews and mechanics to Newfoundland would assuredly bring better results if spent in a great co-operative propagandist scheme in foreign countries, using the same machines and crews for demonstration purposes. Therefore one adheres absolutely to one's remarks which Mr. Buist has quoted.

Incidentally, one would like to ask Mr. Buist what he means precisely by the sneering phrase "nominally concerned wholly with championing aviation"? One does not propose to make unnecessary trouble by bringing a libel action against Mr. Buist for a statement which would be of a distinctly damaging nature if anybody on the inside of aeronautics attached any weight to Mr. Buist's latter-day opinions, but one would like to know what he means, and herewith one offers him any reasonable amount of space (not greater than a page of this paper) in which to explain himself.

ANALOGY IN ENTERPRISE.

One quite agrees with him that flying the Atlantic and working a campaign for the true benefit of aviation call for different classes of enterprise. But one holds that the Bristol Merchant Venturers—those half-traders, half-pirates of the Spanish Main—and the British East India Company did very much more for the development of the British Empire than did all the explorers of Polar ice and Saharan deserts put together. And there is something very like a strict analogy between the classes.

When Mr. Buist writes that "the specific endeavour is to demonstrate whether the range of action of the given machine is sufficient to link the New World with the Old by air route, and whether the science of aerial navigation, pure and simple, without adventitious aid of any sort, is capable of enabling such a voyage to be made under carefully chosen weather conditions" he is writing pure unadulterated rot, for all his fine verbiage.

The range of action of the given machine can be demonstrated equally well by flying from Land's End to John o' Groat's and back, and then up to London. Or by flying round and round Brooklands track, for that matter. And the "science of aerial navigation pure and simple, without adventitious aid of any sort"—whatever all that may mean—can be demonstrated equally well without going across the Atlantic to do it.

It is quite true that "progress in aeronautics has been marked at every stage first by uncommercial achievement." Setting aside the doubtful English of the sentence, one knows well enough what Mr. Buist means. But that is quite possibly only a proof that progress would have been more rapid if we had stuck strictly to commercial achievement instead of wasting our substance on riotous adventures.

COMMERCIAL AND UNCOMMERCIAL ENTERPRISE.

On the other hand, Mr. Buist is again writing rot when he says that "trans-ocean flying services of a commercial character will be the direct outcome of the essentially uncommercial and unsafe attempts of aviation pioneers engaged in such feats as endeavouring to fly the Atlantic in one stage."

Apart from the question as to whether a flight with a £10,000 prize at the end of it can be styled correctly an "uncommercial attempt," Mr. Buist's reasoning is based on a pure *non sequiter*. It does not follow by any means that the future trans-Atlantic aeroplane service will be the direct outcome of winning the £10,000 of the Harmsworth Press. It is much more likely to be the direct outcome of a purely commercial air service up the Amazon or across Canada.

When flying-boats can run a regular non-stop service of 2,000 miles up and down the Amazon, or when an aeroplane service runs regularly non-stop from Toronto to Winnipeg, or from London to Baghdad, then we can begin to talk about "trans-ocean flying services of a commercial character." Meantime, flying the Atlantic remains a newspaper stunt; and a stunt, at that, which, because of the way in which the failures of competitors are advertised by the boomster Press, does a heap more harm than good to aviation.

A MATTER OF HEROISM.

The gallantry of those aviators who are resolved on making the attempt to fly the Atlantic is worthy of all respect. And in a set debate one might even be forced to admit that the example which their heroism sets to the British Race may outweigh the harm which the overbooming of their preparations, and attempts, and failures does to the progress of British aviation. But, as this paper, despite Mr. Buist's sneer, is wholly concerned with championing aviation—which is quite different from championing aviators—one is more concerned with the effect of the competition on aviation than with its effects on the British Race.

Nevertheless, one takes off one's hat to the aviators concerned, and one is very pleased that Mr. Hawker and Commander Grieve have been retrieved. Truly the ways of Providence are inscrutable. When one thinks of the number of one's friends—some of them men who were married and had families before the war—who are logged as missing for ever after flying for a few weeks or a few months over German gun-fire and under German "circuses" no more than a few miles beyond the British lines, it seems the more extraordinary that two men in one machine should have succeeded in thwarting the whole Atlantic Ocean and in finding safety a thousand miles or so from shore.

Surely, Mr. Hawker and/or Commander Grieve must be intended for some very great future. One hopes that they will stick together in all their further adventures, for one can never be sure to which of them the joss is attached.

Meantime, one wishes equally good fortune to all the other Trans-Atlantic fliers. If they cannot all succeed, one hopes that they will all fail gloriously and will all return home safely.

A PLEA FOR SANITY.

One yields to none in genuine admiration for the pluck of Mr. Hawker and Commander Grieve, but one cannot help feeling disgusted at the hysterical behaviour of the people of London over their performance. Naturally one expected the Harmsworth Press to open wide its most brazen-throated syrens. Its job is to get the utmost possible value for its £10,000. Business is business. But other papers, and the people at large, and the Royal Aero Club in particular, might have been expected to preserve a better sense of proportion.

So far as one is aware, no action has been taken by the Royal Aero Club Committee to celebrate the return of the many members of the Club who have crossed the German lines during the War, nor the rescue of those who were sunk in Hunland. Nor has one heard of its even taking steps to institute a permanent memorial to those who have fallen in the War. Certainly the Committee never made any Progress in State to welcome



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home those who had performed great feats of valour, such as the bombing of Düsseldorf, or Friedrichshafen or Constantinople, nor those who spent days at sea in derelict seaplanes.

The whole business is a splendid testimonial to the advertising value of the "Daily Mail" and its ancillary journals, but it does not increase one's respect for one's fellow-citizens. To quote a passage on another subject from the "Morning Post":—"About twenty years ago arose a new fashion in journalism, which consisted (briefly) in wholesale dealing in cheap sensation. The criterion of the importance of any event was not its relation to affairs of real moment, but the number of ignorant persons who would consider it interesting. Thus were the ignorant made more ignorant; and such taste and intelligence as they owned were systematically dulled. To debauch the taste of a nation in a single generation is an achievement. There are few enterprises more profitable; and few for which other people pay a higher price."

It does not occur to the ordinary reader of papers that perhaps the everyday flights of the little detachments of the R.A.F. which are fighting Bolsheviks in Russia are of greater importance to the future of this nation than are all the trans-Atlantic attempts, successful or unsuccessful, and that they are if anything more hazardous. Flying seaplanes over trackless forest is scarcely less dangerous than flying land machines over trackless sea.

Parliament always reflects the Press, few M.Ps. having any minds of their own, and so one is but little more sickened by the fatuousness of the questions asked in the House during the past week.

However, presumably the uneducated tastes of an uneducated public can best be served by uneducated journalists—so long as journalism is purely a money-making proposition—and so we can expect nothing better than what we have suffered for the last week or so. What can one expect from a pig but a grunt—or a squeal? One did hope for a better sense of proportion in those more intimately concerned with aviation, but even they seem to have fallen victims to the prevailing Carmelite hysteria. One would merely like to ask them how they propose to celebrate the occasion when somebody achieves complete success?—C. G. G.

ROYAL AERO CLUB ANNOUNCEMENTS.

The Australian Flight.

The Royal Aero Club has issued the following rules relating to the £10,000 prize offered by the Australian Government for a flight from Great Britain to Australia:—

The Australian Government have offered the sum of £10,000 to be awarded to the pilot who shall first accomplish the flight in an aeroplane or seaplane from Great Britain to Australia in 720 consecutive hours.

The offer will remain open until midnight, December 31st, 1920, by which date the flight must have been completed.

The complete aircraft and all its component parts must have been entirely constructed within the confines of the British Empire. Raw material may be obtained from other sources.

The pilots and all the crew must be of Australian nationality, in accordance with the laws of the Australian Commonwealth.

Entries.—Entries are to be made to the Royal Aero Club, 3, Clifford Street, London, W.1. The entry form, which must be accompanied by the entry fee of £100, must be sent to the Secretary of the Club at least seven days before the start is made.

All entry fees received will be applied towards payment of the expenses of the Royal Aero Club in conducting the competition. Any balance not so expended will be refunded *pro rata* to the entrants.

Identification of Aircraft.—Only one aircraft may be used throughout the flight. Individual replacements and repairs to the aircraft and motors may be made *en route*, but neither may be changed as a whole. In the case of a seaplane, it may be taken ashore for such repairs and replacements. Five parts of the aircraft and five parts of each motor will be stamped or otherwise marked, and at least two marked parts of each of these five parts must be in place on arrival at the control and at the finishing point.

Starting Place.—The start must be made from Hounslow Aerodrome or Calshot Seaplane Station.

All starts must be made under the supervision of an official or officials appointed by the Royal Aero Club.

Finishing Place.—The point at which the competitor must finish in Australia will be in the neighbourhood of Port Darwin, and will be announced later.

Control.—A Control Station will be established on the route of the flight at Singapore. Competitors must alight at this control for purposes of identification.

Towing.—Towing on the water is not prohibited, but the total distance of such towing must not exceed 100 miles, of which not more than 50 miles shall be consecutive.

Timing.—The time of starting will be the time the aircraft leaves the ground or water, and the time of arrival will be deemed to be the time of crossing the coast line in the neighbourhood of Port Darwin.

General.

1. A competitor, by entering, thereby agrees that he is bound by the Regulations herein contained or to be hereafter issued in connection with this competition.

2. The interpretation of these regulations or of any to be hereafter issued shall rest entirely with the Royal Aero Club.

3. The competitor shall be solely responsible to the officials for the due observance of these regulations, and shall be the person with whom the officials will deal in respect thereof, or of any other question arising out of this competition.

4. A competitor, by entering, waives any right of action against the Royal Aero Club or the Australian Government for any damages sustained by him in consequence of any act or omission on the part of the officials of the Royal Aero Club or the Australian Government or their respresentatives or servants or any fellow competitor.

5. The aircraft shall at all times be at the risk in all respects of the competitor, who shall be deemed by entry to agree to waive all claim for injury either to himself, or his passenger, or his aircraft, or his employees or workmen, and to assume all liability for damage to third parties or their property, and to indemnify the Royal Aero Club and the Australian Government in respect thereof.

6. The Committee of the Royal Aero Club reserves to itself the right, with the consent of the Australian Government, to add to, amend or omit any of these rules should it think fit.

THE GRAND PRIX DE L'AVENIR.

The Royal Aero Club requests that The Aeroplane shall make known to the Aircraft Industry the fact that a new International Cross-Country Competition is being organised by the French paper *L'Avenir* under the regulations of the Fédération Aéronautique Internationale and under the patronage of the Aero Club of France.

There is no time in which to translate the rules in full, but the following is a brief outline:—

1. The Competition will be known as the "Grand Prix de L'Avenir." It is a cross-country competition of about 3,000 kilometres. Passengers will be carried. It is open to all French and Allied competitors and to all aircraft of French or Allied construction.

2. The prize fund is 100,000 francs, which has been deposited with the Aero Club of France.

3. Entries must be made with the Aero Club of France or with *L'Avenir* before 18 o'clock on June 30th. Entries will open on June 2nd, and must be accompanied by an entry fee of 1,000 francs, returnable if the machine covers the first stage of the course. Competitors must make known, not later than August 11th the names of the pilots of their machine.

4. Competitors must present at the Aero Club of France, before midday on August 9th, two registering barometers, which will be placed on their machines after verification. Machines must be presented at the starting aerodrome before 18 o'clock on August 19th, to be stamped with identification marks. Competitors will be allowed to present spare parts also for identification.

Two or three climbing tests will be made to determine the maximum load of the machine before starting. This load will be fixed in the following fashion:—The competitor will declare the said weight which the commissioners will admit after a flight in which the machine will start with the indicated weight, will climb to 3,500 metres in an hour at most, and will show on descending the starting weight minus normal expenditure of fuel and oil. In these tests dead weight will be carried instead of passengers. When this weight is fixed it will be inscribed on the fuselage or rudder of the machine.

5. Subject to modification, the course will be as follows:—

First stage—Paris to Angers *via* Rouen, La Havre, Deauville, and Dinard.
Second stage—Angers to Bordeaux by Romorantin.
Third stage—Bordeaux to Marseillles.
Fourth stage—Marseilles and Montpellier to Lyons.
Fifth stage—Lyons and Strasbourg to Metz.
Sixth stage—Metz and Lille to Paris.

Flying controls will be established along the course as well as obligatory landings. Competitors may start any time after 7 o'clock, and each control will be open from 7 to 20 o'clock, but nobody will be allowed to start after 15 o'clock.

The first start will take place on Sunday, August 24th.

6. Classification for the attribution of prizes will be as follows:—

(1) According to arrival at stages.
(2) According to a general classification which results from the addition of total points scored each day.

Ten points will be given to each machine covering a stage without landing during the day of opening the control.


The finest all-round passenger and cargo machine yet constructed
Full particulars of the "Bristol" Triplane or other "Bristol" Aeroplanes will be forwarded on application to:
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THE BRITISH AND COLONIAL AEROPLANE CO., LTD.,
Filton, Bristol.
Telephone 1908.
"The Bristol" Aeroplanes

A machine reaching the control the day after the opening shall only count 7 points.

Any machine has the right to cover two stages or more in a single flight if duly controlled.

Forced landings and breakages will be penalised as follows:—

For each landing, 1 point.

Change of wheel, airscrew, skid, elevator, rudder, or springs, 1 point; radiator, 2 points; cylinder, 5 points; crankcase, 5 points; wing, 5 points.

Every machine must carry a pilot and passenger. Passengers must weigh at least 65 kilos and must be at least 18 years of age. A quarter of a point will be added for each passenger carried over and above the regulation pilot and passenger. No passenger will count unless carried for a whole stage.

7. The 100,000 francs will be partitioned as follows:—

(A) 50,000 francs for the general classification of arrival.

(B) 50,000 francs for classification on points at each stage.

(A) General Classification.—First prize, 20,000 francs; second prize, 15,000 francs; third prize, 10,000 francs fourth prize, 5,000 francs.

(B) Stage Prizes.—10,000 francs for each stage, divided into first prize, 3,000 francs; second prize, 2,000 francs; third to seventh prizes, 1,000 francs each.

L'Avenir is endeavouring to arrange for military pilots of the Allied Nations to compete with the consent of their respective authorities, in which case special rules for them will be published later.

MR. CHURCHILL IN A FLYING ACCIDENT.

On May 19th, Mr. Churchill arrived at Buc Aerodrome, intending to fly over Paris, but as the machine was taking off it ran into a concealed ditch and the under-carriage was smashed. It is thought that the pilot was unfamiliar with the aerodrome. Neither Mr. Churchill nor the pilot was hurt.

On May 24th Mr. Winston Churchill, accompanied by Colonel Scott, arrived at Lille by aeroplane, having visited the devastated regions between Ypres and Dixmude.

GENERAL HENDERSON'S NEW APPOINTMENT.

Lieut.-General Sir David Henderson, K.C.B., K.C.V.O., D.S.O., late Director-General of Military Aeronautics, has been appointed Director-General of the newly formed League of Red Cross Societies.

GENERAL SYKES FLYING AGAIN.

On May 19th, Major-General Sir F. H. Sykes, K.C.B., C.M.G., who has resumed his duties at the Air Ministry, flew to Paris. The aeroplane left Kenley Aerodrome at 4 p.m. and reached Buc Aerodrome at 6 p.m.

THE AIR CONVENTION.

The following was issued in Paris on May 26th:—

The Aeronautical Commission of the Peace Conference held its final meeting on Thursday, May 22nd, and a complete draft of the Air Convention and its annexes was considered, and, subject to some small amendments, was agreed to. It was further decided to submit the Convention to the Supreme Council as an appendix to a final report summarising the work of the Commission. The Convention itself deals with the following matters:—

(a) General principles governing the rights of international flight.

(b) The nationality and registration of aircraft.

(c) Certificates of airworthiness and competency.

(d) Principles governing flight over foreign territory.

(e) Rules to be observed on departure or landing and when under way.

(f) Prohibition of the carriage of certain objects.

(g) State aircraft.

(h) The International Commission for air navigation.

(j) Final provisions.

Technical details are relegated to annexes in the following order:—

Annex A.—The marking of aircraft.

Annex B.—Certificates of airworthiness.

Annex C.—Log books.

Annex D.—Rules as to lights and signals and rules of the air.

Annex E.—Certificates of competency, including medical requirements.

Annex F.—International maps and ground marks.

Annex G.—Meteorological information.

Annex H.—Customs.

The preparatory work of drafting the Convention was in the main divided between two sub-committees, the Legal, Financial, and Commercial Sub-Committee being responsible for the text of the Convention and of Annex H, and the Technical Sub-Committee for the text of the technical annexes A-G. The Commission itself, however, has been responsible for the final approval of the different drafts with the help of a small drafting committee.

A ROYAL AERO CLUB LUNCH.

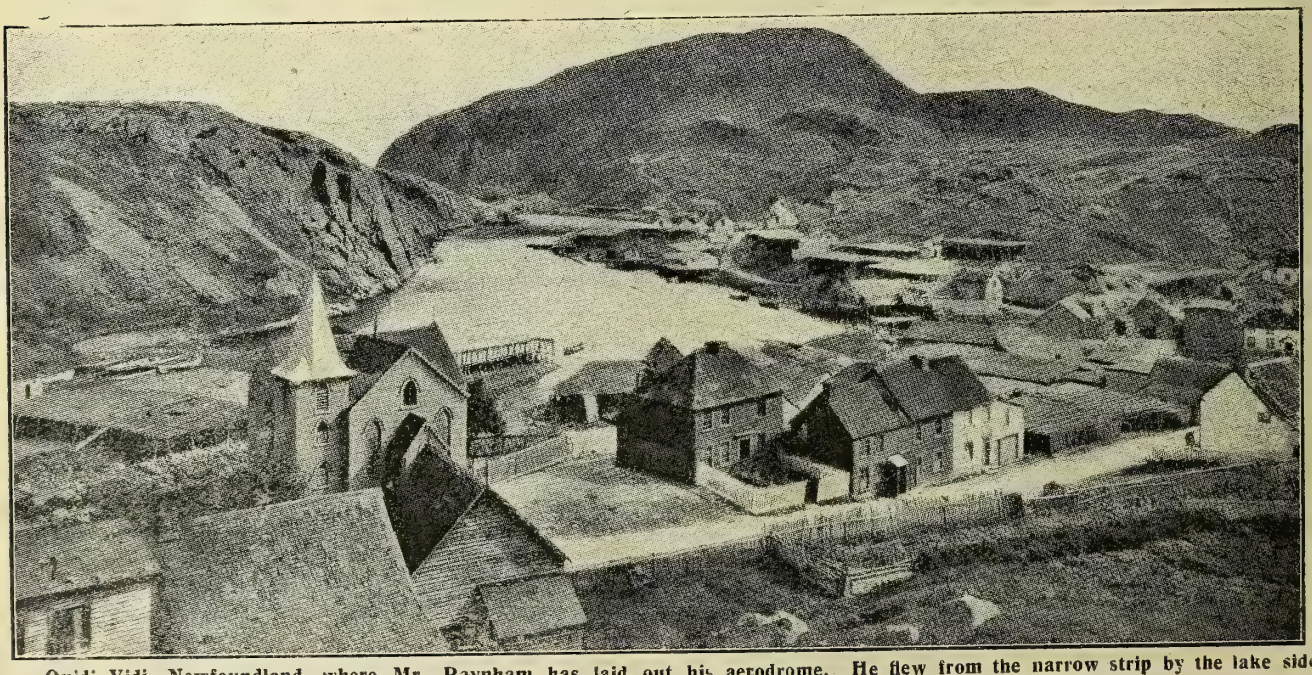
A luncheon will be given by the Royal Aero Club to Mr. H. G. Hawker and Commander K. N. Mackenzie Grieve, R.N., at the Savoy Hotel, on Friday, May 30th, at 12.45. Members should apply for tickets to the Secretary's Office, Royal Aero Club, as the accommodation is limited. The price of the tickets (which are for members only) is 30s. each.

AVIATION AS AFFECTING INDIA.

Brigadier-General Lord Montagu of Beoulieu, Adviser on Mechanical Transport Services to the Government of India, will read a paper on "Aviation as Affecting India" at a meeting of the Royal Society of Arts on Thursday, June 5th. The chair will be taken by Major-General Seely, M.P. The paper will be illustrated with lantern views.

CONGRATULATIONS.

DE BOLOTOFF.—On May 22nd, at 30, Portman Square, London, W., Dorothea Rosalie Buckingham (*née* Selfridge), the wife of Serge de Bolotoff, of a daughter.



Quidi Vidi, Newfoundland, where Mr. Raynham has laid out his aerodrome. He flew from the narrow strip by the lake side. Before getting to sea it is necessary to cross the hills on the right of the picture.

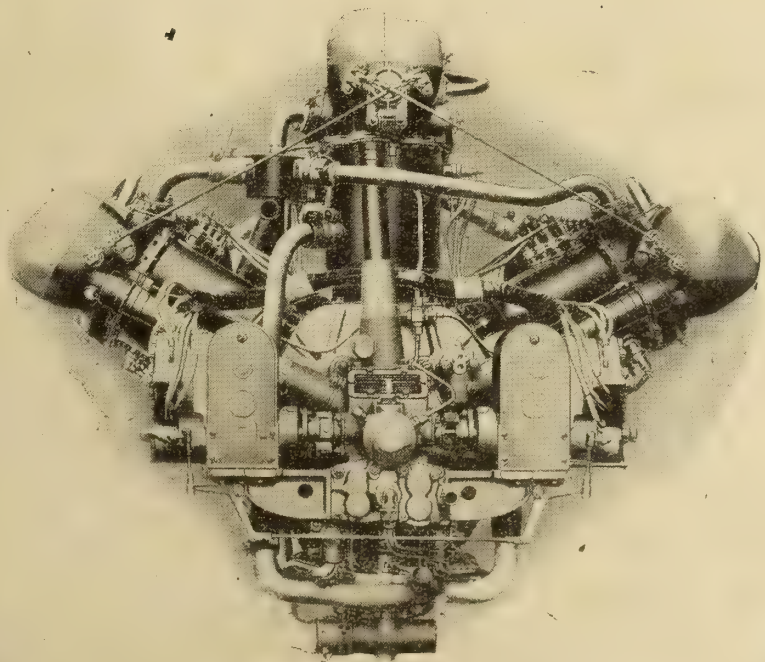
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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

Not Trained at Stonehenge.

A famous aircraft constructor who is noted for the ingenuity of his ideas suggests a practical method of getting rid of flies in rooms during the hot weather. After dark one enters the room and switches on the light. Then one stirs up all the flies with a towel and sets them all flying. As soon as they are well away at top speed one switches out the light, and the flies all crash landing in the dark. At least, so he says.

American Capacity.

The American "Aircraft Journal" states that:—

"Second Lieut. Ormer L. Locklear, Army aviation instructor, is so firmly convinced that a non-stop flight from New York to San Francisco is a certainty that he is planning to attempt one as soon as he gets out of Uncle Sam's service.

"The big feature of his plan will be to take on gasoline through a dangling tube from other 'ships' high in the air at various points along the route. The number of times it will be necessary to refill his tank will depend altogether upon the capacity of his tank."

And not upon the span and gap as might have been supposed.

In the event of the "dangling tube" fouling the airscrew a non-stop flight to earth seems probable.

More Imbecility.

According to Reuter, Lieut. O. Locklear, formerly with the U.S. Army Air Service, demonstrated on May 24th the possibility of passing from one aeroplane to another while in flight by catching a ladder dangling from the aeroplane passing overhead.

Both aeroplanes were at an altitude of 2,500 ft.

Lieut. Locklear claims previously to have dropped from a higher to a lower aeroplane while in flight, but this is the first time he has mounted to a higher aeroplane.

The feat was witnessed by the thousands who were attending the Pan-American Aeronautical Convention here.

After this one presumes that a number of correspondents will write to their favourite newspapers to suggest that all aeroplanes should be fitted with ladders in order that the pilot and passengers could descend in safety in cases of emergency.

One wonders whether Mr. Locklear is any relation to the late King Lear, another distinguished lunatic.

The War in the Air Pictures.

One gathers that the excellent R.A.F. pictures now being exhibited at the Grafton Galleries, Dover Street, will be closed to view at the end of this month, and, therefore, all readers who wish to see them should do so forthwith.

One is informed by a recent visitor to the Exhibition that quite an amusing afternoon's sport may be obtained by visiting the Exhibition with an old catalogue, as apparently the numbers on the pictures have been changed since the catalogue first appeared. For instance, he alleges that one gazes at a picture of a beauteous damsel drinking a cup of tea, and on referring to the number in the early edition of the catalogue one is confronted by the amazing statement—"To look at this picture one would think that a hedgehog had burst." This legend properly attaches to a picture of a large bomb in full blast.

Demobilised Staff Officers, One Presumes.

An American journal tells the following stories:—

"Recently a Government-trained aeronautical engineer was asked by a member of a prominent airplane company if he knew the ceiling of the JN-4H. Hesitating for a minute the engineer replied: 'Oh, yes. It is linen doped and varnished.'

"In commerce lapses now and then may be overlooked, but the salesman of a low-priced machine, who not long ago told a well-known flier that the 'factor of safety' of the machine he was selling was '30 miles per hour' really needs admonition from his employers."

An Official Address.

The ways of the airman who would be demobilised pass all comprehension. The latest story concerns one somewhere in the Eastern Counties, who, having expressed his desire to be demobilised, was told that he must apply to Bircham Newton—this being the name of the aerodrome at which his Group Headquarters were situated. In due course, thanks to the intelligence of the Post Office, there arrived at Group Headquarters, a letter addressed to "Messrs. Bircham and Newton," and beginning with the word "Gents."

Out of his Bearings.

The "Aerial Age" of New York publishes the following somewhat clumsily told story. It will be noticed that the Americans consider the word "plane" synonymous with "ship."

(Lieutenant Thompson is an Air Service cadet watching the mechanics tune up his plane for his first solo flight.)

Lt. Thompson to Mechanic: "What's the trouble with this ship?"

Mechanic to Lt. Thompson: "Sir, the bearings are burned out." (Lt. Thompson looks at mechanic in astonishment.)

Lt. Thompson to Mechanic: "I thought these ships were equipped with fire extinguishers?"

Mechanic to Lt. Thompson: "Yes, sir, they are."

Lt. Thompson to Mechanic: "Well, why didn't you use it?"

Caribou-hunting by Aeroplane.

The fears of those sportsmen who have regarded with dismay the possibility of caribou being hunted with aeroplanes have been soothed by a long article in the "Times." This article by C. Gordon Hewitt, Consulting Zoologist, Department of Agriculture, Ottawa, Canada, in its entirety is somewhat narcotic in its effect, but the following paragraph is startling:—

"The idea of hunting caribou with aeroplanes is not new. Similar proposals have been made by different people at various times since the development of the aeroplane and its use in the war; some enthusiasts have added maxim-guns to their means of offence. But to all such suggestions a deaf ear has been turned. During the war repeated efforts were made to secure a general relaxation of the game laws to permit the killing of game for food owing to the high price of meat. The Canadian Government resolutely opposed any such action, and a similar firm stand was taken by the provincial governments. It was realised that any such relaxation of the laws and the resulting excessive killing would mean the destruction almost to the point of extermination of many species of our game animals."

So one learns with relief that for the present there is no need for caribou to dig themselves in when they hear aircraft approaching. One trusts that the caribou have been informed.

Distinctly American.

An American journal gives a spirited account of a looping performance by Lieut. P. W. Maynard. Following is an extract:—

"With a determination to exceed Lieut. Joyce's record, he climbed into a Sopwith-Camel, in which he had had a narrow escape a few hours earlier by coming out of a 1,200 feet tail dangerously near the ground, enough to daunt the average flier. He shot off the ground straight toward the silvery reflection of the big full moon, the 160 Monosoupape motor making the flight spectacular.

"Securing enough altitude, approximately 2,000 feet, he started on his record-breaking looping journey. He simultaneously circled the field so that 50 to 52 loops would be made in each circuit, averaging five loops a minute, or, rather, 12 seconds per loop. By the time he had circled the field over six times he had broken the world's loop record for time and number.

"It is reported that his previous greatest number of loops was 16, although his acrobatic skill had been previously demonstrated in the execution of vrilles, sideslips, Immelmann turns, barrel rolls and sky-rock rolls. In addition to his regular performance he executed 18 loops after his main pressure gasoline supply tank became empty, for instead of gliding to earth he switched on his gravity emergency tank and threw in the extra loops for good measure nearer the ground. On account of the known fact that the gravity feed is useless in the upper halves of the loops, while the plane is upside down, this added further zest to the trip."

At this point one feels the necessity to pause for breath. The first problem is in connection with the silvery reflection of the big full moon. It will be noted that he shot off the ground towards the reflection of the moon, which it is to be presumed was mirrored in the sea or a lake. Possibly he dived off a cliff, which seems a somewhat risky proceeding at night.

With regard to "barrel" and "sky-rock" rolls, these appear to be new evolutions, and one prefers not to hazard a guess as to their nature. One may, however, question "the known fact that the gravity feed is useless in the upper halves of the loops." Theoretically, centrifugal force acting on the petrol would balance gravity, and in practice no difficulty is experienced in looping when the fuel supply depends upon gravity.

The entire article may be best described as—well, American.

ROLLS-ROYCE

The future of Flying depends on
TRUSTWORTHINESS

"The ROLLS-ROYCE enjoys an unparalleled reputation for Reliability."

The Autocar, Feb. 8th, 1919.

ROLLS-ROYCE AND THE GREAT VICTORY.

Up till Armistice Day :—

122 "HANDLEY PAGE BOMBERS"
had been made.
113 were fitted with ROLLS-ROYCE engines.

1524 COMPLETE "BRISTOL" FIGHTERS
had been delivered
1346 were fitted with ROLLS-ROYCE engines.

ROLLS-ROYCE AERO ENGINES LIKE ROLLS-ROYCE CARS ARE THE BEST IN THE WORLD.

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ROLLS-ROYCE

The WORLD of AERONAUTICS (continued)

A Mythical Aerodrome.

The following amusing account of the results of an Air Ministry blunder appeared in the "Daily Mail":—

A correspondent, in a hurry to get from London to Plymouth, consulted the Air Ministry's list of civil air routes. He found there was an aerodrome at Cattewater, near Plymouth, and telephoned to Col. Henderson at the Hounslow aerodrome. The correspondent proceeds:—

"We fixed up terms in less than a minute. I sent for a taxi-cab, secured one—which was miraculous—and drove straight to Hounslow. Within five minutes of my arrival there I was in the air. We arrived over Plymouth at six o'clock.

"Col. Henderson, who was piloting the machine, shouted to me that he could not see the aerodrome. Nor could I. After circling over Plymouth for some time we landed in a field and asked our way. The first passer-by had never heard of an aerodrome in the neighbourhood. The second thought there was one somewhere. The third was 'a stranger in these parts.' The fourth, or fifth, or sixth, I forget which, said he did know that aeroplanes sometimes came down over by the naval station at Cattewater—on the golf links, he thought. He had seen some smashed up there.

"Cheered by this news, we rose and made for the naval station. We came down to a few hundred feet and observed a stretch of unfenced ground seared with trenches and covered in places with bunkers and wire fences. Somewhere among these hazards, by most skilful piloting, Col. Henderson managed to side-slip in and make a landing.

"Then we waited. We still wondered where the aerodrome was. An R.A.F. officer appeared and said we were on the aerodrome. This place of trenches and wire fences was a terminal 'station' within the meaning of the Civil Aviation Regulations. He was apologetic for the aerodrome—in fact, he admitted that it wasn't one really."

The sequel came the other day in an Air Ministry statement, which, after admitting that Cattewater had been announced as "one of the stations which it was proposed should be used jointly by Service and civil pilots," says Cattewater is in a prohibited area and "is a seaplane base and not a land aerodrome."

All of which confirms one in one's view that most official communiqués are—to quote Mr. Rudyard Kipling—"based on conformable strata of absolutely impervious inaccuracy."

A Grave Omission.

One is glad to hear that the authorities of medium altitude pertaining to the R.A.F. still continue their amusing habits. One of the latest efforts consists in a series of letters from a brass-hatted gentleman at a Salvage Depôt to a firm of contractors somewhere in the British Isles, complaining bitterly that machines numbered umpty something or other—which happen to be surplus nacelles of obsolete pusher biplanes never completed—have been delivered to his depôt minus the proper log-books recording their flying career, and requesting the firm to give their immediate attention to the matter.

A Seaplane Endurance Test.

The Air Ministry has issued the following statement:—

"In view of the recent trans-Atlantic achievement of the American seaplanes the following details with regard to an endurance test just carried out by a British service seaplane are particularly interesting.

The type of seaplane used—an F.5—was an ordinary production machine, and was fitted with two 350 Eagle VIII Rolls-Royce engines.

The ascent was made from Felixstowe at 8.20 p.m., with Captain Scott, D.S.C., as pilot, Captain Dickey, D.S.C., as navigator, and two mechanics. Weather conditions were good once the machine was in the air, but a choppy sea was running at the time, and before taking off a certain amount of water was shipped. Moreover, the direction of the wind and this condition of the sea rendered it necessary to taxi outside the harbour for some distance before actually taking off, which reduced the amount of petrol actually available for the flight.

The course followed was a coastal one, passing Margate, Eastbourne, Bognor, Brighton, Folkestone, Ramsgate, Sheerness, Cromer, Southwold, Lowestoft and back to Felixstowe. No attempt to land was made until the engines actually stopped from lack of petrol. This, of course, was done deliberately as a test, and the machine was flying continuously for no less than 14 hours and 8 minutes, or, including getting out of harbour, 14½ hours, landing at Felixstowe again at 10.20 a.m. the following morning.

No engine trouble of any sort was experienced, and had more petrol been carried the flight could have been considerably prolonged.

An important point to remember in connection with this very creditable achievement of the British machine is that no special modifications were made, and the ordinary service load was carried. The total weight of the machine with crew at the time of ascent was 13,710 lbs., of which 150 lb. was water shipped in the choppy sea before taking off. The average speed maintained was about 55 knots, and wireless communication was maintained with the base at Felixstowe throughout the flight.

An Experiment.

A giant 1,600 h.p. (four Rolls-Royce engines) Handley Page aeroplane made a non-stop experimental commercial flight on May 24th from Belfast to Folkestone, and travelled 520 miles in six hours. The pilot was Mr. Clifford Prodger, and among the passengers was his partner, Mr. Bernard Isaac, one of the pioneers of commercial aviation in 1909.

Although at times the speed was over 100 m.p.h., the main part of the journey was carried out with the motors throttled down to cruising speed, and the speed averaged nearly 90 miles per hour over the whole journey.

Demobilised.

The following aerodromes and landing grounds have been relinquished by the R.A.F.:—

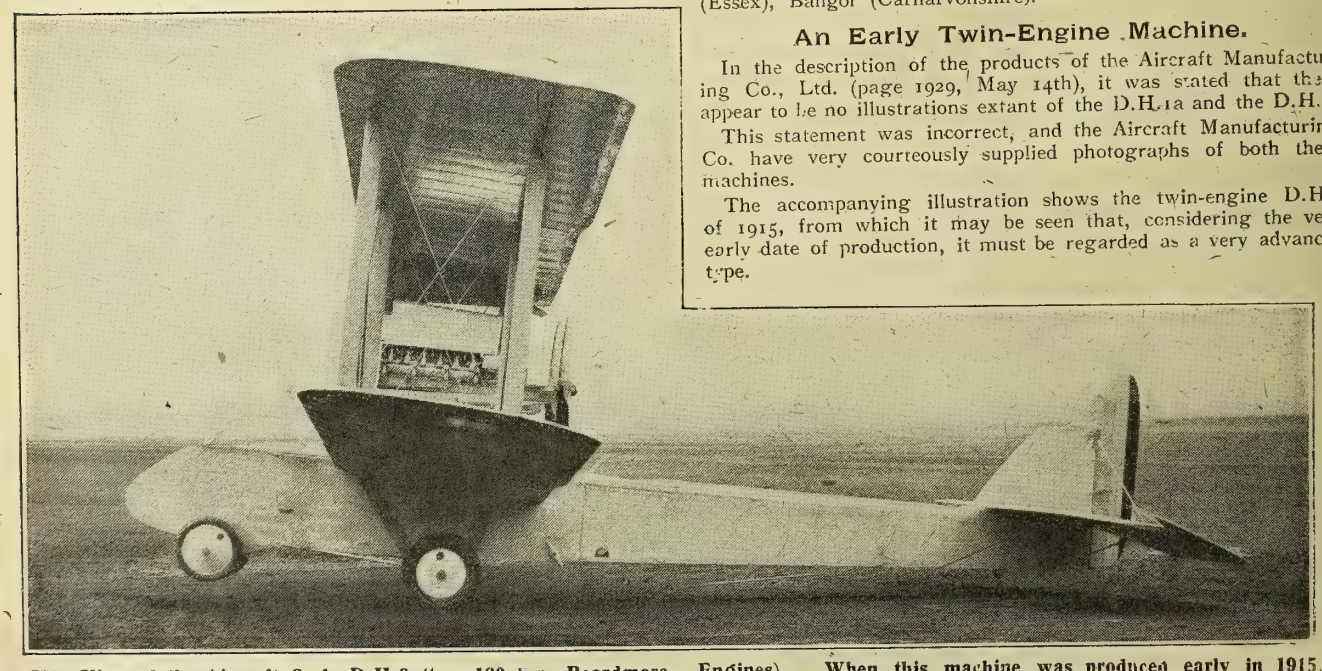
Kilconquihar (Fife), South Ash (Kent), Bellesize (Yorkshire), Stanstead (Hertfordshire), Telscombe (Sussex), Goldhanger (Essex), Bangor (Carnarvonshire).

An Early Twin-Engine Machine.

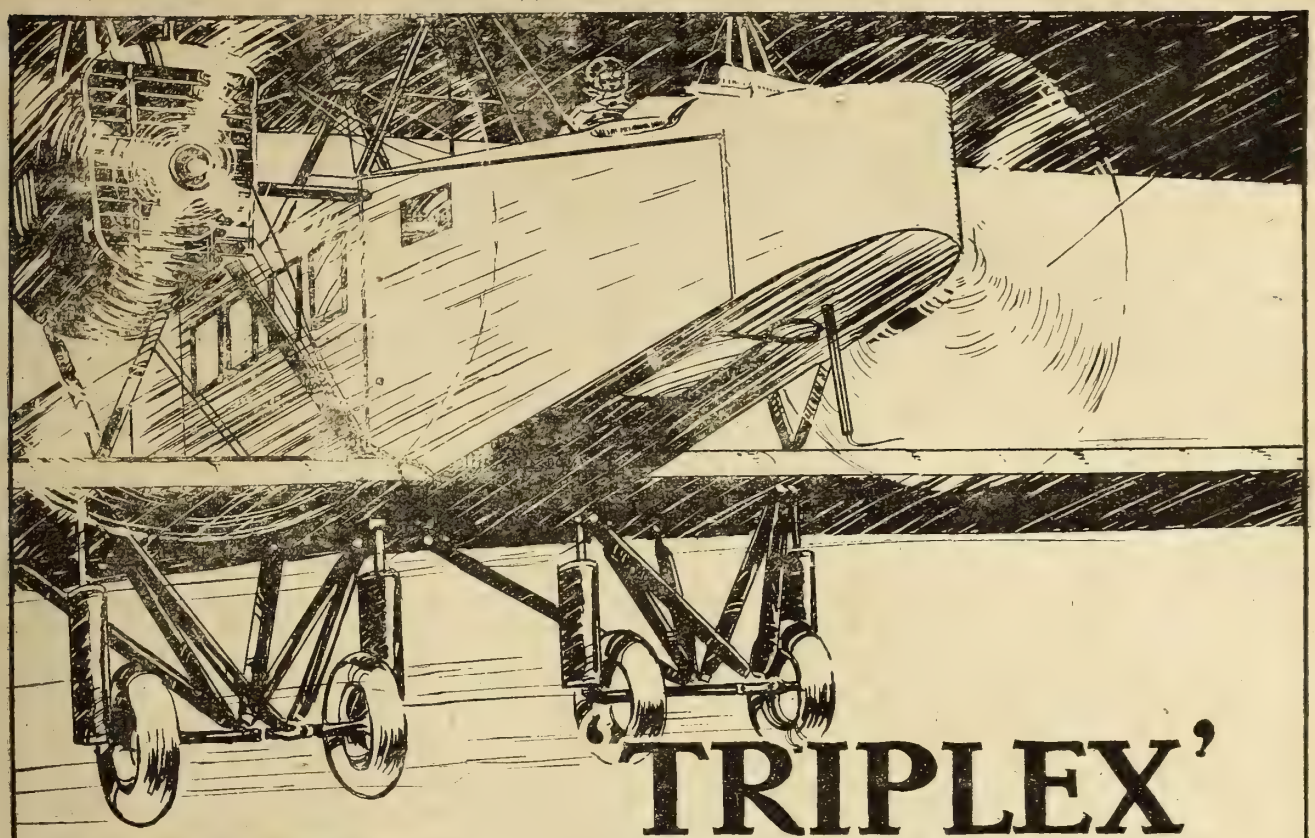
In the description of the products of the Aircraft Manufacturing Co., Ltd. (page 1929, May 14th), it was stated that there appear to be no illustrations extant of the D.H.1a and the D.H.3.

This statement was incorrect, and the Aircraft Manufacturing Co. have very courteously supplied photographs of both these machines.

The accompanying illustration shows the twin-engine D.H.3 of 1915, from which it may be seen that, considering the very early date of production, it must be regarded as a very advanced type.



Side View of the Aircraft Co.'s D.H.3 (two 130 h.p. Beardmore Engines). When this machine was produced early in 1915, nobody in authority wanted to bomb Berlin. Engines were not available, so no more of the type were built. But, as may be seen, it is the direct ancestor of the D.H.10.



'TRIPLEX' Safety GLASS IN CIVILIAN FLYING



Interior of a Handley Page Passenger Aeroplane.



Inside of H.M. Air Liner 'Silver Star."



Showing windows in H.M. Air Liner "'Great Britain."

The whole question of the public support of flying, and of the establishment of public confidence in travelling by air, depends much upon the provision of every possible safety precaution in machines employed for civilian service. Amongst the most important of these essentials is the stipulating of "Triplex" Safety Glass for all panels, windows and windshields, and for the eyepieces of goggles, for without this precaution many serious and perhaps fatal accidents must occur from flying splinters of glass on the least concussion or shock of landing. "Triplex" Safety Glass is absolutely and definitely unsplinterable under any impact or communicated shock. Catalogue No. 3 explains exactly what "Triplex" can withstand and how it is made.

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The WORLD of AERONAUTICS (continued)

218 Squadron's Dinner.

A dinner will be held by 218 Squadron Officers. Will those desiring to attend please write to Major Wemp, c/o THE AEROPLANE, 166, Piccadilly, W.1., immediately?

A Sportsmanlike Letter.

Last week one drew attention to the fact that some Handley Page machines had flown across Lord's during the progress of a match between Middlesex and Notts, and had caused a temporary stoppage of the game. On May 21st the "Daily Express" published the following:—

Handley Page aeroplanes have sometimes been described as "lords of the air," but the company which owns them has come forward in a sportsmanlike manner to deny that it makes any claim to the air of Lord's.

Mr. E. J. Bray, general manager of Handley Page Transport, Limited, writes to the "Daily Express" that he has sent the following letter to the secretary of the M.C.C., expressing his regret for the occurrence:—

"My attention has been drawn to an article in the 'Daily Express,' in which it is stated that one of our machines flying over your ground on Saturday interfered with the match then in progress.

"I much regret this, and can assure you, as an old cricketer, that I have already taken the necessary steps to prevent its recurrence."

A Long Duration Flight.

A Handley Page aeroplane, type V/1500 (four Rolls-Royce engines) carried out an endurance flight from an R.A.F. aerodrome in Norfolk recently. The machine, carrying a crew of five officers and three airmen, left the aerodrome a few minutes before 8 a.m. and returned at 7.40 p.m., no landing having been made in the meantime.

The total distance flown over the ground was 836 miles, corresponding to a mean speed of 72.8 miles an hour, with a load of 24,890 lbs. all on.

During the flight Birmingham, Southport, Manchester, Lincoln, London, Felixstowe, Yarmouth, and Hunstanton were visited.

Low Flying.

Sentence has been promulgated in the case of Flight-Cadet Harry Willoughby Ray, R.A.F., who at a recent district court-martial held at Upton, near Chester, was found guilty of two charges of flying at a low altitude, thereby damaging telegraph wires, and of flying to the danger of the public.

The sentence of the court was that Ray be discharged from the Service. The group commander confirmed the finding of the court, but commuted the sentence to 28 days' detention and forfeiture of all ordinary pay for two months.

It was stated that Ray flew very low over Grosvenor Park and the River Lee on Easter Monday when it was crowded with small craft. It was his final flight, as he was to have been demobilised that day.

A Queer Case.

Captain and Flt.-Cdr. W. G. Hinchcliffe, R.A.F., was committed for trial at Spilsby recently on a charge of stealing a motor-cycle and sidecar at Skegness. It was alleged that Captain Hinchcliffe took the cycle from a garage, and with the aid of a mechanic exchanged various parts of the machine. Captain Hinchcliffe said that on the way to the aerodrome his own cycle, of similar make to the one alleged to have been stolen, broke down. While engaged on the roadside repairing it a man came along on another motor-cycle, and from him he purchased parts to repair his own.

Another Queer Case.

An American dancing master, Arthur Joseph Maguire, 25, who had been a transport driver in the R.A.F., was sentenced to six months' hard labour, on May 23rd at West London Court, for obtaining £26 by a bogus cheque from Charles Henry Boeglin, manager of the American bar at Selfridge's. He had stated that he was attached to the American Embassy and had got an introduction from Miss Elsie Janis to Sir Alfred Butt.

The cheque was signed "R. V. Thornton," who, he said, was the general manager of the Great Eastern Railway. The cheque form had been stolen from a book in a West Kensington boarding-house.

The Case of Miss Douglas-Pennant.

At the meeting of the Executive Committee of the National Party on May 21st, the following resolution was passed, and copies have been sent to the Prime Minister, Mr. Bonar Law, M.P., Mr. Winston S. Churchill, M.P., and other Ministers concerned:—

"That in the opinion of this Committee the delay in fulfilling the repeated and explicit promise that there should be a full judicial inquiry into the dismissal of Miss Violet Douglas-Pennant is highly detrimental to the reputation of the Government and to national confidence in the public services."

The Official Answer.

According to the "Daily Mail," General Seely states that "the provision of parachutes is receiving the closest attention of the Air Ministry, but their development has not yet reached a stage in which compulsory universal provision would be either practicable or advantageous."

So now one understands why lives that might be saved continue to be sacrificed.

Kite-Balloon Aprons.

Dr. Prassone, director of the Italian Aeronautical Instruction Department, and Major Avorio, of the Italian Engineers, brought a claim before the Royal Commission on Awards to Inventors, at Westminster, on May 26th, with respect to a type of kite balloon which formed part of the "apron" of the defence of London during the air raids.

Mr. Whitehead, for the applicants, said the balloon was spherical in shape and filled with hydrogen. There was a conical appendix, and three further spheres, known as stabilisers, which were filled with air. The balloon only came into operation with the Air Force shortly before the close of hostilities, and it was claimed to be superior to other types in lifting power and stability. The balloons were used in the defence of London, the system being known as the "apron" defence. A pianoforte wire was stretched between two of the balloons and to this wire further wires were attached in the form of streamers, the object of which was to entangle an enemy aeroplane or other aircraft seeking to make its way to London, and so bring it down.

Mr. Trevor Watson, for the Treasury, said twenty-three balloons had been constructed at a cost of about £40,000, and while admitting that the invention was one of very considerable practical utility, and had very considerable advantages, he argued that it did not enable anything to be done that could not be done without the invention. He suggested a royalty of five to seven per cent. in addition to £500 in respect of expenses.

The claimants accepted the offer of £500 for expenses, but their Counsel asked for a ten per cent. royalty.

The Commission reserved its decision.

Wireless Telegraphy and Aircraft.

Mr. Godfrey Isaacs was the guest at luncheon of the Aldwych Club one day recently, and spoke on the future of commercial wireless telegraphy. Sir Arthur Pearson presided.

Mr. Isaacs said:—In dealing with the air he would speak only of the things which had been achieved. Aeroplanes and airships would play a very great part in the future, both in respect of travel and also of communication. Mr. Handley Page had said to him the other day that he thought he was going to compete with wireless in communication. He would not be able to do that until he could travel 12,000 miles without a stop in something less than a second. (Laughter.)

Whether they competed or not, it was the intention of wireless telegraphy to help the aeroplane and the airship. There was a simple means of communicating by wireless with aeroplanes and airships, and there was no doubt that the distance over which they would be able to communicate would increase considerably; in fact, it was increasing daily. The assistance which wireless could give to the aviator was great. It could provide him with the latest development of wireless direction. The wireless direction finder would enable the pilot to ascertain approximately where he was at any time.

A further development had given them a new transmitter, which would project into the air a wide divergent beam, something like a searchlight without the light, which would extend over any area required, or, if it was desired, a concentrated beam over some small place, and these beams would convey to the men in the sky automatically the name of the place they were passing over.

Assuming that a man was passing over the town of Guildford; from the moment he traversed the region over which this beam was playing he would receive the signal, "This is Guildford, and would continue to receive that signal so long as he was over Guildford and no longer. In just the same way, if he was passing over Windsor Forest he would be told: "This is Windsor Forest," and when he came to his aerodrome a beam would tell him, "This is Hendon Aerodrome." In that way he thought that one of the greatest dangers to pilots in fog and in darkness was disposed of.

It required very little imagination to see, a little while hence, some thousands or tens of thousands of names being projected into the skies, so that in whatever part of the world an aeroplane might travel it could be told continuously and automatically where it was. It would be as easy to learn in the skies where they were as in a railway train when they looked out of the window to see the name of a station.

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PARIS NOTES

MAY 26th.

DIRIGIBLES.

It cannot be said that interest in airships is ever more than spasmodic and lukewarm except among the few financially and scientifically interested in them, and even they, in their devotion, have a tendency to become industrially and aerostatically marooned. However that may be, with post-bellum days within measurable distance, the various societies interested are preparing for the commercial utilisation of their rigid or semi-rigid craft. For example, the Maison Astra have formed a Compagnie Trans-aérienne in Paris, with the intention of starting a trans-Mediterranean service, and also battlefield tours by airship: these latter will commence in June. Meanwhile Mr. Charles Dollfus has been granted facilities by the French Navy to take trips in a Navy dirigible, in order that he may collect data and formulate a proposition for a regular airship service between France and her North African Protectorates.

Then there is the Commission des Dirigeables of the French Aero Club, which is making serious efforts to get whatever powers that be (for the moment) to render aid in developing aerial navigation by airships on a large scale. Recently they addressed a resolution to the authorities, from which one gains an excellent idea of their industrial intentions and their mental attitude towards the late German Empire:—

1. That all construction of large airships (rigid) have their own "hangar de montage."

2. That the projects for hangars, studied by Naval Service of Hydraulic Works, be not abandoned, and that the Civilian Aviation authorities take over all such work begun and continue it in order to hand them over to the industry as and when finished.

3. That there be placed at the disposal of competent technical authorities an installation similar to that at Rome for the trials of motors intended for airships.

4. That France follow the example of England in employing State aid, in order to establish the industry of rigid airships on a broad and sound basis.

5. That France demand the four German hangars now erected at Namur and Duren, in Belgium.

6. That France demand five German rigid airships.

7. That France inquire into the German method of producing hydrogen.

8. That the French authorities experiment with a light varnish for the ballonets, and one less porous than rubber.

9. That trials for engines intended for service in large rigid machines last 1,000 hours for each type in ten trials of 100 hours each. These motors, which should have a normal h.p. of 300, must be capable of giving 350 h.p. at 1,200 to 1,400 r.p.m.

THE SURPLUS PILOTS.

Some are of opinion that French military aviation is being disintegrated too rapidly and that when commercial aviation commences in earnest, the men will not be available, whilst others are engaged in counselling pilots and mechanics to return to their pre-war occupations without delay. As the director of a large pre-war aviation enterprise put it, supposing after the war there are twenty aerial transport companies, which is improbable, but supposing they will certainly not need more than a thousand aviators, and the Army will probably only keep a thousand, which leaves several other thousands very much *en l'air*. This employer, who is promoting commercial aerial transportation on a big scale, told me his method had been hitherto to select "probables" from men who had won the Croix de Guerre, the Military Medal, and had a minimum of seven citations in Army orders, but his list had already reached 400, so he would perforce have to be more exigeant than he had intended!

"LANDING ON WATER."

French philologists have been much exercised lately over the choice of a word to express the action of "landing" an aircraft on water, be it sea, lake, or river. "Atterrir" is certainly inexact, whilst "ammerrir" could only be used for descent to the sea. "Affletter," which seems excellent for the purpose, was almost decided upon, when someone suggested that there was no need to coin a new word, when the French language already possessed a most admirable term in "*se penser*." There the discussion has ended. Such are the difficulties encountered with a language controlled by an Academy.

A FORCED LANDING.

Last Saturday the Farman Goliath left as usual for Brussels. It carried its full complement of paying passengers, several of whom were English business men. When nearing Brussels one of the motors stopped, the first time this has ever occurred since the route was opened, and Bossoutrot was able to bring the machine down close to the railway station at Papignies, whence the passengers reached Brussels in a short time. It is to be noted that Bossoutrot flew for well over a quarter of an hour with one motor only, which gave him sufficient time to find a suitable landing-ground, with the minimum of inconvenience to his passengers. The trouble was not serious, however, and the Goliath reached Brussels the same evening and returned to Paris according to schedule.

On Tuesday Mrs. President Wilson went out to Villacoublay and flew over Versailles in the Farman Limousine.

CIVIL FLYING IN FRANCE.

This last week has seen the abrogation of the French law of July 31st, 1914, forbidding all civilian flying in France, so that it is probable that pleasure flying and aerial cruises will become increasingly popular.

A NEW TYPE.

A new type of machine called the Marçay, with a 300 h.p. rotary engine and piloted by Lieut. Lebeau at Villacoublay, attained a speed of 252 k.m.h. near the ground. The following are its comparative speeds according to height:—

Near ground	252 k.p.h.
3,000 metres	237 ,,
4,000 metres	231 ,,
5,000 metres	220 ,,
6,000 metres	208 ,,

THE HEIGHT RECORD.

It is probable that Lieut. Sadi-Lecointe, better known as Sadi, on a Spad-Herbemont machine, has beaten the height record set up by the American pilot named Schroeder. On his return to earth at Villacoublay his altimeter showed 8,900 metres, and it is now awaiting "homologation" by the Sporting Commission of the French Aero Club. The attempt was controlled by Capt. Laubignac and by Captain Toussaint. The machine was eleven months old and had seen war service, and was fitted with a 300 h.p. Hispano-Suiza engine. The only speciality was the airscrew, which was a "Lumière."

THE CENTRAL POWERS BOARD.

Under the presidency of Prince Roland Bonaparte, the Fédération Aéronautique Internationale decided to prohibit any representative of the Central Empires from participating in any international aerial manifestation before the formal constitution of the League of Nations.

A commission has been formed, with M. Surcouf as secretary, to revise the general hules of the F.A.I.; it was also decided to change the conditions for granting brevets to pilots, and also to change certain rules appertaining to the recognition of records.

The F.A.I. further voted unanimously the following resolution, which is to be transmitted to each of the Governments of the delegates represented at the conference

BELGIAN NEWS.

A committee under the patronage of the Belgian Aero Club has been formed at Brussels with the object of erecting a monument to the memory of Belgian aviators killed in the war.

On the initiative of the Overseas Bank a syndicate has been formed in Brussels to promote a powerful aeronautical company to exploit airways in Belgium and the Congo. All the leading Brussels banks and some of the French ones are concerned in the scheme.

SWISS NEWS.

Lieut. Wuest, who recently received the Diploma of the School of Aeronautical Engineering at Lausanne, has been appointed by the military authorities as Inspector of Swiss Aviation.

In order to make aviation as successful as possible it has been decided to combine passenger flights between Dubendorff and other big towns with the postal service.

A committee has been formed at Lugare with the object of organising an aerial service between that city and Lucerne.

The Swiss who were hoping to buy cheaply, and the Germans who were hoping to sell, their machines will be grievously disappointed now that General Nudant has reminded the latter that under the terms of the Armistice they are prohibited from selling their machines abroad, and that therefore the negotiations must cease.

The following appeared recently in a Swiss paper:—

"AEROPLANE CONSTRUCTION.

"All the foremen and pilots of the most important German firm of aeroplane constructors, with the necessary technical apparatus, offer to establish and direct, abroad—if need be, overseas—a factory for constructing aeroplanes. Offers to No. . . at Rudelf Messe, Berlin."

Apparently it would be a "neutral" firm!

ITALIAN NEWS.

Major Rabbeno, writing from Leghorn, states that the Rabbeno-Magaldi patent amphibious alighting gear has now been fitted to an R.N. seaplane of the F.B.A. type, and that it has been incorporated in a new type of boat-body. Although sprung and contractable, the gear weighs less than 60 kilos for a machine weighing 1,400 kilos. The inventors feel certain that this percentage will be reduced very considerably in the case of bigger hulls, and see no limit in size or weight which would render the fitting of their device impossible.—T. S. H.

THE "SHELL" THAT HIT GERMANY HARDEST*

IT was the privilege of "Shell" to figure in two of those great crises which governed the entire course of the war:—

THE HIGH EXPLOSIVES CRISIS. —"But for toluol, *the war would have been lost*," declared M. Berenger, Commissioner-General of Petroleum in France. It is toluol that gives its name to the T.N.T. (Trinitrotoluol) which was so extensively used by the Allies for shells, mines and bombs. Approximately 80 per cent. of Britain's entire output of toluol in the critical year of 1915 was supplied by "Shell." Addressing the Institute of Petroleum Technologists at their Annual Dinner some months after the Armistice, Sir Frederick W. Black, K.C.B., referred to the "Shell" group as having given us that valuable product toluol, from Borneo petroleum, without which we could not have defeated the enemy.

THE TANK TONNAGE CRISIS. —In the tank tonnage crisis of 1917, when all the vessels of the British Navy were wholly dependent upon liquid fuel, and the exercises of the Grand Fleet had to be curtailed on account of the acute shortage, "Shell" placed before the Admiralty the proposition of bringing liquid fuel from abroad in the "double bottoms" or ballast tanks of ordinary merchant ships, and, at the request of the Admiralty, "Shell" undertook the entire work of conversion. No fewer than 1,280 vessels were so converted, and 1,014,570 tons of liquid fuel were by these means brought over by the date of the Armistice, as a result of which the entire situation was saved. The tonnage represented by this enterprise was equivalent to a *new fleet of a hundred oil tankers.*

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THE TRANS-ATLANTIC COMPETITION.

MR. HAWKER'S ATTEMPT.

As was stated last week, Mr. Hawker and Lieut.-Commander Mackenzie Grieve left St. John's, Newfoundland, at 12.45 p.m. Greenwich time (3.15 p.m. local time) on May 18th. On the evening of May 19th the Admiralty, with customary innocence, published a communiqué stating that pilot and passenger had been located in the sea at a point 40 miles west of the Shannon. This news was rapidly disproved and nothing further was heard until a message was received on May 23rd from the cable-ship "Faraday," stating that a red light had been seen by the s.s. "Samnanger" in the air at 4.1 a.m. Greenwich time on May 19th. The position given was 50 deg. 28 mins. N. latitude, and 30 deg. 2 mins. W. longitude, or about 1,000 miles from Newfoundland on a direct course to Galway.

Then again silence fell, and hope was abandoned. The stormy weather which prevailed during the middle of the week seemed to leave no chance of the escape of the crew of the Sopwith. It was unlikely that they had been picked up by some passing vessel as Atlantic traffic is not yet congested.

On May 25th, a message was received from Lloyd's signal station at Butt of Lewis stating that the Danish steamer "Mary," New Orleans to Hersens, Denmark, had the Sopwith crew on board in safety. The "Mary" was intercepted by H.M.S. "Woolston," and Comdr. Grieve and Mr. Hawker were taken to Scapa, where they spent the night in H.M.S. "Revenge."

The "Mary" had picked them up in Lat. 50 deg. 20 mins. N., and Longitude 29 deg. 30 mins. W., after they had been in the water one and a half hours. The cause of the failure was a choked radiator filter which caused the water to boil away.

The "Daily Mail" has undertaken to divide £5,000 between them in recognition of the determination in making so risky an attempt under bad weather conditions.

Mr. Hawker and Lieut.-Commander Mackenzie Grieve were received last night at King's Cross with greater enthusiasm than is shown for a great commander or a statesman of world-wide renown.

The following extracts are taken from Mr. Hawker's account in the "Daily Mail" on May 27th:—

"The sky was quite clear for the first four hours, when the visibility became very bad. Heavy cloud banks were encountered, and eventually we flew into a heavy storm with rain-squalls.

"Trouble did not begin until we were five and a half hours out from St. John's. Then the temperature of the water in the radiator began to rise. We could see that something was the matter with the water circulation.

"It was part of my job to watch. Grieve was busy taking sights. It was about 11 p.m. Greenwich (midnight summer time), and the clouds were exceptionally thick. We had not seen the water since we were 10 minutes out from St. John's.

"Our height was about 10,000 feet, and there were many cloud peaks up to 15,000, making a very bad horizon; there being no moon, it not having risen by then, and having to go round the clouds, it was difficult to steer a good course.

"It was freezing hard. The water temperature in the radiator rose from 168 degs. to 176 (212 is boiling point) in a few minutes, and maintained that for a couple of hours or more.

"I came to the conclusion to stop the motor, put the nose of the machine down steeply with the hope that this would clear the refuse in the filter, and this was successful.

"So I decided to go beneath them. Coming down to about 6,000 ft. we found it blacker than ever. Eventually I got to 1,000 ft. above the water before we could see to fly.

"We started on our course again with the sun just getting up, but could not keep the temperature below boiling.

"Then we decided to fly diagonally south-east and then south-west across our course to see if we could find a ship.

"This we did for about two and a half hours before we found a ship.

"At last I sighted a ship close to us on our port (left) bow.

"We flew alongside her at 400 ft., fired three Verey distress signals, and waited some time flying across and across until she got some men up on deck.

"Then we went ahead about two miles and landed in front of her. We made a very good landing, although a very high sea was running, and the machine floated on an even keel well out of the water.

"The sea was running up to 12 ft. and breaking right over the machine and us.

"Our life-saving suits kept us dry, and for an hour and a half we watched the crew of the 'Mary' trying to launch a lifeboat. She was only two hundred yards away. After much difficulty she succeeded in getting to us, and we boarded the lifeboat and were pulled to the ship by a line.

"Owing to the heavy sea, it was impossible to salve anything at all."

THE AMERICAN ATTEMPT.

The N.C.4, Lt.-Comdr. Reid, U.S.N., which alighted at Horta, Fayal, in the Azores after a successful flight from Newfoundland, continued the flight on May 20th. Leaving the harbour at Horta at 12.40 p.m., Greenwich time, she flew without incident to Ponta Delgrada, San Miguel, where she alighted at 3.20 p.m., Greenwich time.

The N.C.3 is definitely withdrawn from the flight in view of the damage caused by her sea journey of 200 miles at the end of the Newfoundland-Azores stage.

The N.C.1 was abandoned at sea after the crew had been rescued, and the N.C.4 is now alone in the flight.

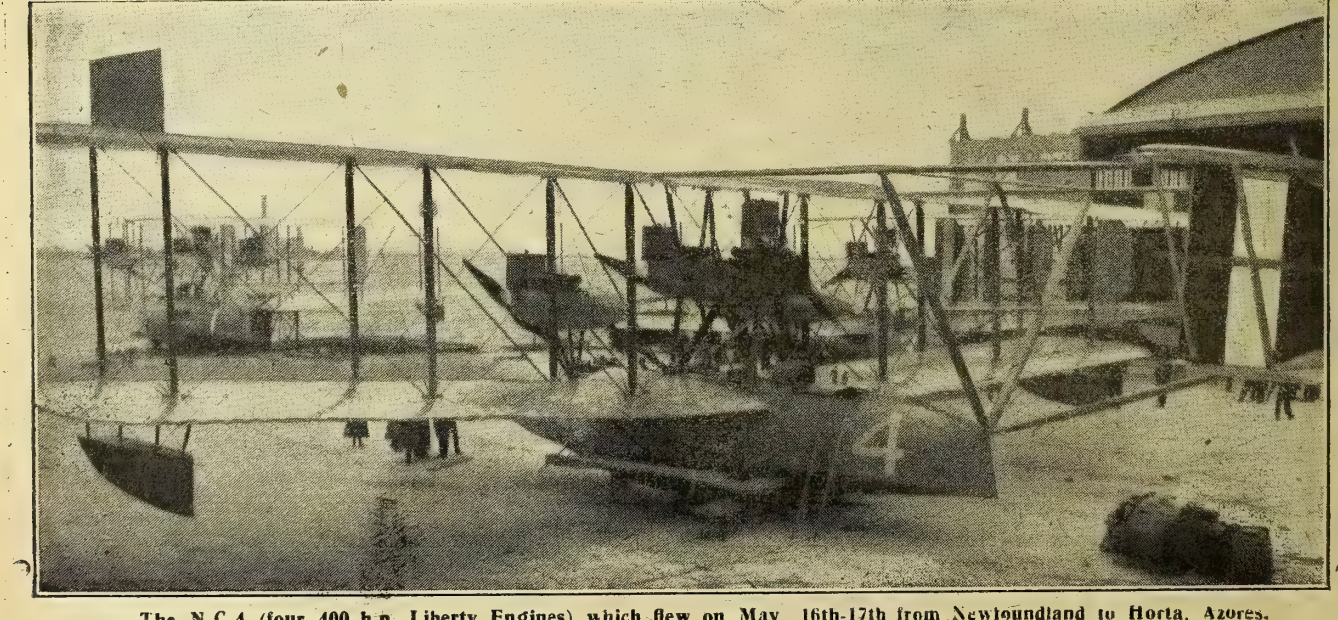
She left the Azores for Lisbon on May 27th.

THE VICKERS-VIMY AND THE MARTINSYDE.

The Vickers-Vimy biplane is expected daily at St. John's. In the meantime the Vickers mechanics are assisting Mr. Raynham and his people in the reconstruction of the Martinsyde biplane, damaged at the attempted start on May 18th.

A new Rolls-Royce engine is being sent to Newfoundland for use in the Martinsyde, and it is expected that the machine will be ready for a fresh attempt in about three weeks.

Capt. Morgan, who was to navigate the Martinsyde, was somewhat more severely injured in the accident on May 18th than was at first understood. One of his eyes has been seriously injured, and he is suffering from shock. Consequently he is now forbidden to fly, and a new navigator has been selected and left England on Monday last.



The N.C.4 (four 400 h.p. Liberty Engines) which flew on May 16th-17th from Newfoundland to Horta, Azores.

THE FAIREY BIPLANE.

It was announced on May 21st that in deference to the wishes of his family Mr. Sidney Pickles had withdrawn from the race, and that a new pilot was being found. The machine is almost ready for transport to Newfoundland. Mr. Fairey says that he is "snowed under" with applications from would-be pilots of the machine.

TRANS-ATLANTIC FLIGHTS.

The following communiqué has been issued by the Government:

It must be understood that these flights are being undertaken as private enterprises and are not in any sense under Government control.

As stated by the Under Secretary of State for Air in the House of Commons on May 8th the attitude of the Air Ministry in regard to the Trans-Atlantic Flight has been to enjoin caution upon those engaged in the enterprise rather than to urge them on to make the attempt.

Even if it were otherwise desirable to assist this enterprise by patrolling the seas with H.M. ships, many and heavy obligations of the Fleet would render this impossible. Although, however, the Government cannot recognise any responsibility in this matter every possible information has been furnished, and every assistance has been given in regard to weather reports, navigation, wireless, and instruments, which could make the venture less hazardous. Throughout, there has been complete co-operation between the Admiralty and the Air Ministry in this matter.

So soon as it was made known some weeks ago that competitors were ready to start, a special officer, known as the Trans-Atlantic Duty Officer, was placed on duty night and day at the Air Ministry. When news was received that Mr. Hawker had started, this Officer instructed the Marconi Company to warn the wireless stations at Poldhu and requested the War Registry at the Admiralty to warn Valentia and Poldhu. This was done. The message was to the effect that all ships should be advised that Mr. Hawker had started. The type of machine, the call sign, and the time of starting were given.

Last night—[the communiqué is undated, but was received on May 22nd.—Ed.]—after consultation between the Under Secretary for the Air and the First Sea Lord orders were issued from the Air Ministry to the Officer Commanding, Royal Air Force Headquarters, Dublin, to get into touch with the Admiral, Queenstown, and place himself under the Admiral's orders with a view to lending assistance by means of aeroplanes in searching for Mr. Hawker, who, it was then supposed, had fallen into the sea off the coast. In accordance with these instructions orders were given for two squadrons of aeroplanes to proceed at once in search of Mr. Hawker. It was impossible for the machines to start last night owing to the rain, a gale, and low clouds. This morning the machines have attempted a search, unfortunately with no result.

In addition to the steps which were taken by the Admiralty on the evening of the 19th, as described to-day in the House of Commons, the Naval authorities have ordered the immediate dispatch of a number of destroyers in further search of Mr. Hawker, though, in view of the vast areas involved, the Admiralty are bound to warn the public that the chances of finding him are very remote.

As regards future flights, the Government, in view of comments as to responsibility in this matter, feel bound to call attention to the many and heavy obligations of the British Fleet. Those responsibilities involve duties in many parts of the world which cannot be set aside. The Admiralty have especial commitments in the Mediterranean, the Black Sea, North Russia, the Red Sea and the Baltic—in which, indeed, there has been fighting within the last few days.

They are also responsible for the vast and continuous mine-sweeping operations. Whilst all these things engage their attention, they are being pressed to find reliefs for men on foreign stations asking for demobilisation, and pressed also to release men everywhere who joined for the period of the war, and any addition to the duties of the Fleet could only be undertaken at the cost of delaying further demobilisation and withholding home-leave from men who have served long periods of War Service on Foreign Stations.

These things being so, whilst the Government is, and has been, most anxious to do everything it can to save such gallant and intrepid airmen as Mr Hawker and Commander Grieve, it feels bound to warn those who may in future make the attempt to fly the Atlantic, that its resources make it utterly impossible that the immense task of patrolling 2,000 miles of the ocean by way of protection can be undertaken.

A VOLUNTEER RESERVE AIR FORCE.

The suggestion made in a letter published in THE AEROPLANE last week regarding the formation of a Voluntary Reserve Force of the R.A.F. has aroused a considerable amount of interest.

In the "Daily News" of May 22nd Capt. M. G. Kiddy (late) R.A.F., wrote:—

A great deal has been heard lately about the wanton destruction of new aeroplanes, and of other machines which are fit to fly. Complaints are also made by young officers of the Royal Air Force that they are being demobilised at short notice after having put in a request to remain in the Service. Many of these youngsters have received no training since leaving school except in flying; and they are desperately keen on making a profession of aviation. But there is no work for them at present as civilian pilots; and they are being demobilised willy-nilly from the R.A.F.

Why should not a Territorial branch of the Royal Air Force be formed? As yet the Air Ministry has done nothing towards the formation either of a Reserve or of a Territorial Force.

The post-bellum R.A.F. will consist of some 2,000 regular officers of all branches—flying, administrative, technical, and medical. The chief qualification for a permanent commission would appear (from questions asked of candidates) to be an unlimited private income. As the Selection Committee has some thousands of applicants to deal with, this may be the best method of choice; but it is very hard on those who are "turned down," yet who desire to continue to fly.

We are told that the future honour, safety, and welfare of this country lie in aerial commerce and protection. This may be accepted as a fact, for the faster aviation develops the quicker do armies and navies become obsolete for war purposes. Granted that this is so, the post-bellum R.A.F. would appear to be quite inadequate for any sudden emergency; and the number of civilian pilots who would be called upon for war purposes will become smaller every year.

The formation of a Territorial branch of the R.A.F. would have many advantages. It would prevent the waste of aeroplanes. Pilots in civilian life would be called up every year and given sufficient flying to keep them proficient. As commercial or civilian aviation develops, trained pilots would be forthcoming to meet its needs. In addition, we should feel that the country was adequately protected by air.

The following letters have been received:—

Dear Sir,—With reference to the recent correspondence on the above-mentioned subject, I most heartily agree with the proposal to form a Territorial Air Force. There can be not the slightest doubt that, some day, they will be called upon to take the field, just as the "Terriers" were on August 5th, 1914.

As a pre-war Territorial ("Pte.") I cannot very well rejoin my old battalion, however much I may desire, because I have since held a commission in the same regiment. However nice it is in fiction for an officer to again serve as a "Pte.," in actual practice it is the reverse of pleasant.

In any case "foot-slogging" has lost its charm, and the old competitions in marching and shooting have lost their one-time attractiveness. Instead, I would rather "sit at ease" in any old 'bus that could fly. Over a year in the flying services has made me lazy, and I do not want any more service in the P.B.I. Bisley calls again this year, but not so loudly as it did to "sweet seventeen" in 1914, and if it were not just to revive old memories, I would not go at all.

But to business. I come from Scotland. Two divisions: (1) Lowland Division; (2) Highland Division, and—two Mounted Brigades. Shall we say two Corps Squadrons, two Scout Squadrons, two Bombing Squadrons, two Patrol Seaplane Squadrons, and some sort of Airship formation.

A JUST GRADUATED BOMBER.

Sir,—I have read with very great interest the letter by "One of the Old R.F.C." on the subject of a voluntary Reserve Force, and am entirely in agreement with his statements.

It is a well-known fact amongst pilots and ex-Service men that there are hundreds simply pining to join a reserve of this kind, but so far no terms to my knowledge have been published by our beloved Air Ministry, and it is certainly not to their advantage to keep silent about the matter, as fellows will realise that they have not flown for months and may lose the original enthusiasm which they had on being demobilised

I for one would be only too glad to help in any way I could, and should like to get in touch with others of a similar frame of mind, if you think we can do anything to move in the matter.

(Signed) NORMAN R. MELVILLE, ex-pilot.

Sir,—With reference to the formation of a Voluntary Reserve Force, I should like to point out that hundreds of pilots have returned to their studies in the Universities and Medical Schools. Graced with a long vacation in the summer, many of them would be very pleased to keep up their flying during that period. Were the Government to start such a Reserve, I am sure they would find a ready nucleus from this source which might prove invaluable in the future. Many students will not have completed their studies for the next three or four years.

"WILLING."

[Any ex-officers who may wish to take a hand in such a scheme as a Volunteer Air Force are welcome to publish their ideas on the subject in this paper.—Ed.]

ART AND THE AEROPLANE

By Captain Wilfrid Gordon Aston, A.F.R.Ae.S., A.M.I.A.E., R.A.F.

I hope I shall not be supposed to be suggesting that The Aeroplane is a suitable medium for general Art Criticism in offering these few idle reflections upon this year's Academy, but this is a technical journal which, to say the least, is not as parochial as most of its contemporaries; it is prepared, on occasion, to enlarge its sphere, and it is, to my knowledge, one of the only journals in the world controlled by a born lasher-out, which allows its contributors, on just cause being shown, to lash out likewise.

Possibly, having myself earned a living (save the mark!) with pencil and brush as a so-called artist, though later with a leaning towards making pictorial representation more ancillary to engineering, I am the worst possible Art Critic. That remains to be seen. I shall at least temper justice with mercy —where necessary—but a hard-won knowledge of the technique of oils and water-colour is, I have always thought, essential to fair criticism of paintings. I grant that it has little or nothing to do with Art, but it has a good deal to do with the artifice which gets into an expensive gold (or Dutch metal) frame. A critic ought to be kinder—*must* be kinder, I am sure —if he knows all the distressing circumstances.

The Worst Traditions of British Art.

By way of a general review I would say that the R.A., as usual, upholds the worst traditions of British Art. The walls that knew not Whistler support a great many screamers, shouters, shriekers, and howlers. It is a good thing that the pictures are hung vertically so that the Gods see them foreshortened out of all recognition, otherwise it is fairly certain that Mnemosyne would persuade Jove to raid Burlington House in order to avenge her outraged daughter. Even so, the Gods are evidently after *some* of the exhibitors because they have manifestly, according to their time-honoured custom, rendered them mad. The completion of the job is anxiously awaited.

But none of the artists who have essayed the painting of aeroplanes are mad, most of them are merely silly, and nearly all the rest are just poor practitioners. It is, as I understand it, the business of an artist to observe—until they got into Society, when it is the pleasure of their wives to be observed. Now it is a perfectly extraordinary thing that some quite tolerable artists—I did not say artisans—can observe one thing, but not another. If you were to put an Ionic capital on the top of a Norman column, they could tell you there was something amiss. And if the column were not straight they would very likely suggest that it was Government work.

Charles B. Cochran could see it with his eyes shut, but I merely mention this instance to indicate that artists have eyes, even if they use them in a funny manner. Some of them observe faces and put them on canvas quite acceptably—others legs, others trees.

Some of Mr. B. W. Leader's observations on trees ought to be communicated to the Royal Horticultural Society in a paper entitled "New Species of British Flora." Each cocks his eye at what interests him, and is content to have a hazy idea of the rest of things.

Look at artist's conceptions of motor-cars. They observed motor-cars when these vehicles were unusual. They do not look at them now, otherwise they would not draw such monstrous absurdities as they do. Possibly they draw them better when their attention is drawn to cars, as, for instance, if they are biffed by a W.R.A.F. outside the Bolo, or they marry an heiress.

Artists will have to be made to fly—or given free tickets for the "War in the Air." If they are bad on motor-cars, they are far worse on aeroplanes. They shirk them pitifully. I could could forgive them portraying technical impossibilities—they can't all be Gordon Crosbies or Gordon—— (No. It would be more modest if *you* were to write it in, Mr. Grey. Thank you!) but at least they needn't be wall-eyed. They must know that the fuselage (which, of course, they rhyme with "mucilage") is somewhere in the middle of the planes, generally, and that there are general rough proportions to which all aeroplanes, barring experimental freaks, are answerable. But no! They can't or won't see it. Planes to them are permanent pieces of paint plastered up in the—— (Anybody know a syllabub—I mean synonym—for "sky"? Must begin with a P. I know! Phirmament!) Plastered up in the Phirmament. Planes is the word. Having length and breadth, but no thickness, no solidity, no speed, no kinetics.

Not In but On the Sky.

It is a very sad business. One could, as I say, forgive them for being technically inaccurate—even criminally negligent. After all, what they are after, poor dears, is the general effect; they must not be worried with detail. But they don't even get the general effect. It is common knowledge that aeroplanes fly IN the sky. Artists persist in making them fly ON the sky. This is a distinction with a very big difference. If you wanted to get an artist's aeroplane down, you would not Archie it; you would not even telephone to have a "Snipe" ready. You would wipe it off with a duster or a palette knife.

That is because, robbed of a ground foundation which enables them to suggest perspective in landscape and so forth, artists do not know (or, at any rate, artists who attempt to paint aeroplanes do not know) how to portray the atmosphere. To them a distant machine, a thing almost of vapour in its luminosity, is identically the same phenomenon as a model aeroplane at very close quarters. Many people beat the air, but the air beats artists.

Even Mr. Sargent is guilty. Any R.A.F. court-martial would reduce him to the ranks. He has a notable big picture—foreground, figures, general composition all well up to standard—deserves, if he didn't get, a commission for it—yet upon the sky are lots of aeroplanes literally stuck there. They positively cast a shadow on the paint. They are *not* distant machines; they are very adjacent flies. A tinned salmon would rise to them. Mr. Sargent wouldn't keep a job on Mr. Holt Thomas's advertising staff for a week. Nobody ought to have any use for pictured aeroplanes that you could hang your hat on.

Now in particular.

No. 108. "The German High Seas Fleet, caged in Scapa Flow." By W. L. Wyllie, R.A. *Aviatis personæ.* Very high up and small. The Camel with fuselage badly shrunk by the sun, and two other biplanes of unidentifiable make. One apparently a flying boat. Mr. Wyllie is good on boats. Captain Wyllie, R.A.F., ought to give his uncle a roasting on planes!

No. 144. "Building Flying Boats." By Flora Lion. Figures at work on the bench obviously Bolshevists. No woman can draw a pair of trousers—in paint, I mean. Visit from Colonel Porte or representative of the A.I.D. badly needed at this factory. Hull of flying boat obviously being made of brown paper. Type, presumably, the "Little Kupferburg."

Painted with a Stick of Nougat.

No. 177. "The Channel Patrol. (Nearly said Petrol!) F2A Flying Boat Taking Off." By Captain C. E. Turner. Admirable picture for Mr. Winston Churchill's private office. Technically accurate. So much so that I missed the expected "T5" in the corner. But colouring poorish. Haven't you ever noticed the lighting of the under side of the top wing from the wave-reflections, captain? Well, well, my dear sir, stick 'em *in.* Let's have a bit of motion and light! Why won't artists paint *light?* No picture that looks as if it had been painted with a stick of nougat appeals to me. But this is the best aeroplane in the show. It would fly, anyhow.

No. 241. "London and War-Time." Nocturne. Claude F. Barry. This is of the stipple-impressionist school. St. Pauls, of course, and plenty of searchlights. A very violet sky made up of a regular Morse code of dots and dashes. Aeroplanes very accurately drawn and true to life. There are no aeroplanes visible. But there never were when the searchlights were after them. Pass along, dear; these people want to look at Mr. Hacker's portrait of Sir Alfred Keogh. Six to four they don't know how to pronounce him unless they're relations.

No. 244. "The Avengers." Arthur J. W. Burgess. Portion of angry British Fleet, spirting smoke from its nostrils—funnels I mean—off after the naughty Boche. Led by aeroplane. The picture is as seen from another aeroplane. No suggestion of motion in the composition. Aeroplane apparently hovering—as requisite (see extracts from patent specifications). Aeroplane in foreground decidedly not bad. Another machine in middle distance having a bad time. Am not quite sure which way up it is. Mr. Burgess has probably got the control cables coupled up the wrong way round. It looks as though the pilot would eventually get the hang of it.

No. 261. "Der Tag." (How original!) The German High Seas Fleet coming in to be interned by Admiral Beatty. W. L. Wyllie, R.A. Another job for Captain Wyllie to see to when he's finished with the Irish Sea. Blimp well up, but very shaky and nebulous. Rigging evidently very soggy. Small scout (Camel?) nicely fixed on the sky. Looks as though nothing but turpentine would fetch it down. The sea is very dry in this picture. Looks as though it could be put up in boxes and sold as a polishing powder.

An Aeroplane Nailed on the Canvas.

No. 279. "In soaring he shall rise and on the surface die." Arthur J. W. Burgess. The artist has now got home on a Hun submarine. Cheers. A good vigorous picture. Aeroplane nailed on canvas in one corner. Type, unrecognisable. Presumed to be a scout on the strength of the Manchurian Air Force.

No. 281. "1st Australian Divisional Artillery Going into Action before Ypres, July 1st, 1917." H. Septimus Power. Good old Aussies! But look out! Those three untidy-looking aeroplanes will crash on you. Riggers of same ought to be given the O.B.E. But at least the artist has pushed his aeroplanes an inch or two into the sky. Let us be thankful for small mercies.

(To be continued.)

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THE "AEROPLANE" LIBRARY

NOTES BY THE PUBLISHER.

What are the revelations of Roy? They are the satiric stunts of one who during the war was just an air mechanic. Who he is there are no means of knowing. The Air Force will ask in vain. If the Air Force knows him not, he knows the Air Force, and he indulges in much wit and wisdom at the expense of its past and present chiefs and of those good fellows who, with all their foibles, made it what it is. "The Revelations of Roy," small book though it be, fires a whole drum with a merciless disregard of personality, high or low, and the only person to whom Roy apologises is that great scribe Artemas, whose style he adopts with immense success. Everyone who likes a good laugh at other people's peculiarities and weaknesses will read "The Revelations of Roy," which can be bought for 1s. net.

To pass from "The Revelations of Roy" to "Flying Colours" is very like stepping from the ridiculous to the sublime, from impudence to dignity. "Flying Colours" is by Captain H. M. S. Saundby, M.C., Zepp-strafer and among the most enterprising of the pilots who won for Great Britain the mastery of the air on the Western front. Captain Saundby paints as well as he flies—and, we believe, is by profession an engineer. Anyway, twenty more delightful and realistic pictures in colour we have never seen. They are unique. Major-General Ashmore in an introduction says they give "a true and vivid idea of things as seen by a pilot in action." The book makes the most charming of presents. Every flying boy's mother should possess a copy, as it affords an idea of his work which neither pen nor camera can hope to rival. Everyone interested in the doings of the Royal Air Force in war-time should seize this opportunity for securing a souvenir. An *Edition de luxe*, numbered and limited to 250 copies, is published at £2 2s. net; a Popular Edition at 15s. net.

Aces win battles in the air as well as tricks at the card-table. McCudden was the British ace of trumps, Richthofen the German. The two were examples of nationals at their best. Both wrote their reminiscences and described their methods and their triumphs. Both were sportsmen, and how far ahead British is of German sport will be fully realised by the simple, modest narrative of the one and the thinly veiled sense of superiority of the other. Read both books and you have the heroes of two Empires self-revealed. McCudden's "Five Years in the R.F.C." (7s. 6d. net) and Richthofen's "The Red Air Fighter" (Second Edition, 3s. 6d. net) must have a corner in every properly equipped aeronautical library. No pilot's education is complete unless he has studied both.

Civil and commercial aviation began officially as from May 1st. The problems opened up of costs, of routes, of possibilities of making it profitable are the subject of wide and varied speculation. Captain Arthur Swinton, with a lively sense of the need for careful and authoritative estimates, worked at the subject well in advance, and that his "£ s. d. of Flying" (6s. net) is of considerable practical value is proved by the fact that it commands the interest not only of the aircraft industry and the trader at home, but is in request from the West Indies, Africa, and Australia. It is the book of the moment, though a few years hence it may be looked upon as a prophetic curiosity.

Aeroplane building during the war was a business that had to be learned in a hurry; in peace-time it can be learned as any other business is learned—methodically and deliberately. But nothing can deprive the proved text-book of its usefulness, and Mr. Stepney Blakeney's "How an Aeroplane Is Built" (2nd Edition, 5s. net) may claim to be such a text-book. The secret of its success is easy to explain. Mr. Blakeney is a practical worker himself. He knows what others want to know, and he is able to impart his knowledge simply and effectively. The good mechanic becomes a better by taking a leaf out of Mr. Blakeney's book.

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THE WEEKLY COMMENTARY.

In this week's instalment of his articles on "Commercial Aircraft Design," Capt. Sayers attacks the prevalent ideas as to the average speeds which must be attained if aircraft are to compete with the established forms of transport. The points which he raises are of extreme importance, and may exercise a profound influence upon the future of commercial aviation.

At the same time it seems necessary to point out that he has failed to consider the result of really adverse weather upon slow-speed machines of the type which he appears to advocate.

Whereas a machine capable of a top speed of 120 m.p.h. can maintain an average land speed of 80 m.p.h. against a 40 m.p.h. wind, Capt. Sayers' suggested 60 m.p.h. cruising-speed machines could only maintain 35 m.p.h. against the same wind.

This appears to be a serious, if not a vital, drawback to the use of the low-speed type.

Continuing the series of "Modern British Aircraft," the recent productions of Austin Motors, Ltd., are described.

An article by Mr. C. W. Tinson, F.R.Ae.S., which deals with the Longitudinal Stability of Aeroplanes from the point of view of the practical designer, begins in this issue. The importance of the subject is indubitable, and, so far as is at present known, it has never been dealt with from this point of view.

COMMERCIAL AIRCRAFT DESIGN.—XIII.

SPEED, ITS VALUE AND ITS COST.

By Capt. W. H. Sayers, late R.A.F.

It is thought that the preceding examples will have sufficed to show that there is room for very wide divergences from the present standard methods of design when machines are designed with an eye to the reduction of operating costs when used for some specified commercial purpose.

The whole discussion has so far been confined to types of machine which are well within the limits of size admitted to be practicable to-day.

Even to-day it is possible to build machines of very much larger overall dimensions than those which have been considered in the foregoing articles, and with the development of the art of aircraft design and construction there is no doubt that the limit of possible size will extend enormously.

Aeroplanes are to-day flying at a total weight of 15 tons, and competent designers are planning machines up to four times this weight.

In the design of these machines of the future the considerations which have been briefly touched upon in this series will have even greater applications than heretofore.

But it should be noted that in all that has been so far said, the ideas as to the performance necessary for commercial work which are generally current to-day have been assumed to be correct.

The sketch designs of machines have all been based upon the need for an average schedule speed of 100 m.p.h. or thereabouts.

It is the considered opinion of the author that these ideas are fundamentally erroneous.

Competition with Railways.

It is generally assumed that the aeroplane in commercial work will have to compete with the express train at 60 m.p.h., and that it has no prospect of doing this successfully unless its average schedule speed is at least 100 m.p.h.

At the very outset this neglects two very important facts. In the first place, at the moment 60 m.p.h. is a maximum railway speed for certain very limited services between important centres with a large mutual interchange of traffic, and the average point-to-point railway schedule is much nearer 20 m.p.h., or even lower, if the speed is based on the straight-line distance between two points not in very direct rail connection.

Future Railway Possibilities.

Secondly, the experiments made by the German Government on the Berlin-Zossen Railway, certainly 15 years ago, demonstrated conclusively that rail-borne transit was possible on a standard type of railway track (it was, in fact, a lighter track than that common to British main lines), at speeds up to 120 m.p.h., if electrically propelled trains are employed.

Since it is fairly safe to predict that within 15 years all the main-line railroads of the densely populated parts of the world will be electrified, if there is any large bulk of traffic between particular cities, which demands a speed of 100 m.p.h., the railways will be in a position to handle it at considerably lower running costs than will the aeroplane.

The immediate future of the aeroplane for commercial purposes must depend upon the saving in time which it can effect compared to other forms of transport, or alternatively to the saving in total cost which it will allow over equally rapid forms of transport.

Between two cities, already connected by direct railways, it is now impossible for the aeroplane to save time regularly unless it can maintain an average land speed of 60 m.p.h.—which calls for a maximum air speed of at least 75-80 m.p.h. At this speed it cannot compete with the existing railway in cost.

But in places where the pack mule is the only existing form of transport, an aeroplane with a certain ground

speed of 10 m.p.h. will compete certainly in speed, and very possibly in cost, with the alternative facility.

Average Speeds of To-Day.

Even in a country so well provided with lines of communication as England, there will be found many pairs of important centres, with a quite large mutual interchange of traffic, the most direct railway communications of which are so bad that the average speed of transit between them, taken on the basis of their straight-line distance, is of the order of 10 m.p.h.

The actual volume of traffic is not, in such cases, sufficient to warrant the capital cost of a direct railway line.

An aeroplane capable of 30 m.p.h. in all weathers can here compete with the railway in point of speed, and without the need for the very large capital outlay for which the railway calls.

When the question of overseas transit arises, this aspect becomes much more favourable to the aeroplane. Here the maximum speed of the existing forms of transit drops to a maximum of 25 m.p.h., and an average of under 10 m.p.h., and the regularity and certainty of the services are in some cases almost as greatly dependent on weather as an aerial service would be.

It is therefore worth while to investigate what can be done in the way of designing aeroplanes for efficient operation at low speeds.

Fuel Economy in Aeroplanes.

To secure maximum economy in fuel costs for a given distance flown, a machine should be designed to cruise at the speed corresponding to minimum total resistance.

So far as the wings themselves are concerned, this would occur when the wings are at their best L/D ratio. For the whole machine this will not necessarily be true, since the body resistance is proportional to the square of the air speed, and if, as the speed increases, the body resistance increases at a greater rate than the wing drag, then the least total resistance will be reached before the speed corresponding to the maximum L/D for the wings.

Nevertheless, with any reasonably proportioned machine the lowest total resistance for the whole machine is never reached at any speed very far away from that corresponding to the maximum L/D for the wings.

The average present-day "efficient" aerofoil has a maximum L/D of about 20/1 at a value of the lift coefficient of 0.2 (absolute units). These figures are for full-size wings, not models. The same type of wing will have a maximum lift coefficient of 0.6.

The following table gives the load per square foot, and the wing resistance h.p. per ton total weight, which correspond to various cruising speeds at a value of L/D of 20/1 and of lift = 0.2 and the landing speed for L = 0.6.

Cruising Speed.	Load lbs. sq ft.	Wing H.P. per ton.	Landing Speed
20 m.p.h.	0.48	6.6	11.5 m.p.h.
40 ,,	2.0	13.2	23.0 ,,
60 ,,	4.32	19.8	34.5 ,,
80 ,,	7.68	26.4	46.0 ,,

It will be noticed that until a cruising speed of considerably over 60 m.p.h. is reached the load per square foot which can be carried is very small, and hence machines designed for these conditions will be of large surface and of high structure weight.

The same "high efficiency" wing at a lift coefficient of 0.4 will have an L/D ratio of 17/1. A high lift wing of the type referred to in previous instalments has at the same lift coefficient of 0.4 roughly the same L/D ration of 17, but with a maximum lift of 0.9.

Working at these figures, the two wings differ only in landing speed, and the conditions corresponding to various cruising speeds become :—

Cruising Speed	Load, lbs. sq. ft.	W ng H.P. per ton.	Landing Speed: Efficient Wing.	Landing Speed: High Lift Wing
20 m.p.h.	0.96	7.8	16.0 m.p.h.	13.0
40 ,,	3.98	15.6	33.0 ,,	26.5
60 ,,	8.64	23.4	49.0 ,,	40.0
80 ,,	15.36	31.2	66.0 ,,	53.0

It will be seen that of these figures those which correspond to 60 m.p.h. cruising speed represent a fair approach to normal practice.

An Actual Machine.

As a matter of fact, some three years ago, the author was responsible for the design and construction of an experimental machine of almost exactly one ton total weight and loaded to 8.6 lbs. per sq. ft. The machine was actually a seaplane, but the figures for the equivalent aeroplane can be deduced with sufficient accuracy by treating the extra weight of the float chassis as an addition to the useful load, and by making a small correction in the body resistance figures. Although this design could now be improved upon, it is sufficiently near to modern practice to use as a fair standard of comparison.

As an aeroplane designed for war service, this "standard" machine was fitted with an engine of 150 h.p. The power plant weight, including water and radiators, was 450 lbs., the aeroplane structure weight 930 lbs., which with pilot (180 lbs.) totals 1,560 lbs., leaving 680 lbs. as disposable load, including fuel.

At full power the level speed was 105 m.p.h., and the most economical cruising speed in still air was about 90 m.p.h., in spite of the fact that the speed for minimum resistance was 56 m.p.h.

This was because the fuel consumption of the engine did not fall anything like so rapidly as the power when the throttle was closed beyond very narrow limits. In addition, at full power the engine could not be relied on for any time. At 90 m.p.h. it would run indefinitely, and as a commercial machine it would have been unsafe to open the engine out further.

It may therefore be considered that the maximum safe air speed of this machine for any reasonable length of journey was 90 m.p.h., corresponding to an average schedule speed of 75 m.p.h., allowing for adverse weather conditions.

At this speed the weight of fuel required for a 250-mile journey was roughly 280 lbs. This allows for an average land speed of 75 miles an hour at an air speed of 90—*i.e.*, for an average adverse wind of 15 m.p.h.

The paying cargo capacity was therefore 400 lbs.

And a Practicable Modification.

Let this identical aeroplane be modified for an average schedule speed of 60 m.p.h. At 60 m.p.h. air speed the wing resistance h.p. will be 23.4, and the body resistance h.p. will be 9.6—a total propeller h.p. of 33 for horizontal flight. As a reserve and to give a minimum climb of 300 ft. per minute an extra 21 h.p. is required, or 54 airscrew h.p. total. Allowing 75 per cent. airscrew efficiency, this is 72 b.h.p. at the engine.

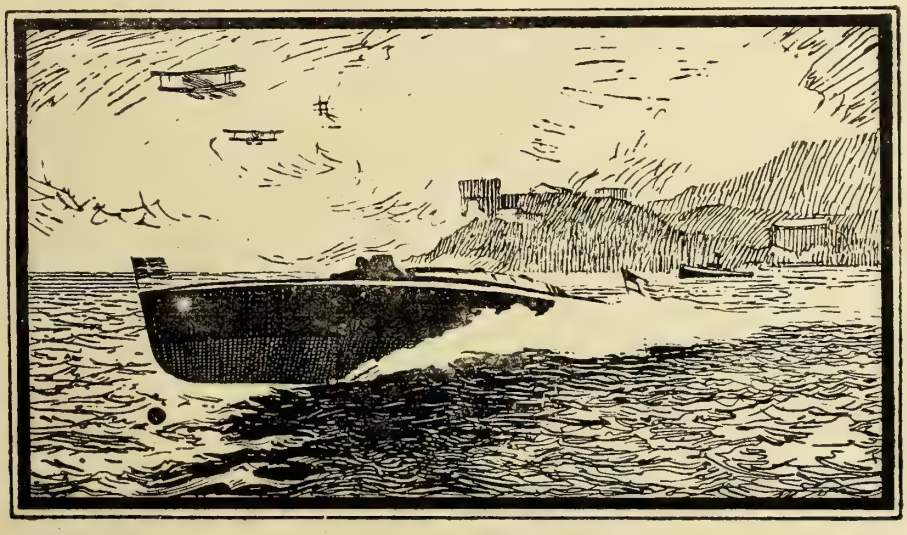
With this power the machine could actually attain a maximum level speed of 78 m.p.h., which gives a speed margin for adverse weather of 18 m.p.h.

As the full load weight is to remain at 1 ton, the aeroplane structure weight will be the same, and the factor of safety is unaltered. A slight saving in weight in engine supports may be neglected.

An engine giving 75 b.h.p. reliably and economically could be installed for a total weight of 275 lbs. This allows for a more robust type of engine than that used in the "standard" machine. The fuel consumption for a 250-mile journey at 60 m.p.h. land speed, but at 75 m.p.h. air speed (*id est*, against a 15-mile wind), would be 150 lbs.

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The weight without cargo is then 930 lbs. (aeroplane) + 275 lbs. (engine) + 150 lbs. (fuel) + 180 lbs. (pilot) = 1,535 lbs., giving 705 lbs. as paying cargo capacity.

It is difficult to estimate the relative prime cost of these two machines, but in the "standard" form, if the cost of the aeroplane alone is taken as unity, the cost of the engine would now be about 2—*i.e.*, the total cost would be roughly 3 times that of the aeroplane without engine. At present-day prices, roughly the original machine would have cost £1,200.

The cost of the 60 m.p.h. machine would remain unaltered so far as the aeroplane itself is concerned, and the price of the engine would be halved; *i.e.*, the whole machine would cost two-thirds of the "standard" one, or £800.

A little consideration will show that it would be useless to attempt to reduce the economic cruising speed of this machine to 40 m.p.h. The loading corresponding to 40 m.p.h. at lift coefficient = 0.4 is just under 4 lbs. per sq. ft.

For the machine considered above the full load weight would reduce to about 1,000 lbs. The structure weight would be smaller because of the lighter loading, but it would not be less than 470 lbs. Roughly a 35 h.p. engine weighing about 120 lbs. and requiring 120 lbs. of fuel for 250 miles would have to be carried.

Adding to this 180 lbs. for pilot, we have a total weight, without cargo, of 890 lbs., leaving only 110 lbs. for available cargo.

If the surface is increased, the 40 m.p.h. machine makes a better showing. For a total weight of 1 ton, the machine structure weight would be nearly 1,400 lbs. Allowing for an initial angle of climb equal to that allowed in the 60 m.p.h. machine, and roughly the same margin of speed, 52 b.h.p. would be necessary.

The power plant weight might reduce to 200 lbs., and fuel for 250 miles to 130 lbs. With pilot the weight would be 1,900 lbs., leaving 340 lbs. available for cargo.

The prime costs of this machine would be greater than that of the 60 m.p.h. machine, and the fuel consumption per ton-mile would be increased 50 per cent.

Thus so very light a loading would be unprofitable.

(To be continued.)

THE AVRO-GREEN "BABY" SPORTING BIPLANE.

It is now possible to describe and illustrate this interesting machine in some detail.

As will be seen from the illustrations, its lines follow the very latest practice and the machine has proved herself on test to be very highly efficient, controllable and stable. The general design and construction follow closely the Standard Avro practice and the same care has been expended on this machine as in all the productions of A. V. Roe and Co., Ltd.

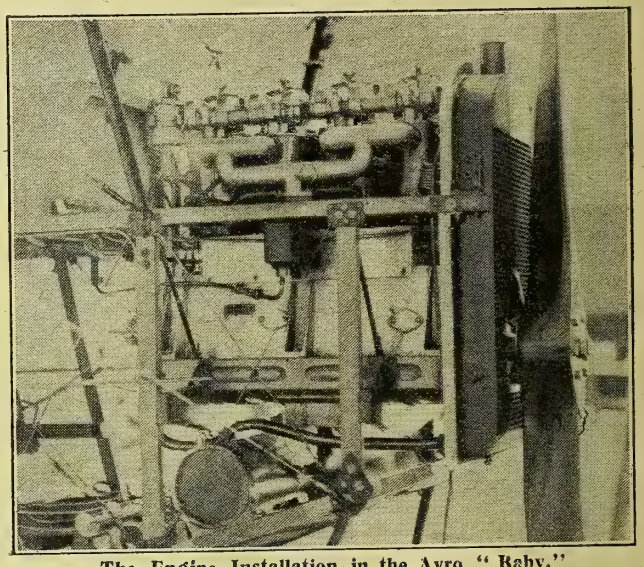
The following table gives the main particulars:—

SPECIFICATION.

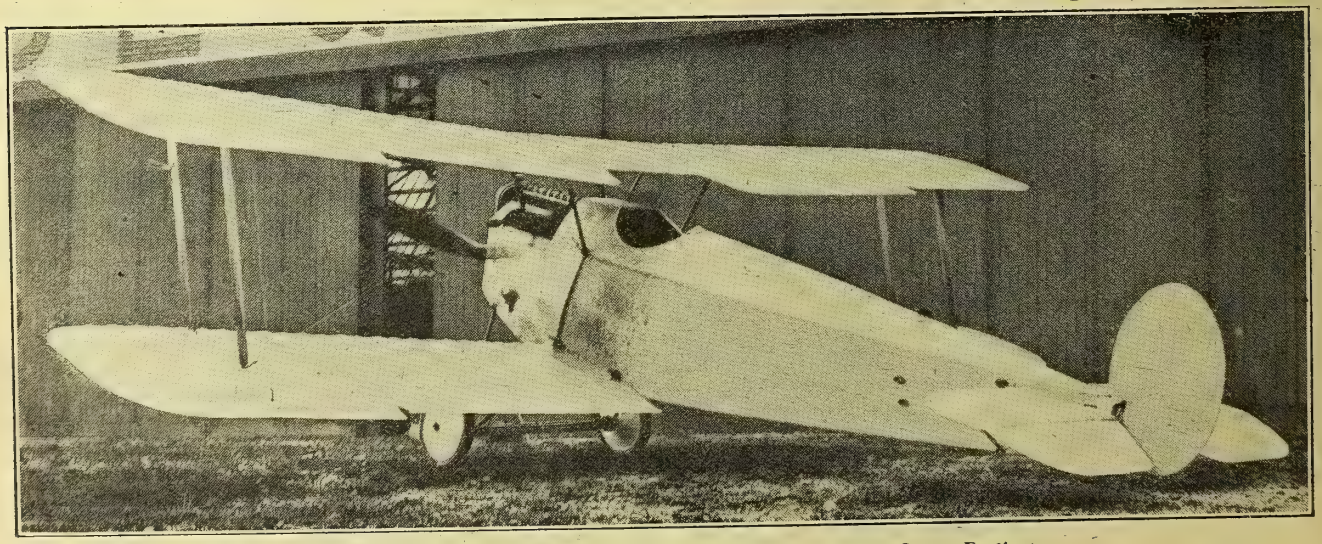
Span of top wings	25 feet.
Span of bottom wings	25 feet.
Chord of wings	4 feet.
Gap	4 ft. 6 in.
Length overall	17 feet.
Height overall	7 ft. 6 in.
Span of tail plane	7 ft. 6 in.
Chord of tail and elevators	3 ft. 3 in.
Area of wings and ailerons	180 sq ft.
Area of tail and elevators	21 sq. ft.
Dihedral top and bottom wings	3 deg.
Weight, bare (with water)	625 lbs.
Weight, loaded	857 lbs.
Surface, loading	4.75 lb. per sq. ft.
Engine loading (40-h.p.)	21.4 lb. per h.p.

POWER PLANT.

The engine is a 4-cylinder water-cooled 35-40-h.p. "Green" Everyone connected with aviation will remember the large amount of work which this little engine performed in the early days of aviation and it is interesting to note that the identical engine used in the new experimental model is twelve years old and was

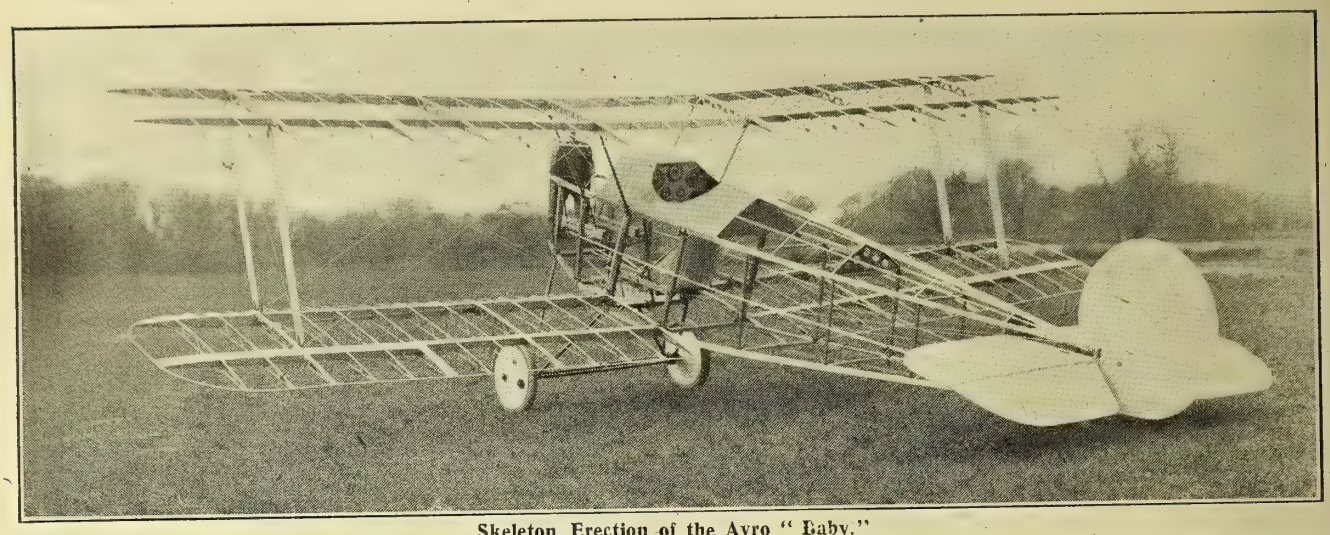


The Engine Installation in the Avro "Baby."



Three-quarter View from Rear, the Avro "Baby" (35 h.p. Green Engine).


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Skeleton Erection of the Avro "Baby."

used by Captain Fixton in the early Avro biplane at Brooklands in 1912. The engine has been considerably improved by the Green Co., and has been fitted with aluminium pistons, new type camshaft valves and valve cages, and with an ingenious oil pressure regulator which controls the amount of oil used by the engine according to the throttle opening. The engine has been found to run very smoothly and without vibration, and although a considerable amount of flying and testing has been already carried out with this machine, no adjustments have been necessary to the engine since it was installed in the plane. Although this particular engine is somewhat heavy for its horse-power, the production engines will be lighter and A. V. Roe and Co., Ltd., are of the opinion that the slightly extra weight of this type is more than compensated by its extreme reliability and economy.

PERFORMANCE.

The machine is at present undergoing its final performance tests, but on a preliminary test it gave the following results, which will be improved upon :—

Maximum speed	78 m.p.h. (near the ground).
Landing speed	32 m.p.h.
Stalling speed	36 m.p.h.
Climb to 1,000 ft.	1 min. 40 secs.
Climb to 2,000 ft.	4 min.
Climb to 3,000 ft.	6 min.

Later tests show that the machine climbs 10,000 feet in 24 mins., and is then still far from its ceiling.

From this it will be seen that the machine is very efficient indeed, and, as it only requires a very short run before leaving the ground, it is quite capable of landing in and rising from small fields even when surrounded by trees. The controllability of the machine is extraordinary, and it has been looped, rolled, spun, and stalled. Its small size and robust construction make it particularly suitable for stunting, although it is primarily intended to be stable and easy to fly, and has shown itself capable of flying perfectly without any control on the part of the pilot.

Although the maximum revolutions of the engine are 1,500, the machine will fly for an indefinite period at only 750 r.p.m., at which speed the petrol consumption is extremely low.

The price has been provisionally fixed at £475 and thus the machine will come within the range of a vast number of sportsmen who are desirous of taking up flying or of demobilised officers (R.A.F.) who are anxious to continue flying

COSMOS ENGINE TESTS.

The Cosmos Engineering Co.'s new 450-h.p. "Jupiter" engine, which was described in The Aeroplane on January 29th, 1919, has now been subjected to official tests by the Technical Department, R.A.F.

It is understood that extremely satisfactory results were obtained. At the normal speed of 1,800 r.p.m. the weight per B.H.P. was found to be 1.42 lbs., and the fuel consumption 0.565 pints, roughly, 0.53 lbs. per B.H.P. hour.

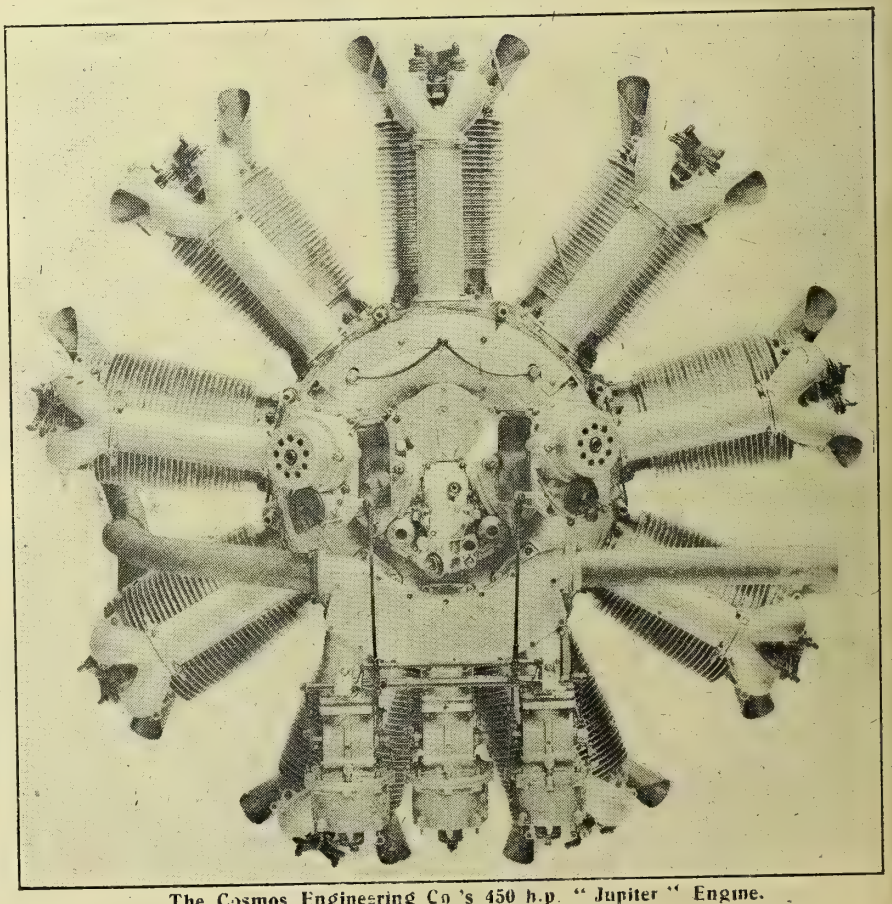
This fuel consumption compares favourably with that of the best of water-cooled engines, and, in conjunction with the very low weight per horse-power, puts the "Jupiter" engine into the very front rank of light power-plants.

Official test figures for the Bristol "Type F" single-seater fighter fitted with the Cosmos "Mercury" engine of 315 h.p. have also been issued.

These show that the machine climbed to 10,000 feet in 5 mins. 25 secs., to 20,000 in 16 mins. 15 secs., and had a level speed of 143 m.p.h. at 10,000 feet.

An illustration of this machine will be found on page 2157.

It must be remembered that this machine was originally designed for and fitted with a rotary engine of much lower power, and the illustration shows how the "Mercury" takes the place of the lower-powered engine without spoiling the lines of the fuselage. As a matter of fact the outside diameter of the "Mercury" engine is practically the same as that of the standard types of rotary engine of 100 to 150 h.p., and its total weight is very little greater than that of the 150 h.p. rotary.



The Cosmos Engineering Co.'s 450 h.p. "Jupiter" Engine.

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Governments and Air Transit Concerns desirous of acquiring a fleet of this new BAT model on favourable terms are invited to forward their enquiries.

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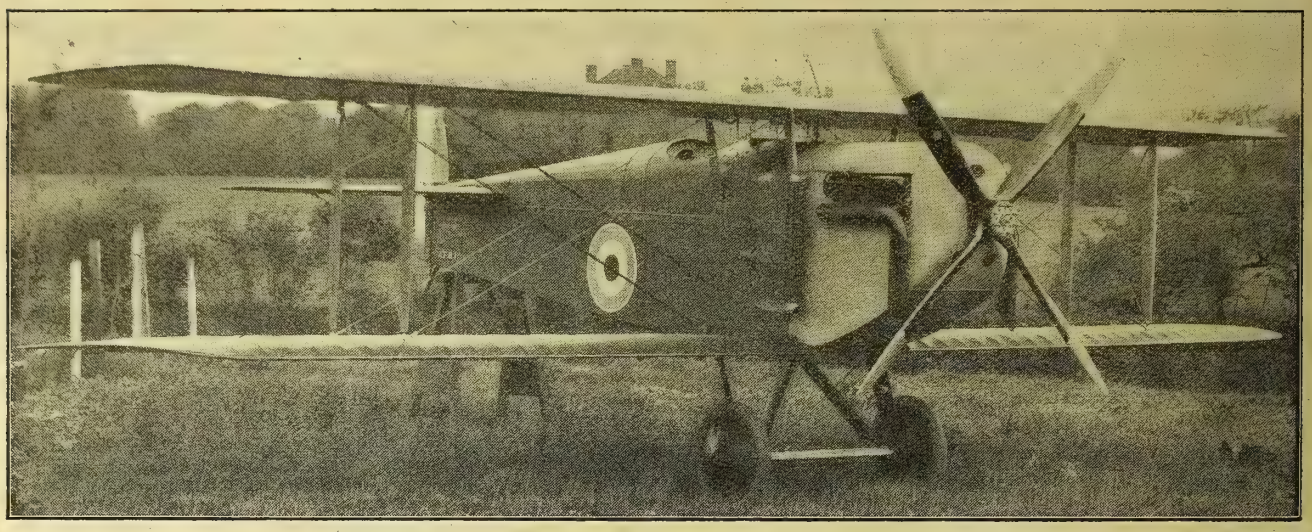
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MODERN BRITISH AEROPLANES.

IV.—Austin Motors, Ltd.



Three-quarter Front View of the Austin "Ball" Fighter (200-h.p. Suiza).

The makers of the well-known Austin motor-car began the manufacture of aircraft under war conditions, and produced large numbers of machines to Government specifications.

In 1917 they turned their attention to the manufacture of machines to their own designs, the more important of which are here described and illustrated.

AUSTIN "BALL" SINGLE-SEATER BIPLANE.

The Austin "Ball" biplane was designed as a single-seater fighting scout to the ideas of the late Captain Ball, V.C., D.S.O., M.C. The fuselage is very deep, reaching almost to the top plane and carries in its nose a 200-h.p. Hispano-Suiza engine, which is well cowled in. The radiators are fixed on the side of the fuselage below the front centre section struts.

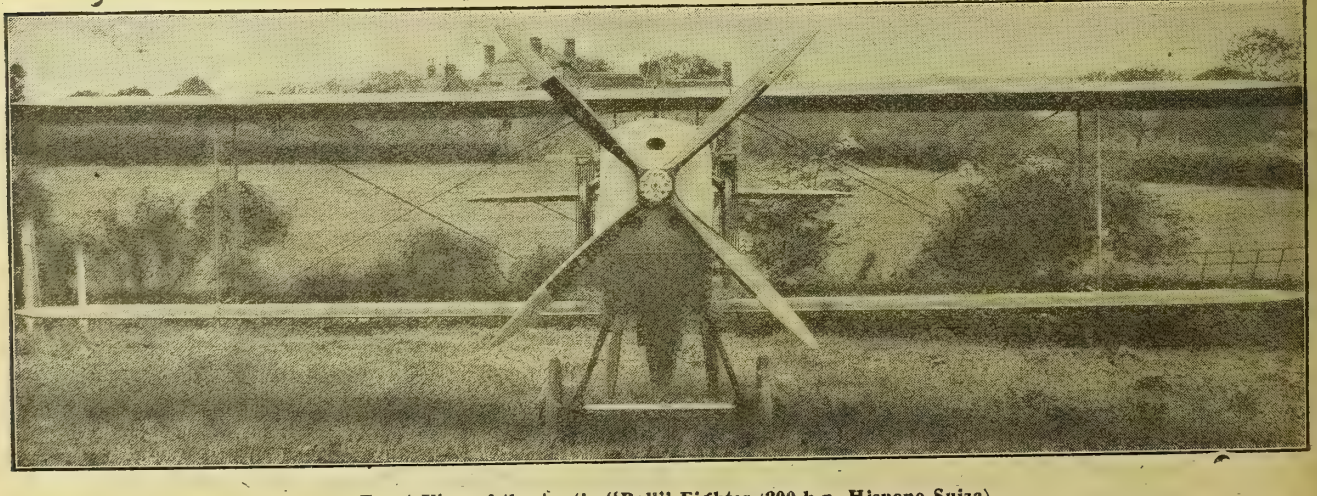
The planes are unstaggered and of equal span, having one pair of struts on either side of the fuselage. The tail unit is of standard type except that there is no fixed fin area. The undercarriage is of the Vee-type, the axle and wheels being slung at the apex of the Vee with rubber shock-absorbers.

SPECIFICATION

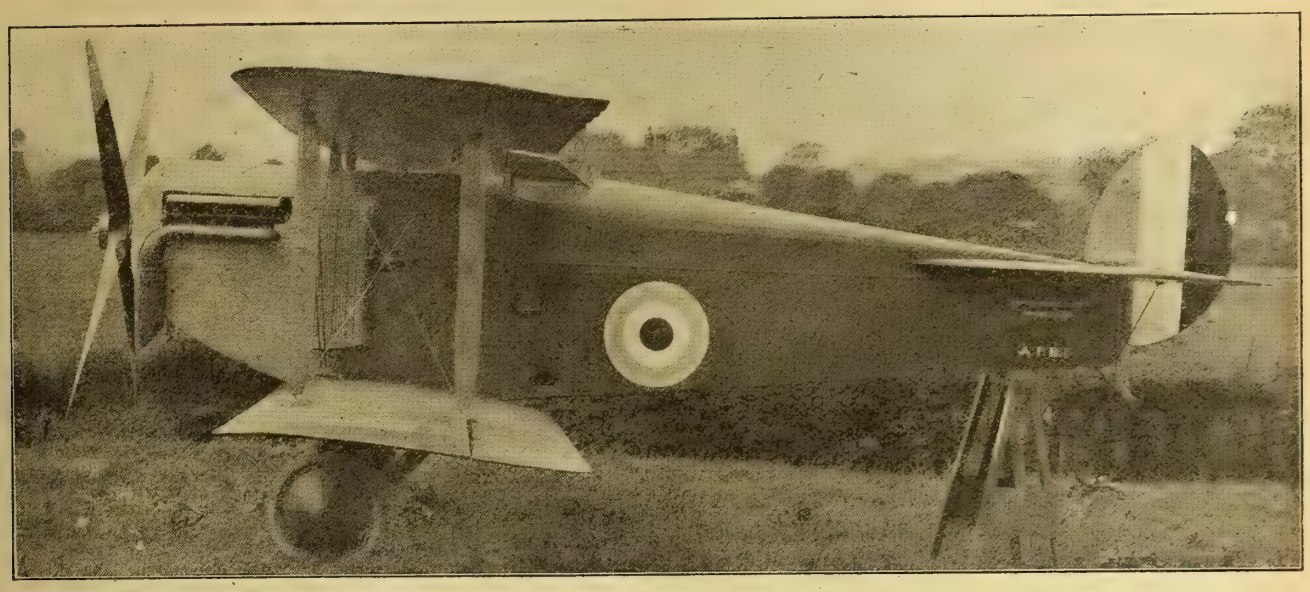
Type of machine	Single-seater Biplane, Scout Fighter.
Name or type No. of machine	Austin "Ball."
Purpose for which intended	Scouting and Fighting.
Span	30 ft.
Gap	4 ft. 9 in.
Overall length	21 ft. 6 in.
Maximum height	9 ft. 3 in.
Chord	5 ft.
Total surface of wings	290 sq. ft.
Span of tail	11 ft. 3 in. (over elevators).
Total area of tail	32 sq. ft. (includes elevators).
Area of elevators	8 sq. ft. each.
Area of rudder	8 sq. ft.
Area of ailerons	7½ sq. ft. each.
Total area of ailerons	30 sq. ft.
Engine type and h.p.	200-h.p. Hispano-Suiza "V" type, water-cooled.
Weight of machine empty	1,426 lbs.
Load per sq. ft.	7 lbs.
Weight per h.p.	9.25 lbs.
Tank capacity in hours	2 hours.
Tank capacity in gallons	Petrol 31½ galls., oil 5 galls., water 9 galls.
Performance—	
Speed low down	138 m.p.h.
Speed at 10,000 feet	126 m.p.h.
Climb—	
To 10,000 feet	10 minutes.
Total weight of machine loaded	2,075 lbs.

THE AUSTIN "GREYHOUND."

The Austin "Greyhound" represents one of the latest efforts to produce a fast, quick-climbing two-seater fighting and reconnaissance biplane. In general arrangement it follows standard practice. The fuselage carries in its nose a 320-h.p. ABC "Dragonfly" engine. A conical cowling covers the engine in with the exception of the cylinder heads, the shape of the cowling being preserved throughout the length of the fuselage by fairing. There is almost equal fin area above and below the fuselage. The upper main plane trailing edge is cut away and the lower plane is of less chord than the upper, thereby giving the pilot a good view.



Front View of the Austin "Ball" Fighter (200-h.p. Hispano-Suiza).



Side View of the Austin "Ball" Single-seater Fighter (200-h.p. Hispano-Suiza Engine).

Provision is made for the machine to carry three guns, camera, wireless, oxygen apparatus, and heating apparatus.

SPECIFICATION.

Type of machine	Two-seater Fighter, Reconnaissance Biplane.
Name or type No. of machine	"Greyhound."
Purpose for which intended	Fighting and Reconnaissance.
Engine type and h.p.	A.B.C. "Dragonfly," 320 h.p.
Span	Top plane, 39 ft.; bottom plane, 36 ft. 7 in.
Gap	4 ft. 11⅞ in.
Maximum height	10 ft. 4 in.
Chord	Top plane, 6 ft. 4.8 in.; bottom plane, 4 ft. 3 in.
Total surface of wings	400 sq ft.
Span of tail	12 ft. 9.5 in.
Total area of tail	47 sq. ft.
Total area of elevators	19.8 sq. ft.
Area of rudder	9.9 sq. ft.
Area of fin	Top, 2.76 sq. ft.; bottom, 2.3 sq. ft.
Area of each aileron and total area	Two top, 14.8 sq. ft.; two bottom, 7.8 sq. ft.; total, 45.2 sq. ft.
Weight of machine empty	2,050 lbs.
Load per sq. ft.	7.72 lbs. per sq. ft.
Weight per h.p.	10.3 lbs.
Tank capacity in hours	3 hours.
Tank capacity in gallons	Petrol 66 galls., oil 8 galls.
Weight of machine fully loaded	3,090 lbs. (including guns, ammunition, etc.).
PERFORMANCE (estimated)—	
Speed at 10,000 feet	130 m.p.h.
Landing speed	45 m.p.h.
Climb—	
To 10,000 feet	11 minutes.

THE AUSTIN "WHIPPET."

This machine is an addition to the number of post-bellum sporting single-seaters. So far as can at present be discovered it is still in the experimental stage.

SPECIFICATION.

Type of machine	Single-seater biplane.
Purpose for which intended	General run-about for business and pleasure, forest patrol, etc.
Engine type and h.p.	A 45 h.p. twin cylinder horizontal opposed.
Weight of machine empty	500 lbs.
Weight of machine fully loaded	730 lbs.
Tank capacity (for 2 hrs' flight)	Petrol 6½ galls., oil 1½ galls.
Speed low down	90-95 h.p.h.
Speed at 10,000 feet	80 m.p.h.
Landing speed	About 30 m.p.h.
Climb—	
To 5,000 feet	6 minutes.
To 10,000 feet	14 minutes.

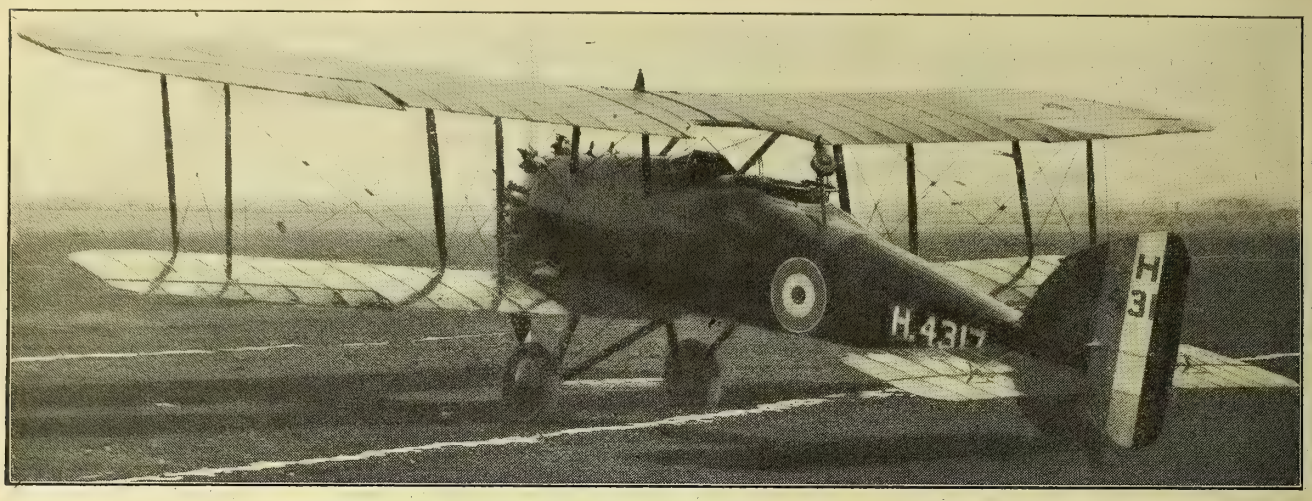
GENERAL PARTICULARS.

FUSELAGE.—This is constructed throughout of steel tubes, bracing wires being eliminated.

ENGINE MOUNTING.—The engine is mounted on a special shock-



Three-quarter Front View of an Austin "Greyhound" (320-h.p. A.B.C. Dragonfly Engine).



Three-quarter View from Rear of the Austin "Greyhound."

absorber device, consisting of four rubber buffers, making a connection between the fuselage and the engine bearers.

Wings.—These have been designed for a high factor of safety, and are of standard construction. They are made to fold back along the body, where they are automatically locked and held up by supporting tubes attached to the fuselage. They are locked in flying position by a special positive locking device. The strut members consist of streamline tubes, tie rods only being used for the centre section.

Tail Plane, Elevators and Rudders.—These are of standard design, the tail plane being made adjustable to correct centre of gravity for different weights of pilots.

Landing Gear.—This is the ordinary "V" type, streamline tubes being used for the struts.

Controls.—These are of standard type, the usual joystick and rudder bar being fitted.

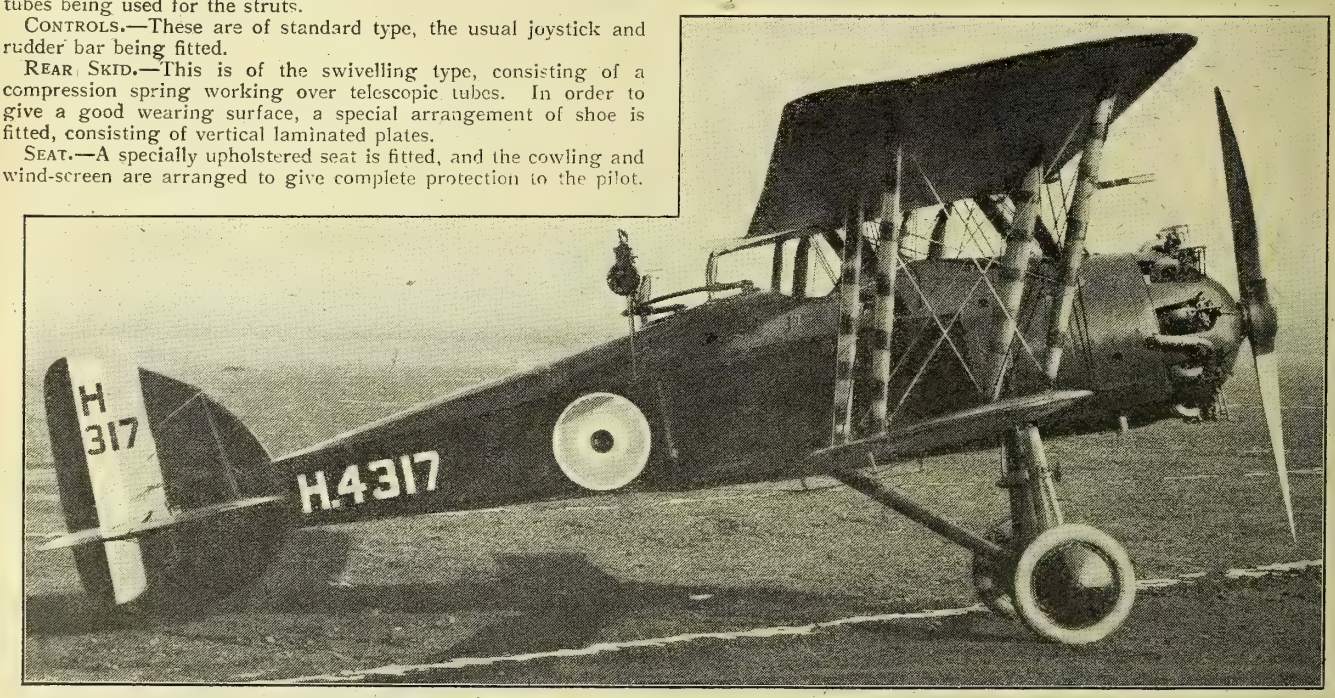
Rear Skid.—This is of the swivelling type, consisting of a compression spring working over telescopic tubes. In order to give a good wearing surface, a special arrangement of shoe is fitted, consisting of vertical laminated plates.

Seat.—A specially upholstered seat is fitted, and the cowling and wind-screen are arranged to give complete protection to the pilot.

Luggage.—A cupboard is provided under the seat to accommodate the pilot's luggage, and any tools it is required to carry.

Engine Controls, Instruments, etc.—For starting a small induction pump is fitted for pumping mixture into the cylinders. The pilot starts his engine from inside the machine by means of a starting magneto.

General Features.—The object of the designers has been to design a machine which will be stable in the air, and will require very little adjustment and attention on the ground, which has a low landing speed, and which can be housed in a motor garage or small shed. With wings folded, the machine can be comfortably housed in a hangar 18 ft. long, 9 ft. wide and 8 ft. high.



Side View of the Austin "Greyhound" (320-h.p. A.B.C. Dragonfly Engine).

A MATTER OF FACT.

Apropos the recent notice of the formation of the firm of Ogilvie and Partners as Consulting Aeronautical Engineers at 104, High Holborn, W.C.1. It appears that one did not do full justice to the responsible post held by Lieut.-Colonel Ogilvie. It was stated in the article in question that Colonel Ogilvie was in charge of Applied Design during the last year of the war. As a matter of fact he came back early in 1917 from Dunkirk, where he had been in charge of the R.N.A.S. Aircraft Depot, which supplied all the Naval Units in that vicinity and on the Somme.

From that time to the end of the war he was practically in charge of all New Design Work under the Air Board, and subsequently under the Air Ministry.

Although he did not at first have entire control of New Design all this work subsequently passed under his control, and there is such a considerable difference between such work and that of the Applied Design side, that it seems well to draw attention to the matter in view of the fact that those who wish to consult Ogilvie and Partners will doubtless wish to consult them on matters considerably more far-reaching than those which were covered by the Applied Design Department of the Ministry of Munitions.

SEAPLANES ON THE AMAZON.

The following letter has been received:—

Sir,—I have just read with interest, a letter signed "C. W. P.," in a recent issue of The Aeroplane, in which he makes the statement that the river Amazon is 20 miles wide a thousand miles from its mouth. Does he really mean it, or is it a printer's error? If he does mean it, he surely cannot have been there, and if he asks anybody who has, I think he will be told that even three or four miles would be a very liberal estimate, except in flood time, which is only a small part of the year. At its mouth it is 20 miles or more wide, but a thousand miles up—No; certainly not.

If "C. W. P." contemplates flying up the Amazon, I sincerely hope for his sake that he will not make a bad "landing," for I believe the alligators are generally hungry!

Frank H. H. Adamson.

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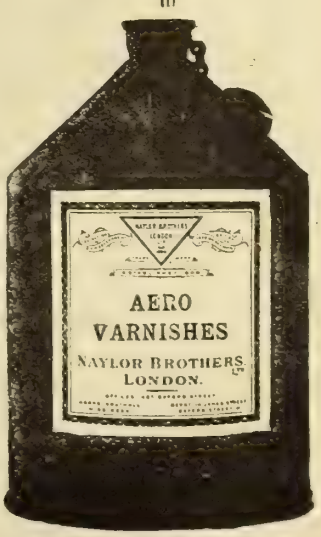
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LONGITUDINAL STABILITY IN PRACTICE.

A Practical Method of Design.

BY C. W. TINSON, F.R.AE.S.

The mathematical work that has been done in connection with the problem of stability of aeroplanes is doubtless responsible to a great extent for the perfection that has already been attained in this most important subject, but many of the published works —for instance, Professor Bryan's "Stability in Aviation"— whilst they are monuments of mathematical ability, are quite beyond the capacity of the average person. They sometimes fail to draw out more than the general ideas to be aimed at, and do not give an exposition of the subject simple enough to apply to conventional practice in the course of the ordinary day's work.

This is in no way intended to detract from the value of works such as the one mentioned, for they are undoubtedly of the very highest importance, but most designers require something more in the nature of formulæ without proofs. This by no means infers that the subject has yet reached the stage when formulæ of the Molesworth type can be employed satisfactorily.

The object of these notes is to present the problem of longitudinal stability in its general form as it applies to the usual type of aeroplane, to deal with it by a simple system of "worst cases," and to get the investigation into such a form that the main points governing the size and mounting of the tail are brought out in a manner lending itself to easy reference and application when designing new machines.

The importance of tail loading, a point which has probably failed to receive the attention it deserves, is strongly emphasised, and the risk attending an alteration to the angle of the tail to correct longitudinal trim when the tail is previously too small and therefore highly loaded, is brought out.

The subject of the downwash has hitherto received very little attention, and in one book the matter is dismissed with the statement that experimentally the downwash angle is half the angle of attack of the main planes, measured from no lift.

Downwash has a very important effect on the selection of longitudinal dihedral and on the condition of the machine at low speeds, and such a rough approximation of its magnitude is by no means satisfactory.

The curve of the downwash given in these notes has been constructed from the very limited information available, and it would appear from theoretical considerations that the magnitude of downwash is likely to depend not only on incidence, but on camber as well. (Fig. A.)

It is also probable that the wash which at small angles of incidence assumes the form of a more or less constant deflection within the limits of the length of an average fuselage, may have a wave length within this compass with certain combinations of speed, incidence and camber, and take the form of a wave following the wings, in which case the phenomenon of "dead water" round the elevators which is experienced in some machines at a definite speed may be explained and guarded against in future.

It is therefore hoped that further informationn will shortly be published giving more light on this matter.

In all the following discussions reference will be made to the qualities of the "Equivalent Plane" of the machine the stability of which is being considered.

The "Equivalent Plane" is an imaginary aerofoil whose lift, drag, position of centre of pressure, and of centre of resistance is identical with those of the actual lifting surfaces employed.

In a monoplane the actual aerofoil answers this description, but in any machine with more than one aerofoil the "Equivalent Plane" occupies some position intermediate between the extreme surfaces which compose the whole lifting surface.

The factors governing longitudinal stability are

(a) PITCHING COUPLE.

(1) Weight of machine.

(2) Distance between Centre of Gravity and Centre of Pressure, depending on Wing Section, chord, angle of incidence (speed), and the position of Static Balance of the machine, which in turn depends on the vertical height of the C.G. and the position of the "Equivalent Plane" in the gap, when the machine is not a monoplane.

(3) Thrust of propeller, depending on throttle position.

(4) Distance from Centre of Thrust to Centre of Resistance, depending on the ratio of the resistance of wings to the general body resistance, which ratio alters slightly with speed.

(b) RIGHTING COUPLE.

(5) Area of Tail Plane.

(6) Section of Tail Plane.

(7) Angle of Tail Plane relative to wind, depending on the downwash and the longitudinal dihedral between wings and tail.

(8) Speed of machine.

With such a large number of variables it is obviously impossible to deal with the problem in an abstract way and equate the two moments in general terms without making assumptions respecting dimensions, wing loading and section, etc., which would restrict the application to one type of machine.

Many of the factors can be eliminated in a machine of the usual type however because their magnitudes are small proportions of the total and can be covered by introducing a generous "tolerance" or latitude for the position of the centre of gravity of the machine, for the weight multiplied by the distance from C.G. to C.P. is the greatest part of the Pitching Couple.

For example, the thrust moment, except in a flying-boat, is small compared to the total pitching couple and can be allowed for by displacement of the centre of gravity longitudinally, and if the tail be of sufficient power to overcome the pitching couple when the centre of gravity is at its extreme positions, allowing a "limit" for its position either side of its estimated position not likely to be reached in practice, this is sufficient to absorb the effect of minor factors.

The vertical height of the centre of gravity, and the position assumed for the equivalent plane in a biplane have a definite bearing on the tail area required, apart from any questions of pendulum effects, which are not taken into account because the length of pendulum in a conventional machine is of no great consequence.

Suppose a machine to be designed for its C.G. to intersect the equivalent plane at 0.3 of its chord when the machine is horizontal. Fig. 2.

If the centre of gravity is some distance below the equivalent plane, the effect is that at high speeds, when the incidence is somewhere in the neighbourhood of zero, the balance or intersection of C.G. with the equivalent plane, is farther back than 0.3, Fig. 1, and at low speeds considerably farther ahead. Fig. 3. (Fig. B).

This improves the case for the tail plane for it tends to reduce the pitching couple at high speed when the centre of pressure is back, and increases it at low speeds when the tail, if small, tends to render stalling easy.

In view of the rather important effect which this feature has on the tail area necessary, it would seem desirable to discover its magnitude if the machine for which the tail plane is being designed is a flying-boat, or one with the C.G. specially low.

In an ordinary tractor biplane, however, the vertical height is not very considerable and omission of the factor guarantees the tail being of adequate area.

If these minor factors are disregarded the pitching couple becomes simply weight of machine by distance between C.P. and C.G., and has two values for every speed, the one corresponding to the C.G. in its most forward probable position and the other when it is farther aft than is likely.

In calculating the righting couple, variable (6) may be eliminated by assuming the tail plane to be of some standard section, T.P.4, say (unless it is required to be a symmetrical in cross sec-

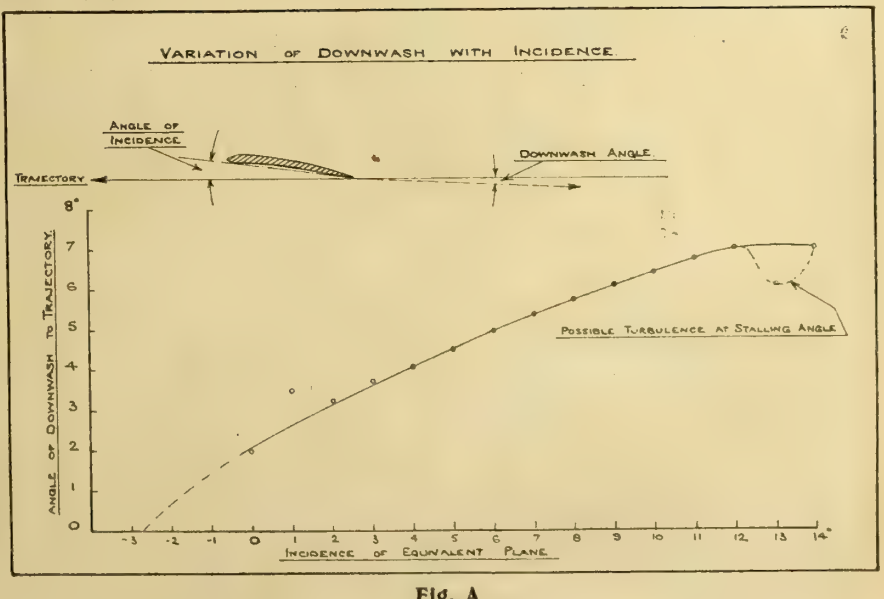


Fig. A.

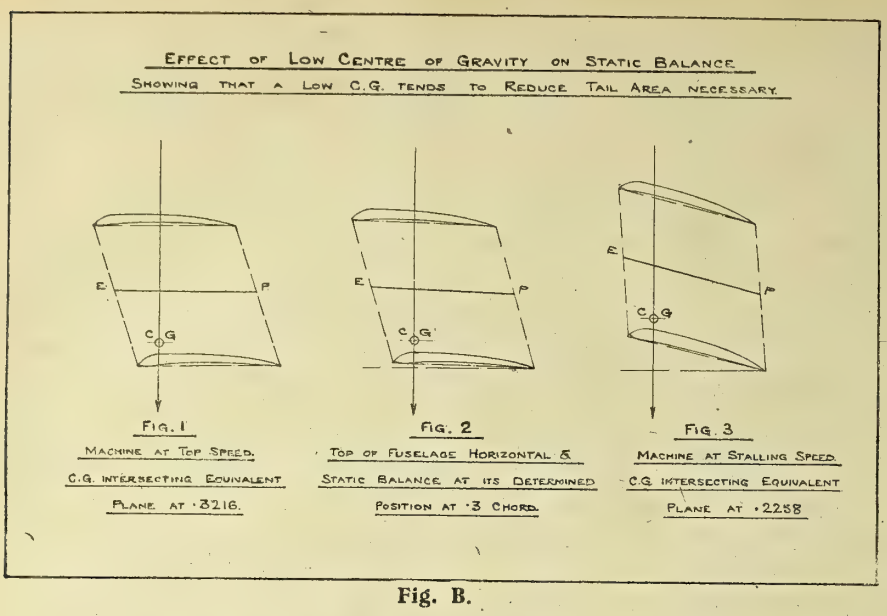


Fig. B.

tion to serve some particular purpose, such as the tail of A.D. Flying Boat).

The figures for the lift of this tail section are suggested as applicable generally, since any variation of camber due to spar depth required will not materially modify the values or the lift per unit area at any particular angle and with a symmetrical section the no-lift position in the speed range will occur at the same place, no lift occurring when the angle to the downwash is zero.

Of the other factors in the righting couple, none can be eliminated, and whilst speed can be said to be an independent factor, the area and angle are inter-dependent, for either a small area at a large angle of incidence, or a large area at a small angle will provide the necessary force required.

These inter-dependent factors bring us to the most important decision to be made in settling the tail unit, and govern to a great extent the "feel" of the machine in the air.

It is well known that one machine may be said to "feel" nice where another with apparently similar comparative stabilising areas, chord and weight is pronounced bad, and on some occasions pilots have given it as their opinion that a machine which did not feel nice was unstable, others would admit tenderness, but would contend that it did not amount to instability.

This introduces the quality which may be termed "Stiffness" in a machine and applies just as much to lateral and directional stability as to longitudinal.

A simple illustration of stiffness directionally is when an arrow oscillates in flight and yet flies straight, that is, its trajectory is a straight one, but its axis makes an angle first to one side and then to the other.

Stiffness is determined by the excess of righting couple over upsetting couple at any given angle of attack, and for stiffness it is required that the rate of change of righting force shall be greater than the rate of change of the force causing deflection.

In the arrow, the trouble can be got rid of by increasing the fin area, but in longitudinal stability this cannot be done without a corresponding alteration to the longitudinal dihedral angle or the machine will trim at a different speed.

On the other hand, an alteration to angle alone will not do, for this would have the same effect if there were no downwash factor, and since downwash governs the real incidence of the tail plane, an alteration to angle alone would shift the position of no lift of the tail in the speed range and might have the effect of producing instability at certain speeds.

The speed of the machine is a very important factor in stiffness, and an increase of power alone will sometimes have a marked effect on the stability of a machine in this respect.

Suppose that by altering the engine of a given machine its speed increases from 80 m.p.h. to 110 m.p.h. and that no other characteristic of the machine is altered.

The tail pressure will be greater in consequence of the increased speed in the ratio $\frac{110^2}{80^2}$ or 1.89 times as much.

In actual fact, it might be slightly more owing to the fact that the wings would be at a slightly smaller angle to get the increased speed with the same area, weight, etc., and as the tail is supposed unaltered it would be running at a greater negative angle and would consequently give rather more than 1.89 times the former pressure.

If the machine were arranged to fly hands off at 80 m.p.h. in the original case it would now have to be altered to fly hands off at its new top speed, and, to do this, the longitudinal dihedral must be reduced.

The effect at landing speed, which would be the same as with the original engine, would be that the tail would be running at a greater positive angle owing to the reduction in dihedral, and would therefore resist the tendency to stall better than it did.

If the tail area was such that before altering the engine the machine was "sloppy" at landing speed, it would no longer be so after increasing the power, and the machine would lose its tenderness and be stiffer at all low speeds.

Also for the same degree of stiffness to be obtained with the engine of lower power, the tail would be nearly twice the area.

To avoid the complicated calculations which would be necessary to ascertain this quality, and provide a short cut for application and comparison in designing tail units, the accompanying table of Relative Stiffness has been prepared and shows that machines which are known not to be tender longitudinally have a stiffness ratio of more than 300, in the units here employed.

RELATIVE LONGITUDINAL STIFFNESS.

The Ratio of Principal Factors in Moments Governing Longitudinal Stability. Stiffness Ratio $\Sigma = \frac{A\,L\,V^2}{W\,C}$

Machine.	Area of Tail, sq. ft. A	Leverage of Tail, ft. L	Speed² in m.p.h. V^2	Weight of Machine, lbs. W	Chord of Wing, ft. C	Stiffness Ratio. Σ
Avro...	26.0	17 33	,400	1,800	4·75	338
B.E 2c	38 5	16 2	7,220	2,140	5·5	382 5
Bristol Scout D	23.0	12.67	9,150	1,250	4 5	474
,, ,, F	15.0	12.67	19 000	2,100	5·3	328
,, Monoplane	20.0	13 9	16,400	1.300	5·92	592
,, Fighter	22 2	17 0	15,600	2,800	5·5	380
,, Bomber	96.5	32.5	11,250	16.200	8.5	256
D.H.4 (370 h.p. Rolls ...	38.0	18 0	18 640	3.472	5·5	668
D.H 4 (275 h.p. ,,) ...	38 0	18.0	13 700	3,400	5 5·	500
D.H.9 (230 h.p. B.H.P.) ...	38 0	16.6	13,450	3,300	5 5	468
D.H.9A (Liberty)	38.0	17.5	16 640	4,220	5·75	336
D.H.10A (,)	75 0	22.0	17.950	8,500	7.0	500
Gotha (Twin)	45 0	23.3	5,780	8,763	7 47	92.5
Handley Page (0.400) ...	110.0	45.0	9,030	13,172	10 0	339.5
S.E 5A	14.7	12.66	19,60	1,9:0	5·0	369
Short (184)	45 0	21.0	5,595	4 900	5·0	216
Sage 3	26.0	14.21	5,040	2,000	4 75	196
,, 4	24.4	15 5	9 410	2,650	5.25	276
Sopwith Camel	14.0	11.0	13,920	1,450	4·5	328 5
,, Pup	23 0	12.0	12,100	1 290	5 13	511
,, Cuckoo	35 6	18 6	.0,000	3,370	6 75	290
A.D. Flying Boat (150 h.p.)	39.1	14.75	8,470	3,327	5·5	267
,, ,, ,, (00 ,,)	39 1	14 75	8,470	3,561	5·5	251
Cody (Cathedral)	10.0	16 75	5 240	2 680	5.5	59 6

The expression for the Modulus of Stiffness omits one factor of importance, the longitudinal dihedral, as this is not known for some of the machines and others have adjustable tails which makes it rather awkward to take it into account, but the most important variables are the weight and the speed, so the omission of the dihedral does not lower the utility of the values very much from the point of view of comparison between different machines.

Included on the list are two machines with which the writer has had a good deal of experience. These two machines, Sage 3 and Sage 4, are practically the same in external appearance and the chord, wing area, tail area and tail leverage were identical.

The speed of Sage 4, however, is 97 m.p.h., whilst that of Sage 3 is 71 m.p.h., and the weights 2,875 lbs. and 2,000 lbs., respectively.

The stiffness, whilst not directly as $\frac{97^2}{71^2}$ owing to the increased weight of the faster machine, was distinctly improved and the faster machine is very nice longitudinally whilst the slower one was like a "box-kite."

It will, however, be noticed that though the stiffness has been raised to 276 it is still lower than the average and this, in conjunction with the writer's experience, suggests the figure of 300 as being the lowest ratio designers should allow.

The table of Relative Stiffness of machines shows a wide range of variation, and demonstrates that with this ratio as low as 100 there is still enough tail area to permit the machine to be flown satisfactorily.

(To be continued.)



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THE AIRCRAFT TRADER

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

MAY 21st, 1919

COPPER.—This market is certainly firmer, but actual consumers still hesitate, although, as stated last week, their attitude may be influenced by the uncertainty of the prices of other metals. The huge accumulations of stocks in various parts of the world are also causing them to act very cautiously. There is a fairly good demand for manufactured Copper, notwithstanding the high prices which are still out of all proportion to the prices ruling for Ingot

The market this week has been very active, and fairly large purchases have been made, chiefly for forward delivery. It is understood that the demand by Cable firms is responsible for the renewed activity.

The American Copper market is a little more active. Nevertheless, it is reported that there will be a further curtailment of production, as consumption appears to be still lower than the quantity produced.

COMPARATIVE PRICES.

	Per Ton. £	s.	d
To-day, May 21st	79	10	0
Last week	77	10	0
Last month	76	15	0
Average price, 1918	115	10	0

TIN.—Although actual consumers are not very active, the market continues firm, and prices, though occasionally irregular, have not indicated any marked sign of weakness. The outlook is still uncertain and the position at present demands caution.

The market yesterday was weak, pressure being brought to bear by the selling side, and the market shows signs of a decline.

American buyers are expecting the removal of the Tin restrictions and the general opinion is that permission will first be given for imports from the Straits before the embargo on other countries is lifted.

COMPARATIVE PRICES.

	Per Ton. £	s.	d.
To-day, May 21st	239	0	0
Last week	236	10	0
Last month	224	0	0
Average price, 1918	329	10	0

LEAD.—Consumers are fairly active in this market and the demand is good; there is, of course, room for much improvement, but considering the general reluctance of buyers in other markets the interest shown by actual consumers of Lead is fairly satisfactory.

It is difficult to understand why the Government maintain their price at £25 when American Lead is being offered at £24 7s. 6d. and £24 5s. c.i.f. Liverpool for May and June shipments respectively. The conclusion was that they would have reduced the price in order to reduce the large stocks which are being held by them. The motive for this policy is very obscure, but the result is that merchants are compelled to buy American Lead.

STEEL.—There has certainly been a falling off in orders for finished Steel, and the demand for Alloy Steels is practically at zero. There is a feeling of uncertainty, and buyers are hesitating, evidently expecting that American competition will bring prices down. Some authorities state that there is no news of American material having been offered at prices which show an advantage over the prices ruling here.

On the other hand, consignments of Iron and Steel have been received from America, and, although there may not at present be much difference in the price of Steel, the situation is being very carefully watched, and the general position, which is certainly very uncertain, calls for caution.

The demand for Aircraft and High Speed Steels continues dull, and there is at present no sign of renewed activity.

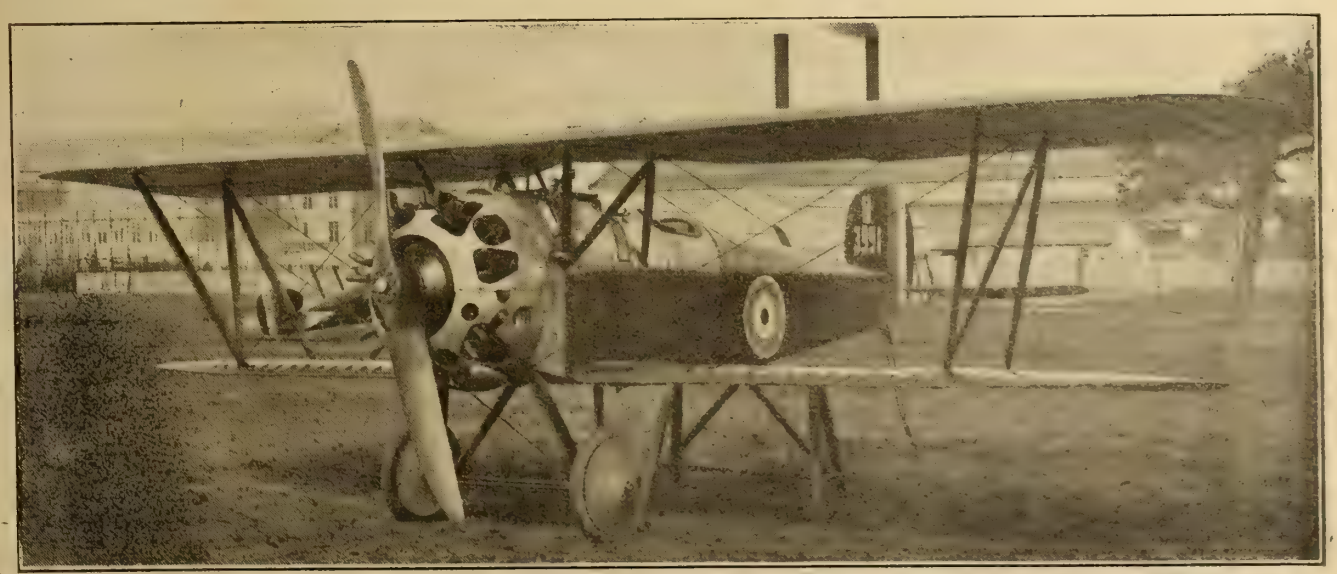
TIMBER.—The market continues to show signs of activity, but there is still room for considerable improvement. So far as Aircraft Timber is concerned, there is very little demand. In any case, firms who are in need of timber should exercise the utmost care, as the stocks which are held by the Government are very unreliable, and it is even reported that probably only 15 to 20 per cent. of the material is any use for aeroplane construction.

The Hardwood market is fairly strong, and prices continue to harden. The demand for Honduras Mahogany is particularly healthy. This, of course, is due to the peace-time trades getting into their stride again. It will, of course, be some time before they are working "all out," and, when this takes place, the demand will be very large indeed. It would not be surprising to see values harden.

FABRIC.—There is nothing further to report, although it is understood that large quantities of Aeroplane Linen have been disposed of in Ireland, at a figure somewhere in the vicinity of 1s. per yard, 36 inches wide. No official intimation has yet been issued as to the disposal of the huge stocks lying at the stores in this country.

A MEMORANDUM FOR INVENTORS.

Mr. E. S. Andrews, B.Sc., Eng., has resigned his appointment as technical officer under the Air Ministry and entered into partnership with Major J. Harold Beaumont, who is a registered patent agent, at 29, Southampton Buildings, London, W.C.2, for the joint practice of consulting engineering and patents work. Both partners were for many years before the war members of the Examining Staff of H.M. Patent Office. The firm will be known as Andrews and Beaumont.



Three-quarter Front View of the Bristol F.1 Single-seater with the Cosmos "Mercury" Engine of 315 h.p. **(See page 2130).**

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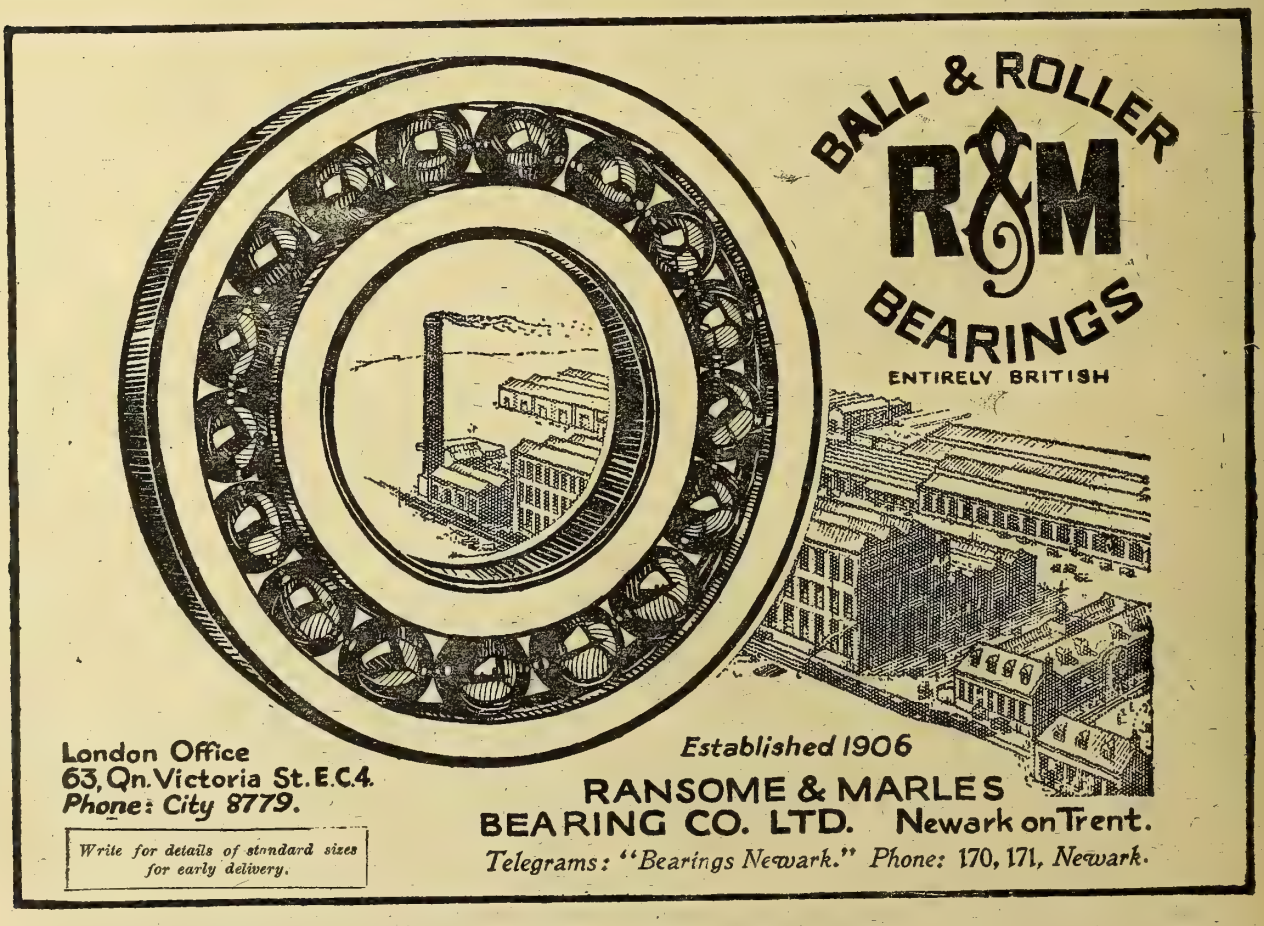
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THE COST OF SPEED: TWO ASPECTS OF THE SUBJECT.

By "MEDWAY."

It is obvious enough that if we want speed we must pay for it. We cannot expect a method of transport capable of conveying passengers and goods at 100 miles an hour to be available at rates as low as those possible to a system which works at 2 miles an hour. The aeroplane and the canal barge represent our two extremes. The former is right ahead of all other methods as regards its speed capabilities.

But while we admit that we must pay for speed, there is always the question of what price we are prepared to pay. By taking the average from a number of expert opinions, I find that the general view is that, other things being equal, we must increase power by about 50 per cent. if we wish to increase speed from 110 to 120 miles per hour.

Increased Fuel Consumption.

Now, the mere increase of power, if it meant nothing more than the use of a rather larger and heavier engine, would not necessarily involve a very big increase in the cost of running. If we take the case of an aeroplane designed to carry about one ton at about 100 miles an hour and fitted with engines of about 700 horse-power, the fuel consumption would probably be about 40 gallons per hour. A 50 per cent. increase in power may be taken roughly to mean a corresponding increase in consumption. The extra expenditure would, therefore, be about 20 gallons per 100 miles, which, with petrol at 2s. 6d. per gallon, is equivalent to 6d. a mile. This in itself probably would not make the difference between profit and loss in one case out of a hundred.

We must, however, reckon a somewhat bigger repair bill for the more powerful engine. Also, we have paid a higher price for it, and must, therefore, make a bigger allowance per mile for its depreciation. Altogether, then, an increase from 100 to 110 miles per hour might mean an increase of something in the neighbourhood of 9d. a mile in running costs; always assuming that when we increased the power we did not alter the load-carrying capacity of the machine.

The Chief Difficulty.

This is just where the snag comes in. If we are to make a non-stop run of 100 miles, the difference of 20 gallons in the consumption means that the more speedy aeroplane must carry 20 gallons extra of fuel at 8 lbs. to the gallon. This means an extra dead weight of 160 lbs. at the commencement of the journey. This amount must, therefore, be deducted from the useful load which would otherwise be carried. The reduction in this case is not a very big percentage of the total load, being about 1½ cwts. out of one ton.

If the non-stop run, instead of being 100 miles, is to be 500, our extra cargo of petrol at the start will weigh about 7½ cwts. Our useful load-carrying capacity is, therefore, reduced by something like 40 per cent.

The other day some figures were published in connection with a new type of Handley Page. It was stated that for a non-stop run of 100 miles the useful load that could be carried was 5,750 lbs. For a non-stop run of 800 miles, the useful load would only be 2,500 lbs., a reduction of well over 50 per cent.

This evidently means that over the balance of 700 miles petrol weighing 3,750 lbs. would be consumed. This gives us a consumption of about 460 gallons for 700 miles, or approximately 66 gallons per 100 miles.

Long Non-Stop Journeys.

The point I wish to emphasise is, however, the huge difference in load-carrying capacity resulting from attempting to make a long non-stop journey. Suppose our flying speed to be 100 miles an hour, and supposing that we make a stop to replenish fuel supplies at the end of every 100 miles, the duration of this stop being a quarter of an hour, we have, therefore, reduced our effective flying speed to 80 miles an hour instead of 100. By so doing, we have rendered it possible to carry about 2½ tons of useful load instead of only about 1 ton.

If we make the non-stop run with 1 ton of useful load, we must charge rates high enough to show a profit.

It is most improbable that we could run the service commercially if the charge were less than 7s. 6d. per mile, or in this case 7s. 6d. per ton-mile.

Now, if we arrange to stop at intervals of 100 miles to pick up petrol, and to carry 2½ ton loads, we can quote approximately 3s. a ton-mile for the work. The question is, then, which would appeal most to the man who provides the load? Will he prefer to pay 3s. a ton-mile and to have the stuff conveyed at 80 miles an hour or to pay 7s. 6d. and have it conveyed at 100 miles an hour?

If we are discussing passengers instead of goods, and if we count 12 passengers to the ton, we have the alternative of 3d. a mile at 80 miles an hour or 7½d. a mile at 100 miles an hour. This comparison is, of course, simply for the same machine running as an express or as what one may call a local.

Local and Express Services.

These figures will show a big difference in principle as between the aeroplane and the railway. The express train involves somewhat higher costs per mile than the local stopping train, but the difference is nothing like that shown above, and in practice, with a few exceptions, the same fares are charged whether the passenger uses the stopping train or the express.

A factor which might tend to neutralise the difference to some extent is that the express aeroplane service would be far less dependent on intermediate landing grounds. These would only be required for emergency purposes, but, unless the whole of the service over a given route is express, then the landing grounds will have to be provided in any case, and consequently very regular use would not involve any serious extra expenditure.

One thing that follows naturally from the whole of this argument is that aerial traffic of a trans-Atlantic or similar character must be conducted at much higher fares and rates than we could get down to in the case of a service which operates over land, and, therefore, gives facilities for frequent replenishment.

Frequent Stops for Fuel.

If we inaugurate a service which is not in competition with the railway or steamship at all, but merely competes with some slow form of transport, such as the animal-drawn vehicle, we should probably find it best

to provide stopping-places at such frequent intervals that in no case is the weight of fuel that has to be carried an appreciable percentage of the weight of the useful load.

As already indicated, we could as a rule bring down the weight of fuel to something like 4 per cent. of the useful load, or even less, provided that we picked up fresh supplies every 60 miles or so. Such frequent stops would make a big difference to the overall speed of the journey. Were we in competition with an express railway service, averaging 50 or 60 miles an hour, we could not afford to incur so many delays. Were we to do so, it would mean that we should have no appreciable advantage in speed, though we should almost certainly have to charge higher fares, and for some time to come our services would probably be less regular and frequent. Thus, where railway connections are direct and good, we must necessarily arrange for long stages, even if by so doing we make it necessary to put up our rates.

Problems to be Faced.

It is to be feared that this article does not do much more than show from one aspect what a complicated problem the promoters of aeroplane services have to face and what a big influence their initial decisions upon apparently minor points may have upon the success or failure of the enterprise.

It may, however, serve to bring home to some people who have not previously considered it sufficiently the fact that there are more reasons than one why high overall speed for long journeys is not at all compatible with the reduction of fares to anything approaching a minimum. It may also indicate how little reliance can be placed upon casual estimates of working costs and fares that must be charged, when these estimates omit, as they so often do, any statement as to the length of the stages and the real overall speed of the journey as distinct from the flying speed while the machine is actually in the air.

AN HOTEL AIR SERVICE.

According to the "Times," the Hotel Traymore, one of the great Atlantic City hostelries, is the first to bring its guests to its door from their homes by aeroplane.

Atlantic City, which is at present holding an international aviation meeting, is a great seaside resort for the people of Philadelphia, the two places being in much the same relation as London and Brighton. The proprietors of the Traymore, having purchased two aeroplanes, will maintain a service between the two cities, thus starting the first hotel air service in the world.

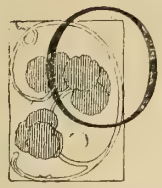
The two machines, which made the first trip yesterday (May 3rd), accomplished the journey in half an hour, landing safely on the beach immediately in front of the hotel.

ENTERPRISE IN CHILE.

A regular aeroplane mail service is to be maintained between Santiago and Valparaiso—the two main centres of population in the Republic of Chile. The Chilian railway system is notoriously lethargic, so that the journey between the two cities occupies some three hours, excluding a wait for half an hour or so which is the invariable rule at the halfway junction of Llay-Llay. The new mail-carrying system which has now been in successful operation for some weeks, is being maintained with a number of the "Bristol" monoplanes, which were recently presented by the British to the Chilian Government.

The Work of the Handley Page Commercial Service in the First Fortnight of Civil Aviation.

Date.	Pilot.	No. of Passengers including Pilot.	Cargo.	Weight	Route.	Remarks.	Time in Air.	No. of miles.
May 1st.	Lt.-Col. Sholto Douglas.	11		1650 lbs.	Cricklewood—Manchester.	O.K.	3 hrs. 40 mins.	165
,, 3rd.	Major Foot.	8	"Evening News."	2000 lbs.	London—Brighton—Eastbourne—Hastings—London.	O.K.	2 hrs. 15 mins.	150
,, 5th.	Lt.-Col. Douglas.	5	"Daily Mail."	1600 lbs.	Manchester—Carlisle—Dundee—Aberdeen—Montrose.	O.K.	4 hrs. 25 mins.	315
,, 5th.	,, ,,	4		600 lbs.	Montrose—Dundee—Turnhouse (Edinburgh).	Thick mist.	1 hr. 35 mins.	80
,, 6th.	,, ,,	5		750 lbs.	Turnhouse—Carlisle—Preston—Manchester.	Rain and mist.	3 hrs. 50 mins.	225
,, 6th.	Major Foot.	4	"Daily Mail."	1400 lbs.	London—Bristol—Exeter—Plymouth—Bristol.	O.K.	5 hrs. 25 mins.	310
,, 7th.	,, ,,	4		600 lbs.	Bristol—London.	O.K.	1 hr. 50 mins.	110
,, 9th.	,, ,,	4	"Daily Mail."	1600 lbs.	London—Southampton—Bournemouth—Ryde—Portsmouth—Eastleigh.	O.K.	2 hrs. 40 mins.	155
,, 9th.	,, ,,	8		1200 lbs.	Eastleigh—London.	O.K.	1 hr. 20 mins.	70
,, 9th.	Lt. Walker.	5	"Daily Mail."	1400 lbs.	London—Cardiff—Swansea—Bristol.	O K.	3 hrs. 25 mins.	250
,, 9th.	,, ,,	4		600 lbs.	Bristol—London.	O.K.	1 hr. 50 mins.	110
,, 10th.	Lt.-Col. Douglas.	5	"Evening News."	2000 lbs.	London—Southend—Broadstairs—Ramsgate—Folkestone—London.	O.K.	3 hrs.	169
,, 11th.	Lt. Walker.	5	"Weekly Despatch."	1550 lbs.	London—Norwich—Cromer—Yarmouth—Norwich.	O.K.	2 hrs. 25 mins.	185
,, 12th.	Lt.-Col. Douglas.	6	"Daily Mail."	1700 lbs.	London—Northampton—Lichfield—Birmingham.	Low clouds—mist.	3 hrs. 26 mins.	180



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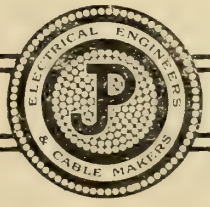
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CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

Boulton and Paul, Ltd., of Norwich, report that on May 15th Capt. E. L. Simonson, with Mr. H. Fisher as passenger, flew to attend the cricket match, Australians v. Mr. Lionel Robinson's XI., and to take photographs from the air. The pilot, Capt. Simonson, is an Australian officer awaiting demobilisation, and is spending his time in the designing department of Boulton and Paul, Limited, together with a number of his colleagues. They landed in a field adjacent to the cricket ground, where they were warmly greeted by Mr. Robinson, and returned to Norwich after the game.

On May 19th, Capt. E. L. Simonson, with Lieut. Jones as passenger, flew to Hadleigh to attend to some business on the part of the passenger.

The undermentioned flights were made from Hounslow last week:—

May 18th.—Colonel Henderson flew a five-seater Avro with three passengers, including a 'Daily Mirror" representative, to Plymouth, in order to meet the American seaplanes which were reported to have left Lisbon.

May 24th.—Mr. Allingham, of Messrs. Francis, made a commercial call by an Avro from Hounslow to Braintree. His object was to call on a client on important business. The machine left Hounslow at 9.35 a.m., and arrived at Braintree at 10.30.

May 25th.—A three-seater Avro, piloted by Mr. R. F. Park, late of the R.A.F., flew from Hounslow to Droxford, for delivery to Capt. Mackenzie Grieve, the father of Commander Grieve. The machine left Hounslow at 3.5, arrived at Droxford at 3.50, left Droxford at 4.40, and arrived at Hounslow at 5.15.

An aeroplane service began on May 26th between Manchester and Blackpool. The aeroplanes will start from Manchester, and the fare is five guineas.

It is stated that in the future three aerial services are to be run from Manchester to the Isle of Man, Scotland, and Ireland.

A dance will be held at the South-Western Hotel, Southampton, on Saturday, June 7th. The guests and band will fly from Hounslow aerodrome for Southampton, under the direction of Lieut.-Col. Henderson, at about 5.30 p.m. on June 7th, and return by air the following morning. Three-seater Avro biplanes will be used, and luggage may be carried. Hotel accommodation will be provided.

The tickets, of which only a limited number will be available, can be obtained from the usual theatre ticket agencies, from 6, Cambridge Square ('phone, Padd. 6213), or from the Lepaerial Travel Bureau, Piccadilly Circus ('phone, Gerrard 4387).

What will happen if it is wet?

A passenger and commercial air service between Hull and Hartlepool was inaugurated by the arrival of a Blackburn Kangaroo biplane, piloted by Mr. R. W. Kenworthy, at Hull, at 5 p.m., on May 26th. There were three passengers. The distance covered was 100 miles. About one hour was taken on the journey.

The Avro Company are offering twenty-five flights by auction at the Theatrical Garden Party, which takes place at the Botanic Gardens on Friday, May 30th. They are to be auctioned in André Charlot's "Monte Carlo" booth. The auctioneer has yet to be chosen.

THE DEVELOPMENT OF CIVIL AVIATION.

Major-General Sir F. H. Sykes, Controller-General of Civil Aviation, addressed the Liverpool Chamber of Commerce on May 26th on some aspects of commercial aviation. He emphasised once more the importance of ensuring a very high standard of efficiency and trustworthiness in British pilots. In order to achieve that standard the British air pilot would pass through a school of aerobatics, but he would never "stunt" except for practice, and on such occasions he must be alone and away from towns.

Stunting.

"We intend," he added, "severely to discourage 'stunting' in the popular sense of the term." Incidentally the lecturer mentioned that of the accidents reported since the 1st inst., when civil aviation was opened, only three cases of injuries had occurred in "civil" machines, and none of those was fatal.

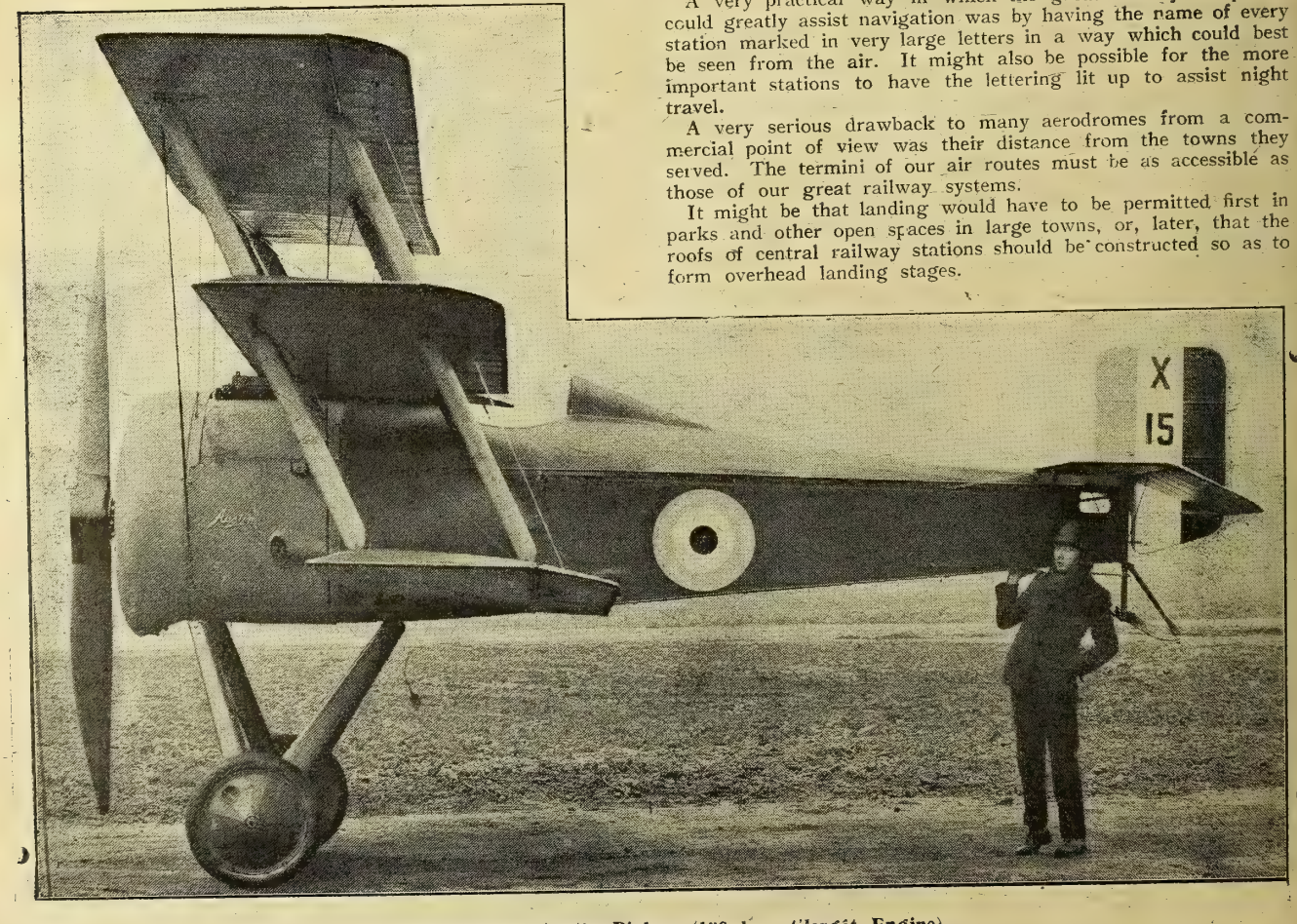
Touching upon methods of assisting the air navigator which remain to be developed, he said the first was directional wireless, which entailed the setting up of large wireless stations—"the only safe means by which aircraft on long-distance over-sea passages may safely know their position." It was hoped, in the course of the development of our meteorological service, to discover consistent wind currents analogous to ocean currents, and thus furnish the airman with air charts.

Station Roofs as Landing Places.

A very practical way in which the great railway companies could greatly assist navigation was by having the name of every station marked in very large letters in a way which could best be seen from the air. It might also be possible for the more important stations to have the lettering lit up to assist night travel.

A very serious drawback to many aerodromes from a commercial point of view was their distance from the towns they served. The termini of our air routes must be as accessible as those of our great railway systems.

It might be that landing would have to be permitted first in parks and other open spaces in large towns, or, later, that the roofs of central railway stations should be constructed so as to form overhead landing stages.



An Experimental Austin Biplane (130 h.p. Clergêt Engine).



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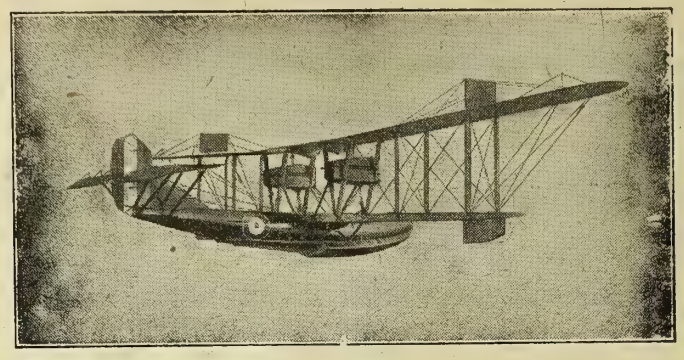
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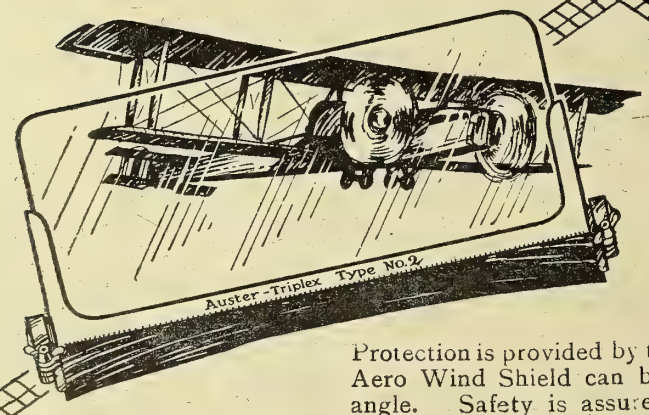
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

AIRCRAFT FINANCE

THE WHITEHEAD AIRCRAFT RESULTS.

Working under State protection and encouragement has disadvantages as well as compensations. The Aircraft Industry can scarcely complain of its experiences of the past year or two. Generally the advantages have appreciably counterbalanced the disabilities. This being admitted, one must express surprise at the poor results published by the Whitehead Aircraft (1917), Limited.

Frankly Disappointing.

Covering the operations of the fifteen months to September 30th, 1918, the balance-sheet shows a profit of £24,087. Frankly, this is very unsatisfactory. There is deducted from this sum the amount of £4,400, being "estimated profit prior to incorporation, applied to writing down goodwill." The balance at profit and loss is therefore £19,687. Deducting the dividend on Preference shares for the half-year, *i.e.*, £9,304, there remains about £10,383, out of which the final dividend on these Preference shares has been paid. There is a very small balance left.

The Directors' Brevity.

The directors are not at all communicative. "During the period under review," they remark, "the company has been a controlled establishment, and its operations have been entirely confined to work under Government contract. A large number of aeroplanes have been delivered during the period, and the quality of the work turned out has been maintained at a high level."

The Shares Issued at a Premium.

This affords hardly any compensation for the quality of the results. Harking back to March, 1918, when the public were invited to subscribe for 450,000 10 per cent. Cumulative Participating Ordinary shares of £1 each at a premium of 1s. 6d. per share and 100,000 Deferred ordinary shares of 1s. each at a premium of 4s. per share, one notices the remarkable contrast between the actual performances and the actual promises given then.

What Was Assumed.

Under date of March 21st, 1918, there is a letter by Mr. J. A. Whitehead, founder of the business and life governing and managing director, embodied in the prospectus. It is stated, amongst other things, that the present turnover is "at the rate of more than £1,000,000 per annum, or nearly six times the rate per annum of the turnover during the fifteen months ended June 30th, 1917. With the use of the additional working capital which this issue will provide, the production for 1918 obviously should be materially increased beyond the present rate of £1,000,000 per annum above mentioned.

"Assuming the net profits on the turnover are maintained in the future at the same rate as in the past, they should be more than sufficient to pay the fixed dividends on the entire share capital of £1,000,000. This is without allowing for the earning capacity of the new capital."

The Balance-Sheet.

An examination of the accounts submitted does not afford much enlightenment. The absence of a Profit and Loss Account, indicating the volume of business transacted and expenses connected with the business, is customary with controlled establishments. One can therefore easily excuse its absence. Balance-sheets merely indicate the position. One finds, figuring among the assets, an item of £32,452 for "preliminary expenses," and also an item of £35,625 for "commission on shares issued."

The Auditors' Remarks.

These items are mentioned by the auditors, who remark that "Nothing has been written off commission on shares issued or preliminary expenses, and no provision has been made for Income Tax, other than deductions from interest and dividends paid, or for Excess Profits Duty (if any)." On the other hand, there is an item of £21,310 received as premiums on shares issued. The balance-sheet shows that there are First Mortgage Debentures, with interest accrued thereon, figuring at £147,015, and also advances by H.M. Government, with interest accrued thereon, secured by Second Mortgage Debentures, figuring at £203,010.

A Rough Calculation.

For the purpose of illustrating the discrepancy between the assumptions embodied in the prospectus and the actual results achieved one may indulge in a rough calculation. In order to meet the "fixed dividends on the entire share capital of £1,000,000" there would be required a sum of approximately £95,000. In order to pay the fixed dividends on the capital actually issued, which, according to the balance-sheet, is £518,697, less calls in arrear of £1,653, reducing the amount to £517,045, the sum of approximately £45,000 would be involved.

Napiers' Fine Achievement.

The subject not calling for any discussion, one may turn to the satisfactory results achieved by D. Napier and Son. These are quite up to the best expectations. It is remarked that the company has been entirely employed on Government work during the period under review ended September 30th last, and that with the increased facilities of additional premises and plant referred to in the last report, has been enabled to still further increase its output to a figure exceeding all previous years. "Important progress in the development and manufacture of aero-engines has been made during the past year. The Napier engine known as the 'Lion' has already established its reputation for record performances, including the altitude record."

A Comparison of the Profits.

After allowing for depreciation of premises, plant, and tools, the profit amounted to £142,336 compared with £125,376 for the previous financial year, £73,962 for 1915-6, and £67,758 for 1914-5. The sum of £35,000 against £20,000 previously has been added to the reserve fund, bringing it up £95,000 and in addition to the 10 per cent. dividend, subject to tax, there is a bonus of 2s. 6d. per share, free of tax, instead of 1s. 6d. per share. The balance-sheet shows an item of £300,000, representing goodwill and figuring as an asset. Wm. J. Davies.

'URRENT TOPICS.

Converting the Big Funding Loan.

A few healthy reactions have benefited the Stock Exchange, and, were it not for the suspicion that the Government may soon decide to carry through at an early date the big Funding Loan operation, conditions might have been even more buoyant

than they are. This big Funding Loan will afford a considerable relief in many ways when it is out of the way. It is a big operation, however, and will take some time to masticate and digest. Then the flood of new capital for industrial developments will break out afresh.

AIRCRAFT SHARES.

As a whole, aircraft shares have been quiet. There have been transactions in Whitehead Aircraft 10 per cent. Participating Ordinary on the basis of 5s. to 5s. 9d. Handley Page new shares have fallen away to 18s. Aircraft Manufacturing Preference move about 20s. now and again, and the B Preference about 20s. 6d. Napiers have been wanted for the bigger bonus about 35s., the new shares being 32s. 6d.

THE FELLOWES MAGNETO CAPITAL.

Last year Fellowes Magneto Company found it necessary to increase its capital because of the development of the business, and now the paid-up capital, which is £114,696, is to be doubled so as to provide the requisite funds for increasing the capacity of the factory and for dealing with the extension of the business. It is intended to issue the new capital as and when required.

PROFITS AND DIVIDENDS.

After allowing £4,638 for depreciation and the writing down of preliminary expenses, the profits of 1918 amounted to £14,129 against £8,514 for the previous period of eighteen months. In addition to the final cumulative dividend of 4 per cent., the Preference shares receive 1½ per cent. under the participating scheme, making 9½ per cent. for the year, and the dividend on the Ordinary shares is 24 per cent. A balance of £3,136 is carried forward.

THE BEARDMORE ACCOUNTS.

Vickers, Ltd., hold a large proportion of the Ordinary shares of Wm. Beardmore & Co. Some people are not acquainted with this fact, which is not a war development, but one of long standing. The company is two or three years behind with the publication of its annual report, because, as is the case with many other businesses, there are differences with the Government to be negotiated. However, it is proposd to pay a 6 per cent. dividend, free of tax, on the Ordinary shares. This is the same as for the previous financial year.

FRENCH ITEM.

The French De Dion-Bouton Company made a gross profit last year of 9,772,089 francs. The dividend is 6 per cent. on the Privileged shares and 5 per cent. on the Ordinary. The sum of 1,250,000 francs is provided for special purposes. An issue of 12,000 bonds of 500 francs each, bearing 6 per cent. interest and redeemable in twenty years, commencing 1924, is being made. The price is 490. These are free of tax, present or future.

THE SIDDELEY-ARMSTRONG AMALGAMATION.

The directors of the Siddeley-Deasy Motor Car Co., Ltd., beg to announce that the offer made by the Armstrong-Whitworth Development Co. for the exchange of shares having been accepted by the holders of 92½ per cent. of the shares, such offer is now binding and the new certificates will be issued in due course.

AN AERIAL TRAVEL BUREAU.

A new Handley Page ticket office, called the Leparial Travel Bureau (Telephone, Gerrard 4387), has recently been opened at Piccadilly Circus. The bureau will also act as agents for other aviation companies and for railway and steamship companies. Illustrated brochures, explaining in full the new Leparial service, will be sent post free on application. The proprietors of the bureau are the Lep Transport and Depository, Limited, of Castle Street, Long Acre, W.C. 2. The telephone number of this company is Regent 5805 (seven lines).

NEW COMPANIES.

W.T.T. ENGINEERING CO., LTD.—Private company. Registered May 16th. Capital, £10,000 in £1 shares. To take over the business formerly carried on at Burnham Street, Kingston-on-Thames, and now at 6-10, Dalling Road, Hammersmith, as the Aeroplane Components Co., and the business carried on at the last-named address as the General Aircraft and General Engineering Co., Ltd. The subscribers (each with one share) are: C. Liney, 7, Phene Street, S.W.3, solicitor's clerk; E. O. Gilland, Eaton Lodge, Hockley, Essex, company secretary. First directors: M. J. Ward, B. Trett, and H. F. Tully. Registered office: 6-10, Dalling Road, Hammersmith.

AIRCRAFT COMMUNICATION AND METEOROLOGICAL SURVEY CO., LTD.—Private company. Registered May 19th. Capital, £2,000 in £1 shares. To make surveys for air routes, aerial railways or otherwise, to design and plan "air routes for air route construction," to negotiate for and obtain contracts for the building of air routes and aerial railways, and to carry on the business as indicated by the title. The subscribers (each with one share) are: J. D. N. Molesworth, 224, Martins Lane, E.C. 4, engineer; A. Sterry, 24, Martins Lane, E.C. 4, solicitor. First directors to be appointed by the subscribers. Registered office: 24, Martins Lane, E.C. 4.

BYGLOVERZA, LTD.—Private company. Registered May 14th. Capital, £2,000 in £1 shares. Engineers, manufacturing chemists, printers, publishers, publicity experts, etc. The subscribers (each with one share) are: G. H. Glover, 187, Camberwell New Road, S.E. 5, incorporated secretary (director of Resonance, Ltd., and Hydrates, Ltd.); H. N. Ballantyne, Caerlee, Inverleithen, Peeblesshire, woollen manufacturer (director of Hy. Ballantyne and Sons, Ltd., Sunbury Aviation Co., Ltd., Resonance, Ltd., and Hydrates, Ltd.). First directors: G. H. Glover and H. N. Ballantyne.

DE DION-BOUTON, LTD.—Private company. Registered May 16th. Capital, £160,000 in £1 shares (80,000 8 per cent. cumulative preference). To enter into an agreement under which H. O. Duncan, with the consent of the Etablissement de Dion-Bouton, of Puteaux, France, agrees to assign to the company the benefit of his agreement with the said Etablissement, and to carry on the business of manufacturers, repairers, importers and exporters of and dealers in motor-cars, carriages, cabs, omnibuses, vans, lorries, tractors, cycles, ships, launches, boats, aircraft, and other public or private conveyances, electrical and general engineers, etc. The subscribers (each with one preference share) are: T. C. King, Strathspey, Regent's Park Road, Finchley, N.3, solicitor's clerk; R. C. Heddle, 136, Osborne Road, Forest Gate, E.7, law typist. The first directors are: H. O. Duncan, 21, Margaret Street, W.1; H. W. Hillman, Milford, High Road, Whetstone; H. K. Rodwell, 52, Dartmouth Road, N.W.2; K. D. Wadia, 2, Avenue de Bois de Boulogne, Paris; and J. B. Clarkson, 21, Templars Avenue, Golders Green, N.W. Registered office: 16, Great Marlborough Street, W.1.

AEROPLANE ELECTRO PLATE ART METAL CO., LTD.—Private company. Registered May 5th. Capital, £1,000 in £1 shares. Manufacturers of and dealers in aeroplane novelties, and all kinds of electro-plate, art metal ware and fancy goods, etc. Agreement with C. Murtha. The subscribers (each with one share) are: C. Murtha, 86, Waterloo Road, Smethwick, aeroplane worker; G. F. Sansom, 20, Ellen Street, Brookfields, Birmingham, manufacturing jeweller. First directors: C. Murtha, G. F. Sansom, and H. J. Walker. Registered office: 17, Ellen Street, Brookfields, Birmingham.

COMMERCIAL RAPID DELIVERY SERVICE, LTD.—Private company. Registered May 6th. Capital, £10,200 in 10,000 preference shares of £1 each and 4,000 ordinary shares of 1s. each. Carriers by land, air, and water, etc. The subscribers (each with one ordinary share) are: A. B. Horsley, Oval Grange, West Hartlepool, merchant; W. A. Dutton, 82, Bishop's Mansions, Putney, S.W., advertising consultant. First directors: A. B. Horsley, W. A. Dutton, E. A. Wodehouse, 51, Baker Street, W., and H. W. Stirling, Lyndhurst, Ascot. Registered office: 96A, Upper Richmond Road, S.W.

ENTENTE INDUSTRIELLE (ENGLAND), LTD.—Private company. Registered May 2nd. Capital, £1,000 in £1 shares. Bankers, capitalists, financiers, concessionaires, merchants, exporters, importers, commission agents, brokers, auctioneers' agents, underwriters, insurance agents and brokers, engineers, etc. The subscribers (each with two shares) are: B. Baines, 6, New Burlington Street, W.1, solicitor; F. C. Nestler, 166, Piccadilly, W.1, aeronautical engineer. First directors to be appointed by the subscribers. Registered office: 166, Piccadilly, W.

MORTGAGES, CHARGES, AND SATISFACTIONS.

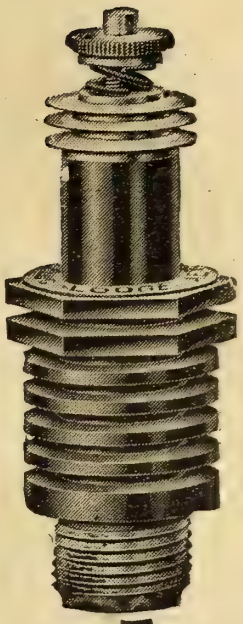
MOTOR MAINTENANCE, LTD (formerly Tooting Aircraft, Ltd.).—Satisfaction in full on March 26th, 1919, of debentures dated Jan. 9th, 1919, securing £2,000.

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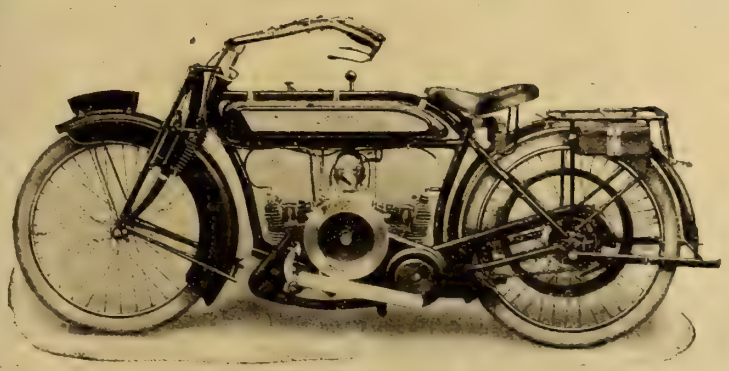


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AIRCRAFT IN PARLIAMENT

The following written answers were given on May 19th :—

ROYAL AIR FORCE.—DEMOBILISATION LEAVE.

Mr. GANGE asked the Secretary of State for War if men of the Royal Air Force who have been overseas for eighteen months without leave are denied upon demobilisation the three weeks extra leave granted to all other ranks under Army Instruction No. 851 of 1918; and, if so, if he will explain the reason for this treatment?

Major-Gen. SEELY : The leave referred to in Army Council Instruction No. 851 is not additional leave on demobilisation, beyond the twenty-eight days' demobilisation leave, but is leave granted to men retained to serve in the Force of Occupation who have completed their engagements. Similar conditions exist in the Royal Air Force.

REGENTS' PARK BUILDINGS.

Sir William PEARCE asked the Under Secretary of State to the Air Ministry if he will state what number of persons are now employed in the Air Force buildings, Regents Park; what is the nature of the work; and when this portion of the park will be vacated by them?

Major-Gen. SEELY : The number of persons at present employed by the Royal Air Force at Regents Park is 2,332. They are engaged on the receipt, salvage, storage, and issue of aeroplane engines and their spares. Standard stocks are gradually being transferred to Ruislip, and it is hoped to complete this process by September 30th. The buildings and stocks not required to be retained will be handed over to the Aircraft Disposal Department of the Ministry of Munitions, the period of whose retention of them will, I understand, depend upon the time required for the disposal of the stocks transferred.

DOGS (IMPORT BY AEROPLANE).

Colonel WESTON asked the Under Secretary of State to the Air Ministry, in view of the spread of rabies in this country, the belief that dogs are being imported from dangerous countries by airmen, and the fact that outbreaks seem to have origin close to well-known aerodromes, if he will institute a Court of Inquiry to investigate the matter at Home and Continental aerodromes between which there is communication; will he furnish as far as possible to the proper authorities at home the number of dogs so imported during the last twelve months, the names of the airmen who brought them over, and the names and addresses of the receivers of such dogs; and will he state what steps are taken by the military authorities at the ports of embarkation abroad and disembarkation at home to ensure that dogs are not smuggled home, apart from the mere notification to troops and women who have been on service that it is forbidden.

Major-Gen. SEELY : **The Air Ministry has no information** which bears out the suggestion that dogs have been imported by aeroplane. The matter is one which has received, and will continue to receive, close attention. Inquiries as to the procedure at ports of embarkation should be addressed to the War Office.

ATLANTIC FLIGHT (MR. HAWKER).

Motion made, and Question proposed, "That this House do now Adjourn."

Captain ELLIOTT : I should like to call the attention of this House to a matter which is, I think, if not of great public importance, at any rate of great public interest. I should like to ask the Parliamentary Secretary to the Minister of Shipping, failing the presence of any other Government Minister on the Front Bench, if he has by this time received any information whatever as to the progress of Mr. Hawker in his very gallant attempt to uphold the supremacy of this country?

Colonel WILSON : When my hon. and gallant friend raised this question a short time ago, I took what steps I could to ascertain whether there was any information available which I could give. I am informed that there is no such information on this subject whatever. I am only sorry I am not in a position to say whether Mr. Hawker has arrived.

Captain ELLIOTT : May I express my deep disappointment, and may I, speaking to some extent, I think, in the name of the people of this country, put forward the most unsparing condemnation of the Government for its action in this matter? I think that the House in general, and certainly, I am sure, the country, feels that the Government has been lamentably remiss and desperately careless of the honour of this country and of the life of a very gallant gentleman.

Mr. PRATT (Lord of the Treasury) : I cannot allow what the hon. and gallant gentleman has said to go without reply. I cannot see in what way he holds the Government responsible for the circumstances to which he has called attention. I can only promise this, that what he has said will be brought to the attention of the Government at the earliest possible moment.

Captain WEDGWOOD BENN : As the Lord of the Treasury has seen fit to intervene in the Debate, perhaps someone on the Government Bench will tell us what steps the Government took to aid Mr. Hawker, by reports or otherwise, across the Atlantic, or whether warnings were issued or incitement made to get this race run. The hon. and gallant Member (Captain Elliot), I am sure, voiced the feelings of every one in this country of high admiration for the splendid spirit displayed by this gallant airman, and perhaps the hon. gentleman, who naturally defends the Government, being there for that purpose, will explain what steps the Government has taken to assist in this enterprise.

Question put, and agreed to.

* * *

The following oral answers were given on May 20th :—

AIR MINISTRY (MOTOR CARS)

Lieut.-Col. W. GUINNESS asked the Secretary of State for War how many motor-cars are being used by the Air Ministry.

Major-Gen. SEELY : The number of cars used by the Air Ministry is forty-two. This includes cars used by branches of the Ministry housed in London but not in the Hotel Cecil

Lieut.-Col. GUINNESS : Can the figure be given for those in use by the Hotel Cecil?

Major-Gen. SEELY : I think it is either six or eight at the outside—about that. Besides that there would be about thirty. That will be about thirty-six about, for the staff of the Air Ministry housed at the Hotel Cecil.

Colonel ASHLEY : Could they not go by trains like other people?

Major-Gen. SEELY : Thirty-six seems a large number, but if you consider the number of officers which must be at the Hotel Cecil—I forget how many hundreds there are—it is evident that the vast majority of them go about like other people.

Col. WEDGWOOD : Is my right hon. friend aware that it was given in evidence before us that they required motor-cars because if they walked up and down the Strand they would be jostled by soldiers who would not salute them?

Major-Gen. SEELY : I am sure that cannot be given as a serious reason. But the whole question is being considered by the Committee of my right hon. friend the Member for the City of London. Every reduction possible will be made, but I must not be taken as assuming that it is desirable that cars be taken from officers of the Royal Air Force who have to administer large districts.

An HON. MEMBER : Will the right hon. gentleman inquire into the large number of cars used by civilian officials of the Air Ministry?

Major-Gen. SEELY : I am inquiring into that; as far as I can make out we have now come nearly to a minimum.

Lieut.-Col. GUINNESS : Can the right hon. gentleman say how many cars are used by the civilian members?

Major-Gen. SEELY : I must have notice of that

Major E. WOOD : Can the right hon. gentleman say whether there is any truth in the statement frequently made that these cars are used to carry ladies about?

Major-Gen. SEELY : No, Sir; I cannot believe that ever happens.

MR. HAWKER'S FLIGHT.—ADMIRALTY PRECAUTIONS FOR SAFETY.

Lieut.-Commdr. KENWORTHY (*by private notice*) asked the First Lord of the Admiralty what Naval Vessels were available on the South-West Coast of Ireland before Mr. Hawker started to fly from America; what steps were taken in case of an accident; and how many vessels are now searching for the missing machine.

The PARLIAMENTARY SECRETARY to the ADMIRALTY (Dr. Macnamara) : As regards the first part of the question, the vessels stationed on the South-West Coast of Ireland are as follows :—One flotilla leader, two destroyers, one sloop, all with reduced crews; two sloops on ferry service (one under refit, another at Portsmouth); sixteen motor launches, one patrol boat, four paddle vessels, ten trawlers, and five drifters. I may add that the motor launches are only suitable for inshore work, and the paddle vessels, the trawlers, and the drifters are continuously employed in clearing the sea of mines.

As regards the second part of the question, no steps were taken before the commencement of the flight to deal with the situation which might have arisen any time during the past few weeks. As a matter of fact, however, during yesterday eleven trawlers were at sea off the West Coast of Ireland, and at 7 o'clock p.m. were carrying out a sweep to the southward from the vicinity of Blacksod Bay.

Further, when information reached us that the flight had actually commenced, we took such steps as were possible on the assumption that Mr. Hawker might be approaching this side. Yesterday afternoon orders were given for all available vessels in the Irish Command to proceed to sea as a precautionary measure, in consequence of which the following vessels proceeded to sea and were subsequently employed searching the sea : from Queenstown, two destroyers, one sloop, and one patrol boat (the leader, I may say, was at Kingstown); from Berehaven, three paddle vessels, from Galway, one tug; from Eagle Island, one tug. The motor launches were unable to proceed to sea on account of the state of the weather. All these vessels are still at sea searching that area off the West Coast of Ireland which lies between the main shipping routes to the North and South of Ireland.

I think, perhaps, I may add an explanation of the circumstances which led to the report that Mr. Hawker had fallen into the sea somewhere about forty miles off Loop Head. The Admiral, Queenstown, received a wireless message that a Sopwith machine was down from the Castletown Wireless Station. Castletown received it from a French Station, and the presumption is that the French Station in question had intercepted, in fragmentary form, and misconstrued, the orders of the Admiral, Queenstown, to his ships carrying out the instructions from the Admiralty to which I have already referred.

Lieut.-Comdr. KENWORTHY : In view of the considerable time that seaplanes sometimes remain afloat, will the right hon. gentleman consider the sending of a flotilla of fast vessels—not trawlers or sloops, but destroyers—at the earliest possible moment to search the area in which this gentleman may be down.

Dr. MACNAMARA : I will put that to the naval authorities.

Mr. BOTTOMLEY : May we take it there is no news so far of this gallant airman?

Dr. MACNAMARA : So far as I am concerned, an hour ago when I left the office there was no news.

Major-General SEELY : There was no news ten minutes ago when I left the War Office.

* * *

The following written answers were given on May 20th :—

ROYAL AIR FORCE.—FATAL ACCIDENT (JURY'S VERDICT).

Mr. MADDOCKS asked the Under Secretary of State to the Air Ministry whether his attention has been drawn to the report of the inquest on Flt. Serjt. C. W. Wright, Royal Air Force, on Thursday, May 8th, 1919, and to the verdict of the jury that his death was due to the collapse of his aeroplane owing to the use of wood unfit for use in aeroplane construction, and that the employment of such wood was due to the criminal negligence of some person or official at present screened by the Department, and whether he is prepared to disclose the names of the person or persons responsible for passing the aeroplane as fit for use.

Major-General SEELY : My attention has been drawn to the verdict given by the jury in the sad case referred to by my hon. friend, and I have given the most careful consideration to it. The expert advisers of the Air Ministry on accidents have made the fullest inquiry into the cause of the accident, but it has not been possible to decide with certainty on the cause of the breaking of the wing. They do not incline to the view that the cause of the accident was defective wood, but even assuming that that was the case, one cannot be certain that inspection will disclose interior defects in a spar. The question of the right moment of dryness of wood is a highly technical one, on which experts differ, our own standard of humidity being nearly double that specified in America. With regard to the last part of the question, I have placed all papers and information in our possession at the disposal of Sir Charles Mathews, Director of Prosecution, for his consideration.

AIRCRAFT WORKS, WINDSOR.

Mr. TYSON WILSON asked the Under Secretary of State to the Air Ministry whether it is intended to complete the aircraft works at Wendover, Bucks; and, if so, will he explain why the contractors are not supplied with the plans necessary for carrying on the work

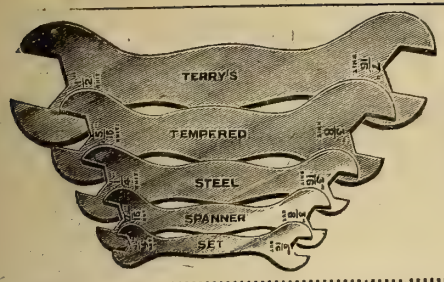
Major-General SEELY : The present intention is to complete these works, and the contractors have all the plans necessary to complete the work on which they are now engaged.

HAWKER-GRIEVE ATLANTIC FLIGHT.

Lieut.-Commdr. KENWORTHY (*by Private Notice*) asked the First Lord of the Admiralty how many additional vessels have been sent to reinforce the ships of the Irish Command in searching for Mr. Hawker's machine.

Dr. MACNAMARA : One flotilla leader and eight destroyers have been sent out.

Capt. W. BENN : Have any seaplanes been sent—a much more suitable way of searching?



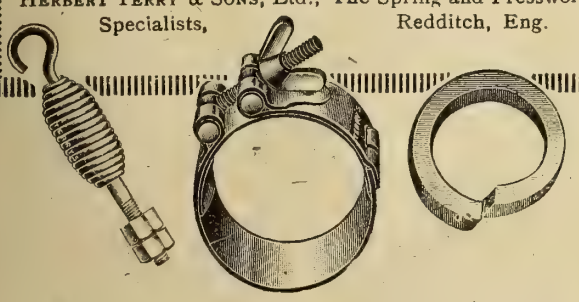
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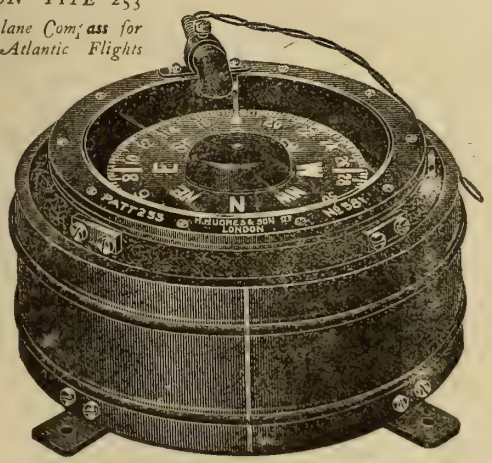


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Dr. MACNAMARA: I cannot say. I shall have to inquire.

Lieut.-Col. W. GUINNESS: May I ask whether the responsibility for the tragedy does not really rest with those who, by organising prizes on a competitive instead of on a qualifying basis, encouraged Capt. Hawker to fly in bad weather and without adequate preparation. [Hon. Members: "Quite right!"]—and will the right hon. gentleman——

Mr. SPEAKER: The hon. and gallant Member can hardly expect an answer to a question like that without giving notice.

* * *

The following written answer was given on May 22nd:—

ATLANTIC FLIGHT.—GOVERNMENT ASSISTANCE.

Lieut.-Commdr. KENWORTHY asked the First Lord of the Admiralty whether naval assistance will be given and organised beforehand if, and when, a British citizen again attempts to fly the Atlantic.

Dr. MACNAMARA: I am glad this question has been put. It enables me—and this is most desirable in the interests of all concerned—to make perfectly clear the fact that it is quite out of the question to organise naval assistance beforehand if, and when, a British citizen again attempts to fly the Atlantic. It would not have been possible, if sought, in connection with the recent flight. It will not be possible in any future flights.

The views of the Government were expressed in a communiqué issued on Tuesday night, and it is unnecessary for me to repeat them, except to call attention again to the many and heavy obligations of the British Navy in many waters.

I wish, however, to make it plain that the Government did not, and could not, accept responsibility of any kind for private enterprises which were not under their control.

The efforts made, therefore, by the Admiralty were not in any sense a belated attempt to give protection which should have been arranged for earlier, but were the spontaneous efforts to do what was possible to save the lives of the two very gallant gentlemen who had made this attempt.

ROYAL AIR FORCE.—EMERGENCY RATIONS.

Capt. ELLIOT asked the Under Secretary of State to the Air Ministry whether an official from the Air Ministry made up an emergency ration of 3,000 calories to last for forty-eight hours for Mr. Hawker; whether he is aware that this is inadequate even for one day; and whether he will ensure that more accurate information is supplied to any others consulting his Ministry.

Mr. PRATT: No official at the Air Ministry made up any emergency ration for Mr. Hawker, but detailed suggestions were made as to the amount of suitable food necessary for the flight. The suggested rations per man were equivalent to a heat value of 12,557 calories. The second and third parts of the question therefore do not arise.

FLYING BOATS (ORDERS).

Mr. MACQUISTEN asked the Under Secretary of State to the Air Ministry whether, at the outbreak of war, the Admiralty purchased a flying-boat of new and successful design by Mr. Norman Thompson, built by Messrs. White and Thompson (subsequently renamed the Norman Thompson Flight Company in 1915), a pioneer firm established in 1909; whether this design, developed in structural details, and ultimately known as Type N.T.2B., was ordered in repetition from other firms as well as the Norman Thompson Flight Company, and in April, 1918, was officially adopted by the Air Ministry as their standard naval instruction machine; whether, in 1915, the Admiralty placed an order with the Norman Thompson Flight Company for ten flying-boats of such size that the firm were compelled to lay out considerable money in additional buildings to their existing works; whether for twelve months after these extensions were completed in May, 1916, the Government were aware that the firm were only able to work at about one-third full output owing to constant changes in design ordered by the Admiralty and shortage of orders, and whether in the autumn of 1916 the Admiralty refused to allow the War Office to place orders with the firm; whether, in June, 1917, the Air Board required the firm to again increase their works for the production of one of their designs of flying-boats (Type N.T.4A.), and subsequently agreed to advance £20,000 for new buildings; whether, after placing considerable orders in the autumn of 1917 for N.T.4A. flying-boats, the Air Board cancelled those orders in January, 1918, and gave no new orders until May, 1918, after the appointment of a receiver for debenture holders; whether an urgent letter from Mr. Norman Thompson, dated July 20th, 1918, addressed to the Air Minister, asking him to redress the situation created by the above actions of the Admiralty, War Office, and Air Ministry, though formally acknowledged, has never been answered; and whether the Aircraft Finance Department of the Ministry of Munitions in October, 1918, refused the recommendation of the Lubbock Committee of the Treasury to pay off the debentures issued to Messrs. Cox and Company as security for advances and re-vest the control of the company in the directors?

Mr. PRATT: The answer to the third part of the question is that boats of the type referred to were used, not exclusively, but in conjunction with other types for seaplane instruction. I am making inquiries in regard to the letter mentioned in the penultimate portion of the hon. Member's question, and will communicate with him. Of the remaining parts of the question, the first, second, fourth, fifth, and sixth would appear to be for the Admiralty; the seventh, eighth, and tenth for the Ministry of Munitions.

DEMOBILISED FLIGHT CADETS (HONORARY COMMISSIONS).

Mr. F. C. THOMSON asked the Under Secretary of State to the Air Ministry why flight cadets who were demobilised between the date of the Armistice and February 15th, and were given no option in the matter, should not be granted honorary commissions, while those who have been demobilised since February 15th have been granted honorary commissions.

Mr. PRATT: Honorary commissions will be granted to cadets who were demobilised before February 15th.

ATLANTIC FLIGHT (MR. HAWKER).

Motion made, and Question proposed,

"That this House do now adjourn."—[Mr. Baldwin.]

Captain WEDGWOOD BENN: I should like to take this opportunity of asking the Under Secretary for the Air Ministry whether he has any news of Major Hawker; and, secondly, can he give the House some account of what assistance was rendered to Major Hawker by the Air Ministry?

Personally, I am sure that the Air Ministry showed itself very helpful in this matter, but we should like to know what assistance was rendered in the way of information as to weather and winds, and more particularly as to facilities for the reception of wireless messages which Major Hawker might have sent, and for sending which his machine was equipped.

The next point—an important point, and more urgent—is to ask the Under Secretary whether he will tell us what steps the Air Ministry, in conjunction with the Admiralty, has taken since the presumed disaster to Major Hawker, to assist in the rescue of this very gallant airman?

The UNDER SECRETARY OF STATE FOR AIR (Major-General Seely): I deeply regret to say that, up to a late hour, we have had no news of Major Hawker and Commander Grieve, who made this most gallant attempt to cross the Atlantic. There is always a possibility that they may have been picked up by some passing vessel not fitted with wireless.

Therefore, there is still some hope, but to a few minutes ago there was no news. With regard to the question as to what steps we took beforehand, as soon as we knew that any competitors were ready—although this, of course, was in no sense a Government enterprise, as I stated in this House—the Air Ministry took the view that they should enjoin caution upon all concerned rather than in any way encourage them to this most gallant and hazardous enterprise—we appointed an officer to be on duty night and day to apprise the necessary persons the moment the flight was commenced.

In accordance with the plans we had made, yesterday the officer apprised the Admiralty, who, I would like to say, throughout this business have given every assistance in their power. Short of stringing boats across the Atlantic, which, with its 2,000 miles of northern sea, would have been an almost impossible venture—the ships are not available—the Admiralty did everything in their power to make this hazardous enterprise less dangerous.

We informed the Marconi Company and also the Admiralty. The wireless stations sent messages to every ship on the route, giving the time of departure, the name of the aircraft that had started and the code word previously arranged, and urged upon all ships to look out for wireless messages and also to look out for the airmen.

The preliminary steps taken, about which my hon. and gallant friend asked me particulars, were to furnish every possible information with regard to the weather and all meteorological information that was available, and to furnish all assistance with regard to instruments. Whatever instruments they wanted for the purpose we enabled them to secure. We warned beforehand all vessels to be on the look-out for this prearranged signal.

Captain BENN: Was not a wireless communication made by Major Hawker, and, if so, by whom was it received?

Major-General SEELY: I was saying that we made all the arrangements we could beforehand. My hon. and gallant friend and the House will be much more interested to know that I think we took every possible step in co-operation with the Admiralty, short of putting a large proportion of the Fleet on the millions of square miles of sea involved in an enterprise of this kind.

My hon. and gallant friend wants to know if any message was received. No message, so far as we can ascertain. I have been in consultation with the first Sea Lord quite recently. It is quite possible that in dropping the under-carriage Major Hawker and Commander Grieve may have injured their wireless installation. That is one explanation why no message of any kind has been received.

The explanation given by the Financial Secretary to the Admiralty this afternoon is probably the reason why a message was received last night purporting to show that these gallant men had fallen into the sea not far from the coast of Ireland.

My hon. and gallant friend asked me what steps had been taken since it was known that a start had been made and there was reason for anxiety. Yesterday afternoon the available vessels at Queenstown and others from the North of Ireland started out to explore the sea.

Since then more vessels have been sent, and although this is not a Government enterprise, and we cannot undertake, with the manifold obligations which the Fleet has to fulfil and the small number of vessels which are therefore available to quarter the sea. As a general rule, every ship of a swift nature has been sent during the last few hours on the chance of finding this most gallant man, who for the first time has dared to attempt to cross the Atlantic.

Captain BENN: Were any aircraft sent?

Major-General SEELY: I am glad my hon. and gallant friend has asked me that question, because last night, when I heard the news, which unfortunately proved to be erroneous, that Major Hawker had fallen into the sea, I went at once to see the First Sea Lord, and heard from him what measures had been taken, and, in consultation with him, I directed the available aeroplane squadrons, which of course were all ready, to place themselves under the orders of the Admiralty at Queenstown, with a view to quartering the sea, in order to see if they could catch sight of the airmen.

They tried to start last night, but there was a gale of wind and rain and fog, and they were unable to get away. Some tried, but could not see at all. Early this morning some of them started and flew over the sea in most desperately bad weather. They did their utmost, but without result. I think one may say everything possible has been done to get trace of these brave men, but so far without result. We can only express our tribute of admiration to the astonishing courage of these brave countrymen of ours who have made this first attempt.

Mr. SEDDON: In view of this very important question that exercises the deepest concern of all Members of the House, I give notice that I will refer to the question of the beer supply to-morrow night.

Lieut.-Comdr. KENWORTHY: From what my right hon. friend has told us, I think the House will agree that energetic steps have been taken since the suspicion was aroused that Major Hawker and the gallant man who accompanied him had come to grief, but I do not think we are quite satisfied that sufficient steps were taken of a precautionary nature before the flight commenced.

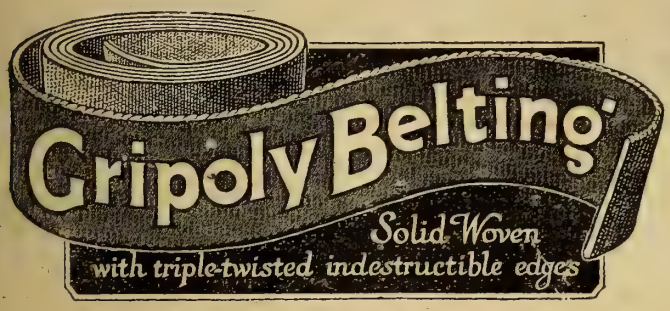
In answer to a question I put to the First Lord of the Admiralty this afternoon, we were informed that on the Irish coast there was one flotilla leader which was at Queenstown and two destroyers with reduced crews. There was also a number of motor launches and trawlers. The only vessels that were at all suitable for succouring or searching for aircraft that might have fallen into the sea are the flotilla leader and destroyers.

Trawlers have very inefficient wireless, and the outlook from them is very small. Usually they are commanded by very gallant men, but they are fishermen and are not used to operations of this character. They are a perfectly novel thing. This attempt to fly the Atlantic is an historical event.

Certainly it was undertaken by a private individual, but nevertheless it is a matter affecting the *esprit de corps* of the whole Empire. It is most desirable that the first man to cross the Atlantic should be a British subject. Under the circumstances, the least that we could have done would have been to have taken some steps to assist him.

We have in the Navy nearly 300 torpedo-boat destroyers, and I cannot accept the explanation that we had not more vessels available than two destroyers at Queenstown and one flotilla leader at Kingstown. Moreover, it is common knowledge now that we have installed in Ireland and in America a system—I think it is common knowledge now—which can fix the position of aircraft or any other surface vessel by cross-bearings and directional wireless, and it should have been possible for Mr. Hawker or any other airman attempting this perilous voyage to have made at intervals a spark which could have been taken in by directional wireless.

We could then have had a plot of his direction across the Atlantic. This was done by the Germans in giving positions to the submarines that were coming over to attack us, and we might have organised our



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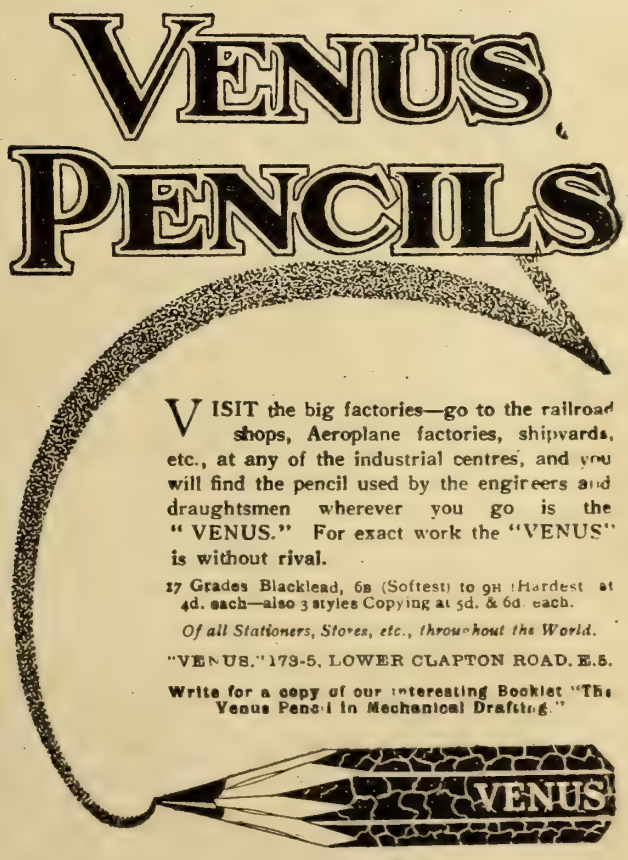


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wireless here in order to supply this assistance. That would have been of value to the airman, and it would have kept us advised of his whereabouts during the voyage.

I think that as regards wireless organisation and as regards the vessels to effect a rescue if required, or to guide him to land, we have been remiss, and I hope that the next time this flight is attempted, as I hope it will be attempted again and successfully carried out by an Englishman, that every possible assistance that we can give will be provided by both the Air Ministry and the Admiralty.

Captain ELLIOT: May I ask if the Air Minister can see his way to prohibit any further attempts to fly the Atlantic in the desperately hazardous conditions which exist at present? It is not fair that any gallant airmen should be lured to their death by the glamour of this great enterprise, with its desperate dangers, as, unfortunately, this trial has proved.

Major-General SEELY: No, sir. I do not think the Government would do right to take that step. I have given it, and I need hardly say personally, the most careful thought, and so have the Government, and it seemed to us not right to say that our fellow-countrymen should not take these daring steps, which, as it turns out on this occasion—I hope it may not be—has not been a success. Other feats which have seemed impossible of achievement have been done by men of our race.

It is not, I think, the function of the Government to say to men whom we do not control, and who are not in our service, "You shall not take these risks." I hope the House will endorse that view. Of course, I appreciate the feelings of the hon. and gallant gentleman who has made this suggestion.

Colonel PERCY WILLIAMS: Can the right hon. gentleman tell us what steps the American Government took to protect their airmen when flying from St. John's to the Azores? Had they a line of destroyers out which signalled from time to time the progress of the flight! I understand that that is so, and if it is so I really think we ought to know why our Admiralty did not do something of the same sort. It seems to me that unless our Government took every means in their power to protect these gallant airmen during this flight, which they knew was coming, they have been very remiss.

Major-Gen. SEELY: I am glad that question has been asked. Not only is the American Fleet freer to act than our own, not being so actively engaged, but, quite apart from that, the conditions of the flights were very different. These gallant distinguished airmen attempted a flight by direct route from America to Europe. The American enterprise, on which we intended to embark during the war as a test of flight, was a very much simpler thing. They were flying over more southerly seas to the Azores, a comparatively short flight, little more than half the distance, where the weather at this time of the year is much more certain and the flight could be begun in daylight.

It was, therefore, possible to have ships within sight to assist the man, and to enable him to see his way. That course was impossible in the case of the northern flight. In order to reduce the distance to the 1,860 you have to fly a great circle, which takes you in the north up amongst the icebergs. To have a string of ships across the Atlantic along the great circle from St. John's to Ireland would involve a tremendous undertaking—keeping the ships up amongst the icebergs waiting seven weeks for an opportunity until the conditions were favourable—which this House would never have endorsed and would have involved an expenditure amounting to millions of money.

It had been intended, if the Board had continued under the direction of Lord Weir, that we should do the same thing with the Porte flying-boat that the Americans attempted, but it was not considered wise to do it now and I think that that was a right decision. But the problem is entirely different here. There was a shorter flight of 1,300 miles, which was done in daylight. The other was done across the great circle and a good deal of the flight from west to east had to be done at night, so that the course suggested could only have been adopted by an immense expenditure, and this is not so much a question of money but of the mechanical difficulties, and I have no doubt that the Government were right in saying that for this enterprise they could not ask the State to undertake this tremendous task.

Question put, and agreed to.

* * *

The following oral answers were given on May 21st:—

ROYAL AIR FORCE.—SURPLUS AEROPLANES.

Col. ASHLEY asked the Under Secretary of State to the Air Ministry whether he will offer to the Overseas Dominions and Colonies some of the surplus aeroplanes now in the possession of the Air Ministry with a view to their being used for postal and similar services.

Mr. PRATT: My hon. and gallant friend has asked me to reply. The question of the form in which assistance can be rendered to British possessions overseas for the purposes referred to by my hon. and gallant friend is under consideration and I hope to be able to announce a decision very shortly.

Col. ASHLEY: Is the hon. gentleman aware that the Dominions would appreciate, not only the gift, but the spirit in which it was offered?

Mr. PRATT: Yes, Sir.

CYPRESS ON AEROPLANES.

Mr. REMER asked the Under Secretary of State to the Air Ministry the name of the official responsible for allowing the use of cypress on aeroplanes; the date he left the service of the Air Ministry; whether he was dismissed or demobilised; and whether he is now able to state the names of his present advisers as to the use of suitable woods on aeroplanes.

Mr PRATT: As regards the reasons and responsibility for the temporary use of cypress for aeroplanes, I would refer my hon. friend to the answer given to him on May 1st. I am sending him to-day the names of the members of the Timber Committee of the Conjoint Board of Scientific Societies.

* * *

The following is taken from the "Times" of May 27th:—

On May 26th, General Seely, Under Secretary for Air, replying to Mr. G. Murray, said: On Thursday last in Paris the Aeronautical Commission held its final meeting and agreed to a Convention relating to air navigation. On this Commission the five principal Powers are represented, as also Belgium, Brazil, Cuba, Greece, Portugal, Rumania, and Serbia. The seven smaller Powers enumerated have been appointed by the Supreme Council to represent on the Aeronautical Commission all the smaller Powers at the Peace Conference. The Commission will agree upon a covering report to be submitted to the Supreme Council. A few reservations by the Delegates of some of these States will be included in this report. I do not expect that these reservations will affect the usefulness of the Convention. The document is of 56 pages, embodying general principles, nationality of aircraft, and certificates of airworthiness, competency, and many other matters of great importance to air navigation. It is of great interest, and I hope to lay it on the table on an early date.

LEGAL BLUNDERS.

What do you think of the new Regulations? The "Imp" does not think. He knows that they contain at least two bad blunders and a host of minor imperfections. Make that good? Certainly.

(1) The Regulations make all parachuting illegal.

(2) The Regulations are self-contradictory about the three zones at aerodromes.

PARACHUTING IS ILLEGAL.

(1) Regulation 5, sub-par (2): "No person in any aircraft shall" (d) "drop or cause or permit to be dropped from the aircraft any article except ballast," i.e., fine sand or water. Under what authority are newspapers and other articles and persons being dropped from aircraft supported by parachutes or otherwise? Did Mr. Churchill intend to prohibit this, or is it a blunder?

SELF-CONTRADICTORY REGULATIONS.

(2) The draftsman or draughtsman of the Regulations does not know his left from his right. If the reader will turn to Schedule VII, Rules 40 and 42, and the sketches said to illustrate the latter, he will see that this is so. The right-hand zone "looking up wind" is the taking-off zone in the text and the landing-zone in the picture, and conversely with the left-hand zone. Who will be responsible for a crash caused by this blunder? Not

"THE LINCOLN IMP."

"And when he had said this he was silent, and so were we all; for, indeed, we were all astonished to hear so strange things so probably told."—BACON. "New Atlantis."

MEERING v. GRAHAME-WHITE AVIATION CO

The action in which Mr. Frank Clement Meering sued the Grahame-White Aviation Company for damages for alleged false imprisonment and malicious prosecution was concluded last week.

Mr. Holman Gregory, K.C., Mr. J. G. Hurst, K.C., and Mr. Bertram Long appeared for the plaintiff; and Sir Edward Marshall-Hall, K.C., Mr. H. H. Curtis Bennett, K.C., and Mr. Ellis Hill for the defendants.

The plaintiff said that in 1916 he was sent by his father to the defendants to learn flying. His father paid £100 premium. He took his pilot's certificate in October, 1916, and was then employed as an instructor of Army officers in flying, etc.

In 1917 he (the witness) conceived the idea of inventing an aeroplane which would be useful in warfare, and he made designs for it. The designs were complicated. Mr. Brakenridge, the manager of the flying school, knew that he was engaged on this work. When his drawings for the design were completed he got to work to make the aeroplane. The work was being done at a friend's garage in Essex, and the same friend financially assisted him. In order to get materials for the construction he saw Mr. Liddle, who was in the regular employment of the defendants.

He wanted sheet brass and other raw material, which could not at that time, owing to the war, be procured in the open market. Mr. Liddle said that he would inquire, and, a couple of days after, he told him that it would be all right, and he (the plaintiff) could get the materials from the chief storekeeper, Mr. Martin.

The goods were handed to him by the various under-storekeepers of the defendants. He got delivery by presenting a requisition to the under-storekeeper written out by Mr. Martin for the specific articles. His father gave him a cheque on December 31st for £11 14s. 1d. to pay for the goods.

Mr Claude Grahame-White said that he was the chairman and managing director of the defendant company. He produced a plan of Rose Cottage, where the plaintiff lived. He said that the distance of the cottage from the aeroplane sheds was 385 yards. During the war the company was doing a great deal of work for the Government, and it employed more than 2,000 persons. There were many cases of loss of the stores and goods, and much petrol was stolen. Hicks and Prudence, the police, reported loss of petrol to him on many occasions.

On January 26th, 1918, one of the company's police made a report to him, and he communicated with the Metropolitan Police at Hendon. Mr. Summerfield, a pilot in the aerodrome school, made a written report on January 28th.

He did not know that it had been decided to arrest the plaintiff. He left the whole matter to Mr. Hutchings. The plaintiff was arrested on February 5, and Mr. Martin was arrested later.

The hearing of the case lasted six days, and on May 23rd the jury gave their finding in favour of the plaintiff.

His Lordship ruled that the defendants had arrested and prosecuted the plaintiff without reasonable and probable cause, and he entered judgment for the plaintiff for £1,700.

His Lordship ordered that £1,500 should be paid to the Public Trustee to be held by him until the plaintiff became twenty-one years of age; that £200 should be paid to the plaintiff's father (his next friend in the action) for the costs which he had paid in his son's defence in the criminal Courts, and that the costs of the action should also be paid to the plaintiff's father.

On the application of Mr. Ellis Hill, his Lordship granted a stay of execution pending appeal on the following conditions:—The £1,700 to be paid to the Public Trustee within ten days; the costs in the action to be taxed and paid to the usual undertaking by the plaintiff's solicitors to return should the appeal be successful; notice of appeal to be given within fourteen days.

THE SHEEP AND THE GOATS.

By "The Snipe."

All of us know the slackers in uniform. They swarm in clubs to-day, and talk of the future of the R.A.F. They usually wear slacks in the morning, to show that they are no longer under the severe discipline of war-time, and they are slackers because they remain in a service that no longer requires them.

There is a grave danger that many of these slackers will remain and take the place of better men who do not desire to live at the expense of their country. The better class of R.A.F. officer appears to be getting demobilised rapidly.

The Right Stuff.

One has met literally hundreds of young well-educated pilots and observers who have seen service on all the fronts and who in many cases have been decorated, yet have declined to apply for permanent commissions merely because no effort whatever has been made to induce them to remain in the R.A.F. Many of these are young men who at the outbreak of war were just entering upon their professional careers with the brightest of prospects. They have proved themselves the right stuff, and they would be the stiffening that the post-bellum R.A.F. requires, but they were kept waiting so long for a decided policy to be announced that they can hardly be blamed for leaving the service when one takes into consideration their prospects in civil life.

As to the promising material we have lost owing to the treatment flight cadets have received, one need only point to the numerous letters that have been published in The Aeroplane.

The method of examining officers for permanent commissions may be reasonable, but one would like to see the right officers make applications for them. Too many of the best seem to be over-nourished with the Force.

Composed of All Classes.

Our war-time R.A.F. was a remarkable organisation; it had many faults, and a few inherited virtues. The type of officer had not been standardised. One could meet all classes. One might have the good fortune to serve under an O.C. whose father and mother were gentlemen, as the Irishman said, or one might serve under a colonel who would boast before the sergeant-major that he had been sweeping out a garage before the war—an actual incident, by the way. One has no prejudice against garage sweepers, but this one lacked tact.

The uninitiated are apt to wonder why some officers were promoted. Those who were behind the scenes know. In politics the same process is called "kicking a man upstairs," and one believes that certain people who have been annoyingly fond of asking awkward questions in the House of Commons have in the past been promoted to the upper House as the simplest method of getting rid of them.

Inefficient Officers.

A C.O. of a unit who found himself saddled with an inefficient officer could not give him a month's pay in lieu of notice and carry on with the war. True, he might put in an adverse report, but that was a troublesome proceeding, as it was probable that the officer's previous C.O. had given a very favourable report in the hope of getting rid of him permanently. If some reports were favourable and some adverse there would be inquiries, and it is probable that the C.O. who told the truth would be informed that if he could not get good work out of his officers it was evident that he lacked the ability to command.

The simpler method was to recommend the unwanted officer for some job that carried promotion in another unit.

One remembers a story told years ago about two astute financiers, one British and one American.

The Britisher went to New York with the avowed purpose of finding a general manager who could introduce American business methods into England. He paid a visit to the magnate of New York and asked if he had on his staff a live man capable of handling a ten-thousand-a-year job. The New Yorker said he was flattered by being asked, and that the British Napoleon of Finance might have any man on his staff except X——.

The Britisher pondered, asked X—— to dinner, engaged him, at a colossal salary, on a ten-year agreement, and laughed in his gold-linked sleeves. But he found that the Daylight Saving Act would have to be amended before he could get the better of the New Yorker, who, when he heard the news, merely remarked that he had been trying "to freeze out X—— for years."

Getting Rid of a Dud.

This story well illustrates the Service method of getting rid of a "dud" and fully explains why certain officers went over the heads of others so rapidly. The efficient ones often found that there was many a slip 'twixt the sub and the pip.

The Army, being more experienced than the R.A.F. in the art of wangling, naturally hailed the flying service as a glorious dumping-ground, so we had hundreds of attached officers in downy jobs. They knew nothing of the work of the R.N.A.S. or R.F.C., so some of them tried to justify their existence by endeavouring to make the military side of the Service predominant.

At the time of the Armistice we had an amazing organisation which, in spite of enormous frictional losses, worked after a fashion. The most striking feature was the way rotund pegs found their way into square or at least hexagonal holes.

The natural desire for promotion was the cause of this, coupled with the fact that the number of pips or oakleaves in a unit was limited by the establishment. A few examples will show the working of the system.

Misfits.

Lieut. Y——, after spending two years in France as an observer, is sent home for ground duty only and for promotion. He may be given a job as adjutant on a station the establishment of which only provides for a lieutenant in that position. He may prove a good adjutant or a bad one. That is not the question. In course of time he may learn how five hundred different forms have to be filled up, and remember without the aid of Pelmanism which should be submitted in duplicate, which in triplicate, and which in quintuplicate. He may know all about W.R.A.F. regulations. Again, this does not matter. He cannot be promoted unless he is posted to another unit.

But one day a vacancy occurs which carries promotion to captain. Possibly the opening is in, say, a meteorological branch. Lieut Y—— is not sure whether meteorology means the scientific study of beef or astronomy, but the chances are that he will take the job if he has the opportunity, and by the time he has learned his duties at this station and is beginning to be useful there may occur a vacancy at some other branch which carries promotion again.

Miraculous Ignorance.

Thus one found misfits everywhere. One knew mechanical transport officers who to the end of their service did not know if a contact-breaker was part of a carburetter or of the differential. One knows others who knew so little of the properties of metals that they thought the best way to retrieve wiring plates and such fittings was to burn a crashed machine and pick the metal parts from the embers.

One knows that there were many misfits in all departments. There was a rumour, which may or may not be true, that a contract had on one occasion to be placed for many thousands of cold chisels, and that the inspired person who handled it specified that the chisels should be "double-ended"

One also heard of a certain officer who in early days had to make some inquiries with regard to K. B. winches and who had an idea that a winch was "some kind of spanner." Consequently he sent inquiries to a manufacturer of tools.

These stories may be apocryphal, but they illustrate a state of affairs that existed.

Shall we now see a change for the better? One has doubts, because wherever one goes one hears that the good officers who really did assist the Service are leaving it. Many of these were qualified for their work by many years of experience before they joined either the R.N.A.S. or the R.F.C. Naturally, owing to their qualifications they have no difficulty in finding good opportunities in civil life.

Looking for Strings to Pull.

But the less competent, who have no conspicuous ability in any direction, and who in the R.A.F. held infinitely better positions than they ever held or are likely to hold in civil life, will naturally pull every possible string that has a permanent commission at the end of it.

Marshal Foch has repeated that the principles of war are unchanging; the laws of human nature, and especially of official human nature, are equally immutable.

Is it of any use to blind ourselves to the facts that every day we are losing good officers, and that we see others far less capable clinging onto their R.A.F. appointments with both hands because in civil life they know they could find nothing so lucrative?

A Maze of Contradictions.

Many of the best could have been retained if an effort had been made to keep them. Instead they have been told that they might join the Army of Occupation, later that only a few would be selected. Again, that they might apply for permanent commissions, but that pay "would not necessarily be so good," then that it would be impossible to live in the R.A.F. without a private income. They have seen the abolition of acting rank and have immediately after seen many acting ranks confirmed. Is it surprising that, living in a world of rumours and contradictory orders many of the best have left the Service?

'Tis a problem that gives one furiously to think.

THE ACCIDENT TO THE TARRANT TRIPLANE.

It is with great regret that one records that the preliminary trials of the Tarrant "Tabor" Triplane ended in a fatal accident. The machine was brought out of its shed early on Monday morning, and with a crew of six on board began to taxi about the area between Jersey Brow and Laffan's Plain. The crew consisted of Capt. F. G. Dunn, A.F.C. (pilot), Capt. P. T. Rawlings, D.S.C. (General Manager of the Tarrant Aeroplane Department), Capt. T. M. Wilson (late of the Technical Department, Air Ministry), Lieut. J. Adams, O.B.E., D.C.M. (in charge of engines), and Messrs. Grosert and Edney, of the Royal Aircraft Establishment.

After doing several turns with the tail-skid on the ground the pilot increased his speed, and lifted the tail off the ground. Then, it seems, he opened out the two upper engines, which apparently pulled the machine over onto its nose. It slid for some yards on the nose of the fuselage, which then collapsed, so that the machine stood bolt upright on the leading edges of the planes

Capt. Dunn was severely injured, but was still alive on Tuesday. Capt. Rawlings died of his injuries soon after being admitted to hospital. Capt. Wilson was badly hurt and had to have an operation performed on him. The other three members of the crew were not severely injured.

The accident was of a kind which several people rather expected, and it might have been avoided by fitting leading wheels, in the manner of the Voisin, or D.H.3, or the early F.Es. But such leading wheels are now regarded as old-fashioned and unnecessary because of the skill of modern pilots, so the makers of the machine were probably justified in omitting them, although the weight of the wheels would have been justified in a purely experimental machine.

Nobody seems to be in the least to blame, for the whole affair was just a pure accident. Everybody will feel great sympathy for Mr. W. G. Tarrant, who must have spent many tens of thousands of pounds on the machine. This will be particularly so because Mr. Tarrant did not come into the Aircraft Industry as a business proposition, but because he wanted to bomb Berlin and believed that this giant triplane design was the thing to do it. It seems highly probable that he was right in his belief, and that if war had continued he would have attained his object, although much experimenting would have been necessary before the type was perfected.

Mr. Tarrant is a man of determination, and one gathers that he will proceed at once with the construction of the second machine, which is already partly made. One wishes him all success with it.

The Late Captain Rawlings.

Capt. P.T. Rawlings won his D.S.C. for the famous first raid on Constantinople, when he was engineer officer on the Handley Page machine which flew from Hendon to Mudros, and thence bombed the Turkish capital. Squadron-Commander Savory and Flight-Commander McClellan were the pilots, and one gathers that Lieut. Adams, who was in the Tarrant machine, was with Capt. Rawlings on the Constantinople trip as junior engineer.

Capt. Rawlings was a very able engineer and a capable business man who would have gone far towards success in the world but for his untimely end. His Service career speaks for his pluck and determination, and one needed only a short talk with him to be convinced of his mental keenness and intelligence. He is undoubtedly a great loss to British aeronautics. And he died in the service of the King as surely as if he had died in battle, for he died in an effort to produce a more effective weapon for use in future wars.

Capt. Dunn was one of the regular pilots at Hendon before the war, and, like the good sportsman he is, he enlisted in the R.F.C. immediately war began. He had a strenuous time in France, won a commission by sheer good service, and has for the past two years been testing every type of machine at Farnborough. All will wish him and Capt. Wilson a complete recovery.

The accident is wholly lamentable, but there is nothing in it which need discourage those concerned for the progress of aeronautics. One has known pupils to be killed while taxi-ing in the past, and one has seen many experimental machines wrecked before they attempted to leave the ground, so history has merely repeated itself.—C. G. G.

THE AIRCRAFT EXHIBITION.

Preparations are being made for the forthcoming Aircraft Exhibition in Leeds. It is understood that the Right Hon. Winston Spencer Churchill, Secretary of State for War and Air, has been invited by the Lord Mayor of the City to perform the opening ceremony on May 31st.

Since the Exhibition was at Newcastle many additional exhibits have been secured, including a flying-boat. There is still a certain amount of accommodation available for exhibits by civilian contractors. The charges are: for space 80 ft. by 15 ft., 100 guineas, for the duration of the Exhibition; charges for smaller spaces will be in proportion, but the minimum will be £20.

MORE GRIEVANCES OF CADETS.

The following letter has been received:—

Sir,—Having noticed that you have given space in your columns to the "grouse" of Flight Cadets, I am pleased to give you the facts and figures of a flagrant case.

When the R.F.C. called for young men from Service battalions in May, 1917, I applied for a transfer, and in November was sent to a Cadet Wing. Two months later, I was sent to a School of Military Aeronautics, and after qualifying, was recommended for a commission, and sent home "pending gazetting" in March, 1918, to purchase officer's military outfit to the amount of £50.

After being at home three weeks, in which time the R.A.F. was inaugurated, I received orders to report to a Training Station as a "Flight Cadet" on April 13th, 1918.

For 10 months I was training as a long-distance night-bombing pilot, and several times was allocated to the "Station Pool," through bad organisation, although I was the first pupil in the station.

I graduated "A" in August, 1918, just too late to receive a commission, and, on the signing of the Armistice, flying became so slack that I did not graduate "B" until February 7th, 1919, although I had commenced night-flying in October, 1918.

On March 13th, 1919, I was demobilised compulsorily as a "trained" Flight Cadet (Hon. Sec. Lieut.), but on making claims for £50 allowance, was forwarded FS. Form 751, in which the grants are (i) £38 10s. to Flight Cadets who graduated "B" before Dec. 31st, 1918; (ii) £23 10s. to other Flight Cadets; (iii) £35 to Cadets!

After a great deal deal of trouble in obtaining duplicated and receipted bills I made claims for (i), on account of my extraordinary position, but was told that I could only claim (ii) as I graduated "B" later than Dec. 31st, 1918. Yet Colonial Flight Cadets receive £50.

The following figures show the pecuniary position:—

(a) Receipted bills, £30 6s.; (b) unpaid chit on Cox's, £13 18s. 6d.; total expenditure, £44 4s. 6d. Allowance (i), £38 10s.; remittance (i.e., allowances, less Cox's chit), £24 11s. 6d.; deficit (i), £5 14s. 6d. Allowance (ii), £23 10s.; remittance (i.e., allowance (ii), less Cox's chit), £9 11s. 6d.; deficit (ii), £29 14s. 6d.!!

What gratitude for services rendered! The Colonials may have done good work, but have not Englishmen?

"BRITISHER."

DEMOBILISED.

It is of interest to note that Mr. G. H. Davis, who has won such a high reputation as an artist on the "Sphere," was the man responsible for the production of the Aerial Instructional Diagrams which were issued to the Schools of Aeronautics, R.A.F., and proved such a success that deputations from all the Allied Governments came to inspect Mr. Davis' section at work.

Mr. Davis, now demobilised, has opened an office at Cromwell House, Fulwood Place, Holborn (just by the side of Chancery Lane Tube station), where he is engaged on posters for several aircraft firms. Also various officers in the Royal Air Force have commissioned him to paint their own particular "stunt" in the war, and these have been so successful that he hopes to develop this side of his work. There is no better souvenir of a man's fighting work than a picture, drawn under his own supervision and correct in every detail showing that gorgeous moment when he brought down his own particular pet Hun machine, and any officer who sees this note and decides to have a picture carried out, may be certain that the work will be well done by Mr. G. H. Davis, who, as one of our earliest and foremost painters of aircraft, knows his job.

A SALE OF AIRCRAFT MATERIAL

On June 2nd, at 2 p.m., there will be a sale of aircraft material at No. 1, Aircraft Salvage Depot, the Hyde, Hendon. By direction of the Disposal Board the items will be sold by auction by Norbury, Smith, and Co., of 5, George Street, Hanover Square, W. 1. On the previous Friday and Saturday the material to be offered may be viewed.

Fifteen complete aeroplanes in flying condition will be offered for sale. They are Avros, D.H.6s., A.Ws., and B.E.2, Cs., and Es., and it will be interesting to see at what figures these machines are knocked down.

Among other items are noted the following:—17,000 solid spruce struts, 14,500 hollow ditto, 3,000 solid ash struts, 3,500 hollow ditto, 2,200 ash skids, 1,000 two-blade propeller cases, 1,000 four-blade propeller cases, 150 ammunition cases with fittings, 30 metal-lined timber troughs, 42 fitters' and other benches, 650 yds. green Willesden canvas, 300 rolls fire and water resisting canvas, 400 acetylene ground flares; also large quantities of D.H.6 main planes, sea-plane wheels, rope and whipcord, copper, brass and other metal, oil and petrol tanks, radiators, scrap aeroplane timber, wings, etc.

Admission will be by permit only, which, together with the catalogues, may be obtained from the auctioneers, 5, George Street, Hanover Square, W.1.

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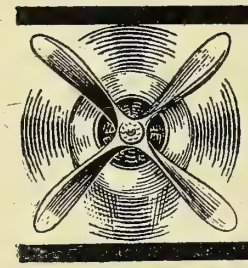
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Grey Rubber Ring 3⅜ O/D. × 2⅛ I/D. × ⅝ thick	208
Composition Rubber Rings 3⅝ O/D. × 2 3/16 I/D. × ¾	210
Composition Rubber Rings 3⅜ O/D. × 2⅛ I/D. × ⅝	220
Grey Rubber Washers 4¼ O/D. × 3⅜ I/D. × 1/16	1900
Grey Rubber Washers 4 O.D. × 3⅛ I/D. × 1/16	900
Grey Rubber Washers ¾ O/D. × ¼ I/D. × 3/16	860
Rubber Boom Pads	1334
Rubber Bumper Pads	459
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NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

AIR MINISTRY, May 20th.

R.A.F.—The following temp. appointments are made at the Air Ministry :—Chief of Air Staff.—Maj.-Gen. Sir H. M. Trenchard, K.C.B., D.S.O., vice Maj.-Gen. Sir F. H. Sykes, K.C.B., C.M.G., March 31st.

Director of Training and Organisation.—Col. (actg. Maj.-Gen.) P. W. Game, C.B., D.S.O., to relinquish the actg. rank of Maj.-Gen., and to be actg. Brig.-Gen. whilst so empld.

Director of Equipment.—Col. (actg. Maj.-Gen.) C. L. Lambe, C.M.G., D.S.O., to relinquish the actg. rank of Maj.-Gen. and to be actg. Brig.-Gen. whilst so empld.

Deputy Director of Personnel.—Col. H. P. Smyth-Osbourne, May 1st.

The following temp. appointments are made :—Brig.-Gen. (Staff)—Lt.-Col. (actg. Brig.-Gen.) C. L. N. Newall, C.M.G., A.M., March 17th, and to retain the actg. rank of Brig.-Gen. until April 30th

Colonel (Staff).—Lt.-Col. J. G. Hearson, C.B., D.S.O., and to be actg. Col. whilst so empld., May 22nd.

Staff Officer, 2nd Cl.—(P.).—Capt. L. M. Boddam-Whetham, May 1st, vice Capt. (actg. Maj.) C. B. Baker.

Staff Officers, 3rd Cl.—(Q.).—Lt. H. C. Calvert, Feb. 2nd.—(T.).—Sec. Lt. (Hon. Lt.) G. A. Tilly, Feb. 9th, and to be actg. Capt. until April 30th, vice Sec. Lt. (actg. Capt.) A. B. Sharples (substituted for notification in "Gazette," April 4th).

FLYING BRANCH.—Sec. Lts. to be Lts. :—A. W. Davison, May 27th, 1918; A. Bentley, Dec. 26th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. G. A. H. Trudeau (Lt., N. Scotia R.), Dec. 12th, 1918; Sec. Lt. (Hon. Lt.) S. P. Willis (Lt., R.A.S.C.), Feb. 3rd; Lt. H. L. Symons (Capt., Can. Engrs.), Feb. 10th; Capt. G. L. Lumsden (Lt., Cent. Ont. R.), Feb. 16th; Lt. A. D. Walker (Lt., S. Lancs. R.), Feb. 20th; Lt. B. Donald, D.F.C. (Lt., Lond. R.), Feb. 21st; Sec. Lt. (Hon. Lt.) A. McBride (Lt., W. Ont. R.), Feb. 25th; Sec. Lt. (Hon. Capt.) J. E. Purslow, M.C. (Capt., Sask. R.), Feb. 27th; Sec. Lt. (Hon. Lt.) J. C. F. Holland (Lt., R.E.), March 14th; Lt. (Hon. Capt.) E. C. Clancey (Capt., Ont. R.), March 16th; Lt. A. E. Roodhouse (Lt., Can. Engrs.), March 19th; Lt. E. A. Coapman (Lt., C. Ont. R.), March 27th; Lt. (Hon. Capt.) H. C. E. Cherry (Glouc. R.), Lt. (actg Capt.) W. J. A. Duncan, M.C. (Lt., Can. Rly. Serv.), Lt. M. W. Waddington (Lt., Can. F. Art.), March 31st; Lt. (actg. Capt.) J. M. McKay (Lt., Quebec R.), April 4th; Sec. Lt. (Hon. Lt.) I. W. F. Agabeg (Lt., S. Lanc. R.), April 9th; Sec. Lt. (Hon. Lt.) W. G. Waight (Lt., North'd Fus.), April 10th; Lt. (Hon. Capt.) A. E. Pickering (Capt., W. Ont. R.), April 30th; Lt. A. G. McCorquodale (Arg. and Suth. Highrs.), May 2nd.

Transferred to unempld. list :—Sec. Lt. L. B. S. Symons (Suff. R.), Feb. 6th; Sec. Lt. B. H. Robert, March 1st; Lt. J. E. A. Gray, March 7th; Sec. Lt. F. G. Cockburn, March 14th; Sec. Lt. A. Hogg, April 4th; Sec. Lt. D. A. Watson, April 8th; Sec. Lt. W. B. H. Eaton, April 9th; Sec. Lt. W. D. Williams, April 10th; Sec. Lt. G. H. Perring (Welsh R., April 12th; Sec. Lt. D. B. Foss, Lt. (actg. Capt.) G. O. Lightbourn, April 13th; Lt. J. R. Smith, D.F.C., Lt. A. D. Staite, April 14th; Lt. R. T. Daubeney (R. West Kent R.), Sec. Lt. L. J. French, Sec. Lt. H. T. Sayer, April 15th; Sec. Lt. A. R. Collis, Sec. Lt. D. A. Hughes, Lt. W. G. Peters, Sec. Lt. E. C. Tasker, April 16th; Sec. Lt. G. C. F. Ely, Sec. Lt. F. C. Goddard, Lt. J. Rothwell (Manch. R.), Sec. Lt. J. D. Scott, April 17th; Capt. C. G. Davies, M.C., Sec. Lt. M. B. C. Lake, Sec. Lt. E. T. Stead, April 18th; Sec. Lt. H. Buckner, Sec. Lt. H. E. Foster, Sec. Lt. W. Ward, Sec. Lt. (Hon. Lt.) J. B. Young, April 19th; Sec. Lt. A. L. B. Rees, Sec. Lt. D. W. Welch, April 20th; Lt. A. E. G. Robinson, April 22nd; Sec. Lt. L. W. Edmonds, Lt. W. E. Gibson, Sec. Lt. C. W. Gladman, Sec. Lt. (Hon. Lt.) J. B. Heppel, Lt. (Hon. Capt.) F. J. Haney, M.C., D.F.C., Sec. Lt. H. L. Stevenson, Lt. J. W. H. Scales, Sec. Lt. C. S. Trapp, Lt. E. McL. Watson, Lt. F. L. Wolf, April 23rd; Sec. Lt. R. P. O. Evans, Lt. B. Fletcher, Sec. Lt. R. D. Hunman, Lt. A. L. Kenning, Sec. Lt. L. S. Stuart, Sec. Lt. C. R. Wolfendale, Sec. Lt. C. G. Wood, April 24th; Lt. J. Hawkins, April 25th; Sec. Lt. I. Duval, Sec. Lt. J. S. Swales, Lt.-Col. A. M. Wilkinson, April 26th; Lt. P. G. Allday, R.F.A., Lt. A. B. Harper, April 27th; Lt. F. V. Durkin, Sec. Lt. J. Newhill, April 28th; Sec. Lt. C. H. Allen, Sec. Lt. J. M. Donald, Sec. Lt. H. F. Grannel, Lt. R. G. Haggarty, Sec. Lt. R. W. Smith, Capt. J. E. Wood, April 29th; Sec. Lt. E. R. Atkinson, Sec. Lt. J. I. Boothroyd, Lt. L. D. Brown, Sec. Lt. E. H. Buxton, Sec. Lt. R. McL. Dunn, Sec. Lt. D. Etchells, Sec. Lt. J. Findlay, Sec. Lt. A. F. Grant, Sec. Lt. H. C. Maller, Sec. Lt. F. Randells, Sec. Lt. A. H. Ramage, Sec. Lt. R. W. Willis, April 30th; Lt. J. D. Fish, Sec. Lt. (Hon. Capt.) G. S. Grant, Lt. (actg. Capt.) J. B. Henry, Lt. G. T. Legge, Capt (actg. Maj.) C. E. M. Pickthorne, May 1st; Lt. W. Bamber, Lt. B. F. S. Cleburne, Capt. (actg. Maj.) A. W. Cassy, Sec. Lt. C. Davenport, Lt. J. D. Edge, Sec. Lt. F. R. Gibson, Sec. Lt. C. A. J. Goodfellow, Lt. O. Mansell-Moullin, Lt. R. H. Upson, May 2nd; Lt. S. B. Bradley, Sec. Lt. O. Child, Sec. Lt. R. Foley, Capt. (actg. Maj.) J. H. D. Grant, Sec. Lt. H. S. Greening, Sec. Lt. J. Stanley, May 3rd; Sec. Lt. (Hon. Lt.) H. G. Bloodworth, Lt. A. Connon, Sec. Lt. C. J. G. Etheridge, Lt. L. B. Gibson, Lt. M. D. Grainger Lt. S. M. Goldsmith, May 4th; Lt. C. F. Embleton, Lt. E. O. Fuller, Sec. Lt. E. Pidgeon, Sec. Lt. J. M. Robb, Lt. F. N. Smith, May 5th; Sec. Lt. H. M. W. Cuthbert, Capt. G. B. Crole, M.C., Sec. Lt. D. M. Dee, Sec. Lt. H. Douglas, Capt. F. E. Fraser, D.S.C., Capt. A. Gammon, Lt. L. H. Plant, May 6th; Sec. Lt. S. C. Ashby, Lt. J. E. E. Bushell, Lt. E. R. Brown, Sec. Lt. E. G. De Carteret, Lt. S. B. Croyden, Capt. A. P. Dickie (Black Watch), Lt. E. W. Eueriss, Sec. Lt. A. W. Knowles-Brown, Lt. A. N. Martyn, Sec. Lt. L. G. Newman, Lt. W. F. Parke, Sec. Lt. S. J. Perry, Sec. Lt. H. Speed, May 7th; Sec. Lt. R. M. Allan, Sec. Lt. H. Bosher, Sec. Lt. C. G. Brennand, Sec. Lt. H. O. Beattie, Sec. Lt. N. A. D. Cowan, Sec. Lt. S. Cranston, Sec. Lt. J. E. Le-Court, Lt. C. G. Fenton, M.C., Sec. Lt. H. F. Feasel, Sec. Lt. H. W. Matthews, Sec. Lt. N. L. Neff, Sec. Lt. B. A. Noble, Sec. Lt. G. I. Packman, Sec. Lt. J. M. Patterson, Sec. Lt. C. W. Pethick, Sec. Lt. A. N. B. Odbert, Sec. Lt. R. Rigby, Second Lieutenant M. C. Sherwood, Second Lieutenant R. O. Standing, Sec. Lt. G. R. Steedman (W. Yorks R.), Sec. Lt. P. H. B. Wood, May 8th; Sec. Lt. T. E. Ault, Sec. Lt. T. D. Ross, May 9th; Lt. A. D. S. Davis, Lt. H. Erskine, Capt. J. A. Parsons, May 10th; Sec. Lt. G. S. Mottram, Sec. Lt. G. S. Walpole, May 11th; Lt. D. S. Ogilvie, May 12th; Sec. Lt. G. L. Parker, May 13th; Lt.-Col. H. I. F. Yates, May 15th; Capt. W. L. Samson, D.F.C., May 17th; Lt. G. G. Baird, Lt. A. Buckle, Sec. Lt. W. G. Campbell, Sec. Lt. B. G. Morgan, Sec. Lt. W. Schaefer, May 18th; Lt. H. B. Archibald, Sec. Lt. F. D. Cowan, Lt. J. L. Deslauriers, Sec. Lt. F. L. Pogue, May 19th; Sec. Lt. A. J. Adamson, Lt. N. B. Arbuthnot, Sec. Lt. S. J. Beveridge, Sec. Lt. H. A. Bradshaw, Sec. Lt. B. E. Bayne, Sec. Lt. F. C. Bennett, Sec. Lt. G. M. Butters, Sec. Lt. A. G. Baker, Lt. L. R. Brereton, Lt. E. C. Bromley, Lt. H. M. Brown, Sec. Lt. L. A. Brais, Lt. C. C. Boldrick, Sec. Lt. C. E. Beckman, Sec. Lt. H. Coyles, Sec. Lt. A. S. Corley, Lt. J. C. A. Cameron, Sec. Lt. H. L. Cullen, Sec. Lt. R. N. Cunningham, Sec. Lt. W. A. Dickson, Sec. Lt. E. B. Goodman, Lt. W. W. Gyles, Lt. (actg. Capt.) W. J. Mackenzie, Lt. J. G. Monaghan, Lt. (actg. Capt.) N. C. Millman, M.C., Sec. Lt. R. C. McLeod, Lt. G. B. McQuarrie, Lt. (actg. Capt.) G. C. Mackay, D.F.C., Sec. Lt. D. R. McLachrie, Lt. J. M. Purcell, Lt. L. M. Price, Sec. Lt. C. R. Parkinson, May 20th.

Maj. F. G. Small (Capt., Conn. Rgrs.) resigns his commn., and is permitted to retain the rank of Maj., May 21st.

The following relinquish their commns. on account of ill-health, and are permitted to retain their rank :—A. G. Bullock (contracted on active service), April 30th; D. W. T. Cain (caused by wounds), W. R. May, D.F.C. (contracted on active service), May 8th.

Lt. J. N. Kavanagh resigns his commn., May 21st.

Sec. Lt. (Hon. Lt.) J. W. Pryor relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., May 8th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—H. J. Boyle, March 6th (substituted for notification in "Gazette," Jan. 10th); A. K. Barter (contracted on active service), D. Rose, May 8th; A. R. Coppin, May 9th.

Sec. Lt. J. B. P. Phillips is antedated in his appt. as Sec. Lt. (A.), Aug. 22nd, 1918.

The surname of H. Frew is as now described, and not H. Frow as stated in "Gazette," Dec. 6th, 1918.

The notification in "Gazette," June 14th, 1918, concerning Sec. Lt. T. Buchanan is cancelled.

The rank of Lt. J. A. Massey is as now described, and not Sec. Lt. as stated in "Gazette," April 25th.

The notification in "Gazette," March 28th, concerning Lt. O. Darlington is cancelled.

The notification in "Gazette," May 9th, concerning Lt. V. R. Blow is cancelled.

The notification in "Gazette," April 15th, concerning Lt. J. Burness is cancelled.

ADMINISTRATIVE BRANCH.—Lt. F. E. Lefevre, M.C., to be Lt., from (O.), May 5th.

Sec. Lt. N. Bucknall to be actg. Capt. without pay and allowances of that rank while specially empld., April 12th

Sec. Lt. C. T. H. Page to be Lt., April 30th.

Sec. Lt. (Hon. Lt.) J. F. Lewis to be Sec. Lt., from (S.O.), and to be Hon. Lt., May 1st.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. J. W. Squire (E. Surr. R.), Feb. 9th; Lt. A. P. Cragg (Loyal N. Lancs. R.), Feb. 14th; Sec. Lt. W. R. Hutchins (R.F.A.), Feb. 24th; Lt. N. Hoole (W. Yorks R.), March 21st; Maj. H. L. Nixon (K.O. Lanc. R.), March 26th; Lt. E. W. D'Alton, M.C. (R.G.A.), April 10th; Capt. F. A. Coward (R.W. Surr. R.), April 22nd.

Transferred to unempld. list :—Sec. Lt. (Hon. Lt.) (actg. Capt.) A. Duthie, March 10th; Lt. R. C. Allen (R.F.A., T.F.), March 22rd (substituted for notification concerning this officer in "Gazette," April 11th); Sec. Lt. M. H. Levy, March 24th; Sec. Lt. L. C. Hawkins, April 9th; Lt. S. H. Evans (S. Staffs R.), April 11th; Lt. (actg. Capt.) B. J. Fiske, April 15th; Sec. Lt. R. Garbett, April 16th; Lt.-Col. H. S. Ebben, April 17th; Sec. Lt. (Hon. Lt.) A. V. Collins, April 26th; Sec. Lt. R. K. Davis, April 27th; Sec. Lt. W. W. Blakemore, Sec. Lt. (Hon. Lt.) W. C. Van Eeden, April 28th; Capt. (actg. Maj.) L. E. Claremont, Sec. Lt. J. T. Howdle, April 30th; Maj. E. E. Clarke, May 2nd; Capt. S. Davenport, May 3rd; Maj. T. C. Hincks, May 6th; Sec. Lt. F. Denham, Lt. A. L. Freeman, May 7th; Sec. Lt. (actg. Capt.) W. W. Shuker, May 8th; Sec. Lt. J. R. O'Hagan, Lt. V. Phillips, May 9th; Sec. Lt. B. A. Doran, May 18th; Sec. Lt. M. Butt, May 20th.

Sec. Lt. (Hon. Capt.) N. McL. Kennedy relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., May 8th.

The initials of Sec. Lt. T. A. Crowe are as now described and not F. A. as stated in "Gazette," May 2nd.

TECHNICAL BRANCH.—Maj. A. Levick to be graded for purposes of pay and allowances as Lt.-Col., Grade (B), from (S.O.), May 1st.

F. A. C. Hole is granted a temp. commn. as Maj., April 1st, 1918.

C. H. R. E. Raven (Lt., R.E., T.F.) is granted a temp. commn. as Capt., Grade (A), April 1st, 1918 (substituted for notification concerning this officer in "Gazette," March 4th).

Lt. (Hon. Capt.) F. Grave to be actg. Capt. whilst empld. as Capt., Grade (B), from May 22nd, 1918, to April 30th

Lt. (Hon. Capt.) F. Grave to be graded for purposes of pay and allowances as Capt., Grade (B), May 1st.

Lt. W. A. B. Probert to be Lt., Grade (B), from (Ad.), Nov. 5th, 1918

Sec. Lts. to be Lts with pay and allowances of that rank :—(Hon. Lt.) H. B. Lee, April 2nd, 1918; C. H. Boreham, Jan. 27th; M. C. S. Bowley, May 5th.

Sec. Lt. A. H. Hollingdale to be Sec. Lt., Grade (A), from (Ad.), Feb 18th; Sec. Lt. W. Wilcock to be Sec. Lt., Grade (A), from Grade (B), May 13th; Sec. Lt. (Hon. Lt.) (actg. Lt.) F. H. Astle to be Sec. Lt., Grade (B), and relinquishes the actg. rank of Lt. on ceasing to be empld. as Lt. (and to be Hon. Lt.), April 24th.

Sec. Lt. T. H. Spence (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., Grade (B), Sept. 4th, 1918

Sec. Lt. (Hon. Lt.) E. H. Morriss (R.A.S.C.) relinquishes his commn. on ceasing to be empld., April 26th.

Transferred to unempld. list :—Lt. T. L. Edwards, Jan. 20th; Sec. Lt. (actg. Lt.) R. C. Brown, Jan. 31st; Lt. G. A. Hill, Feb. 11th; Capt. W. Tod, March 9th; Capt. F. D. Williams, May 3rd; Lt. F. W. Taylor, April 8th; Sec. Lt. T. E. Sheppard, April 9th; Capt. E. G. Hoare, Lt. G. H. Rice, April 12th; Capt. A. Haywood, April 13th; Maj. I. Findlater, M.C., Sec. Lt. L. T. K. Sanderson, Sec. Lt. R. G. Wills, April 16th; Lt. F. T. Wheatley, April 17th; Capt. S. T. Buckland, April 20th; Sec. Lt. T. Harris, Sec. Lt. (Hon. Lt.) (actg. Capt.) J. A. Howe, April 24th; Sec. Lt. (Hon. Lt.) H. L. Fordred, April 25th; Sec. Lt. (Hon. Lt.) J. L. Fin-

ney, April 26th; Capt. H. R. Spence, April 29th; Sec. Lt. J. France, Sec. Lt. F. C. Gibson, Sec. Lt. (actg. Capt.) H. J. L. Greatwich, Sec. Lt. C. Langman, Sec. Lt. W. A. Thicknesse, April 30th; Sec. Lt. B. Bess, Capt. T. A. Parker, May 1st; Sec. Lt. (Hon. Lt.) A. W. Cott, May 2nd; Sec. Lt. F. White, May 3rd; Sec. Lt. P. C. Beardwood, Lt. H. I. Bell, Lt. O. Fielding-Clarke, Sec. Lt. W. H. Parker, May 6th; Sec. Lt. H. C. B. Good, Maj. C. E. Prince, Lt. D. L. Stewart, May 7th; Sec. Lt. (Hon. Lt.) W. Archdale, Capt. C. D. Butler, May 8th; Capt. A. A. Allan, May 9th; Sec. Lt. (Hon. Capt.) J. C. Harrison, May 11th; Sec. Lt. J. H. McGee, May 20th.

The notification in "Gazette," Nov. 22nd, 1918, concerning Sec. Lt. (Hon. Capt.) F. Grave is cancelled.

MEDICAL BRANCH.—Transferred to unemplд. list:—Capt. C. Dickson, M.C., April 24th; Lt. J. Wynne Yorke-Davis, April 26th.

DENTAL BRANCH.—Lt. R. C. T. Evetts is transferred to unemplд. list, April 3rd.

CHAPLAINS BRANCH.—Capt. the Rev. J. H. Newell is transferred to unemplд. list, May 10th.

The following temp. appointments Women's Royal Air Force, are made at the Air Ministry:—To be Dep. Comdt. whilst so emplд.:—Asst. Comdt. Mrs. L. M. K. Pratt-Barlow, M.B.E., April 15th.

To be Asst. Comdt., 1st Cl.:—Administrator W. E. S. Mount-Batten, M.B.E., M.M., Dec. 15th, 1918.

To be Dep. Asst. Comdt.:—Administrator M. A. Thompson, M.M., Feb. 1st.

To be Asst. Comdt., 2nd Cl., whilst so emplд.:—Administrator M. A. Thompson, M.M., March 21st.

The following temp. appointments, Women's Royal Air Force, are made:—To be Asst. Comdt., 2nd Cl.:—Administrator M. Moss, Feb. 1st.

To be Asst. Comdt., 2nd Cl., whilst so emplд.:—Administrator M. A. Thomson, April 5th.

To be Dep. Asst. Comdts., with rank of Administrator whilst so employed, if not already holding that rank:—Dep. Administrator Mrs. J. C. Paterson, Nov. 4th, 1918; Dep. Administrator Mrs. A. Rathbun, Jan. 1st; Administrator M. T. Talbot, Dec. 30th, 1918; Dep. Administrator M. Drury, April 1st; Dep. Administrator A. M. Mackintosh, April 5th; Dep. Administrator Mrs. A. Hughes Gibb, April 26th.

Administrator E. Thomson relinquishes the appointment of Dep. Asst. Comdt. on ceasing to be specially emplд., Feb. 5th.

ADMINISTRATIVE BRANCH.—Principal to be Administrator, sen., April 1st, 1918:—Miss M. T. Talbot (W.R.N.S.), Nov. 23, 1918.

Deputy Principals to be Deputy Administrators, seny. April 1st, 1918:—Mrs. N. Richards (W.R.N.S.), Nov. 6th, 1918; Miss M. M. Cottrill (W.R.N.S.), Nov. 6th, 1918.

Deputy Principals to be Deputy Administrators:—Miss E. K. Alexander (W.R.N.S.), Nov. 6th, 1918, seny. April 10th, 1918; Miss P. M. Ralston (W.R.N.S.), Oct. 31st, 1918, seny. May 6th, 1918; Miss M. Carnley (W.R.N.S.), Oct. 31st, 1918, seny. May 15th, 1918; Mrs. J. R. Lawrie (W.R.N.S.), Nov. 23rd, 1918, seny. May 15th, 1918; Miss M. McArthur (W.R.N.S.), Nov. 23rd, 1918, seny. June 28th, 1918; Miss D. E. Mellor (W.R.N.S.), April 23rd, seny. Sept. 30th, 1918.

Asst. Principals to be Asst. Administrators, seny. April 1st, 1918:—Miss E. L. Smith (W.R.N.S.), Oct. 31st, 1918; Mrs. A. Rathburn (W.R.N.S.), Oct. 31st, 1918; Miss M. S. Cole-Hamilton (W.R.N.S.), Oct. 31st, 1918; Miss M. Willis (W.R.N.S.), Nov. 6th, 1918; Miss N. H. Bell (W.R.N.S.), Nov. 6th, 1918.

Asst. Principals to be Asst. Administrators:—Misses A. E. Bullivant (W.R.N.S.), Oct. 31st, 1918, seny. April 20th, 1918; M. C. Ralston (W.R.N.S.), Oct. 31st, 1918, seny. April 20th, 1918; G. Bruce (W.R.N.S.), Nov. 6th, 1918, seny. April 20th, 1918; D. B. Gordon (W.R.N.S.), Oct. 31st, 1918, seny. May 18th, 1918; Mrs. K. L. Churchill (W.R.N.S.), Nov. 6th, 1918, seny. May 18th, 1918; Misses C. B. Collas (W.R.N.S.), Oct. 31st, 1918, seny. May 23rd, 1918; G. E. Newman (W.R.N.S.), Nov. 23rd, 1918, seny. June 15th, 1918; E. O'Sullivan (W.R.N.S.), Nov. 23rd, 1918, seny. June 15th, 1918; M. Woodward (W.R.N.S.), Nov. 23rd, 1918, seny. June 15th, 1918; M. K. Goodman (W.R.N.S.), Oct. 31st, 1918, seny. July 15th, 1918; S. J. Tyler (W.R.N.S.), Oct. 31st, 1918, with seny. from July 20th, 1918; E. G. Hamer (W.R.N.S.), Nov. 6th, 1918, with seny. from July 20th, 1918; M. M. Hugh-Smith (W.R.N.S.), Dec. 23rd, 1918, with seny. from July 20th, 1918; H. B. Dormack (W.R.N.S.), Nov. 23rd, 1918, with seny. from Aug. 18th, 1918; G. M. I'Anson (W.R.N.S.), Oct. 31st, 1918, with seny. from Aug. 18th, 1918; Mrs. A. Miles (W.R.N.S.), Oct. 31st, 1918, with seny. from Aug. 18th, 1918; Misses E. M. Wells (W.R.N.S.), Nov. 6th, 1918, with seny. from Aug. 18th, 1918; P. C. Barber (W.R.N.S.), Oct. 31st, 1918, with seny. from Aug. 24th, 1918; E. A. K. Abbott (W.R.N.S.), Dec. 22nd, 1918, with seny. from Aug. 27th, 1918; B. O. Brown (W.R.N.S.), Oct. 31st, 1918, with seny. from Sept. 7th, 1918; E. R. Gill (W.R.N.S.), Oct. 31st, 1918, with seny. from Sept. 8th, 1918; D. J. Forbes-William (W.R.N.S.), Nov. 20th, 1918, with seny. from Oct. 30th, 1918; E. Middleton (W.R.N.S.), Nov. 23rd, 1918, with seny. from Oct. 2nd, 1918; N. H. Frank (W.R.N.S.), Nov. 23rd, 1918, with seny. from Oct. 22nd, 1918; L. Hellaby (W.R.N.S.), Dec. 14th, 1918, with seny. from Aug. 24th, 1918.

Officer candidates to be Asst. Administrators:—Misses M. C. Cadman, N. A. M. Howard, Aug. 6th, 1918; P. L. Gate, Oct. 1st, 1918; E. M. Crawford, D. E. Westbrook, J. E. Williams, O. E. Whittaker, Williams, Oct. 28th, 1918.

Asst. Administrators to be Dep. Administrators:—G. Bruce, Mrs. A. Rathbun, Dec. 1st, 1918; A. M. Mackintosh, Dec. 16th, 1918; E. O'Sullivan, Dec. 30th, 1918; E. M. P. Grubb, K. E. Main, E. M. Smith, Jan. 1st; Mrs. G. L. Purves, Jan. 19th; P. C. Barber, Jan. 23rd; V. Dening, G. Lawes, the Hon. Mrs. E. Methuen, M. S. Norfor, M. C. Ralston, V. St. L. Winter, Feb. 1st; A. G. Jones, D. Moss, H. B. Womack, Feb. 10th; H. J. L. Fletcher, Feb. 17th; Mrs. G. T. Coyne, K. Gilmour, E. F. J. Simpson, Feb. 19th; Mrs. A. E. Balfour, I. A. Coombes, M. Holt, P. O. Legard, A. G. Moran, M. McCarthy, J. O. Ramsbottom, Feb. 20th; A. Dawson-Webster, Feb. 24th; P. Baker, J. Retallack, March 1st.

To be Administrators:—Asst. Administrator Mrs. W. M. Corbett, Feb. 11th; Dep. Administrator O. Cayley, Feb. 19th; Dep. Administrator I. M. Waistell, Feb. 24th.

To be Administrators whilst so emplд.:—Asst. Administrator M. S. Cole-Hamilton, Jan. 14th; Dep. Administrator M. McArthur, Jan. 21st; Dep. Administrator E. E. Gemmell, Feb. 1st; Dep. Administrator F. L. Gauntlett, Dep. Administrator V. E. M. Gallagher, March 1st; Dep. Administrator E. O'Sullivan, Dep. Administrator H. M. Reid, March 22nd; Dep. Administrator F. M. Girdler, Dep. Administrator V. C. Guy, April 1st; Dep. Administrator H. P. Womack, April 11th.

Asst. Administrators to be Dep. Administrators whilst so emplд.:—M. E. Clarke, Jan. 6th; M. C. Grantham, G. E. Newman, B. A. Turton, March 1st; M. Hallowell-Carew, March 8th; K. G. Mitchell, E. M. Renny-Tailyour, March 10th; J. V. Campbell, E. Ingram, G. Tighe March 11th; E. M. Morrison, March 13th; Mrs. N. A. M. Barnett, March 14th; Mrs. V. E. Carter, Mrs. M. Savage, March 15th; P. Brander, L. Hellaby, D. Hodgson, March 22nd; Mrs. M. Cookson, N. Lee, March 25th; E. A. K. Abbott, March 26th; M. Pearce, M. S. Cunninghame, M. F. Bradley, G. Bell-Cox, Mrs. E. M. Fuller, V. A. Laskie, R. Mahoney, E. M. Phillips, E. L. Smith, E. M. Williams, April 1st; E. M. Lovat-Fraser, April 8th; F. M. Cullen, April 10th; J. M. Smith, April 14th; F. H. Spinney, April 15th; K. M. W. Werninck, April 17th; M. Peppercorn, April 23rd; M. H. Mackay, April 24th.

The following officers resign their appointments on account of ill-health:—ADMINISTRATORS.—A. N. Maltby, March 5th; Mrs. E. D. Hamilton-Hall, March 28th.

DEPUTY ADMINISTRATOR.—M. Hamilton, April 7th.

ASST. ADMINISTRATORS.—Mrs. A. H. Dashper, Feb. 12th; M. C. Wharry, Feb. 14th; G. M. Johnson, March 15th; M. D. S. Dance, March 28th; Mrs. J. Proger, April 8th; Mrs. A. F. C. Jones, April 19th.

The following officers relinquish their appointments at otheir own request:—Asst. Comdt.—Mrs. M. Moss, April 5th.

Administrators.—M. K. Fraser, Feb. 16th; Mrs. G. E. M. Kitto, Feb. 28th; Mrs. C. Campbell, April 5th; M. T. Talbot, April 29th.

Deputy Administrators.—K. Daniel, Feb. 24th; E. J. Edwards, March 10th; M. Kinross, March 31st; Hon. Mrs. E. Methuen, March 31st; J. S. P. Hickie, April 7th.

Asst. Administrators.—Mrs. I. W. Townshend, Feb. 10th; Mrs. L. W. Burns, Feb. 15th; E. Cuming, Feb. 17th; Mrs. J. W. Grant, Feb. 28th; Mrs. F. Gibson, March 1st; B. M. Slipper, March 11th; H. D. Forman, March 17th; P. E. Wilkinson, March 18th; Mrs. A. Miles, March 19th; Mrs. A. C. Farrant, March 21st; D. E. Hume, March 27th; J. Retallack, E. M. Andrews, March 29th; Mrs. O. M. Wyatt-Pratt, March 31st; E. K. Knowles, April 1st; E. F. Ivatt, A. G. Pitty, April 2nd; Mrs. A. M. McGrath, April 7th; A. K. Crokett, April 24th; E. R. Powell, April 26th; N. E. Bonner-Morgan, May 1st; Mrs. J. C. Martin, May 3rd.

MEMORANDA.—The following are granted the actg. rank stated against their names, with effect from May 1st:—

To be actg. Brig.-Gens.:—Col. F. R. Scarlett, C.B., D.S.O., whilst comdg. No. 12 Group; Lt.-Col. F. G. Willock, D.S.O., whilst in comd. of Blandford and Halton; Col. E. A. D. Masterman, C.B.E., A.F.C., whilst specially emplд.

To be actg. Cols.:—Lt.-Col. A. W. Bigsworth, C.M.G., D.S.O., whilst comdg. No. 10 Group; Lt.-Col T. D. C. Barry, C.B.E., whilst President of Invaliding Med. Boards.

To be actg. Lt.-Cols.:—Maj. B. R. Bickford, D.S.O., whilst Commandant of Medical Officers' Pool; Maj. A. V. J. Richardson, whilst Senior Medical Officer and Officer Comdg. Blandford Hospital; Maj. J. L. Birley, whilst Inspecting Officer; Maj. H. C. T. Langdon, O.B.E., whilst Principal Med. Officer, S.-East Area; Maj. F. F. Muecke C.B.E., whilst Officer Commdg. R.A.F. Cent. Hosp. (Officers), Maj. H. F. Horne, whilst Chief Sanitary Officer; Capt. J. McIntyre, M.C., whilst emplд. as Staff Officer, 1st Class, with Dir. of Med. Services.

Relative rank of Lt.-Col.:—Rev. R. Hall, whilst emplд. as Principal Chaplain; Rev. W. Moffatt, whilst emplд. as Principal Chaplain.

To be actg. Hon. Lt.-Col.:—Hon. Maj. M. W. Flack, C.B.E.

To be actg. Majs.:—Lt. W. W. Gibson, O.B.E., while spec. emplд., Capt. M. H. Smith, while spec. emplд.; Capt. C. J. G. Taylor, Capt. W. Darling, M.C., Capt. J. M. Kirkness, Capt. B. A. Playne, D.S.O., Capt. R. H. Knowles, Capt. A. A. Atkinson, Capt H. A. Hewat, Capt. C. E. Thwaites, Capt. H. B. Porteous, Capt. H. M. S. Turner, Capt. H. A. Treadgold, Capt. H. E. Whittingham, Capt. J. J. C. Hamilton, Capt. A. P. Bowdler, Capt. T. S. Rippon, Capt. J. H. Porter, M.C., Capt. P. L. Moore, Capt. F. C. Jobson, Capt. D. Ranken, Capt. L. C. M. Wedderburn, Capt. J. MacGregor, M.C., Capt. M. R. Dobson, Capt. F. N. B. Smartt, Capt. W. C. Murray.

Relative rank of Maj.:—The Rev. B. W. Keymer, O.B.E., while emplд. as Dep. Chaplain-in-Chief.

To be actg. Capts.:—Lt. L. C. Broughton-Head, while spec. emplд.; Lt. C. H. Vernon, while spec. emplд.; Lt. G. W. Harbottle, while spec. emplд.; Lt. G. W. Allen, while spec. emplд.; Lt. J. P. P. L. Biggs, while emplд. at a Base Pay Office; Lt. C. H. Young, while emplд. at a Base Pay Office; Lt. H. G. Jones, while emplд. at a Base Pay Office.

The notification which appeared in "Gazette," May 9th, regarding the following is hereby cancelled:—Rev. R. E. V. Hanson, M.A., Rev. S. L. Clarke, M.A., B.Sc., Rev. S. J. Jones, M.C., Rev. J. Dey, D.S.O., Rev. R. Hall, Rev. W. Moffatt.

Lt. G. K. Johnson to be actg. Capt. while holding a spec. appointment at Ministry of Munitions, Oct. 28th, 1918 (substituted for notification in "Gazette," April 3rd.

Maj. (actg. Lt.-Col.) H. R. Bentley (Lt., Spec. List) relinquishes his commn. on ceasing toi be emplд., May 8th.

Transferred to unemplд. list:—Maj. H. Elwell, from (S.O.), April 24th; Capt. (actg. Maj.) L. M. Wells-Bladen, from (S.O.), April 30th; Lt. (actg. Capt.) F. A. Corbett, from (S.O.), May 6th.

Admiralty, May 24th.

MISCELLANEOUS SERVICES.

The King has been pleased to approve of the award of the Distinguished Service Cross to the undermentioned officer:—

Flt.-Lt. C. G. Bronson, R.N.A.S. (now Capt., R.A.F.). For carrying out a determined bombing attack on the "Goeben" on Jan. 25-25th, 1918, flying low down under heavy anti-aircraft fire.

FOREIGN DECORATIONS

The following decoration has been conferred by the President of the French Republic. The King has given unrestricted permission to the officer concerned to wear the decoration in question:—

Croix de Guerre.

Eng. Lt.-Comdr. E. F. Briggs, D.S.O., R.N. (now Lt.-Col (actg. Col.), R.A.F.).

War Office, May 23rd.

Corps of Royal Engineers.—Maj. E. Graham, late R.A.F., to be temp. Lt.-Col., May 10th.

AIR MINISTRY, May 23rd.

R.A.F.—The following temp. appointments are made:—Staff Officer, 1st Cl.—(Air).—Maj. (actg Lt.-Col.) A. H. C. Kearsey, Dec. 28th, 1918, and to retain the actg. rank of Lt.-Col. to April 30th.

Staff Officers, 3rd Cl.—(P.).—Lt. (actg. Maj.) Hon. M. H. R. Knatchbull-Hugessen, M.C., relinquishes the appointment of Staff Officer, 2nd Cl. (Air), and the actg. rank of Maj., April 14th, and to be actg. Capt., from April 14th to April 30th; Lt. (actg. Capt.) A. T. Wynward-Wright, Jan. 25th, and to retain the actg. rank of Capt., to April 30th, vice Capt. M. W. Bovil; Lt. (actg. Capt.) W. S. Hill-Reid, Dec. 28th, 1918, and retains the actg. rank of Capt. to April 30th. (Q.).—Lt. A. H. Burman, April 4th, vice Lt. (actg. Capt.) H. Sorrell). (T.)—Sec. Lt. (Hon. Lt.) (actg. Capt.) W. E. Cowie, Jan. 14th, and retains the actg. rank of Capt. to April 30th.

FLYING BRANCH.—Capt. F. G. S. Williams to be Capt. (A.), from (Ad.), March 14th.

Sec. Lts. to be Lts.:—(Hon. Lt.) R. J. McNab, April 6th, 1918; (Hon. Lt.) F. H. Allchurch, H. R. Hill, M.C., April 30th, 1918; R. W. Drewett, May 9th, 1918; (Hon. Lt.) M. McEwan, D.F.C., May 11th, 1918; (Hon. Lt.) C. P. Harrison, M.C., May 18th, 1918; J. S. A. Willis, E. L. Ridley, May 29th, 1918; (Hon. Lt.) C. A. S. Booth, May 30th, 1918; (Hon. Lt.) G. L. Childs, June 14th, 1918; (Hon Lt.) C. M. McGorrery, June 18th, 1918; (Hon. Lt.) J. R. Houghton, July 11th, 1918; (Hon. Lt.) T. R. Evans, Aug. 2nd, 1918; A. Murray, Aug 10th, 1918; J. Carrey, Aug 16th, 1918; H. F. Lea, Aug. 18th, 1918; (Hon. Lt.) H. J. Knudson, Aug. 23rd, 1918; A. P. Godfrey, Aug. 27th, 1918; P. A. Cooper, Sept. 1st, 1918; J. M. Craig, V.C., Sept. 6th, 1918; (Hon. Lt.) D. Storres-Fox, Sept. 10th, 1918; H. M. Crighton, Sept. 27th, 1918; H. E. Elsworth, Sept. 28th, 1918; R. P. A. Crisp, (Hon. Lt.) L. W. R. Grubb, Oct. 1st, 1918; (Hon. Capt.) H. W.

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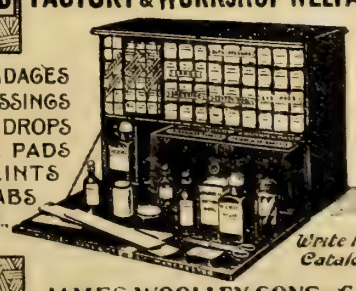
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Deacon, Oct. 6th, 1918; (Hon. Lt.) D. Hodson, Oct. 9th, 1918; G. Campbell, Oct. 15th, 1918; H. Mercer, M.C., (Hon. Capt.) N. Greenslade, M.C., Oct. 19th, 1918; J. A. Degaye, G. E. Moore, M.C., C. L. Pargeter, D.F.C., Oct. 20th, 1918; S. T. R. Lloyd (Hon. Lt.), K. Tully, Oct. 27th, 1918; J. Cave, J. C. Crook, (Hon. Lt.) G. N. Snowball, Oct. 28th, 1918; E. F. Briggs, Oct. 31st, 1918; M. B. Joseph, Nov. 8th, 1918; S. A. Packman, Nov. 26th, 1918; R. Kelly, Nov. 30th, 1918; A. J. Hannah, Dec. 1st, 1918; A. J. Bird, Dec. 9th, 1918; E. J. Caprara, Dec. 27th, 1918; (Hon. Capt.) H. B. Wilson, D.F.C., Dec. 29th, 1918; A. E. Gardiner, (Hon. Lt.) P. G. Allday, A. V. Crebbin, (Hon. Lt.) R. W. Griffiths, Jan. 1st; A. E. Heath, Jan. 5th; V. Limerick, Jan. 15th; A. W. Rogers, M.M., W. I. L. Legg, C. Malthouse, P. W. Watson, A. F. Moyles, Feb. 1st; C. Longland, W. E. Hedley, Feb. 2nd; T. J. J. Griffiths, Feb. 16th; (Hon. Lt.) A. A. English, M.C., Feb. 18th; J. T. Rose, Feb. 22nd; H. Vanstone, Feb. 25th; O. E. Miller, Feb. 28th; A. D. Neish, Feb. 28th; A. Hirschberg, March 1st; D. S. St. A. McCulloch, March 5th; J. H. Cogan, March 9th; J. B. P. Phillips, W. T. Ward, W. A. Peggs, A. G. Batterham, March 12th; W. L. Goddard, B. A Greenfield, W. P. Mills, L. H. Weedon, H. J. E. Whitfield, March 26th; (Hon. Capt.) H. W. Beck, March 29th; B. H. Stretton, J. H. W. Haswell, G. T. Polkinghorne, C. M. Whitham, April 11th; E. S. Noble, H. G. Pope, J. Spencer, A. A. Sykes, April 12th; S. R. Austin, W. J. Barber, G. C. Hyde, April 13th; A. J. Fyfe, April 14th; F. Ollenbittle, L. C. Pitts, April 21st; M. E. Bradley, H. E. Cardwell, W. S. Campbell, E. Telfer, J. S. Pickles, D. U. Thomas, G. E. T. Payne, April 25th; J. L. Lund, M.C., April 28th; C Rigby, May 1st.

D.S.O., M.C., Jan. 21st; Lt. A. D. Ferguson (Capt., High. L.I.), Feb.

The following relinquish their commns. on ceasing to be empld. :—Lt. J. F. Verner (Lt., B. Col. R.), Nov. 19th, 1918; Capt. A. E. McKeever, D.S.O., M.C., Jan. 21st; Lt. A. D. Ferguson (Capt., High. L.I.), Feb. 12th; Lt. L. O. Chantler (Lt., Sask. R.), Feb. 24th; Sec. Lt. (Hon. Lt.) J. Miller (Lt., Arg. and Suth'd Highrs.), Feb. 26th; Lt. D. A. Macdonald (Lt., Can. For. C.), March 10th; Lt. F. H. Taylor, M.C. (Lt., C. Ont. R.), March 18th; Lt. H. Carnegie (Lt., W. Ont. R.), March 31st; Lt. R. H. Johnson, April 1st; Lt. G. H. Gibbs (Sec. Lt., R.G.A.), April 7th; Lt. F. E. Gilpin (Lt., R.G.A.), April 11th; Lt. L. E. Porter (Capt., Canadians), April 14th; Capt. S. E. Neal, April 18th; Lt. S H. Kerr (Lt., E. Ont. R.), April 26th; Lt. O. Berry (Lt., Can. Gen. List), April 28th; Lt. (Hon. Capt.) K. Rawson-Shaw (Capt., R.A.), May 7th.

Capt. (actg. Maj.) T. Gran, M.C., is temporarily transferred to unempld. list, April 26th.

Transferred to unempld. list :—Sec. Lt. (Hon. Capt.) F. O. Sprinks, Feb. 5th; Lt. A. G. A. Spence, Sec. Lt. (actg. Lt.) W. A. Thompson, Feb. 9th; Lt. P. Rochard, Feb. 10th; Sec. Lt. P. W. Adams, Feb. 19th; Sec. Lt. P. B. Thorpe, Feb. 27th; Capt. C. E. Rich, March 1st; Sec. Lt. C. W. Blasdale, March 4th; Lt. C. Addenbroke, Sec. Lt. A. A. Doumouchhel, Sec. Lt. P. V. Penhallwick, March 7th; Lt. R. J. N. Mcguire, March 9th; Sec. Lt. W. A. Macfarlane, March 15th; Sec. Lt. C. N. Glidewell, Lt. E. F. R. Riet, D.F.C., March 19th; Capt. A. H. Sandwell, March 20th; Lt. A. V. Pearman, Sec. Lt. R. S. Sargent, Sec. Lt. J G. Wynne-Williams, March 28th; Lt. H. E. Read, March 29th; Sec. Lt. E. A. Dietrich, Sec. Lt. C. A. Echlin, Sec. Lt. E. N. Lohmeyer, D.F.C., Sec. Lt. T. Nisbet, Sec. Lt. W. C. Ritchie, Capt. J. Yates, April 1st; Lt. T. W. Robson, April 3rd; Sec. Lt. E. Ackroyd, Lt. C. C. Robinson, April 6th; Sec. Lt. J. S. Renton, April 7th; Sec. Lt. H. G. Ramsay, April 8th; Sec. Lt. A. G. Pugh, April 9th; Lt. C. E. Willows, Sec. Lt. W. A. Ruxton, Sec. Lt. A. A. Robinson, Capt. W. A. G Young, April 10th; Sec. Lt. T. G. Finney, Lt. F. Scott-Hall, Sec. Lt. R. Reynolds, April 11th; Lt. R. J. Morton (Midd'x R.), Lt. H. Newns, Lt. D. G. C. Wakeham, April 12th; Lt. G. Dania (R.F.A.), Sec. Lt. W. R. Leach, Sec. Lt. J. A. Lougley, Sec. Lt. L. B. Lake, Lt. C. E. Lind, Sec. Lt. G. L. Rutherford, Sec. M. Thomas, D.F.C., April 14th; Sec. Lt. C. G Lang, Lt. B. O. M. Lint. F. W. York, April 13th; Lt. C. G. Langford, Lt. G. R. Rowe, Lt. W. Ford, Sec. Lt. G. E. Rochester, Sec. Lt. H. P. de Roeper, Sec. Lt. J. Ritchie, April 15th; Sec. Lt. R. U. Fuller, Sec. Lt. L. D. Pinches, Lt. E. T. Roocroft, April 16th; Lt. J. P. de E. Robinson, Lt. E. N. A. Remington, Lt. K. M. Rodger, April 17th; Lt. (actg. Capt.) E. L. Raworth, April 18th; Lt. R. P. Darrell, Sec. Lt. E. T. Griffith, Lt. T. D. MacIntosh, Lt. D. M. Wotherspoon, April 19th; Capt. E. Pierce, April 20th; Lt. H. C. Hayes, Sec. Lt. H. Stephenson, April 21st; Sec. Lt. H. Russell, Lt. A. W. Rogers, M.M., Sec. Lt. F. H. Roberts, April 22nd; Sec. Lt. E. G. Lay, April 23rd; Lt. W. P. Lancaster, Lt. D. H. C. Lye, Sec. Lt. D. McGibbon, Capt. (actg. Maj.) R. F. Redpath, Sec. Lt. P. Richardson, Sec. Lt. C. N. Watson, April 24th; Sec. Lt. J. S. Hutchinson, Sec. Lt. H. W. T. Lewis, April 25th; Sec. Lt. C. E. A. Lovell, Lt. A. Marsh, April 26th; Lt. (Hon. Capt.) F. G. B. Reynolds, Lt. R. J. Owens, April 27th; Sec. Lt. E. R. Barrett, Lt. E. J. Land, Lt. (actg. Capt.) H. N. Lett, D.F.C., Sec. Lt. F. A. Rennison, April 29th; Sec. Lt. C. H. Austin, Sec. Lt. F. C. Brackenborough, Lt. G. C. Draper, Lt. L. Green, Lt. C. F. Moore (High. Lt. Inf.), Sec. Lt. W. J. Potts, Lt. N. J. Robinson, Sec. Lt. S. P. F. Rust, Maj. H. H. Walmsley (substituted for notification in "Gazette." May 6th), April 30th; Lt. (actg. Capt.) F. L. Atkinson, Lt. (Hon. Capt.) J. N. H. Brooke, Lt. W. R. M. Griffiths, Lt. (actg. Capt.) G. McPherson, M.C., Lt. A. W. Watson, Lt. P. Wilkins, May 1st; Sec. Lt. D. C. Bain, Capt. G. F. Browne, Lt. H. C. Brown, Capt. B. P. B. Carter, May 2nd; Sec. Lt. J. R. Cox, Lt. G. L. Dore, Sec. Lt. F. L. S. Dennett, Sec. Lt. W. O. Marshall, Sec. Lt. H. E. Peto, Sec. Lt. T. O. Wrightson, Sec. Lt. H. R. Wright, May 3rd; Lt. E. A. Bingen (R. Suss. R.), Lt. J. G. H. Crispin, Lt. W. O. Stoddart, May 4th; Sec. Lt. R. G. MacLean, May 5th; Sec. Lt. (Hon. Lt.) R. A. Blake, Sec. Lt. E. G. Bermejo, Sec. Lt. P. R. Dawson, Sec. Lt. D. B. Recorden, Capt. V. H. Ramsden, May 6th; Lt. O. S. Brown (K.O.S.B.), Sec. Lt. D. A. Collin, Sec. Lt. H. Cox, Sec. Lt. A. W. Crozier, Sec. Lt. C. S. P. Davies, Sec. Lt. G. E. Lavin, Sec. Lt. H. C. Moncton, Lt. W. J. O. Millett, Lt. G. A. Randolph (N. Somerset Yeo., T.F.), Sec. Lt. J. L. Rolston, Sec. Lt. H. Rhodes, Lt. H. Rothery, May 7th; Lt. W .M. Butler, Sec. Lt. J. B. Brown, Sec. Lt. G. J. E. Boyd, Sec. Lt. K. R. Carson, Sec Lt. L. G. Denniss, Lt. E. L. Dougal, Sec. Lt. G. W. Lazenby, Sec. Lt. W. A. Marshall, Sec. Lt. W. A Spence, May 8th; Sec. Lt. E. S. Adamson, Sec. Lt. T. B. Anderson, Sec. Lt. G. Cockburn, Seac. Lt. P. H. Devenish, Sec. Lt F. F. Lect, Sec. Lt. C. E. Richardson, Sec. Lt. J. M. S. Taylor, May 9th; Lt. N. P Atkinson, Lt. H. W. Gammon, Sec. Lt. L. Ramsden, Sec. Lt. J. G. Reynard, May 10th; Sec. Lt. A. S. H. Mills, May 11th; Lt. A. J. Donaldson, Sec. Lt. W. Eccles, Sec. Lt. (Hon. Lt.) L. C. Rowney, May 12th; Sec. Lt. H. J. Bateman, Lt. N. J. Rich, May 13th; Sec. Lt. (Hon. Lt.) E. A. Collis, Sec. Lt. E. C. Gatland, Lt. (actg. Capt.) D. M. Mackie, May 14th; Lt. F. W. Rennie, May 16th; Sec. Lt. H. E. Fox, Sec. Lt K. C. Rappell, May 18th; Sec. Lt. J. H. Cooke, Sec. Lt. F. Eppinger, Sec. Lt. F. Ollenbittle, May 19th; Lt. E. F. Crabb, D.F.C., Sec. Lt. J. O. Dufort, Sec. Lt. G. R. Fleming, Sec. Lt. N. Fahey, Lt. H. F. Guynon, Sec. Lt. R T. Graham, Lt. A. R. Grafton, Sec. Lt. P D. B Gillespie, Sec. Lt. J. H. Grahame, D.F.C., Lt. R. E. McMillan, Sec. Lt. J. B. McIntosh, Sec. Lt. M. D. Macpherson, Lt. N. R. McCord, Lt. H. W. McKeague, Lt. W. McMahon, Sec. Lt. E. S. McNames, Lt. (Hon. Capt.) G. H. Pitt, Sec. Lt. E. S. Pollock, Sec. Lt. W. A. Prendergast, Lt. F. W. Rushton, M.C., Sec. Lt. J. W. Ross, Sec. Lt. E. F. Rogers, Sec. Lt. A. H. Smith, Sec. Lt. R. D. Smith, Sec. Lt. E. H. Searle, Sec. Lt. F. P. Shanahan, Sec. Lt. C. C. Tait, Sec. Lt. C. L. Tench, Sec. Lt. A. S. Underhill, Sec. Lt. T. E. White, May 20th; Sec. Lt. C. E. Evans, May 22nd.

The following Capts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank :—R. Redfern, D.F.C., May 12th; D. H Chamberlain, May 19th (substituted for notification in "Gazette," April 11th, 1918).

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—A. R. Metelerkamp (caused by wounds), May 8th; E. L. Fosse (contracted on active service), May 10th.

The following Lts. relinquish their commns. on account of ill-health contracted on active service :—J. M. P. Adam (K.O.S.B., T.F.), May 7th; C. R. Gaffney (L'pool R., T.F.), May 8th.

Lt. F. W. Kantel (Can. F. Art.) resigns his commn., May 24th.

The following Sec. Lts. relinquish their commns on account of ill-health, and are permitted to retain their rank :—R. J. Acheson, G. F. Holford, A. G. Middleton, J. E. Parke (caused by wounds), May 8th; H. J. Andrews, A. J. Bishop (caused by wounds), May 13th; F. B. Miseroy, May 14th.

Sec. Lt. R. J. Loughleen is dismissed the Service for absence without leave, April 12th.

The surname of Capt. (actg. Maj.) R. H. B. Ker is as now described, and not Kerr as stated in "Gazette," Feb. 21st.

The surname of Sec. Lt. F. Wight is as now described, and not Wright as stated in "Gazette," April 1st.

The notification in "Gazette," April 1st concerning Lt D. A. McDonald is cancelled.

The notification in "Gazette," Feb. 21st, concerning Lt. H. S. Hill is cancelled.

The notification in "Gazette," Dec. 20th, 1918, concerning Sec. Lt. A. R. Lee is cancelled.

The notification in "Gazette," May 2nd, concerning Lt. (actg. Maj.) D. L. Blumenfield is cancelled.

ADMINISTRATIVE BRANCH.—Capt. G. Aste to be Capt., from (S.O.), May 1st.

Lt. (actg. Capt.) E. J. Smyth to be Lt., from (A.), and retains his actg. rank whilst empld. as Capt., from July 31st, 1918, to April 30th.

Lt. C. F. Eckel to be Lt., from (A.), Feb. 7th (substituted for notification in "Gazette," Feb. 7th).

Lts., to be Lts., from (S.O.) :—H. Atkins, J. E. Pike, J. B. F. Watson, May 1st.

Sec. Lts. to be Lts. :—(Hon. Lt.) A. Colling, C. C. Gardner, J. W. Gardner, E. J. Girdler, (Hon. Lt.) G. A. McMillan, April 2nd; (Hon. Lt.) U. B. Gilbert, April 5th, 1918; S. F. A. Welsh, July 22nd, 1918; T. S. Miller, July 28th, 1918; J. S. Archer, Sept. 31st, 1918; J. H. Payne, M.C., Oct. 11th, 1918; A. L. Kent, Oct. 22nd, 1918; H. T. Bolt, Oct. 23rd, 1918; (Hon. Lt.) N. S. Beale, Oct. 27th, 1918; A. P. Steer, Dec. 30th, 1918; E. J. Crowe, E. R. Harris, Jan. 5th; E. W. Bourne, Feb. 16th; W. Lienard, M.B.E., Feb. 24th; A. McGoddard, Feb. 26th; E. E. Page, Feb. 28th; J. F. Groom, March 7th; L. Singer, J. Hustwaite, from (S.O.), March 16th; F. S. E. May, March 26th; H. Royston, April 1st.

Sec. Lts. to be actg. Lts. till April 30th :—W. D. Cooney, F. Drake, F. Dallow (substituted for notification in "Gazette," Jan 31st), D. T. Davies, (Hon. Lt.) T. J. Harrington, F. E. Hudson, T. Moorcraft, R. H. Sturgeon, T. Surr (substituted for notification in "Gazette," March 28th), W. Shaw, R. N. Walter, Sept. 18th, 1918; W. W. Archer, Sept. 21st, 1918; E. J. Jordan, Sept. 23rd, 1918; E. C. St. A. Newby, Sept. 24th, 1918; (Hon. Lt.) T. Sutherland, Oct. 10th, 1918; W. R. Bowmer, Nov. 1st, 1918; J. O. Minshall, Nov. 8th, 1918; (Hon. Lt.) R. Blackith, Jan. 25th; H. C. Wilkin, March 1st.

Sec. Lts. to be actg. Lts. till April 30th, without pay and allowances of that rank :—(Hon. Maj.) J. L. McLean, C. Lyons, Sept. 16th, 1918; N. W. Seyler, Oct. 15th.

J. G. N. Clift (Lt., R.N.) is granted temp commn. as Lt., April 1st.

Sec. Lt. P. James to be Sec. Lt., from (O.), Oct. 12th, 1918 (substituted for notification in "Gazette," Feb. 4th).

Transferred to unempld. list :—Lt. C. B. Stenning, Feb. 2nd; Lt. (actg. Capt.) H. W. Tait, D.F.C., Feb. 25th; Sec. Lt. C. H. Marston, March 7th; Lt. C. F. Morris, March 13th; Sec. Lt. H. J. Alcock, March 21st; Sec. Lt. R. H. Rickards, March 29th; Sec. Lt. (actg. Lt.) W. L. Rees, April 1st; Sec. Lt. W. R. Rudall, April 8th; Lt. A. L. C. Hartland-Rowe, April 10th; Capt. R. Rennison, April 12th; Sec. Lt. G. Rogers, April 14th; Sec. Lt. H. Ridley, April 15th; Sec. Lt. G. I. Larkins, April 16th; Capt. J. C. B. Longbotham, April 18th; Lt R. R. Tattersall (Ryl. Def. Corps. T.F.), April 22nd; Lt. (Hon. Maj.) W. B. Dunn (Dublin Fus.), Sec. Lt. D. P. Fulton, April 26th; Sec. Lt. A. P. Cragg (Lancs. R.), Lt (Hon. Capt.) R. W. F. Cecil (Capt., Sp. List), Sec. Lt. (Hon. Capt.) (actg. Capt.) W. H. P. Rees, April 30th; Lt. J. F. Byrom (Lancs. Fus.), May 2nd; Lt. (actg. Capt.) F. N. Downey, Sec. Lt. L. Wagstaff, May 3rd; Lt. R. M. Grundy (Midd'x R.), Lt. W. J. Rees, May 4th; Lt.-Col. G. W. F. Fraser, O.B.E., Sec. Lt. (Hon. Lt.) (actg. Capt.) H. R. Marston (Manch. R.), Lt. (actg. Capt.) E. Martin, M.C. (Lond. R.), May 7th; Maj. W. H. Adkins, Sec. Lt. L. G. D. Caines, May 9th; Sec. Lt. C. B. Foster, Lt. W. G. Fox, Sec. Lt. C. E. Rogers, May 10th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—B. S. Andrew (contracted on active service), A. de M. Bellairs (contracted on active service), May 8th; J. W. Holdsworth, May 14th.

The following Lts. relinquish their commns. on account of ill-health :—E. G. Akhurst (Devon. R., T.F.) (contracted on active service), May 5th; Actg. Capt. D. A. M. MacManus (R. Innis. Fus.), caused by wounds, May 9th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—A. F Foulder, May 9th; A. Moore, May 12th; S. J. Darmody (caused by wounds) H. W. Turner, May 13th.

The Christian name of Capt. Henry Cox is as now described and not E. Cox as stated in "Gazette," April 4th.

The notification in "Gazette," Nov. 8th, 1918, concerning Lt. W. H. Fox is cancelled.

The notification in "Gazette," March 11th, concerning Sec. Lt. R. C. Rogers is cancelled.

The notification in "Gazette," May 6th, concerning Capt. (actg. Maj.) N. A. Daniell is cancelled.

TECHNICAL BRANCH.—Sec. Lts. to be Lts. :—H. Chapman, July 12th, 1918; J. E. Keeford, C. G. Stevens, Aug. 2nd, 1918; S. J. Fountain, Sept. 14th, 1918; T. E. Morton, Jan. 18th; F. A. Reale, Jan. 27th.

Sec. Lts. to be Lts., without pay and allowances of that rank :—T. Allan, (Hon. Lt.) F. Baxter, C. H. Blakeway, C. Cadman, R. Donald, (Hon. Lt.) F. E. Glass, (Hon. Lt.) J. B. Glass, E. A. Gulson, C. B. Monkman, A. R. Rouse, H. Scott, (Hon. Lt.) H. W. Vowden, April 2nd, 1918; C. J. Geddes, April 9th, 1918; E. W. Brooks, R. E. Pudney, June 8th, 1918; (Hon. Lt.) F. A. Baker, M.C., June 16th, 1918; G. R. Willis, June 10th, 1918; A. Christian, Aug. 2nd, 1918; (Hon. Lt.) T. G. S Symonds-Babb, Aug. 14th, 1918; V. E. R. Bolton, Aug. 20th, 1918; (Hon. Lt.) A. G. Mortlock, Oct. 11th, 1918; I. K. Shrimpton, Oct. 13th, 1918; I. Buckthought, Oct. 15th, 1918; R. H. Semmence, Oct. 26th, 1918; H. H. Ballard, Nov. 25th, 1918; D. W. Emonds, Dec. 2nd, 1918; (Hon. Lt.) F. H. L. Varcoe, Dec. 30th, 1918; I. M. Kearney-Dodds, Jan. 1st; C. L. Taylor, Jan. 12th; I. C. Shakeshaft, Jan. 31st; G. J. Finley, Feb. 16th; worth, Feb. 20th; T. Mundy, F. A. Murray, May 8th; A. Broadley, F. S. G. Glenn, C. W. Triggs, Feb. 24th; H. W. Halifax, Feb. 25th; G. Ashmockford, H. B. Norris, March 24th; M. G. Church, April 3rd; E. V. T. Knight, April 5th; C. B. Pensotti, April 17th; G. Betts, C. T. Davis, F. Whilton, April 18th; W. J. Aubert, A. Hill, H. Hillsdon, H. W. Nicholl, W. H. Saunders, W. F. Wallace, April 19th; R. D. G. Macmastie, April 20th; J. Armitage, P. J. Hill, H. Woffenden, April 22nd; A. H. S. Synge, April 24th; C. A. C. Fidler, F. W. Powell, April 28th; H. B. Hawker, L. J. Lipscomb, April 29th.

Sec. Lt. E. J. Peek to be actg. Lt. whilst empld. as Lt., Grade (B), from (A), from Jan. 25th to April 30th.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. (Hon. Lt.) W. A. Lupper (E. Kent R.), July 2nd, 1918; Capt. A. Landen, D.S.O. (North'd Fus.), April 11th; Capt. (actg. Maj.) E. Graham, May 9th.

Transferred to unempld. list:—Lt. (actg. Capt.) S. L. Amor, Feb. 27th; Lt. (actg. Capt.) J. M. R. E. St. Amory, March 27th; Lt. J. R. G. Bowden, April 1st; Sec. Lt. E. G. Quiddington, April 6th; Sec. Lt. V. Rhead, April 7th; Capt. J. H. Ward, April 13th; Capt. T. M. Richie, Sec. Lt. (actg. Lt.) H. S. Rogers, April 16th; Sec. Lt. H. G. Webster, April 17th; Sec. Lt. W. J. Fenton, April 19th; Sec. Lt. R. E. Sharples April 20th; Lt. L. Rawnsley, April 21st; Capt. (actg. Lt.-Col.) M. Deacon, Sec. Lt. (Hon. Lt.) (actg. Capt.) H. M. Rootham, April 25th; Maj. (actg. Lt.-Col. F. A. G. Noel, O.B.E., Sec. Lt. H. A. Parsons, April 30th; Sec. Lt. (actg. Capt.) B. G. Bryan, Capt. (actg. Maj.) J. C. Derham, Lt. (actg. Capt.) W. H. M. Groom, May 1st; Sec. Lt. E. G. Barnard, Sec. Lt. C. W. Phipps, May 2nd; Sec. Lt. (Hon. Lt.) S. M. Baker, Lt. W. R. Maunder (R.E.), May 3rd; Sec. Lt. (actg. Capt.) S. R. Chapman, April 4th; Lt. (Hon. Lt.) B. O. Augell, Lt. H. S. Wilkins, May 5th; Capt. R. H. Meers, May 6th; Lt. C. W. Bickley ((Gloster R., T.F.), May 7th; Lt. H. V. Albrow, Sec. Lt. G. F. Mitchell, May 8th; Capt. H. Rochford, May 9th; H. Ellingham, Lt. A. O. Fuller, Sec. Lt. A. E. Wolveridge, May 10th; Maj. A. H. S. MacCallum, Lt. (actg. Capt.) E. L. Ravenscroft, Lt. B. C. Rayner, May 14th; Sec. Lt. F. H. Alder, May 19th; Sec. Lt. J. H. Glew, Sec. Lt. G. McLaughlin, April 20th.

Sec. Lt. (Hon. Lt.) P. A. Albrecht relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., May 9th.

Sec. Lt. E. A. Morrow relinquishes his commn. on account of ill-health, and is permitted to retain his rank, May 13th.

Sec. Lt. H. Falkner (R.E.) relinquishes his commn. on account. of ill-health, May 12th.

The surname of Sec. Lt. G. W. Heugh is as now described and not Hengh as stated in "Gazette," Jan. 24th.

The notification in "Gazette," Nov. 22nd, 1918, concerning P. Allden is cancelled.

The notification in "Gazette," April 1st, concerning Lt. (actg. Capt.) H. Jones is cancelled.

MEDICAL BRANCH.—Lt. W. C. A. Ovey is transferred to the unempld. list, March 25th.

MEMORANDA.—The following relinquish their commns. on ceasing to be empld.:—Lt. J. B. Hamilton, Feb. 16th; Temp. Hon. Lt. W. C. Boswell, May 16th.

Transferred to unempld. list:—Maj. (actg. Lt.-Col.) R. W. Roylance, from (S.O.), Jan. 27th; Lt. (actg. Maj.) D. L. Blumenfield, April 1st; Capt. P. White, from (S.O.), April 3rd; Capt. (actg. Maj.) H. French, from (S.O), April 11th; Maj G. M. T. Rees, O.B.E., from (S.O.), April 16th; Lt.-Col. W. L. Marsh, O.B.E., from (S.O.), May 1st, Lt. (actg. Capt.) J. S. Berdoe, from (S.O.), May 6th; Sec. Lt. (Hon. Lt.) (actg. Capt.) R. F. Colman (S. Staffs R., T.F.), from (S.O.), May 10th; Lt. (actg. Capt.) P. Ellis, from (S.O.), Capt. E. Cameron (Staffs Yeo.), from (S.O.), May 13th.

The rank of Lt. (actg. Capt.) J. E. B. Cochrane is as now described, and not Sec. Lt. as stated in "Gazette," May 9th.

The notification in "Gazette," March 14th, concerning Lt. P. S. Woodroffe is cancelled.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, May 23rd.

The King held an investiture in the quadrangle of Buckingham Palace at 11 o'clock this morning.

The following officers were severally introduced into the presence of the King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE (Military Division).—Commander.—Brigadier-General John Houison-Craufurd, R.A.F.

THE DISTINGUISHED SERVICE ORDER.—Captain George Dacre, R.A.F.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE (Officers).—Military Division.—Col. Sidney Smith, R.A.F.; Lieut.-Col. Edward Melville, R.A.F.; Lieut.-Col. Francis Roxby, R.A.F.; Lieut.-Col. Frederick Scholte, R.A.F.; George Abell, R.A.F.; Major Claude Bonnett, R.A.F.; Major Harold Lecomber, R.A.F.; and Capt. Edward Stapleton, R.A.F.

Member.—Military Division.—Capt. Leonard Lander, late R.A.F.

The King then conferred decorations as follows:—

THE DISTINGUISHED SERVICE CROSS.—Capt. Rupert Forbes-Bentley, R.A.F.

THE CASUALTY LIST.

AIR FORCE.

Reported May 21st.

ACCIDENTALLY KILLED.—Beanlands, Capt. B. P. G., M.C., R.A.F.
Cooper, Lt. D. G., R.A.F.
Davis, Sec. Lt. C. S., R.A.F.
Harrison, Sec. Lt. C., R.A.F.
Harwood, Lt. G., R.A.F.
Hunt, Lt. C. F., R.A.F.
Knott, Capt. E. M., A.F.C., R.A.F.
Kretmar, Sec. Lt. W. F. K., R.A.F.
Robinson, Maj. H. H., M.C., R.A.F.
Salmon, Sec. Lt. F. C., R.A.F.
Smith, Sec. Lt. A. S., R.A.F.
Stace, Lt. A. H. B., R.A.F.
Twilton, Lt. R. J., R.A.F.
DIED OF INJURIES.—Perrin, Maj. M. N., R.A.F.

ADMIRALTY APPOINTMENTS.

The following appointments have been made:—

MAY 21st.—Payr. Lieuts.—G. A. Whiting, to "Engadine," in charge, June 15th.

MAY 23rd.—Wt. Shipwrt.—J. Myott, to "Vindictive" (undated).

Royal Canadian Navy.—Lieut.—D. St. G. Lindsay, to "Empress," May 22nd.

MAY 24th.—Comdrs.—B. P. MacMahon, to "Argus," May 23rd.

Lieuts.—J. G. Moncrieff and C. M. V. Gooding, to "Argus," May 23rd.

MAY 26th.—Temp. Lieut.—E. W. Kent, to "Empress" (undated).

OFFICIAL COMMUNIQUÉS.

The following was issued by the India Office on May 21st:—

On the 17th the First (Indian) Brigade, with the co-operation of aeroplanes, attacked the enemy on the hills to the west of Dakka, which were captured by 3.30 p.m.

The following telegrams have been received from the Viceroy of India:—

MAY 21st.—On May 20th buildings in Jelalabad from which shots were fired at our aeroplanes were successfully bombed, the Afghan headquarters barracks being hit, as well as a parade of some 2,000 troops and a column of troops on the march.

MAY 22nd.—Air reconnaissances report no movements of importance west of Jelalabad. The tribes along the whole frontier are reported to be still quiet. No further active operations are reported beyond the effective bombing of troops at Kahi and Pesh-Boiak [16 miles west of the frontier opposite Peshawar].

The India Office issued the following statement on May 26th:—

With reference to the statement that has appeared in the Press to the effect that the Afghan Commander-in-Chief applied for a cessation of hostilities, the facts are as follows:—

In telegraphing on May 15th to the Secretary of State on the military position the Government of India incidentally mentioned the receipt of such an application, but without appearing to attach much importance to it. The Secretary of State at once telegraphed for further particulars, and asked whether the request could not be made the basis of negotiation.

In reply the Government of India telegraphed on May 18th the full text of the Commander-in-Chief's message, which was addressed to the Political Agent, Khyber, and ran as follows:—

"Sir,—As regards the outbreak of war between Afghanistan and Britain, I have the honour to inform you that British officers commenced an unlawful war without any declaration of war on any side, and by this aggressive step inflicted heavy losses on the civil population and army of Afghanistan by throwing bombs from aeroplanes.

"I am informed by his Majesty the King of the independent kingdom of Afghanistan that his Majesty has received a letter from his Excellency the Viceroy, and in consequence of that I am ordered to suspend war, thus unlawfully begun by your side, until further orders.

"You are accordingly informed that war has been suspended until a final decision has been reached by correspondence between his Afghan Majesty and his Excellency the Viceroy."

The Government of India added that this insolent message was obviously devised to gain time, an explanation to which the Afghans themselves gave currency among the frontier tribes, and that they had instructed the Political Agent, Khyber, to reply that he was not authorised to answer the message, and that if the Ameer wished for peace he should address the Viceroy through the officer in command of the British forces.

To this invitation the Ameer so far has made no response, and offensive preparations continue to be made by the Afghans along the whole frontier.

It need hardly be said that the allegations made in the message as to aggressive action by British Officers were entirely without foundation.

The Ameer's reply to the Viceroy's letter protesting against the Afghan proceedings has now been received. It is defiant in tone, and leaves no doubt as to Amanullah's personal complicity.

The following was issued by the India Office on May 26th:—

On May 22nd air reconnaissance reported no movements of importance east of Jelalabad. Afghan troops on the Dakka front were reported to be having difficulty with their ration supply and local Lashkars to be disinclined to concentrate for the same reason.

May 25th.—The Zakka Khel maliks have brought in without ransom two airmen, Lieuts. Hoare and Barker, who were forced to descend in the Bazar Valley, that is, tribal territory [in the Khyber region; the Zakka Khels are Afridis].

From Jelalabad it is reported that great confusion was caused there by the air raid on May 21st. Several Government buildings were set on fire and the town is reported as practically deserted.

PERSONAL NOTICES.

NAVAL.

DEATHS.

RAWLINGS.—The death of Capt. Townley Rawlings, R.A.F. (late R.N.A.S.), in the accident to the Tarrant triplane reported in another place, is a great loss to British aviation. During the war he won the Distinguished Flying Cross for a very meritorious piece of work, the bombing of the German-Turkish battleship "Goeben" as she lay off Constantinople. His long flight for that purpose actually started at Margate; and he finally descended at Mudros.

STEWART.—Flight Sub-Lieut. William Houston Stewart, R.N.A.S., was reported missing on May 26th, off the Belgian Coast, and is now presumed to have been killed. He was the only son of A. W. Houston Stewart and the grandson of the late Admiral Sir W. Houston Stewart, G.C.B.

ENGAGEMENT.

CLARK-HALL—LOCKHART.—The marriage of Lieut.-Col. R. H. Clark-Hall, D.S.O., R.A.F. (Comdr., R.N.), and Lillias, daughter of Col. and Mrs. R. Elliott Lockhart, The Hewke, Lockerbie, will take place at 2 p.m., on June 11th, at All Saints, Lockerbie.

BIRTH.

GREIG.—On May 20th, at Hemsby Hall, Norfolk, the wife of Major Louis Greig, M.V.O., M.B., R.A.F. (Surgeon-Lieut. Car., R.N.), a daughter.

MILITARY.

DEATHS.

BEANLANDS.—Captain Bernard Paul Gascoigne Beanlands, M.C., 1st Hants, attached R.A.F., who was killed on May 8th while flying at Northolt, was the son of the late Canon Beanlands, M.A., F.S.A., of Wickhurst Manor, Sevenoaks Weald, sometime Rector of Christ Church Cathedral, Victoria, B.C., and of the late Laura Maud Hills. He was 21 years of age.

HOWARTH.—It is now assumed that Capt. Norman Howarth, R.A.F., late R.F.C., died on, or since Sept. 6th, 1918, on which date he was shot down between Bohain and St. Quentin. It has been impossible to obtain any information as to whether Capt.

Howarth was killed in an air fight, or whether he died after reaching the ground, nor has it been possible to discover whether he was buried near where he fell.

Norman Howarth will be remembered by the old-timers at Hendon as one of the most regular pilots of the London Aerodrome. He was a particularly safe and steady flier although very skilful, and he handled his machine with a neatness which stamped him as a pilot of quite the first class. At the outbreak of war he joined the R.F.C., and, in course of time, was promoted to Flight Commander. He did a very great amount of flying at the front besides spells of instructing at home. His quietness and modesty of demeanour won him many friends in the R.F.C., and when he was reported as missing his Commanding Officer wrote regretting the loss of one who was so intensely keen and such an excellent Flight Commander.

Capt. Howarth leaves a young widow to whom one tenders the deepest sympathy.

ROBINSON.—Major H. Huntley Robinson, M.C. (bar), Medical Officer, 9th Wing, R.A.F., whose death was announced recently, was the second son of Dr. and Mrs. H. Shapter Robinson, of "Crantock," Epsom, formerly of Talfourd House, Camberwell. Born in May, 1889, he qualified M.R.C.S., L.R.C.P., in 1912, at the London Hospital, where he acted as house surgeon. He joined the R.A.M.C. as Medical Officer to the 21st London Regiment just before the declaration of war, and went to France early in 1915, where he served continuously with the 47th Division until last November, when he transferred to the R.A.F. He was three times mentioned in dispatches, and was awarded the M.C. and bar.

ROWELL.—Capt. William Cecil Rowell, 1st Batt. Loyal North Lancashire Regiment, attd. R.A.F., who died on May 22nd at the R.A.F. Auxiliary Hospital, 82, Eaton Square, W., was the only son of Mr. and Mrs. Spencer Rowell, of Kenwyn, Newton Abbot. He was 26 years of age.

MARRIAGES.

WEST—RICE-EVANS.—On May 9th, at the Parish Church, Marylebone, London, Theodore James West, M.C., R.A.F., was married by special licence to Peggy, second daughter of the late Walter Rice-Evans, Esq., J.P., and Mrs. Rice-Evans, of Eagles Bush, Neath, Glamorganshire.

BIRTHS.

BOWEN.—On May 26th, at Nepicar House, Wrotham, Kent, the wife of Lieut.-Col. J. B. Bowen, Pem. Yeo. and R.A.F., of a daughter.

AIR FORCE.

DEATHS.

BRIDGETT.—Sec. Lieut. Claude Bridgett, R.A.F., who was previously reported missing is now officially believed to have been killed at Gaudach, near Metz, on Sept. 13th, 1918. He was the youngest son of the late William Beddome Bridgett, and the step-son of Mrs. Bridgett, of 12, Briar Walk, Putney, S.W. He was 18 years of age.

CARTER.—Major Albert D. Carter, D.S.O., a Canadian, was killed while flying near Shoreham, on May 22nd. When at a great height the wing of his aeroplane broke and the machine crashed in a meadow close to Lancing College. Major Carter was 26 years of age.

CRADDOCK.—A verdict of "Accidental death, due to trying to turn the aeroplane at the low height of 30 ft." was returned on May 22nd at the inquest on the body of Air Mechanic George Craddock, of Rushden, Northamptonshire, held at Coventry.

A.M. Craddock and Lieut. Carruthers, R.A.F., had been in the air 10 minutes, and on a second descent the aeroplane nose-dived. The Coroner said that the accident would never have occurred had a higher altitude been taken for turning.

PRINCE.—Lieut. Frederick George Prince, R.A.F., 68th Squadron, was killed on May 17th, at Centocelle Aerodrome, Rome, during a flight from France to Egypt. He was the only son of Mr. and Mrs. F. T. Prince, of West Dulwich, and was 27 years of age.

MARRIAGE.

BUCKINGHAM—MILTON.—On May 21st, at St. Mary Abbot's Church, Kensington, Captain William Buckingham, M.C., R.A.F., eldest son of W. Buckingham, Esq., of Sydney, was married to Jessica Edith, youngest daughter of Mr. and Mrs. Frank Milton, of Hill Place, Haslemere, Surrey.

RODMELL—TISCHMACHER.—On May 10, 1919, at Belfort, France, Sec. Lieut. John W. Rodmell, R.A.F., only son of the late John Rodmell, of Hull, was married to Isabelle Francoise, daughter of M. Joseph Tischmacher, of Belfort.

BIRTHS.

COLLINS.—On May 21st, at the Principal's House, Wye College, the wife of Captain C. Hart Collins, R.A.F., of a daughter.

LEWIN.—On May 18th, at 59, Tyzack Road, Woodseats, Sheffield, the wife of Lieut. H. S. Lewin, R.A.F., of a son.

NEWELL-ROBERTS.—On May 20th, at "Aston Greys," Boscombe, Hants, Doris, the wife of Capt. F. N. Newell-Roberts, R.A.F.—a daughter.

SMITH.—On May 12th, at 8, Percy Road, Boscombe, the wife of Lieut. J. D. Smith, R.A.F., of a son.

WICKHAM.—On May 20th, at a nursing home, Ealing, the wife of Sec. Lieut. R. T. Wickham, R.A.F., of a son.

* * *

On May 23rd a seaplane, while on patrol at Felixstowe, dived and crashed into the new pier. The pilot (Capt. Nunn, R.A.F.) the observer (Lieut. Boyes, R.A.F.) were injured, the former slightly and the latter more severely.

* * *

Capt. Elgie Jefferson, R.A.F., the only son of Mr. Thomas Jefferson, of the Isle of Man, left England on May 19th, piloting an aeroplane carrying despatches for Paris. The machine and dispatches have since been recovered from the English Channel, but there is no trace of Capt. Jefferson. It is feared that when the aeroplane fell into the sea the pilot was drowned

AVIATION IN AFGHANISTAN.

According to a message dated May 15th from "The Times" correspondent at Simla, it is officially announced that the Commander-in-Chief of the Afghan army has sent a letter to the Political Agent for the Khyber Pass asking for a cessation of hostilities. It is alleged that the British air raids into Afghanistan are one of the chief causes of this request.

AN AIR RAID ON ASTRAKHAN.

The British aviators stationed at Baku carried out a successful air raid over Astrakhan recently, and dropped bombs on the docks and shipping in the harbour. A number of bursts were observed on warehouses and shipping.

ATHLETICS IN THE R.A.F.

The Royal Air Force annual athletic meeting for the challenge cup presented by the King will take place on Thursday, August 21st, at Stamford Bridge Ground, Chelsea. The events included in the composition are :—

Flat races for distances of 100, 220, 440, and 880 yards; one mile and three miles; hurdle; high jump; long jump; relay race; tug of war; and a W.R.A.F. relay race.

The competition is an inter-area one, and after preliminary selection one team will be selected to represent each area for each team event, or three individuals in the case of individual events.

BOXING.

The Championship Meeting, held by the Amateur Boxing Association at the Northampton Institute, was concluded on Saturday. The attendance was very much better than on the day before, and the boxing, as a whole, was interesting, each bout being keenly contested. Results :—

Heavy-weights.—Second round.—Lieutenant G. H. Price (R.A.F.) beat E. Griffiths, D.S.M. (London Fire Brigade)—stopped by referee in first round.

Semi-final round.—C. Copp (R.M.A.) beat Lieut. G. H. Price (R.A.F.)—retired in second round.

Final round.—H. Brown (Belsize B.C.) beat C. Copp (Royal Marine Artillery)—retired in the second round.

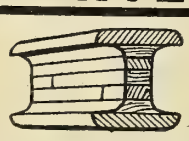
THE LOSSES OF THE FRENCH AIR SERVICE.

The following figures are taken from the French official statistics, and comprise the losses of Service d'Aviation Militaire from August 4th, 1914, to Nov. 11th, 1918.

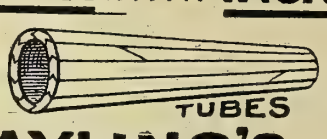
In the Army zones were 1,945 pilots and observers killed, 1,461 missing whose death is certain, and 2,022 wounded. In the interior zone the losses were 1,927 pilots and observers killed and wounded. The total number of aviators in the French Aviation Service on Dec. 1st, 1918, was 19,219.

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THE AEROPLANE

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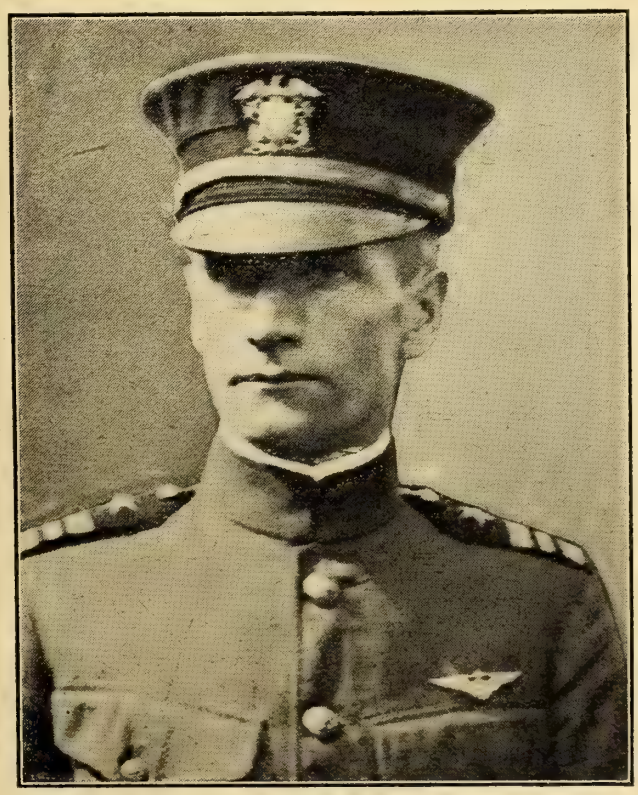
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ON THE DEFEAT OF THE ATLANTIC.

All who are concerned with aeronautics in any form or phase must congratulate the American Nation on the fact that American aviators have defeated the Atlantic Ocean. Naturally we of the British Empire would have preferred that a British aviator should have been the first to succeed in crossing from the New World to the Old by air, but if it could not be one of ourselves we are glad that the honour should belong to those of British race.

Also there is pure poetic justice in the victory being won by the Americans. After all, the first people to fly were the Wright brothers in 1903, on a machine of their own build with an engine of their own make. The first flights off and onto water were made by Glenn Curtiss in 1911, also on a machine and engine of his own production. And the first flying-boat was designed and built by Glenn Curtiss in 1913, again with a home-made engine. Who therefore has a better right to be first across the Atlantic than an American crew on an American flying-boat with American engines? We may regret our own failure, but we cannot grudge America her brilliant success.

Also, although we may regret that the first crossing was not made to the British Isles, there is again poetic justice in the fact that the first journey by air across the Atlantic should be made to that Peninsula whence sailed Christopher Columbus on the voyage which re-discovered America to the civilised world of his day.



Lieut.-Commander A. C. READ, U.S.N., Commanding N.C.4, the first aircraft to cross the Atlantic by air.

The Organisers of Victory.

The American victory was the deserved result of great personal gallantry, great skill in the design, preparation, care and handling of the machine and her engines, and great ability in seamanship and airmanship. But above all it was a triumph of organisation—which is just where we in this country fail so constantly.

Of the gallantry of all concerned there is little need to write. The story of the flight speaks for itself, little as is known of that story up to the present. Nothing could beat the pluck of Commander Towers and the crew of N.C.1, who navigated their boat for 200 miles in the open Atlantic, minus a wing-tip float which had carried away at the start (flying-boat aviators will appreciate the feat at its full value), and fetched up at the end of the first stage under their own power, disdaining assistance proffered by escorting ships. Their fine effort is made finer by the fact that they rode out two gales in the course of their voyage on the water.

The way in which Lieut.-Commander Bellinger and his crew stuck to N.C.3 till she sank is in accord with the best traditions of Naval service.

Nor is there any need to enlarge on the gallantry of Lieut.-Commander Read and his crew, who, after seeing their consorts wrecked and after having covered a World's Record non-stop journey of 1,300 miles, started forth on another 1,000-mile journey entailing equal risks. Be it remembered that though they had a few days in which to overhaul their craft they had no time to make any important replacements, and they took the chance of any internal damage which might have been done by their previous great effort.

The Success of the Pioneer.

It is particularly pleasing to know that Mr. Glenn Curtiss, the pioneer of water-flying, should have had so great a share in this epoch-making event. The initials N.C. stand for Navy Curtiss, the three boats being the joint products of the U.S. Navy and of Mr. Curtiss.

It will be remembered that not only did Glenn Curtiss produce the first flying-boat, but that he built—just before the war—the first multiple-engined flying-boat. This was ordered by Mr. John Wanamaker, the American millionaire, for an attempt on the Atlantic passage. It was built originally at the Curtiss shops at Hammondsport with two Curtiss engines, and tested on Lake Keuka. As it failed to lift a trans-Atlantic load with two engines, a third engine was fitted, and with this additional power it flew fairly well. From it are descended all the big flying-boats of to-day.

The N.C. boats were built in Mr. Glenn Curtiss' own shops at Garden City, Long Island, New York State, where he established himself after his works at Hammondsport and Buffalo were taken over by financiers for pure production. These works, one gathers, now belong to Mr. Willys of the Overland Car, and are without interest to Mr. Curtiss, who continues to be faithful

to his earliest love, the life of a pioneer and experimenter. He is happy in that he has now the money with which to experiment on the grand scale, and the N.C. boats bear witness to his success in his new-old *métier*.

All those who met and learned to like Glenn Curtiss during his all-too-brief visits to Europe, when he won the first Gordon-Bennett race at Reims in 1909, and when he introduced his flying-boat to Europe in 1913, will rejoice in his success. His personal modesty and his self-evident honesty won the highest regard of all who knew him.

The Scientists' Part.

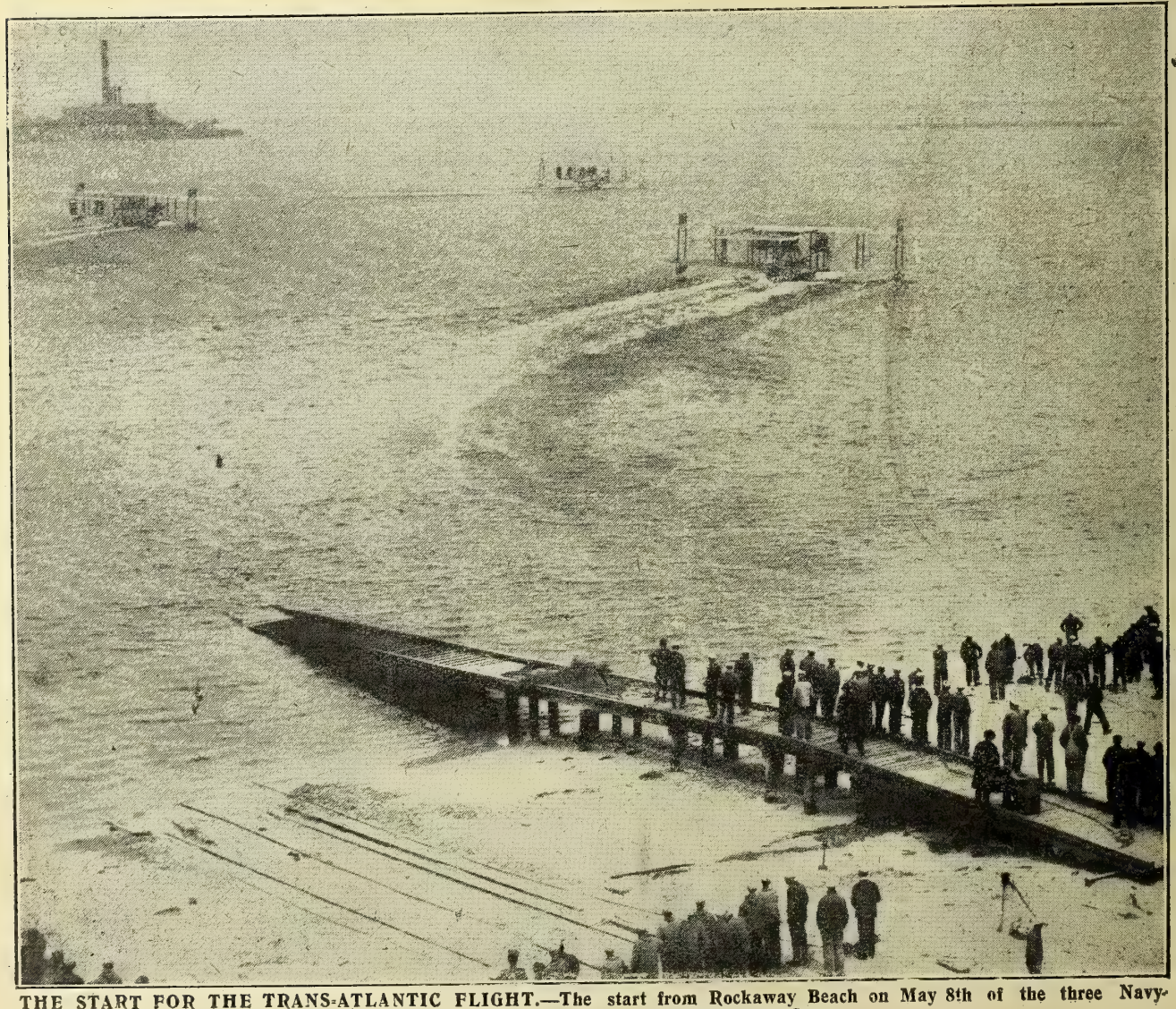
The applied science of aeronautics which has been embodied so well in the N.C. boats is due to certain able young officers of the Department of Naval Construction, one of whom at least, Mr. Jerome Hunsaker, is known to all aeronautical scientists as a pioneer of their particular work. Mr. Hunsaker was recently in England, and, like Mr. Curtiss, he won the esteem of all who met him. He has practical horse sense, as well as a sense of humour in full working order, which relieves his deep and wide scientific knowledge of any charge of being academic. So far as the science of aeronautics goes, Mr. Hunsaker and his coadjutors are in no way behind their European contemporaries, and it is not due to any fault of theirs that Military Aeronautics in the United States proved to be the great washout of the War.

It is a lamentable fact that, despite all the newspaper talk about what the American Air Fleet was going to do, not a single American "airplane" crossed the lines during the war. Her brave but unskilled aviators fought and died on second-rate or obsolescent French and British aeroplanes. The history of the combined graft and incompetence which caused this unhappy state of affairs is still being investigated in America, and it will be time enough to tell that story when the truth is known. But it must be set on record here, for the honour of the U.S. Navy, that naval aviation in the United States has been the one bright spot in the sad history of the nation's aeronautical efforts. Which is precisely the opposite to our own case.

The Moving Spirit.

The man who has been the moving spirit in this success is one Commander John Towers, U.S.N. Long before the war Lieut. Towers, as he then was, learned to fly and was known as a first-class pilot. When war broke out he was Extra Naval Attaché at the American Embassy in London.

Though the United States showed no signs of coming into the war, none regarded John Towers as anything other than an Ally, and he was treated as such even by highly placed official personages. Whatever knowledge of Naval aviation was gained while he was in England was known to him, and one believes that his far-sighted and acute mind was of distinct service to us in our early war efforts. If he was not legally an Ally, he was, at any rate, a very friendly neutral.



THE START FOR THE TRANS-ATLANTIC FLIGHT.—The start from Rockaway Beach on May 8th of the three Navy-Curtiss Flying-Boats, N.C.1, N.C.3, and N.C.4.

When he returned to the States, much to the regret of many friends in England, he devoted himself to making the U.S. Naval Air Service the most efficient branch of his country's service. And those who know anything of the work of this arm in the war will be the first to recognise the success of his endeavour.

The U.S. Naval Air Service, unlike the Army's air branch, was excellently organised, well equipped, and well trained, and if the war had lasted only a little longer it would have made itself a big name in bombing over land as well as in operations at sea.

The Work of the U.S. Navy.

When the Armistice came, the U.S.N.A.S. determined to attempt the Atlantic crossing. It had the fullest support of the U.S. Navy, a Service in which, unlike our own, modern ideas find ready reception. The U.S. Navy laid itself out to help the Air Service people, and gave to the Atlantic flight the importance of Naval Manœuvres.

The benefit to the U.S. Fleet of the lessons learned in co-operating with the squadron of N.C. boats scarcely needs explanation. But, for the good of those who still believe in the pre-eminence of the British Navy, it seems worth while to point out that the practice thus obtained in keeping station on the line of flight, in taking signals from and sending signals to seaplanes, in searching for the missing boats, and in general co-operation over such a vast area has given the U.S. Navy experience of a kind which our own Naval people have not had.

The whole business was a triumph of good organisation, and the excellent way in which that organisation worked is evidence of the keenness and efficiency of the U.S. Navy, which deserves every congratulation. One regrets that Commander Towers in N.C.1 was unable to complete his journey by air, but he will be the first to congratulate Lieut.-Commander Read on his success, and he himself may be very well content with the honours which he has won as the man who inspired and organised the defeat of the Atlantic.

An Apology Due.

One feels that an apology is due to the U.S. Navy and to the American people for the indifference or ignorance displayed by the British Press in the matter of America's victory.

The arrival of N.C.4 at Lisbon, which completed the defeat of the Atlantic whether she continued her flight to England or not, was chronicled as a bald fact without comment, and occupied perhaps three or four inches of space in the leading papers. Yet the same papers were devoting columns to descriptions of the hysteria of London's apparently unemployed population over the return of the two British aviators who failed so gallantly to get across.

Probably the American Service people were glad to escape the gush and slush which poured forth so fulsomely over their unfortunate rivals. But one feels that it was at least the duty of the more sound and responsible papers—a duty to the British Public rather than to the American People or the U.S. Navy—to have produced at least a respectable leading article pointing out for the benefit of those who are incapable of thinking for themselves (the vast majority of readers of daily papers) that the Atlantic had suffered its first defeat.

For, be it noted, though it must be a long time before we win the Command of the Air over the Atlantic as we won the Command of the Air over Hunland during the present war, this crossing of the Atlantic by N.C.4 is the first step towards complete ultimate victory in the world-long war which is being waged by man against the so-called elements—earth, air, fire, and water.

The American Nation must not take the attitude of the British Press as indicating the attitude of the intelligent minority of the British people. Still less does it indicate the attitude of those concerned with British aeronautics. Still less again does it indicate the attitude of the King's Services—which probably count for more than all the rest in the eyes of the U.S. Navy.

Now that N.C.4 has reached England her crew has been overwhelmed with adulation by the British Press—now that the said Press has been reminded of what is expected of it by the people most concerned. But no amount of slopping over can wash out the fact that the British Press did not appreciate the significance of N.C.4's victory when that victory was won.

The Explanation.

America must accept the apologies of the aeronautical section of the British Public, and one would merely ask that the remissness of our Press be set down to pure ignorance and not to malice. It has never occurred to any of our newspaper magnates that the British Public will take the very best of anything as eagerly as it will swallow the very worst. They only know that it is not interested in what is merely clever. Consequently it has never struck any of them to build up a newspaper staff composed entirely of intelligent educated gentleman.

In fact, if one meets a man who is either intelligent, educated, or a gentleman, on the staff of a British Paper, as one does occasionally, one asks oneself what he is doing in this galley. Probably our American friends will understand the situation if this is pointed out to them, for one gathers that the American newspapers



THE END OF THE TRANS-ATLANTIC JOURNEY.—N.C.4 at her moorings in Plymouth Sound, with one of her escort—a British Flying-boat—coming up astern of her.

suffer in much the same way, except that they are not so entirely devoid of intelligence.

One British newspaper man made the excuse, more or less for all the Press, that the crew of the N.C.4 had sold their "story"—as Press slang has it—to an American paper, and refused to tell anything to the journalists at Lisbon. The American paper—according to him—was trying to sell the said story at 500 per cent. profit to any paper that would buy the rights for this country.

The yarn may be true, though one prefers to think that Service reticence prevented the N.C.4s from talking till told to do so by their Navy Department. But even if true in its entirety, there is no excuse for the way in which the whole British Press belittled the flight to Lisbon by simply treating it as an ordinary news item.

The Press which can make nothing out of a great event unless it is accompanied by that species of guff which newspaper men and "movie" people call "heart interest" must be in a pretty poor way. And perhaps we in this country, with our sloppy Teutonic sentiment, have the newspapers and the politicians which we deserve.

Britain's Modest Part.

But perhaps after all we as a nation, in this effete old country, may take upon us a modest share of reflected glory from this great victory. The United States Navy is to a very great extent the direct descendant of the British Navy, and the American people are our blood relations—seeing that the bulk of them are of either British or German descent. Also, they speak the same language, "albeit"—as a humorist has said—"through a different feature."

Further, it may be remembered that, when the first multiple-engined Curtiss boat was a-building for the trans-Atlantic flight in 1914, the pilot was to be a certain Irish ex-lieutenant R.N.—by name John Porte—invalided from His Majesty's Service. Lieut. Porte (now Colonel John Porte, C.M.G., R.A.F.) worked with Glenn Curtiss on that boat, and to him were due—thanks to his knowledge of the sea and to its evil ways—certain improvements in hull-bottoms, which made all the difference to the "unsticking" of the boat from the water.

Those improvements have been developed with later experience, and from that boat descend not only the N.C. boats, but all the "Americas" and Porte Boats and "F" Boats of the R.N.A.S. and the R.A.F. right up to the "Felixstowe Fury," which would herself have flown the Atlantic ere now—as intended by Lord Weir—if the British Navy had had the imagination, the energy, and the initiative of the U.S. Navy.

Also it is worthy to note that, unlike all other existing flying-boats, the N.C. boats do not carry their tails on an elongation of the hull, but on tail-booms, precisely in the manner originated in the Sopwith "Bat-Boats," a type in which one believes firmly, in common with many experienced Naval aviators. Along further modifications of this idea—coupled with Caproni practice—much future development may come. But meantime the "Bat-Boat" influence in the N.C. boats seems fairly obvious.

Lastly, perhaps one may hope that the residence of Commander Towers in this country may have taught him something about Naval aviation which he would not have learned if he had remained in America, and that thus our hard-won early war experience—most of which seems likely to be wasted by an obtuse Naval Administration—may have helped him somewhat in the great task in which he has succeeded so admirably.

If we could not succeed ourselves, we may as well try to make out that some of the credit for success belongs to us.

And Afterwards?

And now what next? The Atlantic has been crossed by air. We have lost the honour of being first across. There seems to be but a modified glory to be had in being the first to do a non-stop flight. So long as one can get from one place to another in any given vehicle, it matters little whether one stops for a drink on the way or not.

It is probably a recognition of this fact rather than financial or any other considerations which decided Mr. Sopwith in refusing to back Mr. Hawker and Lieut.-Commander Grieve in a second attempt to cross.

After the first non-stop journey we shall begin to introduce an illimitable series of minor classes in the competition. We shall have the "first one-man flight," then we shall have the "first flight with one engine," "the first flight with two engines," "the first flight with four engines," "the first flight with one passenger," "the first flight with ten passengers," "the first flight with fifty passengers," "the first flight with a woman passenger," and so forth and so on, *ad infinitum*.

The thing that really counts is being first across. And that honour has gone to America.

The Commercial Incentive.

But stay! There remains Lord Northcliffe's £10,000 to be won. Here at any rate, though the Glory is departed from Israel, so to speak, we of this country have a commercial incentive to make further attempts. These may be either non-stop efforts, or may include a stop at the Azores for refreshment *à la Americain*.

Doubtless the consequent advertisement will make the attempt worth while, though one doubts whether even the *Daily Mail* will be able to work the whole British people up to the fine full fury of national hysteria which it achieved last week. Nevertheless one wishes well to all who may brave the air and sea in the cause of British Commercial Enterprise.

Our One Consolation.

The great saving consolation to our national honour in this regrettable defeat is that our representatives should have pushed off from the friendly fields of Newfoundland, in spite of adverse weather reports, the moment they heard that their American competitors had reached the Azores. The honour for this act is shared equally by Mr. Raynham and Major Morgan with Mr. Hawker and Lieut.-Commander Grieve.

The fact that Mr. Raynham crashed on the dry land and Mr. Hawker in the wet sea indicates no difference between the physical and moral bravery of the two crews. Both were "ready at their country's call," as it were. And both did their best. One cannot expect that any reward will be given to Mr. Raynham and Major Morgan, for they failed to raise the Nation (*via* the *Daily Mail*) to such a pitch of anxiety as surpassed even that which was felt for our Army in France during the critical days of the Great Retreat, the Battles of Ypres, or the Defeat of March 1918.

Nevertheless in the minds of all thinking people the honour is equally divided, even if the proceeds are not. Such is the fortune of war, and of peace. Mr. Hawker and Lieut.-Commander Grieve have at least earned their £5,000 and their Air Force Crosses—albeit one has been, hitherto, under the impression that the Air Force Cross was intended for officers of the Royal Air Force only, and not for civilian aviators.

If it is to be given to civilian aviators one can indicate at least two or three others who deserve it as well as or better than several of the officers of the R.A.F. on whom it has been conferred. Certainly Mr. Hawker deserves it thoroughly well, if it is to be given to civilians, for his work as a test pilot even before he attempted the Atlantic passage, so that none can grudge it to him in

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spite of the errors of those Members of Parliament—including Major-General Seely, Under-Secretary of State for Air—who referred to him with fine indiscrimination as Major Hawker and Captain Hawker, doubtless confusing him in their limited minds with that gallant officer, the late Major Lanoe Hawker, V.C., D.S.O., who fell a victim to the late Captain Baron Manfred von Richthofen in 1916.

The One British Success.

The only other consolation to our national pride is the fine feat of navigation performed by Lieut.-Commander Grieve. It has always been doubtful whether it was possible to navigate an aeroplane successfully over open sea, but Commander Grieve has now proved the possibility beyond doubt, and under the most adverse circumstances. To him we owe whatever of real tangible value is to be acquired from the flight. One hopes that he will make his methods and his actual work during the voyage known to the aeronautical community. One suggests that a paper by him, written or read to the Royal Aeronautical Society, would be the fit and proper method of imparting this knowledge.

The Ultimate Link.

Still, one swallow does not make a Summer, and one trans-Atlantic flight does not make a commercial air service. We are still far from that regular service of aircraft across the Atlantic which shall be the ultimate link in binding together the two great branches of the Teuto-Latin Races and consolidating them against the Yellow Races. Such a service will come in due time, either by airship or aeroplane, probably by the former at first. But it will only come as the result of regular overland and short-sea services, and not by continuous trans-Atlantic attempts.

When it comes it will depend for its success upon perfect organisation and not upon slap-dash gallantry. So that like the first crossing of the Atlantic it may fall to the skill and organising power of America. If so, as in the present matter, honour be to whom honour is due.

C. G. G.

THE AMERICAN OCEAN-GOING FLYING-BOATS.

By "Austerlitz."

The ocean-going flying-boats which the U.S. Naval Air Service fitted out for the crossing of the Atlantic *via* the Azores belong to the so-called "NC" class of machines, which has been developed by the Curtiss Engineering Corporation at their Garden City works to the designs of the Aircraft Division, Bureau of Construction and Repair, Navy Department. Hence the official designation NC, which stands for Navy-Curtiss, and not for Nonpareil Colossus—as an ingenious-minded individual suggested.

The officers chiefly responsible for the design of the NC boats are Comdr. G. C. Westervelt, Lieut.-Comdr. H. C. Richardson, and Lieut.-Comdr. J. C. Hunsaker, of the Construction Corps, U.S.N.

The Trials of the NC1.

The first of these boats, the NC1, made her initial trial flight on November 8th of last year, when she carried a complement of fifteen from Rockaway Naval Air Station to Washington, D.C., and later in the day flew from the national capital to Hampton Naval Air Station. All those concerned with the construction and operation of the boat were highly elated over these flights, for, despite a certain sluggishness experienced in the take-off, the huge boat proved quite manageable in other respects—not a mean achievement, if one considers that the NC1 (as she was then) weighed, fully loaded, a matter of 11 tons. A high speed of 81 m.p.h. was developed during the trials, and an altitude of 2,000 feet was reached in about 10 minutes.

To Be or Not To Be a Flying-Boat.

As may be seen from the accompanying illustrations, the NC boats divert from customary practice in that the tail surfaces, instead of being fitted to the stern of the hull, are carried on three outriggers, with consequent short-hull construction, which bring us back to the venerable days of the Voisin "Icare," the Sopwith "Batboat," and the Colliex-Janson tandem seaplane.

The object of this construction is to reduce the frictional resistance which a flying-boat develops on the under-side of the hull while taxying to take off, with a consequent slowing down of the starting speed. Now in a rough sea the take-off is in general accompanied by "porpoising"—that is, by striking the crest of each succeeding wave as the boat gathers speed and is already partly supported by the air. This is not only exceedingly uncomfortable for the crew, but also puts the hull to often dangerous strains. Any shortening of the get-away distance is therefore exceedingly desirable for the safe operation of seaplanes, and the short-hull construction appears to answer well this requirement.

Unfortunately, owing to its smaller excess of flotation, it introduces a certain longitudinal instability when afloat, and affords less protection to the tail group than a long-hull flying-boat. This explains why on small flying-boats the short-hull construction has not found great favour thus far.

Owing to their type of construction, the NC boats are often referred to as a compromise between the boat and float type seaplanes, although, were a precise definition wanted, a flying-boat may be described as a sea-going aeroplane which affords accommodation to the crew in a hull ensuring flotation. Consequently long and short hull seaplanes may both be considered as flying-boats "pure and simple."

Physiognomy and Anatomy.

The hull of the NC1 has an overall length of 44 ft. 8¾ ins., a beam of 10 ft., and an overall height of 7 ft. 5½ ins. It is of the straight V-bottom type, with a single step located 18 ft. 2 ins. from the stem. Unlike the Felixstowe and the American F boats, the NC1 has no fins flaring out on either board, but is nearly semi-circular in cross section.

The hull is built up around a keel and four longerons of white ash, with veneer bulkheads; keelson and stringers are of basswood. The planking is composed of an inner skin of Port Orford cedar, placed at right angles to the keel so as to act as a strength member, and an outer skin of Spanish cedar, with Courtrai fabric laid in marine glue in between, and secured to one another by brass nails. The step is reinforced by mahogany veneer.

The wings are composed of a centre section of 25 ft. 4 ins. span and outer sections of 44 ft. 4 ins. (upper) and 35 ft. 4 ins. (lower) span, with a uniform chord of 12 ft. Including the balanced portion of the ailerons, the span of the upper wings is 126 ft., and that of the lower wings 96 ft.; the interplane gap is 13 ft. 6 ins. at the centre section, whence it decreases towards the tips to 12 ft. because the lower outer sections are set at a dihedral of 3 deg. The angle of incidence of both wings is 3 deg.; there is no stagger or sweep-back.

Ten bays of interplane struts secure the wings to one another; six of these occur in the centre section, where they serve in pairs as engine supports. Where the outermost interplane bays abut against the *cellule*, a vertical drift plane is fitted to the upper wing, and a streamline balancing float is secured to the lower wing. The *cellule* is extensively trussed by swaged wires.

The power plant consists of three Liberty-12 engines of the low-compression Navy type, which develop each 330 h.p. at 1,590 r.p.m., and actuate a four-bladed tractor airscrew of 10 ft. 10 ins. diameter by direct drive. The engines are mounted in streamline *nacelles*, which are secured to the inter-bays of the centre section; the centre engine *nacelle* is fitted with a cockpit for a mechanic, to which access is had from the boat by means of a scaling ladder.

The outriggers which carry the tail unit are of hollow spruce and form a pyramid-like structure, the base of which is attached to the upper rear wing spars and the stern of the hull, while the truncated apex affords the points of attachment of the biplane tail. The latter is composed of an upper tail plane of 47 ft. 11 ins. span, and a lower tail plane of 26 ft. span, set at a gap of 9 ft. 3 ins., to which are hinged balanced elevators. Three rudders are fitted in the tail *cellule;* the central is balanced, but the outer rudders are hinged to a vertical fin.

The Crews.

The normal complement of the NC1 consists of five officers and sailors, two of the officers being pilots; these are seated side-by-side in a cockpit fitted amidships and provided with dual control and the necessary instruments. A gunner's nest is fitted in the bows, and another was originally provided for in the middle of the upper wings, with access through the



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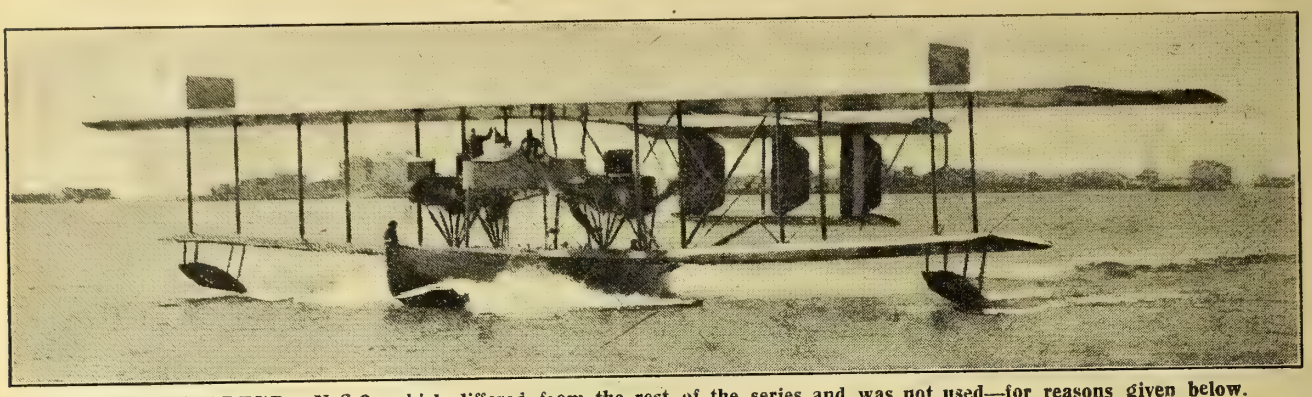
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THE NON-STARTER.—N.C.2, which differed from the rest of the series and was not used—for reasons given below.

centre engine nacelle; the wing gun emplacement has, however, been removed, in view of the attempt to cross the Atlanitc.

The fuel tanks contain about 300 American gallons of petrol, which is sufficient for a continuous flight of 13 hours. The disposable load is 7,750 lbs., and the full flying weight 21,560 lbs.

A More Powerful Sister.

When, to quote a Presidential proclamation, "the war came to an end" with the signing of the Armistice, the Navy people at once made extensive plans to carry off the palm of the first crossing of the Atlantic. With the experience gained in the operation of the NC1, three more boats of this class, but of an improved type, were laid down at the Curtiss works in Garden City, L.I., and Comdr. John H. Towers, U.S.N., the veteran American naval flyer, was ordered by the Navy Department to take charge of the organisation of the ocean flight. At the same time Rockaway Naval Air Station was designated as the American starting-place of the flight.

The second of the NC boats, NC2, made her maiden flight on April 12th, at Rockaway. Except for her power plant, which consists of four Liberty-12 engines arranged in tandem sets, with each set driving tractor and pusher airscrews, and the fitting of a pilot nacelle in the place where the NC1 had her central engine, the new boat is identical with her older sister.

The wing area is the same in the two boats—2,380 sq. ft.—but the NC2 has shown in trials to have a loading efficiency of 47 per cent. as against 36.4 per cent. for the NC-1, although, owing to her fourth engine, the power loading of the NC2 is only 17.9 lbs./h.p., as compared with the 22.2 lbs./h.p. of the NC1.

It is true that as a consequence of the greater load carried—28,500 lbs. in flying trim—the wing loading has jumped from 9.1 to 12 lbs./sq. ft., an unusually high figure, judged by contemporary standards.

During her initial trials the NC2 took off after a 35 seconds' run (7 seconds better than the best performance of the NC1), and developed a high speed of 95 m.p.h., but both tests were made in "light" condition.

Since then the boat has lifted a total weight of 28,500 lbs., of which, it was believed, about 11,500 would be available in fuel for the trans-Atlantic flight.

However, the NC2 was not destined to participate in the grand adventure. Among the reasons given for this decision of those in power is the belief that the tandem arrangement of the engines is not conducive to best efficiency, because the pushers work in the slip-stream of the tractors, while the operation of machine with both engines of either board cut out also appears a somewhat questionable proposition. Finally it is realised that the pilot nacelle unnecessarily increases head resistance, while certain misgivings are felt with regard to the advisability of having a worn-out pilot climb down the scaling ladder with a wind of 90 m.p.h. doing its utmost to blow him off.

The Rebuilt NC1.

Consequently it was decided that the NC2 should shed her wings, or rather the outer sections, so they might be fitted to the NC1, which had her wings damaged by a storm, and that the power plant of the latter boat should be modified to conform to the practice followed in the NC3.

The latter, which made her maiden flight on April 23rd, was fitted with three tractor airscrews, with engines arranged as in the NC1. but had besides a fourth engine, actuating a pusher, mounted tandem fashion with the central engine. This arrangement is believed to permit a much more efficient utilisation of the power plant, as airscrew interference can in the worse case extend to only one of the power units, while the possibility of an offsided pull is reduced from one-half to one-third.

This was well brought out during the initial flight of the NC3, marked by the antics of the starboard engine, which balked, despite the most strenuous efforts of the crew.

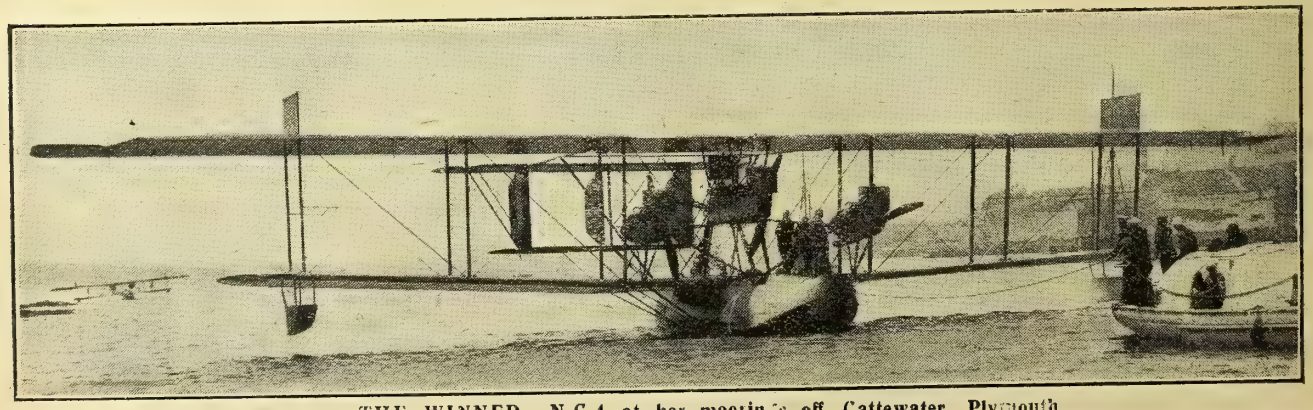
In spite of this handicap, the NC3 displayed great stability (in light condition it is true) during her trials, and great satisfaction was felt by the Navy people over this vindication of their views. Afterwards the NC3 was given a 2-hour sea trial, with a total weight of 29,500 lbs., for the purpose of testing her seaworthiness; this appears to have come off quite satisfactorily.

The NC4 was being assembled at the date of writing, and was expected to be put through her acceptance tests very shortly. With the latter completed, the three boats were to constitute NC Seaplane Division 1, which would attempt to cross the Atlantic under the order of Comdr. Towers. Among the officers named in naval circles as pilots of the boats were Lieut.-Commanders Read, Bellinger, and Mitscher, and Lieuts. McCullough, Barin, and Hinton.

Other Preparations.

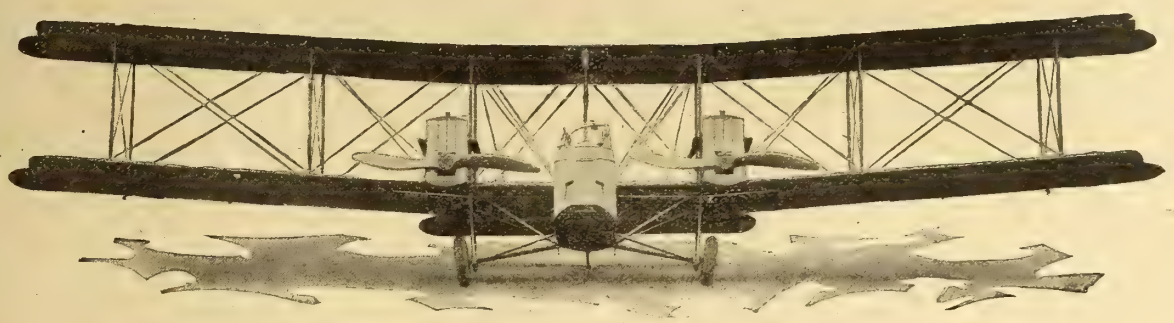
Shore parties of mechanics and sailors were sent to Trepassey Harbour, N.F., Horta (Azores), and Lisbon, to establish air stations. NC Seaplane Division 1 flew the so-called Southern course—that is, by way of Newfoundland, the Azores, and Portugal. There was 940 land miles from Rockaway to Trepassey Harbour, thence 1,230 miles to Horta, and 950 miles from there to Lisbon. The American boats did not follow the Northern or direct route, because their fuel tanks have insufficient reserve capacity for this purpose.

All three boats were equipped with radio direction finders and wireless sending and receiving instruments as well as with flame and smoke flares, which were to be dropped *en route* to ascertain the drift and permit due correction in the course.

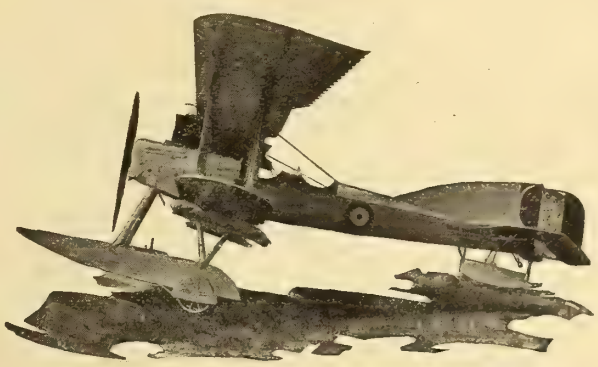


THE WINNER.—N.C.4 at her moorings off Cattewater, Plymouth.

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THE REAL LESSON OF THE TRANS-ATLANTIC ATTEMPT.

By Capt. W. H. SAYERS, (late) R.A.F.

The wave of popular enthusiasm which has swept over this country on the occasion of Mr. Hawker's attempt to fly the Atlantic has obviously little to do with the actual nature of the achievement.

Regarded as an aeroplane performance, Mr. Hawker's flight of 1,200 odd miles in 12 odd hours cannot be compared in importance with his own flight of 8 hours 23 minutes at Brooklands on October 24th, 1912.

That was at least an achievement which put British-built aircraft and aero-engines amongst those which counted.

As a sporting event, Mr. Hawker's effort was undoubtedly a fine thing. There was no risk that the Americans would wrest the "Daily Mail" prize from him, and his action in starting under relatively unfavourable conditions can only have been dictated by the desire to be the first across.

This is why the British public has let itself go over Hawker.

The average Englishman has no ill-feeling towards his American cousins. He is properly grateful to them for the very great assistance they have afforded in the final stages of the great war, but he is, if anything, a little tired of the talk of a certain section of the American people whose main occupation recently has been that of boasting of the ultimate effect that the American methods of organisation would have had had the war lasted.

Therefore Hawker and Grieve's lone-hand effort to defeat the U.S.A. Navy's attempt won a certain added sympathy over and above that which would anyhow have been extended to anyone who took the risks they were taking.

Mostly, however, the demonstration must be traced to the desire to let themselves go over some really sporting achievement totally divorced from the associations of four and a half years of war.

On the whole, it is probably a healthy sign as to the state of mind of the British public.

But there is a grave danger that this attitude may lead to forgetfulness of the one really important aspect of this unsuccessful attempt at crossing the Atlantic.

As has already been suggested, neither the distance covered nor the duration of the flight is of any great importance as an aeroplane performance, or as a feat of endurance on the part of the pilot.

That any serious breakdown of the engine on this particular flight would place both pilot and passenger in grave danger is a tribute to their confidence in their machine and their audacity, but it has no serious practical significance.

But the fact that the flight was carried out over sea, with no fixed landmarks to serve as guides, relying entirely upon instrumental observation on the part of the navigator to keep to the correct course, and that the methods adopted did in fact prove successful is a matter of the very gravest importance.

The successful development of practical methods of aerial navigation is one of the most difficult of the problems to be solved in connection with the future of aerial transport.

Lieut.-Commander Mackenzie-Grieve has shown that even under very trying weather conditions it is possible to navigate an aeroplane across sea with the aid of instrumental observations with quite unexpected accuracy.

Commander Grieve is, of course, an experienced navigator, but he certainly can have no very large experience of this particular type of navigation.

One is without any definite information as to the type of instruments which he used for his observations, but it is known that very little has yet been accomplished in the direction of developing special navigation appliances for aeroplane use.

It is therefore reasonable to suppose that what Commander Grieve was able to accomplish on this occasion, with no accumulated experience of air navigation behind him, and with relatively crude appliances, will be possible for any decently trained aerial navigator within the next few years.

Purely as a step in the development of the aeroplane as a vehicle, Commander Grieve's work far outdistances in importance anything that now or ever will be accomplished by any mere flyer who simply flies a machine over vast distances.

This is spoken in no disparagement of the pilots of to-day, least of all of Mr. Hawker. They have done their work, frequently at a risk even more imminent and deadly than those faced to-day in an attempt to cross the Atlantic, in proving that the aeroplane is a practical mechanism.

But it is now the turn of the navigator, and it is for him, now that it is an ascertained fact that an aeroplane can fly, to show that he can direct it accurately to its intended destination.

The very fact that of the three American machines which attempted the Newfoundland-Azores flight, two having arrived within 200 miles of their destination were entirely unable to find it on account of fog, and that the successful N.C.4, after a run of 170 miles in fog, found herself 45 miles off her course is a very fair index of the importance of the navigator's art.

It is gratifying to note that this point has not passed altogether unheeded.

In a long letter to the "Times," published on Saturday, May 31st, Lieut.-Col. H. T. A. Bosanquet, late R.A.F., draws the attention of the general public to this aspect of the matter, and the following extracts therefrom are worthy of attention:—

"Before another trans-Atlantic flight is attempted by the direct route, may I be allowed space to draw attention to the navigational side of the venture? It appears, from the very secondary importance and credit that have been given to the navigator, that the general public has failed to grasp the overwhelming importance of correct navigation and its manifold difficulties in such a flight.

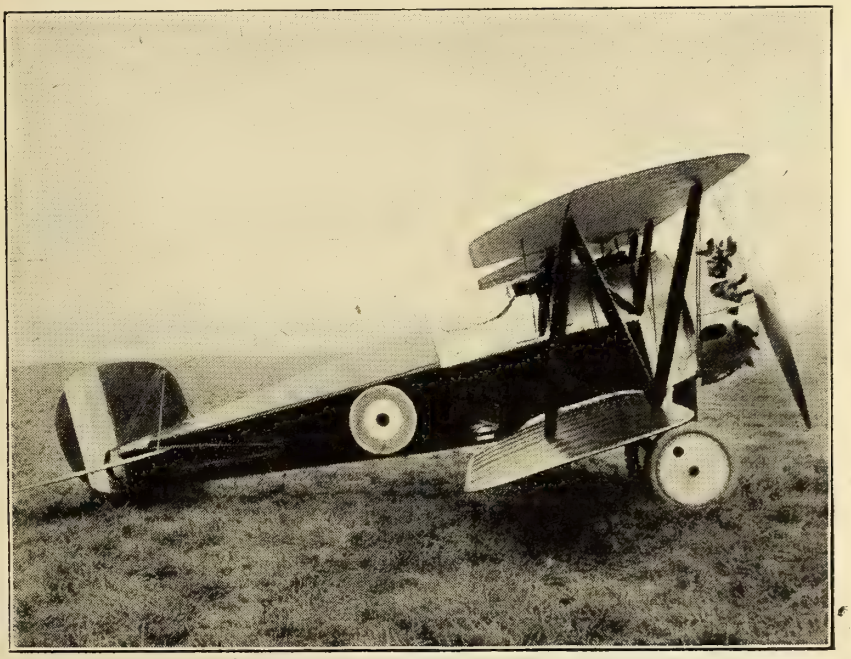
"The affair has merely been regarded as a sporting event somewhat similar to, but on a larger scale than, the first cross-Channel flight. The two things are not, however, comparable. . . . The trans-Atlantic venture is on a totally different plane, and for accomplishment calls for the highest technical skill and practical experience on the part of the navigator. Whereas it might be possible at this moment to pick out at least one thousand pilots from the R.A.F. qualified in skill, physical endurance, and courage to undertake this flight, on the other hand it is probable that the really competent navigators, possessing the technical navigating knowledge, combined with the equally necessary practical experience of long over-sea flights, could be reckoned on the fingers of one hand.

"It may be well to indicate some of the difficulties of the direct route from St. John's to Ireland. The distance is about 2,000 land miles, and if the objective is to be safely reached the aircraft should be able to fix her position, more or less correctly, at intervals of not more than one hour or about every 100 miles—bearing in mind that an initial error of only 5 deg., if persisted

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in, would result in putting the craft some 150 miles to either side at the end of her run.

"There are three general methods of fixing positions (a) dead reckoning; (b) directional wireless; (c) astronomical observations, and in their present stage of development at least two of these should be available if the voyage is not to be one of pure hazard.

"As for the first, this depends entirely on the accurate determination of the drift and the speed of the craft over the earth's surface. When flying over land, especially at heights under 6,000 ft., some fairly accurate passages can be made, but in over-sea navigation, whether flying high or low, the most extraordinary errors can be made. . . . A good example is furnished by the U.S. N.C.4, which, on her way to the Azores, ran into fog and had to depend on her D.R. calculations for some 170 miles. When her position was again established by one of the route-marking vessels she was 45 miles out in her reckoning. In the Sopwith flight, Lieut.-Commander Mackenzie-Grieve found himself by astronomical observations about 150 miles off his course in a run of 900 miles. When such large errors are possible it is easy to see that any dependence on this method is out of the question.

"Directional wireless is still in its infancy. It has given the most promising results, and undoubtedly will be the method of air navigation in the future, but it is not yet sufficiently developed to be reliable. . . .

"Astronomical observations can be carried out from an aircraft as on board a seagoing craft, but with much greater difficulty and less accuracy. The sea horizon is not available, so that a cloud horizon must be used or an instrument having its own artificial horizon. Up to the present no really satisfactory instrument of the latter type has been designed, and the use of the cloud horizon is not always possible. Moreover, these observations in an aircraft demand a high degree of skill and practical experience on the part of the observer. So that it is only an exceptional man, and one who has long practised observing under difficult conditions at sea, who can make any real use of this method.

"Hence it becomes necessary to fall back on D.R. as the main principle, and naval expert opinion at the Air Ministry, certainly until quite recently, was to the effect that a trans-Atlantic flight dependent on this method only would be a highly hazardous undertaking. . . .

"One of these essentials is that the skill, knowledge, and experience of the navigator should be above suspicion. . . . I suggest that it is now the duty of the Air Ministry, as the Government Department most nearly concerned, to make careful inquiry into the credentials of the navigator in each case in this trans-oceanic business. Both the Admiralty and the Board of Trade allow no vessels coming under their respective departments to proceed overseas without a fully qualified navigator on board, who has been able to satisfy a board of examiners as to his knowledge and practical experience. Why should not the same be the rule for an oversea aerial voyage? . . ."

THE PEACE TERMS TO AUSTRIA.

The following are among the terms presented to Austria by the Allies:—

PART V.

AIR CLAUSES.

The Air clauses provide that the armed forces of Austria must not include any military or naval air forces. The entire personnel of the air forces in Austria is to be demobilised within two months.

The aircraft of the Allied and Associated Powers are to enjoy full liberty of passage and landing over and in Austrian territory until January 1st, 1923, unless prior to that date Austria is admitted to the League of Nations or is permitted to adhere to the International Air Convention.

The manufacture of aircraft and parts of aircraft is forbidden for six months.

All military and naval aircraft (including dirigible and aeronautical material) are to be delivered to the Allied and Associated Governments within three months.

PART XI.

AERIAL NAVIGATION.

Aircraft of the Allied and Associated Powers shall have full liberty of passage and landing over and in Austrian territory, equal treatment with Austrian aeroplanes as to use of Austrian aerodromes, and with most-favoured-nation aeroplanes as to internal commercial traffic in Austria. Austria agrees to accept Allied certificates of nationality, airworthiness, or competency and licences, and to apply the convention relative to Aerial Navigation concluded between the Allied and Associated Powers to her own aircraft over her own territory. These rules apply until 1923, unless Austria has since been admitted to the League of Nations or to the above Convention.

AN ACCIDENT TO LORD LONDONDERRY.

Lord Londonderry and Brig.-General Vyvyan, R.A.F., met with an accident on May 31st while flying from Tadcaster to London. Both escaped with a severe shaking, but Lord Londonderry was able to catch a train for London the same day.

The machine, a Bristol Fighter, piloted by Gen. Vyvyan, was compelled to land at Charlton, Selby. The landing was made in a boggy field and the machine charged a fence, part of which was carried away, turning the aeroplane into a dyke.

CONGRATULATIONS.

In its proper place in the Military Column appears the official announcement of the engagement of Major-General E. B. Ashmore, C.B., C.M.G., M.V.O., to Miss Betty Parsons.

All who are concerned with the Royal Air Force and with Aeronautics will join in congratulating General Ashmore on this happy event, and will wish him and his bride-to-be an amount of happiness equal to that which General Ashmore himself has conferred on the inhabitants of London and the adjoining counties by his able command of the London Air Defence Area. Probably if the aggregate amount which he has conferred on some millions of people is divided up between the two it will suffice very comfortably for any two human lifetimes.

A DESERVED HONOUR.

The "London Gazette" of June 2nd announces that the King has been pleased on the occasion of His Majesty's Birthday to approve of the honour of Knight Bachelor being conferred on the following gentleman:—

Charles Bright, Esq., F.R.S.E., M.Inst.C.E.

Sir Charles Bright will be remembered as a most active member of the Air Inquiry Committee of 1916, when his auxiliary report brought to light a number of important points on which the Government afterwards took the necessary action. He also made numerous suggestions which were evidently of use to the Civil Aerial Transport Committee of 1917.

Sir Charles is one of the earliest members of the Royal Aeronautical Society, and is the son of Sir Charles Bright, the brilliant engineer, who was responsible for the laying of the first trans-Atlantic cable. All will be glad to see this honour conferred upon him as a reward for his good work in the cause of aviation in general and of the R.F.C. in particular.

A SOUND APPOINTMENT.

One notes with pleasure the fact that Major C. C. Turner, A.F.R.Ae.S. (late R.A.F.), has been appointed Editor of that old-established journal, "Aeronautics."

Major Turner was known for years before the war as the writer of a weekly column of aeronautical notes in the "Observer" at a time when the general public cared but little for aviation and when the British Press cared less. His articles were always well written, his opinions were always sound, and his information was always reliable.

One wishes him every success in his new undertaking, and one congratulates the proprietors of "Aeronautics" on having secured so able an Editor for their paper—which, if one is not mistaken, is the oldest of all existing aeronautical periodical publications.

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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

On Dollars and Dimples.

An American technical journal which supplies a weekly review of everything from dimples to dope, publishes the following :—

"Dorothy Dalton, whose dimples and smiles have charmed millions in Thomas H. Ince productions for Paramount pictures, achieved the distinction of being the first lady passenger to travel by hydro-aeroplane from Keyport, N.J., to Albany, N.Y.

"Miss Dalton and her pilot, C. J. Zimmerman, came near making the world's record for slow flying. This, however, was because whenever Miss Dalton spied anybody down on the ground who looked as if he had the price, she would alight and sell him a Victory Loan bond."

One wonders at what altitude Miss Dalton flew in order to see which one of her intended victims "looked as if he had the price."

As, presumably, the hydro-aeroplane could only alight on water, one wonders if the plutocrats were bathing, in which case it appears that it would have been difficult to discriminate between the dollared and the undollared, unless the modern American munitioneer wears a fur collar on his bathing costume.

Or did she bring the dimples and smiles that have charmed millions to bear on yachtsmen only? One would like to know more.

The Gravity of the R.33.

The "Daily Mail" stated last week that :—

"One of the largest airships in the world rose from her moorings at the Barlow Works, Selby, and started on an eight-hour experimental cruise in ideal weather yesterday. She was the R.33, of whom so much is expected.

"The ascent was made without a hitch.

"At the last moment, when the ship was off the ground, the commanding officer called for more ballast, and two agile navvies clambered up the ropes in fine style, in this way restoring the gravity of the vessel to proportionate terms."

One wonders what the writer means exactly by "restoring the gravity of the vessel to proportionate terms." Does he imply that the sight of the agile navvies clambering up the ropes made it indulge in unseemly levity?

In a Chastened Spirit.

According to the "Daily Chronicle," a fantastic letter, addressed to a sober Government department, was read last night by Mr. H. Pike Pease, M.P., at the annual dinner of the Head Postmasters' Association.

The letter, from a munition-making firm, was addressed to the Ministry of Munitions, and stated :—

During this great war we have done many things that aforetime we had considered almost impossible. We have turned our ploughshares into swords, made night into day, made bricks without straw, turned water into wine, and ale into compound for the refreshing of labour.

We have resurrected machine tools, and taught them to rise and sing; we have imported proud Americans, we have salvaged destitute Belgians.

We have gathered in and utilised barbers, circus proprietors, aboriginals from the Antipodes and some of the "Best People."

We have made women into mechanics and mechanics into supermen such as may be found at the Ministry of Munitions. We have diluted our labour, both male and female, until we have workers of the combined sex and of neither sex.

We have honoured the King and strafed his enemies, but we stand to-day hopelessly cast down by your suggestion that we should cut 2-inch Module pitch aeroplane engine gear with 2½-inch Module cutter.

The original letter was published in THE AEROPLANE something like two years ago, but it is well worth publishing again, if only to acknowledge on behalf of Mr. Pike Pease the source of his humour.

Style.

The following is an example of how not to advertise :—

> "Pilot with more than five years' experience both here and abroad, wishes position as pilot for private or liable factory. I have flown over 50,000 miles, in the daytime and at night."

It reminds one of Smith Minor, who wrote : "Mr. Smith presents his compliments to Tom Brown, Esq., and informs you I cannot accept his kind invitation as I have another I like better."

And, by the way, what is a "liable" factory?

A Freak Wedding.

A wedding in an aeroplane was celebrated on May 31st at Houston (Texas). Lieut. W. R. Meade and Miss Marjorie Dumont were married in a Handley Page machine 2,000 feet in the air.

A wedding party of 12, including the Rev. J. E. Rees, who performed the ceremony, flew in the machine.

One may now expect a new series of height records. The American bride who was married at an altitude of 2,000 feet will find herself eclipsed by another who is so anxious to have her name and photograph in the papers that she will modestly retire to a height of 18,000 feet above the clouds that form her wedding veil. An enraged parent endeavouring to forbid the banns from a pursuing Camel would add to the piquancy of the situation.

One so often finds reason to criticise the daily newspapers that one feels that in justice one must give credit to the journalists who refrained from the obvious comment on matches being made in Heaven.

Mimic Fighters.

According to an American general, "Fifty thousand persons watched the great mimic battles in Van Cortlandt Park, getting the most thrilling and vivid picture of how and why the Hindenburg line crumbled under the pressure of American fighters.

"One thrilling incident was when an observation balloon was sent up two thousand feet to report the 'enemy' doings and fire from the 'enemy' hit the envelope and set the balloon afire. Instantly its pilot was seen to jump off the basket, and as he did a large parachute opened up and carried Lieutenant Herbert H. Mills, of the 22nd Balloon Company, safely to the ground. This was the signal for the afternoon battle to start."

One is not told what happened to the pilot while the large parachute was carrying off Lieutenant Herbert H. Mills.

As to the mimic "pressure of American fighters," one has no doubt that it was wonderfully realistic.

"917."

"Nine one seven," 'tis the end;
Never more will you and I
Fly together, ancient friend,
Under clear or cloudy sky.
Comes a wetness to the eye,
In the throat a rising lump,
As I think how destiny
Sends you to the Salvage Dump.

Many a patch and cobbled rent,
Many an honourable scar,
Marks your might in tournament,
Vindicates your worth in war:
Flying fast and flying far
You have seen both friend and foe
Hurtle like a falling star
Twenty thousand feet below.

Not for you the splendid fate,
Mortal blow in mid career
And a death immediate,
Sudden and too swift for fear;
Days when danger was most dear,
Hours with glorious living crammed—
You survive and linger here
As "Unserviceable" damned.

You who spurned the upper air
And outpaced the wind in speed,
Now must follow wheresoe'er
Leyland lorry wheels may lead.
Humbled, like some warrior steed,
Bugle music in his heart,
Who, grown old and totter-kneed,
Ends upon the butcher's cart.

Clipped the wings that eaglewise
Bore you strongly up of old,
And your prop dismantled lies
And your cylinders are cold.
Yet in some far sky, I hold,
There's an aerobatic Heaven
Where, with joystick uncontrolled,
Stunts your spirit, Nine One Seven.

H. T. BURT.

TRANS-ATLANTIC FLIGHT.

The

Sopwith Rolls-Royce Biplane

used by

Mr. H. G. HAWKER

and Lieut.-Commander

MACKENZIE GRIEVE, R.N.

in their great attempt

was doped with

CELLON

(Scheme "A")

The WORLD of AERONAUTICS (continued)

Another Turbine, One Presumes.

According to a South African newspaper, "a Johannesburg engineer, Mr. E. P. M. Jerrard, claims to have invented a type of engine that will serve both as an aeroplane and a motor engine, and that will, if necessary, perform 40,000 revolutions per minute.

"One of the advantages of this invention is that, owing to its construction, when used for flying machines, it will enable the machine to lift itself vertically in the air without the usual running start, and also descend vertically to rest upon a pre-determined spot very little larger than itself.

"The great speed of this engine is adaptable for direct drive of the propellers, which are designed to revolve effectively at such speed, so that the dead-weight lifting power is more a matter of the power of the engines than of the shape or size of the wings, planes or aerostats."

One wonders what kind of airscrew would withstand the strain of being driven at the rate of 40,000 revolutions per minute. It would have to be of very small diameter, and one would imagine that it would be very inefficient.

In the matter of revolutions this engine certainly has Russia and the South American republics beaten to a frazzle.

Exclusive Information.

The "Daily Mail" recently referred to the Alliance-Napier "Seabird" as follows:—

"Fitted with a 40-h.p. engine, giving a speed of 140 miles an hour, the 'Seabird' is expected to cross the Atlantic in about 12 hours."

Apparently this engine must be a Napier "Lion" cub.

Regarding the time in which it is expected that the crossing will be made, an expert mathematician calculates that, if the "Seabird" flies at a speed of 140 m.p.h. for 12 hours, she will travel 1,680 miles, just 200 miles short of the distance from Newfoundland to Ireland, which is shown as 1,880 miles on the map published in the "Daily Mail."

This proves once more how misleading are figures, for the "Daily Mail" must, of course, have inside information, which is indicated by the fact that no other newspaper has yet mentioned the 40-h.p. "Lion" cub.

The Leeds Exhibition.

Lord Londonderry, in opening the R.A.F. Aircraft Exhibition at Roundway Park, Leeds, on May 31st, said that the activities of the Air Ministry with regard to exhibitions must necessarily come to an end. If aviation was to make progress in the future it must be on commercial lines. It was felt that the Government had no right to interfere with those firms who were anxious to extend their activities in developing the industry on sound commercial lines. Thus, so far as exhibitions were concerned, that at Leeds would be the swan-song. And very justly so.

The Royal Aeronautical Society.

The Society attained its Jubilee in the year 1916, but in consequence of the War it was at the time inadvisable to celebrate the event in any way. The end of the War, however, the fact that the Society has by command of His Majesty been dignified by the prefix of "Royal" and the fact that the Society has attained a membership of 1,000 and more, has determined the Council to mark the occasion by a gathering of its members and their friends.

By the kind permission of Mr. Handley Page a Garden Party will be held on the Cricklewood Aerodrome on Sunday afternoon, June 29th, from 4.0 p.m. to 7 p.m. Arrangements are being made for the entertainment and interest of those present.

The programme will include an exhibition of flying, opportunities for guests present to take flights, and an exhibit of various new types of machines. Handley Page, Limited, have kindly placed their works on view, and the Band of the Royal Air Force will be engaged for the occasion.

All applications for tickets must be made before June 19th to the Secretary, the Royal Aeronautical Society, 7, Albemarle Street, Piccadilly, W.1. The charge for admission, including tea, is 3s. for each person.

Flying Races at the London Aerodrome.

An interesting programme has been arranged by the Grahame-White Company at the London Aerodrome, Hendon, for the Whitsun Holidays.

Race Meetings will be held on Saturday and Bank Holiday, and it is interesting to note that this will be the first occasion, after a break of five years, on which Aerial Races have been held in England.

The course will consist of a series of circuits from the London Aerodrome to a point about two miles away; the machines will, therefore, be in full view of the spectators the whole time.

It is expected that there will be a large number of entries from the manufacturing firms who have been making machines during the war. Details of the races and prizes, etc., may be had upon application to the London Aerodrome (telephone—Kingsbury 120), where entries are being taken.

In addition to the races interesting displays on all types of machines will be given by pilots (late R.A.F.), and another feature will be parachute descents from machines travelling at over 100 miles per hour.

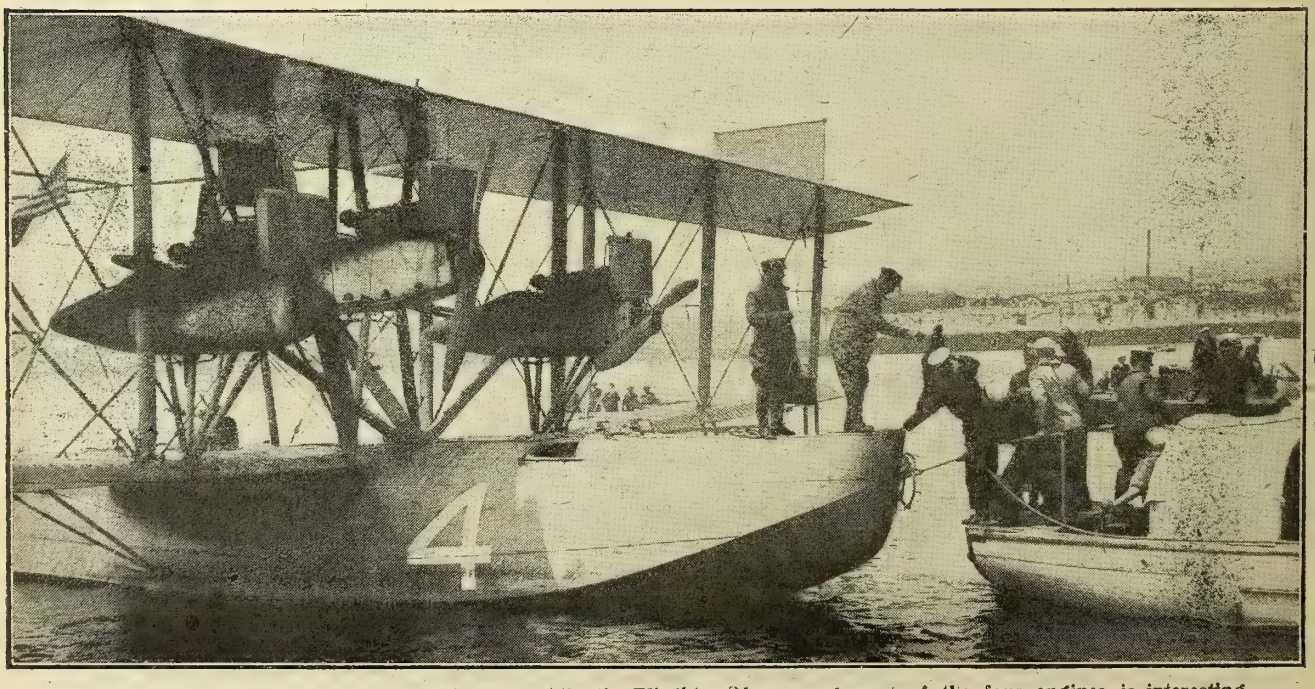
The Band of the R.A.F. will play from 3.30 p.m. until 7 p.m. on Saturday, Sunday and Whit Monday.

Speed.

The "Times" of May 26th published the following:—

Capt. Alcock, the Vimy pilot, lent his mechanics to Mr. Raynham to help in rebuilding the Raymor, and the Vimy, it is expected, will be allowed to fly from the Handley Page aerodrome. The day before the start it may fly light to Harbour Grace, fill up, and take off from there. This aerodrome is practically on the edge of the cliffs, and in a few seconds the machines will be over the ocean with the nearest land nearly 2,000 miles away.

The performances of a machine that can fly two thousand miles from its starting point in a few seconds will be worth watching.



The N.C.4 at Cattewater after her successful trans-Atlantic Flight. The arrangement of the four engines is interesting.

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Mr. Herbert Sykes, O.B.E.

THE WELL-KNOWN TEST AND EXHIBITION PILOT

assisted by a large staff of qualified and experienced instructors.

Tuition on 75 H.P.

DUAL CONTROL "C.A.C." Tractor Biplanes,

the Finest Training Machines yet produced.

Applications for particulars as to Enrolment, etc., should be made to:—

The CENTRAL AIRCRAFT Company

179, High Road, Kilburn, N.W. 6.

The WORLD of AERONAUTICS (continued)

An R.N.A.S Dinner.

A dinner for officers who served at the R.N. Air Station, Eastbourne, in 1915 and 1916, will be held in London on Saturday, July 12th, 1919. Those wishing to attend should communicate before June 20th with Capt. H. S. Neville, Room 239, Air Ministry, enclosing two guineas for expenses.

A Volunteer Reserve Air Force.

Sir,—I have read recently with great interest, in THE AEROPLANE, the letter concerning the Voluntary Air Reserve Force, and I, an Englishman of the French Foreign Legion, who has had three years' flying experience as a war pilot, would willingly be a member of the V.R.A.F.

I think, like most sensible persons, that it is of the utmost importance to have a strong Reserve Force, for we must keep in mind this old and very true motto :—

"To preserve Peace, be prepared for War!"

Hoping that many AEROPLANE readers will support the above proposition.

R. COLLINS.

In Aid of the Airmen's Relief Fund.

On Wednesday, June 11th, at three p.m. and eight p.m., a musical entertainment will be given in the Working Men's Club, Ingatestone, in aid of the Airmen's Relief Fund. A canteen comedy in two acts, by Miss C. M. Jennings, entitled "Poached Eggs and Pearls," will also be played.

The entertainment is under the distinguished patronage of the Lady Petre, Audry the Lady Petre, Mrs. S. H. Petre, and Miss Agnes Petre, and, among others, Major H. Petre, D.S.O., M.C., R.A.F., and Capt. W. Petre, R.A.F.

Tickets, price (afternoon) 3s. 6d., 2s. 6d., and 1s., (evening) 3s., 2s., and 6d., may be obtained from Mrs. S. H. Petre, Tor Bryan, Ingatestone, and Mr. Percy Greenfield, The Clock House, Ingatestone.

"Contact" and "Klaxon" Again.

The June "Blackwood's Magazine," published a few days since, contains the first instalment of "Eastern Nights and Flights," by "Contact" (Capt. Alan Bott, M.C.).

"Blackwood's" is well known for the high standard of its material, and after the rubbish which—written by those who claim to know something of aeronautics—it has been one's fate to read lately, it is with relief that one turns to such an unfailing writer as "Contact."

Judging merely by the first instalment, "Contact" has lost none of his charm of writing during his period of captivity, and one fell at once under the spell of the writer of "An Airman's Outings."

Among the other writers in this month's "Blackwood's" is "Klaxon," who is giving at some length the extremely interesting story of H.M. submarines.—S. F. B.

Fury at Felixstowe.

The following letter has been received :—

Sir,—Early last year a portion of the Felixstowe Air Station, both material and personnel, was reserved for the purpose of building the "Fury," with a view to flying the Atlantic from Newfoundland *via* the Azores to Europe.

Everything went well, and after the Armistice a large proportion of the men engaged on the project volunteered to remain and finish the boat instead of "demobbing," and a number of those, about thirty in all, agreed to go to Newfoundland and re-erect the machine.

This shows that there was plenty of enthusiasm, as we were working day and night on her to get the "bus" ready for the big trial flight. During the last few months the boat has, as you doubtless know, done wonderfully well and is fit to put a ring round the world and, to quote Col. Porte's own words, "reflects great credit on all concerned."

Since the last long trial a few weeks ago new engines (low compression) have been fitted, and now comes the first instance of red tape in which we are entangled. A new mid-ship propeller was necessary. This took about five weeks to order, because the Treasury would not grant the expenditure involved. Even so, they are paying millions per week on tomfoolery in other ways, and I am sure the taxpayers would not begrudge £30 or £40 extra for the honour of making the country's attempt successful.

At the same time, the Navy refused to carry the boat to Newfoundland, as they had no "finger in the pie," notwithstanding the fact that all the officers and men were old R.N.A.S. people. So it was decided to fly from this side. Now for the crowning insult to all of us who stood by to see her finished. The Right Hon. Winston Churchill refuses to sanction the Atlantic flight and makes the miserable excuse that private firms should have the first chance, and this after all the time and money that has been spent in designing and building the most successful seaplane in existence.

FURIOUS.

The Dutch Aircraft Exhibition.

A visit of inspection was made by representatives of the Dutch Press to the site of the first aviation exhibition at Amsterdam on May 30th. The party was received by General Snyders, until lately Commander-in-Chief of the Netherlands Forces, Baron Krayenhoff, Flight-Lieut. Plesman, and other officials of the committee.

The exhibition ground lies by the waterside, and is well adapted for the proposed exhibition. Preparations are being made for the accommodation of a large number of exhibits of aeroplanes, seaplanes, and parts, together with everything appertaining to aviation. German and Austrian exhibits, it is stated, will not be accepted.

While the party was being conveyed by boat to the exhibition ground, Lieut. Nieuwenhuis, who had just returned from a remarkably quick flight to and from England, circled overhead, afterwards descending and joining the party.

General Snyders, addressing the company, said it had been felt that Holland must not allow foreign countries to get a start which it could not overtake in this most important branch of human invention and progress.

The exhibition will be held during August.

The Spanish-British Flight.

The Handley Page aeroplane which recently flew from England to Madrid, piloted by Major Darley, R.A.F., left Madrid at 9.30 a.m. on May 29th for England. Unfortunately the machine while attempting to land on the coast near the mouth of the Ardour (north of Biarritz) fell into the sea about 100 yards from the shore. The crew were saved. The aeroplane was carrying some flowers from the King of Spain to Queen Mary, and also an autographed letter from the King and Queen of Spain to King George and Queen Mary.

The Dignity of the Law.

The American Press, which adds so much to the joy of life, has produced the following. One feels that the dignity of the new force is vastly enhanced by these exploits of "Eddie," the "skyrocket" of the "cloud cops," who "praticipated."

The many good points of the article will be noted, but one would have liked more information about the parachute used to demonstrate mail-bag smashing :—

New York's aerial Police Force, co-operating with the shore authorities, made the first airplane "arrest" ever recorded as one of the features of "Aerial Police Day" staged here on the program of the second Pan-American Aeronautical Convention. The "arrest" was but one of the many demonstrations of the practicability of cloud cops as a recognised department of the police force of modern cities.

Fifteen members of the New York air force who made their first public appearance in their sky blue uniforms, put the program through before representatives of leading cities of the east, making a big hit with their work and incidently giving the Atlantic City Air Port the honour of being the first "headquarters" in action in making an actual arrest.

Sheriff Alfred Perkins, of Atlantic County, drove to the aviation field in his automobile and left it parked near the end of the grandstand. While he was chatting with Eddie Stinson, the skyrocket among the aviators here praticipating in the meet, Richard Black, deputy of the Atlantic City Vice Squad, "stole" his automobile and started on a mad dash along the Meadow Boulevard which parallels the airport. The "thief" headed towards Pleasantville, the mainland town at the other end of the meadows five miles away.

Seizing a small Ors parachute, which had been used during the past several days to demonstrate mail bag "smashing" without the necessity of a stop, Sheriff Perkins leaped aboard the Stinson aroplane. About this time Deputy Chief S. Herbert Mapes, of the cloud force "recognised" Black as a "notorious New York Motor bandit" as the "thief" shot past the grandstand. Captain Horace Keane, of the air division, was circling overhead in Aviator Stehlin's 'plane, and Major Mapes, operating a wireless telephone from "headquarters," shot instructions to him that the man in the automobile was "badly wanted in New York." Capt. Keane wheeled about and set sail for the mainland just as Sheriff Perkins, aboard Stinson's machine left the ground, and they took up the pursuit together.

The speeding aeroplanes beat the motor car to Pleasantville where the Sheriff dropped a message via the parachute to a traffic officer on the Shore Road over which all motor traffic must pass to get anywhere on the mainland. The policeman intercepted the speeding "thief" as he approached the crossing and placed him under arrest.

Capt. Keane descended in a field nearby and lodged a detainer with Sheriff Perkins, who had also alighted, and the two walked over to the "prisoner." County Detective Harry Fulmer "happened along" about that time and the "thief" was turned over to him to bring back to the field. Black, handcuffed to Fulmer, was back in front of the grandstand eleven minutes after he had "stolen" the car and the first official aerial arrest was recorded at airport "headquarters."

Aviation & General



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PARIS NOTES

June 2nd.

Roget's 2,200 kms. Non-Stop Flight.

Without detracting anything from the measure of success achieved by Hawker and Grieve in their courageous attempt to fly the Atlantic in one stage, one feels that insufficient attention has been paid to the fine performance put up by Lieut. Roget and Capt. Coli in flying from Paris to Rabat without a stop. This was accomplished on May 24th. The two aviators left Villacoublay at 5.10 a.m., and landed at Kenrifa, about 30 kms. from Rabat, at 4.45 p.m. They were to continue their flight to Dakar, change the motor and then attempt to fly to South America, but in landing the machine was reduced to so much *bois cassée*, so this plan had to be abandoned.

The journey was one of 2,200 kms., thus beating both Read and Hawker's flights for distance covered without landing, whilst the speed averaged 185 kms. per hour, as against 135 k.p.h. by Read. Incidentally they win the prize offered by the paper "Maroc-Sport," although it is worthy of note that Roget had planned this flight quite six weeks before this journal mentioned that they would offer a prize to the first aviator flying from France to Morocco in one day. Unfortunately Capt. Coli, the navigator, is suffering from slight contusions as a result of the accident, although, as is so often the case, the pilot escaped unharmed.

The machine, a Breguet 300 h.p. Renault, was equipped with three petrol tanks, 600 litres in the nacelle and 640 litres in two tanks placed between the wings, this being sufficient for a flight of 15 hours. For all practical purposes the route followed was "as the crow flies," that is to say the aviators passed over Bordeaux, Pyrénées, Madrid, Toledo, Cordova, Gibraltar, and Tangiers.

There are rumours here that Lieut. Roget intends to compete for the "Daily Mail" £10,000, if it has not already been won by the time his new machine is ready; this, I hear, is to be a three-engined machine, but will probably not be ready before the autumn.

A New Height Record.

We have long been accustomed to the fact that as each record is made it becomes increasingly difficult to beat it. Nevertheless, they continue to be made, and we do not yet seem to have reached a maximum as in other forms of sport, such as running, cycling, or horse-racing. In proof of this take the record set up on May 28th at Issy-les-Moulineaux by Lieut. Cazale on a 300 h.p. Hispano-engined Nieuport. This aviator left Issy at 8.55 a.m., and in 41 minutes reached a height of 9,300 metres (30,225 ft.). He landed again at 9.10, making the descent in 29 minutes. The machine is a type No. 29, fitted with a "Lumière" airscrew. Its principal features are:—Length, 6 m. 50; span, 9 m. 70; supporting surface, 27 sq. m.; weight, fully loaded, 950 k.

Lieut. Cazale is a war ace, belonging at one time to N 38 Squadron, with which he brought down 12 Huns.

The performance was witnessed by Lieut. Robin, military commissaire, and by two members of the technical section of the Service d'Aviation.

It is probable that by the time these lines appear in print that Fonck will be the holder of the height record; at any rate he intends to try on a similar machine and from the same aerodrome.

Aerial Cargo Lines.

Many weeks ago I was able to record the first advertisement of the first aerial passenger service. This week I am similarly enabled to record the first publicity of an aerial transport company who have been carrying goods and small packages for some weeks past. The following is a facsimile of an advertisement that appears daily in all the leading papers, and is also to be seen placarded about the town. I understand that the Farman firm are shortly coming out with an extensive publicity campaign, with the object of increasing their number of clients, especially regular ones.

MESSAGERIES AERIENNES
TRANSPORTS PAR AVIONS
PARIS, LILLE, ROUBAIX, TOURCOING
DEPARTS CHAQUE JOUR
Tarif: 1 fr. 25 les 500 grammes

DEPOTS:
1, pl. de la Bourse (Hernu Péron et Cie),
6, r. St-Vincent-de-Paul (gare du Nord),
2, rue Galilée.
RENSEIGNEMENTS:
Siége social: 2, r. Galilée (T : Passy 24-74).

The Ministry of Public Works has in preparation a project for making a monopoly of aerial transport. One supposes it was too much to hope that this new commercial development of considerable industrial importance should have been allowed to continue as private enterprise pure and simple.

A change that may be of far-reaching effect in the industry in this country is the resignation of M. Robert Esnault-Pelterie from the presidency of the Chambre Syndicale des Constructeurs. M. Louis Bréguet is mentioned as a probable successor.

Probable French Air Ministry.

Mr. Daniel Vincent, of whom mention was made a few weeks back, is determined that France shall have an Air Ministry and its own Under-Secretary of State for Air. In this way he hopes to subordinate the military aviation to the commercial, which is all as it should be, so long as the Boches sign the Peace Treaty and stick to its terms.

Under the Presidentship of M. Lecornu, the "Union pour la Securité en Aeroplane" met last week to decide the details of a new competition designed to make aerial travel at least as safe as that over the sea.

A Mosquito Monoplane.

M. Bossoutrot, the aviator, has been experimenting with a small monoplane called the "Mosquito." This machine which is claimed to be the smallest in the world has a span of four metres (13 ft.). The engine is of 20 h.p. On May 31st it flew for one hour at 1,500 metres (about 5,000 ft.).

Another Book.

Some years ago, during the great war, the world was startled by the news that Lieut. (now Captain) Marchal had flown over Berlin, dropping leaflets on the way, and eventually descended at Cholm, in Poland, 80 miles from the Russian frontier. He has now written a book entitled "After My Flight Over Berlin," in which he describes his journey, capture, treatment, and escape. At the moment he, in company with other famous aces, is stationed at Saint Raphael, from which place he contemplates a flight to Algiers and back in one day.

All the postal services by aeroplanes are working regularly, notwithstanding that accidents happen from time to time. Even the twice a day Nimes-Nice service, which was suspended for a few days owing to the insufficient number of machines, has restarted.

A committee has been formed at Vincennes to affix a marble tablet to the house in which Védrines last lived, commemorating his various echievements.

And Another Aviette.

The prospect of evolving a successful aviette continues to excite considerable interest, not only among the freaks, but also amongst those whose opinions are considered worthy of attention if only on account of their actual "faits accomplis." Thus we find that Captain Didier, of the R.G.A.E., has patented an aviette which weighs less than 30 kilograms. It is a small monoplane of 5 metres span, 2 m. 60 length, fitted with two 3 h.p. motors, each revolving in opposite directions, and, in turn, each actuating a pusher airscrew. The machine is to be known as the "Oiseau Bleu." One hopes soon to record that the oiseau flew!—F. T. N.

SWISS NEWS.

Now that the war is over some of the neutral countries are producing their latest military machines! Thus, from Geneva comes news of a new machine made by the Schweizerische Wagons Fabrik of Schlieren, for the Federal Army. It is a biplane fitted with two machine-guns, one synchronised, firing through the airscrew. The machine has a pronounced dihedral, and the top wings are swept back. They have a span of 11.5 metres, a chord of 1.7 metres, and a fuselage length of 6.80 metres. All the control wires pass inside the fuselage. Ailerons are fixed to the upper planes.

The engine is a type A.S. III. Argus, of 118-180 h.p. constructed by the SeeBacher Maschinenbau A.G. The airscrew has a diameter of 2.75 metres. The landing chassis is fitted with compressed air shock absorbers.

Weight, light, is 740 kgs.; useful load 400 kgs., plus 25 kgs. of water, which gives a total load of 1,165 kgs., or 38 kgs. per square metre of surface, or 6.3 kgs. per h.p.

The first trials were quite successful. She took off in 50 metres, rose to 2,000 metres in 8 minutes, and to 4,000 in 21.

ITALIAN NOTES.

Serjt. D'Urio arrived at Rome one day last week, having flown from Salonika in 6½ hours. His machine was loaded up with the usual O.H.M.S. post, a thousand military franchise letters, and a document for the Postmaster-General.

A company has been formed for transporting by air fresh fish (which is very abundant and delicate there) from Sardinia to the Capital. Owing to lack of swift transport the islanders only catch enough fish for the immediate needs of their island at present.

The Original NON-POISONOUS.

Titanine Dope

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WITH 96 DIAGRAMS.

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A popular yet expert and exhaustive book on Aero Engines has long been wanted. Mr. Sylvester supplies the want. The book is now ready.

THE AIR MECHANIC AS SATIRIST.

THE REVELATIONS OF ROY

(WITH APOLOGIES TO ARTEMAS THE SCRIBE)

2nd EDITION.

1s. net. **1s. 3s. post free.**

One Roy is an Air Mechanic: he writes "concerning the things he did and the things he left undone in the days when there was war." His experiences extend from Fars to the Hotel of Cecil, and his satire is worthy of the Scribe to whom he makes due apologies.

THE BRITISH ACE.

MAJOR J. T. B. McCUDDEN, V.C., D.S.O., M.C., M.M. and Croix de Guerre.

FIVE YEARS IN THE R.F.C.

FULLY ILLUSTRATED.

7s. 6d. net. **8s. post free.**

Of Major McCudden's book THE MORNING POST says it is "pithy and picturesque." "The cavalry of the air has had no more complete exponent." The AUTHOR describes it as "a wonderful record." In the opinion of THE TIMES McCudden "seems to have had all the experiences."

THE GERMAN ACE.

CAPTAIN BARON VON RICHTHOFEN.

THE RED AIR FIGHTER.

FULLY ILLUSTRATED.

2nd EDITION.

3s. 6d. net. **3s. 9d. post free.**

McCudden only met Richthofen once in the air. He had a very high opinion of the German air fighters, and his tribute to their qualities lends a new and peculiar interest to Richthofen's narrative. The two books make a valuable study in comparative national psychology.

THE ARTIST AVIATOR.

CAPTAIN R. H. M. S. SAUNDBY, M.C.

FLYING COLOURS.

20 Pictures in Colours of a Year in the R.F.C.

EDITION DE LUXE, limited and numbered **£2 2s.**

POPULAR EDITION, **15s. net.**

With an Introduction by Major-Gen. E. B. Ashmore, C.B., C.M.G., who says: "The series may be relied on as giving a very true and vivid idea of things as seen by a pilot in action." The SPECTATOR says: "Neither the pen nor the camera can reproduce the sensation of flight so vividly as these sketches."

COMMERCIAL POSSIBILITIES OF AVIATION.

CAPTAIN ARTHUR SWINTON.

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THE WEEKLY COMMENTARY.

The final instalment of Capt. Sayers' articles on "Commercial Aircraft Design" continues the argument in favour of machines designed for low cruising speeds.

The importance of the development of wing forms which will combine a high lift/drag ratio with a high value of the lift coefficient is insisted upon.

Capt. Sayers' suggestions as to the actual reduction in operating costs which can be obtained by a relatively small reduction in speed are rather startling.

Mr. C. W. Tinson's article on "Longitudinal Stability" is completed in this issue. An actual example of this method is worked out in some detail, and a number of instructive points are brought out.

A number of aeroplanes of various types designed and built by the famous firm of Wm. Beardmore & Co., Ltd., Dalmuir, near Glasgow, are described in the articles on "Modern British Aircraft."

Particularly interesting are the W.B. III and IV ships' scouts.

Only those designers who have actually attempted the design of this class of machine can properly appreciate the difficulties imposed by the requirements of small stowage space on shipboard, and the necessity for some form of emergency alighting and flotation gear for use when a descent on the sea is necessary.

A note will be found in this issue dealing with the possible causes of the accident to the Tarrant triplane.

COMMERCIAL AIRCRAFT DESIGN.—XIV.

SPEED, ITS VALUE AND ITS COST.—(*Concluded.*)

By Capt. W. H. Sayers, late R.A.F.

So far the question has been dealt with on the basis of known wing sections.

A belief has already been expressed that there are very great possibilities of further development in the qualities of the high life type of wing. The author, on the basis of previous experiments, believes that he can at once produce a wing having an L/D ratio of 15 or more at a lift coefficient of 0.7. He has seen test results of wings developed by others who have enjoyed less restricted opportunities for experiment which actually show an L/D of over 20 at this same lift coefficient, with a maximum value of L = 1. If it is assumed that a wing with L/D = 17 at L = 0.7 and a maximum value of L = 1 can be used, then the table of loading per sq. ft., wing h.p. per ton, and landing speed for various economical cruising speeds becomes :—

Cruising Speed.	Loading.	Wing H.P. per ton.	Landing Speed.
20 m.p.h.	1.7 lbs. sq. ft.	7.8	18 m.p.h.
40 ,,	7.0 ,,	15.6	37 ,,
60 ,,	15.0 ,,	23.4	54 ,,
80 ,,	27.5 ,,	31.2	73 ,,

All these landing speeds are high compared to the cruising speed, but it is undoubtedly possible to reduce the landing speed, if by no other means, by some method analogous to the "Fairey" trailing edge flap.

A wing section giving such results brings the 40 m.p.h. machine to within reasonable limits of loading, and hence to a satisfactory structure weight.

Effect of Increased Loading.

It is, however, more directly instructive to consider the effect on the "standard" machine of redesigning it with this hypothetical wing, for a cruising speed of 60 m.p.h. and a loading of 15 lbs. per sq. ft.

This increases the loaded weight to 3,900 lbs.

To obtain the same factor of safety on the same overall dimensions and general arrangement, the structure weight will have to be increased from 930 to 1,600 lbs. The body resistance need not increase in any greater ratio than as the cube root of the loaded weights, roughly as 1.2 to 1. The wing h.p. necessary is still 23.4 per ton, or 41 for this total weight. The body resistance h.p. at 60 m.p.h. becomes 1.2 × 9.6 = 11.52, or a total airscrew h.p. of 53. For the initial climb of 300 ft. per minute and for roughly the same speed margin of 15-18 m.p.h. an additional 35 propeller h.p. is needed—a total of 85 h.p., which at 75 per cent. airscrew efficiency calls for 112 b.h.p.

Taking the same weight per h.p. as on the 1 ton 60 m.p.h. machine, the power plant weight will be 425 lbs.

For a 250-mile journey the fuel needed will become 230 lbs.

Taking pilot at 180 lbs., the total weight without cargo is 1,600 + 425 + 230 + 180 = 2,435 lbs., leaving 1,465 lbs. as paying cargo capacity.

A Great Maximum Range.

It is interesting to note that this machine, carrying 1,700 lbs. of fuel and no cargo, would have a still-air full-speed range of flight of 1,820 miles, and in still air at 60 m.p.h. a range of 2,400 miles, or 40 hours' duration.

Compared with the "standard" machine, the cost of the aeroplane structure would be less than proportional to the structure weight ratio of 1.72 to 1. Probably it would be not more than 1.5 to 1. The engine cost compared to the "standard" would be roughly as the h.p., probably less. This ratio is 112/150 = 0.75.

As the engine cost in the "standard" machine was twice as much as the aeroplane, our last engine will cost 1.5 times as much as the "standard" cost of aeroplane structure alone. Thus the whole of the latter

machine and engine complete costs 3 times as much as the "standard" without engine, or exactly the same as the "standard" complete, or, on the same basis as there taken, £1,200.

Taking again the same machine with the hypothetical high lift wing, and a loading of 7 lbs. per sq. ft., corresponding to cruising speed = 40 m.p.h., one arrives at the following figures.

Total full weight = 1,820 lbs.

Engine h.p. for 40 m.p.h. + climb and speed surplus, 40 b.h.p.

Power plant weight, 180 lbs.

Fuel for 250 miles, 125 lbs.

Structure weight, 780 lbs.

Pilot, 180 lbs.

Total, less cargo, 1,225 lbs.

Cargo capacity, 595 lbs.

Prime cost of aeroplane, roughly equal to "standard," £400.

Engine cost, 40/150 of "standard," £215.

Total machine, £615.

It will be seen that for this size machine 40 m.p.h. is too low a cruising speed, because the structure weight is relatively large.

Collecting all the results into tabular form, one has the figures at the foot of this page.

A Summing Up.

As all these machines are of identical leading dimensions, the cost of shed accommodation is the same. Capital charges and depreciation, maintenance and repairs will be closely proportional to their prime costs.

The relative cost of pilots' wages, taking into account both the time taken over a given journey and the total ton-mileage, is given in the last column, where the cost has been taken as unity for the "standard" machine.

The results which can be obtained with low cruising speeds will improve with increasing dimensions, with shorter distance journeys, and with lowered factors of safety. All these machines are based upon the retention of the original factor of safety of the "standard" machine, which had a minimum factor of 6 for the rear spar and elsewhere and one of 8 for the front spar.

But the figures suffice to show the immense reduction in cost of operation which will become possible if machines are designed to operate at low cruising speeds, more particularly if it is possible to develop wings which will permit good L/D values to be obtained at low speeds in conjunction with very high loadings.

A Case in Point.

In a brochure issued by Messrs. Vickers and reproduced in the Technical Press, the cost of passenger transport from England to the United States by airship is contrasted with that when an aeroplane is employed.

The estimated passenger rate by airship is there given, for London-New York, as £48.

By aeroplane the figure rises to £115.

These figures are based on a schedule speed for the airship of 60 m.p.h., and a maximum of 75 m.p.h., and for the aeroplane of an average speed of 85 m.p.h., whilst in actual flight, with stops totalling 8 hours *en route*.

If their proposed machines were remodelled for a maximum speed = 75 m.p.h. and an economical cruising speed of 60 m.p.h., it would be possible to reduce the total engine h.p. to roughly 75 per cent. of that suggested, which, even carrying the same total weight of fuel, would add at least 50 per cent. to the available capacity for crew and passengers. Leaving the crew at Messrs. Vickers' estimate, the paying load increases from 4,670 lbs. to 7,670 lbs.

The original weight of fuel would permit the maximum distance flown to be increased at least 25 per cent., or from 1,800 to 2,225 miles. This is considerably more than London-Newfoundland non-stop. If the fuel is reduced to that necessary for this stage, a further 1,000 lbs. of paying cargo can be carried. Which is to say that, making no allowances for the reduced cost of lower-powered engines, the estimates of cost per passenger by aeroplane would be reduced in the ratio $\frac{467}{867}$, or roughly halved, by simply taking the same cruising speed for the aeroplane as for the airship.

The fare per passenger then is reduced from £115 to £58, as against £48 for the airship.

The time taken for the whole journey, as against Vickers Ltd.'s figures for the aeroplane, will be increased from 46 hours to 59, which is practically exactly that allowed for the airship.

A General Law.

Generally for all forms of transport it has been found that the total cost of operation increases as the cube of the speed. Aeroplanes are not exempt from some very similar penalty for increased speed.

Under the very appropriate heading of "Fictitious Figures for Flying" or the like, various estimates of the cost of Aerial Transport over 500-mile stages at 100 m.p.h. have appeared in recent issues of The Aeroplane.

These estimates have varied from £1 to £6 per ton-mile, or roughly from 1s. 3d. to 7s. 6d. per passenger-mile. Assuming the V^3 law to hold, as it almost certainly does, at 60 m.p.h. these figures become 3¼d. to 1s. 5½d. per passenger-mile.

Prospects for the Immediate Future.

Thus the prospect of the aeroplane directly competing with present modes of transport is not hopeless.

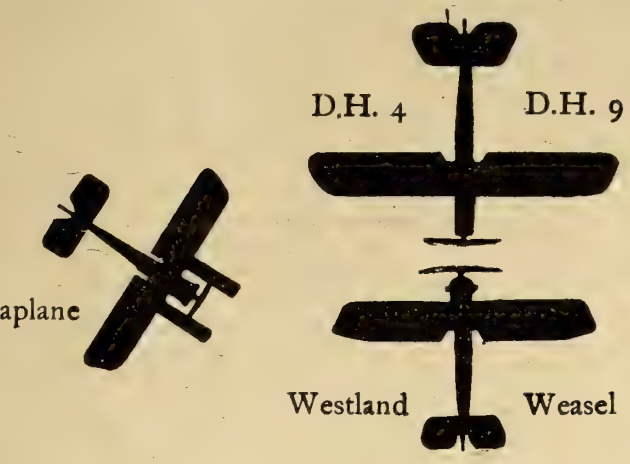
The prospects, on the contrary, are excellent, upon the sole condition that the designers of commercial aircraft will forget all about the wonderful speed achievements of the war type of aeroplane, and will settle down to design reasonable traffic-carrying appliances.

After all, the successful designer of commercial motor vehicles does not work with the idea of breaking speed records constantly before him. Why should the commercial aircraft designer?

Finis.

Table Showing Effects of Designing for Various Economical Cruising Speeds and Loadings.

Machine.	Cruising Speed.	Loading lbs./sq. ft.	Cargo Capacity.	Fuel for 250 Miles.	Ton Mile Capacity.	Fuel Wt. per Ton Mile.	Prime Cost per Ton Mile of Capacity.	Relative Cost of Pilots Wages per Ton Mile.
"Standard" ..	75 m.p.h.	8.64	400 lbs.	280 lbs.	4.25	66 lbs.	£280	1.00
No. 1. ..	60 m.p.h.	8.64	705 lbs.	150 lbs.	7.8	19.2 lbs.	£102	0.68
No. 2. ..	60 m.p.h.	15.0	1465 lbs.	230 lbs.	16.3	14.1 lbs.	£74	0.34
No. 3. ..	40 m.p.h.	7.0	595 lbs.	125 lbs.	6.6	18.4 lbs.	£94	1.20



These Illustrations give an idea of the range of our War production, which included machines of Westland design.

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MODERN BRITISH AEROPLANES

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After the outbreak of hostilities the firm built large numbers of machines to official specifications, and in addition carried on work on designs of their own.

The technical work of the Aircraft Department at Dalmuir has been throughout under the control of Mr. G. Tighman Richards (late Lieut. R.N.V.R.).

The following descriptions and illustrations give an idea of their original design work during the war:—

THE BEARDMORE BIPLANE W.B. 1.

This machine was an early bomber design on sound and normal lines.

SPECIFICATION.

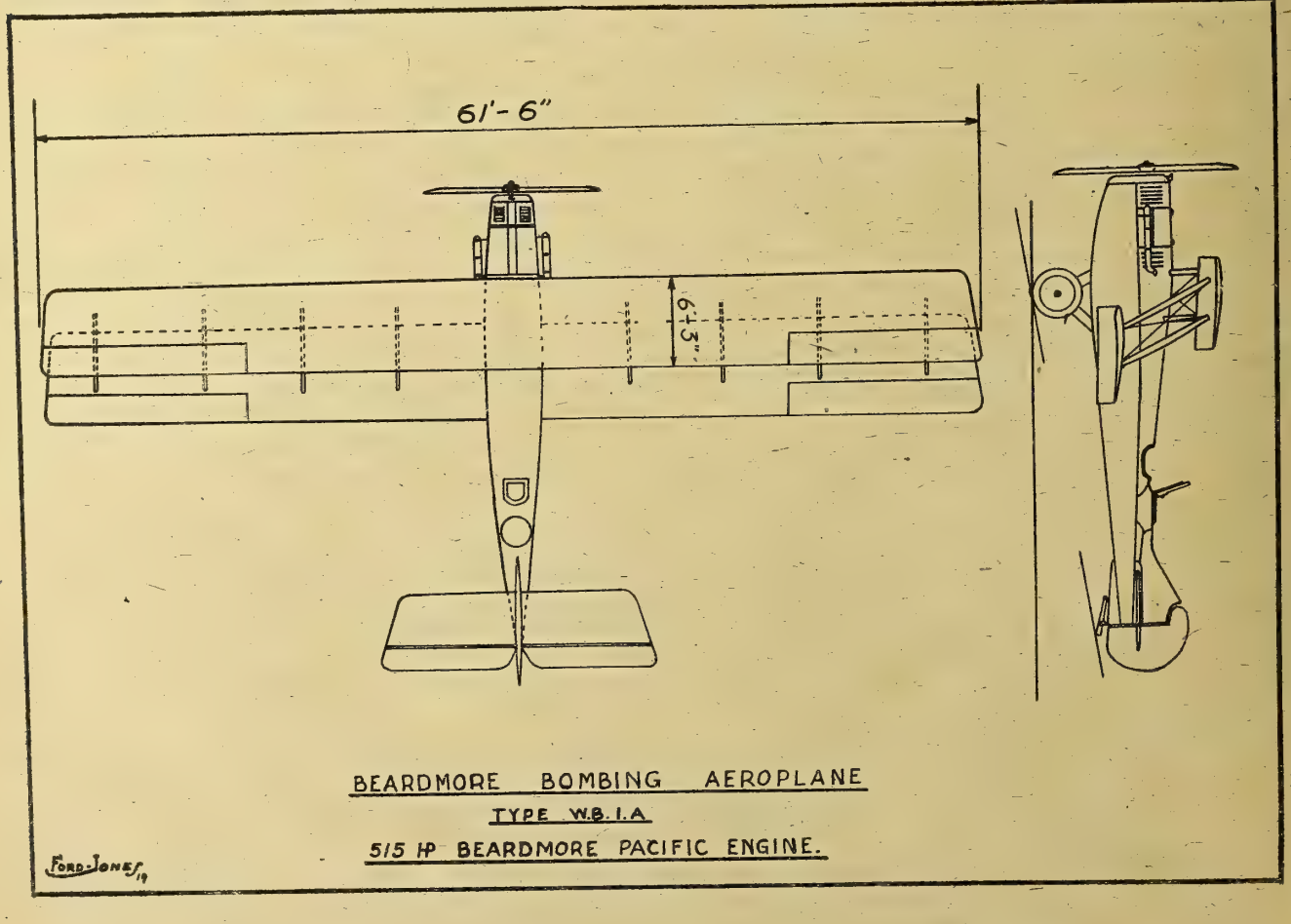
Type of machine	Biplane.
Name or type No. of machine	W.B. 1.
Purpose for which intended	Bomber.
Span	61 ft. 6 ins.
Gap	7 ft.
Overall length	32 ft. 10 ins.
Maximum height	14 ft. 9 ins.
Chord	7 ft.
Total surface of wings, including ailerons	796 sq. ft.
Span of tail	18 ft.
Total area of tail	106 sq. ft.
Area of elevators	40 sq. ft.
Area of rudder	20 sq. ft.
Area of fin	14.2 sq. ft.
Area of ailerons	28.32 sq. ft. each, 113.28 sq. ft. total
Maximum cross section of body	15.2 sq. ft.
Horizontal area of body	88 sq. ft.
Vertical area of body	81.6 sq. ft.
Engine type and h.p.	240 h.p. Sunbeam or 230 h.p. Beardmore "Adriatic."
Airscrew, diam. and revs.	10 ft. 6 ins. dia., 1,075 r.p.m (with Sunbeam).
Weight of machine empty	3,410 lbs. (with Beardmore).
Load per sq. ft.	7 lbs.
Weight per h.p.	23 lbs.
Tank capacity in hours	7.3 hours.
Tank capacity in gallons	137 gallons.
Performance—	
Speed low down	91 m.p.h.
Landing speed	48 m.p.h.
Climb—	
To 5,000 feet	26 mins.
To 10,000 feet	44 mins.
Disposable load apart from fuel	1,100 lbs.
Total weight of machine loaded	5,600 lbs.

THE BEARDMORE BIPLANE W.B. 1A.

An enlarged and more powerful edition of the W.B.1. The general characteristics are obvious from the scale drawings reproduced. A noticeable feature is the very far-aft position of pilot and passenger's seat.

SPECIFICATION.

Type of machine	Biplane.
Name or type No. of machine	W.B. 1a.
Purpose for which intended	Bomber.
Span	70 ft.
Gap	7 ft.
Overall length	32 ft. 10 ins.
Maximum height	15 ft. 8 ins.
Chord	7 ft.
Total surface of wings, including ailerons	946 sq. ft.
Span of tail	19 ft.
Total area of tail	110 sq. ft.
Area of elevators	33.5 sq. ft.
Area of rudder	20 sq. ft.
Area of fin	14.2 sq. ft.
Area of ailerons	29.5 sq. ft. each, 118 sq. ft. total.
Maximum cross section of body	22.5 sq. ft.
Horizontal area of body	105 sq. ft.
Vertical area of body	131 sq. ft.
Engine type and h.p.	Beardmore "Atlantic" 500 h.p.
Airscrew, diam. and revs.	14 ft. dia., 900 r.p.m.
Weight of machine empty	4,537 lbs.
Load per sq. ft.	9.4 lbs.
Weight per h.p.	17.3 lbs.



BEARDMORE BOMBING AEROPLANE

TYPE W.B.1.A

515 HP BEARDMORE PACIFIC ENGINE.

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Tank capacity in hours	6.5 hours.
Tank capacity in gallons	214 gallons.
Performance—	
Speed low down	110 m.p.h.
Speed at 10,000 feet	101 m.p.h.
Landing speed	65 m.p.h.
Climb—	
To 5,000 feet	12 mins.
To 10,000 feet	27 mins.
Disposable load apart from fuel	2,700 lbs.
Total weight of machine loaded	8,900 lbs.

The Beardmore W.B.II and IIA

These two machines differ mainly in their power plant and performance. Both are small two-seater fighter and reconnaissance machines of high performance, designed upon sound and proved lines.

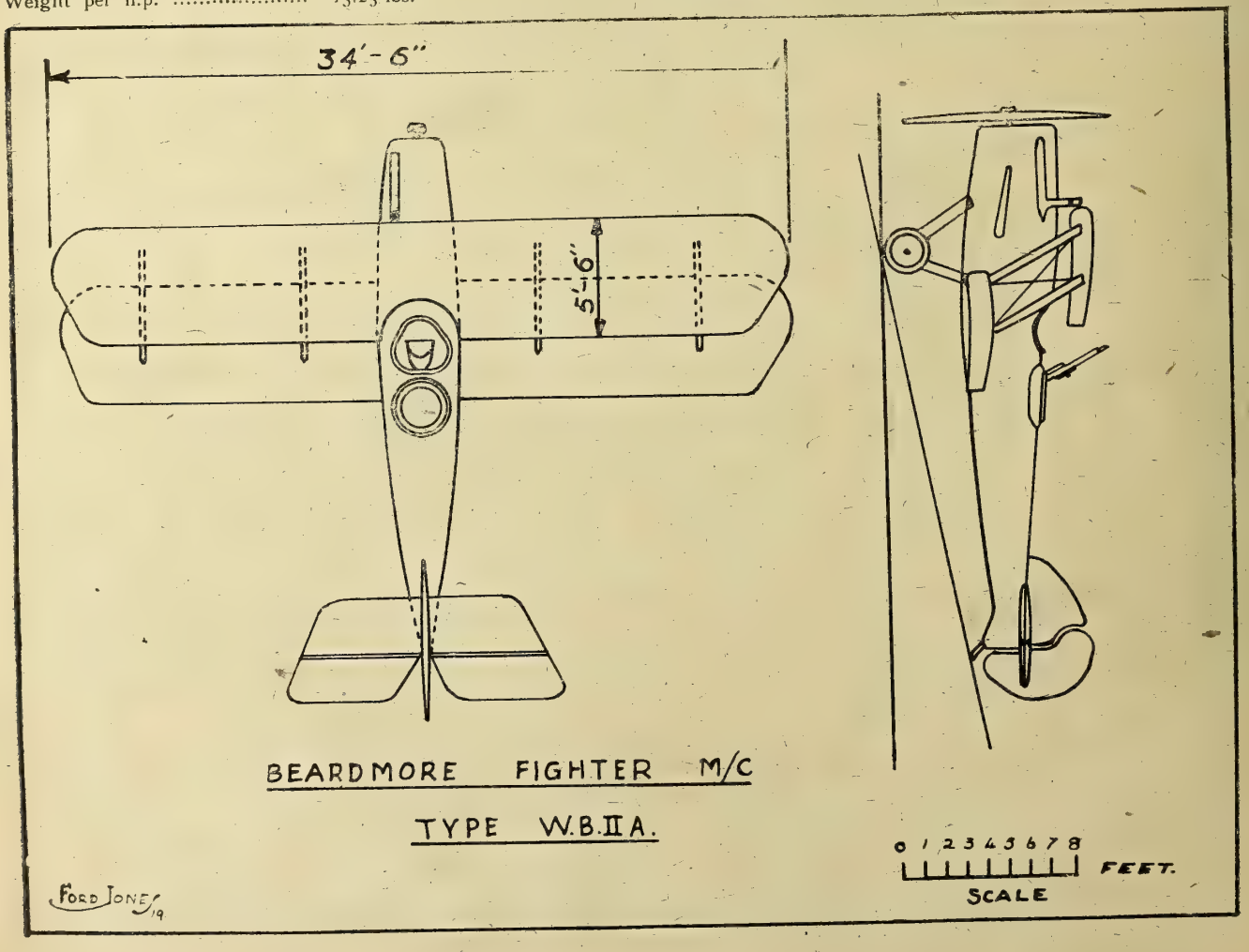
The pilot is sufficiently high to see both over and under the upper plane, and the heavy stagger gives an excellent view downwards over the leading edge of the lower plane.

THE BEARDMORE BIPLANE W.B. II.

Type of machine	Biplane.
Name or type No. of machine	W.B. II.
Purpose for which intended	Fighter.
Span	34 ft. 10 ins.
Gap	5 ft. 6 ins.
Overall length	27 ft. 3 ins.
Maximum height	10 ft. 11 ins.
Chord	5 ft. 6 ins.
Total surface of wings, including ailerons	354 sq. ft.
Span of tail	13 ft.
Total area of tail	49 sq. ft.
Area of elevators	21 sq. ft.
Area of rudder	11.5 sq. ft.
Area of fin	6 sq. ft.
Area of ailerons	16 sq. ft. each, 64 sq. ft. total.
Maximum cross section of body	11 sq. ft.
Horizontal area of body	65 sq. ft.
Vertical area of body	64 sq. ft.
Engine type and h.p.	Hispano-Suiza 200 h.p.
Airscrew, diam. and revs.	9 ft. dia., 1,186 r.p.m.
Weight of machine empty	1,765 lbs.
Load per sq. ft.	7.5 lbs.
Weight per h.p.	13.25 lbs.
Tank capacity in hours	2.8 hours.
Tank capacity in gallons	41.5 gallons.
Performance—	
Speed low down	120 m.p.h.
Speed at 10,000 feet	111 m.p.h.
Landing speed	50 m.p.h.
Climb—	
To 5,000 feet	7 mins.
To 10,000 feet	15 mins.
Disposable load apart from fuel	540 lbs.
Total weight of machine loaded	2,650 lbs.

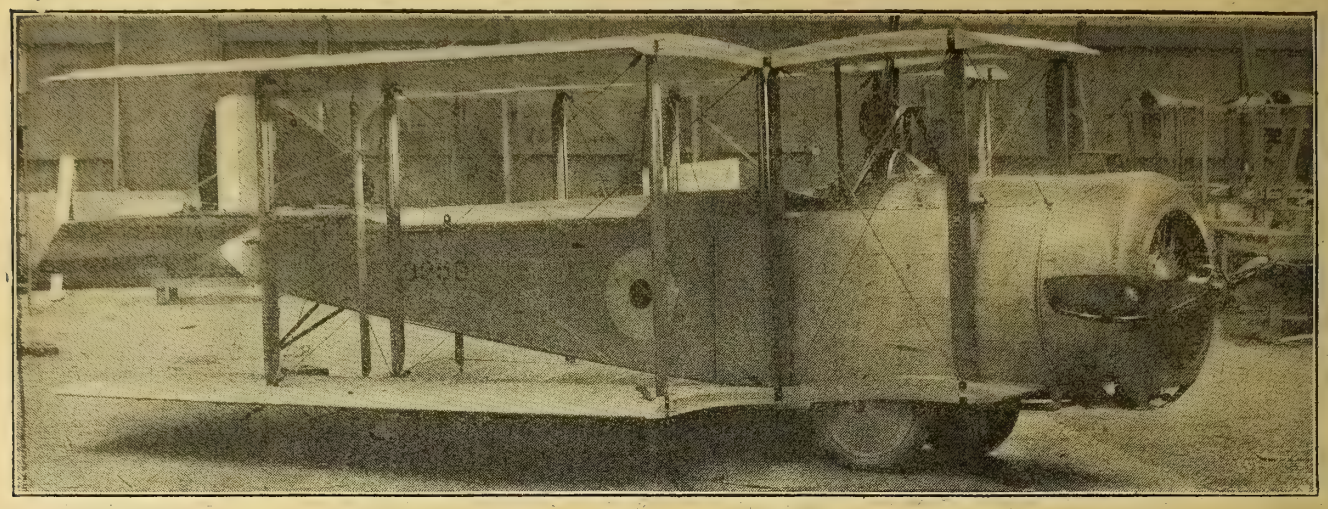
THE BEARDMORE BIPLANE W.B. II.A.

Type of machine	Biplane.
Name or type No. of machine	W.B. IIa.
Purpose for which intended	Fighter and Reconnaissance.
Span	34 ft. 10 ins.
Gap	5 ft.
Overall length	27 ft. 7 ins.
Maximum height	10 ft. 1 in.
Chord	5 ft. 6 ins.
Total surface of wings, including ailerons	354 sq. ft.
Span of tail	13 ft.
Total area of tail	49 sq. ft.
Area of elevators	21 sq. ft.
Area of rudder	11.5 sq. ft.
Area of fin	8.1 sq. ft.
Area of ailerons	16 sq. ft. each, 64 sq. ft. total.
Maximum cross section of body	11.7 sq. ft.
Horizontal area of body	66 sq. ft.
Vertical area of body	75 sq. ft.
Engine type and h.p.	Beardmore "Adriatic," 230 h.p.
Airscrew, diam. and revs.	10 ft., 1,350 r.p.m.
Weight of machine empty	1,650 lbs.
Load per sq. ft.	7.6 lbs.
Weight per h.p.	11.7 lbs.
Tank capacity in hours	4.5 hours.
Tank capacity in gallons	75 gallons.
Performance—	
Speed low down	125 m.p.h.
Speed at 10,000 feet	117 m.p.h.
Landing speed	50 m.p.h.
Climb—	
To 5,000 feet	5 mins.
To 10,000 feet	12 mins.





KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



The Beardmore Ship Scout Type W.B.III (80 h.p. Le Rhône Engine), with wings and chassis folded.

Disposable load apart from fuel	460 lbs.
Total weight of machine loaded	2,700 lbs.

THE BEARDMORE BIPLANE W.B. III.

The Beardmore W.B. III. was evolved from the Sopwith "Pup" in an effort to turn this machine into a ship-plane, the principal modifications being folding planes and a retractable under-carriage, in order to simplify stowage on board ship. The fuselage and tail unit are practically of Sopwith design, the overall length being only slightly increased.

Instead of four short centre-section struts, four long struts, two on either side of the fuselage, are fitted with a short horizontal strut connecting them with the upper larger end of the fuselage. The main planes are unstaggered, and hinged at the main rear spar close up to the fuselage.

Two sets of interplane struts are fitted to each set of main planes, one set being placed at the inner edge of the plane in order to preserve the truss when the wings are folded.

Ailerons are fitted to upper and lower planes and are operated on the Nieuport principle, the upper and lower ailerons being inter-connected by a strut.

An ordinary Vee-type under-carriage is fitted, the front members of the vee being hinged, and the rear members equipped with a release device operated from the pilot's seat which allows the under-carriage to collapse into the fuselage, leaving half the wheels exposed. The armament consists of a Lewis gun fitted on a special mounting in front of the pilot's cockpit to allow it to fire through an opening in the centre section.

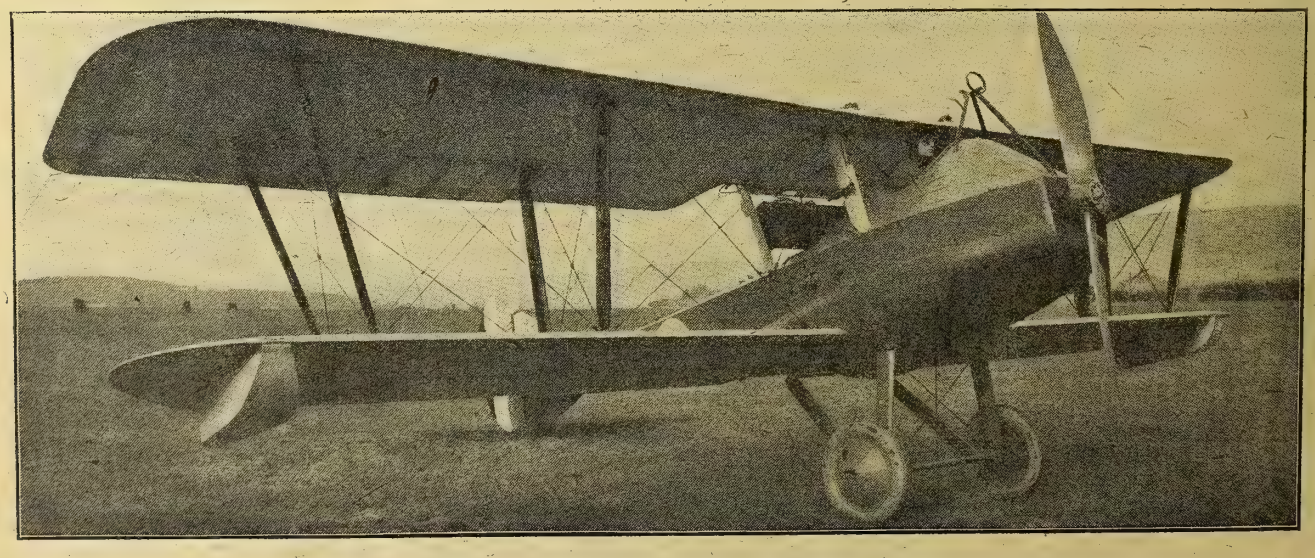
Particulars of this machine are given in the following table:—

SPECIFICATION.

Type of machine	Biplane.
Name or type No. of machine	W.B. III.
Purpose for which intended	Ship's Scout.
Span	25 ft.
Gap	4 ft. 9 ins.
Overall length	20 ft. 2.5 ins.
Maximum height	8 ft. 1.25 ins.
Chord	5 ft. 1.5 ins.
Total surface of wings, including ailerons	243 sq. ft.
Span of tail	10 ft. 1 in.
Total area of tail	34.5 sq. ft.
Area of elevators	11.5 sq. ft.
Area of rudder	4.5 sq. ft.
Area of fin	3.5 sq. ft.
Area of ailerons	5.75 sq. ft. each, 23 sq. ft total.
Maximum cross section of body	4.6 sq. ft.
Horizontal area of body	17 sq. ft.
Vertical area of body	39 sq. ft.
Engine type and h.p.	Clerget or Le Rhône 80 h.p.
Airscrew, diam. and revs.	8 ft. 6 ins.; 1,200 r.p.m.
Weight of machine empty	880 lbs.
Load per sq. ft.	5.3 lbs.
Weight per h.p.	16.1 lbs.
Tank capacity in hours	2.75 hours.
Tank capacity in gallons	18 gallons.
Performance—	
Speed low down	103 m.p.h.
Speed at 10,000 feet	88 m.p.h.
Landing speed	40 m.p.h.
Climb—	
To 5,000 feet	9 mins.
To 10,000 feet	24 mins.
Disposable load apart from fuel	300 lbs.
Total weight of machine loaded	1,290 lbs.

THE BEARDMORE BIPLANE W.B. IV.

The Beardmore W.B.IV is a single-seater ship's scout designed with flotation gear in the fuselage and a dropping undercarriage. In order to keep the size of the flotation gear, which is actually built into the fuselage, down to a minimum, the power unit is



The Beardmore W.B.IV Ship Scout (200 h.p. Hispano-Suiza Engine).

placed under the centre section and over the centre of gravity, the pilot being seated in front astride the propeller shaft.

The under-carriage is of the Vee-type and is so arranged that by means of a control in the pilot's cockpit the whole chassis can be released.

Two wing-tip floats are fitted as additional stabilisers when the machine is resting on the sea.

SPECIFICATION.

Type of machine	Biplane.
Name or type No. of machine	W.B. IV.
Purpose for which intended	Ship's Scout.
Span	Top 35 ft. 10 ins., bottom 35 ft.
Gap	4 ft. 9 ins.
Overall length	26 ft. 6 ins.
Maximum height	9 ft. 10.5 ins.
Chord	Top 6 ft. 3 ins., bottom 4 ft. 9 ins.
Total surface of wings, including ailerons	350 sq. ft.
Span of tail	11 ft. 9 ins.
Total area of tail	50.5 sq. ft.
Area of elevators	24 sq. ft.
Area of rudder	12 sq. ft.
Area of fin	8 sq. ft.
Area of ailerons	18.8 sq. ft. each, 37 ft. 6 ins. total.
Maximum cross section of body	12.5 sq. ft.
Horizontal area of body	73 sq. ft.
Vertical area of body	51 sq. ft.
Engine type and h.p.	Hispano-Suiza 200 h.p.
Airscrew, diam. and revs.	9 ft., 1,500 r.p.m.
Weight of machine empty	1,960 lbs.
Load per sq. ft.	7.5 lbs.
Weight per h.p.	13 lbs.
Tank capacity in hours	8.5 hours.
Tank capacity in gallons	37 gallons.
Performance—	
Speed low down	110 m.p.h.
Speed at 10,000 feet	102 m.p.h.
Landing speed	45 m.p.h.
Climb—	
To 5,000 feet	7 mins.
To 10,000 feet	18 mins.
Disposable load apart from fuel	340 lbs.
Total weight of machine loaded	2,600 lbs.

(To be continued)

THE TARRANT ACCIDENT.

The accompanying photograph of the wreck of the Tarrant triplane on Monday, May 26th, at Farnborough, is of some importance, as bearing upon the cause of the accident.

Generally speaking, it has been considered that the opening out of the two upper engines, with a thrust line high above the C.G., caused the machine to turn over upon its nose. If this were the case, the failure of the lower centre section and the consequent displacement of the two chassis must have been caused by one skid digging into the ground.

An examination of the scale drawings of this machine (page 1960, THE AEROPLANE, May 14th) will show that the wheels are very little forward of the probable position of the centre of gravity, and that if the tail rose much above the horizontal the machine would tend to pitch on her nose.

The drawings also show that the internal bracing of the lower centre section is the only bracing holding the two separate chassis in line one with the other, and it seems possible that one chassis hit a bump on the ground and that this lower centre section failed, one chassis swung back, and the machine tripped over it.

This arrangement of two independent chassis held together entirely by the wing bracing has given serious trouble on much smaller machines than this, and it seems quite possible that it may have been the immediate cause of the accident.

At the same time the very great value of both the thrust moments and the inertia moments of the upper pair of engines, coupled with the by no means large elevator area and tail lever arm, added to the rather far back position of the landing wheels, makes the first theory perfectly plausible.

It must be regarded as distinctly unfortunate that so ingenious a form of construction as that developed by Mr. Tarrant should have been tested in a machine so abnormal in every way.

A preliminary test of the Tarrant type of girder, made by re-designing some standard type of machine for the new construction, would have exhibited the structural value of the new methods used without the running the risks attendant upon the trial of so large and so novel a machine.

ALL ABOUT AIRCRAFT REVIEWED.

(By C. J. Blackburn and E. J. Newby. Simpkin, Marshall, Hamilton, Kent and Co 3s. 6d. net.)

The chief occupation of all the various people concerned with or interested in aviation would appear to be the making of books thereon. Practically every day a new one is published.

Among the latest books dealing with flying is a little book, "All About Aircraft." Exactly how the authors expect to get "all" about aircraft into 122 pages is not explained; indeed, only heavier-than-air craft are dealt with in the book.

All the best-known types of aeroplanes and aero-engines are illustrated, and a short non-technical description of each is given. Several short chapters on construction, stunting, and fighting, all liberally illustrated, appear in the front of the book, and a glossary of aeronautical terms and a system for the identification of certain aircraft is given at the end.

The book is worth the money to those whose knowledge of aeronautics precludes the possibility of their understanding a technical book.—S. F. B.



The Wreck of the Tarrant Triplane. Note the failure of the Lower Centre Section which has allowed one chassis to move backward.

LONGITUDINAL STABILITY IN PRACTICE.

A Practical Method of Design.

By C. W. TINSON, A.F.R.Ae.S.

(Continued.)

The Gotha twin-engine bombers have a stiffness ratio of only 92½, but from the published accounts of the machine it would seem that a number have been smashed when landing after raids over Britain, and with as low a ratio as this it is most likely that the machine would tend to drop out of the air if a very slow landing were attemped, and a tired pilot would, therefore, either land heavily or attempt to land too fast and damage would result.

The Cody machine in the Military Trials of 1912 had a large elevator in front, but the only tail in the real sense was the little "damper" plane, or horizontal fin, at the end of each rudder boom. The area of both these fins amounted to something like 10 square feet, on which figures the stiffness works out at 59.6.

In such a machine it would be necessary continually to adjust the elevator to maintain balance, the effect of the dampers being merely to reduce to some extent the pressure applied at the control column.

It was said that Cody was the only man who could fly the machine.

The first Wright machines had no tail whatever, and were supposed to be balanced at the position at which the C.P. would be at their flying speed, any displacement due to a gust being corrected by moving the elevator from its no-lift position—the position it was designed to occupy in the ordinary way. Having no tail plane that could be called fixed, there could be no stiffness ratio, which agrees with practice, for flying this machine was analogous to balancing an egg on its point.

The Wright Brothers afterwards rigged a tail plane on booms behind the wings.

One of the first decisions to be made in designing the tail is at what point shall the machine be balanced statically, i.e., where shall the vertical line through the C.G. cut the equivalent plane. This decides the load on the tail. In several of the earlier machines this point occurred fairly far back and a so-called lifting tail was employed.

Recent practice is to balance the machine well forward and to use a tail of symmetrical cross section, and it is well known that such a combination produces a much more stable machine, and if the combination be just right in every particular, a machine can be made to get off and land with no other control but the switch.

While the latter feature cannot come entirely under the designer's control, since the pilot's weight may shift the C.G. sufficiently to make it impossible on all occasions, an examination of the conditions obtaining in the two schemes mentioned will indicate where the C.G. should be to produce the best results.

In a machine balanced at 0.5 of the chord of the equivalent plane, it is clear that the C.P. and C.G. will coincide in a vertical plane at something around the maximum speed, and that at large angles of incidence a strong moment will be brought into play tending to stall the machine.

To overcome this moment the tail would have to be of colossal proportions, for its incidence to the relative wind at top speed would have to be zero, and it would therefore be fixed at +9° incidence at stalling speed—the downwash at top speed being +2° and at stalling speed +7°.

Without going into figures, the size of the tail would obviously be great, and since it would be at +2° to the chord of the wings in order to give no moment at top speed, it follows that at higher speeds it would throw the machine over on its back.

Clearly then 0.5 balance is dangerous and unpractical, even if the tail were large enough to hold up at stalling speed.

The opposite case is when the C.G. in static balance corresponds to the most forward position of the centre of pressure, which in most wing sections is in the neighbourhood of 0.31 of the chord.

If the C.G. be in this position there will be a couple tending to drop the nose of the machine at all speeds except stalling speed, where there will be no moment.

Now the machine should fly "hands off" at its top speed, unless for some special purpose, such as flying for long duration at the speed of minimum fuel consumption, it is required to trim at some speed less than the maximum. The requirement to be satisfied, therefore, is that the tail be of such area and angle that it exerts a moment at top speed equal to the weight of machine multiplied by the distance from C.G. to C.P. when the latter is at the point corresponding to top speed incidence.

Further, the tail plane must raise the nose if the speed increases beyond normal and must raise the tail at lower speeds down to stalling speed to prevent pancaking.

The tail area and angle are inter-dependent, and as the angle at stalling speed is required to be positive and as large as possible, it follows that a very small dihedral will best satisfy the condition at low speeds.

At the same time, there must be a dihedral of definite value or it will be impossible to satisfy the other condition, namely that the nose shall come up at speeds in excess of the normal.

Cutting the dihedral too fine may result in instability at a speed higher than the normal maximum when a condition may exist tending to throw the machine over on its back, and it is believed that this has actually happened in practice, the machine being stiffer upside down than it was the right way up.

It is clear that to fix the dihedral another factor must come in, a consideration unconnected with static balance, but sufficient has been said to show the virtue of balancing at the forward or slow speed end of the C.P. travel.

Arranging the balance at a point ahead of this limit merely imposes more load on the tail plane and is therefore wasteful of weight, unless the dihedral is increased instead of the area and an increase of dihedral makes the righting moment smaller at low speeds.

Since it is impossible to guarantee the position of the C.G. exactly, and a certain amount of tolerance must be allowed, the C.G. should be taken at either 0.29 or 0.34, whichever gives the worst case, in designing the tail. These limits give a little greater latitude aft of the correct position and are suggested for an ordinary land machine or seaplane; for a flying-boat, in which the thrust is high, the greater latitude should be allowed in front of the estimated position, as it is required to include the thrust moment in the weight moment by allowing a sufficient tolerance.

It has been said that a consideration unconnected with static balance must actually decide the amount of dihedral given. This requirement is really of a threefold character. Firstly, the combination of area and angle must be such that the machine flies hands off at the maximum, or some predetermined, speed, and this can be effected with a large area and a small angle, or vice versa.

Secondly, the moment tending to hold the tail up at stalling speed must be as large as possible. Thirdly, there must be a moment at speeds higher than the normal maximum such that the machine, if let alone, will come out of a dive. The consideration governing the combination of area and angle is the loading on the tail plane. It is reasonable to assume that if a similar type of construction is used in the tail to that in the wings, the maximum normal loading on the tail should not exceed that on the wings, but in view of the enormous increase of tail loading when nose diving, it is strongly recommended that tail loading at normal top speed should not exceed 5 lbs. per sq. ft.

By determining the loading, the tail area can be obtained straight away by finding the pressure required on the tail at normal top speed and dividing by this value for normal loading.

The angle to the relative wind can then be obtained by introducing this area into the usual expression for lift, using the v^2 corresponding to normal top speed.

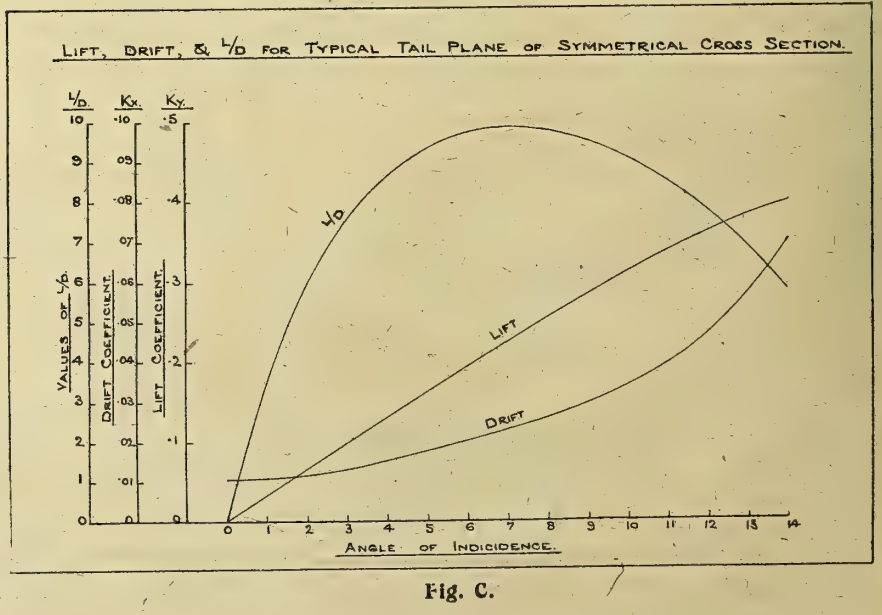


Fig. C.

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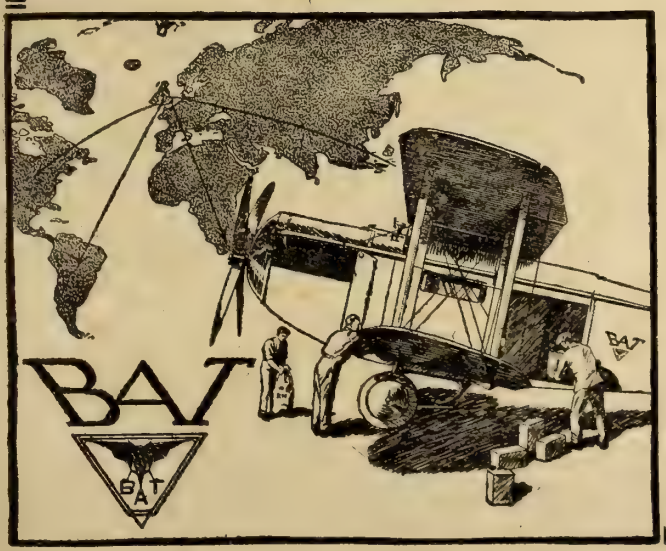
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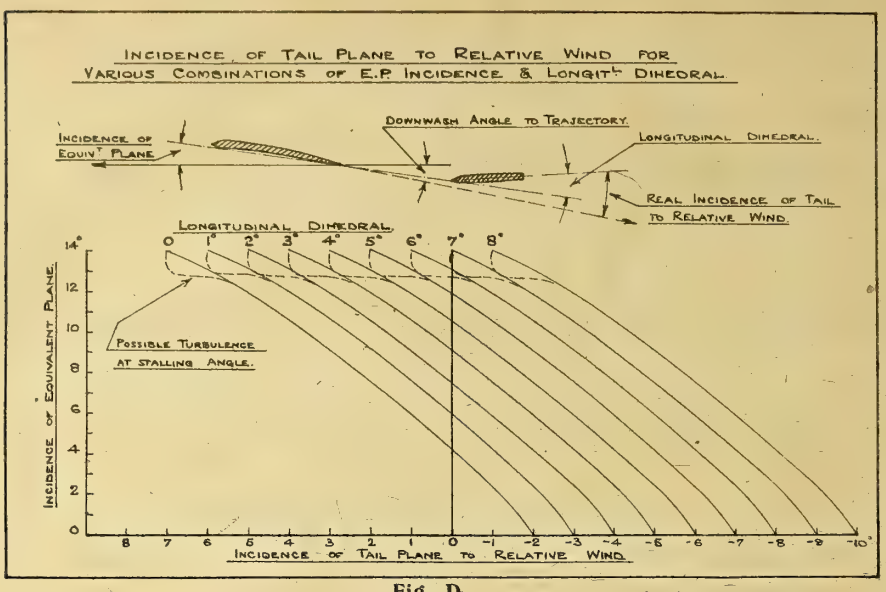


Fig. D.

For example, suppose the tail area and angle are required for a machine of which the following are characteristics:—

W.	Weight of machine	2,875 lbs.
C	Chord of wings	5.5 feet.
V.	Normal maximum speed	97 m.p.h.
	Angle of equivalent plane at speed V	0°.
	C.P. position at speed V	0.5 chord.
	No-lift angle of equivalent plane	—3°.
	Stalling speed	45 m.p.h.
L	Leverage of tail about C.G.	15.75 feet.
	Limiting nose-diving speed	175 m.p.h.
	Distance C.G. to centre of resistance	1.25 feet.

The tail pressure required at normal top speed will be a maximum when the C.G. is at its most forward limit. Taking the range of possible positions of the C.G. as from 0.29 to 0.34 of the chord of the equivalent plane, the tail pressure at top speed is:

$$P = \frac{W\ (.5 - .29)\ C}{L}$$
$$= \frac{2875 \times .21 \times 5.5}{15.75}$$
$$= 211 \text{ lbs.}$$

Specify the loading at top speed as say 6 lbs. per square foot. The area of the tail plane will then be:—

$$A = \frac{P}{\text{Loading.}}$$
$$= \frac{211}{6}$$
$$= 35.2 \text{ sq. ft.}$$

Should the C.G. be behind 0.29, the pressure required will be slightly less than 211 lbs, and the hands off or trimming speed would actually be a little below the normal top speed with the area thus obtained, but it will be found that a fractional decrease in longitudinal dihedral is sufficient to correct this if it is desired to trim at the top speed value.

The area thus fixed, the angle to the relative wind can be found by substituting this value of A in the usual expression for lift, using the v^2 corresponding to top speed V.

Thus in the example:—

$$Ky = \frac{P}{P/\rho\ A\ v^2}$$
$$= \frac{211}{.00237 \times 35.2 \times 20300}$$
$$= .125$$

whence the angle, on the assumption that the tail is similar to T.P.4 is found from the curve of Ky values to be 3.8°. The longitudinal dihedral is found by substracting the downwash angle at top speed incidence of the equivalent plane from the angle of the tail to the relative wind, and adding the incidence of the equivalent plane if any.

On reference to the curve (Fig. D) the downwash angle will be found to be 2° in this case and therefore

$$\text{Dihedral} = 3.8° - 2° + 0$$
$$= 1.8°$$

Having settled the combination of area and angle for trimming at top speed, the condition of stability and loading on the tail in a nose-dive at limiting speed should be examined, for if the loading is too high under these conditions a lower value will have to be substituted and new values obtained for area and angle.

In a nose-dive at limiting speed the assumption is that the planes are at their angle of no lift, consequently the upsetting couple is not due to lift and weight, but to weight and head resistance, which will be tending to turn the machine on its back if the centre of head resistance comes below the C.G.

In the usual type of aeroplane, this couple will be found to assist the tail moment, but assuming that it were not so in the example and that the weight of the machine had a leverage of 1.25 feet, the weight moment would be:—

$$= 2875 \times 1.25$$
$$= 3592 \text{ foot lbs.}$$

This moment must be overcome by the tail which will be running at an angle equal to the no-lift angle of the wings plus the dihedral, assuming that there is no downwash when the wings are not lifting, which seems reasonable.

If the angle of no-lift be —3° in the machine under examination, and the dihedral corresponding to 35.2 square feet of tail is 1.8° the tail will be running at —4.8° at 175 m.p.h. giving a righting moment of:—

$$P/\rho\ Ky\ (-4.8°)\ A\ v^2\ L$$
$$= .00237 \times .155 \times 35.2 \times 256.8^2 \times 15.75$$
$$= 13400 \text{ foot lbs.}$$

This is greatly in excess of the weight moment and if the loading in this condition is not excessive, the tail can be said to be satisfactory in diving.

The loading will now be:—

$$\frac{13400}{35.2 \times 15.75}$$
$$= 24.16 \text{ lbs. per sq. foot.}$$

or 4.025 times the normal loading.

If the tail be designed for the usual factor of safety of 6, there would be a little in hand, but not nearly enough to satisfy the usual requirement of 2.5 factor of safety in diving asked for on wing structure.

It is true that, in practice, the elevators would have to be used to produce and maintain the attitude assumed and because their inclination practically converts the tail into a cambered surface, much of the top pressure disappears, and is limited, if it exists at all, to the nose of the tail plane and leading edge number.

However, if the controls are suddenly let go and the tail has to pull the machine out of the dive by itself, the case taken is rational, especially in a seaplane where the centre of resistance is brought down by the floats in a dive. (Fig. E).

In a land machine of the ordinary type the weight moment very often assists the tail in restoring equilibrium, but the fact cannot be got away from that under conditions that are temporarily possible, the loading on the tail may reach a very much higher value than its normal, by virtue of the fact that it is being forced through the air at a certain negative incidence at a very high speed, and that, unlike the main planes, it cannot adapt its angle to the speed but is bound to follow the planes at the altitude governed by the incidence and the fixed longitudinal dihedral.

Further to emphasise the importance of this point in tail design, suppose that for some reason the machine is out of balance on its first flight and the dihedral is increased by 1½° to make the machine trim.

In diving, the tail will now be at -6.3° and the loading, instead of being 24.16 will increase to 31.62 lbs. per square feet, or 5.27 times its normal.

If the tail be designed for a factor of 6 it will be very near collapsing.

To provide against such a possibility the range over which the C.G. is allowed to occur should be ample, which in conjunction with the method of finding the characteristics of the tail outlined in these notes will give such an area that the adjustments to the angle which may be necessary after the first flight will be so small that overloading need not be seriously considered.

The next case to receive consideration is the state of affairs existing when the tail is at its position of zero incidence to the relative wind and is therefore giving no moment at all.

For the worst case in this instance, the C.G. should be taken at its rearmost limit, say 0.34 of the chord, for if the angle of the main planes corresponding to no-lift of the tail is such that the C.P. is ahead of 0.34 there will be a risk of the tail dropping when climbing.

Reference to the curve of Real Incidence of the tail shows th-

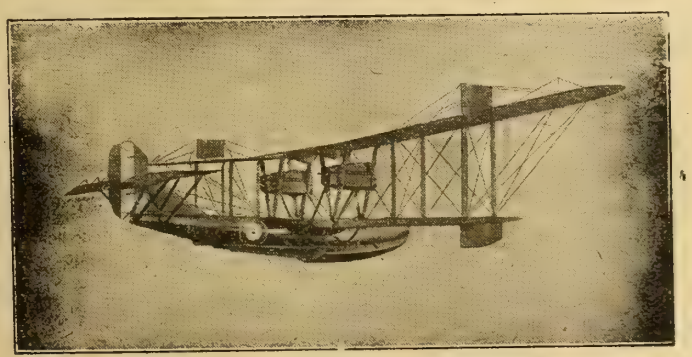


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the no-lift position for a tail set at 1.8° dihedral occurs when the main planes are at + 7.3° incidence, at which angle the C.P. in an average wing section would be at approximately 0.35 of the chord.

This is behind the rearmost limit of the C.G. and so the nose will be dropping, which is what is wanted.

Finally there should be an overplus of righting moment at stalling speed to prevent the tail "sitting down" when landing slowly, and to avoid sudden loss of speed with the subsequent pancake.

Here again the worst case for the tail will be if the C.G. is back at its most rearward limit, for if it were at 0.29 or even at 0.31 there would be no weight moment of any consequence owing to the C.P. and C.G. practically coinciding.

At stalling speed, if the C.P. is at 0.31 of the chord, the maximum possible stalling moment in the example is :—

$$\begin{aligned} & W\ (.34 - .31)\ C \\ &= 2875 \times .03 \times 5.5 \\ &= 474.5 \text{ foot lbs.} \end{aligned}$$

Referring to the table of Incidence of Tail Plane to Relative Wind, a 1.8° dihedral gives -5.1° incidence at stalling speed, i.e., 14° incidence of planes.

The speed being 45 m.p.h. there will be a righting moment of :

$$\begin{aligned} & .00237 \times .165 \times 35.2 \times 4350 \times 15.75 \\ &= 943 \text{ foot lbs.} \end{aligned}$$

This shows a good margin of righting moment.

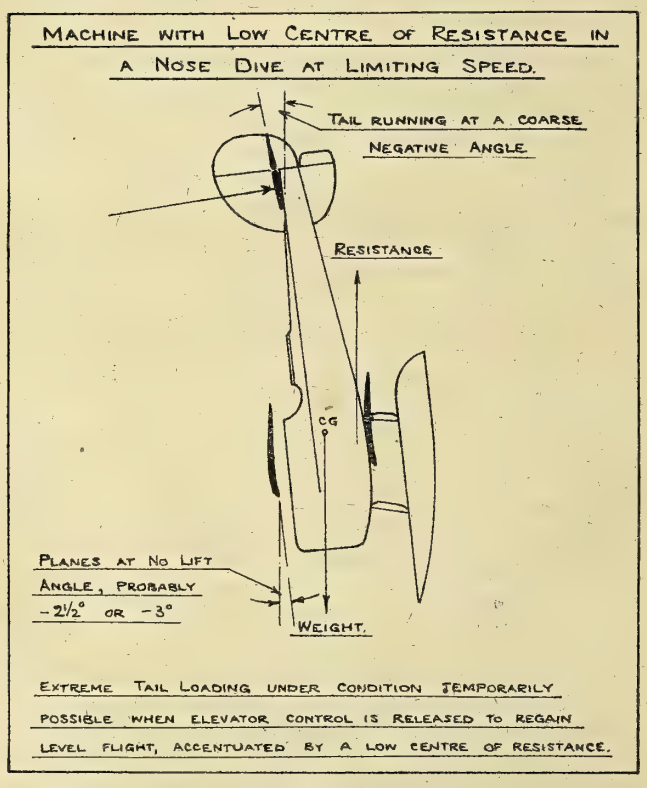


Fig. E.

The amount by which the righting couple should exceed the weight moment at stalling speed is a question connected with "stiffness," and if the relative stiffness worked out by the method used in obtaining the values tabulated earlier in these notes is something over the value indicated as an average, namely 300, the tail calculated in the example can be adopted.

$$\begin{aligned} \text{Modulus of Stiffness } S &= \frac{A\ L\ V^2}{W\ C} \\ &= \frac{35.2 \times 15.75 \times 97^2}{2875 \times 5.5} \\ &= 330 \end{aligned}$$

This value compares favourably with machines known to be nice to handle, but raising it would lighten the loading on the tail in a dive, the only doubtful quantity in the example worked out.

Regarding the adjustment of the tail in flight to trim the machine at speeds other than top speed, the least dihedral will be given by the top speed angle worked out on the assumption that the C.G. is at 0.29 of the chord.

If the C.G. be behind 0.29 as it should be if weight estimates are correct, there will be a little in hand to prevent the machine going downhill with hands off.

The bottom limit will probably be such that the machine can be flown hands off at about half throttle.

In the example, let the machine be trimmed to fly hands off at 55 m.p.h., at which the incidence of the planes is, say 8°.

The C.G. should be taken at 0.29 so that the pressure required on the tail works out at its highest probable value. There should then be a little to spare when flying hands off at this speed which will ensure the range of adjustment given being adequate.

The C.P. at 8° will be at 0 342 of the chord, and if the C.G. is at 0.29 the pressure on the tail required will be :—

$$\begin{aligned} P &= \frac{W\ (.342 - .29)\ C}{L} \\ &= \frac{2875 \times .052 \times 5.5}{15.75} \\ &= 52.3 \text{ lbs. (downward).} \end{aligned}$$

The angle of the tail to the relative wind for this pressure works out at —2.65°.

Referring to the curve, —2.65° actual tail incidence and 8° incidence of the equivalent plane gives a dihedral of 5°.

The adjustment provided therefore should be from 1.8° dihedral to 5° or 5.5° dihedral to cover all possible requirements.

With regard to the top speed limit to the tail adjustment, it is believed that in some cases this has been fixed to allow the machine to exceed its normal top speed with hands off the controls, with the object of diving with both hands free, but while this might have been necessary in war, there is nothing to be gained by it in the ordinary way, for the decrease in total resistance will not be great.

Beyond a certain point it might be necessary to wind the tail back to get out of the dive, the elevators being overpowered and it would therefore appear that the high speed end of the limit to the adjustment should correspond with the angle found in conjunction with 0.29 balance.

In conclusion, it is hoped that this method of dealing with the design of the tail plane by "worst cases" and of solving for its area by the loading method may be of some assistance, and tend to simplify the problem and cut short the time that would otherwise be spent in calculations of an exceedingly intricate nature.

NEW ITALIAN MACHINES.

At the last general meeting of the Macchi-Nieuport firm it was stated that nearly every concern building aircraft here had contracts on hand for turning out Macchi seaplanes at the time of Austria's collapse.

The Fiat-Sia Atlantic attempt preparations are well ahead, and the machine is ready for its trials. It is hoped to carry 2,500 kilos. of petrol and to attain a speed of 250 kms. per hour. The type is the Br., and the engine is a Fiat A.14, specially tuned.

It seems only too true that three Liberty engines are being fitted to the C.A. 1,200 h.p. triplane built here. By-the-bye, one of these big machines which carries twenty passengers comfortably will very probably be touring to England shortly. There was talk of one of the tiny 300 Fiat-engined C.A. triplanes making a non-stop voyage from Turin to London with two pilots only on board.

RIGID AIRSHIPS.

Four rigid airships of greater size than the R.33 and the R.34 are under construction. It is understood that their completion is expected by the end of the year.

Success in long-distance flying chiefly depends on the efficiency and reliability of the engines, which, in the case of the latter rigid airships built or building for the Admiralty, are of Sunbeam-Coatalen design. Two of the ships are fittted with four 350 h.p. "Cossack" type engines, while the two others, in addition to having a similar number of "Cossack" engines, are equipped with two "Maori" engines of 250 h.p. each, making a total of 1,900 h.p. for each airship.



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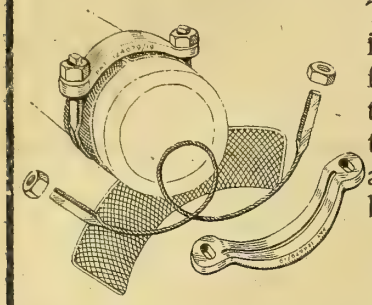
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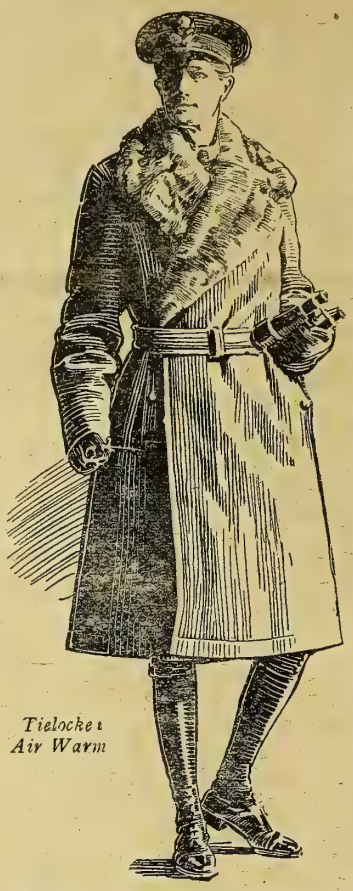
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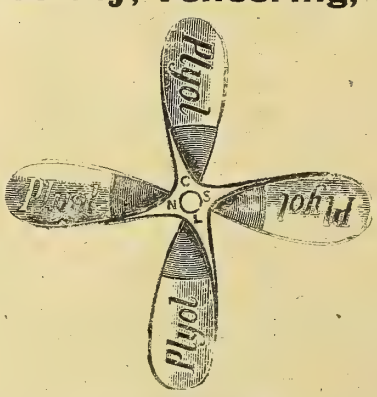
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THE AIRCRAFT TRADER

MARKET TOPICS.

Prices are for Quantities on Usual Terms.

May 29th, 1919.

COPPER.—The recent activity in this market does not indicate that consumers are at last showing a healthy interest in the metal, but it looks as though stockholders were behind the movement; the quantities purchased by actual consumers are only small, and they are apparently still buying hand-to-mouth. The production still exceeds the demand, and large stocks must be held in various parts of the world, and it is stated that immediately Peace is signed offers of Copper will be very freely made, particularly to the Central Powers.

Some of the estimates of the demand which is likely to come from the latter have certainly been exaggerated; on the other hand, there is bound to be a fair demand from them; this feature of the market is influencing American sentiment, and the general impression is that the revival of industry is not far away. There is at present no selling pressure, as there is a strong feeling in U.S.A. that values will harden when consumers begin to show activity.

Comparative Prices.

	Per Ton.
To-day May 28th	£ 79 5 0
Last week	79 7 0
Last year	110 5 0
Lowest Price, 1918	100 0 0

TIN.—There has been a reaction in this market since Tuesday last, and prices have declined from £247 to £233 on Friday. The position is very uncertain, and the market continues very sensitive. There is, in fact, no sign of stability; the demand is very spasmodic, and consumers are still in a waiting attitude. The position in America is unchanged, and the market continues in a state of stagnation.

The outlook is very uncertain, but it is not expected that there will be any serious decline in price. At the same time the present price, although not unreasonably high, cannot be considered low.

Comparative Prices.

	Per Ton.
To-day, May 28th	£236 6 0
Last week	245 7 0
Last month	226 12 6
Average price, 1918	329 10 0

LEAD.—The activity which was being witnessed amongst consumers received a sudden check last week, when the Government announced a reduction in the price of their Lead of 20s. per ton. The first effect of this announcement was to scare buyers, and they have not yet fully recovered, so the business done during the past week has been very small. It is understood that large stocks are available, the stock in Australia being approximately 80,000 tons. In sympathy with the reduction in the price of Pig Lead, the prices of Lead Pipes and Sheets have been reduced 20s. per ton. Sellers were offering Lead on Monday at £23 5s.

STEEL.—This market continues very unsatisfactory, the general opinion is that the prices quoted at present are too high and must decline. On the other hand, manufacturers state that this is impossible, and although there is a fair demand for certain classes of Steel, the majority of buyers are living hand-to-mouth and are awaiting developments. The position is so uncertain that few firms will quote for delivery after June unless all kinds of price reservations are made. American firms are still busy, and it is stated that they have recently taken some large orders from India, the approximate total being about 10,000 tons. It is understood that British makers lost the order owing to the prices being high.

There has been a substantial reduction in the prices of Swedish Iron Ore, and there should now be a further reduction in the prices of Crucible Cast Steels.

TIMBER.—The Timber market is at the present time very firm, if anything, there is an upward tendency. This is particularly noticeable in the Hardwood market. The keenness shown by buyers at the recent sales is particularly healthy, and this market is becoming stabilised. The demand is active, and prices which are fairly reasonable continue firm.

At one recent sale a quantity of Mahogany of Aeroplane quality did not attract any buyers, prices being too high. The Timber had apparently been bought on a high market. The demand for all classes of Timber for Aeroplane construction continues dull, and there are at present no signs of a revival; in fact, everything indicates it will be some considerable time before there is any activity possible by buyers of Aeroplane Timber.

Aeroplane constructors who suffered dislocation of output due to inferior Silver Spruce substitutes will be interested in the questions which have been asked recently by Mr. Remer, who is a well-known timber merchant. The following questions were asked last week-end by this gentleman. Questions and answers are given below:—

In the House of Commons during the week-end Mr. Remer asked the Secretary of State for War how many machines, manufactured and partly manufactured, had to be discarded owing to cypress being found an unsuitable wood for use on aeroplanes?

Major-General Seely: No machines had to be discarded for this reason, but the substitution of other woods involved the supply of about 900 main planes, 100 main spars and 55 tail planes for machines on charge of the Royal Air Force. Substitutions were also required for machines in the hands of contractors, and particulars of these are being sought for in accordance with the undertaking given to my hon. Friend in answer to his previous question on this subject.

Mr. Remer asked the Secretary of State for War if he will give the names of his present advisers as to the most suitable woods necessary for use on aeroplanes; what were their pre-war occupations; and what practical experience of sawing and manufacturing Timber they possess?

Major-General Seely: The Timber Committee of the Conjoint Board of Scientific Societies, in connection with the Royal Society, advises on the suitability of Timber for Aeroplanes. I will send my hon. Friend a list of their names.

ACCUMULATOR RATINGS.

Some ten years ago the Committee of the Accessories and Components Section of the Society of Motor Manufacturers and Traders issued some rules for accumulator rating, which were reviewed and revised in 1918, and the Society have accordingly issued an explanatory article by Mr. Wm. Peto on this subject, from which the following has been extracted:—

When accumulators first came into use for the purpose of supplying current for sparking plugs, in conjunction with an induction coil, they were mostly imported from France, where a practice existed of marking the capacity at a value double that which could actually be obtained if they were discharged continuously. This practice was copied by British manufacturers, as the distributing trade had become accustomed to these values.

The current actually taken by an induction coil is not only intermittent, but it is impossible to state what amount is taken, and it is impossible to gauge the value of these excessive claims for output or capacity under ignition conditions.

When accumulators began to be used for the purpose of supplying current to lamps taking definite quantities of current continuously, it became important. Accumulators sold as having a capacity of 60 ampere hours for ignition work would probably give 30 ampere hours if discharged at 3 amperes for 10 hours, lighting, for example, two side lamps and tail lamp.

The buyer, however, would be under the impression that 60 ampere hours could be obtained, equivalent to 3 amperes for 20 hours. The chief point considered was as follows:—

No value for the capacity of an accumulator is of practical use unless it is stated at what rate current is assumed to be taken from the cells. For example, an accumulator of 30 ampere hours would give this output if discharged at 3 amperes for 10 hours, but if discharged at 30 amperes for one hour, only 50 per cent. of the normal output would be obtained, namely, 15 ampere hours.

As motor-car cells are discharged at moderate rates with frequent intervals of rest, the Society of Motor Manufacturers and Traders standard rate of discharge was taken as being 20 hours, with an interval of rest or time for recovery half-way through the discharge.

The rule for accumulator rating is therefore as follows:—Accumulators shall have printed on their labels their actual capacity when discharged continuously at one-twentieth of the capacity claimed. An interval of rest to be allowed, such interval not to take place until half the period of discharge has expired.

During the past year this important subject of accumulator capacity has also been fully considered by the Portable Battery Makers' Section of the British Electrical and Allied Manufacturers' Association.

Their standard capacity curve has been considered by the Accessories and Components Committee of the Society of Motor Manufacturers and Traders, who have agreed that figures for capacity based upon the 20 hour figures in this B.E.A.M.A. curve are acceptable as true values for capacity at 20 hour rate.



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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

FIRST COSTS AND RUNNING COSTS.

By "MEDWAY."

I take the following quotation from a recent issue of an evening paper:—

"The Aero Club of America announces that Capt. d'Annunzio, aeronautical engineer, son of the famous Italian poet-aviator, is engaged in manufacturing aeroplanes with a wing spread of less than 20 feet, and thus capable of landing in streets. It is to sell for £240.

"Capt. d'Annunzio has been in the United States more than a year, in charge of construction of Caproni aeroplanes for the United States Army. The new machines which he has designed are guaranteed to fly two and a half hours. It is announced that members of the Aero Club have placed orders for several of these new machines."

I take it that the journalist and not the engineer is responsible for the last sentence but one. No doubt it is intended to mean that the machine will keep the air for 2½ hours. At the same time it *does* mean that 2½ hours is to be the life of the machine.

Useful Deductions.

From a trivial mistake of this kind some serious and perhaps useful deductions may be drawn. It leads one to a line of thought that is not uninstructive. Do we want very cheap aeroplanes to be produced at present, particularly if, in order to secure cheapness, we must sacrifice some degree of durability? In other words, is cheapness in first cost a factor which can exert sufficient influence to make it worth our while to give it much attention until we have got several stages nearer perfection?

Let us take a few rough figures. Assuming that we started services with machines costing four thousand pounds each, and having an average life of three thousand hours in the air, the depreciation in the value of the machine during each flying hour will then be £1 6s. 8d. Suppose that the average speed is a little over a hundred miles an hour. Then we have to depreciate at the rate of 320d. for every journey of a little over a hundred miles. This works out at about 3d. a mile.

Now I take it that most people will agree with me that it is not at all likely to pay to run such a machine unless the receipts can be estimated at 7s. or 8s. a mile. If we take the latter figure, then our depreciation allowance is only just about 3 per cent. of the total receipts on which we have to reckon.

Supposing we manage to halve the cost of the machine without in any way reducing its durability or efficiency, we should be able to work at a profit on receipts about 1½d. a mile lower. Even in this extreme case we are aiming at something which is hardly worth attempting.

Durability and Efficiency.

Moreover, it is more than questionable whether the halving of the first cost would not inevitably affect durability or efficiency. With petrol at half-a-crown a gallon, a difference in consumption of 1½ gallons for every 30 miles would neutralise the whole of the savings under the heading of depreciation, assuming the cheaper machine, of course, to be less economical.

If by halving the first cost we also halved the durability, we should gain nothing whatever, even under the heading of depreciation, and we should probably lose under all other headings.

It is quite wrong to regard first cost as a lump sum. It should really be reckoned always simply and solely as cost of depreciation, to which, if we wish to be very accurate, we must add an allowance corresponding to a reasonable rate of interest upon the money expended. When we have entered both these items, the figures of first cost, as such, need no longer be considered.

The First Cost of Machines.

In point of fact, the first cost of machines used would represent only a very small fraction of the total expenditure necessary in order to finance a service and to provide the ground organisation needed in connection with it. I take it that nobody would at present suggest economising in the ground organisation. We all agree that we must have the best possible devices to assist navigation and to enable the pilot to overcome difficulties and dangers occasioned by fog and by unreliable weather.

The organisation for repair and maintenance must be as perfect as possible, otherwise we shall suffer delays which will bring the service into disrepute.

Our first duty is to prove reliability and safety. When that has been done conclusively, we can get down to the process of fractional monetary savings. Until we have proved our case on the main issues, it would be folly to do so.

I do not mean that we should make no attempt whatever to eliminate unnecessary expenditure in the manufacture of machines. We have to formulate a commercial proposition, and we must certainly do so on commercial lines, which are not consistent with deliberate waste.

My point is rather that, if I were advising on the establishment of a service, I should certainly recommend that there should be no attempt to economise in the cost of any portion of the machines themselves if the makers are of opinion that economy can only be obtained at the cost of some sacrifice of durability or efficiency.

Undesirability of Standardisation.

I wrote the other day on the subject of the undesirability of attempting to standardise for some years to come. The whole argument in favour of standardisation is that, if achieved, it would result in certain economies. The difficulty in tackling any broad subject of this kind is that it is almost impossible to emphasise a principle without appearing to go to an extreme. Standardisation and the lowering of first cost are both admirable objects, provided that they are not carried to excess. My argument is that we are in much more danger of going too far in such matters than of failing to realise their importance.

On the question of first cost, let us take a rough analogy from the motor-'bus. The life of such a vehicle should certainly not be less than a hundred thousand miles. It ought to be considerably more, but we will take this figure. Suppose that the 'bus costs a thousand

pounds, we have to allow for depreciation at the rate of £1 for a hundred miles, or about 2½d. a mile. Suppose we reduce the cost to £750, we reduce the depreciation allowance by about a quarter, or not much more than ½d. a mile. The total cost of operation may be somewhere in the neighbourhood of 1s. a mile, so that a reduction of about 25 per cent. in first cost only corresponds to a reduction of four or five per cent. in operating costs.

RUNNING COSTS.

It may easily happen that in reducing our first cost we shall reduce slightly the efficiency of our engine. Suppose that the better engine would take the vehicle ten miles on a gallon of petrol at half-a-crown a gallon. The petrol cost would be about threepence a mile. Suppose that the inferior engine would only travel eight miles to the gallon, the petrol cost would be nearly fourpence a mile, and the result would be that the cheaper machine would result in a worse balance-sheet, because the extra cost of fuel would more than balance the reduced depreciation allowance.

This illustration may be serviceable because it is taken from a well-known system of transport, the costs of which have been thoroughly analysed for years past. Despite these facts, there are still many purchasers of commercial and public service motor vehicles who remain obsessed with the idea that the thing which matters most, and almost the only thing which matters at all, is a reduction in the first cost of the vehicle. There never was a bigger mistake, and I sincerely hope that the same error will not be made in the early stages of the development of commercial aeronautics.

THE AERIAL FUEL OF THE FUTURE.

Under the above heading one, "Medway," sets forth in THE AEROPLANE, of May 24th, reasons why alcohol should be regarded as the fuel of the commercial aeroplane of the future.

The arguments which he advances as evidence that some source of fuel supply must be found other than the existing petroleum fields are sound and unanswerable.

His contention that alcohol is the solution of the difficulty is as certainly untrue, particularly in regard to aircraft.

Alcohol, like all other possible fuels, is a compound of carbon and hydrogen, and it is upon the carbon and hydrogen content that its heating value, and therefore its power value, depends.

Roughly, pure alcohol consists of 53 per cent. by weight of carbon, 13 per cent. of hydrogen and 35 per cent. of oxygen.

The oxygen content is chemically combined with part of the hydrogen. From the fuel point of view this may be considered as meaning that one third of the hydrogen content of alcohol is already burnt, and has combined with the oxygen to form water, and that this water forms nearly 40 per cent. of the total weight of alcohol.

The petroleum type of fuel contains from 1 to 3 per cent. by weight of oxygen only, and practically the whole of the carbon and hydrogen content is useful fuel.

As a result the heating value of alcohol is roughly 11,500 British Thermal units per lb. of fuel, against 18,000 to 20,000 for oils of the petroleum series.

This means that for the same engine efficiency the fuel consumption per h.p. hour of alcohol will be as 18 : 11.15 or as 1.53 to 1 compared with the consumption of a poor fuel of the petroleum type. Actually the alcohol engine can be made rather more efficient than the petrol engine, but 18,000 is a low figure for petrol.

For the commercial car this is unimportant.

For commercial aircraft it is of immense importance.

It will, for instance, reduce the maximum ton mile capacity of aeroplanes by about 35 per cent.

Apart altogether from this aspect of the problem alcohol shares with petrol the qualities of great volatility and ready inflammability. These are essential features of any fuel for engines of the type now used in aircraft. In consequence, the fire risk on aeroplanes is now very great, and will continue to be so if alcohol is used.

A number of competent engineers who have studied the question hold that it would even now be possible to design engines of large power—750-h.p. and upward—working on heavy oil, which would compare favourably with the petrol engine of to-day on the weight per h.p. basis. The fuel consumption of such engines would be, if anything, lower than that of the petrol engine, and the fuel would be of a cheaper grade.

The risk of fire with such fuel would be small, since it would be neither volatile nor readily inflammable.

Therefore before deciding to stake the future of commercial flying upon schemes for the development of new sources of fuel supply it is rather important to consider whether such schemes will be able to supply fuels which may be demanded in the near future.

Neither alcohol nor any of its immediate derivatives possess the necessary qualities for use in the "heavy oil" type of engine.

Liquid hydro-carbons with fuel qualities similar to those of the petroleum series can be produced by distillation from an enormous number of organic substances.

Coal, shale, peat, and wood, distilled in a retort similar to the gas retort which produces the town gas of commerce will all produce hydro-carbons of a full value approximately equal to that of petroleum, and in all probability any substance from which alcohol can be produced by fermentation would yield a better fuel if subjected to a suitable distillation process.

Before the outbreak of war a process of coal distillation had been developed in this country—naturally enough by a gentleman of German birth and of the name of Müller—in which, by the control of the temperature and pressure of distillation a very large variation in the nature of the distillate can be secured.

In addition to the normal yield of coke, gas suitable for gas engines and tar, somewhere between 25 and 40 gallons of oil per ton of coal could be obtained. The nature of the oil produced could be varied at will from about 25 per cent. of a fuel corresponding in its qualities to petrol, with 75 per cent. of heavier oils, to a mixture entirely composed of heavy oils and containing a very small amount of volatile matter.

It is understood that the Admiralty showed no particular interest in this process till well on in the war, when Mr. Müller was removed to some far off part of the country, and set to work upon the experimental distillation of peat.

What results he has obtained are not known, but it is known that quite a good yield of fuel oil can be obtained from peat.

This being the case it is probable that fuel oils can be distilled from almost any vegetable matter such as, for instance, sawdust and shavings, and if the nature of the oil yield can be controlled in the manner indicated above, then there is a source of fuel available which will supply either the volatile fuel necessary for the aero-engine of to-day, or the heavy fuel for the engine of to-morrow.

The coal yield of England is roughly 200,000,000 tons per annum. Distilled, this will provide round about 50,000,000 gallons of oil of varying grades, and the remaining products, coke, gas, etc., used in economical furnaces, and power plants could supply more than the total heating and lighting demands of to-day.

If all the other possible sources of oil were treated by similar processes the effective fuel resources of the Empire could be trebled.

It is thus that the aerial fuel of the future is to be sought.

FICTITIOUS FIGURES ON FLYING.

The following letter has been received :—

Sir,—In your issue of May 21st, "Commonsense" attacks the figures given both by "Engineer Officer" and by myself in connection with the cost of aerial transport.

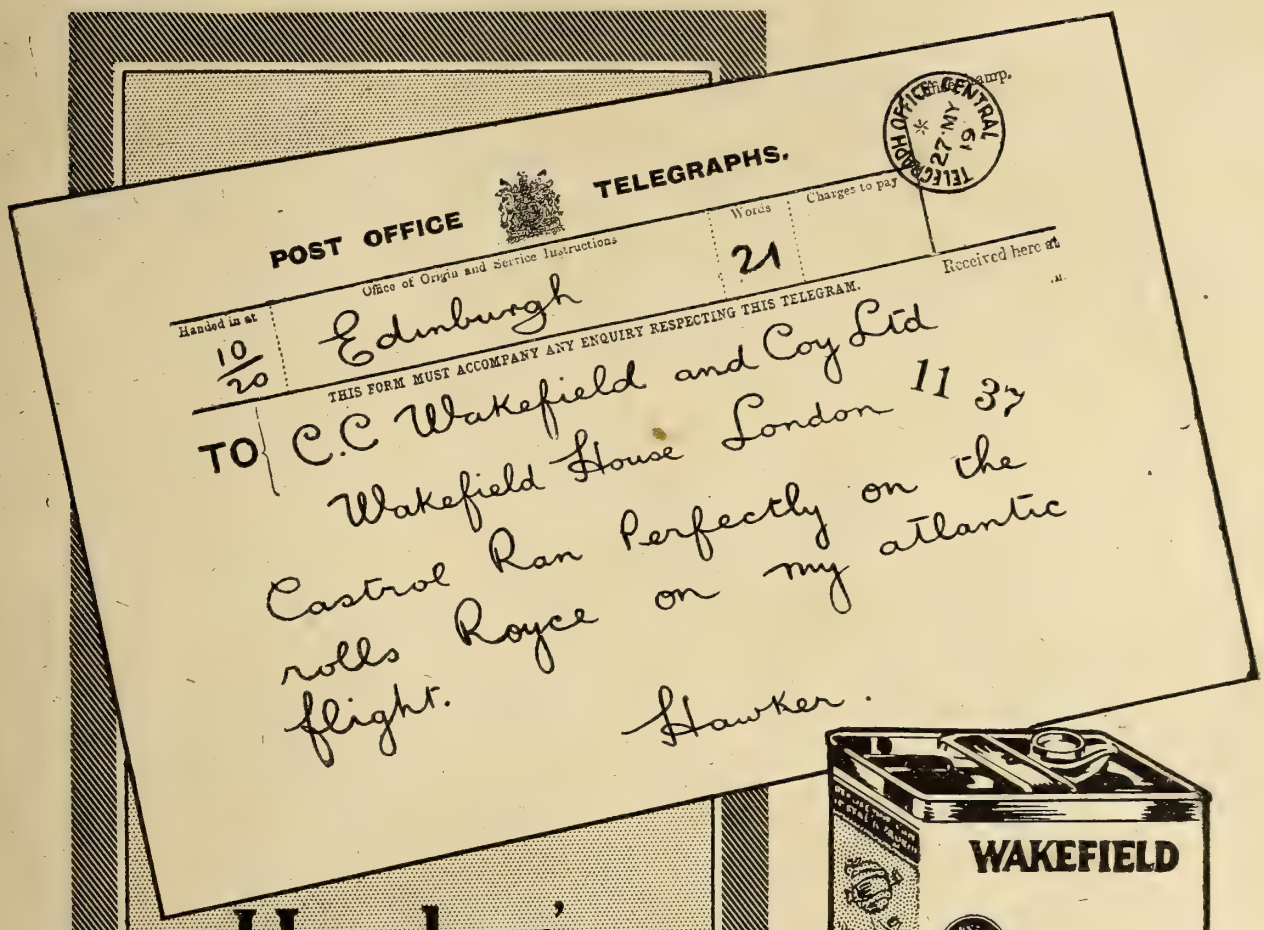
In the main his quarrel with my figures is based on the actual capacity of the assumed machines to carry the required loads at the speed necessary to run to the schedule, and upon the alleged impossibility of flying day and night on 300 days in the year.

So far only two specific types of machine have been mentioned by name. I myself mentioned the Handley Page V/1,500 type, and "Commonsense" advances the Bristol Bomber. Neither of these machines is capable of running to "Engineer Officer's" schedule of 100 m.p.h. with the loads assumed. Nor were either of these machines designed for such a purpose.

It was perhaps not made properly clear in my letter that I did not contemplate using the existing Handley Page type for such a service. What I had meant to imply was that, given the power plant of the V/1,500 and a total loaded weight of 25,000 lbs., it ought to be possible to design a machine with fuel capacity for 6½ hours at 100 m.p.h. air speed, but with a paying cargo capacity of two tons, which would have a sufficiently high maximum speed to run to the 100 m.p.h. schedule. This can be done easily, though possibly at a sacrifice of the ceiling of the existing machines.

With regard to the possibility of flying on 300 days per year, I think this may easily be reached in many places outside of this country. There are no 5,000-mile routes available within the British Isles, and, flying eastward from Britain, the end of the first 500-mile stage will land one well outside the fog-bound area. Even in the present state of aerial route organisation I believe many 5,000-mile routes could be planned upon which the 300-day schedule could be run to.

Ex-R.N.V.R.





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CIVIL AERIAL TRANSPORT NOTES.

The first regular aviation meeting at Hendon since the war took place on May 31st and June 1st.

The meeting was arranged to celebrate the return of Mr. Hawker, who arrived at the aerodrome in a Sopwith "Gnu" (230 h.p. B.R. II.), with Mrs. Hawker in the passenger seat. He was met by many other machines, which formed an escort.

As there was a great demand for a flight with Mr. Hawker, 10 tickets were sold by auction, and the first was knocked down at 60 guineas to Miss Daisy King, of Leeds. Flight No. 2 was sold to Mr. Mansfield, of the Ascol Company, for 40 guineas, and the third ticket, auctioned by Mrs. Hawker, also fetched 40 guineas, which will be handed over to the Flying Services Fund. The remaining seven flights realised sums ranging from 10 to 20 pounds.

A highly interesting performance was put up by the new Boulton and Paul machine fitted with two 320-h.p. Dragonfly engines. This impressed the experts even more that it did the mob.

The big machine did not appear to run more than 25 or 30 yards before the wheels were off the ground, the rate of climb appeared to be extremely good, and it performed the most perfect loops one could wish to see. On Sunday the machine caused vertical gusts among the crowd by diving at great speed till within about 200 feet of the ground before flattening out.

This big twin-engined biplane was flown from Norwich to Hendon in one hour with three passengers. In appearance it is extremely attractive, and its performances in the air proved that it could stunt almost like a scout.

On Saturday afternoon the Vickers Vimy (two Eagle VIII. Rolls-Royce engines) arrived, having flown from Dartford to Hendon in 15 minutes. It was piloted by Capt. Stanley Cockerell.

The Vimy very nearly approaches one's youthful dreams of the flying machine. There are luxuriously upholstered seats for 11 passengers and a porthole by each seat. Ladies who crowded round it said it was "a dream," and some youthful scout-pilots thought the makers might have installed a silver grill and a jazz band to make it complete.

The machine is known as the "Commercial," and, except for the body, is identical with the one in which Capt. Alcock intends to make an attempt to cross the Atlantic.

Early on Saturday afternoon there was an accident to a Blackburn "Kangaroo" machine (2 Rolls-Royce Falcon engines), which resulted in Captain Robertson, the pilot of the machine, suffering slight concussion and extensive bruises, and Private H. Cox, of the 18th Canadian Reserve Battalion, sustaining a broken thigh.

The following interesting table appeared in the "Daily Telegraph" on Monday:—

"Some of the visitors, officials, and pilots at Hendon aerodrome yesterday and on Saturday must have thought of the last flying meeting held there on August 1st, 2nd, and 3rd, 1914. On the Bank Holiday the programme was entirely upset by war preparations and sudden Government orders. Some of the French aviators were already on the wing, bound for France.

"A comparison of the machines at Hendon on that occasion to those seen yesterday is extremely interesting. Then the following took part:—

Pilot.	Machine.
R. J. Lillywhite	Grahame-White biplane, 50 h.p.
W. L. Brock.....	Morane monoplane, 80 h.p.
Louis Noel.....	Morane monoplane, 80 h.p.
F. G. Dunn.....	Grahame-White biplane, 50 h.p.
A. E. Barrs	Grahame-White biplane, 50 h.p.
H. Salmet.....	Blériot monoplane, 50 h.p.
Birchenough.....	M. Farman biplane, 80 h.p.
L. Noel.....	H. Farman biplane, 80 h.p.

1919.

1. H. G. Hawker, Sopwith Gnu, 200 h.p. B.R.
   H. G. Hawker, Sopwith monoplane, 130 h.p. Clerget.
2. Capt. P. R. T. Chamberlayne, Grahame-White Bantam, 110 h.p. Le Rhone.
3. Clifford B. Prodger, B.A.T. Bantam, 170 h.p. Wasp A.B.C.
4. Major R. H. Carr, A.F.C., D.C.M., Grahame-White, 110 h.p. Le Rhone.
5. Capt. Cockerell, Vickers Vimy, 2-350 h.p. R.R. Eagle.
6. Capt. D. H. Robertson, A.F.C., Blackburn K, 2-350 h.p. Rolls-Royce.
7. Major C. Draper, D.S.O., B.A.T. Bantam, 170 h.p. Wasp A.B.C.
8. Lieut. Courtney, Boulton and Paul, ——
9. W. E. Birchenough, Airco D.H., 350 h.p. Rolls-Royce.
10. Lieut. G. R. Hicks, Avro, 110 h.p. Le Rhone.
11. Capt. D. Allen, Sopwith Gnu, 200 h.p. B.R.
12. Capt. Barnard, Sopwith Gnu, 200 h.p. B.R.
13. Capt. C. R. Vaughan, B.A.T. Bantam, 170 h.p. Wasp A.B.C.
14. Lieut. C. Turner, B.A.T. Bantam, 170 h.p. Wasp A.B.C.
15. Lieut. R. E. Duke, B.A.T. Bantam, 170 h.p. Wasp A.B.C.
16. Lieut. Louis Noel, Avro, 110 h.p. Le Rhone."

On Sunday, Lieut.-Commander Read paid a visit to Hendon, and of course was given a great reception. He witnessed a magnificent exhibition of stunting.

The Supermarine Programme.

The following extracts concerning the work of the Supermarine Co. are taken from a Southampton paper:—

The Supermarine Aviation Company, of Woolston, are completing their arrangements respecting the flying-boat service which they will inaugurate (subject to Government licenses being obtained in time) at Whitsuntide. It is the intention of the Company to concentrate on short flights with passengers. The latter will embark from the various pier heads at the Island towns, which will figure as stopping-places on the circular route which the seaplanes will cover. It is proposed that these places of call will include Ryde, Ventnor, Sandown, and Shanklin. The tour will extend to Bournemouth and Weymouth, and also later on probably to Le Havre and St. Malo.

One of the Supermarine Aviation Company's directors, Commander J. Bird, who was accompanied by Squadron-Commander E. S. Hobbs, D.S.O., D.S.C. and bar, visited the Island towns last week, settling final details with regard to the moorings.

Ten machines (each machine to carry three passengers) will comprise the service, and the same machine will not fly two days in succession, as the method will be for five machines to carry on in alternate squadrons of that number with a day in between for expert examination and regular overhauling of the machinery for the following day's flying.

On Sunday evening Squadron-Commander B. S. Hobbs, D.S.O., D.S.C. and bar, made an exhibition flight in one of the flying-boats, which proved thoroughly successful, and which was watched from the Royal Pier and along the Western Shore by interested onlookers. Squadron-Commander Hobbs has seen distinguished service during the war, and the Company is fortunate in retaining the services of such an experienced chief pilot. All the pilots who will take the flying-boats on the new service are ex-Royal Naval Air Service men, who have specialised in the type of machine to be used in the passenger service.

Flying in the North.

At Blackpool and Southport between 700 and 800 passengers were carried last week in three-seater Avros. The local service between Blackpool and Southport across the estuary of the river Ribble is very popular. The train journey takes well over two hours between these two towns, but by air the journey is completed in 10 or 12 minutes. Already business men are making use of the new means of transport.

Both aerodromes have been fenced off with rope and barricades (in the case of Blackpool by the Corporation), and the crowds which gather daily to watch the machines are becoming more and more educated in flying matters. Newcomers, however, are still anxious to learn, and the old lady who asked what the block of wood in front of the engine was use for was quite interested on being told it was the propeller used for keeping the engine cool.

The Avro Company hope to have their new four-seater 200 h.p. machines ready for Whitsuntide, when daily services to Manchester, Lancaster and Llandudno should be in full swing.

At Hounslow.

Over 600 passengers were taken up during the week at Hounslow. A new machine has been in use, an Avro Limousine, and this made a trip to Margate and back on May 28th. There was also a trip to Eastbourne and back. Twenty-five trips were given for the Theatrical Garden Party, and these were auctioned in Mr. André Charlot's Monte Carlo.

Aerial Postal Services.

The Post and Telegraph Committee of the London Chamber of Commerce, convinced that aerial postal services will be of great value to the commercial community, have passed a resolution declaring themselves strongly of opinion that the Postmaster-General should immediately make arrangements whereby private organisers who propose to institute aerial services may be enabled to carry and specially deliver letters on payment of the current postal rates and the necessary surcharge.

Stonehenge to Hendon.

On Saturday an Airco 16 machine flew to Stonehenge and collected Brig.-General Heane (1st Australian Division), Lieut.-Colonel Moorhead, Lieut.-Colonel James, and Lieut.-Colonel McArthur, and brought them up to Hendon in 55 minutes to witness the flying display given in honour of Mr. Hawker. They returned to dinner at Stonehenge in the evening by air, taking approximately the same time as before.

On Sunday four more Australian officers (including Colonel Knox and Colonel Beardsmore) were taken to Hendon in under one hour from Stonehenge, and conveyed safely back again.

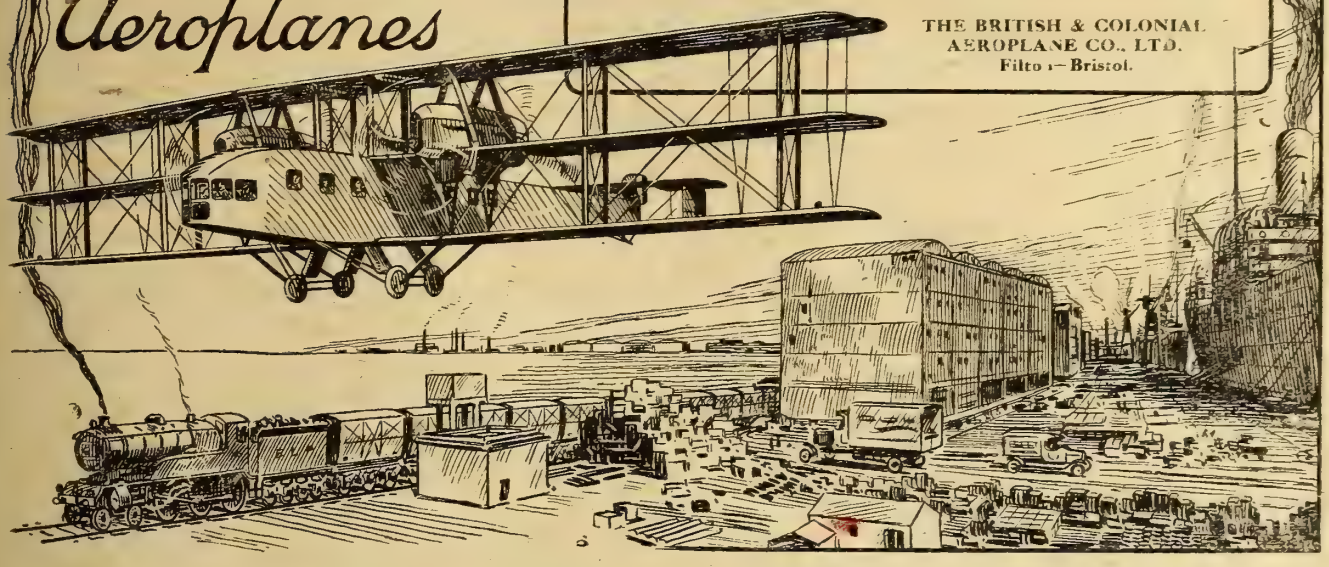
The "Bristol" Aeroplanes

Telegrams—"Aviation, Bristol." Telephone—3906 Bristol.

SPEED.—
RELIABILITY.—

These are the main features which commerce demands of aerial transport, and they are the dominant features of the "BRISTOL" commercial aeroplanes. No other large passenger and freight-carrying machines yet constructed can travel at 125 miles per hour as do the giant "BRISTOL" Triplanes, nor is there any other large machine comparable with the "BRISTOL" Triplane in point of ease of control and general reliability. The "BRISTOL" Triplane is only one of the many "BRISTOL" aircraft of all types constructed for the requirements of commerce of which full particulars will be sent on application.

THE BRITISH & COLONIAL AEROPLANE CO., LTD.
Filton—Bristol.



Allen
PISTON RINGS

give

More Power and Speed and Gas-tight Pistons

A uniformly and accurately "stressed" ring by mechanical operation

ALLEN & SIMMONDS, Ltd.,
Piston & Piston Valve Engineers
READING



GENERAL BRANCKER AT CHELTENHAM.

On Saturday, May 24th, Major-General Sir Sefton Brancker, K.C.B., piloted by Capt. W. G. Gathergood, flew from Hendon to Salisbury in a three-seater Airco 9 machine. Stopping the night at Salisbury, he flew on to Cheltenham on Sunday morning to inspect a suitable aerodrome in that vicinity, and after making a thorough investigation from the air of the aerodrome and surroundings landed at Rendcomb.

The return journey to Hendon was made from Rendcomb at 6 o'clock, and Hendon was reached in 40 minutes.

Italy.

According to a message, dated May 29th, the Italian Government has informed the Greek Government that it will give effect to the Convention recently signed between the two countries for an aerial mail service. Two aerodromes are to be established, the one at Corfu, the other at Brindisi.

Brazil.

Handley Page, Ltd., have announced that a Brazilian-Argentine aerial mail service will start on July 1st. Preparations are being made and landing sites have been bought along the Atlantic from Pernambuco to Buenos Aires.

THE PETTICOAT LANE OF AIRCRAFT.

On June 2nd, at the No. 1 Aircraft Salvage Depot, The Hyde, Hendon, was held the first of a series of auction sales of aircraft and aircraft materials, etc., consisting of six Avros, two Armstrong-Whitworth F.K.8s., two B.E.2es., and six D.H.6s., all alleged to be in flying condition and ready to "drive away," together with a large amount of woodwork, mainly struts, skids, propeller cases, etc., canvas, copper, brass, and other metal oil and petrol tanks, rope, scrap timber, wings, etc.

Perhaps owing to the short notice given of the sale, there were not very many buyers, but among that number were a few of that class of person which one always finds on occasions when it is possible to get something for nothing, or as near as may be, and judging from the prices given for articles one could see that the Disposal Board would not lose much by giving the stuff away.

Lots 1—129 consisted mostly of lots of anything from 100—700 ash or spruce struts or skids, and these were principally snapped up by people who, judging from their appearance, were far from being connected with the aircraft business. In fact, one can almost foresee an influx on the market, principally in the East End, of large quantities of genuine antiques, complete with wormholes and cobwebs, which, if one could trace their history sufficiently far back, would be found to consist of genuine ash and spruce taken from a perfectly good Maurice Farman "Shorthorns."

Again, if any furniture dealer could forsake the artistic for the original he might give the pedigree of his wares, whereby any hardened air-fighter would be able to purchase a back-rest or a foot-stool fashioned from the "Rumpety" on which he made his first solo.

Any enterprising farmer who desires to be up to date could, by finding out the direction of the prevailing winds over his land, erect an excellent streamline fence composed of "Avro" struts. Also, if one expected a shortage of fuel for the coming winter, a bundle of 950 solid spruce struts, 60 in. by 4⅛ in by 1¼ in. would make up into excellent bundles of firewood. In fact, the scope for originality and usefulness is unlimited.

After the auctioneer had disposed of the first 30 or 40 lots, the interest in struts palled, so that by special request lots 274 to 288 were disposed of. This aroused the most interest of the afternoon and also caused the biggest surprise.

The first machine, a 110-h.p. Le Rhône "Avro" fetched the huge sum of £360, which incidentally was the biggest bid of the afternoon. The other five Avros fetched anything from £360—£300.

The two Ack-Ws. both fell to the hammer for £260 each; two B.E.2e's with 90-h.p. R.A.F. engines fetched £90 and £80 respectively, and the remaining six machines, all D.H.6s., fitted with either 80 h.p. Renault, 90-h.p. R.A.F. 1a and Curtiss O.X.5 engines (the latter engine, incidentally, being acclaimed by the auctioneer as the finest American aero-engine ever used in this country barring the Liberty), going for anything from £100 to the beggarly sum of £60. The latter sum was the price given for a D.H.6 arranged as a single-seater and fitted with the aforementioned famous Curtiss engine.

As this sale was the first of its kind, and only arranged more or less as an experiment, one could not form a reliable opinion as to how the second-hand market for aircraft is likely to develop, but a more ambitious sale is to be held on the 23rd of this month, and one ought certainly to expect quicker and keener bidding and highest prices.

Certainly the fact that one can pick up a serviceable aeroplane for an odd £100 or so, ought to have an effect on certain demobilised R.A.F. sportsmen who have been and still are awaiting delivery for cars at twice their pre-war price.—L. L. B.

THE HOUNSLOW AERODROME.

In future the aerodrome at Hounslow will be reserved entirely for civilian flying, and R.A.F. machines will land there only in cases of emergency.

R.A.F. machines using any aerodrome not owned by the Government will, for the present, pay the ordinary civilian fees.

A RESIGNATION.

Mr. R. L. Desoutter, who is well known as one of the most successful test pilots, both of land machines and seaplanes during the war, notifies the fact that he has resigned the position of manager at the works of the British Caudron Company, Ltd., at Alloa, as from May 24th, and that he is now free to consider any proposition from firms who are interested in aeronautical ventures.

His long and varied experience as a test pilot should make him of very great value to firms engaged on experimental work, and his proved business capacity fits him for some position very much more responsible than that of test pilot alone.

Letters addressed to Mr. Desoutter at this office will be forwarded to him promptly.

A RETURN TO BUSINESS.

One learns that Lieut. Ernest Allingham, R.A.F., has quite recently returned from Cologne, and that he is to be demobilised in a few days. Mr. Allingham is a partner in the old-established and well-known firm of advertising consultants and service agents, J. C. Francis and Co., of 131, Fleet Street.

He has been in the R.A.F. for three years, and had eight months' experience of war-flying, during which time he spent 250 hours over the enemy lines as pilot of a Bristol Fighter. He was shot down a few days before the signing of the armistice, but fortunately managed to land inside our lines without serious mishap. Back to his old business once more, he is taking control of the Aviation, Motoring and Engineering Departments, and his added experience and knowledge should prove of very great value to both his firm and their clients.

Mr. Allingham is as full of enthusiasm regarding aviation as he is about advertising, and he intends to use his aeroplane to pay flying visits to his many clients in various parts of the Kingdom. It is interesting also to know that this firm (J. C. Francis and Co.) are in a position to take orders for the transport of passengers by aeroplane either for business or pleasure, and they welcome inquiries on the subject from any firm or individual who is interested.

J. C. Francis and Co.'s new watchword is—"We go anywhere for business—by aeroplane."

A FINE ADVERTISEMENT.

The Aircraft Manufacturing Co., Ltd., are producing a series of picture post-cards of various modern Airco machines, such as the D.H.9, and 10, the Limousine and the Liberty 4. These post-cards are genuine photographs and not merely prints, and are beautifully produced. It is the intention of the Aircraft Co. to supply these at 1s. per set of six to anyone applying to the firm at Edgware Road, The Hyde, Hendon, and it is hoped that large supplies for this purpose available for the public will be ready very soon.

It strikes one that this generosity is going to cost the Aircraft Co. a lot of money, for one has never yet seen photograph post-cards of such quality or of greater interest sold so cheaply, and one advises those who desire to have copies to apply for them at once.

A VISIT TO THE NORTH BRITISH RUBBER COMPANY.

On May 22nd, the Lord High Commissioner for Scotland, the Duke of Atholl, the President of the Royal Aero Club, who is at present in Scotland in connection with his duties as High Commissioner, paid a visit to the works of the North British Rubber Company at Castle Mills. This firm was a pioneer rubber-proof balloon fabric, and has been long connected with the Aircraft Industry. The Cadets and Girl Guides of the works formed a Guard of Honour which the Duke of Atholl inspected before entering the works. Mr. Alexander Johnston received His Grace.

AN EXPENSIVE AMUSEMENT.

At Bow Street Police Court on May 31st, before Mr. Garrett, Robert Andrew Scott, 21, and Harry George Stone, 18, both of the H.A., were charged with stealing and receiving a Crossley motor-car, valued at £800, the property of the Air Ministry.

Scott told the magistrate that he and the other defendant noticed the car unattended in the Strand, and thought they would go for a ride. He was arrested as an absentee on the day he sold the car.

Lieut. Horace Whitley, R.A.F., stated that some of the accessories were missing and two of the figures on the identification plate had been painted out.

In reply to the magistrate, the witness said that anyone with mechanical knowledge could see that the number had been altered.

The defendants were committed for trial.

THE OLD STORY.

Capt. H. J. Saint, No. 1 pilot, of the Aircraft Manufacturing Co., collided with a hill near Portsmouth at 5 a.m. on May 1st, while flying a D.H.9 at 90 m.p.h., with copies of the "Daily Mail" from Hendon to Bournemouth.

Capt. Saint fractured his jaw and his machine was completely wrecked, but as he was wearing Triplex Safety Glass goggles his eyesight was saved.

AIRCRAFT FINANCE

PARTICIPATING POLICIES FOR AVIATION INSURANCE.

It has been decided to inaugurate a scheme of participating policies in respect of aircraft insurance. Those who have been disposed to complain about the premiums quoted for aviation risks should derive some satisfaction from this important decision of the Aviation Insurance Association. Participating policies, it need scarcely be said, are quite common features of ordinary life assurance business, and are greatly appreciated by many people.

A Challenge to Critics.

Let it be clearly understood that this present innovation covers accidental damage to aircraft only. Quite frankly it is admitted that it has been instituted to meet the requirements of those owners of aircraft to whom the rates charged for accidental damage may seem at the present time excessive. As there are people who cannot be convinced that the present scale of premiums is reasonable, the idea of the Association is to remove the objection by issuing a participating policy whereby the excess profit, if any, will be returned to the insured.

Pooling the Premiums.

By this scheme the insured will participate in 50 per cent. of the profit derived from aircraft damage insurance business. The whole of the premium derived from participating aircraft business will be pooled, and the insured will, as soon as the underwriting accounts for the year have been closed, participate in the specified proportion of the profits according to the amount of premiums paid.

A Corrective.

In no case, it is pointed out, will the amount payable under the scheme be more than 75 per cent. of the actual profit on the policy in question, and where a policy has made a loss to the underwriters there will naturally be no return made. It is argued that in this way an efficacious corrective will be automatically applied, should experience substantiate the contention that the present level of rates is excessive. Owners of aircraft doubtless will feel that they have scored in such circumstances, and the underwriters will be equally satisfied in view of their assertion that their policy is to provide reasonable insurance facilities to the aeronautical trade at a reasonable scale of remuneration.

A Rock Bottom Basis.

Without a doubt there are critics who will attempt to prove the faults of the new scheme. It is not faultless. Is there anything on earth that is faultless? One must admit, however, that it is a serious attempt to bring the youthful business of aviation insurance down to a rock-bottom basis. As yet it is not sufficiently old to have proved its limitations and its capabilities, but the participating innovation should accelerate the movement towards that goal.

"Loaded" Premiums.

It will be suggested, one may be quite certain, that the participation scheme is so simple as to create suspicion. What would prevent the underwriters from "loading" the premium on participating policies and thus recouping themselves for the privilege offered to the insured at the initial expense of the insured? But the underwriters frankly and openly assert that they have no intention of "loading" the premiums purposely to cover the additional accommodation.

Results Would Tell the Tale.

Anyway, at the end of the year when the pooling of profits or losses is made, an excessive premium would be at once proved by the scale of profits made. The insured would in such circumstances receive a big sum. In that event the proof of excessive premiums would be established, and the aeronautical trade would be justified in demanding that a more reasonable scale of premiums be established without delay.

Stipulations Explained.

What else could be proposed in order to carry conviction? One suspects the stipulation that the clause "in no case will the amount payable under this scheme be more than 75 per cent. of the actual profit on the policy in question" will provoke discussion, but it is obvious that, when the whole of the results are pooled and the distribution of the profit is made in proportion to the individual totals of the policies outstanding, the question of working expenses must be taken into consideration as well. Where a policy made a loss to the underwriters, no one expects anything to be returned.

Furthermore, the accounts being made up only when the risks of the underwriting year have been closed, no provision is necessary for unexpired risk or for outstanding claims, and the amount of profit can be calculated, therefore, on a very simple basis. This simplicity is an advantage.

Helpful for Efficiency.

It is almost superfluous to point out that the participating policy is calculated to put a premium on efficiency, and to inspire a more reasonable degree of caution in the methods of the owners of aircraft.

Wm. J. Davies.

CURRENT TOPICS.

Whiteheads Want More Capital.

Just at present the Financial World is in the doldrums, and until the big Funding Loan is out of the way there is an idea that conditions will remain slack. It would not be surprising, however, if occasional spasms of buoyancy developed. By the way, the directors of Whitehead Aircraft (1917), Ltd., are appealing to shareholders to provide £50,000 in the form of 10 per cent. Notes repayable at par on or before June 1st next year. These are offered at 98, and in view of the position discussed last week, one fears that the appeal will be in vain. The intention is to enter the motor-car business. The development is interesting but calls for no comment.

Surveying Air Routes.

It transpires that a new venture, entitled the Aircraft Communication and Meteorological Survey Co., Ltd., has been formed for the purpose of making surveys for air routes and to negotiate and obtain contracts for building them. The initial capital is £2,000. The idea is novel and one need not say anything more about it.

Napiers and the Government Policy.

Some pertinent and interesting remarks concerning the official policy in regard to aviation were made at the shareholders' meeting of D. Napier and Son :—

As stated in the report, important progress in the development and manufacture of aero-engines has been made by the company during the past year, but I regret to say that while apparently foreign countries recognise the advisability of fostering such business, aero engine manufacturers in this country are not receiving encouragement from the British Government to continue

the manufacture of such engines. At the present time, so far as your company is concerned, we expect to shortly complete our present contracts for Napier aero engines for the Government. You are aware that your company was the first to originally produce the six-cylinder engine car successfully, and our aim now is to produce a model which will far surpass anything of its kind made heretofore. However, the aero-engine has taken many years of experience and skill to bring it into successful production, and having gone through that stage we are desirous of retaining that practical knowledge for the benefit of future aviation, and we venture to hope that the Government will yet see that it would be false economy to allow this experience to be practically abandoned instead of spending a reasonable sum to maintain British supremacy in the air. There is no doubt that commercial aviation will come in time, but it is the period between now and then in which manufacturers of aero engines and aircraft should receive every encouragement from the Government to keep their experienced and skilled people actively employed in the manufacture and development of this class of work if we, as a nation, are to be prepared to hold our own in the air in the future."

Navarro-Wellesley Aviation Deal.

Quite recently—it was in April to be precise—the Wellesley-Brown Aircraft Co. appealed to the investing public to subscribe for capital. It now transpires that freehold premises at Kingston-on-Thames have been acquired. Adjoining buildings and land also purchased will permit, it is claimed, of future extensions. The benefit of existing Admiralty contracts of the London and Kingston Boat and Motor Co. are included in the purchase.

The entire undertaking of the Navarro Aviation Co., of Burton-on-Trent, has been purchased as well, the consideration being £20,000, of which £10,000 is to be in fully paid shares, with the stipulation that if £40,000 cash is raised in respect of additional capital before Oct. 31st next, the balance of £10,000 to the Navarro Co. will be paid in cash, failing that, 25 per cent. of the net subscription as reserve and the residue in fully paid Wellesley shares The name is to be changed to Navarro-Wellesley Aviation, Ltd.

Rover Capital to be Increased.

Rover shares have been active of late, and it now transpires that the capital is to be increased to £500,000, and that shareholders will be offered 150,000 new shares pro rata at a premium yet to be decided.

NEW COMPANIES.

Short Brothers (Rochester and Bedford), Ltd.—Private company. Registered May 28th. Capital, £150,000 in £1 shares. To take over the business of aeronautical engineers carried on by Short Brothers, at Rochester, at Cardington, Beds., at Battersea, S.W., and at 29-30 Charing Cross, S.W., and with a view thereto to enter into two agreements with A. E. and H. O. Short. The subscribers (each with one share) are:—H. O. Short, Norfolk Lodge, Borstal Road, Rochester, aeronautical engineer; A. I. M. Duncan, 21, Leadenhall Street, E.C., solicitor. First directors: H. O. Short, A. I. M. Duncan, and E. B. Parker. Registered office: 29-30, Charing Cross, S.W.

Automobile and Aircraft Insurance Co., Ltd.—Registered May 26th. Capital, £100,000 in £1 shares. To carry on vehicle, motor, cycle, aircraft, glass, boiler, engine, electric plant and general insurance (but *not* life, fire, accident, or employers' liability insurance or bond investment business within the meaning of Section 1 of the Assurance Companies Act, 1909). The promoters are the General Accident, Fire and Life Assurance Corporation, Ltd. No promotion money is payable and no material contracts have been entered into. The preliminary expenses are estimated at £500. Minimum cash subscription 5,000 shares. The first directors are:—Rt. Hon. Lord Morris, P.C., K.C.M.G.; F. Norrie-Miller, J.P., F.E.I.S., Cleeve, Perth, N.B.; Sir John Taverner, K.C.M.G., Bexley; Col. S. Wishart, Wilbury Lawn, Brighton; J. R. Yates, Boscobel, Oakhill Avenue, Hampstead, and P. F. Brittain, South Cliff Avenue, Eastbourne. The first named are directors of the promoting company. Qualification £250. Registered office: General Buildings, Aldwych, W.C.1.

Cubitts Engineering Co., Ltd.—Registered May 27th. Capital £600,000 in £1 shares (250,000 7½ per cent. cum. pref.). To enter into two agreements with Holland and Hannen and Cubitts, Ltd., and to carry on the business of manufacturers of, wholesale and retail dealers in, letters to hire and importers and exporters of motor vehicles, ships, boats, airships, flying machines and the wheels, tyres, engines, bodies, parts, and components thereof and accessories thereto, rubber and rubber goods manufacturers, etc. Minimum cash subscription 7 shares. The first directors are:—E. C. Hannen, 7, Park Lane, W., director of Holland and Hannen and Cubitts, Ltd.; G. R. Holland, Langley House, Kings Langley, Herts, director of Holland and Hannen and Cubitts, Ltd.; E. M. May, Harperbury, Radlett, Herts, director of Holland and Hannen and Cubitts, Ltd.; H. J. Joseph, Woolley Hall, Maidenhead, financial manager to Holland and Hannen and Cubitts, Ltd.; J. Putnam, Hayden Hill House, Aylesbury, director to Gunter and Co., Ltd., and R. G. Paget and Sons, Ltd.; P. L. H. Dodson, 21, Ravenscourt Park, W.6. Qualification, £1,000. Remuneration £150 each per annum, increasing to £300 according to dividends. Solicitors: Grundy, Kershaw and Co., 6, Austin Friars, E.C.

Aerofilms, Ltd.—Private company. Registered May 9th. Capital, £3,000 in £1 shares. Supplying cinematograph films of aerial incidents. The subscribers (each with one share) are:—G. Reader, 35, Coleman Street, E.C., solicitor; W. A. Chadwick, 35, Coleman Street, E.C., solicitor. Directors: C. Grahame-White, F. L. Wills, and H. W. Matthews. Solicitors: G. Reader and Co., 35, Coleman Street, E.C.2.

Fairey and Charles, Ltd.—Private company. Registered May 14th. Capital £50,000 in £1 shares. Manufacturers and dealers in motor-cars, carriages, cabs, omnibuses, vans, cycles, ships, launches, boats, aeroplanes, water-planes, flying boats, and other public and private conveyances, whether propelled by petrol, steam, electricity, or other power, etc. The subscribers (each with one share) are:—E. A. Fairey, Grove Cottage, Iver, Bucks, engineer; F. M. Charles, Brackenwood, Iver Heath, Bucks, engineer. Managing directors:—C. R. Fairey and F. M. Charles. Solicitors:—Ashurst, Morris, Crisp and Co., 17, Throgmorton Avenue, E.C.2.

W. H. Harrison (Burnley), Ltd.—Private company. Registered May 12th. Capital £20,000 in £1 shares. Aeronautical, automobile, marine and general engineers. The subscribers (each with one share) are:—W. H. Harrison, 110, Melville Street, Burnley, motor engineer; Roland Taylor, 51, Kay Street, Rawtenstall, master porter; J. C. Parkinson, 47, Burnley Road, Rawtenstall, motor engineer. Directors: W. H. Harrison, R. Taylor and J. C. Parkinson. Solicitors: J. C. Waddington, Imperial Chambers, Grimshaw Street, Burnley.

A. E. Co., Ltd. Private company. Registered May 9th. Capital £1,000 in £1 shares. Aircraft, mechanical, electrical, marine, motor and general engineers, etc. First directors: H. J. Heasman, 60, Grove Road, E.17, engineer; J. J. Clifford, 49, Cleveland Park Avenue, E.17, engineer; J. E. Clark, 10, Redbourn Avenue, N.3, C.A. Registered office: 59, Chancery Lane, W.C.

Anglo-Belgian Aviation and Mechanical Co., Ltd.—Private company. Registered May 9th. Capital £15,000 in £1 shares. To carry on business as indicated by the title. The subscribers are: T. D. Jones, Albermans House, Bishopsgate, E.C., general merchant; H. M. Carter, Alderman's House, Bishopsgate, E.C., general merchant. First directors to be appointed by the subscribers. Solicitor: H. S. Holt, 6, Gray's Inn Square, W.C.2.

Pyrotechnics, Ltd.—Private company. Registered May 14th. Capital £10,000 in £1 shares. Manufacturers of and dealers in fireworks, illuminants, marine, aerial and other signals, flares and coloured lights, sporting and blasting powders, etc. The subscribers are:—Major C. Etchells, D.S.O., M.C., 39, Tavistock Square, W.C.1, 500 shares; G. J. Jones, Aldine House, Belvedere, Kent, research chemist, 300 shares; C. R. Harler, 19, Mulgrave Place, Woolwich, S.E.18, research chemist, 300 shares. First directors: Major C. Etchells, D.S.O., M.C., signs as managing director, G. J. Jones and C. R. Harler.

Flying Boat Co., Ltd.—Private company. Registered May 14th. Capital £50,000 in £1 shares. Manufacturers of and dealers in flying boats, seaplanes and aircraft generally, etc. The subscribers (each with one share) are: J. F. Seacombe and H. J. Gay, both clerks, of 8, Finch Lane, E.C.3. First directors to be appointed by the subscribers. Solicitors: Simmons and Simmons, 18, Finch Lane, E.C.

MORTGAGES, CHARGES AND SATISFACTIONS.

Thames Aviation Works, Ltd.—Charge on Government contract dated March 19th, 1919, to secure £2,000. Holder: A. Breeze.

Portholme Aircraft Co., Ltd.—Satisfaction in full on Feb. 12th, 1919, of debs. dated Feb. 19th, 1918, securing £15,000.

FOSTER FIXED FOCUS FOR FIERY FURNACES

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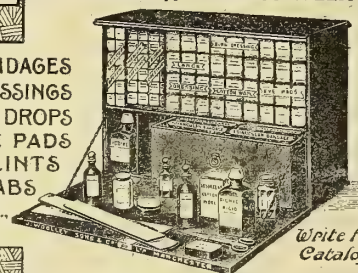
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AIRCRAFT IN PARLIAMENT

THE HOUSE OF LORDS.

THE CASE OF MISS PENNANT

On May 29th, Earl STANHOPE moved:—"That in view of the allegations made both in public and privately against Miss Violet Douglas-Pennant, this House is of opinion that a Judicial inquiry should be held forthwith to examine the circumstances leading to her dismissal from the Royal Air Force." He said that the summary dismissal of Miss Pennant had created considerable interest throughout the country and had been the subject of debates in both Houses of Parliament. Miss Pennant was known to many of their lordships and was widely known throughout the country. She had 16 years' public service to her credit, nearly seven of which had been spent as an Insurance Commissioner for Wales. Yet this lady had been summarily dismissed from the Royal Air Force, and he could not understand why the Government should object to an inquiry.

When, on August 2th, Major-Gen. Brancker informed Miss Pennant that she was dismissed he said it was not because she was inefficient, but "because you are so unpopular with all who come in contact with you that nothing can be done with you while you are there." It was a new policy in this country for public servants to be dismissed because they were unpopular. He denied, however, that Miss Pennant was unpopular. She had been flooded with letters from persons who had worked under her and with her who said that they had much enjoyed working with her.

It was hardly surprising, in view of the way in which Miss Pennant was treated, that remarks were beginning to spread making attacks against her private life. Only yesterday a rumour reached him to that effect in the City, and Mr. Tyson Wilson, who was the Whip of the Labour Party, had said to several witnesses that charges had been made against Miss Pennant of so serious a character that, if they were published, she would never hold up her head again, that her public career was not all as good as it was painted, and Mr. Wilson recommended those who were talking to him to have nothing to do with it, or they also would suffer. It was true that Mr. Tyson Wilson had denied that statement, but it was made in the presence of witnesses.

Mr. Cecil Harmsworth had written Miss Pennant a letter in which he used these words:—"I have strongly recommended that a Judicial inquiry should be held." And he wrote again just before the General Election, "Very sorry called away to constituency before all the arrangements for your inquiry completed," and he went so far as to ask what reparation would satisfy her for the way she had been treated. Proceeding, the noble lord said Miss Pennant's case had been submitted to a committee composed of both Houses of Parliament, and they unanimously came to the conclusion that she had made out a *prima facie* case which justified an inquiry being held. A grave injustice had been inflicted on Miss Pennant and an inquiry should be granted.

Lord BERESFORD supported the motion for an inquiry. He agreed that it would be fatal if that House or any other House tried to assert that the authorities had not the right to discharge and appoint. His own case was very similar. He did not agree with the Admiralty at all when he was Commander-in-Chief, and told them that they did not understand about the war, and they hauled down his flag and put him on the beach. (Laughter.) The fact that he was right and they were wrong had nothing to do with the case, because the authorities must have the right to appoint and discharge officials.

In his case he asked for an inquiry and got it, and after sitting three days a week for four months, that inquiry proved that he was correct. That inquiry did a great deal of good; and he got a great many things altered. Under the circumstances he supported the motion. There had been too much secrecy about this matter. (Hear, hear.)

Lord CLWYD said, seeing the public services Miss Pennant had performed in Wales and elsewhere and her character, the Government should be pressed to hold an inquiry.

The MARQUESS of LONDONDERRY, in reply, thought the controversy was based on an imperfect knowledge of the case. He repudiated every one of the accusations made in regard to concealment, deception, and corruption in this case. There was no desire whatsoever for any sort of concealment. The bare outline of the case was that this lady undertook a very difficult task and encountered immense difficulties, and as time went on it was decided to make a change. Many people who had been transferred or dismissed were labouring under a grievance, but was it suggested that they should all have a Judicial inquiry?

Lord BERESFORD: I suggest that they should if they demand it.

The MARQUESS of LONDONDERRY: That would mean a multitude of inquiries. Continuing, his lordship said that Lord Weir did not attempt to escape censure for the manner in which Miss Pennant was superseded. He (Lord Londonderry) admitted that Miss Pennant was not treated with the consideration to which she was entitled, but while that was a ground of grievance, it could not be said that it was a ground for inquiry. He had read all the correspondence and he had seen everybody whom he could see connected with the case, and he could not find any ground for the inquiry demanded.

With regard to Mr. Cecil Harmsworth's report, Mr. Harmsworth was at the time the Prime Minister's Private Secretary. His report was a private and confidential one, and it recommended that there should be a Judicial inquiry. But the Prime Minister, after reading what Lord Weir said, decided that it was not right or necessary to press the inquiry.

Mr. Harmsworth went down in a practically unofficial capacity and he interviewed a number of persons and obtained their opinions. These persons had not the slightest idea that what they told Mr. Harmsworth would be the subject for a White Paper to be laid on the table of both Houses of Parliament, and he (Lord Londonderry) felt that they would make it impossible for inquiries of this kind to be made if there was any possibility of the report being made public.

The Government were convinced that an inquiry of the kind suggested would be contrary to the interests of the public service. Miss Douglas-Pennant had stated that she had to contend with immense difficulties, and that there was a conspiracy to frustrate her efforts, and that small knots of people inside the Admiralty were in league to frustrate her work at the Air Ministry.

The Secretary of State satisfied himself that Miss Pennant—although he was quite aware of her other qualities—had not the qualities which were necessary to overcome those difficulties, and he had no alternative but to appoint someone else in her place. The proof that he took the right course was to be found in the fact that affairs began to mend from that moment, and he thought they could claim that the W.R.A.F. was now in an efficient condition.

He hoped the House would see that there was no case for a Judicial inquiry into the dismissal of a public servant who could not claim that efficiency in the department in which she was placed, and which had subsequently been managed in a satisfactory manner.

Lord BUCKMASTER said that the most cursory examination of the White Paper containing the correspondence would convince unprejudiced people that there was a serious matter in issue between Miss Pennant and the Air Ministry which could not be satisfied merely by an official answer, however candidly it might be given.

The EARL of DONOUGHMORE said in view of the charges contained in the papers circulated amongst their lordships, he was going to vote for an inquiry. He wished it to be understood that in voting for the motion he was only voting for an inquiry. He was not at all sure that Miss Pennant would get all the benefit from the inquiry that she expected.

THE HOUSE OF COMMONS.

The following oral answers were given on May 26th:—

ROYAL AIR FORCE.—LEAVE FOR INDIAN DRAFTS.

Sir HERBERT NIELD asked the Under Secretary of State to the Air Ministry whether he was aware that Leading Air-Mechanic Daniel Mahoney, No. 62750, late 49th Squadron, Royal Air Force, who had served twenty months in France, was ordered to leave Belgium for India at two hours' notice, which did not allow him time to send his personal belongings home, why it was that this soldier was not granted leave; whether he will see that steps are taken in the future to ensure that soldiers have an opportunity of seeing their relatives before being dispatched to India and like places at a great distance from home; and whether he will give facilities for Mahoney to return at an early date and, in the meantime, see that steps are taken to prevent the practice complained of being continued.

General SEELY: This airman is serving on an ordinary long-service engagement with the Colours. The departure of the Squadron to which he was posted was too near at hand to make it possible to grant him home leave. Home leave is given before men are sent to distant stations providing the exigencies of the Service permit, and it is regretted that the urgency of the departure of this Squadron to India made it impossible to follow this general rule on this occasion.

TIMBER COMMITTEE.

Mr. REMER asked the Under Secretary of State to the Air Ministry whether he was aware that one of the co-opted members of his Timber Committee was the official responsible for sanctioning the use of cypress on aeroplanes; whether he was aware that not more than two members of the Committee have any practical experience of sawing or converting timber; whether he will state the date that this Committee was appointed; and whether he will invite the National Federation of Sawmill Proprietors to nominate additional representatives to assist him in this important work.

General SEELY: I cannot accept the suggestion contained in the first part of the question. The decision was one arrived at by the responsible Technical Department on consideration of all the factors involved, one of which was the prospect of a future failure of supplies of better tried types of wood. The Timber Sub-Committee of the Conjoint Board was appointed on October 10th, 1917. Its composition is, I think, adequately representative for its purposes, but I will communicate the suggestion in the last paragraph of my hon. friend's question to the Conjoint Board.

AIR NAVIGATION.—CONVENTION APPROVED.

Mr. G. MURRAY (*by Private Notice*) asked the Under Secretary of State for Air whether the Convention relating to Air Navigation has yet been agreed to by the Allied and Associated Powers, and, if so, whether he will lay the document upon the Table of the House.

General SEELY: Yes, Sir; I am glad to be able to tell the House that on Thursday last, in Paris, the Aeronautical Commission held its final meeting, and agreed to a Convention relating to Air Navigation. On this Commission the five principal Powers are represented, as also Belgium, Brazil, Cuba, Greece, Portugal, Roumania and Serbia. The seven smaller Powers enumerated have been appointed by the Supreme Council to represent on the Aeronautical Commission all the smaller Powers at the Peace Conference.

The Commission will agree upon a covering Report to be submitted to the Supreme Council. A few reservations by the Delegates of some of these States will be included in this Report. I do not expect that those reservations will affect the usefulness of the Convention. The document is of fifty-six pages, embodying general principles, nationality of aircraft, certificates of air-worthiness and competency, and many other matters of great importance to air navigation. It is of great interest, and I hope to lay it on the Table on an early day.

* * *

The following oral answers were given on May 27th:—

ROYAL AIR FORCE.—MOTOR CARS.

Lieut.-Col. W. GUINNESS asked the Under Secretary of State to the Air Ministry how many motor-cars are allotted to the civilian officials of the Air Ministry.

The UNDER SECRETARY of STATE for AIR (Major-Gen. Seely): Six.

Lieut.-Col. GUINNESS: Do the Regulations allow these cars to convey officials to and from their residencies or do they come by 'bus?

Major-Gen. SEELY: I think they are permitted to convey the officials from their residences. I hasten to say that I think it very reasonable that they should.

Lieut.-Col. GUINNESS: Is the right hon. gentleman aware that the Leader of the House said yesterday that Regulations were issued limiting cars strictly to official business?

Major-Gen SEELY: Yes; and I regard it as official business for these Civil officials to go to their residences or come from them to their offices. If a different policy is laid down, we shall conform to it, but I say at once on behalf of those to whom the cars are allotted, that I think it would be a mistaken policy to force these people, who are giving their services to the State, very often free, to go to the expense of hiring cars.

Mr. HOGGE: Is the right hon. gentleman aware that every Member of this House gives a large amount of time and money to the State and comes to the House and goes from it at his own expense? Does he really ask the House seriously to believe that people employed at the Air Ministry have a right to use public cars at the public expense to take them to and from their residences to their work?

Major-Gen. SEELY: I am not speaking of myself, naturally enough—my present office costs me a great deal of money—but I am speaking for the other officials, and under present circumstances where the difficulty is to find time enough to get the work done where millions of money are involved the officials to whom I refer, who cannot find the time to get the work done as that is, it would be a reactionary step to force them to hire cars for themselves. It is difficult enough to get the work done as it is.

Sir F. FLANNERY: Is my right hon. friend aware that the Magasin de Louvre and other large business concerns have established a system

of conveying their employees from their residences in the morning, and that they do that as a matter of business economy in order to save the time of the employees?

AIR MINISTRY (ACCOMMODATION)

Major BOYD-CARPENTER asked the Under Secretary to the Air Ministry what was the present amount paid for No. 4 Thurloe Place; what is the amount of ground rent for these premises; with whom the rent had been arranged; and who was the owner at the time of the arrangement

Major-Gen. SEELY: The rate of compensation paid for the occupation of 4, Thurloe Place, is £2,550 per annum. The ground rent is £42,495. The rate of compensation was settled by the Defence of the Realm Losses Commission, the legal owner at the time of the arrangement being a Controller appointed by the Board of Trade to wind up the business of the Continental Tyre Company, Limited.

Major BOYD-CARPENTER asked what was the number of officers comprising the staff known as the South-Eastern area; what necessity there was in accommodating them in such premises as No 4, Thurloe Place; whether they could not be accommodated at Kenley or Hounslow in huts, thus saving public money; and whether any attempt was made to so accommodate them.

Major-Gen SEELY: The present number of officers engaged at Thurloe Place is eighty-one, the number of other ranks and of clerical staff being 288. The possibility of these headquarters being located out of London was fully considered, but it was decided that the administrative disadvantages which would follow were too great to allow that course being adopted. A large amount of public money had been saved by the move from Covent Garden Hotel, etc., to Thurloe Place.

Major LANE-FOX: Why is it necessary that the Air Force should take larger premises than they occupied before?

Major-Gen. SEELY: I am advised that that is not the case. There are fewer persons employed, and the total premises now occupied are smaller than those occupied before.

Major LANE-FOX: Is the right hon. gentleman aware that in answer to a question which I asked, I was told that the premises—the number of square feet—were considerably larger than the other premises?

Major-Gen. SEELY: I think not. They would be larger than the Covent Garden Hotel, but there were other places occupied by the same organisation now at Thurloe Place.

Sir H. DALZIEL: Can the right hon. gentleman say how many rooms were occupied at the Covent Garden Hotel?

Major-Gen. SEELY: It was before my time, but I will find out.

Sir H. DALZIEL: About a dozen.

Major BOYD-CARPENTER asked the Under Secretary to the Air Ministry if he was aware that when the tender for the purchase of 4, Thurloe Place was submitted it contained a specific statement as to the requirements for which it was being purchased and that, under Government authority, the tender was accepted without any objection as to these requirements.

Mr BRIDGEMAN: I have been asked to reply. I am informed that when the tender for the purchase of Nos. 1 to 4, Thurloe Place was submitted, a statement was made that the property might possibly be utilised for the purpose of letting flats. As the conditions under which the premises were then occupied were known to the would-be purchaser, the tender was accepted without any objection as to these requirements.

Sir R. COOPER: Is it not very unjust for the Government to allow a sale like this to go through, knowing the precise conditions under which it was being purchased, and then when it was completed to turn round and take the premises out of the hands of the purchaser?

Mr. BRIDGEMAN: The purchaser knew the conditions?

Sir R. COOPER: So did the Government.

Major LANE-FOX: Is it not a fact that the owner of the premises stated that before the premises were taken for this purpose notification would be sent, and that no notification was sent?

Mr. BRIDGEMAN: I cannot answer that offhand. I will try to find out, if the hon. gentleman will tell me who it was that promised to give notification.

Major LANE-FOX: It was an official of the hon. gentleman's Department.

YATE (GLOUCESTERSHIRE) AERODROME.

Mr. RENDALL asked the Under Secretary to the Air Ministry whether he was aware that many girls and women who volunteered for work at the Yate (Glos.) aerodrome have been recently discharged and their places taken by other women; whether this action is locally regarded as unjust and results in the turned-off women receiving out-of-work donation; whether, as the result of newspaper correspondence, no women received fresh notices on Friday, May 16th, but many girls left that week owing to previous notices and eight or nine fresh ones were taken on; and will he say what justification there is for this conduct.

Major-Gen. SEELY: I have not yet had time to obtain full information on this matter, and should be obliged if my hon. friend would postpone his question till Thursday.

OVERSEA FLIGHTS.

Sir A. FELL asked the Under Secretary to the Air Ministry if he will consider the question of the Government forbidding the flight of aeroplanes over wide stretches of sea until the aeroplanes have proved that they are capable of making non-stop flights over land of equal length with reasonable certainty.

Major-Gen. SEELY: I would refer to my statement in answer to a question on the same lines raised by the hon. and gallant Member for Lanark in the course of the Debate on the Adjournment on the 20th instant.

* * *

The following written answer was given on May 27th:—

ROYAL AIR FORCE.—HALTON CAMP (WAGES).

Capt. BOWYER asked the Parliamentary Secretary to the Ministry of Munitions whether the men working on the contract at Halton Camp, Bucks, are receiving an exhorbitant rate of wages; whether, owing to lack of competent supervision, a minimum of work is being done for these wages; whether he was aware that as a result local labour is being demoralised by the sight of little work and high wages and is being attracted to Halton; and whether he will set up an inquiry into this matter, in view of the fact that local employers find it impossible to compete with the high wages at present ruling.

Major-Gen. SEELY: The rates of wages paid at Halton Camp are in accordance with Award No. 2197 of the Committee of Production, a copy of which I am sending to my hon. and gallant friend. I visited the camp ten days ago, and action has already been taken in order to ensure that there shall be no undue delay in carrying out the work, which urgently requires completion

The following oral answers were given on May 28th:—

INDIA.—BOMBING BY AEROPLANES.

Colonel WEDGWOOD asked the Secretary of State for India whether aeroplanes were employed to drop bombs on Indian rioters; if so, where, and by whose orders; and whether, in view of the difficulty of hitting any target with such bombs, he will issue directions that such weapons are not to be used in future against civilian populations.

The SECRETARY of STATE for INDIA (Mr. Montagu): Aeroplanes were used at Gujranwala in the Punjab as a measure of military necessity. They were dispatched from Lahore by the military authorities, and one plane dropped a few bombs on a mob which had since early morning been occupied in destroying houses in the civil station, the railway station and church, while women and children had taken refuge in the Treasury, protected only by a small force of police.

Colonel WEDGWOOD: Have instructions been given that aeroplanes are not to be used in future against the civilian population?

Mr. MONTAGU: No, Sir; the responsibility for carrying out martial law must rest with those who have to administer it. And if this is a question of dispersing a mob which is threatening the lives of women and children who are insufficiently guarded I refuse to interfere with the discretion of the military authorities

Colonel WEDGWOOD: In view of the fact that these aeroplanes cannot drop bombs accurately, and that therefore in large towns bombs are about certain to hit the wrong people, would it not be more humane to employ the other efficient means of defence in our power?

Mr. MONTAGU: Certainly in this case the aeroplane was successful in dispersing the mob. I am not sufficient of an expert to endorse the hon. and gallant gentleman's remarks about aeroplanes, but I would observe that there is all the difference in the world between aeroplanes flying at low altitude and those flying at a high altitude in order to avoid guns.

Colonel WEDGWOOD: How many people were killed?

Hon. MEMBERS: Order, order!

Colonel WEDGWOOD: I am always in order. How many people were killed, and how many of these were non-rioters?

Mr MONTAGU: I hope eventually to have the information necessary to inform the House about all these occurrences.

ROYAL NAVY.—TRANS-ATLANTIC FLIGHT.

Lieut.-Col. W. GUINNESS asked the First Lord of the Admiralty if he would state what would have been the cost per month of keeping a line of ships stretched at intervals of fifty miles across the Atlantic while awaiting favourable weather for the trans-Atlantic flight.

Dr. MACNAMARA: I really do not think that any good purpose would be served by endeavouring to work out this cost, though, of course, it would be considerable. Neither do I think it is primarily a question of cost at all. The real question is what is the proper function of the Navy, and how far it is desirable and possible to add to its duties by obligations such as those indicated in my hon. and gallant friend's question. On that, as has been said more than once, the present commitments of the Navy are heavy and responsible. They cannot under any circumstances be set aside; and its resources leave no margin whatever for undertaking duties such as those referred to in the question.

Lieut.-Col. GUINNESS: As a matter of expert opinion, would it be possible to keep the Navy strung out in this way for an indefinite period, such as would have been necessary if public clamour had been satisfied?

Dr. MACNAMARA: I have already said it would be very expensive, but as it cannot be done the question of cost does not arise

Lieut.-Col. GUINNESS: It cannot be done?

Dr. MACNAMARA: No.

Lieut.-Col. Sir J. NORTON GRIFFITHS: Would it be possible, in the event of such flights taking place, if Admiralty ships were in the vicinity of the flight, that they should be notified that the flight is taking place so that they may keep a look out?

Dr. MACNAMARA: If they are there, yes—but they are always on the look out! I will put the point of notification to naval authorities.

Sir J. NORTON GRIFFITHS: Will the vessels be notified?

Dr. MACNAMARA: I will put the suggestion at once to the naval authorities.

Commdr. BELLAIRS: Would it not be quite possible to have fully-manned ships stationed on the West Coast of Ireland instead of two half-manned destroyers stationed at Queenstown?

Dr. MACNAMARA: It is a question of personnel, and the numbers in the Fleet. Many demands have been made for demobilisation as my hon. and gallant friend knows.

Commdr. BELLAIRS: Can you send the ships out?

Dr. MACNAMARA: My hon. and gallant friends request shall be put to the authorities.

* * *

The following oral answer was given on May 29th:—

CASUALTIES.

Mr. CLOUGH asked how many casualties there have been in the Air Force since the Armistice up to the present time, mentioning in addition those which have had a fatal termination.

Major-Gen. SEELY: The reply is as follows:—Officers, fatal, 374 up to May 25th, 1918, for Home and Overseas; other ranks, fatal, 848. The above figures are up to April 30th, as it was not possible to work out the information up to a later date in the time available The figures for non-fatal casualties up to date are being inquired into

* * *

The following is from the "Times" of June 3rd:—

Capt. WEDGWOOD BENN asked the Under Secretary for Air whether he could make a statement about the future organisation of the lighter-than-air branch of the Air Service.

Major-Gen. SEELY (Under Secretary for Air): Proposals to transfer the responsibility for airship construction from the Admiralty to the Air Ministry are now under discussion between the two Departments. I think it would be inadvisable to make any further announcement at present, but I will do so as soon as details have been arranged.

Major-Gen. SEELY, in reply to a question by Captain Ormsby-Gore, said that the Tarrant triplane was built for military purposes to the order of the Government, and it would not be in the interest of the public service for the results of a technical investigation into the causes of the accident which recently took place at Farnborough to be published.

AERONAUTICS and The LAW

THE USQUE AD COELUM DOCTRINE "WARNED OFF."

By "THE LINCOLN IMP."

Mr. Bickmore in a learned and interesting letter (see THE AEROPLANE for May 7th) comes to grips with the Imp on the *usque ad cœlum* doctrine. A technical letter calls for a technical reply which cannot but appear dull and forensic to a non-technical reader. Let such an one, therefore, be warned and desist.

On Cabbages and Kings.

By way of clearing decks for action, the Imp finds he can jettison a large portion of Mr. Bickmore's letter. To wit, that portion which deals with the sovereign rights of the State. Mr. Bickmore's views on this topic were anticipated by the Imp in his first article, "Trespassers, Beware!" In that article and in Mr. Bickmore's letter a distinction is drawn between cabbages ("to fly over his cabbage-patch" and kings "sovereign rights *usque ad cœlum*"). In spite of Mr. Bickmore and the Walrus, the Imp is of opinion that the time has not yet come to speak of the latter, and he intends for the present to confine himself to the topic of the private rights of private owners *usque ad cœlum*.

Unchallenged Authorities.

The Imp in "Goshawks" traced the Latin tag, "Cujus est solum ejus est usque ad cœlum," to Coke upon Littleton as its origin. Coke there stated as a fact that this Latin tag had been "holden," *i.e.* decided, in three old cases, the reference to which in the year-books he gives. The Imp next proved that these three cases did not decide anything of the sort. Mr. Bickmore makes no attempt to challenge the Imp on any of these points.

Next, the Imp quoted more modern authorities, in which Lord Ellenborough and Lord Brampton had expressly denied that "interference with the column of air superincumbent on the close" or "firing in vacuo" was a trespass. These cases are passed over by Mr. Pickmore in silence.

Some Contradictory Cases.

The line which Mr. Bickmore does adopt is that of adducing two other authorities which have the appearance, as he states them, of contradicting the cases on which the Imp placed reliance. These two cases, however, will repay a closer examination than Mr. Bickmore has given them.

Horizontal Hereditaments.

The Eastcheap-Philpot Lane case is Corbett v. Hill, a well-known authority dealing with what are called "horizontal hereditaments." This action, as Mr. Bickmore says, was based on trespass, and an injunction was claimed—but then it was refused, which takes the sting out of the tail!

It is material to understand the peculiar facts of the case. Corbett had once owned the two houses, Nos. 15 and 34. He conveyed No. 34 to Hill, who pulled it down, and in so doing disclosed a first-floor room of No. 15 which had projected beyond the ground site into No. 34. Hill proposed to rebuild No. 34 over this first-floor room as the old house had been built. Corbett said, "No. The air over my room is mine, and you will be a trespasser if you build there"

The decision in the case was that Hill might build as he intended, and would not be a trespasser. It is material to notice (a) that it was expressly *not* decided that the projecting first-floor room belonged to Hill, the owner of the *solum* or site, and (b) that the air-space in question had already been occupied by bricks and mortar.

The decision really was that the upper storeys of No. 34 had been conveyed by Corbett to Hill and their removal did not prevent Hill from building in the air-space which they had occupied. It is true that the Court prefaced its order by declaring its opinion that the column of air over the projecting room passed by the conveyance of the ground site, but there was no reference made to *usque ad cœlum*, which is the portion of the tag which is obstructive to reasonable flying.

Legal Presumption.

The Imp must concede to Mr. Bickmore that the observations made by the K.C. went beyond what was necessary for the decision of the case: "Now the ordinary rule of law is that whoever has got the *solum*—whoever has the site—is the owner of everything up to the sky and down to the centre of the earth." But then he went on: "But that ordinary presumption of law, no doubt, is frequently rebutted by the fact that other adjoining tenements protrude themselves over the site." The phrase which the K.C. used—viz., presumption of law—gives a clue to the real origin and meaning of the maxim, a meaning which renders it no obstruction at all to the development of flying.

In strictness it is a rule of evidence and not a proposition of substantive law. There are precisely analogous presumptions of law that a conveyance of land adjoining a road passes the property in the soil of the road *usque ad medium viæ*, and that a conveyance of land adjoining a river passes the property in its bed *usque ad medium filum aquæ*. "It is a law of conveyancing that *prima facie* where a man grants land on the bank of a river, having himself the soil *ad medium filum*, the soil *ad medium filum* passes by the grant."

Paraphrasing these words of Kay, J., in Tilbury-v. Silva, we may say: "It is a law of conveyancing that *prima facie* where a man grants land, having himself the air-space above it, the air-space, as far as he has it, even *usque ad cœlum* passes by the grant."

Unfortunately the qualifying words, being of little or no importance until flying was invented, have dropped out of the rule as commonly stated. The rule could not, however, be more neatly or accurately put than by the late Lord Chancellor in a very recent case: "The word 'soil' is apt to denote the surface and everything above and below it."

Constellations or Ceilings?

The rule is a rule of conveyancing, and lays down what is included in such words as "terra," "solum," or "land" in the parcels. It has nothing to say to the question, "Can a private individual own a bit of heaven or hell?"

It answers this question thus: "*If* he can, he can convey it to another by using the word 'land,' and will be taken to have done so in the absence of some reason to the contrary." Possession and ownership of the sky is a question of fact, in the ultimate analysis, which up to the present and even now must be answered

in the negative. After all, what is this *cœlum?* Is it that which Addison has so finely said :

"The starry firmament on high,
And all the blue ætherial sky,"

or is the *cœlum* what constructors and pilots call "the ceiling" of an aeroplane? That is the highest attainable point.

The Tunnel Case.

We must hasten to the second of Mr. Bickmore's authorities. The tunnel case does not give him all the support he seeks to draw from it. True it is that *it was said* there that ownership of the surface gives ownership of everything above the surface *usque ad cœlum* and of everything below. But by whom was it said? By counsel in arguing, and not by the judge in his judgment.

The judge thought it sufficient to say that "so much of what is beneath as is necessary for the enjoyment of the surface" was the depth to which the rights of the surface owners went. This qualified statement of the doctrine is very reminiscent of the judgment of Brook, J., in the Bishop of London's case, where the claim made by counsel went *jusqu'al firmament.* The judge carefully qualified his judgment thus : "And so all the earth in which it grows in depth and all the air which nourishes it in height belongs to him to whom the tree belongs." Even Mr. Bickmore in his letter applies the same test : "Ownership *and possession* [Imp's italics] of the superincumbent space lying above the site is essential to the full enjoyment of the site or surface of the earth itself." Does Mr. Bickmore already *possess* a mansion in the skies? Does he find its possession essential to the enjoyment of his home on the earth?

A Trespasser Who Commits No Nuisance.

Mr. Bickmore also cites some old cases of nuisance and some distinctions which have been drawn between air-space and currents of air. His remarks on these topics were worth writing in this connection, and well repay reading, but the Imp is not called on to answer them because they are not relevant to the sole topic the Imp is here discussing—whether flying involves trespassing. An aeroplane at 20,000 feet commits no nuisance to the cabbage-patch of an allotment-holder, but is it trespassing on his property? As the law stands, Mr. Bickmore thinks it is. The Imp begs to differ.

THE INQUEST ON CAPTAIN RAWLINGS.

Mr. J. T. Coggins, deputy coroner for Aldershot, opened the inquiry at the Cambridge Hospital, Aldershot, on May 28th, into the death of Captain Percy T. Rawlings, D.S.C., D.F.C., R.A.F., late R.N.A.S., who died from injuries received in the accident which took place during the trial of the Tarrant triplane at Farnborough Aerodrome, on May 26th. Capt. Rawlings was general manager of the Aircraft Department of Tarrants, Ltd. The machine had been built and prepared for its trial flight under the personal direction of Mr. W. G. Tarrant, the designer and constructor.

Mr. C. W. M. Price represented Mr. Tarrant, who was also present. Mr. Walter Frampton appeared for Messrs. Ogilvie and Partners, aeronautical engineers.

The Coroner told the jury that he had summoned them, as the inquiry was a matter of public interest.

The Coroner added that an inquiry was being made into the disaster, but the report of the experts had not yet been issued, and, in order to give the experts an opportunity of making their report, and also particularly to give Mr. Tarrant an opportunity of calling a witness who was injured in the smash, he proposed to adjourn the inquiry for a fortnight, after taking evidence of identification.

Mr. Price suggested an adjournment of three weeks, and the Coroner agreed.

The foreman of the jury expressed regret at the accident, and sympathy with the relatives.

The Coroner concurred.

Mr. Tarrant : I should like to express my very great sorrow and sympathy with the relatives on this occasion, and to say how very much I appreciated the efforts of Captain Rawlings in assisting in the construction of this machine. He was quite as keen on the machine as I was. Nothing I can say can sufficiently express all that he has done.

Mr. W. Brook-Sayers, Colonel Ogilvie, and the Sperintendent of the Royal Aircraft Establishment associated themselves with the expression of sympathy.

The inquiry was then adjourned until June 18th.

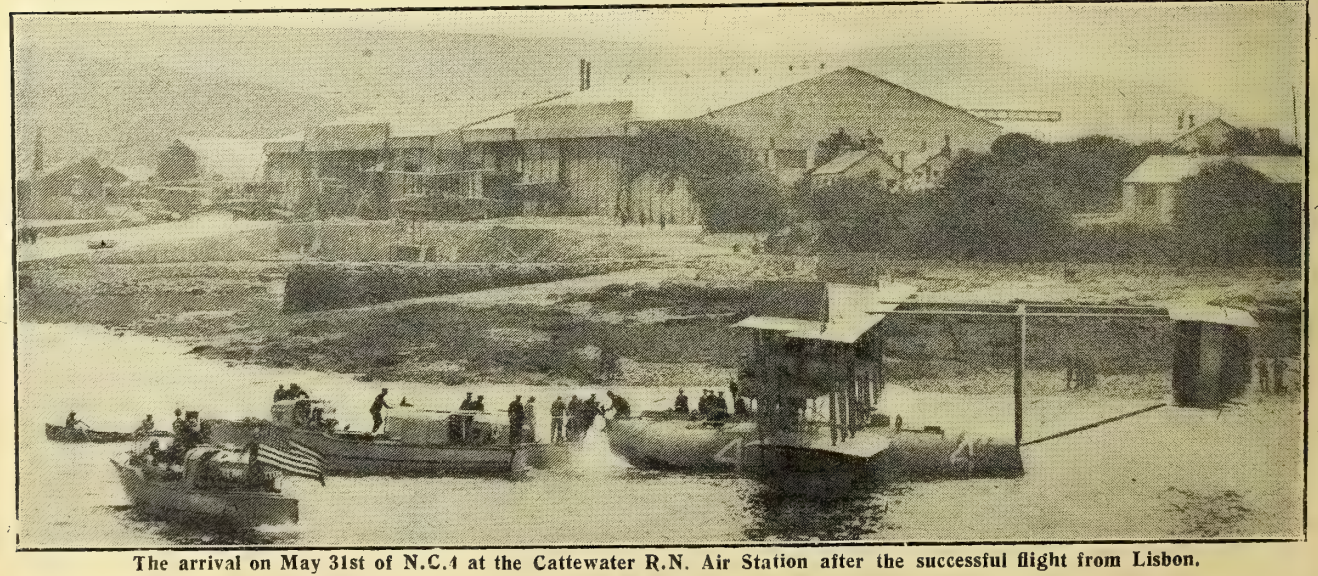
AN ACCIDENT IN ITALY.

On May 18th Lieut. Prince, R.A.F., and Lieut S. Spratt, R.A.F., were killed in an aeroplane accident at Centocelle aerodrome, Italy. Colonel Lawrence, R.A.F., another occupant of the machine, a Handley Page, was injured and two mechanics were hurt, but not seriously. The accident was caused through a bad landing owing to the dusk. This machine, in company with another, had left Marseilles that morning, making a short stay at Pisa, and it is stated that no warning of their departure from Pisa was given. The second machine landed in safely. King Victor Emmanuel paid a visit to the injured men in hospital.

THE R.A.F. AND RABIES.

The official at the Board of Agriculture who is mainly responsible for the administration of the Rabies Order stated on May 31st that information recently obtained satisfied the Board that many officers of the Royal Air Force were flagrantly disregarding orders and were smuggling dogs into this country from France and Belgium.

It should not be possible for any dog to be brought into a camp without the knowledge of the officer commanding, and he had no doubt some responsible officers knew what was going on. This official suggested that if offenders were promptly dealt with by court-martial it would probably have a salutary effect. Many offenders who were just about to be demobilised did not mind the risk of being caught; but a smart sentence, carrying with it the loss of gratuity, would probably stop these reprehensible practices.



The arrival on May 31st of N.C.4 at the Cattewater R.N. Air Station after the successful flight from Lisbon.

THE TRANS-ATLANTIC COMPETITION.

On May 28th, Mr. Hawker and Lieut.-Commander Mackenzie-Grieve were received in audience by H.M. the King, who decorated them with the Air Force Cross. Later they were introduced to the Queen and the Prince of Wales.

The "Lake Charleville," an American steamer, picked up, on May 23rd, the Sopwith aeroplane abandoned by Mr. Hawker. The position of discovery was latitude 49.40 N. and longitude 29.08 W. The mails on board were recovered.

The American Attempt.

The N.C.4, under the command of Lieut.-Commander Read, U.S.A., left Ponta Delgada at 10.18 a.m. (G.M.T.) on May 27th and reached Lisbon on the same day at 8.4 p.m. (G.M.T.).

On May 30th the N.C. 4 left Lisbon at 5.20 a.m. for Plymouth. Owing to adverse winds, she was forced to alight in the Mardego river. Rising later, she was flown to Ferrol, alighting there at 4.35 p.m. (G.M.T.).

At 6.27 a.m. (G.M.T.), on the following day, the N.C.4 left Ferrol for Plymouth. The weather was squally, with fairly thick cloud. Only the destroyers were sighted. Brest was reached at 11 a.m. (G.M.T.), but the seaplane did not alight. After circling over the harbour she was flown direct to Plymouth, passing frequently through heavy rain. The wind was adverse, and progress was slow. Plymouth was sighted at 1.12 p.m. (G.M.T.), and the machine alighted at 1.30 p.m. (G.M.T.)

Three British flying-boats (F.2a type), under Major R. K. Kershaw, escorted the American boat into harbour.

The following table gives the various stages of the flight.

	Miles.		Time. hrs.	min.
May 8th-10th.				
Rockaway to Trepassey	950	...	—	—
May 16th.				
Trepassey Bay to Horta	1381	...	15	18
May 20th.				
Horta to Ponta Delgada	169	...	1	45
May 27th.				
Ponta Delgada to Lisbon	925	...	9	44
May 30th-31st.				
Lisbon to Plymouth	895	...	10	20

Lieut.-Commander Read, who landed at 4 p.m. at the Barbican, at the point from which the crew of the "Mayflower" left for their historic voyage to America, was received by the Mayor and the local Naval, Military, and R.A.F. staffs, as well as by the crews of N.C.1 and 3. Lieut.-Commander Read proceeded to London on Saturday last, where he also had a reception which proves that we are, as a race, not ungenerous to foreigners.

Another Entrant?

It is rumoured that Miss Ruth Law, who has attained distinction as a pilot in America, intends to compete for the prize. She is said to have chosen a Curtiss flying-boat as the most suited to the conditions of the flight.

Other Competitors.

The Vickers and Handley Page biplanes are both rapidly nearing completion in Newfoundland.

Messrs. Boulton and Paul have selected Major K. S. Savory, D.S.O., R.A.F., and Captain Woolner to pilot the first of their two biplanes entered by the firm. Captain A. L. Howarth is to be observer and wireless expert.

The British Airships.

It is stated that an attempt will probably be made to fly the Atlantic some time next month by either the "R.33" or the "R.34," both of which are Admiralty airships.

A Consolation Prize.

Lieut.-Commander Grieve, A.F.C., and Mr. Harry Hawker, A.F.C., were the guests of honour at a luncheon given at the Savoy Hotel by the proprietors of the "Daily Mail" on May 28th. Major-Gen. the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., handed them a cheque for £5,000 given by the "Daily Mail" as a consolation prize.

The majority of the speeches were up to the average standard of mediocrity, but Mr. Hawker said modest and effective words that pleased the gathering.

He began by thanking everyone for taking so much notice of "our feeble effort." There was hearty laughter when he went on to say, with evident sincerity, that there was not a man present who would not have done the same thing

The position, he pointed out, was simply this, that owing to the long delay people on the other side began to think there must be some reason why they did not start. It even went so far as statements in the papers that as soon as the Americans got to the other side Hawker and Grieve would pack up and go home.

"I don't think they knew us," he said. "We had decided the night before the start that if we didn't go to England we would go to the Azores, and on to Portugal, because, you see, there was an easterly gale which at that time made it impossible to reach England. But the weather improved. It was very unfortunate for Raynham that he couldn't get off with an east wind, and very fortunate for us that we could."

Lieut.-Commander Mackenzie-Grieve confessed that at one time he had been a bit frightened about the navigation of the aeroplane. On leaving St. John's he had no idea how things would pan out, but he said to himself: "Here's the sea. We must navigate her as we do a ship at sea, and we must regard the clouds as our horizon—with certain technical differences, of course."

The Royal Aero Club's Tribute.

Lieut.-Commander Grieve and Mr. Hawker were entertained to lunch by the Royal Aero Club at the Savoy on May 30th. Brig.-General Sir Capel Holden, the Chairman, proposed the health of the heroes of the day, and explained that this was not a formal reception but purely a family gathering of the members of the Club to welcome the return of one of their members and his companion in danger. Mr. T. Marlowe, of the "Daily Mail," supported the toast.

Lieut.-Colonel Frank McClean, who was described by the Chairman as the father of British Naval Aviation, also supported the proposal. He was received on rising with almost adequate applause, and said, after a brief tribute to Mr. Hawker's pluck in starting despite adverse conditions, that Lieutenant-Commander Grieve's navigation was one of the finest pieces of work of its kind ever done—a statement which was received in a manner which left no doubt as to the appreciation of the fact by the members of the Royal Aero Club.

Mr. Hawker and Commander Grieve returned thanks with the maximum efficiency, averaging about a dozen words each and sustaining their reputation for being "men of deeds, not of words."

Mr. T. O. M. Sopwith also replied to the toast, and gave some interesting details of the flight which had not been published. He said that when he found that the engine was overheating, Mr. Hawker brought the machine down from above the clouds somewhere over 10,000 feet to under 1,000 feet before he found clear air. Being below the clouds Commander Grieve's job as navigator ceased, and he promptly went to sleep. Some hours afterwards he woke up and casually inquired whether Mr. Hawker had found a ship yet As Mr. Sopwith remarked, "you can't beat a man like that."

Another interesting fact disclosed by Mr. Sopwith was that one of the first things which the pair asked after he had met them at Grantham was that they should be allowed to have another shot at the trans-Atlantic flight. He then announced that the firm did not intend to try again, as it had had its chance, but that he wished all the other competitors better luck than they had had. Mr. Sopwith finished by tendering the congratulations of all present to the Americans who had succeeded in crossing the Atlantic by air, a sentiment which was loudly applauded.

Major-General Sir Sefton Brancker, K.C.B., proposed the health of the Chairman with a brevity only matched by the speeches of the guests of the day.

The Sopwith at Selfridge's.

On June 2nd and for some few days to come the remains of the Sopwith aeroplane flown by Mr. Hawker on his attempt on the Atlantic flight may be seen by those sufficiently interested on the roof of Selfridge's, Oxford Street, W.1. There is no charge for admission.

Atlantic Weather.

The following is taken from the "Times" on June 3rd:—

Sir,—It may be of interest to mention that in 1857, previous to the laying of the first Atlantic submarine cable, I was on the staff of that company under its engineer, Mr. (afterwards Sir Charles) Bright, and I had the duty of making an analysis of the weather in the North Atlantic from the logs of the Cunard Royal mail ships—Liverpool to Halifax and Boston—for the years 1854-55 and 1856, for the months of June, July, and August, to find the time most favourable in atmospheric, sea, and ice conditions for laying the cable.

I remember about the first week in July to the first week in August was decided upon as being the most suitable, and my subsequent experiences in 1865-66 and 1869 in laying those Atlantic cables with Sir Samuel Canning confirmed that time. It is true you are always liable to a summer gale, but not often to real bad weather. This information may interest your readers and the flying world whom we all so much admire.—Yours obediently, John Temple, C.B.

Aigburth, Liverpool, June 2nd.

Mr. Prodger's Trans-Atlantic Attempt.

Mr. Clifford B. Prodger states that though he endeavours to make a trans-Atlantic flight he is unable to state definitely the type of machine in which he will make the attempt.

Pilots for the Fairey Seaplane

The Fairey Aviation Company, of Hayes, Middlesex, announce that they do not require more pilots for the trans-Atlantic Flight. Those who have applied but have not yet had a reply will receive one in due course.

A HISTORY OF THE R.N.A.S.

Sir,—I believe that I express the sentiments of all former officers and men of the late Royal Naval Air Service when I make the suggestion that a concise and complete history and record of the work of the Royal Naval Air Service, published in book form, would fill a gap in our war records very desirably, and would be most warmly received by all former members of that Service.

There have been references quite frequently to the work or history of the R.N.A.S. in many of the popular books on the subject of war-flying in its many aspects. There have been letters published dealing with the life and work of aviators in this Service. There have been very condensed reports of the work of the Air Forces attached to Naval commands in many of the official War Office and Admiralty reports, some of which have been published, but many more filed away and unpublished.

Now that the war-time censorship has been removed, why should not a complete and collected account, compiled by a capable person who has access to all sources of records and references, be published as a memorial of an extinct Service, and as a history and record for the many men who are proud to have once belonged to such a select and distinguished Service? Such a book, I suggest, would be a worthy acquisition to the bookshelves reserved for war or aeronautical works, and would be in demand by the large number of members of the Flying Services.

May I take the liberty of offering the following general plan of such a work, as I should like to see it treated?

A Record of the Work of the Royal Naval Air Service.

I.—Instigation and Establishment of the R.N.A.S.

II.—Air Work in conjunction with the Fleets.

III.—Bombing Operations :—

1. North Sea and Belgium.
2. France, Germany, etc.
3. The Near, Middle and Far East.

IV.—Fighting Operations of the R.N.A.S. on the various Fronts.

V.—Anti-raid and anti-aircraft work in Britain.

VI.—Anti-submarine work.

VII.—Observation work (spotting, reconnaissance, balloons, airships, etc.)

VIII.—Conclusion—the transformation of the R.N.A.S.

Each chapter or section should take the form of a separate small history in itself, dealing with the development of machines and methods, the actual operations, and the splendid work and results of the more noteworthy of the Service heroes. The book will be really interesting, I believe, only as it is interspersed through every chapter with numerous cited incidents and adventures. Therein lies the popularity of the excellent record of "Submarine and Anti-submarine" work, by Henry Newbolt, and other similar books. To read of the achievements of our comrades, known or unknown, cannot fail to arouse in us a greater pride than ever in the Service to which many of us were once privileged to belong.

I am writing this in the belief that at the present time no book such as I suggest exists. If there is such a work, of which I am ignorant, I shall be very grateful indeed to learn of it.

I hope that this subject may be carefully considered and taken up in the interests of the Air Services, and particularly of the Royal Naval Air Service. In these times when history is being made day by day, we should have a careful record for the use of future generations whose business is to write the history of the past from the best records they can obtain. To our own generation, also, such a record should appeal very much. I should be glad if you would direct this letter to the attention of those best able to give it careful thought. I am not writing it merely for myself, but under the conviction that it is expressive of the desire of the whole Service, and that it is in the interests of that Service. Therefore, I trust that it will be accorded the attention that such a general desire merits.

Kenneth P. Kirkwood.
Lieut., R.A.F. (ex-R.N.A.S.)

AVIATION IN RUSSIA.

The following letter was published in the "Times" of May 26th:

Sir,—The war has been the means of bringing aviation to a high standard. The armies' and navies' enormous demands for the output of aeroplanes have greatly developed this branch of British industry. The present difficult lies in finding a solution of applying aviation to civil life. The latest efforts in endeavouring to cross the Atlantic and establish air communication with India unfortunately show that our hopes cannot as yet be realised of making aviation (in the near future) a serious and reliable competitor with other existing means of communication in this country.

I should, therefore, like to draw the attention of the British public to the one important solution which would most certainly support and develop this young branch of British industry, and at once render her practical and most useful. Russia, one of the greatest and flattest countries in the world, with any amount of natural landing ground, suitable climate for aviation as regards wind and fog, will be left practically without any means of communication at all.

The Bolshevists, whose downfall is now a matter of a few weeks, will be replaced by a staple and strong Government. But two years of civil war have entirely destroyed all railway traffic. The state of roads renders motoring almost an impossibility. River traffic is slow and out of the question during the winter months.

I therefore most emphatically state that Russia, in her present state, as well as in the near future, offers an unique opportunity for the immediate development of civil aviation without almost any sort of competition from other means of communication.

The development of air lines in Russia between various parts of the country would be of an enormous value to the future Government. It would help to reinstate order easier and quicker, and help Russia to attain a normal existence once again. Aviation would find a noble scope, and exist not only as a military weapon for destruction, but be the means of reconstructing a large country, which has for so long suffered at the hands of the evil genius of destruction.—P. Shishkoff (formerly Director of Aircraft Experiments, Russian Navy).

A SMITTEN CRITIC.

Sir,—May I be permitted to make a somewhat belated reply to your critic's remarks on my book, "Air Men o' War."

First, "R. H. B." strafes me severely for the title of my book, which he refers to as "*Airmen* o' War.' May I point out that this is either a direct misrepresentation or such a casual reading as a critic may reasonably be ashamed of. The title printed on the cover, on the title page, the Dedication, and everywhere else is clearly and distinctly and intentionally "Air Men o' War." Your critic is the only person I have found object to the title, or fail, as he apparently does, to understand it. I might certainly have called it "Men o' War of the Air," or "Flying Officers, N.C.Os., and Men of War," or something else more intelligible to your critic's understanding, but I still prefer my own title. I have not seen "Airmen" flaunted in any review but The Aeroplane's, or on any bookstall. They reviewed and showed "Air Men——."

"R. H. B.'s" bitter objections apparently are based on the assumption that, as he puts it, "An 'airman' is one of those depressed-looking beings that carry deboshed petrol cans about, whistling curious dirges between their teeth. Something in armoured boots for preference,' etc., etc.

I want to protest as vigorously as I can against this and other unpleasant and unfair running down of a class of men who, to my own knowledge, not only did their own job on the ground well, and in the 'dromes had to stand frequent and unpleasant doses of bombing and machine-gunning and long-range shells, but also from their ranks provided many pilots and observers and aerial gunners who flew as Officers, N.C.Os., and Men, earned decorations, and generally were a credit to the Force to which they belonged.

Is "R. H. B." aware of the fact that McCudden started as a mechanic, and was in no way ashamed of the fact, or does he despise Mac as a one-time "depressed-looking being," etc., etc. And I could string off a list of names of men who were "airmen" and also flying men that the R.A.F. was proud of.

Curiously enough, "R. H. B." singles out as "the best tale of the lot," a story which describes the work of some of those "depressed-looking," etc., and I might have hoped it would have given him some idea of part of the strenuous life of the men on the ground, and led him to leave out his insulting remarks on good men.

"R. H. B." kindly refuses "to harp on the occasional mishandling of technical minutiae," but he at least might have quoted me correctly and not mishandled my mishandling, as in the paragraph he holds up to scorn "jerking flashes of the machine-gun that blazed along her propeller." I wrote "through her propeller," which I think expresses my meaning, although I ought perhaps to have written "airscrew" and quoted the language of the C. C. Gear Handbook to avoid "mishandling."

"R. H. B." may be critic and judge enough of writing to entitle him to find fault with my style and my pages "thickly spangled with adjectives," but will he allow me to point out gently that the reproof, coming as it does on top of his sentence on the "depressed-looking beings," "deboshed petrol cans," "curious dirges," "armoured boots" sounds rather like "Satan reproving sin." I doubt if even I average four single- and double-barrelled adjectives to five consecutive nouns.

And even I in my worst "dazzle-writing" have not been guilty of his expression "Poilu of the Blue." "I say it very loud and clear," Mister R. H. B., even as you say about the depressed dirge whistlers, that "Poilu" is the French nickname for their unkempt, untidy—if I may borrow the witty adjective—"deboshed" infantry of the line, literally the bearded, the hairy ones. "R. H. B." may scorn my "Air Men" title, but I'm conceited enough to prefer it to "Poilu (Hairy Ones) of the Blue," or even "Intrepid Aviators" or "Birdmen."

(Signed) Boyd Cable.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

Admiralty, May 27th.

The King has been pleased to approve of the award of the following decorations to the undermentioned men:—

Meritorious Service Medal.

Air Mech (1st Cl.) F. Hainsworth, R.N.A.S.
C.P.O. (3rd Cl.) P. H. Brooks, R.N.A.S., O.N.F. 12795.

Air Ministry, May 27th.

The following temp. appointment is made at the Air Ministry:—Director.—Lt.-Col. (actg. Brig.-Gen.) C. L. Courtney, C.B.E., D.S.O., and to retain the actg. rank of Brig.-Gen. while so empld., from March 1st to April 30th.

The following temp. appointments are made:—Staff Officer, 1st Cl.—(Air.)—Maj. H. A. R. Aubrey, O.B.E., M.C., May 1st.

Staff Officer, 2nd Cl.—(P.)—Capt. J. S. T. Bradley, on relinquishing the appointment of S.O., 1st Cl., vice Lt. H. J. G. Newman, M.B.E., May 31st.

Flying Branch.—Majs. to be graded for purposes of pay and allowances at Lt.-Cols. (A):—T. O'B. Hubbard, M.C., A.F.C., while so empld., May 1st; C. F. Portal, D.S.O., M.C., while so empld., May 1st.

Maj. J. T. Babington, D.S.O., to be graded for purposes of pay and allowances as Lt.-Col. (A. and S.) while so empld., from May 1st to May 18th.

Maj. O. T. Boyd, M.C., to be actg. Lt.-Col. while so empld., from Jan. 18th to April 30th.

Capts. to be graded for purposes of pay and allowances as Majs. while empld. as Majs. (A.):—(Hon. Maj.) F. B. Binney, C. H. Darley, D.S.C., D.F.C., D. G. Donald, H. S. Kerby, D.S.C., A.F.C., L. L. MacLean, C. E. H. C. Macpherson, R. D. Oxland, W. R. Read, M.C., H. A. Smith, M.C., E. R. Vaisey, May 1st.

Capts. to be graded for purposes of pay and allowances as Majs. while empld. as Majs. (A. and S.):—E. G. Hopcraft, D.S.C., F. J. Linnell, C. H. C. Smith, May 1st.

Capts. to be graded for purposes of pay and allowances as Majs. while empld. as Majs.:—G. G. Cooke, D.S.C. (A'ship), J. Wann (R.B.), May 1st.

Capt. (actg. Maj.) M. Le Blanc-Smith to be Capt. (A.), and relinquishes the actg. rank of Maj. on reduction to estbt., April 24th.

Capt. W. G. Pigott to be graded for purposes of pay and allowances as Capt. while empld. as Capt. (R.B.), from April 1st, 1918, to July, 8th, 1918.

To be actg. Capts. while empld. as Capts. (A.):—Lt. (Hon. Capt.) H. B. Russell, from Nov. 1st, 1918, to April 30th; Sec. Lt. S. King-Smith, from (T.), from Dec. 13th, 1918, to April 30th.

Lts. to be graded for purposes of pay and allowances as Capt. while empld. as Capts. (A.):—G. Andrews, H. M. Coombs, D.F.C., E. D. G. Galley, M.C., A.F.C., J. H. Jephson, A. G. Lamplugh, H. M. Moody, M.C., W. G. Preston, D.F.C., R. W. Reid, M.C., H. L. Rough, D.F.C., G. S. White, H. J. Whittingham, May 1st.

Lts. to be graded for purposes of pay and allowances as Capts. while empld. as Capts. (A. and S.):—W. R. Curtis, A. W. Fletcher, A.F.C., J. K. A. Jeakes, D.F.C., M. H. Rattray, May 1st.

Lt. T. A. Byers to be graded for purposes of pay and allowances as Capt. while empld. as Capt. (K.B.), May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Capts. while empld. as Capts. (O.):—L. J. Chandler, D. G. Fleming, May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Lts. while empld. as Lts. (O.):—J. Bowen, W. H. Dunton, T. Q. Harvey, P. J. Hayes, A.F.C., K. C. McKenzie, A. Neeson, W. Smith, W. A. Thompson, H. J. White, May 1st.

Sec. Lts. to be Lts.:—(Hon. Lt.) A. B. Clark, M.C., April 6th, 1918; H. W. Kelly, May 19th, 1918; J. Hackett, Oct. 26th, 1918.

W. L. Hemus (temp. Capt., Worc. R.) is granted a temp. commn. as Sec. Lt. (A.), Sept. 16th, 1918, and to be Hon. Capt.

Ft. Cmdt. G. J. Cross is granted a temp. commn. as Sec. Lt. (A.), Aug. 12th, 1918.

The following are granted temp. commns. as Sec. Lts. (O.):—L. R. Griffin, M.M. (Sec. Lt., R. Berks R., T.F.), C. W. R. Hodges Sec. Lt., Norf. R., T.F.), Nov. 9th, 1918.

The following are granted temp. commns. as Sec. Lts. (K.B.):—T. C. W. Haynes (Lt., Manch. R., Spec. Res.), and to be Hon. Lt., H. A. B. Brough (temp. Sec. Lt., M.G. Corps), S. V. Evans (Sec. Lt., Notts and Derby R., T.F.), H. H. Lockwood (Sec. Lt., W. Rid. R., T.F.), H. McA. Peacock (temp. Lt., R. Fus.), and to be Hon. Lt., Oct. 29th, 1918; A. T. T. Sleed (temp. Sec. Lt., Gen. List, S.A.), Nov. 10th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. (actg. Capt.) G. E. Wait (Can., W. Ont. R.), Dec. 12th, 1918: Lt. A. L. Galbraith (Lt., C. Ont. R.), Dec. 18th, 1918; Lt. N. H. Raikes (Lt., Canadians), Jan. 1st, Sec. Lt. (Hon. Lt.) C. Frey, M.M. (Lt., Sask. R.), Jan. 9th; L. G. M. Morrison (Lt., New Bruns. R.), Jan. 14th; Lt. R. H. Kelley (Lt., Quebec R.), Feb. 3rd; Sec. Lt. (Hon. Lt.) J. C. Kennedy (Capt., Arg. and Suth. Highrs.), Feb. 20th: Lt. W. E. James, M.C. (Lt., Sask. R.), March 10th; Lt. M. R. Chidson (Lt., R.G.A.), March 24th; Lt. (Hon. Maj.) A. G. Lincoln (Maj., E. Ont. R.), March 31st; Sec. Lt. T. Clarkson (Lieut. R.), April 4th; Sec. Lt. (Hon. Lt.) R. J. Weatherhill (C. Ont. R.), May 4th; Lt. (Hon. Capt.) R. P. Ward, M.C., D.F.C. (Capt., R. Welsh Fus.), May 7th; Lt. (actg. Capt.) C. F. Falkenburg, D.F.C. (Lt., Quebec R.), May 9th; Sec. Lt. A. Lewin, May 12th (substituted for notification in "Gazette," March 4th); Lt. G. D. Gillie, M.C. (Lt., E. Ont. R.), May 15th.

Transferred to unemployed list:—Lt. J. F. Alcock, Jan. 20th; Sec. Lt. R. Walker, Feb. 1st; Lt. H. D. Humphreys, Feb. 2nd; Lt. E. Wilson, Feb. 4th; Sec. Lt. F. Shaw, Sec. Lt. E. Smith, Capt. H. G. Watson, Feb. 7th; Sec. Lt. C. N. Yeoman, Feb. 20th; Lt. H. S. Welby, Feb. 25th: Sec. Lt. A. T. Veness, March 1st; Lt. M. L. Williams, March 3rd; Lt. M. L. Snelling, March 4th; Sec. Lt. T. H. Allan, Sec. Lt. T. H. Allan, Sec. Lt. P. C. Armstrong, Sec. Lt. F. C. Armstrong, Sec. Lt. F. C. Murray, March 7th; Lt. F. H. Chainey, Sec. Lt. C. Wilkinson, March 14th; Sec. Lt. R. H. Masterman, Sec. Lt. L. A. Willmore, March 15th; Lt. C. P. Shilton, March 24th; Capt. (actg. Maj.) A. M. Shook, D.S.O., D.S.C., Lt. T. P. W. Young, March 28th; Sec. Lt. H. C. Anderson, Sec. Lt. St. C. McG. Martin, March 31st: Sec. Lt. G. T. Beggs, Sec. Lt. F. H. Coprook, Sec. Lt. J. Elliott, Lt. W. G. Foster, Sec. Lt. T. C. Fraser, Sec. Lt. C. G. Grant, Lt. H. D. McKay, Sec. Lt. D. St. C. MacDonald, Sec. Lt. F. E. Place, April 1st; Lt. J. A. Fleming, April 2nd, Lt. R. A. Manly, April W. Young, March 28th; Sec. Lt. H. C. Anderson, Sec. Lt. C. McG. 3rd; Capt. D. D. Findlay, Sec. Lt. C. V. Forsyth, Lt. A. G. Wilson, April 5th; Maj. J. G. Swart, M.C., Sec. Lt. J. N. Scholfield, April 8th, Lt. F. Duffy, Lt. D. T. Forbes, Sec. B. Solomons, Capt. G. F. Ward, April 9th; Lt. F. H. Hayns, Lt. G. A. Ogg (R. Highrs.), Sec. Lt. C. Skinner, Capt. R. B. Wann, April 10th; Sec. Lt. C. D. Smith, Lt. E. A. Sullock, Sec. Lt. J. A. Senior, Sec. Lt. A. A. Swait, April 11th; Sec. Lt. R. M. Freshwater, Lt. W. W. Sharpe, Lt. W. B. Ward, D.F.C., April 12th; Sec. Lt. C. O. Carson, Capt. R. D. Delamere, D.S.C., Sec. Lt. (Hon. Lt.) F. Egerton, Lt. S. C. Foster, Sec. Lt. A. H. Freed, Sec. Lt. R. D. Poland (Rifle Bde.), Sec. Lt. E. D. Smith, Sec. Lt. W. E. Searle, Lt. E. G. Spooner, Sec. Lt. A. Smith, Lt. A. G. Tyrrell, April 13th, Capt. B. R. Millar, Sec. Lt. E. G. A. Peskett, Lt. G. Rooney (Royal Irish Fus.), Sec. Lt. E. M. Lt. D. H. Sadler, Lt. G. D. Shand, April 14th, Sec. Lt. L. Dickinson, Sutton, Sec. Lt. A. M. Smith, April 15th; Lt. W. E. De B. Diamond, Lt. W. S. Gregor, Sec. Lt. (Hon. Lt.) D. G. O. Hepworth, April 16th; Lt. C. H. Lee, Sec. Lt. N. M. Simpson, April 17th; Lt. G. A. Hayward, Sec. Lt. S. S. Saunders, Lt. E. Thomas, April 18th; Sec. Lt. A. M. Berry, Sec. Lt. J. L. Campbell, Sec. Lt. P. A. Clayson, Sec. Lt. W. Z. Cade, Sec. Lt. H. N. Eyre, Sec. Lt. J. B. Gunn, Sec. Lt. E. R. Moore, Sec. Lt. G. E. Meisenheimer, April 19th; Lt. G. S. Daniel, Sec. Lt. C. E. Francis, Lt. D. M. McBeath, Lt. E. J. Smith, April 20th; Sec. Lt. A. E. S. Gascoigne, Sec. Lt. A. T. Start, April 21st; Sec. Lt. P. D. Broughton, Lt. H. A. Rudge, Capt. C. W. Spencer, Lt. A. P. Snelling, Capt. F. G. Saunders, M.C., April 22nd; Sec. Lt. G. H. Alexander, Lt. R. J. Divers, Sec. Lt. J. S. Wharrie-Smith, April 23rd; Sec. Lt. A. A. Ker, Lt. A. E. Rintoul, Lt. C. S. Richmond, Sec. Lt. A. H. Stickle, April 24th; Lt. H. E. Ambrose, Lt. C. H. Denny, Sec. Lt. A. R. Deans, Lt. C. A. Grant, April 25th; Sec. Lt. E. J. R. Hack, Lt. H. T. Harrison, Sec. Lt. G. Straw, April 26th; Lt. E. F. Haselden, April 27th; Sec. Lt. J. A. Ottaway, April 28th; Lt. R. Harris, Sec. Lt. G. S. Shackleton, Capt. E. G. Whelon (R. Sussex R.), April 29th; Sec. Lt. (Hon. Capt.) D. I. M. Kennard, Lt. F. A. Sedore, May 1st; Lt. J. A. Atkins, Sec. Lt. A. G. Boff, Lt. F. W. Knight, May 2nd; Lt. G. J. E. Agnew, Lt. (actg. Capt.) A. C. Atkey, M.C., Sec. Lt. F. C. Ferrier, Sec. Lt. T. T. Orde, May 3rd; Sec. Lt. A. C. Anderson, Lt. C. L. Middleton, May 4th; Lt. L. W. Beal, Sec. Lt. A. E. Mileham (R.W. Kent R.), May 5th; Lt. (Hon. Capt.) J. H. H. Goodall (York and Lancs. R.), May 6th; Sec. Lt. W. C. Benton, Sec. Lt. F. W. Barker, Lt. (actg. Capt.) J. Bussey, Sec. Lt. P. H. Burns, Lt. (actg. Capt.) N. G. Cardia, Sec. Lt. L. R. Chandler, Lt. P. V. G. Chambers, Sec. Lt. G. B. Moxon, May 7th; Lt. F. P. Adams, Sec. Lt. W. T. Allen, Sec. Lt. G. P. Ashcroft, Sec. Lt. J. A. L. Brown (Notts and Derby R., T.F.), Sec. Lt. F. K. Clegg, Sec. Lt. R. P. Caton, Sec. Lt. T. C. Chattoe (R.G.A.), Lt. F. W. C. Davies, Sec. Lt. R. E. Gillispie, Sec. Lt. A. J. Hamilton, Lt. H. Kingsbury, Sec. Lt. J. D. McKeogh, Sec. Lt. N. J. Moran, Sec. Lt. M. P. Morgan, Sec. Lt. G. I. Neale, Lt. O. W. Pellatt, Lt. S. H. Warner, Lt. A. V. Wills, May 8th; Sec. Lt. H. W. Burry, Lt. H. A. Brown, Sec. Lt. A. E. Brealey, May 9th; Sec. Lt. W. Anderson, Sec. Lt. S. A. Banton, Sec. Lt. C. J. A. Berkeley, Lt. G. A. Bird, Lt. H. J. P. Bomford (Lond. R., T.F.), Sec. Lt. (Hon. Lt.) P. B. Davies, Sec. Lt. H. P. C. Green, Sec. Lt. I. K. Gillispie (Army Cyc. Corps), May 10th; Sec. Lieut. A. Beedie, Lieut. E. G. Bridges, Sec. Lieut. H. D. Beresford, Lt. R. F. Gill, May 11th; Sec. Lt. F. S. Adams, Sec. Lt. F. H. Brewitt, Sec. Lt. N. Price, Lt. H. A. Pike, Lt. J. R. Pattisson, Sec. Lt. G. C. R. Parker, Capt. A. W. Vigess (R.E., T.F.), May 12th; Lt. B. A. R. Beeching, Lt. F. Noble, Sec. Lt. (Hon. Lt.) R. D. De Pass, Sec. Lt. C. R. C. Pink, May 13th; Sec. Lt. H. E. Blades, Sec. Lt. C. B. Cheetham, Sec. Lt. A. W. Parr, May 14th; Sec. Lt. K. McC. Dolbey, Sec. Lt. G. B. Fairhurst, Sec. Lt. H. Mason, Sec. Lt. W. T. Neilson, Sec. Lt. J. M. Petch, May 15th; Sec. Lt. G. H. Dixon, May 16th; Sec. Lt. R. Davison, Sec. Lt. J. M. F. McDonald, May 17th; Lt. A. V. Stupart, D.F.C., May 18th; Sec. Lt. A. W. Allis, Lt. T. A. G. Bishop, Sec. Lt. D. A. Black, Sec. Lt. C. C. Crossley, Lt. H. McI. Ferguson, Sec. Lt. C. Nash, May 19th; Sec. Lt. R. G. Adams, Sec. Lt. A. F. Arnold, Sec. Lt. W. L. Atheridge, Sec. Lt. W. H. August, Sec. Lt. H. F. Banks, Sec. Lt. C. A. Beattie, Lt. R. F. Barnes, Sec. Lt. J. W. Bellah, Sec. Lt. W. M. Bergey, Sec. Lt. K. W. Biglow, Sec. Lt. E. R. Bradley, Sec. Lt. B. R. Brown, Lt. H. F. Balmer, Sec. Lt. L. B. Badgley, Lt. W. H. Boyd, Sec. Lt. E. F. Brown, Capt. C. H. S. Butterworth, Sec. Lt. H. C. Bourke, Lt. (actg. Capt.) R. M. Berthe, Sec. Lt. O. S. Clefstad, Lt. L. B. Calnan, Capt. A. W. Carter, D.S.C., Lt. E. O. Conas, Sec. Lt. R. B. Crawford, Sec. Lt. F. Charlesworth, Sec. Lt. W. L. Case, Sec. Lt. F. L. J. Cook, Sec. Lt. J. G. Callaghan, Sec. Lt. H. F. Conroy, Sec. Lt. J. W. Cruikshank, Sec. Lt. A. Crockard, Sec. Lt. A. L. Corson, Sec. Lt. F. D. Chisholm, Sec. Lt. D. M. Crater, Sec. Lt. J. Copeland, Sec. Lt. P. B. Calder, Lt. F. Fredrickson, Sec. Lt. P. L. Fannen, Sec. Lt. G. F. Geiger, Sec. Lt. H. S. McFadden, Sec. Lt. C. E. Mitchell, Sec. Lt. F. J. Murray, Lt. H. A. Miller, Lt. E. G. Macpherson, Sec. Lt. W. B. Mavity, Sec. Lt. J. M. Meston, Sec. Lt. M. H. McRae, Lt. G. L. Macpherson, Sec. Lt. F. T. McArthur, Sec. Lt. A. R. Macpherson, Sec. Lt. L. W. Marwick, Sec. Lt. M. M. Nesbit, Sec. Lt. R. T. Nixon, Sec. Lt. R. G. Ostram, Sec. Lt. P. J. R. Payne, Sec. Lt. H. C. Peat, Sec. Lt. J. T. Pelletier, Sec. Lt. R. S. Philp, Lt. B. B. Perry, May 20th: Lt. O. A. Moore, Sec. Lt. D. B. Menzies, Lt. C. H. Moss, Lt. A. McM. Philips, D.F.C., Sec. Lt. G. W. Porter, Sec. Lt. H. T. Philp, May 23rd; Lt. C. G. Crane, May 25th; Lt. N. B. Arbuthnot, May 26th.

Lt. J. Wingate resigns his commn. in order to resume his medical studies, and is permitted to retain his rank, Jan. 8th.

The following Lts. relinquish their commns. on account of ill-health contracted on active service, and are permitted to retain their rank:—E. Evans, Jan. 29th (substituted for notification in "Gazette," Jan. 28th); H. J. W. McConnell, May 10th; M. F. McKelvey, May 14th; L. L. Miller, May 16th.

The following Lts. relinquish their commns. on account of ill-health:—S. R. Lesley (Suss. Yeo.), W. Kirkpatrick (contracted on active service) (Lanark Yeo.), H. A. Scaby (R.F.A.), May 20th.

Lt. H. Roberts resigns his commn., May 28th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—A. S. Helmer, March 8th; H. J. Clark (contracted on active service), May 13th; P. Girvin, May 20th.

Sec. Lt. (Hon. Lt.) W. Cooke relinquishes his commn. on account of ill-health contracted on active service, May 3rd.

Sec. Lt. W. H. Boite to take rank and prec. as if his appointment as Sec. Lt. bore date April 7th.

T. H. Delany is antedated in his appointment as Sec. Lt. (A.), Aug 8th, 1918.

The surname of F. G. Tolmie is as now described, and not Tomlie, as stated in "Gazette," Aug. 30th, 1918.

The notification in "Gazette," April 1st, concerning Lt. J. Wingate is cancelled.

The notification in "Gazette," Feb. 25th, concerning Sec. Lt. C. O. Carson is cancelled.

The notification in "Gazette," March 11th, concerning Sec. Lt. H. H. Bland is cancelled ("Gazette" notice of March 14th to remain).

The notification in "Gazette," April 29th, concerning Sec. Lt. P. C. Brazier is cancelled.

The notification in "Gazette," Jan. 14th, concerning Sec. Lt. A. S. Helmer is cancelled.

The notification in "Gazette," Jan. 14th, concerning Sec. Lt. H. J. Welch is cancelled.

The notifications in "Gazette," May 13th, concerning the following officers are cancelled :—Lt. F. C. Shirtcliffe, Capt. F. W. Walker.

ADMINISTRATIVE BRANCH.—Lt.-Col. E. H. Davidson, O.B.E., M.C., to be Lt.-Col. on relinquishing the appointment of Deputy Director at the Air Ministry, May 1st.

Lt.-Col. D. Powell, C.B.E., to be Lt.-Col., from (S.G.), May 1st.

Capt. (actg. Maj.) N. A. Daniell to be actg. Maj. whilst empld. as Maj., from (S.O.), and relinquishes the grading for purposes of pay and allowances as (S.O.), from Jan. 7th to April 30th.

Capt. (Hon. Maj.) (actg. Maj.) R. H. Howell retains the actg rank of Maj. whilst empld. as Maj., from (S.O.), from Nov. 18th, 1918, to April 30th.

Capt. G. R. Turner to be graded for purposes of pay and allowances as Maj. whilst so empld., May 1st.

Capts. to be graded for purposes of pay and allowances as Maj. whilst empld. as Majs. :—F. V. Cowell, E. E. K. Heathcote, (Hon. Maj.) T. M. Ross, A. M. Wilson, May 1st.

Lt. W. H. Osman to be graded for purposes of pay and allowances as Maj. whilst empld. as Maj., May 1st.

Capt. R. J. G. Temple to be Capt, from (T.), May 17th.

Sec. Lts. to be actg. Capts. whilst empld. as Capts. :—(Actg. Lt.) R. E. Cunningham, from Dec. 15th, 1918, to March 21st; F. T. Dixon, from March 1st to April 30th; H. J. De Wall, from March 12th to April 30th.

Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts. :—(Hon. Capt.) W. C. Alexander, E. L. Ardley, N. B. Hartman, (Hon. Capt.) R. S. J. Bond-Audrews, (Hon. Capt.) T. E. Gentles, (Hon. Capt.) F. C. McBride, L. J. N. Mackay, (Hon. Capt.) F. F. McKenna, J. A. McLaren, M.C., W. J. Matthews, (Hon. Capt.) C. W. A. Millar, P. J. Murphy, G. V. Walsh, L. L. Wight, M.C., May 1st.

Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as P.T. Officers :—J. Butterfield, A. E. Chilcott, L. E. Cording, M.C., W. H. Evans, N. M. Hoskins, K. S. Hunter, R. Kane, R. E. Martin, G. L. Moss, M.C., May 1st.

E. Newman (Capt., A.O.D.) is granted a temp. commn. as Lt., Aug. 8th, 1918, and to be Hon. Capt.

Sec. Lts. to be graded for purposes of pay and allowances as Lt. whilst empld. as Lts. :—R. L. Raymond, W. R. Castings, G. A. Middleweek, W. J. Scarff, A. P. Johnston, G. E. Blake, May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Lts. while empld. as P.T. Officers :—A. E. F. McCreary, G. H. Price, R. N. Lamb, May 1st.

Sec. Lt. (Hon. Capt.) C. B. Dick-Cleland to be Sec. Lt. from (T.), and to be Hon. Capt. and graded for purposes of pay and allowances as Lt. whilst empld. as Lt., May 1st.

Sec. Lts. to be Sec. Lts. :—V. D. Smith, Dec. 7th, 1918; I. Holliday, April 17th.

Sec. Lts. (O.) to be Sec. Lts. :—W. J. Barker, Nov. 18th, 1918; J. W. Clarke, May 2nd; F. E. L. Elliott, May 7th.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts. :—R. N. Preece, June 28th, 1916; J. E. Forbes, Nov. 16th, 1918; G. W. Colebourne, March 1st; R. Craig, April 17th.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. (actg. Lt.) L. M. King-Harman (Lt., Rifle Bde.), April 2nd; Capt. A. J. R. Waller (Capt., Essex R.), May 2nd; Lt. (actg. Maj.) Hon. F. W. Bampfylde (Lt., Devon R.), May 15th.

Transferred to the unempld. list :—Maj. A. N. Stuart, Jan. 14th; Lt. S. Wilmett, Feb. 13th; Sec. Lt. A. Winpenny, Feb. 22nd; Lt. J. N. Stennett, Feb. 23rd; Sec. Lt. H. C. Scovell, March 12th; Sec. Lt. W. Cowden, March 13th, Sec. Lt. H. Vincent, May 21st; Lt.-Col. Hon. C. A. Ward, M.V.O., March 22nd; Sec. Lt. G. Waugh, March 23rd; Sec. Lt. W. B. Walker, D.F.C., March 25th; Sec. Lt. L. G. Cartwright, March 26th; Sec. Lt. M. P. Dalrymple, April 1st; Sec. Lt. L. McLeod Moffats, Sec. Lt. J. B. Rennick, April 9th; Sec. Lt. T. H. Wroughton, April 10th; Sec. Lt. A. Sharples, Lt. C. C. Statt, April 14th; Sec. Lt. W. Gow, Lt. (actg. Capt.) J. V. Hay, Lt. (actg. Capt.) M. G. Kiddy, April 15th; Capt. E. W. S. Cotterill, April 17th; Sec. Lt. G. C. Shakespeare, April 21st; Sec. Lt. E. R. Greenhow, April 23rd; Sec. Lt. C. W. Starke, April 24th; Sec. Lt. H. T. Hayes, April 25th; Lt. J. Pilkington, Sec. Lt. J. Warren-Foster, April 29th; Lt. (actg. Capt.) A. T. Gammon, Lt. (actg. Capt.) P. W. Malthouse, Sec. Lt. C. F. Nurse, April 30th; Lt. R. S. Ashby, Capt. (actg. Maj.) C. Hayes, May 1st; Sec. Lt. A. Bruffton, Lt. (actg. Capt.) W. E. Cranmer, May 2nd; Sec. Lt. Pritchard, May 3rd, Sec. Lt. C. R. Calder, Sec. Lt. R. Carr, May 6th; Sec. Lt. L. Winwood, May 7th; Lt. C. B. Charlewood, May 8th; Sec. Lt. J. E. De Casmaker, May 9th; Sec. Lt. H. C. Beaumont, Lt. J. W. Parsons, May 10th; Lt. (actg. Capt.) W. F. Fletcher, Sec. Lt. F. C. Whitten, May 11th; Sec. Lt. W. Mahony, May 12th; Lt. C. V. Marsh (R.N.V.R.), Capt. G. F. Wilson (Seaforth Highrs., T.F.), May 13th; Sec. Lt. H. C. Bryant, Sec. Lt. L. Glasspole, May 14th; Sec. Lt. (actg. Lt.) C. Gruchy, Sec. Lt. F. Heath, Lt. L. J. Mars, May 15th; Lt. C. C. Duffield, Sec. Lt. F. J. Madden, May 17th; Sec. Lt. F. W. Anderson, Sec. Lt. T. Fraser, Sec. Lt. A. A. S. Milne, Sec. Lt. R. A. Peterson, Lt. W. K. Prendergast, May 20th; Lt. (actg. Capt.) C. E. Crabbe, May 22nd.

The following relinquish their commns. on account of ill-health, and are permitted to retain their rank :—Capt. J. Bushell, May 14th; Sec. Lt. J. G. Elliott, May 9th (substituted for notification in "Gazette," May 16th).

Sec. Lt. C. O. Bennett resigns his commn., May 28th.

The surname of E. H. W. Darby is as now described, and not Darley, as stated in "Gazette," Feb. 7th.

The notification in "Gazette," Feb. 14th, concerning Sec. Lt. G. P. Forbes is cancelled.

The notification in "Gazette," April 29th, concerning Lt. T. F. X. Smallwood is cancelled.

The notification in "Gazette," May 6th, concerning Capt. (Hon. Maj.) (actg. Maj.) R. H. Howell is cancelled.

TECHNICAL BRANCH.—Majs to be graded for purposes of pay and allowances as Lt.-Cols. while empld. as Lt.-Cols., Grade (A.) :—W. J. Fernie, O.B.E., J. G. Bayes, O.B.E., May 1st.

Capts. to be graded for purposes of pay and allowances as Lt.-Cols. while empld. as Lt.-Cols., Grade (A.) :—L. B. Cook, W. W. Farthing, O.B.E., May 1st.

Maj. R. F. Le Bailly to be Maj., Grade (A.), from (Ad.), April 28th.

Capt. (actg. Maj.) D. M. P. Riach, M.B.E., to be Capt., and retains the actg. rank of Maj., Grade (A), from (S.O.), April 21 to April 30.

Capts. to be graded for purposes of pay and allowances as Majs., Grade (A), while so empld. :—A. Hunter, F. W. H. Lerwill, May 1st.

Capt. L. Auker, O.B.E., to be graded for purposes of pay and allowances as Maj., Grade (B), while so empld., May 1st.

Capts. to be graded for purposes of pay and allowances as Maj. while empld. as Maj., Grade (A) :—J. D. Blyth, J. J. Botterill, A. Clayton, S. Curtis, W. J. B. Curtis, O.B.E., A. Graves, (Hon. Maj.) A. E. Hatton, W. A. B. Laing, T. Martin, O.B.E., R. K. Paton, W. O. Pearce, E. S. Sturdee, O. C. Williams, K. J. Young, May 1st.

Capt. J. T. Matthews to be graded for purposes of pay and allowances as Maj. while empld. as Maj., Grade (B), May 1st.

Lts. to be graded for purposes of pay and allowances as Majs. while empld. as Majs., Grade (A) :—F. B. Adams, C. A. Doherty, H. V. Snook, May 1st.

Sec. Lts. to be graded for the purposes of pay and allowances as Majs. while empld. as Majs., Grade (A) :—C. C. Lees (and to be Hon. Lt.), R. B. Stephenson, A. J. Toomer, May 1st.

Capt. H. G. Henley to be Capt., Grade (A), from (A), Feb. 17th.

Capt. W. E. G. Beaufort-Greenwood to be Capt., Grade (A), from (S.O.), May 1st.

Lts. to be actg. Capts. while empld. as Capts., Grade (A) :—G. A. Lawler, from Oct. 1st, 1918, to April 30th (substituted for notification in "Gazette," Feb. 21st); G. W. M. Whitton, from April 5th to April 30th.

Sec. Lt. J. W. Hoskings, M.B.E., to be actg. Capt. while empld. as Capt., Grade (A), from Feb. 1st to April 30th.

Sec. Lt. (actg. Lt.) A. G. Ridgon to be actg. Capt. while empld. as Capt., Grade (B), from Nov. 30th, 1918, to April 30th.

Lts. to be graded for purposes of pay and allowances as Capts. while empld. as Capts., Grade (A) :—H. A. Braddock, P. Burke, H. H. Chivers, A. H. Ellis, (Hon. Capt.) W. H. Ellison, R. P. Grant, G. S. Hallas, M.C., H. E. Hazlehurst, S. T. Heath, G. W. Hippisley, (Hon. Capt.) C. Hole, T. Kerr-Jones, A. H. Meldrum, (Hon. Capt.) C. R. G. Topham, G. M. W. Whitton, May 1st.

Lts. to be graded for pay and allowances as Capts. whilst empld. as Capts., Grade (B) :—F. G. J. Didden, G. F. Drudge, May 1st.

Lt. J. R. S. Borman to be Lt., from (Ad.), and to be graded for purposes of pay and allowances as Capt. whilst empld. as Capt., Grade (B), May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts., Grade (A) :—C. A. Assiter, and to be Hon. Lt. L. H. Bainton, and to be Hon. Lt., H. C. Bishop, and to be Hon. Lt., H. L. Brown, W. G. Browne, P. V. Davies, E. W. Dawson, L. A. Hooper, W. G. Kentfield, H. D. Staiar, and to be Hon. Lt., B. P. K. Walshe, May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts., Grade (B) :—L. W. Allen, and to be Hon. Lt., F. A. Cherry, J. H. Tanton, May 1st.

Lt. E. S. Pearse to be Lt., Grade (B), from (S.O.), April 15th.

Sec. Lt. M. Sheriff, D.C.M., to be actg. Lt. whilst empld. as Lt., Grade (A), from Dec. 2nd, 1918, to April 30th.

Lt. S. T. Kemp to be graded for purposes of pay and allowances as Lt. whilst empld. as Lt., Grade (A), May 1st.

Lt. W. J. Hembry to be graded for purposes of pay and allowances as Lt., Grade (B), from Dec. 1st, 1918, to April 30th.

Sec. Lts. to be graded for purposes of pay and allowances as Lts. whilst empld. as Lt., Grade (B) :—W. Gregory, W. J. Hembry, May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Lts. whilst empld. as Lts., Grade (A) :—W. T. Henry, L. J. Lester, P. G. May, E. J. Hindsley, S. Jupp, B. E. D. Pratt, H. E. Powell, H. H. Fell, J. G. Peacock, W. J. Root, and to be Hon. Lt., J. R. Cross, J. Wilson, R. N. Tweedy, and to be Hon. Lt., C. W. Grey, A. Wombwell, T. Honor, H. D. Lumb, R. W. Edwards, W. Gill, W. Wheatley, P. J. Whitehead, H. Weakly, C. H. V. Hayman, G. T. H. Pack, A. E. Case, May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Lts. whilst empld. as Lts., Grade (B) :—J. O. Miles, A. Crook, and to be Hon. Lt., W. G. Shipwright, J. Dale, W. F. Arnold, A. E. Wycherley, May 1st.

Sec. Lt. J. H. Lester to be Lt., without pay and allowances of that rank, April 18th.

Sec. Lt. R. A. Bell to be Sec. Lt., Grade (A), from Grade (B), March 7th.

Sec. Lt. H. P. Bolt to be Sec. Lt., Grade (A), from (Ad.), May 7th.

Sec. Lt. R. S. Davey to be Sec. Lt., Grade (B), from (A), Jan. 16th.

Sec. Lts. (Ad.) to be Lts., Grade (B) :—(Hon. Lt.) U. B. Gilbert, and to be Hon. Lt., Oct. 1st, 1918; B. H. W. Hatch, May 12th.

Sec. Lt. R. R. Wilson (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., June 24th, 1918.

Transferred to unempld. list :—Sec. Lt. (Hon. Lt.) J. J. Martin, Feb. 12th; Lt. (actg. Capt.) J. Wingate, Feb. 25th; Sec. Lt. J. Wilson, Feb. 28th; Sec. Lt. (actg. Lt.) G. R. Eaton, Capt. W. Young, March 31st; Sec. Lt. J. L. Cleland, April 1st; Sec. Lt. E. Long, April 11th; Sec. Lt. E. A. O. Hobart-Hampden, Sec. Lt. (Hon. Lt.) B. H. Hardy, April 12th; Lt. (Hon. Capt.) F. L. Royle (K.O.Y.L.I.), April 13th; Lt. (actg. Capt.) A. E. Fisher, Lt. (actg. Capt.) G. C. Heseltine, April 15th; Capt. N. H. Terry, April 17th; Sec. Lt. F. Robins, April 21st, Sec. Lt. (Hon. Lt.) P. E. Harris, April 31st; Lt. A. A. Davis, May 1st; Lt. A. Gane, May 2nd; Sec. Lt. (actg. Lt.) C. E. Armand, May 4th; Sec. Lt. T. L. Collins, Sec. Lt. (actg. Lt.) W. G. Mantell, May 5th; Sec. Lt. (Hon. Lt.) L. C. Coward, Capt. A. Eve (T.F. Rec.), May 6th; Lt. H. L. Craymer, Capt. S. L. Dashwood, M.B.E., May 7th; Lt. F. W. Atkinson, May 8th; Capt. A. C. S. Couldwell, May 10th; Sec. Lt. L. Knowles, May 11th; Sec. Lt. G. Betts, Capt. L. C. Cox, May 12th; Lt. W. P. Frecth, Sec. Lt. B. De B. Gates, Capt. A. B. W. Greenhough, M.B.E., M.C., Sec. Lt. R. Hagon, Lt. D. B. Wilson, M.C. (R. Scots), May 13th; Sec. Lt. (Hon. Lt.) (actg. Capt.) C. H. Blakeway, Capt. (actg. Maj.) J. H. Cotton, Capt. (actg. Maj.) L. Crooks, Maj. (actg. Lt.-Col.) M. O. Darby, Capt. (actg. Maj.) H. G. Day, May 14th; Sec. Lt. A. J. Green, Lt. H. Marsh, Lt. R. M. Penman, Capt. L. A. Price, May 15th; Capt. W. A. Morrison, May 16th; Sec. Lt. I. D. Bennett, Sec. Lt. R. G. Gould (Devon R.), May 20th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—H. T. Hickey (contracted on active service), May 17th; C. H. MacKinnon, May 20th.

The notification in "Gazette," Jan. 7th, concerning Lt. (actg. Capt.) J. Wingate is cancelled.

The notification in "Gazette," March 18th, concerning Capt. W. E. Smith is cancelled.

MEDICAL BRANCH.—H. A. Treadgold is granted a temp. commn. as Capt. and to be temp. Maj. without pay and allowances of that rank, Sept. 2nd, 1918, seny. April 1st, 1918 (substituted for notification in "Gazette," Sept. 24th, 1918).

Capt. A. G. Graham is antedated in his appointment to July 1st, 1918.

Transferred to unempld. list.—Capt. J. E. Cable, May 8th; Capt. C. K. Attlee, May 11th; Capt. D. A. MacPherson, May 13th.

CHAPLAIN'S BRANCH.—Transferred to the unempld. list :—Capt. W. H. B. Gipps, May 9th; Capt. W. Galpin, May 18th.

MEMORANDA.—The following are granted the actg. rank stated against their names, with effect from May 1st :—

To be actg. Lt.-Cols. :—Lt.-Col. A. D. Cunningham, while empld. in the Airships Department, Admiralty; Lt.-Col. B. H. O. Armstrong, C.M.G., while empld. as Director of Inland Works; Lt.-Col. T. D. Mackie, C.M.G., O.B.E., while empld. as Director of Air Construction Service.

To be actg. Lt.-Cols. :—Maj. A. V. J. Richardson (substituted for the notice in "Gazette," May 20th); Maj. S. B. F. Carter, O.B.E., while empld. as Assistant Director of Air Construction Service; Maj. J. G. Bayes, O.B.E., while empld. as Area Officer in the Depart. of A.C.S.; Maj. W. J. Fernie, O.B.E., while empld. as Area Officer in the Depart. of A.C.S.; Maj. J. D. K. Restler, while empld. as Chief Elec. Engineer in the Depart. of A.C.S.; Maj. C. Barber, while comdg. a Stores Depôt; Maj. R. Grey, while specially empld.; Maj. L. Tomkinson, while specially empld.; Capt. G. W. Parkinson, M.C., while empld. as Assistant Director of Inland Works; Capt. C. Cookson, while empld. as Assistant Director of Inland Construction; Capt. W. Farthing, O.B.E., while empld. as Area Officer in the Depart. of A.C.S.; Capt. L. B. Cook, while empld. as Area Officer in the Depart. of A.C.S.; Capt. O. Lindquist, while comdg. a Stores Depôt.

To be actg. Majs. :—Capt. R. A. Laws, while specially empld. with the Depart. of A.W.B.; Capt. J. C. Watson, while specially empld. with the Depart. of A.W.B.; Capt. D. Goad, while empld. as Senior Elec. Officer in the Depart. of A.C.S.; Capt. A. Young, while comdg. a Stores Depôt; Capt. J. R. Harland, while empld. as Officer i/c of Maintenance in the Dept. of A.C.S.; Capt. E. F. W. Cherry, while empld. as Officer i/c of Stores in the Dept. of A.C.S.; Capt. J. P. Coleman, A.F.C., while specially empld; Capt. P. G. N. Ommanney, while empld. in the Airship Dept., Admiralty; Capt. J. E. M. Pritchard, while empld. in the Airship Dept., Admiralty; Capt. A. Price-Reed, while empld. in the Airship Dept., Admiralty; Capt. G. Somers-Clarke, while specially empld.; Capt. F. L. Robinson, M.C., while specially empld.; Capt. C. R. Carr, while specially empld.; Capt. S. W. Dunckley, while specially empld.; Capt. F. S. Moller, M.C., while specially empld.; Capt. G. L. Paine, while specially empld.; Lt. A. W. Legg, while specially empld. as Chief Water Engineer with the Depart. of A.W.B.; Lt. H. S. Watson, while empld. as Deputy Chief Elec. Engineer with the Depart. of A.W.B.; Capt. H. R. B. Hull.

To be actg. Hon. Majs. :—Capt. G. W. C. Kaye, while specially empld.; Capt. H. Myers, while specially empld.

To be actg. Capts. :—Lt. F. M. F. West, V.C., M.C., while empld. as Liaison Officer for Air Intelligence; Lt. F. Edwards, while empld. in the Airship Dept., Admiralty; Lt. W. J. C. Kendall, M.C., while empld. as Officer i/c of R.A.F., Repatriation Records; Lt. G. N. Trace, while specially empld.; Lt. A. D. Carey, while specially empld.; Lt. F. Lord, while specially empld.; Lt. W. R. S. Humphreys, while specially empld.; Lt. B. R. Bostock, while specially empld.; Lt. E. Brown, while specially empld.; Lt. J. C. Cantrill, while specially empld.; Lt. E. Burney, M.C., while specially empld.; Lt. W. S. C. Smith, while specially empld.; Lt. W. B. Thomson, while specially empld.; Lt. F. V. Robinson, while specially empld.; Sec. Lt. J. W. Tattersall, while specially empld.; Sec. Lt. D. MacDougall, while specially empld.; Sec. Lt. N. Bucknall, while specially empld.; Sec. Lt. W. Borland, while specially empld.

To be actg. Lts. :—Sec. Lt. H. D. Lumb, while empld. in the Airship Dept., Admiralty; Sec. Lt. W. A. Fowler, while empld. as Group Educational Officer; Sec. Lt. M. Sheriff, D.C.M.

The following are granted the hon. rank of Capt. :—Lt. J. B. Runciman, June 11th, 1918; Lt. J. G. Halsam, Nov. 9th, 1918; Sec. Lt. (actg. Capt.) G. H. Hill, March 31st.

The following Overseas Cadets are granted temp. commns. as Sec. Lts. :—863088 R. Ardiel, 172727 E. D. Bate, 171664 O. E. Byers, 172852 F. Bullock, 209811 A. E. Beck, 184499 J. Christie, 316307 E. H. Cuckow, 316270 W. H. Campbell, 171473 J. S. Cape, 116104 M. Connell, 24118 W. E. Cooper, 36055 E. J. Cosford, 153682 D. L. Chambers, 778450 G. Coupe-thwaite, 754144 W. A. Chisholm, 316323 E. J. Diespecker, 316233 C. F. Dioron, 171302 J. H. Dietrich, 172600 C. L. Dowsley, 316285 J. H. Donelly, 316375 J. W. Donald, 1030769 F. L. Dunn, 172542 W. C. Delapp, 222083 J. C. Demars, 172466 F. Dorien, 154850 H. H. Dolmage, 154762 R. R. De Long, 316586 R. L. Emprey, 316354 R. H. Elgie, 172829 R. M. Edgar, 259106 N. F. Evans, 316329 L. E. Fairburn, 316294 S. Field, 316293 L. G. Foss, 1977 M. S. Fellowes, 92726 E. A. Fergusson, 316370 F. B. Friend, 316030 J. M. Fraser, 213000 N. H. Grills, 316220 T. D. Guernsey, 706071 J. A. Green, 690063 G. N. Goodman, 513494 A. G. Green, 301767 A. Gillespie, M2/153348 E. H. Hanbury, 172057 D. Hanmerson, 727582 J. T. Hockey, 2572 G. A. Hefferman, 172568 C. Horner, 171730 H. E. Heath, 172729 F. Hudson, 487363 A. F. Huff, 184101 N. W. S. Hunter, 15345 S. T. Harvey, 316234 W. L. Hastings, 751112 S. Honeyman, SS 5386 B. S. W. Holden, 57020 R. Huliand, 542174 T. F. Holtz, 316222 H. Haywood, 316254 J. A. Johnson, 171781 R. Johnson, 1258006 L. B. Keating, 172353 A. E. Kerr, 154236 A. W. Kerridge, 316358 R. H. Kelly, 182249 J. Killin, 316330 D. J. Ludgate, 502497 A. E. Long, 184528 J. Love, 316233 J. G. Lyons, 316245 R. G. Laing, 8860 C. D. Law, 76913 G. V. Lowie, 266 S. G. Lorraine, 316298 P. A. McCandless, 316299 R. M. McLenaghen, 172751 D. Moir, 171471 W. F. Morrin, 171934 W. S. McKeown, 172717 R. A. McNaught, 316566 H. S. H. Moore, 907277 H. K. Mason, 316250 D. A. McKeague, 541299 W. S. McCutchcon, 504910 J. Mchagen, 231151 R. E. Mould, 487413 L. L. Moore, 76439 D. Morrison, 316241 J. H. H. McDonald, 316271 C. G. A. Marple, 153977 S. A. McLean, M/119554 C. W. Manning, 525562 G. B. Nellands, 171557 J. H. O'Connor, 171457 G. F. Penny, 316200 C. W. Perrett, 172872 L. M. Peine, 172589 P. J. Potter, 184713 C. Portsmouth, 316356 G. F. Plumb, 512112 R. S. Pidcock, 316315 A. Rae 180335 W. J. A. W. Roulston, 171976 J. G. Robertson, 172382 R. W. Ross, 316224 A. H. Roy, 171587 J. Robinson, 316365 A. M. Russell, 316248 S. F. Roe, 5402254 W. H. Russell, 316304 W. A. Smith, 171856, A. St. Jeans, 316305 W. H. Stanton, 316315 H. C. Startup, 112138 C. E. Summner, 182121 A. A. Smith, 171863 A. E. Smith, 172532 D. Smith, 171036 C. N. Stevens, 303420 C. W. Scott, 171028 G. L. Stevens, 657 G. K. Spruitt, 154217 D. H. Stewart, 171241 O. C. Sturdy, 339356 F. G. Solloway, 1261748 C. L. Shields, 171036 C. N. Stevens, 343120 C. W. Scott, 316786 H. R. Thornton, 172811 J. M. Tate, 171927 B. Tompkins, 166138 J. C. Thompson, 210132 J. V. Thompson, 418524 H. I. Wilson, 312868 L. B. West, 316246 F. Wright, 154220 A. L. Wheeler, 316366 A. E. Walker, 316325 L. B. Weldon, 316252 W. C. H. Webb, 316220 E. J. Wain, 171515 V. B. Whitley, 182357 H. W. Whistler, 805270 D. S. Wylie, 154790 E. C. S. Wintermute, Feb. 15th.

Col. W. B. Caddell relinquishes his commn. on ceasing to be empld., and is granted the hon. rank of Brig.-Gen., May 28th.

Transferred to unempld. list :—Lt.-Col. C. Waddell, from (S.O.) March 28th; Sec. Lt. (Hon. Lt.) (actg. Capt.) E. Vevers, from (S.O.), March 31st; Lt. (actg. Maj.) D. L. Blumenfield, from (S.O.), April 1st.

Capt. (actg. Maj.) W. T. Blake (Oxon and Bucks. L.I.) relinquishes his commn. on account of ill-health, May 13th.

Air Ministry, May 30th.

R.A.F.—The following temp. appointments are made at the Air Ministry :—Staff Officers, 1st Class (P.).—Lt.-Col. I. T. Courtney, Lt.-Col. K. G. Brooke, from (Director), May 1st.

Staff Officers, 2nd Class (Air).—Lt.-Col E. L. Gossage, M.C., Capt. R. B. Maycock, O.B.E., Maj. O. G. G. Villiers, D.S.O. (P.).—Maj. A. H. S. Steele-Perkins, O.B.E., from S.O., 1st Class, May 1st.

Staff Officers, 3rd Class (Air).—Capt. E. O'D. Crean, Lt. A. Rowan, Lt. R. Gambier-Parry. (P.).—Capt. C. G. Murray, May 1st.

Staff Officers, 4th Class (P.).—Lt. A. W. Symington, M.C., Lt. E. N. T. Edwardes, May 1st.

The following temp. appointments are made :—Staff Officer, 2nd Class (P.).—Maj. R. Hilton-Jones, O.B.E., May 23rd

Administrative.—Capt. E. H. T. Atkinson to be actg. Maj. whilst so empld., from April 19th, 1918, to May 31st.

Staff Officers, 3rd Class (Q.).—Lt. T. T. Pickup, and to be actg. Capt. whilst so empld. till April 30th, vice Capt. H. R. Radford, April 24th. (T.).—Sec. Lt. H. F. Webb, and to be actg. Capt., from Feb. 18th to April 30th.

Flying Branch.—Maj. J. C. P. Wood to be Maj. (A. and S.), from unempld. list, May 9th, seny. April 1st, 1918, next below B. Travers

Capt. (actg. Maj.) T. F. N. Gerrard, D.S.C., to be Capt. (A. and S.), and relinquishes the actg. rank of Maj., April 22nd.

Sec. Lt. V. O. Hillyard to be Lt., June 25th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. (Hon. Lt.) L. A. Naylor (Lt., Nova Scotia R.), Dec. 29th, 1918; Lt. (actg. Capt.) D. J. Nickle (Capt., Can. Forestry C.), Jan. 12th; Lt. J. Grimshaw (Lt., Manitoba R.), Jan. 30th, Sec. Lt. R. M. Close (Sec. Lt., Notts and Derby R.), Feb. 3rd; Sec. Lt. (Hon. Capt.) W. G. Shedel (Lt., R. Fusiliers), Feb. 27th; Lt. A. B. Raymond (Capt., Can. A.S.C.), March 5th; Sec. Lt. (Hon. Lt.) E. A. Johnson (Lt., C. Ontario R.), March 9th; Lt. C. C. R. Millington (Sec. Lt., R.G.A.), March 21st; Sec. Lt. (Hon. Lt.) T. J. D. Reid (Lt., L. and B. Horse Yeo.), April 1st; Lt. H. D'A. McGrath (Lt., B. Col. R.), April 10th; Sec. Lt. (Hon. Lt.) L. C. Herne (Lt., B. Col. R.), April 16th; Sec. Lt. (Hon. Lt.) E. C. Clegg, M.C. (Lt., Wilt. R.), May 5th; Lt. C. E. Rendall (Lt., R.F.A.), May 6th, Lt. W. A. Ross (Lt., Sask. R.), May 8th; Sec. Lt. A. G. L. Sidwell (Lt., R. Dub. Fus.), May 11th; Lt. H. B. Morkhill (Lt., Yorks R.), May 15th; Lt. A. G. Lough (Lt., Cent. Ont. R.), May 16th; Lt. L. A. Newbold (Lt., Essex R.), May 22nd; Maj. G. D. Hill (Capt., Hussars), May 26th.

Transferred to unempld. list :—Sec. Lt. D. Jones, Jan. 7th; Sec. Lt. F. P. Regan, Jan. 27th; Sec. Lt. F. E. Power, Jan. 30th; Lt.-Col. (actg. Col.) R. R. Smith-Barry, A.F.C., Feb. 4th; Lt. G. W. S. Marshall, Feb. 14th; Lt. H. W. Skinner, D.F.C., Feb 15th; Lt. R. A. Burnard, Feb. 20th; Lt. W. R. W. Burns, Lt. W. P. Scott, Feb. 27th; Lt. F. J. Delamain, Feb. 28th; Sec. Lt. M. G. Church, March 1st; Sec. Lt. C. G. Davies, Lt. P. Robinson, March 6th; Sec. Lt. W. Du Pre Jr., Arthur, Sec Lt. T. C. Cooper (substituted for notification in "Gazette," March 18th); Lt. C. D. Clarke, March 7th; Lt. R. A. Evans, Sec. Lt. P. G. Troughton, March 8th; Sec. Lt. H. Lurdick, D.F.C., Sec. Lt. G. E. Clifford, Lt. R. Z. Conner, Sec. Lt. C. Hess, March 15th; Sec. Lt. A. A. Baker, Sec. Lt. C. A. Howe, March 25th; Lt. A. D. Pocock, March 28th; Sec. Lt. L. P. Boulder, March 31st; Sec. Lt. N. Barrie, Lt. J. I. Beddingfield, Sec. Lt. J. F. Stone, Lt. (actg. Capt.) L. Wood, April 1st; Lt. (actg. Capt.) V. D. Siddons, D.F.C., April 3rd; Lt. (actg. Capt.) R. T. Fagan, Lt. H. P. Searle, Sec. Lt. F. L. Smith, April 4th; Sec. Lt. K. C. Whitwell, April 5th; Capt (actg. Maj.) F. J. E. Feeney, D.S.O., April 6th; Sec. Lt. (Hon. Lt.) F. Godson, D.F.C., Lt. J. K. Hardy, Lt. H. Sacre, Lt. J. G. Stevenson, April 8th; Lt. A. C. Dent (Norfolk Yeo.), Sec. Lt. B. Stewart, Capt. E. B. Waller, Lt. R. Whitehead, Sec. Lt. H. Woodcock, Sec. Lt. F. H. Snoxell, Sec. Lt. W. Steel, April 9th; Sec. Lt. E. E. Salmon, April 10th; Sec. Lt. G. F. Gander, Sec. Lt. S. E. Grand, Capt. E. Pownall, Sec. Lt. A. Paveley, Lt. (actg. Capt.) C. A. F. Whitley, April 11th; Lt. K. W. D. Pope, Lt. L. E. Swann, April 12th; Lt. L. A. Fanning, Lt. V. O. Hazeldine, Sec. Lt. W. Hall, Sec. Lt. M. J. Poulton, Sec. Lt. F. E. Power, Sec. Lt J. M. Porteous, Sec. Lt. A. B. Porter, April 13th; Lt. H. A. E. Gard, D.F.C., Sec. Lt. H. K. Scrivener, Sec. Lt. J. L. Stephenson, Sec. Lt. (Hon. Lt.) E. M. C. Shipp, April 14th; Sec. Lt. E. R. Heartz, Lt. S. C. M. Pontin, Sec. Lt. H. T. Sayer, Sec. Lt. F. W. Skelton, Lt. O. St. J. Swan, Lt. (actg. Capt.) A. W. Welsh, Sec. Lt. R. L. Williams, April 15th; Lt. B. W. Robinson, April 16th; Lt. L. D. Henderson, Lt. A. W. B. Singer (Sco. Rif., T.F.), Sec. Lt. E. G. Welsby, Lt. R. V. Walker, Lt. A. R. Wilkie, April 17th; Lt. H. E. Pohlmann, Sec. Lt. D. Welsh, Lt. H. A. Yeo, April 18th; Lt. R. C. Berlyn, Sec. Lt. W. T. Booth, Sec. Lt. G. G. Dow, Lt. B. N. Durrant, Sec. Lt. R. H. Galloway, Sec. Lt. H. H. Hewetson, Sec. Lt. S. E. Henry, Sec. Lt. A. B. Macpherson, Sec. Lt. H. S. McClelland, Sec. Lt. F. N. B. Proctor, Sec Lt. S. D. Spalding, Sec. Lt. W. H. Wilde, Sec. Lt. L. D. Wright, April 19th; Capt. E. R. H. Pollock, M.C., R.F.A., Sec. Lt. J. S. Shortt, Lt. G. W. Wall, April 20th; Sec. Lt. (Hon. Capt.) G. D. Brewster, M.C., Lt. W. H. Statham (Leic. R.), April 21st; Sec. Lt. S. T. Franks, Sec. Lt. H. A. Raymond, Lt. F. D. Shreeve, April 24th; Sec. Lt. A. Dukes, Lt. H. E. Eaton, Lt. J. R. Hembrough, April 25th; Capt. S. Collier, M.C. (Ches. R., T.F.), Lt. A. R. Wardle, April 26th; Sec. Lt. G. Rowell, April 27th; Lt. H. W. Heywood, April 28th; Sec. Lt. R. W. Williss, Sec. Lt. K. Wiggins, April 29th; Lt. I. R. L. Ross (R. Ir. Rif.), Sec. Lt. F. G. Sinclair, Lt. (actg. Capt.) B. R. Vertannes, Sec. Lt. F. C. Wells, Lt. (actg. Capt.) R. G. Weller, April 30th; Capt. E. E. Maitland-Heriot, Sec. Lt. J. Simpson, May 1st; Sec. Lt. P. G. Addie, Lt. C. A. Sundy, M.C., Lt. H. T. Townsend, Sec. Lt. G. E. Wright, May 2nd; Sec. Lt. (Hon. Lt.) A. K. Sadler, May 3rd; Lt. W. H. Barlow, Capt. L. H. Stockwood, May 4th; Sec. Lt. L. Sabine, May 5th; Sec. Lt. G. E. Bates, Sec. Lt. R. K. Dickie, Lt. E. G. Henderson, Sec. Lt. M. Rock, Sec. Lt. G. E. Richmond, Lt. R. S. Warwick, May 6th; Sec. Lt. C. H. Ratcliffe, Lt. T. H. Trew, May 7th; Sec. Lt. W. W. Brown, Sec. Lt. J. L. Dugan, Sec. Lt. A. C. Dutton (R. W. Kent R.), Sec. Lt. A. J. Girardot, Lt. E. E. Macartney, May 8th; Sec. Lt. M. O. I. Griffiths (Suff. R.), Sec. Lt. J. S. Winks, May 9th; Sec. Lt. A. J. McD. Grimston, Sec. Lt. R. E. Morton, May 10th; Sec. Lt. L. T. Bird, Sec Lt. R. T. Down, Sec. Lt. R. R. Spencer, Lt. F. E. J. Foxall-Smedley, May 12th; Lt. G. G. Callander, Sec. Lt. S. A. Dilliway, Lt. W. Pallister, May 13th; Sec. Lt. H. Blatcher, Capt. D. B. Cleghorn, Sec. Lt. J. H. Parkinson, Sec. Lt. A. Preston, Sec. Lt. S. F. Wilkin, May 14th; Lt. S. P. A. Bousfield (Sea. Highrs.), Sec. Lt. C. McIver-Campbell, Lt. H. V. Edwards, May 15th; Sec. Lt. E. N. Andrews, Capt. A. R. Cox, Sec Lt. F. H. Fisher, Sec. Lt. S. Meadows, Sec. Lt. L. B. Williams, May 16th; Sec. Lt. H. W. H. Argyle, Sec. Lt. G. B. Boshell, Sec. Lt. (Hon. Lt.) J. H. MacKellar, Sec. Lt. D. McArthur, Lt. S. L. Matthews, Maj. F. J. Powell, M.C., May 17th, Sec. Lt. G. S. Overend, Sec. Lt. A. Phipps, May 18th; Sec. Lt. C. E. Belanger, Lt. R. S. Greig, Lt. F. J. Ortweiller, Sec. Lt. H. K. Pople, M.C., May 19th; Sec. Lt. H. A. Bradshaw, Sec Lt. J. M. Brett, Lt. G. W. J. G. J. Dunn, Lt. W. E. Dumbell, Sec. Lt. H. D. Dewar, Lt. L. C. Diespecker, M.C., R.F.A., Sec. Lt. C. Dotzert, Sec. Lt. F. R. Dunn, Sec. Lt. J. R. Fourmier, Sec. Lt. A. R. M. Gunning, Sec. Lt. E. Hemsby, Sec. Lt. V. P. Murphy, Sec. Lt. J. L. Machon, Sec. Lt. F. Michols, Sec. Lt. R. Nicklin, Sec. Lt. C. E. O'Grady, Sec. Lt. V. O'Neill, Sec Lt. W. Penhall, Sec. Lt. T. B. Patterson, Lt. C. St. C. Parsons, Sec. Lt. A. W. Palmer, Capt. J. Robinson, D.F.C., Sec. Lt. H. E. Sullivan, Sec. Lt. W. R. Spittel, Lt. W. C. Seymour, May 20th; Sec. Lt. A. S. Ball, Sec. Lt. V. A. Brabant, Sec. Lt. P. S. Brown, Sec. Lt. C. H. Main, Lt. F. G. Pool, May 22nd; Sec. Lt. E. E. Daioe, Sec. Lt. I. C. Deremo, Sec Lt. L. P. J. Dion, Lt. J. G. Farquhar, Lt. F. E. Gifford, Maj. V. Nicholl, D.S.O., May 23rd; Lt. L. G. Candy, May 26th; Sec. Lt. J. W. Mettam, May 28th; Lt. C. L. Frank, Sec. Lt. J. W. Gravell, Sec. Lt. W. G. Millar, May 29th.

Lt. (actg. Capt.) H. E. Winter relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., May 21st.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—C. Packham, May 14th; J. F.

Drake, D.F.C., L. N. A. Remington, R. F. Round, May 20th; J. H. McClure (caused by wounds), May 21st.

Lt. J. R. MacMillan (Sask. R.) relinquishes his commn. on account of ill-health, April 9th.

Lt. H. J. Leavitt resigns his commn., May 31st.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—S. J. Duncan, J. W. Marshall (contracted on active service), H. B. Mills, May 20th.

R. W. Rollinson (contracted on active service), May 21st.

Sec. Lt. A. Graham to take rank and prec. as if his appt. as Sec. Lt. bore date Aug. 22nd, 1918.

Sec. Lt. W. Smith (commd. March 14th, 1918) is cashiered by sentence of a General Court Martial, March 12th.

Sec. Lt. G. J. N. Norman is dismissed the Service by sentence of a General Court Martial, April 14th.

The rank of Lt. J. M. Bacon is as now described, and not as stated in "Gazette," April 1st.

The initials of Lt. C. H. Clifford are as now described, and not G. H., as stated in "Gazette," May 2nd.

The surname of Lt.-Col. G. C. St. P. De Dombasle is as now described, and not as stated in "Gazette," May 16th.

The initials of Lt. C. S. L. Coulson, D.F.C., are as now described, and not as stated in "Gazette," April 15th.

The notification in "Gazette," March 18th, concerning Lt. E. T. Collins, is cancelled.

The notification in "Gazette," March 25th, concerning Sec. Lt. A. J. Jones, is cancelled.

The notification in "Gazette," April 1st, concerning Lt. B. N. Willis, is cancelled.

The notification in "Gazette," April 4th, concerning Sec. Lt. N. V. Scott (S. Staffs. R.), is cancelled.

The notification in "Gazette," April 8th, concerning Lt. J. F. Drake, is cancelled.

The notification in "Gazette," April 25th, concerning Lt. W. G. Roberts, is cancelled.

The notification in "Gazette," April 29th, concerning Lt. R. A. Burnand, M.C., is cancelled.

Administrative Branch.—H. C. Jones (Capt., Midd'x R.) is granted a temp. commn. as Capt., Sept. 12th, 1918, with seny. from April 1st, 1918.

To be actg. Capts. whilst empld. as Capts. :—Lt. W. H. D. Phillips, from Feb. 27th to April 30th; Sec. Lt. E. U. Poyser, from March 1st to April 3rd.

Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts. :—J. M. J. C. J. I. Rock, W. H. D. Phillips, May 1st.

Sec. Lts. to be graded for purposes of pay and allowances of Capts. whilst empld. as Capts. :—H. Baker, E. G. Burden, E. Codyre, and to be Hon. Capt., J. N. Dillon, F. T. Dixon, W. A. Glasper, A. E. H. Hales, A. H. Hasler, R. W. Johnson, G. A. McMillan, and to be Hon. Lt. J. H. Slingsby, G. E. L. Woodhouse, and to be Hon. Lt., May 1st.

Sec. Lt. L. Marquard to be graded for purposes of pay and allowances of Capt. whilst empld. as Educational Officer, May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as P.T. Officers :—G. P. Abbott, A. J. Adams, S. D. Harrower, P. W. Smith, C. Wilson, and to be Hon. Lt., May 1st.

Lts. (A.) to be Lts. :—N. S. Cameron, C. S. L. Coulson, D.F.C., D. P. Farley, K. L. Mackenzie, April 17th; G. F. Hunter, J. M. Johnson, May 6th; F. W. Dogherty, May 10th; J. E. W. Sugden, May 12th; L. Mortimore, May 13th.

Lts. (O.) to be Lts. :—C. Flavell, April 17th; F. J. B. Hammersley, May 7th.

Sec. Lts. to be Lts. :—(Hon. Lt.) E. L. Ridley, May 29th; H. T. Joy, Feb. 28th (substituted for notification in "Gazette," April 25th); L. M. Britten, April 23rd.

T. T. Coates (Capt. and Qr.-Mr., Spec. List) is granted a temp. commn. as Lt., April 1st, 1918, and to be Hon. Capt.

Sec. Lt. F. H. H. Twelvetree to be actg. Lt. whilst empld. as Lt., from (T.), from Sept. 16th, 1918, to April 30th.

Sec. Lts. to be Sec. Lts., from (T.) :—(Hon. Lt.) J. F. Alexander, May 1st, and to be graded for purposes of pay and allowances as Capt. whilst empld. as Capt. :—A. T. Robson, May 13th.

The following relinquish their commns. on ceasing to be empld. :—Lt. W. S. Hann (Lt., R. Horse Gds.), March 24th; Lt. (actg. Capt.) P. J. Gething, M.C. (Lt., R. War. R.), May 20th.

Transferred to unempld. list :—Lt. (actg. Capt.) C. F. Upton, Feb. 8th (substituted for notification in "Gazette," April 1st); Capt. (actg. Maj.) C. J. Page, Feb. 10th; Sec. Lt. J. P. Wotton, March 4th; Sec. Lt. D. J. Tarling, March 5th; Lt. R. E. Coppinger, March 15th; Sec. Lt. M. R. de Saxe, April 10th; Sec. Lt. (Hon. Lt.) (actg. Lt.) C. Kenyon, Sec. Lt. A. C. Schofield, Sec. Lt. W. H. Stanley, Lt. B. Strange (Linc. Yeo., T.F.), April 11th; Lt. G. A. Pocock, Lt. H. E. Waters, April 12th; Sec. Lt. S. A. Garfath, April 14th; Sec. Lt. M. J. Hemmer, Sec. Lt. (actg. Lt.) S. S. Vanderhook, Lt. N. C. Yonge, April 16th; Capt. H. A. Shinn, April 18th; Lt. J. H. Pollitt, April 25th; Sec. Lt. (Hon. Lt.) (actg. Lt.) H. L. Webley, April 28th; Capt. C. W. Pollock, April 20th; Sec. Lt. (actg. Lt.) F. R. Whittaker, April 30th; Lt. J. E. Rosselli, Lt. (Hon. Capt.) W. H. Kelley, May 1st; Sec. Lt. D. Beaumont, Sec. Lt. P. W. Gibbs, May 4th; Lt. W. H. Savery, May 7th; Sec. Lt. G. R. Dunworth, Sec. Lt. H. F. Green (R. Fus.), May 8th; Sec. Lt. L. H. Seccombe, May 10th; Lt. A. R. Porter, Capt. H. V. Robinson, May 13th; Lt. H. G. Burgess, May 14th; Capt. J. A. Gye, Sec. Lt. A. P. Steer, May 17th; Capt. E. F. Monk, Sec. Lt. W. C. Marshall, May 18th; Sec. Lt. T. B. McMillan, Sec. Lt. H. H. Newman, Lt. A. P. Prior, May 20th; Lt. L. H. B. Price, M.C., May 21st; Lt. G. R. Priestley, May 24th; Sec. Lt. W. G. Merrick, Lt. A. T. Packman, Lt. J. L. Probit, May 29th.

The notification in "Gazette," April 8th, concerning Lt. C. A. Howe, is cancelled.

The notifications in "Gazette," May 2nd, concerning the undermentioned officers are cancelled :—Lt. C. H. Clifford, Capt. (actg. Maj.) H. W. Morgan, Lt. (actg. Capt.) B. Turner, Lt. H. B. Turner.

Technical Branch.—To be actg. Majs. while empld. as Majs., Grade (A) :—Capt. W. H. Dolphin, from March 11th to April 30th; Lt. (actg. Capt.) F. Susans, from Nov. 26th, 1918, to April 30th.

Lt. (actg. Capt.) B. Turner retains the actg. rank of Capt. whilst empld. as Chemical Warfare and Explosives Expl. Officer from March 29th to April 30th.

Sec. Lt. (actg. Capt.) J. H. Lytle retains his actg. rank whilst empld. as Capt., Grade (B), from (Ad.), from Nov. 9th, 1918, to April 30th.

Lt. C. F. Blunt to be actg. Capt. whilst empld. as Capt., Grade (A), from Dec. 17th, 1918, to April 30th.

Lt. J. A. Atkinson to be actg. Capt. whilst empld. as Capt., Grade (B), from June 1st, 1918, to April 30th.

Sec. Lt. J. A. Atkinson to be actg. Capt. whilst empld. as Capt., Grade (A), from Dec. 10th, 1918, to April 30th.

Sec. Lt. J. A. F. Henderson to be actg. Capt. whilst empld. as Capt., Grade (B), from (Ad.), from May 30th, 1918, to April 30th (substituted for notification in "Gazette," Aug. 30th, 1918.

Lt. H. A. Adams to be Lt., Grade (B), from (S.O.), May 12th.

Sec. Lts. to be Lts. :—Hon. Capt. H. M. Eldridge, M.C., and to retain his hon. rank, Nov. 1st, 1918 (substituted for notification in "Gazette," March 7th); L. A. Owen, April 2nd.

A. Hunnings (temp. Lt., K.R.R.C.) is granted a temp. commn. as Sec. Lt., Grade (A), April 1st, 1918, and to be Hon. Lt.

Lt. E. H. Wilson (Lt., Notts and Derby R.) relinquishes his commn. on ceasing to be empld., April 10th.

Transferred to unempld. list :—Capt. A. Lord Kennedy, Feb. 4th; Sec. Lt. G. R. Wills, Feb. 8th; Lt. J. A. H. O'Hynes, Feb. 13th; Capt. H. S. Smith, Feb. 14th; Capt. W. A. Seed, March 6th; Maj. K. Secratan, March 30th; Capt. J. E. Haswell, April 1st; Sec. Lt. F. S. Wallis, April 2nd; Sec. Lt. (Hon. Lt.) (actg. Lt.) E. L. Pollard, M.C., April 4th; Lt. L. D. Brown, April 8th; Capt. T. M. Dutton, April 9th; Lt. R. A. Webster, April 12th; Sec. Lt. H. Powell, April 15th; Sec. Lt. B. Haynes, Sec. Lt. J. J. Wilson, April 16th; Sec. Lt. A. M. Carroll, Sec. Lt. A. A. Pollitt, April 19th; Lt. (actg. Capt.) H. J. Poole, Lt. S. Power, Sec. Lt. (Hon. Lt.) T. McC. Yarwood, April 22nd; Sec. Lt. (Hon. Lt.) (actg. Capt.) A. Ward, Capt. A. W. F. Smith, April 29th; Lt. A. W. Barlow, April 30th; Lt. F. G. Buck, May 1st; Sec. Lt. A. J. Bright, May 3rd; Sec. Lt. W. W. Brabner, Sec. Lt. C. Henderson, Sec. Lt. P. B. Slade (Lond. R., T.F.), Lt. A. G. D. West, May 6th; Capt. D. S. W. Hambly, May 7th; Lt. S. E. Tucker (Manch. R., T.F.), May 8th; Capt. A. Graves (R.E., T.F.), Capt. G. H. Moir, Sec. Lt. R. A. Silk, May 9th; Sec. Lt. (Hon. Lt.) H. J. Dixon, May 12th; Lt. R. J. Martin, May 13th; Sec. Lt. H. W. Dunk (Lond. Yeo.) Capt. A. F. C. Pollard, May 15th; Lt. J. E. H. Swain, May 16th; Lt. A. Milner, Capt. W. Sillem, May 17th; Sec. Lt. N. Openshaw, May 18th; Capt. C. P. H. Gunyon, May 19th; Sec. Lt. (Hon. Lt.) S. Field, Lt. A. E. Reynolds, May 20th, Sec. Lt. (Hon. Lt.) L. Marsh, May 21st; Capt. J. G. Mallett, May 24th.

Maj. H. R. Vagg to take rank and precedence as if appointment as Maj. bore date Feb. 5th.

The rank of Lt. M. G. Fountain is as now described, and not Sec. Lt. as stated in "Gazette," April 25th.

The notification in "Gazette," Jan. 28th, concerning Sec. Lt. R. Wylie is cancelled.

The notifications in "Gazette," Feb. 11th, concerning the undermentioned Officers are cancelled :—Lt. J. A. Atkinson, Sec. Lt. J. A. Atkinson.

The notification in "Gazette," March 4th, concerning Sec. Lt. G. Colbert is cancelled.

The notification in "Gazette," April 11th, concerning Lt. W. E. Phillips is cancelled.

Medical Branch.—Transferred to unempld. list :—Capt. W. B. Dove, Feb. 21st; Capt. C. C. Fitzgerald, M.C. (R.A.M.C.), April 2nd.

Memoranda.—The following are granted the actg. rank stated against their names, with effect from May 1st (substituted for notification in "Gazette," May 27th) :—To be actg. Cols. :—Lt.-Col. A. D. Cunninghan, while empld. in the Airships Department, Admiralty; Lt.-Col. B. H. O. Armstrong, C.M.G., while empld. as Director of Inland Works; Lt.-Col. T. D. Mackie, C.M.G., O.B.E., while empld as Director of Air Construction Service.

Sec. Lt. (Hon. Lt.) T. Sutherland is granted the hon. rank of Capt., Oct. 20th, 1918.

The following cadets are granted hon. commns. as Sec. Lts. :—390738 R. G. Mitchell, Feb. 15th; 305874 R. A. Bolton, Feb. 17th; 766576 H. Valentine, Feb. 18th; 9/93567 J. Keane, 117918 A. E. Piddock, 128688 G. Richards, Feb. 19th; 162 S. L. Gladstone, Feb. 24th, 3813 R. C. Hill, Feb. 25th; 472206 N. S. C. Elmslie, P. J. Woolf, Feb. 27th; 128508 A. Bott, 137324 G. W. Dicker, 17581 H. Fenton, 101530 A. F. Hall, 137246 C. M. McLaughlan, 117331 N. Sykes, 13263 J. A. Wilson, March 3rd; R. W. Moyse, 45230 F. R. Weatherhead, March 4th; 177763 E. Birchenough, 156439 A. M. Brown, 17125 T. T. Hodge, 176393 L. A. Vaughan, March 5th; 176864 W. J. L. Cope, 128436 C. L. M. Stunt, March 6th; 237871 E. C. Cumming 97437 N. Steele, March 10th; 34732 H. G. Hallett, 47232 J. Tullie, 110994 A. G. Tuffield, 811812 G. W. Wallace, March 12th; G/7866 F. C. Clark, 175511 L. E. Edwards, 6016 A. H. Gerrard, 62341 H. F. Gibson, 15164 P. Hamson, 93130 W. C. Hunt, 176230 F. S. Hughes, 176096 W. P. Janes, 175633 E. K. Jarman, 241668 J. W. Kuypers, 116676 C. Law, 21473 W. R. Lewis, 52712 C. A. Mackenzie, 110860 J. L. Mathers, 517019 R. Richings, 117927 R. A. Seaton, 1230 A. R. Whyte, March 13th; 117555 J. Pain, March 15th; P.F.O. C. A. Bax, 175443 W. G. Davies, 8/11574 C. H. R. Parfitt, March 17th; 117651 R. R. Barclay, 221496 C. S. Crouch, 950141 H. A. Crowch, 137185 W. H. Diggins, 175381 C. E. Ebrall, 217996 H. J. Green, 117979 R. W. Holyfield, 1513 L. R. Morgan, 220777 J. F. Reilly, 225788 R. S. Trebilcock, 137049 A. R. N. Wilkinson, March 18th; 175420 R. J. Asquith, 88625 F. G. Licence, March 19th; 125750 F. A. Barnes, 325621 H. D. Best, 246416 T. H. Boffey, 76774c T. S. Brown, 54766 C. C. Cullen, 222240 W. E. Clegg, 305391 W. R. Harris, 96281 A. E. Jepson, M2/679139 D. McInnes, 128307 G. A. A. Robins, March 21st; 394950 E. H. Page, March 22nd; M2/52660 T. W. Edkins, 336921 C. H. Robertson-Green, 195708 W. Smith, March 28th; 137193 F. C. Eckford, 3403 W. Joiner, March 29th; 137148 H. M. Brodie, March 31st; P.F.O. L. J. Barnett, 86677 A. T. Blake, 37601 R. Clark, 117909 H. M. McKeller, 92913 C. C. Wood, April 1st; 324508 S. Causen, 50896 G. Craven, 40021 G. Harris, 117830 E. Thompson, April 2nd; 137161 K. Cheesman, 38920 L. A. Dixon, 7408 W. Frisby, 119194 F. Treville, April 3rd; 176201 G. W. Adams, 55426 W. Barrow, 767737 V. E. Baker, 276079 J. A. Beauchop, 1010956 G. P. Parrett, 402105 G. W. L. Carper, 36154 N. H. A. Clark, 52554 W. F. Currie, 137552 D. Darnborough, 21559 J. O. Griffiths, 93134 A. T. McWilliams, 405889 H. S. Redhead, 6278 L. F. L. Sammons, 110580 E. R. Spurrier, 100112 H. M. Stephenson, April 4th; 137162 E. C. Cheesman, April 9th; 76618 A. Bewick, 86898 T. D. Delaney, 133159 G. A. Frenette, 117948 G. Dawe, April 10th; 552503 P. Murphy, May 17th.

Col. (actg. Brig.-Gen.) F. L. Festing, C.M.G., relinquishes his commn. on ceasing to be empld., and is permitted to retain the rank of Brig.-Gen., June 1st.

Transferred to unempld. list :—Lt. C. S. Downey (R.A.O.C.), from S.O., March 28th; Maj. (actg. Lt.-Col.) M. Freeman, O.B.E. (Worc. R.), from (S.O.), May 1st; Lt. (actg. Maj.) H. Atkins, from (S.O.), May 14th; Sec. Lt. (actg. Capt.) E. E. Page, from (S.O.), May 16th.

The notification in "Gazette," May 13th, concerning Capt. C. W. C. Browne, is cancelled.

The notification in "Gazette," May 16th, concerning Lt.-Col. (actg Brig.-Gen.) C. L. N. Newall, C.M.G., A.M., is cancelled.

St. James's Palace, June 2nd.

The King has been pleased on the occasion of His Majesty's Birthday to approve of the following appointment :—

Capt. His Royal Highness Prince Albert Frederick Arthur George, K.G., Royal Air Force, to be a Personal Aide-de-Camp to the King.

The King has been pleased, on the occasion of His Majesty's Birthday, to give orders for the following appointment to the Most Excellent Order of the British Empire, in recognition of services in connection with the war :—

K.B.E. (Military Division).

Rear-Adm. C. L. Vaughan-Lee, C.B.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, May 28th

Mr. Harry Hawker and Commander Kenneth Mackenzie-Grieve, R.N., had the honour of being received by the King, when His Majesty decorated them with the Air Force Cross.

BUCKINGHAM PALACE, May 29th.

The following were severally introduced into the presence of His Majesty, when The King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE (MILITARY DIVISION).—COMMANDER.—Col. James Home, R.A.F.

OFFICERS (Military Division)—Lieut.-Col. William Fernie, R.A.F., and Capt. Norman Gilchrist, late R.A.F.

His Majesty then conferred decorations as follows :—

THE MILITARY CROSS.—Capt. George Riley, R.A.F.; Lieut. John Walkerdine, R.A.F.; Second Lieut. Arthur Tearn, N. Staffs. Regt., attd. R.A.F.

BUCKINGHAM PALACE, May 31st.

The King held an investiture in the Quadrangle of the Palace at eleven o'clock this morning.

The following were severally introduced into the presence of The King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE (Military Division).—Commanders.—Lieut.-Col. Martin Flack, R.A.F., and Lieut.-Col. Harold Moore, R.A.F.

THE DISTINGUISHED SERVICE ORDER AND THE MILITARY CROSS.—Lieut.-Col. Edward Tennant, R.A.F.

The King then conferred decorations as follows :—

BAR TO THE DISTINGUISHED SERVICE CROSS.—Capt. Euan Dickson, R.A.F.

THE DISTINGUISHED SERVICE CROSS.—Capt. Gilbert Nelson, R.A.F.

THE MILITARY CROSS.—Lieut. Charles Robson, R.A.F.

OFFICIAL COMMUNIQUES.

The following communiqué was issued by the India Office on May 28th :—

On May 24th Jelalabad was again effectively bombed, and large portions of the military part of the town are reported to be burnt out.

On May 24th our aeroplanes bombed the powder factory and fort of Kabul. A large explosion was observed

The India Office states that the following further information has been received from the Government of India :—

Up to May 24th the general situation remained unchanged, and the tribal attitude good.

On the Mohmand border our aeroplanes in this area were fired on by small Afghan guns.

The following communique was issued by the India Office on May 30th :—

During the air raid on Kabul on May 24th bodies of troops, estimated at 5,000 to 6,000 were observed, mostly moving westward, between Gandamak (28 miles south-west of Jalalabad) and Kabul.

The India Office made the following announcement on June 1st :—

The latest information received from Simla, dated May 29th-30th, shows that all the Afghan attacks on our fort at Thal (Kurram Valley) have been repulsed.

An air reconnaissance disclosed 3,000 to 3,500 enemy near Thal. Bombs were dropped on their camps with good effect.

The India Office issued the following on June 2nd :—

The arrival of our aeroplanes at Miramshah, in Waziristan, is reported to have eased the local situation as regards the tribesmen in the neighbourhood.

ADMIRALTY APPOINTMENTS.

The following appointments have been made :—

MAY 27th.—Lieut.—R. J. R. Langmaid, to "Argus."

MAY 31st.—Royal Naval Reserve.—Temp. Lieuts.—L. Beard, to "Empress," May 30th; and S. Myers, to "Benbow," May 29th, and to "Ark Royal," undated.

THE CASUALTY LIST.

AIR FORCE

Reported May 28th.

KILLED.—Cartwright, Lt. J. W. P., R.A.F.
Hayne, Capt. E. T., R.A.F.
Thornhill, Lt. A. G., R.A.F.

DIED OF INJURIES.—Warman, Capt. C. W., D.S.O., M.C., R.A.F
Norton, Lt. G., R.A.F.

DROWNED.—Evans, Lt. L. L. M., R.A.F.
Stokes, Lt. H. J. E., R.A.F.

PERSONAL NOTICES.

NAVAL.

BIRTHS.

FOWLER.—On May 30th, at Belhurst, Hurstmonceaux, the wife of Major F. B. Fowler, late R.A.F. and Sqdn. Comdr., R.N.A.S.—a daughter.

MARIX.—On May 24th, at Elces, Chigwell, Essex, the wife of Major R. L. Marix, D.S.O., R.A.F. (late Sqd.-Cdr., R.N.A.S.), of a son.

ENGAGEMENT.

FANE—BACON.—The engagement is announced between Captain Gerard Fane, D.S.C., R.A.F., son of Mr. Sidney Fane and Mrs. Fane, and Rhoda, daughter of Mr. and Mrs. Nicholas Bacon, of Raveningham Hall, Norwich.

MILITARY.

DEATHS.

CHISNALL.—Lieut. Charles Alain Chisnall, R.A.F., 21st Canadian Reserve, who died on May 29th at Ripon, was the youngest and only surviving son of Mr. and Mrs. C. H. Chisnall, Frating Abbey, Colchester.

DUNN.—Capt. Frederick Dunn, R.A.F., the pilot of the Tarrant Triplane, which was wrecked during trials on May 26th, died from his injuries in Cambridge Hospital, Aldershot on May 28th. He never regained consciousness after the accident, his skull and spine being fractured

Captain Dunn, along with Messrs. Carr, Lilywhite, Barrs and others from the Hendon aerodrome, went off the day war was declared and enlisted in the Royal Flying Corps, like the good sportsmen they were. They were promptly accepted as N.C.O. pilots, and all did good service at the Front.

Captain Dunne, after a strenuous period of war-flying, was given a commission for service in the field, and after a period came home, and was detailed for test work for the R.F.C. at Farnborough, a position for which his long experience of flying at home and on active service fitted him excellently. In due time he was promoted to Captain, R.F.C.

He was a splendid example of the keen and energetic young aviator who succeeded on his merits in winning promotion. His gallantry during a long period of active service entitled him to the comparative ease of life at home, and the way in which he handled new and experimental machines of all sorts showed that he had in no way lost his flying nerve.

His death is deeply to be regretted, for men of his experience and keenness can ill be spared by those who are working for the further progress of Aeronautics.

ENGAGEMENTS.

ASHMORE—PARSONS.—A marriage has been arranged and will take place in July, between Major-General E. B. Ashmore, C.B., C.M.G., M.V.O., Commandeur de la Légion d'Honneur, commanding the London Air Defences, and Betty, daughter of the Rev. F. W. Parsons, vicar of Tandridge and Rural Dean of Godstone, and Mrs. Parsons.

WHITAKER—SHARP.—The engagement is announced of Captain Raymond Whitaker, the Rifle Brigade and R.A.F., son of Mr. and Mrs. Arthur Whitaker, of 52, Cadogan Square, and Hilda Margaret Sharp, daughter of Lieut.-Colonel and Mrs. G. E. Sharp, of The Close, Salisbury.

BIRTHS.

GORDON-DEAN.—On May 29th, at Hampstead, to Helen, the wife of Major H. Gordon-Dean, York and Lancaster Regt. and R.A.F.—a son.

STAMMERS.—On May 24th, at Royston Lodge, Richmond, Surrey, the wife of Capt. F. G. Stammers, O.B.E., Royal Sussex Regt., and R.A.F., of a daughter.

AIR FORCE.

DEATHS.

HOLLICK.—Lieut. John Hollick, R.A.F., who was officially reported missing in France on May 18th, 1918, is now presumed killed in action on that date. He was the only son of Mr. and Mrs. Thomas Drake Hollick, Little Gaynes, Upminster, Essex, and was 19 years of age.

JACOBI.—Lieut. Edward Sydney Jacobi, R.A.F., who was killed in an aeroplane accident at Aldeburgh on May 24th, was the only son of Mr. and Mrs. Jacobi, of Blackheath.

M'EACHRAN.—Lieutenant Neil M'Eachran, 59th Squadron, R.A.F., who was instantaneously killed on May 20th in a flying accident at Düren, was the eldest son of Mr. and Mrs. Neil A. L. M'Eachran, Homelands, Thorntonhall, Lanarkshire. He was 24 years of age.

WRIGHT.—Cyril V. C. Wright, R.A.F., who died on May 24th, as the result of injuries received in a flying accident at Aldeburgh, was the husband of Laura Wright, Cotmandene, Aldeburgh, Suffolk.

ENGAGEMENTS.

KEMBALL-GIBSON.—The engagement is announced between Captain Stanley Kemball, late R.A.F., and Eileen, youngest daughter of Mr. and Mrs. T. S. Gibson, of Hillcote, Buckhurst Hill, Essex.

LOVEMORE—EDWARDS.—The engagement is announced of Lieut. R. B. Lovemore, D.S.O., R.A.F., elder son of Mr. and Mrs. W. B. Lovemore, of Swaziland, South Africa, and Miss Gwendolen Amy Edwards, only daughter of Mr. and Mrs. H. C. Edwards, of Sussex House, Raynes Park.

MARRIAGES.

ROLFE-ROGERS—MOORE.—On May 29th, at St. Mary's Cathedral, Glasgow, Capt. Ranville George Rolfe-Rogers, R.A.F., son of Mrs. Rolfe-Rogers, Bedford and Ceylon, was married to Katherine Ann Devereux Moore, Acting Administrator, W.R.A.F., eldest daughter of Mr. and Mrs. C. F. Moore, 6, Wilton Crescent, North Kelvinside, Glasgow, by the Very Rev. Provost Ambrose Lethbridge, M.A.

KEMP—SNOW.—The marriage between Capt. W. Kemp,

A.F.C., R.A.F., and Miss Snow took place on June 2nd, at St. Paul's Church, Knightsbridge.

BIRTHS.

MORRIS.—On May 20th, in Galway, the wife of Lieut. A. J. Morris, J.P., R.A.F., of a son.

MOSSOP.—On May 24th, at Bryn, Woodbridge, Suffolk, the wife of Capt. Noel R. Mossop, R.A.F., of a daughter.

WALKER.—On June 1st, at St. John's Wood, the wife of L. A. Walker, M.D., Capt. R.A.F., of 37, Piccadilly—a son.

* * *

It has been stated in a certain section of the Press that Serjt. Aldcock, R.A.F., died in hospital at Aldeburgh as a result of injuries received in a flying accident at Aldringham, Suffolk, on May 24th. This report was issued in error. Serjt. Aldcock has been removed to hospital at Colchester, and is progressing favourably.

FLYING IN AFGHANISTAN.

Apparently, the Afghans do not altogether fancy war in the air, as evidenced by bombing raids upon their towns and troops, and although the official communiqués cover the ground very thoroughly, for those who not only read but understand official communiqués the following extracts from reports of various special correspondents may be of interest.

The "Times" correspondent on May 18th wrote of the fear the Afghans entertain towards aircraft. He says: —

"The interrogation of prisoners emphasises the terrifying effect of air attacks. They were not afraid of rifle fire but were scared by big guns and aeroplanes. They state that 2,000 fighting tribesmen were in Dakka when it was bombed, and there were 100 casualties. Two hundred horses and other animals were killed.

Reuter, on May 18th, writes of the incident of the capture of two Air Force officers mentioned in an official communiqué last week.

On May 17th one aeroplane was forced to descend in the Bazar Valley. Lieuts. Barker and Hoare report that they were well treated by the Zakka Khel. The aeroplanes proceed daily into unknown and dangerous country, where no landing is possible. The machines go off at dawn, and often do not return till dusk. The Afghan abandonment of Dakka was largely due to the fear of aeroplanes. The machines greatly assisted the troops in the recent fighting, machine-gunning and bombing the enemy. They gave prompt information of the arrival of the Afghan levies on our flanks. The wounding by a bomb of the Afghan commander greatly impressed the population. Aeroplanes are dropping thousands of copies of the Viceroy's proclamation on the Jelalabad road.

Reuter is responsible for the two following statements, dated May 21st and May 25th respectively:—

A telegram reporting the aerial attacks of Jelalabad, says these bombing raids have been highly successful. In a night raid Capt. Carbery dropped four small bombs on the Amir's palace. In a day raid four bombs were dropped among 2,000 infantry on parade, inflicting about fifty casualties. The infantry scattered into the barracks, which were bombed in the next raid. Six direct hits were obtained, and all the bombs were dropped in the town, which is much damaged. Fifteen machines took part in the raid, and nearly two tons of bombs were dropped.

Our aeroplanes successfully bombed the munition factories at Kabul, securing seven hits. A large explosion followed. A second raid on Jelalabad was also effective. Several military buildings were damaged and observed to be in flames. The tribal lashkar in the Gandao valley were attacked by aeroplanes, and are reported to have been scattered northwards.

On May 30th, the "Morning Post" summing up the Afghan situation, says:—

"The frontier tribes, despite the attempts of Afghan agents to induce them to come in against the British, are remaining staunch, and there is no doubt that the success of bombing operations from the air has impressed the tribesmen with a salutary fear of the power of British arms.

R.34 IN A FOG.

On May 28th the Clyde-built airship R.34 was formally taken over by the Admiralty, having completed her tests. She left Inchinnan aerodrome for East Fortune the same night. But as the airship approached the East Coast she ran into thick mist, and after passing East Fortune cruised out over the North Sea, where the crew realised they were completely lost. They managed to return to East Fortune, and spent an anxious night over the aerodrome, in the hope that a landing would be possible in the morning. This was impossible, the fog being as bad as ever, and there was nothing for it but to remain aloft. The airship travelled as far as Yorkshire, and as the day wore on the situation of the crew, owing to lack of food and the strain of the protracted journey, became serious. They returned to East Fortune at 3.30 p.m. on May 29th, where, after a good deal of preliminary trouble with mist and wind, Colonel Hicks, the Commander, made a successful landing. General Maitland, Director of Airship Services, was aboard during the cruise.

THE NAVY'S AIRSHIP POLICY.

The Admiralty have under construction three rigid airships, one at the Beardmore Company's works, one at Bedford, and one at the Armstrong-Whitworth Company's works at Barlow, Yorks. These will form part of the fleet of eight airships which the Admiralty has decided to construct.

It is stated that the Admiralty will put these ships onto a regular aerial mail service, which seems a waste of good war material, but would appear to prove that the Admiralty has a greater amount of common sense than the Air Ministry.

THE PRIZE COURT.

The President (Lord Sterndale) on June 2nd, awarded £175 prize bounty to the pilot and air mechanic of H.M. seaplane 9860 for the destruction of the German submarine U.B.32.

Mr. L. F. C. Darby, on behalf of the claimants, read an affidavit by Arthur Edward Ingledew, formerly serving as air mechanic and flight cadet at the Royal Air Force Seaplane Station, Cherbourg, who said that on Aug. 18th, 1917, he was serving on board H.M. seaplane 9860 under the command of Flight Lieut. Charles Stanley Mossop, D.S.C., R.N.A.S., and when he was on patrol about 27 miles north of Cape Barfleur an enemy submarine was seen. The submarine was engaged by the seaplane, and was seen to sink. She was believed to be the U.B.32, and to have carried a crew of 35 hands all told. Lieut. Mossop was killed on active service on Aug. 12th, 1918.

THE ROYAL NAVAL, MILITARY AND AIR FORCE TOURNAMENT

The Royal Naval, Military and Air Force Tournament opens on June 26th. Already rehearsals for the Tournament are taking place on the Rhine, in France, at Woolwich, Aldershot, Deal, Portsmouth, Chatham, Plymouth, Dunblane, etc. The part to be played by the R.A.F. has not yet been announced.

THE MINISTRY ANNOUNCEMENTS.

The undermentioned landing grounds and aerodromes are being relinquished by the R.A.F.:—Orsett (Essex), Greenland Top (Yorks), Benton (Northumberland), Broomfield (Herne Bay, Kent), Dunkeswicke (Yorks), Gilmerton (Edinburgh), Grove Park (Kent), Hedon (Yorks), Horsegate (Durham), Henthorpe Gate (Yorks), Palmers Farm (Essex), Pluckley (Kent), Thornaby (Yorks), Westpole Farm (Herts), Winterton (Yorks).

The landing ground at New Chapel (Surrey) will not be available for a period of two months from May 24th.

ATHLETICS IN THE R.A.F.

Arrangements have been made for a selected R.A.F. Association football team to visit Holland, where it will play two games with representative sides.

The team, which was accompanied by Captain H. Greer, R.A.F., and Captain S. H. Harrower, R.A.F., left England on June 2nd, and will play its first game at Amsterdam on June 5th.

The men chosen to make the tour are:—

F. R. Wood (Millwall); J. Harrow (Chelsea), P. Barton (Tottenham Hotspur); E. Tomkins (Tottenham Hotspur), H. Lane (West Ham), M. Bell (Fulham); F. Adams (Leytonstone), W. Pick (Brentford), F. Norris (West Bromwich), B. Bliss (Tottenham Hotspur), G. J. Fox (Queen's Park Rangers).

Reserves:—G. F. Cannon (Fulham), M. Rist (Milwall), H. Lovesey (Watford), R. Crook (Milwall), R. A. Lindsell (Army).

W.R.A.F. GRATUITIES.

The Air Ministry announces that it is proposed to embody a special provision in the Finance Bill exempting from taxation benefits payable to officers and other ranks of the Women's Royal Air Force. No assessments on these benefits will therefore be made.

GRATUITIES TO POSTAL EMPLOYEES.

It has been decided that officers, warrant officers, non-commissioned officers, and airmen who, as postal servants, were entitled, whilst serving in the Air Force, to their full civil pay, are no longer precluded from receiving the discharge gratuities to which they are otherwise entitled under Articles 490 and 117 of the Royal Warrant for Pay.

This ruling, however, in no way affects the provision in paragraph 16c of Air Ministry Order No. 6 of 1919 excluding warrant officers, non-commissioned officers, and airmen from the war gratuity sanctioned by that order.

ACCIDENTS IN SWEDEN.

Two further fatal accidents to Swedish aviators on German aeroplanes are reported. This, it is stated, brings the total of Swedish fatalities due to aeroplane accidents to 22.

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ON THE REGULATION OF CIVIL AVIATION IN THE BRITISH ISLES.

(PART V.)

Last week it was necessary to withhold the further instalments of these Regulations owing to the American victory over the Atlantic. Having dealt with that historical event, one may now proceed to further discussion of the Regulations.

Schedule VII deals with Lights and Signals, and Rules of the Air. This Schedule is of great length, and it is therefore considered better to interpolate explanatory or other remarks where necessary into the Schedule itself rather than to print the whole Schedule and put the remarks all together at the end. Therefore the remarks will be found in the larger type customary on this page.

It is interesting to note that there are no "Directions" to correspond to these Regulations, though, as will be seen from the accompanying remarks, Directions are badly wanted in many instances to help aviators to understand the lighting and signalling rules. The more so as the Regulations are more vexatious than all the others put together.

Here followeth the Schedule:—

SCHEDULE VII.

Rules as to Lights and Signals and Rules of the Air.

INTERPRETATION OF RULES.

In these rules—

The word "aircraft" comprises all balloons, whether fixed or free, kites, airships, and flying machines;

The word "balloon," either fixed or free, shall mean an aircraft lighter than air, and having no means of propulsion;

The word "airship" shall mean an aircraft lighter than air, and having means of propulsion;

The word "flying machine" shall mean all aeroplanes, seaplanes, flying boats, or other flying machines heavier than air, and having means of propulsion.

The word "visible," when applied to lights, shall mean visible on a dark night with a clear atmosphere.

An airship is "under way" within the meaning of these rules when it is not made fast to the ground or any object on land or water.

The angular limits laid down in these rules shall be determined when the aircraft is in its normal attitude for flying on a rectilinear horizontal course.

So far so good. That is all very clear. But perhaps it would be well for the Air Ministry to explain here whether an airship whose engine has broken down and so deprived it of "means of propulsion," becomes a balloon within the meaning of the Act. One has to read twenty Regulations before finding the answer. It is well to have these axioms, as it were, laid down at the start.

I.—Rules as to Lights and Signals.

1. The rules concerning lights shall be complied with in all weathers from sunset to sunrise, and during such time no other lights which may be mistaken for the prescribed navigation lights shall be exhibited. The said prescribed navigation lights must not be dazzling.

There seems to be just ground for complaint here. If motor-cars are only required to carry lights from an hour after sunset till an hour before sunrise, why should aircraft carry them for an extra two hours? The extra time means extra wear and tear on dynamos and extra load on engines all that time.

The question of what is and what is not dazzling ought also to be settled. Any light which is clearly visible a mile away—as an aircraft light should be, let alone at five miles, as demanded in the next clause—would be dazzling at fifty feet distance, and a light which would not dazzle at sunrise or sunset would be distinctly dazzling at midnight. Here there is a distinct need for Directions.

2. A flying machine when in the air, or manœuvring on land or water under its own power, shall carry the following lights:—

(a) Forward, a white light, visible in a dihedral angle of two hundred and twenty degrees bisected by a vertical plane through the line of flight, and of such a character as to be visible at a distance of at least five miles;

(b) On the starboard side, a green light, so constructed and fixed as to show an unbroken light between two vertical planes, whose dihedral angle is one hundred and ten degrees when measured to the right from dead ahead, and of such a character as to be visible at a distance of at least three miles;

(c) On the port side, a red light, so constructed and fixed as to show an unbroken light between two vertical planes whose dihedral angle is one hundred and ten degrees when measured to the left from dead ahead, and of such a character as to be visible at a distance of at least three miles;

(d) The said green and red sidelights shall be fitted so that the green light shall not be seen from the port side, nor the red light from the starboard side;

(e) At the rear, and as far aft as possible, a white light shining rearwards, and visible in a dihedral angle of one hundred and forty degrees bisected by a vertical plane through the line of flight;

(f) In the case where, in order to fulfil conditions (a) to (e) above, the single light has to be replaced by several lights, the field of visibility of each of these lights should be so limited that in no case can more than one be seen at a time.

It occurs to one that a white light visible at five miles (Paragraph (a)) and red and green lights visible at three miles (Paragraphs (b) and (c)) will require a fairly weighty dynamo to give the necessary candle-power, and that quite an amount of horse-power will be absorbed in driving it, whether it be driven direct off the engine or by a windmill fan. There seems to be scope here for some ingenious firm to devise small lights on the searchlight principle which will give the necessary range without undue weight.

Incidentally the white lights might find a ready sale among motorists who want headlights with the legal 5 inch front and the legal 24 candle-power which will light the road properly ahead.

Also it is worth noting that no indication is given in Paragraph (e) as to the required range of the tail-light. This apparently need only be visible at a range of a few feet.

3. The rules as to the lighting of flying machines shall apply to airships, subject to the following modifications:—

(a) All lights shall be doubled, the forward and aft lights vertically, and the side lights horizontally;

(b) Both lights of each pair forward and aft shall be visible at the same time.

The distance between each light comprising a pair shall not be less than six feet.

4. An airship, when being towed, shall carry the lights referred to in rule 3, and in addition those specified in rule 6 for airships not under control.

5. A flying machine, when on the surface of the water and when not under control, that is to say, not able to manœuvre as required by the regulations for preventing collisions at sea, shall carry two red lights not less than six feet apart in a vertical line one over the other, and of such a character as to be visible all round the horizon at a distance of at least two miles. In addition the side lights must be shown if the flying machine is under way.

Further weight and complication is here added to the burden of the machine and its owner. In the first place, one may assume that nobody is going to carry naked lights—either oil or acetylene—on an aeroplane or seaplane. Therefore accumulators must be carried which are capable of giving the required light from sunset to sunrise. Secondly, if a light is to be visible all round the horizon at a distance of two miles, it must be placed above the uppermost plane of the seaplane, otherwise it will be obscured aft by the tail and fuselage, and therefore the machine must carry a telescopic mast or something of that nature which will elevate the second light six feet above the lower one.

6. An airship, which from any cause is not under control, or which has voluntarily stopped her engines, shall, in addition to the other specified lights, display conspicuously two red lights, one over the other approximately in a vertical line, not less than six feet apart and constructed to show a light in all directions and of such a character as to be visible at a distance of at least two miles.

By day an airship, when being towed, or which from any cause is not under control, shall display conspicuously two black balls or shapes, each two feet in diameter, placed one over the other and approximately in a vertical line.

An airship moored or under way, but having voluntarily stopped its engines, shall display conspicuously by day a black ball or shape two feet in diameter, and shall be treated by other aircraft as being not under control.

The poor airshipper is apparently asked to solve an impossible problem. In the first place, if two lights are in a vertical line, how can each "show a light in all directions"? One must obscure the other from an observer directly above or below them. Secondly, if the lights are hung below the ship, how can they be seen from above, and if they are stuck up above how are they to be seen from below? There is need here again for explicit Directions on the point.

7. A free balloon shall carry one bright white light below the car at a distance of not less than twenty feet, and so constructed as to show an unbroken light in all directions and of such a character as to be visible at a distance of at least two miles.

The balloon is, it seems, even worse treated. How is a light 20 feet below the car to show "an unbroken light in all directions" with a huge gas bag right over the top of it?

8. A fixed balloon shall carry in the same position as the white light mentioned in rule 7, and in lieu of that light three lights in vertical line one over the other, not less than six feet apart. The highest and lowest of these lights shall be red, and the middle light shall be white, and they shall be of such a character as to be visible in all directions at a distance of at least two miles.

In addition the mooring cable shall have attached to it at intervals of one thousand feet, measured from the basket, groups of three lights similar to those mentioned in the preceding paragraph. In addition, the object to which the balloon is moored on the ground shall have a similar group of lights to mark its position.

By day the mooring cable shall carry in the same positions as the groups of lights mentioned in the preceding paragraph, and in lieu thereof, tubular streamers, not less than eight inches in diameter and six feet long, and marked with alternate bands of white and red eighteen inches in width.

If kite-balloons are used largely, as they will be in due course, for mark-buoys over aerodromes, it is obviously necessary that their position should be well and distinctly indicated, and especially that the line of their cables should be seen easily. But these regulations seem to put a fairly big load on them. It may be possible to produce a K.B. cable which will carry an electric light wire as well as a telephone wire, so that the K.B. can take the power for her lights off the ground. Otherwise she will have to carry accumulators, and/or a dynamo with a windmill drive. Nevertheless, it is probable that the new K.Bs. invented by Major Avorio and Dr. Prassone and improved by the K.B. section of the London Air Defence Area, will make little trouble about lifting the weight after what they did in the way of lifting K.B. aprons.

Perhaps the tubular streamers—or drogues—along the cable will be still more troublesome than the lights, for the drag on such streamers is quite considerable, and will tend to pull the whole K.B. bodily down wind, if the breeze has any great strength. Still, all these complications will only add interest to the lives of the K.B. experts, who, now that there is no more war for the time being, must find things fairly dull. The added burdens do not, at any rate, add to the difficulties of navigating an aircraft which, if it is to be a paying commercial proposition, must always be loaded up to its safety limit when starting.

9. An airship, when moored near the ground, shall carry the lights referred to in rules 2 (a) and (e) and 3.

In addition, if moored but not near the ground, the airship, the mooring cable, and the object to which moored, shall be marked in accordance with the provisions of rule 8, whether by day or by night.

Sea anchors or drogues used by airships for mooring purposes at sea are exempt from this rule.

Here again Directions are needed. When is an airship moored "near the ground" and when is it not? An airship which was 90 feet from keel to truck would be moored near the ground if her nose were anchored to a mast 100 feet high. But a "Blimp" moored to the same mast would be away up in the sky.

10. A flying machine stationary on land or water, but not anchored or moored, shall carry the lights specified in rule 2.

In other words, if an aviator makes a forced landing in a meadow, miles from any help, and has to leave his machine in the open all night, it must carry head, side, and tail lights from sunset to sunrise, five-mile range and all. It occurs to one that some hundredweight of accumulators will have to be carried in every aeroplane, day and night.

11. In order to prevent collisions with surface craft—

(a) A flying machine when at anchor or moored on the water shall carry forward where it can best be seen a white light so constructed as to show an unbroken light visible all round the horizon at a distance of at least one mile.

(b) A flying machine of one hundred and fifty feet or upwards in length, when at anchor or moored on the water, shall in the forward part of the flying machine carry one such light, and at or near the stern of the flying machine, and at such a height that it shall be not less than fifteen feet lower than the forward light, another such light.

The length of a flying machine shall be deemed to be the overall length.

(c) Flying machines of one hundred and fifty feet or upwards in span, when at anchor or moored in the water shall carry in addition at each lower wing tip one such light as specified in (a) of this rule.

The span of a flying machine shall be deemed to be the maximum lateral dimension.

This should be compared with Clause 5. It seems that one has to carry (permanently) a special set of "out of control" lights and another set of mooring lights. Apparently the genius who framed these Regulations imagines that every aeroplane carried a signal-locker for flags and lamps as big as that on a liner.

The lights to be carried thus include headlight (Clause 2, Paragraph (a)), tail-light (2 e), two side-lights (2 b and c), two "out of control lights" (Clause 5), head and tail light for use when at moorings (11 b), wing-tip lights for use when at moorings (11 c), and top light for use when at moorings (11 a).

One recalls that in his brilliant Wilbur Wright Memorial Lecture some two years ago Lieut.-Colonel Mervyn

O'Gorman remarked that one of the things which he feared most about peace-flying was the overloading of commercial aeroplanes by official demands for the safety of passengers and the public. It seems as if these Lighting Regulations are a step in that direction.

12. In the event of the failure of any of the lights specified under these rules to be carried by aircraft flying at night, such aircraft shall land at the first reasonably safe opportunity.

13. Nothing in these rules shall interfere with the operation of any special rules made by the Government of any nation with respect to the additional station and signal lights for two or more military aircraft or for aircraft in formation, or with the exhibition of recognition signals adopted by owners of aircraft which have been authorised by their respective Governments and duly registered and published.

14. (a) Aircraft proposing to land at night on aerodromes having a ground control shall before landing—

Fire a green Very's light or flash a green lamp, and in addition shall make by international Morse code the letter group forming its call sign.

(b) Permission to land will be given by the repetition of the same call sign from the ground, followed by—

A green Very's light, or flashing a green lamp.

15. The firing of a red Very's light or the display of a red flare from the ground shall be taken as an instruction that aircraft are not to land.

16. An aircraft compelled to land at night shall, before landing, fire a red Very's light, or make a series of short flashes with the navigation lights.

Clause 12 seems fairly obvious, and Clause 13 is no affair of the general public, but Clause 14 finds us back on the overloading question again. If an aircraft which is compelled to land at night can signal with its navigation lights, why should it not Morse its call sign with its headlight? Why load it up still further with Véry pistols and green lamps?

17. When an aircraft is in distress and requires assistance, the following signals shall be used or displayed, either together or separately:—

(1) The international signal, S.O.S., by means of visual or wireless signals;

(2) The international code flag signal of distress, indicated by NC;

(3) The distant signal, consisting of a square flag, having either above or below it a ball, or anything resembling a ball;

(4) A continuous sounding with any sound apparatus;

(5) A signal, consisting of a succession of white Very's lights, fired at short intervals.

One fails to see why white Véry's lights should be a distress signal. Surely red lights, which are known the world over as danger signals, would be more sensible. As regards Paragraph (4), presumably the banging and grinding of a heavily deteriorated engine would be accepted as "a continuous sounding" within the meaning of the Act.

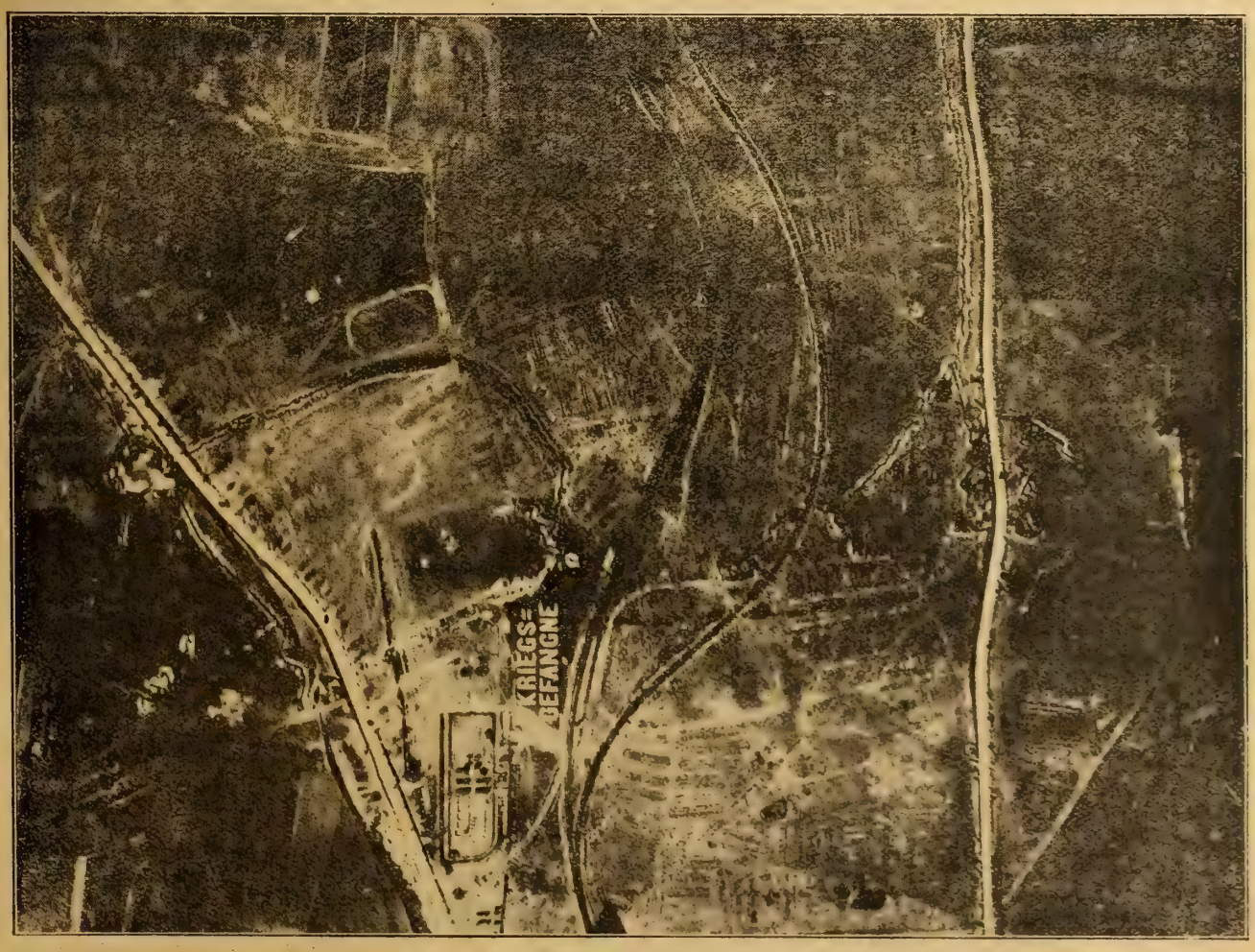
18. In fog, mist, falling snow, or heavy rainstorms, whether by day or night, an aircraft on the water shall make the following sound signals with any sound apparatus:—

(a) if not anchored or moored, a sound at intervals of not more than two minutes, consisting of two blasts of about five seconds duration, with an interval of about one second between them;

(b) if at anchor or moored a sound at intervals of not more than one minute, consisting of one blast of about five seconds duration.

Which adds to the burden of the aircraft a syren, horn, or other noise instrument. There seems to be a chance here for a smart designer to produce an exhaust-pipe which, when blown the other way, will serve as a key-bugle.

Altogether one sees in these Lighting Regulations some fine opportunities for the air-police—or "cloud-cops," as our American relatives have called them.



A German Aerial Photograph showing how the French indicated the position of Prison Camps to them.

There are all the old openings for quibbles just like those on which foolish old magistrates, out for cheap popularity with the mob, fine perfectly innocent motorists. It is difficult to make up one's mind whether the people who framed these particular Regulations are in league with the police or whether they have shares in some of the electrical fittings firms, or both.

We can now proceed to consider the Rule of the Road as applied to aircraft :—

II.—Rules of the Air.

(a) General Rules of the Air.

19. Flying machines shall always give way to balloons, fixed or free, and to airships. Airships shall always give way to balloons, whether fixed or free.

20. An airship when not under its own control shall, for the purposes of the rules of the air, be classed as a free balloon.

21. A motor-driven aircraft must always manœuvre according to these rules as soon as it is apparent that, if it pursued its course, it would pass at a distance of less than 200 yards from any part of another aircraft.

22. When two motor-driven aircraft are meeting end on, or nearly end on, each shall alter its course to starboard.

23. When two motor-driven aircraft are on courses which cross, the aircraft which has the other on its own starboard side shall keep out of the way of the other.

So far all is plain sailing and eminently reasonable. It is particularly sensible to adopt the universal rule of "Keep to the Right" in passing. It is only a pity that we do not adopt the same rule for road traffic also.

24. An aircraft overtaking any other, shall keep out of the way of the overtaken aircraft by altering its own course to the right, and must not pass by diving.

Every aircraft coming up with another aircraft from any direction more than one hundred and ten degrees from ahead, i.e., in such a position with reference to the aircraft which it is overtaking, that at night it would be unable to see either of that aircraft's sidelights, shall be deemed to be an overtaking aircraft; and no subsequent alteration of the bearing between the two aircraft shall make the overtaking aircraft a crossing aircraft within the meaning of these rules, or relieve it of the duty of keeping clear of the overtaken aircraft until it is finally past and clear.

As by day the overtaking aircraft cannot always know with certainty whether it is forward or abaft this direction from the other aircraft, it should, if in doubt, assume that it is an overtaking aircraft and keep out of the way.

Some different hand seems to have been at work here. Why, having used the word "starboard" so far, should the drafter of the Regulations suddenly take to the word "right"? It is apt to be confusing to foreigners, and even to our own people, as suggesting that it is put there on purpose and means something different from "starboard." Also what on earth, or in the air, is meant by "from any direction more than 110 degrees from ahead"? The whole sentence is obscure and needs explanatory Directions, if not a Dictionary.

25. Where by any of these rules one of the two aircraft is to keep out of the way, the other shall keep its course and speed. When in consequence of thick weather or other causes, such aircraft finds itself so close that collision cannot be avoided by the action of the giving-way aircraft alone, it shall take such action as will best aid to avert collision.

26. Every aircraft which is directed by these rules to keep out of the way of another aircraft shall, if the circumstances of the case admit, avoid crossing ahead of the other.

Further Regulations or Directions are needed here also. In Clause 25 there might be a rule that one or the other must dive and the other zoom up, but as at present decreed both might do the same thing and cause a collision instead of avoiding it. And, so far as Clause 26 is concerned, crossing ahead ought to be forbidden in any case to any craft which has to get out of the way of another.

27. In following an officially recognised aerial route every aircraft, when it is safe and practicable, shall keep to the right side of such route.

28. Aircraft on land or water about to ascend shall not attempt to "take off" until there is no risk of collision with alighting aircraft.

29. Every aircraft in a cloud, fog, mist, or other conditions of bad visibility, shall proceed with caution, having regard to the existing circumstances and conditions.

30. In obeying and construing these rules, due regard shall be had to all dangers of navigation and collision and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger.

31. The dropping of ballast other than fine sand or water from aircraft in the air is prohibited.

Clause 27 seems to require rather fine navigation. One would need to be fairly expert to keep to the right of a line from Hounslow to Plymouth if above the clouds, but the injunction is well meant.

Clause 28 is entirely commendable. Pilots are notoriously careless in this matter.

Clause 29 seems unnecessary. One cannot go "dead slow" in an aeroplane as in a ship at sea in a fog.

Clause 30 seems to afford a loophole for every aviator who breaks any or all of the preceding eleven rules, and is therefore perhaps the most useful of the lot.

And Clause 31 seems to put an end to the dropping of leaflets, bundles of papers, and parachutes—with or without human burdens—until some special rules are made to deal with such acts.

We may now consider the Regulations affecting aerodromes in particular, as distinct from the Rule of the Road :—

(b) Regulations for Air Traffic on and in the vicinity of Licensed Aerodromes.

32. At every licensed aerodrome there shall be a flag hoisted in a prominent position which shall indicate that if an aeroplane about to land finds it necessary to make a circuit or partial circuit such circuit shall be left-handed (anti-clockwise) or right-handed (clockwise) according to the colour of the flag. A blue flag shall indicate a right-handed circuit, i.e., that the flag is kept to the starboard side or side which carries the green light of the aircraft, and a red flag shall indicate a left-handed circuit, i.e., that the red flag is kept to the port side or side which carries the red light of the aeroplane.

Similarly aeroplanes leaving a licensed aerodrome shall conform to the circuit as indicated by the flag.

The signal seems to be inadequate, in view of the fact that a flag flapping from a staff in a light breeze is scarcely the most visible of objects from a height of 2,000 or 3,000 feet. A ground-sheet signal would be better.

33. When an aeroplane starts from a licensed aerodrome it shall not turn until five hundred yards distance from the nearest point of the aerodrome, and the turning then made must conform with the circuit regulation.

This regulation is a standing danger to all passengers. It means that a machine starting from a dangerous aerodrome, such as Kenley or Hendon—surrounded in the former case by ravines and trees and in the latter by houses and railway lines—must not turn inside the aerodrome and get its height before leaving, but must push straight off over the surrounding country, regardless of what may be below it, so that if its engine fails it is certain of a crash.

Presumably the fellow who drafted this regulation did not want crashed machines making a mess in his aerodrome. In any case he is a born fool, who either knows nothing about flying or else cares nothing for the welfare of aviation.

34. All aeroplanes flying between five hundred and one thousand yards distance from the nearest point of a licensed aerodrome shall conform to the circuit law, unless such aeroplanes are flying at a greater height than six thousand five hundred feet.

35. Side-slip and trick landings are prohibited at licensed aerodromes. Aircraft are prohibited from indulging in trick flying within a distance in any direction of at least two thousand yards from the nearest point of such aerodromes.

As regards Clause 34, there is little enough at which to complain, for one can fly straight into an aerodrome and yet comply with the circuit law so long as one keeps well over to one side. But Clause 35 is another example of asininity, for under many circumstances a side-slip landing is the safest and best possible. As regards trick flying, which would be the more dangerous, stunt-

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ing over Hendon Aerodrome or stunting over Hendon Village 2,000 yards away? Truly the draftsman of this section of the Regulations is a prize ass.

36. At every licensed aerodrome the direction of the wind shall be clearly indicated by one or more of the recognised methods, e.g., landing tee, conical streamer, smudge fire, etc.

37. Every aeroplane, when taking off or alighting on a licensed aerodrome, shall do so up-wind, except when the natural conditions of the aerodrome do not permit.

38. In the case of aeroplanes approaching licensed aerodromes for the purpose of landing, the aeroplane flying at the greater height shall be responsible for avoiding the aeroplane at the lower height, and shall, as regards landing, observe rule 24 as to passing.

39. Aeroplanes showing signals of distress shall be given free way in attempting to make a landing on a licensed aerodrome.

40. Every licensed aerodrome shall be considered to consist of three zones when looking up-wind. The right-hand zone shall be the taking-off zone and the left-hand shall be the landing zone. Between these two there shall be a neutral zone. An aeroplane when landing should attempt to land as near as possible to the neutral zone, but in any case on the left of any aeroplanes which have already landed. After slowing up or coming to a stop at the end of its landing run, an aeroplane will immediately taxi into the neutral zone. Similarly an aeroplane when taking off shall keep as far as possible towards the right of the taking-off zone, but shall keep clear to the left of any aeroplanes which are taking off or about to take off.

41. No aeroplane shall commence to take off until the preceding aeroplane is clear of the aerodrome.

42. The above rules shall apply equally to night landings on licensed aerodromes, when the signals shall be as follows:—

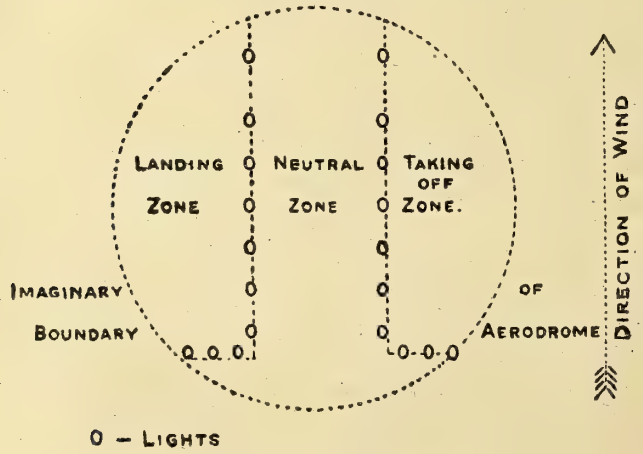
(a) A red light shall indicate a left-hand circuit and a green light shall indicate a right-hand circuit. The right-hand zone will be marked by white lights placed in the position of an "L," and the left-hand zone will be similarly marked. The "L's" shall be back to back, that is to say that the long sides of the "L's" will indicate the borders of the neutral zone. The direction of landing shall invariably be along the long arm of the "L" and towards the short arm. The lights of the "L's" should be so placed that the lights indicating the top extremity of the long arm shall be the nearest point on the aerodrome upon which an aeroplane can safely touch ground. The lights indicating the short arm of the "L" should indicate the limit of safe landing ground for the aeroplanes, that is, that the aeroplane should not over-run the short arm. (See sketch below.)

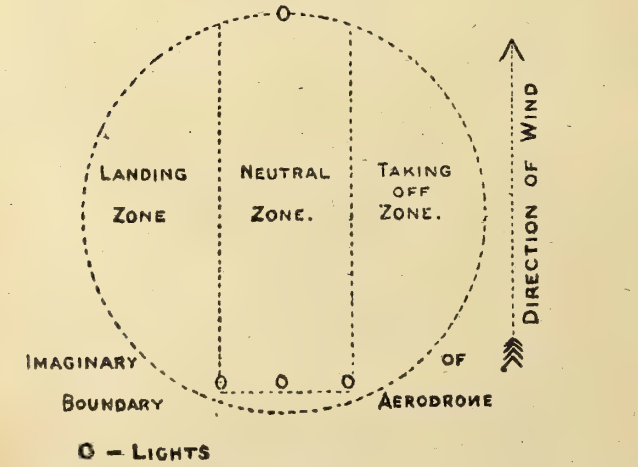
(b) Where it is desired to save lights and personnel, the following system may be used:—

Two lights shall be placed on the windward side of the aerodrome to mark the limits of the neutral zone mentioned in rule 40, the line joining the lights being at right angles to the direction of the wind; two more lights shall be placed as follows: one on the leeward side of the aerodrome on the line drawn parallel to the direction of the wind and passing midway between the two lights on the windward side, for showing the extent of the aerodrome and the direction of the wind, and the other shall be placed midway between the two lights marking the limits of the neutral zone.

Additional lights may be symmetrically put along the boundary lines of the neutral zone and on the ends of the taking-off and landing zones, on the line through the three lights on the windward side. (See sketch below.)

Sketches to illustrate rule 42.





AN OFFICIAL ERROR.—Compare the Sketch with Clause 40.

There is ordinary common sense in the Clauses between 36 and 42 inclusive, except for the fact that, as "The Lincoln Imp" pointed out a week or two ago, the draftsman and the draughtsman of Regulations 40 and 42 were evidently a bit mixed. The official sketch is reproduced herewith, and from it one sees that the right-hand zone looking up-wind is marked as the landing zone, and not as the taking-off zone as stated in Clause 40. Since then the Ministry seems to have discovered its mistake, for a corrected sketch in accord with the rule was issued on June 10th.

The only other point is that which says that a machine may not leave the ground till the preceding one is clear of the aerodrome. What happens if the preceding machine is merely piloted by a pupil who is doing circuits *inside* the aerodrome? Or must pupils have a special aerodrome of their own? Or must pupils go outside and fly over the house-tops? Or are ordinary machines forbidden to use aerodromes where pupils evolute? More Directions seem to be needed on these points.

43. No fixed balloon, kite or moored airship shall be elevated in the vicinity of any aerodrome without a special authorisation.

44. All licensed aerodromes must be protected on land within a zone of five hundred yards by means of suitable markings on obstacles dangerous to flying.

Will somebody please explain to a long-suffering aeronautical population what on earth Clause 44 means? How does one "protect" an aerodrome by "suitable markings on obstacles dangerous to flying"? Presumably the imbecile draftsman means that aviators using the aerodrome must be protected against accidents "by etc., etc."

(c) Miscellaneous.

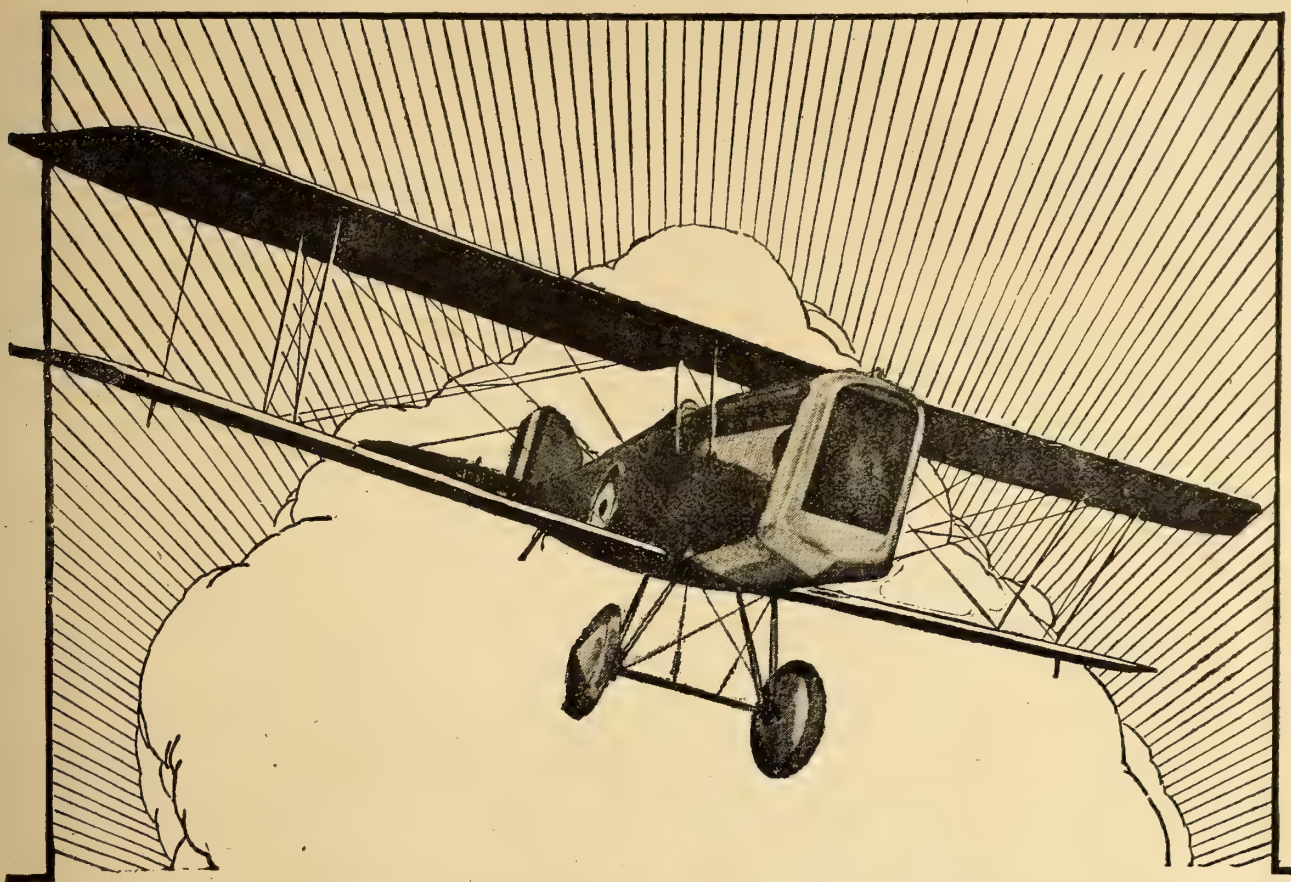
45. Every aircraft manœuvring under its own power on the water shall conform to the regulations for preventing collisions at sea, and for the purposes of those regulations shall be deemed to be a steam vessel, but shall carry the lights specified in these rules, and not those specified for steam vessels in those regulations. The sound signals specified in those regulations shall not be used by or apply to such aircraft, except as specified in rules 17 and 1 above.

46. Nothing in these rules shall exonerate any aircraft, or the owner or personnel thereof, from the consequences of any neglect to carry lights or signals, or of any neglect to keep a proper look-out, or of the neglect of any precaution which may be required by the ordinary practice of the air, or by the special circumstances of the case.

47. Nothing in these rules shall interfere with the operation of any special rule or rules duly made and published relative to navigation of aircraft in the immediate vicinity of any aerodrome or other place, and it shall be obligatory on all owners and personnel of aircraft to obey such rules.

The last three Clauses seem free from objection, and do not seem to call for special explanatory Directions. But one hopes most sincerely that General Sykes' department will be quick about issuing Directions concerning the points to which one has drawn attention in the foregoing notes.

These Rules of the Air are certainly the worst worded and the worst arranged of all the Schedules in the Regulations. The person who drafted them is evidently quite unfamiliar with aerodrome flying, and apparently knows little enough about flying of any sort. They strike one



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as having been compiled by a Naval Officer, or a syndicate of Naval Officers, who has or have just squeezed through his or their flying tests in order to qualify for high command in the Air Force, and who, having nothing else to do, and knowing as much or as little as the average N.O. knows about navigation at sea, has or have been turned on to compose Rules of the Air for people who have forgotten more about flying than he or they is or are ever likely to learn.

THE NEXT INSTALMENT.

One had hoped to finish with these Regulations in this issue, but there still remain the Rules as to Aircraft Arriving in or Departing from the United Kingdom, and there are also certain Directions affecting R.A.F. Aerodromes and Licensed Aerodromes. Therefore, a further instalment of these notes is necessary, and one hopes to discover other interesting points for discussion in the next batch.—C. G. G.

A MATTER OF HOSPITALITY.

It would seem that those in High Places might well give attention to the way in which the Admiralty and the Air Ministry have handled the reception of those gallant officers of the United States Navy who have succeeded in flying across the Atlantic, or who have arrived in this country after making World's Record flights over the Atlantic.

In the first place, one is informed that, although both the Admiralty and the Air Ministry were informed of the time at which these officers would arrive in London on Sunday, May 31st, no official representative of the Navy nor of the R.A.F. met them. Nor were any official cars sent to convey them to their hotels.

The only official car was one belonging to the American Government. The rest of the transport was provided by private members of the Royal Aero Club, not even by the Club officially. And it is worthy of note that the first of these cars, that which conveyed Lieut.-Commander Read, was owned and driven by Mr. Harry Hawker, who thus vindicated our reputation for sportsmanship by doing honour to his successful rival for the credit of being first across the Atlantic by air.

Furthermore, one is informed that during the past week somebody at the Air Ministry inquired as to the days on which the N.C. crews would be at liberty, and the information was given that they were free any day up to Monday last—the assumption being that it was intended to organise some sort of official evening function in their honour. Nevertheless, nothing of the sort has been done.

It is true that they were entertained at lunch by Major-General Seely, on Thursday of last week, at the House of Commons, but that was purely a personal affair of the Under-Secretary for Air, a wholly enjoyable function of an informal and very friendly nature, but it was not in any sense the official reception which was their due, and it was largely concerned with the affairs of the British Aircraft Industry. It is not that the American Naval officer loves official functions any more than does the British N.O., but surely it was up to us as a Nation, for the sake of our reputation for doing the right thing in the right way, to make some properly official recognition of the epoch-making flight of these aviators.

Little as the Air Ministry has done—and that little of a personal nature—the Navy has done nothing at all to welcome these officers of an Allied Navy. Whatever entertainment has been given to them in this country has been given entirely by private individuals.

Even the award of the A.F.C. to certain members of the N.C. Squadron is not quite what should have been done, for it omits entirely any recognition of the crews of N.C.1 and N.C.3, who, though they did not qualify for the A.F.C. by completing the journey by air, certainly deserved official recognition of some sort.

Not only the Navy and the R.A.F., but the Royal Aero Club and the Royal Aeronautical Society as well, have failed to recognise the importance of the occasion. As a fine sporting effort the flight should have been duly celebrated by the Committee of the Royal Aero Club, which professes to govern the sport of aviation in this country.

As a great scientific success, a triumph of aerial navigation, technical design, practical work on aeroplanes and engines, and organisation of aerial signalling and aircraft handling, not to mention the fact of its being an event which marks a new era in the history of aeronautics, the flight should have been fitly recognised by the Council of the Royal Aeronautical Society, which professes to be the Imperial authority on the science of aerial navigation and all concerned therewith.

Both associations have missed the proper moment at which to do the right thing. Their respective elected managing bodies will perhaps awake to their duty after the N.C. crews have left this country—or they may do so before—but the crucial moment for action is past.

A lamentable example of our English way of doing things was seen at Plymouth, where the representatives of the Town or City, or whatever it is, invited the crews of the N.Cs. and certain other American Service people to a dinner on the night of their arrival, but, with characteristic lack of thoroughness, never took the trouble to secure a complete list of the said crews, nor to see that all were invited. The result was that the Officer Commanding one of the N.C. boats and one of his subordinates dined at their own expense at the local hotel.

One gathers that all of the American visitors were allowed to pay their own hotel bills at Plymouth, and one presumes that they will all be allowed to pay their own bills in London, though in any well-ordered state of society they would be the guests of the Nation—as they would doubtless have been if they had been carpet-bag politicians on the cadge from some miserable little "self-determining" State which had had the impudence to break away from a great empire with a glorious history.

Lieut.-Commander Read did us the honour of assuring us at General Seely's lunch that we Britons are good winners but wonderful losers. One will add further that we are damned bad hosts.—C. G. G.

THE PRINCE OF WALES AT THE SOPWITH COMPANY'S WORKS.

On June 5th H.R.H. the Prince of Wales, K.G., drove to Kingston-on-Thames to inspect the works of the Sopwith Aviation Company, Ltd. He was received by Mr. T. O. M. Sopwith, Mr. R. O. Carey (managing director), Mr. H. P. Musgrave (secretary and organising manager), Mr. L. Fowler (factory superintendent), and Mr. H. Mitchell (works manager).

After the experimental shops had been visited, the Prince drove to the new factory at Ham.

THE AUSTRALIAN £10,000 FLIGHT.

It was announced on June 7th that Lieut. E. C. Kingsford-Smith, M.C., R.A.F., Lieut. V. Rendle, R.A.F., and Lieut. C. B. Maddocks, will start from Hounslow on June 11th, on the Blackburn biplane (Rolls-Royce engines), on the first stage of the Australian Flight.

One would like to know how this has been arranged, in view of the fact that a pilot who wished to start some weeks ago was held back to await the publishing of the International Air Laws.

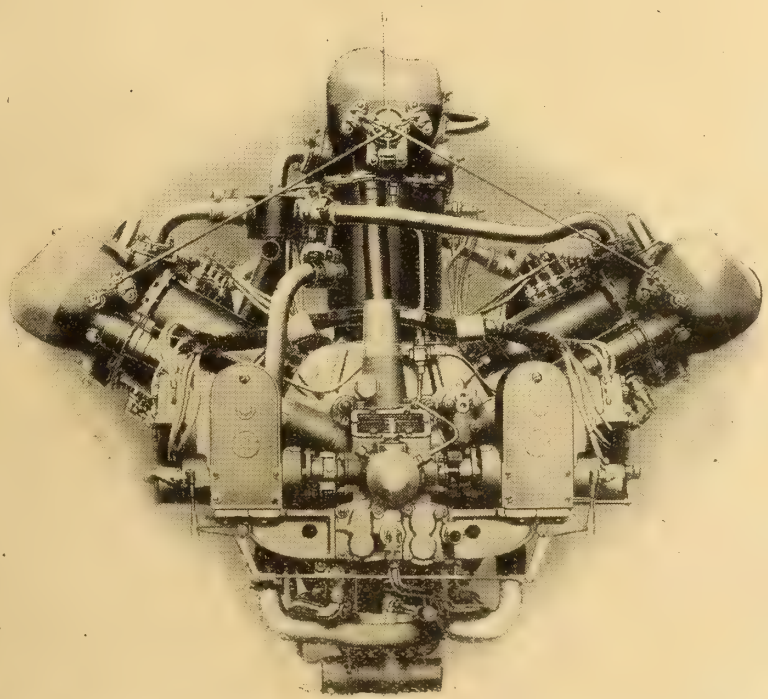
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NEWS OF THE WEEK FROM ALL QUARTERS

A New Terror.

According to the writer of an article in the "Daily Mail":—

"There will be a particularly keen demand for the stamps from the 100 letters which Mr. Hawker attempted to bring over from America on his Atlantic flight, but aerial stamps which are without such a romantic interest also will be in big demand.

"Particularly eager are stamp collectors to obtain the first stamp specially issued for aerial services.

"So far none has been issued, the policy adopted in the United States and for the mails carried by Mr. Hawker being to surcharge the ordinary letter stamp and endorse these 'Aerial Mail Service,' or, in the case of the Atlantic mail, 'First trans-Atlantic Aerial Mail, April, 1919.' There is, however, in production a special stamp for the American aerial postal service, and it will be interesting to see what demand is made for the first copies to arrive in this country."

This suggests a new industry. In this strange world there are literally millions of children of all ages who prefer the hunting of rare stamps to any other kind of athletics. One has heard of small South American States hardly visible to the naked eye that have obtained from the frequent issue of stamps for collectors their revenue for everything from the salaries of their Presidents to the necessary disbursements connected with the assassination of would-be Presidents.

However, the possibility of every nation having special stamps for aero mails is somewhat appalling. One can imagine the conventionalised aeroplanes that would be depicted by the British official stamp designers who would, of course, be told that they must not advertise any particular make of machine. Probably these stamp pictures would show something like a cross between a Handley Page and a Sopwith monoplane, or the Tarrant and the R.34 airship with the figure of Britannia helping it off the ground with her trident.

The Quest for Freedom.

The "Daily News" has been offering free flights to its readers. Apparently those who wish to fly have to fill in coupons, a task that should be easy after the training they have had in the filling up of forms during the war. The newspaper states that the coupons are "to be mixed up in a huge sack, and the successful applications will be drawn at random by a blindfolded member of our staff."

One reader has written:—

"My reason for wanting a flight is to be able to enjoy absolute freedom of mind and body. When I am on my bicycle somebody or something is always getting in my way. Then there is always the fear of a police trap. As there are not any air police yet to pull you up for going too fast, I think it would be a great joy to ride in your Handley Page."

One fears that this gentleman who seeks absolute freedom of mind and body will be disappointed. If the roar of two powerful engines and the novelty of a first flight give him absolute freedom of mind he must be curiously constituted. After reading his remarks (most of which have been suppressed, no doubt) about the people and things that get in the way of his bicycle one feels that what would really give him freedom of mind would be a trip in a tank.

Within the Speed Limits.

The U.S.A. War Department states that:—

"Fairfax Naulty of New York has through the means of the cinema camera, it is claimed, been able for the first time to photograph air in motion across the wings of an airplane. The making of the photographs commenced in January, and three miles of films have been made at Bolling Field, the development of which has just been completed. The photographs show, it is said, much that will in the future be a guide to the construction and operations of airplanes."

One hopes that in the next statement the words "it is claimed" and "it is said" will be omitted. One likes official announcements to be definite. If the experiments were commenced in January and the films have only just been developed, it would appear that Britain is not the only country that moves cautiously at times. One remembers a remark that there are people slower than officials, less enterprising and less energetic—but they are dead.

A Clever Feat.

It is reported by the War Department of the U.S.A. that Sec. Lieut. T. S. K. Reed managed to right an aeroplane that had turned on its back and then landed it successfully after the joy-stick had broken off five inches from the socket.

The efficiency of the pilot is evidently greater than that of the manufacturers of the joy-stick.

More Insurance for Aviators.

An experienced aviator who has recently been to certain Jazz entertainments with others of his kind suggests that those companies recently formed for the purpose of aeronautical insurance might well turn their attention to insuring aviators against dancing risks—particularly including third-party insurance. Side-slip landings being forbidden to commercial aviators under Air Ministry Regulations it is doubtful whether it would be legal to insure against consequent accidents, but tail-slides should certainly be covered. It would seem that there is no need to make a reduction in the premium payable by comparatively senior officers, as neither age nor experience seem to secure immunity from accident under these circumstances.

Another Naval Occasion.

A correspondent sends the following true story concerning the efficiency (?) of Naval anti-aircraft gunnery which, he thinks, may be of interest to civilian pilots who contemplate flying over prohibited areas.

"To begin with, the Navy remained in a state of blissful ignorance as to the difference between our own and enemy aircraft right up to the Armistice. The subject simply bored them, and it was impossible to get a Naval look-out to raise his eyes above the horizon.

"On one occasion when the Fleet was in enemy waters, hostile seaplanes appeared. As usual, the first notification of their presence was the explosion of a bomb near a destroyer. A Camel was flown off the deck of an adjacent light cruiser, and the Huns made for home with noses down and engines full out. A much-advertised flag-ship was away to the South, and as the chase passed over her, she failed to see the Huns and poured a devastating fire in the direction of the Camel. Having got into a regular panic and exhausted all the A.A. ammunition on deck, it occurred to the Mandarins on the bridge that perhaps the flying officer she carried had been right after all in saying the machine was one of our own. Anyway, she ceased fire and the incident was closed.

"The sequel occurred a few days later in port, when the pilot of the Camel happened to come aboard.

"The gunnery Lieut. was very conceited about the efficiency of his beloved weapons, but evidently thought some explanation was due to the pilot. So, swallowing his dignity, he unbent, saying in a condescending manner, 'Sorry we opened fire on you the other day. Hope we did not——'

"The pilot turned to him, and, in absolute innocence, remarked, 'Did you really, Sir? I didn't notice it.'

"So you know what to expect when the Naval guns open out at you from a 'prohibted area.'" EX-PILOT.

A Critic Bites Back.

Sir,—"Sale métier de dragon!" as Kraken said in that jolly book "L'Ile des Pingouins."

A dragon's *is* a dreary life, when cross authors (gravelled for lack of matter) accuse one of unpopular traits to "get even." Why it should be "insulting" to "good men" to suggest that they exhibit the same trait as Socrates, Alfred Lester, or Abraham Lincoln, I cannot conceive. It is precisely this *ad captandum* manner which comes so near to spoiling Mr. Cable's work. And may I suggest a certain deficiency in humour?

His quibbles are as disingenuous as his perfervid defence of men who have not been attacked. I am sorry that he does not like M. Mortane's very well-known phrase, "Poilus of the blue."

Let me repeat that I "can certainly recommend his book." And I enjoyed his letter! R. H. B.

P.S.—Permit me to copy from the cover of the book (back and side) its title, "*Airmen* o' War."

Women of Courage.

According to the "Daily Mail," "to show America that England also possesses women of courage," Miss Violet Lay, of 78, Bridge Road, Litherland, near Liverpool, has joined Miss Denbigh in an offer to attempt the Atlantic flight in opposition to Miss Ruth Law, the American airwoman.

"I would not stop at the thoughts of grief in drowning," Miss Lay writes, "and I do not think the instructors would find us very troublesome, both being very daring and interested in machinery."

If the lady does "not intend to stop at the thoughts of grief in drowning," one hesitates to throw cold water on her ambition. One would like to know, however, if the last sentence means that the ladies or the instructors are very daring.

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"Flight," May 15th, 1919.

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The WORLD of AERONAUTICS (continued)

A Forbidden Amusement.

An order has been issued by the Air Ministry forbidding personnel of the Women's Air Force attending boxing contests arranged by the R.A.F. The order states that boxing "is not considered a suitable sport for women." It is true that there are other sports more suitable and charming for women, but if boxing is an undesirable spectacle for women then it must be equally so for many of the men left to us by the great war.

Also, one has heard of black eyes and abrasions caused in rows among the W.R.A.F.s, so why not let them learn the gentle art of self-defence?

General Seely at Bisley.

Entries for the Bisley meeting, July 9th-19th, are now being received. The R.A.F. will be strongly represented, and Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., has entered for the King's Prize.

Parachute Experiments.

Some tests were carried out on June 6th at Kenley Aerodrome, Surrey, with a parachute designed by Major Taylor, R.A.F. This parachute, Major Taylor claims, is smaller, lighter, and can be stowed in a smaller space than any type already in existence. The following comparison is given by an observer of the tests:—

Major Taylor's type, rate of fall, 13 ft. per sec.

A commercial parachute (type unstated), rate of fall, 15 ft. per sec.

An experimental R.A.F. type, rate of fall 20 ft. per sec.

The Women's Height Record.

On June 6th Madame de la Roche, flying a small Caudron biplane, beat the women's height record. The flight lasted one hour and forty-nine minutes, and the height attained was 12,796 feet.

The Right Kind of Enterprise.

The War Department of the United States has completed plans for a flight from New York to San Francisco, a distance of 2,760 miles. One stop will be made at North Platte, Nebraska, 1,500 miles on the way. The machine will be a Wright bomber, and will be piloted by Capt. R. H. Francis, with a Lieutenant as mechanician. The flight is expected to start soon.

A Missing Aviator.

On May 27th Capt. Mansell James, D.F.C., a Canadian, who had served in the R.A.F. during the war, flew in a competition (the terms of which are not known) from Atlantic City, New Jersey, to Boston, Massachusetts, a distance of 340 miles in 3 hrs. 27 mins. His aeroplane was a Sopwith Camel. For this flight he received £1,000 and other smaller prizes. On the same day he began the return journey but lost his way and was forced to land at Stockbridge, Mass. Two days later he left this place for Mineola, New York, his route passing over great stretches of mountainous and wooded country, as well as over Long Island Sound. He was last seen flying over Winchester, Connecticut. From that time nothing whatever has been heard of him, despite the efforts of innumerable search parties. It is possible that he flew out to sea by mistake and was drowned.

Polar Exploration by Aeroplane.

M. Stefansson, the explorer, has paid a visit to Mr. Orville Wright at Dayton, Ohio, for the purpose of discussing the possibility of using aeroplanes in the Polar regions.

M. Stefansson declared he believed it possible to construct a special type of aeroplane that would carry a party of explorers. He intends, if satisfactory arrangements can be made, to attempt such a trip this year or early next year.

Good as has been Mr. Orville Wright's work for aviation in the past, he can scarcely be considered an authority on Arctic aviation. Mr. Stefansson had better apply to the O.C. R.A.F., Archangel, for advice.

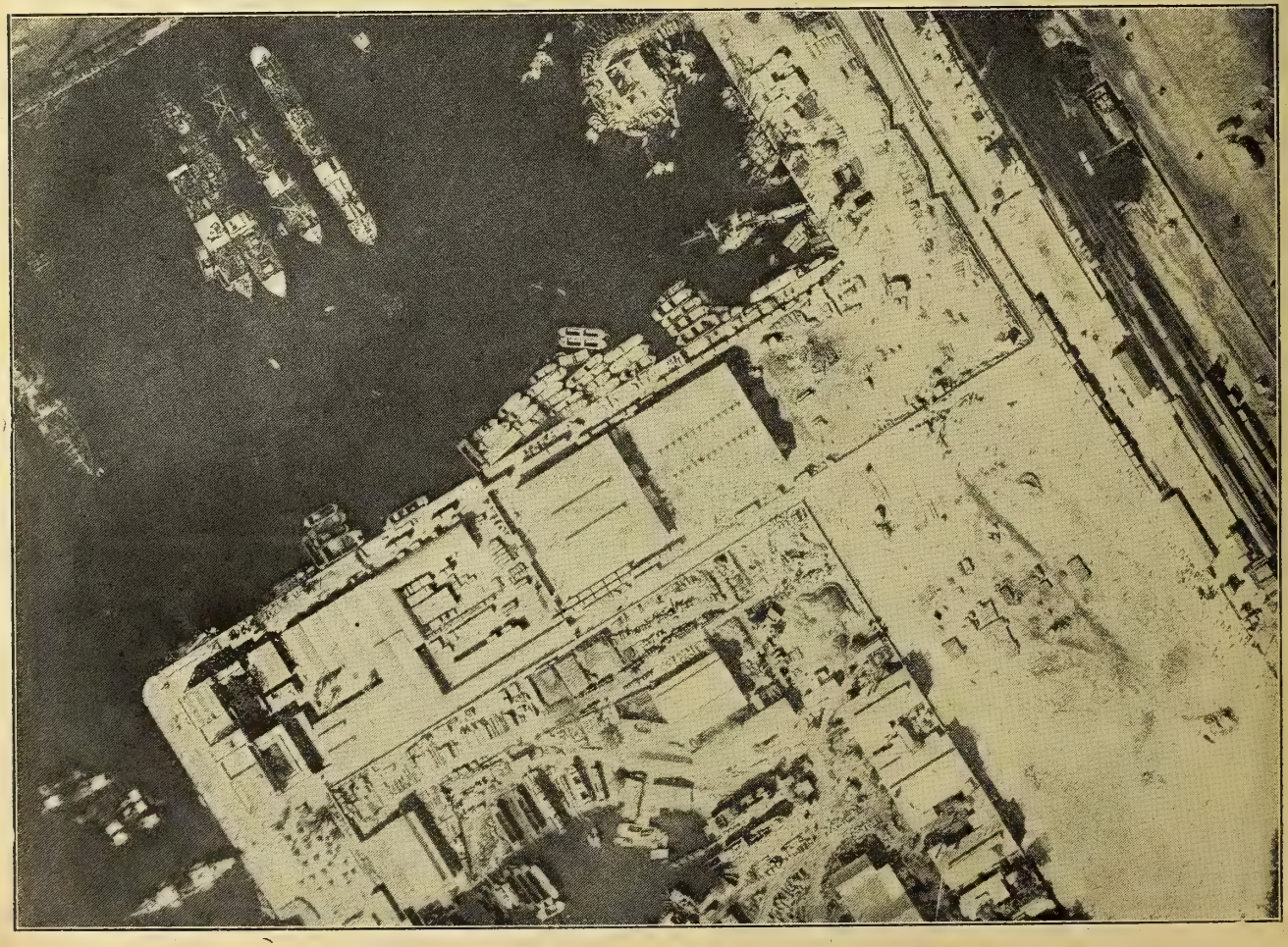
A Tragedy.

A message from Newhaven, U.S.A., states that Lieut. Kelleher, of the United States Army, and Mechanician J. Katzman fell 1,000 ft. to-day, and were killed.

Their aeroplane had been in collision with another machine piloted by Corporal Kelleher, the Lieutenant's brother. The latter succeeded in planing down safely.

A Move from the Hotel Cecil.

The Controller of Information, Civil Aviation Department, Air Ministry, has removed from the Hotel Cecil to India House, Kingsway, where his Department is located on the fifth floor. All Press inquiries should be addressed to the Publicity Branch, Room 549. The telephone number is "Holborn 2951, extension 121."

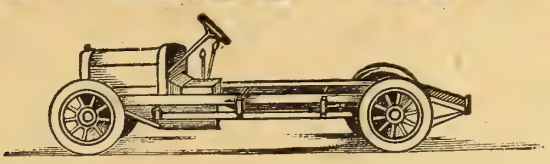


The Harbour, Port Said, photographed by a German Aviator.

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The WORLD of AERONAUTICS (continued)

59 Squadron's Dinner.

Will all those who were not at the Café Victory on May 24th, write immediately to Captain Oliver, R.A.F., Thrale Hall, Streatham, S.W.?

The Blood-Lust of Leeds.

"Hear all, see all, say nowt,
Eat all, drink all, pay nowt,
And if thou dost owt for nowt,
Do it for the'sen."

YORKSHIREMAN'S MOTTO.

And if we transpose the words "pay" and "say," we have the attitude of the typical Yorkshireman at the R.A.F. exhibition at Leeds. For, indeed, they do hear all, see all, or very nearly, and pay completely nowt.

They flock in their thousands to the gates of the show, but do you think that they would pay a bob to go inside? Not a bit of it! They can watch the flying very comfortably from the pleasaunces of Roundhay Park. They would expend hundreds of shillings on a merry-go-round or at a cocoanut shy, but for the charities of the R.A.F., the idea is definitely humorous.

The Mayor of Leeds graced the opening ceremony. Whether he was arrayed in his robes and chains I was not there to see, but it was a very hot day. And then a General and a Peer flew away from it and crashed, and with these inducements for a really jolly time the gates were open for the expectant crowd.

But the wily Yorkshireman is not caught as easily as that. He does not go to see Fokkers, or different makes of engines, or guns, or the various things that contributed to keep him safe in bed o' nights. He goes to see the flying, and to pray for an accident. In this respect the Yorkshireman is not only to blame. For many months I was stationed at an aerodrome near London, and at week-ends the ground was black with eager searchers after thrills and blood.

And it was with much will-power that I restrained myself from machine-gunning them when they were busy pulling souvenirs from a machine, under which a friend of mine lay dead.

There is something irresistibly funny in the spectacle of a man being killed, especially if the amusement is gratis and without danger to oneself.

The trouble at Leeds is, that the show is not sufficiently advertised. Instead of a modest poster announcing that the R.A.F. exhibition is now open, the streets should be decorated with striking phrases.

"Deaths daily," "Sensational suicides," "Blood by the Bucket" should appeal to the crowd's sense of the romantic, and it might be persuaded to pay for such fun.

But, of course, a shilling is a lot of money.

LONDONER.

Misleading Statements.

The following letter appeared in the "Times":—

Sir,—After reading your admirably full account of General Seely's speech on the occasion of the luncheon given to the N.C.4 airmen, I am left with the feeling that his remarks, as far as they concern practical flying in this country, are hopelessly misleading.

I do not wish to labour the point or to criticise his speech at length, but his remark stating that landing fields should be 400 yards long, or, if smaller, that the pilot should be of superhuman skill, is absolutely ridiculous. To begin with, he makes no distinction in the types of machines and the relative size of landing grounds necessary for each type. In the second place, his estimate of 400 yards is altogether inaccurate for many types. As an instance of this, I should like to point out that, during the flying to the Derby organised by me, my five pilots and myself used a field which was only just 150 yards long and about 100 yards wide. The fact that 30 trips were made to and from this ground with full load, consisting of five persons, on some practically standard Avros, shows that for pilots of ordinary first-class skill this size field presents no difficulty. Not one of us claims to have superhuman skill, or anything like it, but we should like to be exempted from the restrictive regulations imposed by the Air Ministry about which I could discourse to you at length.

I do not write this letter from the point of view of self-advertisement, but I greatly deplore the attitude of General Seely in making out that severe difficulties and dangers attend civilian flying. I maintain that with proper selection of pilots the dangers are practically non-existent, and I firmly believe that with this test, if strictly carried out, 90 per cent. of the risks will be eliminated, and I appeal to you to endeavour to advance the cause of civilian aviation by ventilating certain grievances, with which I can acquaint you further if you are interested.—Yours faithfully,

G. L. P. HENDERSON, Lieut.-Colonel.

6, Cambridge Square, Hyde Park, W.2, June 6th.

A Volunteer Reserve Air Force.

The following letter has been received:—

Sir,—I think the suggested formation of a Volunteer Reserve Air Force is by far the best scheme that has ever been proposed by an aeronautical publication. Undoubtedly, the time is ripe for this. The country owns thousands of machines which will be scrapped unless something is done to stop the sinful waste of reducing to produce, which means junk, machines of the latest type which have cost the country millions of pounds.

The aerodromes are also available; all that is needed is Governmental encouragement. I have discussed the scheme with dozens of demobilised officers, and without exception they are keen on the idea. I am sure if we are given a lead thousands will flock to such a Reserve, and those who join will be the right type—fellows who have real enthusiasm and who will jump at the opportunity of keeping their knowledge of aeronautics up to date. In addition, we should obtain a large number of recruits who will welcome the opportunity of instruction in flying, and in the technical branches that the Reserve will offer.

Incidentally, the scheme will assist in the development of commercial aviation, because the Reserve will bring to light ability that would by no other means be disclosed. As time goes on, and many of the recruits become skilled, they will endeavour to find employment in commercial aviation and will remain in the Reserve, ready trained for service in the event of war.

To the better-class youths of Britain aviation makes a strong appeal to-day. The Reserve would give them the opportunity they desire. We have highly trained and experienced ex-officers of all branches who would, I feel sure, gladly give a reasonable proportion of their time to the duties of instructing the recruits.

It is essential, however, that the proposed Reserve should be formed at once, for every day's delay means that more serviceable machines will be broken up. Surely the country can be made to realise that a properly established Reserve Air Force would be of incalculable value from every possible point of view.

WINGS.

[Correspondence on the subject will be welcome.—ED.]

The Aerial Derby.

The race round London, commonly known as the Aerial Derby, will be flown on Saturday afternoon, June 21st next. The race is being organised under the auspices of the Royal Aero Club by the Directors of the Grahame-White Co., Ltd., of the London Aerodrome, Hendon, N.W., where the contest will start and finish.

The prizes, which are valued at over £1,000, are as follows:—

FASTEST TIME.

Winner.—"Daily Mail" Gold Trophy (value 200 guineas) and the "Shell" Prize of 500 sovs.

Second.—"Shell" Trophy and "Shell" Prize of 100 sovs.

SEALED HANDICAP.

Winner.—"Shell" Trophy and "Shell" Prize of 100 sovs.

Second.—"Shell" Trophy and "Shell" Prize of 50 sovs.

Third.—"Shell" Trophy and "Shell" Prize of 25 sovs.

The whole of the cash prizes, amounting to £775, have been presented by the "Shell" Marketing Co., Ltd. (distributors of "Shell Motor" and "Shell Aviation" Spirit).

This is the fourth occasion on which this contest has taken place, the last being on June 6th, 1914.

The 1914 course, which covered a distance of approximately 95 miles, with six turning points, will be retained, but, owing to the improvement in the speeds of aircraft during the war period, it has been decided that the course shall, on this occasion, cover a double circuit, instead of a single one as hitherto, a total distance of approximately 190 miles.

The race was first held in 1912, when Mr. T. Sopwith was the winner on a 70 h.p. Blériot monoplane, his average speed being 59 miles per hour. In 1913, Mr. Gustav Hamel, on an 80 h.p. Morane monoplane, won at a speed of 76 miles per hour, and the winner of the 1914 contest was Mr. W. L. Brock, an American pilot, on an 80 h.p. Morane monoplane, at 72 miles per hour.

The competitors will start at 3.30 p.m., turning at Kempton Park, Epsom, West Thurrock, Epping and Hertford, passing over the Hendon Aerodrome, and entering the second circuit at about 4.10 p.m. The winner is expected to finish at Hendon, after completing the second circuit, soon after 4.45 p.m.

In order to give the slower machines an opportunity of participating in the prize-money, a sealed handicap has been included. The special "Shell" trophies and prizes for the Sealed Handicap will be awarded to the three competitors who shall have completed the course in the fastest respective handicap times.

The winner of the aerial Derby itself shall be the pilot who is the first to cross the finishing line in flight, after having properly completed the double circuit of the course.

The entry list is now open, and pilots and manufacturers may obtain entry forms, regulations and map of course, from the Secretary, the Grahame-White Co., Ltd., London Aerodrome, Hendon, N.W. Entries close at 12 noon on Saturday, June 14th.

The entrance fee is £10, which will be refunded to all competitors completing the course, and half of the entrance fee will be refunded to all competitors starting but failing to finish.

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Before the fateful days of 1914 Beardmore had made History.

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PARIS NOTES

The Tour de France Aerien.

From time to time reference has been made to the Tour de France Aérien, which is to be held from August 24th to 31st, and for which prizes amounting to 100,000 francs are offered, and one has now to record the fact that the first three entrants are Navarre, Bourgeois, and Fronval, all on Morane-Saulnier machines, two-seater parasol type, fitted with 80-h.p. Le Rhône engines. These machines would seem to be eminently suitable when it is considered that the competition is primarily a touring one, and that at least one passenger must be carried.

The Farman "Mosquito."

Bossoutrot must be one of the most versatile pilots. With a war "reception" record of the highest, he is now normally employed in flying the big Goliath machine with its human freight from Paris and Brussels and return weekly, but he fills in the 'tween-whiles by flying of a lighter variety. Thus, one morning last week, at 8.45 a.m., he took up a little machine of 12 ft. span, called the "Moustique," and climbed to 4,500 ft., returning to earth an hour later. On getting out of the cockpit he took the tail of the machine over his shoulder and dragged it to the hangar. The "Mosquito" is fitted with a 20-h.p. horizontally opposed twin-cylindered A.B.C., is a single-seater, and weighs 100 kilos. It cannot strictly be called a new design, having been tried and flown over a year ago, but till now it has not been produced in quantities.

The Voisin "Aerochir."

Some weeks back a description and photographs of this type of aerial hospital ambulance were given, the disposition of the surgical plant having been designed by M. Neminovski and Dr. Tilmant. The trials being good and the design in general approved by the French War Office, a more elaborate affair has been designed. This new type of aerochir is a Voisin biplane with wings that fold back, fitted with four motors and four airscrews capable of sustaining a useful load of 2,500 kilos and of flying six hours non-stop. The interior disposition of apparatus is designed for the following use:—On the outward journey, to carry a medical or surgical staff of five plus the instruments and impedimenta, including a Rontgen-ray outfit, and also a tent which can be "inflated" in a few minutes, and in which a constant temperature can be maintained, which is of great value in tropical climes where the heat of the day is succeeded by the cold of the night. On its return and subsequent journeys the machine is so arranged that it can transport four wounded "lying" cases and four wounded "sitting" cases. Thus on each journey eight wounded can be carried under the care of an attendant and, of course, the pilot.

French Aeronautics and the French Budget.

The Treasury here has got in a muddle over the aeronautical credits. In the budget of the second quarter of 1919 £44,000 was asked for in order that certain payments might be made. This was afterwards reduced to £22,000. The latter sum, however, was insufficient to pay even the wages of the personnel, therefore the Ministry has had to ask for a supplementary credit of £16,500.

In addition to this, there is an amount of £104,000 for the sending of aeronautical missions abroad—to Turkey and the Argentine in particular—for which an extra credit of £52,000 is asked. This is to be divided as £48,000 for the mission to Turkey and £4,000 for the mission to the Argentine.

Aviation in Morocco.

The Senatorial Commission which looks after North African affairs had a few words to say apropos of the development of aviation in their protectorates. M. du Vivier de Streel showed that military aviation in Morocco facilitated military operations, was a valuable aid to the sanitary service, an asset to the map-makers, and had taken valuable photographs of country that was until then unknown. In Algeria, aviation, helped by the Army Automobile Section, had contributed to the future prosperity of trans-Saharan enterprises. In closing, M. Flandrin announced the establishment of a postal service between Algeciras and Rabat.

It is probable that Morocco will have the most complete service of aerial posts in the world in a very short time. Within the next three months 154 Breguet machines are to leave Paris for Casablanca by way of the air, with the probability, if they arrive safely, of another 50 being sent. These machines will be employed on communication work between the big coastal towns and the interior. It will be no mean achievement to transport these 150-200 machines by air, and the whole affair has been entrusted to Lieut. Villier of the Société des Grands Express Aeriens. Adjt. Papeil, an old reception pilot of nearly 3,000 flying hours, is in charge of the exploit.

La Ligue Aeronautique de France.

By special permission of General Duval, Count de la Vaulx, vice-president of the French Aero Club, was allowed to travel from Paris to Nancy by air in order to hold a conference on the work of the League in the past and its programme in the future, in view of the probable development of commercial aeronautics. Count de la Vaulx chose an S.A.E. machine with a 350-h.p. Lorraine Dietrich and piloted by Lieut. Romanet.

Visitors to Paris.

A visitor last week of great interest in the aeronautical world here was that of Capt. Barber, technical adviser and director of the Aviation Insurance Association of London. It is satisfactory to note the amount of interest displayed here in the terms of insurance by this Association, because no company here can compete with it, and it looks more than probable that they will secure the adherance of the Industry here in a similar way to that in which Lloyd's secured their world-wide shipping insurance.

Lieut. Louis Noel, in mufti, was also met on the Boulevards, on his way to the Balkans. It is not certain whether he will return to Hendon or not.

Another Attempt on the Height Record.

Capt. Fonck made two attempts during the past week to beat the height record set up by Lieut. Casale. The first failed owing to trouble with his sparking plugs, and the second owing to the lubricating oil freezing at 29,250 ft. The attempt took an hour and a quarter, starting from Issy and landing at Toussus. Meantime Lieut. Casale announces his attention of attempting to beat his own record of 30,200 ft.

Europe—Africa—South America.

Lieuts. Lemaitre, Roget, Fontan, and Marchal share between them the honours for attempting to fly from Paris to Dakar and thence to Pernambuco. Capt. Marchal, who was the first to conceive the idea, and to whom permission was given by the French War Ministry as far back as May, 1918, is the latest to announce his intention of attempting this arduous trip. His great ambition is to be the first to cross the Atlantic without a stop. Lieut. Fontan left Villacoublay on June 8th at 4.15 a.m. en route for Dakar. He was forced later to land in the Sierra de Moncaya as a result of engine trouble.

The Generosity of Poulet.

The French aviator, Etienne Poulet, has decided to reserve a large proportion of the money earned by him in the way of prizes, or fees for passenger-flying or exhibitions, for the benefit of the four children, aged three, five, seven, and nine, of Jules Vedrines. Poulet is a member of the committee of the League of Pilots, and at one time held the record for a non-stop flight of 16 hours 20 minutes. He has been doing a lot of flying lately on a Caudron-Rhone machine, type 21, as training for an attempt in the near future on the distance record.

Paris-Brussels Service.

The regularity with which the Goliath completes this double journey and the immunity which it has hitherto enjoyed is greatly appreciated by all circles here, and there would consequently seem to be no lack of passengers. Incidentally it is Mr. Dick Farman's intention to advertise these services on a wide scale in the near future. Up till now all the passengers have been secured by means of tickets left with the leading hotels and touring agencies.

Swiss News.

From Zurich comes news that Bider and Wild are founding an aerial touring company with the intention of establishing aviation stations at all the Swiss health resorts. Hydro-aeroplanes are to be employed, consequently most of the stations will be on the lakes, although a few land machines will be employed for special flights, particularly those of longer duration. Lausanne, Lucerne, Lugano, Geneva, Thunn, Interlaken, and Zurich have been selected as a beginning, although it is probable that Locarno, St. Moritz, and Montreux will be also included.

The capital of the company is £60,000. They expect a loss in the first year's working, reckoning that the income will be about £40,000 and the expenses £48,000. The life of the machines is calculated as two years, or 500 flying hours.

The postal aeroplane on the Dubendorf-Berne-Lausanne and return route has been placed at the disposition of the public. The journey as indicated above is divided into two stages, and the fares are to be 100 francs per stage, or 300 francs for the whole journey.

It is announced that the man who found the body of Capt. Palli has also found his machine, although no details are to hand as to its state or the documents which are supposed to be with it.

Tadeoli, a Swiss aviator, working as pilot with an Italian firm during the war, is leaving his hydroaeroplane establishment on the Lac Majeur and proposes to establishes a similar establishment on the banks of the Geneva Lake.

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THE TRANS-ATLANTIC COMPETITION.

A NOTABLE GATHERING.

On June 5th at the House of Commons, Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., Under Secretary of State for Air, gave a Luncheon in honour of the crews of the American Flying-boats which crossed the Atlantic.

The Luncheon was honoured by the presence of H.R.H. the Prince of Wales, K.G., who, in replying to the toast of his health, expressed briefly his keen interest in aviation and the pleasure which it gave him to meet so many distinguished flying people. He congratulated the American Naval Officers on their achievement.

General Seely proposed the toast of the hero of the trans-Atlantic flight, Lieut.-Commander Read, U.S. Navy, and assured him that British aviators felt no trace of envy at his success—a sentiment which was loudly applauded.

General Seely pointed out that many of our most distinguished aviators were present there to greet Commander Read. Lieut.-Commander Grieve was with them, and he regretted that Mr. Hawker was so overcome by the receptions which he had had since his return that he was unable to be present. Among the others there were Lieut.-Col. Beatty, who had recently had breakfast in Madrid and tea in London. There was Major Leslie, the hero of one of the great flights from London to Constantinople. There was Col. Porte, who led the world in the design of flying-boats. There was General Maitland, of the Airship Department, who had recently spent 21¾ hours in the air, and who hoped before long to visit another country across the sea by airship. There was also a distinguished Italian aviator, Count Zapola, one of the few survivors of Major Gabriele d'Annunzio's famous flight to Vienna.

Continuing, General Seely said that there was a great deal to be done in the development of aviation. There was a great deal for the Government to do and a great deal for the constructors to do, and he would indicate a few things to be done. Aerial navigators wanted vertical beams from our existing lighthouses, but Trinity House said that this was difficult to achieve. More landing grounds were required. Lord-Lieutenants of Counties and Chairmen of County Councils could do much to develop local landing grounds, and thus would help to save many lives. Railway Companies could assist by painting the names of their stations on the roofs, thus indicating their whereabouts to aviators and saving them from disaster. Better telephone communications were required between aerodromes, so that when an aviator left one aerodrome for another the aerodrome to which he was flying and those along his route could signal to him as he flew.

The Government was doing all that it could to help and it had handed over the whole Department of Meteorology to the Air Ministry, and all meteorological observations would be at the disposal of aviators. He (General Seely) wanted more safety, more comfort, and more economy in aeroplanes. Recently, in the House of Commons, he had announced some rather startling figures for the fatalities since the Armistice, but he wished to point out that these figures only represented one fatal accident for every 43,000 miles flown. Many of these accidents were quite avoidable. He said that we must have slower landing speeds for aeroplanes, for just a quarter of the fatal accidents which had occurred were due to forced landings. Ten per cent. of the accidents were due to fire—an altogether avoidable cause. Many fatal accidents were caused by propellers when starting up engines, and these accidents should be wholly avoidable. The whole of the Government's experiments were at the disposal of the Industry.

General Seely emphasised the fact that the Air Ministry had effected more economies since the Armistice than any other Government Department, but he could assure everybody that money would not be lacking when it could be spent in minimising the risk of flying

Lieut.-Commander Read, in replying, said that he did want to say how deeply he appreciated the wonderful welcome which the American aviators had received in this country. He much appreciated the honour of meeting H.R.H. the Prince of Wales, who, he believed, was quite a flier, judging by the pictures in the papers.

The trans-Atlantic flight, he said, was quite a Navy show, and had been organised altogether by the U.S. Navy. The execution of it was a very simple proposition, and he and his crew were very fortunate in being chosen to take part in the flight and were very lucky to get through. He expressed his surprise at the reception which had been given them on arriving in London from Plymouth. They had always heard that Sunday afternoon in London was a very quiet affair, but he judged differently from his experience last Sunday.

He said he would like to congratulate the British people on their sportsmanship. The British were good winners but they were wonderful losers.

After these comparatively brief speeches the company adjourned to the Terrace of the House of Commons, where a kind of informal conversazione was held. One noticed among those present —Mr. Winston Churchill, General Trenchard, General Brooke-Popham, General Swinton, Lord Montagu of Beaulieu, General Holden, General Ruck and the heads of practically all the leading firms in the Aircraft Industry.—C. G. G.



Mr. F. P. Raynham and his Martinsyde just after she was unpacked at Quidi Vidi. This is believed to be the only occasion on which Mr. Raynham has been caught by a photographer.

HONOURS FOR AMERICAN AVIATORS.

On June 9th, Major-General Seely, Under Secretary for the Air, on behalf of the King, decorated Commander John Towers, O.C. the N.C. Squadron, U.S. Navy, for the American trip, and Lieut.-Commander Read and the four officers of the American seaplane N.C.4 with the ribbon of the Air Force Cross.

The officers who accompanied Commander Read were Lieutenants Hinton, Stone, Rodd, and Breeze. Chief Mechanic Rhoads was also decorated with the Air Force Medal. Major-General Sir Hugh Trenchard, Chief of the Air Staff, and Major-General Swinton, Controller of Information, Air Ministry, were with General Seely.

In making the presentation General Seely told the American aviators that he had been especially charged by the King to perform the ceremony and to inform them that His Majesty was extremely proud of the fact that they had accomplished the flight not only across the Atlantic, but had also completed the trip to England. There had been only two other recipients of the Air Force Cross, Mr. Hawker and Commander Grieve, and he explained that this Cross was a new decoration. He regretted that he was unable at the moment to decorate them with the Cross itself, but could only pin the ribbon on their breasts. As soon as the Crosses were struck they would be forwarded to them in America. He congratulated them personally on the success of their venture.

In decorating Chief Mechanic Rhoads, General Seely said that the King had asked him to refer specially to him and congratulate him on the work which he had done. It was largely due to his industry, he said, that the expedition was such a success.

The ceremony took place at the Air Ministry. President Wilson had given special permission for the officers to wear the decorations bestowed upon them.

The award seems very apposite, as Service decorations are fitly bestowed on officers of friendly nations. One regrets, however, that the King himself did not make the presentation.

OTHER COMPETITORS.

There has been very little news of the Atlantic Flight competitors during the past week. It appears certain now that Lieut. C. H. Biddlecombe, R.A.F., wil ltake Capt. Morgan's place as navigator to Mr. Raynham's Martinsyde. He is a master mariner and a pilot, and has already sailed for St. John's, Newfoundland.

On June 9th the Vickers Vimy aeroplane ascended for a test flight of about 40 minutes' duration. The crew reported everything was satisfactory.

It appears probable that the Handley Page and Vickers machines will be the two to start on the second attempt to

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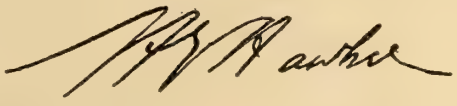
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cross the Atlantic, as the Martinsyde cannot be got ready for another ten days or so.

The Airship Attempt.

Apparently R.34 will really make an attempt to cross from England to America within the next few weeks. There is some talk of a start during the coming week, and it is also said that General Pershing will make the voyage in her.

Major C. H. Scott, R.A.F., has been appointed in command of R.34.

Final preparations are being made, and a special squad of R.A.F. mechanics under Major Fuller left this country by steamer on Friday last for Atlantic City, to be ready for the giant aerial vessel's arrival there.

The American News.

It is announced that N.C.4 will not attempt to fly back to the United States, but will be dismantled and shipped.

Lieut. Locklear, the American aviator, who has lately performed several unnecessary and dangerous "stunts," having resigned his commission in the U.S.Army Air Service, has announced his intention of competing for the £10,000 prize. He will attempt the non-stop flight from Newfoundland to Ireland.

AT THE OTHER END OF THE ATLANTIC COURSE.

By "One on the Spot."

It is a great pity you have not been with the Sopwith and Martinsyde expeditions in St. John's, for you would have seen flying in one of Nature's most sanguinary settings; and it is a greater pity your pen cannot describe the sight of Hawker and Grieve slipping away over the signal tower at the harbour mouth in a sporting effort to beat the Yanks to it. I think the stoutness of the attempt is just beginning to sink into our consciousness now.

I doubt very much whether Grieve or Morgan felt satisfied with the weather on May 18th, but they were not in any ignorance of conditions so far as Clements (Lieut. L. J., R.A.F.) could extract them from all his sources of supply. Clements worked night and day for the fliers, and Grieve helped him at times in deciding moot points. If there is any fault to be found, it is with the forecasts from the other side.

And I think we are all rather proud, without saying so, in the knowledge that neither Hawker nor Raynham had much thought of the *Daily Mail* prize when they decided to take a chance. They were out to get across before the Yankee seaplanes. If any of our own four had any doubts of the venture, not one showed them. Really I believe they were glad to get away on any pretext. The waiting here has been dreadfully trying, and it told on the two crews more or less; they were pretty jumpy at times.

The flying fields were enough to give anyone the creeps when it was remembered that the machines would have to stagger off with a heavier load than anything of their fighting weight has had to carry since the world began. Half a day's rain made Hawker's place a swamp, and he only had a fair run when the wind was north-east or south-west. A forced landing anywhere for miles meant a certain crash, probably fatal.

Fog and rain shut everyone in for the best part of a month. Then, when the Atlantic weather cleared, the local fogs descended or the winds blew from a quarter which gave no room to taxi in. Fair winds here were only echoes of storms in the Atlantic.

It was a constant case of hope deferred making the heart sick, with the Yanks running their Cook's tour, personally conducted by the whole destroyer fleet, from Rockaway to the Azores, and the only favourable breezes scratching their American backs. The Eagle was screaming in the local hotels here from morning until night during the procession from Rockaway to Trepassey, and it was very strongly hinted that all the Britishers had cold feet. The correspondents began by battling with Hawker, and continued by roasting him for his personal peculiarities, but fortunately were away for the start, their train from Trepassey being delayed.

The New York scribe has not the slightest understanding of the Briton, nor the Briton of him. To illustrate: a N.Y. "Times" man asked me and some others yesterday whether Grieve had left any "farewell message."

Raynham and Morgan had to take the chance of crashing or staying behind on Sunday. Their field was a narrow strip of hard ground near a large pond. Between them and the sea, in the line of their natural take-off, is a line of cliffs about 300 feet high, with intervening streams, scrub trees and rocks. It was a case of run down wind for it or stay home.

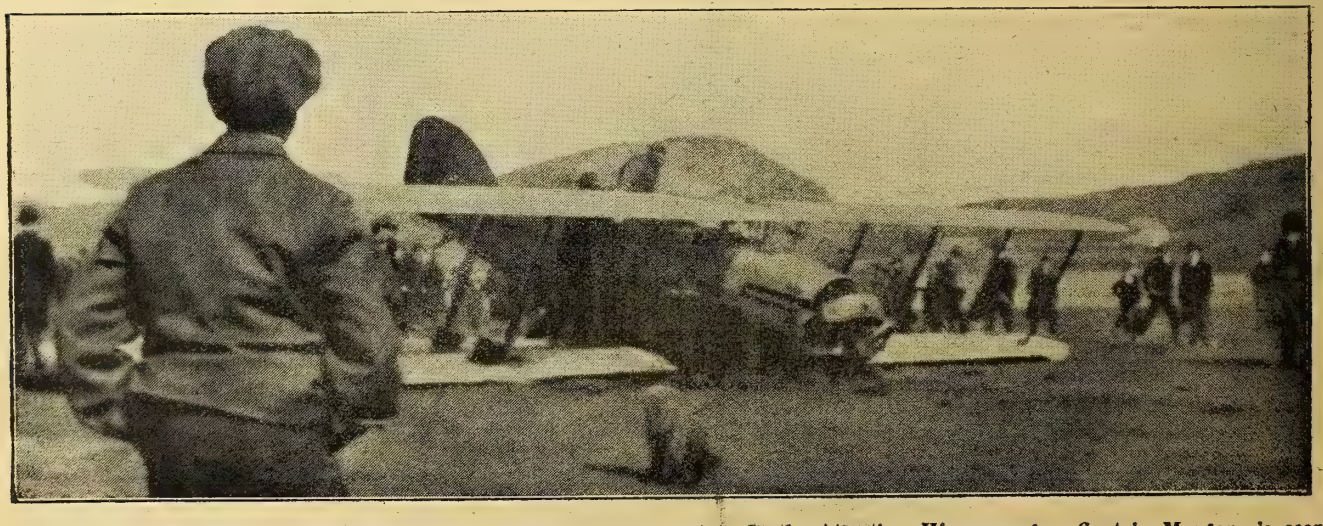
The Martinsyde machine waited a whole hour, hoping for a shift, which sometimes happens in local winds very quickly in the late afternoon. Her engine was singing very prettily, and there was no fault in his technique when Raynham taxied off. The weight was telling very severely, and I do not think his plane ever approached flying speed before it crashed, although another twenty yards probably might have done the trick. Passing over some bumps, the machine hopped twice a few feet in the air, certainly not more than three. Then the undercarriage folded up, and that was the end of their attempt.

Nothing but God's Mercy prevented a tragedy, for the tanks burst, and the ground, the machine, Morgan, Raynham, and half of St. John's were soaked with petrol. Raynham got hit by the joy-stick and his eye was cut a bit. Morgan's gammy leg got jammed, and his other one was bruised; his left eye was cut, and he had a long gash in his left cheek. Both of them were groggy for a minute or two, and would make no effort to get out. Then someone pulled Morgan out, and Raynham managed to make it on his own.

You can imagine the crowd all this time. St. John's had never seen a crash before. Pipes, cigarette ends, but fortunately no lighted matches, began dropping into the area of petrol, and fist fights started when forcible methods were used to stop the smoking. However, all ended well. Morgan did a quiet faint and was put away in bed. Raynham stuck to the job of getting the 'bus back into the hangar, then washed his face and came home to supper.

I have never seen a chap take a disappointment in a more sporting way. The doctor here has put his foot down on Morgan as a flier and is sending him home by the "Corsican." Raynham says he will rebuild and try again with another navigator. I wish him luck, but he has a hard job ahead of him.

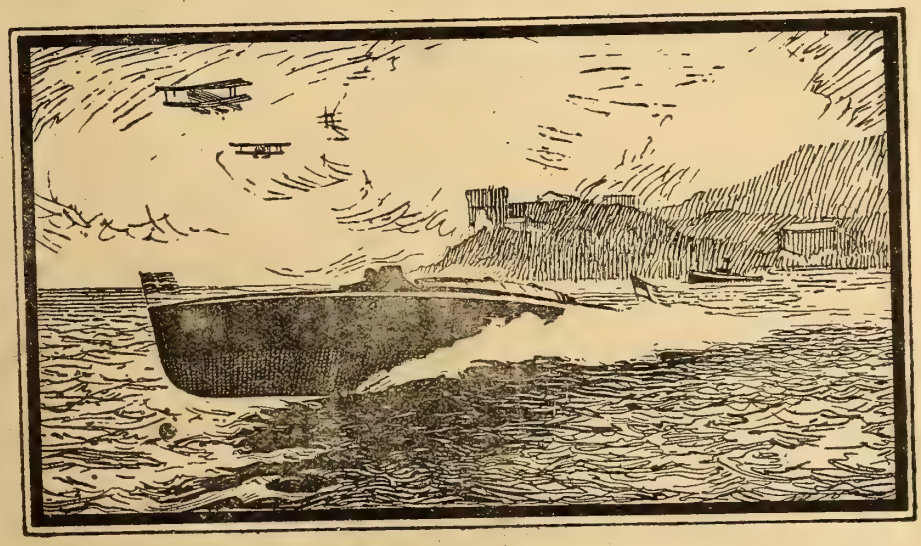
St. John's was very much upset over the news or lack of news of the Sopwith crew. No native has left anything undone to help, and the main drawback is the country, which is, as I said before, sanguinary, except in the one spot the H.P. crowd have selected.



Mr. Raynham's smash at Quidi Vidi when starting on an attempt to fly the Atlantic. His passenger, Captain Morgan, is seen being helped from the machine.

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THE WEEKLY COMMENTARY.

A description of the "Holt" compound parachute system as applied to aerial life-saving appears on page 2349.

An article by Capt. Sayers on the development of the aero-engine begins in this issue.

This article maintains that the whole course of development of the aero-engine up to date has been dictated primarily by the demand for higher performances on the part of aeroplanes, with reliability and economy as quite secondary considerations. As a result, aero-engines are consistently run at a load approaching that of breakdown, and cannot be considered as reasonably reliable.

The characterisation of one large class of modern engines as respectable descendants of a motor-car ancestor, "covered with gadgets," if perhaps scathing, has some truth behind it.

The description of aeroplanes designed and built by Wm. Beardmore, Ltd., forming part of the series on Modern British Aeroplanes, is concluded in this issue.

A description of the passenger-carrying machine designed by Vickers, Ltd., is given in this number. The type of construction used for the passenger cabin is of interest.

The adoption of interchangeable fuselages whereby a standard machine may be modified to suit various purposes is a novel feature. This type of machine made its first public appearance at Hendon on Saturday, May 31st, where it attracted considerable attention.

THE DEVELOPMENT OF THE AERO-ENGINE, PAST AND FUTURE.

By Capt. W. H. SAYERS, late R.A.F.

The development of the aeroplane has always waited upon the development of its source of motive power. Had there been in existence 50 years ago any prime mover capable of developing 1 h.p. for even 10 mins. for a total weight, including fuel, of 5 lbs., it is more than likely that mechanical flight would have been an accomplished fact 45 years ago.

In actual fact it became possible only in 1903, when Mr. Thomas Manley designed and built for Samuel Pierpont Langley a 5-cylinder radial petrol engine which actually developed 50 h.p. for under 200 lbs. weight. By a series of misadventures this engine never took the air till in 1914 Glenn H. Curtiss flew the Langley machine for which it was built with the original engine.

A little later the Wright brothers, having practically solved the whole of the basic aerodynamic problems of flight, and practised the art by gliding downhill, had to develop their own engine before the power-propelled Wright biplane could be made to fly.

From those days to the present is but a very short time, as time goes, but in the development of dynamic flight it has covered a phenomenal advance.

The Rate of Progress.

The rate of this advance has been determined almost entirely by the progress of aero-engine design, and it has been entirely an advance in the direction of increased maximum performance on the part of the aeroplane and engine combined.

To take the matter back no farther than 1912, at which date the general trend of aeroplane design had settled down to lines from which it has yet to depart, it will be found that the best available aero-engine, considering possible performance alone, was the Gnôme of 50, 70, or 80 nominal h.p., whose bare weight varied from 4 to 3½ lbs. per b.h.p. These engines were extravagant as to fuel and oil consumption, but, as long-duration flights were in small demand, they almost invariably beat their more economical but initially heavier competitors.

At that date a machine with a top speed of 65 m.p.h. and a climb to 5,000 ft. in 15 mins. would have been a phenomenon.

The Results of the Present Day.

To-day, air-cooled engines up to 500 h.p. each, at 1.7 lbs. per h.p., with quite low fuel and oil consumptions, are available for high-performance machines for moderate durations of flight, and, for cases where longer ranges are required, there are water-cooled engines of anything up to 700 h.p., weighing, with water and radiators, less than 3 lbs. per b.h.p., which regain some, at least, of the handicap of their initially greater weight through their lower fuel consumption, and which have a reputation for reliability superior to that of the air-cooled type.

Whether this reputation for superior reliability will be long retained is at present open to doubt.

With this increase in the size of power units, and the decrease in the specific weight per h.p. of the power unit, the performance of the aeroplane has advanced, and to-day 130 m.p.h. and a climb to 15,000 ft. in 15 mins. will cause less astonishment than would 65 m.p.h. and 5,000 ft. in a quarter of an hour seven years ago.

Notwithstanding the great reduction of the weight per h.p. which has been attained in the modern engine, reliability and economy have distinctly improved.

Nevertheless, the aero-engine of to-day cannot be regarded as a reasonably reliable piece of machinery. It cannot be compared in this respect to the common or garden motor-'bus engine, and the commercial future of aviation must depend upon improvement in the re-

liability of aero-engines, just as the very existence of the aeroplane in the past has depended upon the improvement of the weight/h.p. ratio.

The possibilities for the future must be considered in the light of the experiences of the past.

An examination of the underlying causes for the particular lines of development which have led to the present aero-engine will show that the main impulse to progress has been the need for higher and still higher performance on the part of the aeroplane, and therefore for lower weight per h.p. on the part of the engine.

In the earlier days, up to 1911 or thereabouts, it was a question of obtaining an engine sufficiently light and powerful to fly a machine at all.

Between this period and August, 1914, better and better performance was needed simply to make the aeroplane reasonably independent of the normal vagaries of the wind, and from the outbreak of war till almost the present time the military necessities of aerial warfare have intensified the demand for performance.

Reliability from the Military Point of View.

It is true that with the war demand for performance there has been coupled a demand for reliability, but this has always been, within certain limits, a secondary matter.

A one in ten risk of engine failure, on a machine which can outdistance and outclimb any enemy machine one is likely to meet, is better worth taking than a one in three chance of being shot down by a superior adversary, even if the risk of engine failure be nil.

The Two Main Lines of Development.

Roughly speaking, the actual evolution of the aero-engine under the influence of this crying call for better performance, or in terms of the engine itself, for lower weight per h.p. has been confined to two main lines.

Probably most important has been a better use and distribution of the materials of which the engine is constructed, together with the development of materials possessing better physical qualities for their particular purpose.

This has led to a very considerable decrease in the weight of engines of given dimensions.

Almost equally important has been the increase in the mean effective pressure developed within the cylinders.

This second line of development has in many cases been disguised. There has been a noticeable increase in the actual developed pressure which has led directly to an increased h.p. from a given-sized cylinder at a given speed of rotation.

This increase, it must be noted, cannot be extended indefinitely, without increasing the structural weight, unless there is either a better use of materials or the use of better materials in the working parts. Thus this line of development is dependent upon the first to a certain extent.

The Real Problem of Increased Engine Speed.

Over and above the increase in the effective working pressure there has been an increase in the rotatory speed, or more accurately the piston speed, at which such pressures have been maintained.

This is really the same line of development in a less obvious form. The air and petrol mixture flowing through carburetter, induction pipes, and inlet valves encounters a certain resistance, which increases as the square of the speed at which the gas flows through any given part of the induction system.

This resistance is manifested by a reduction in the pressure, and therefore in the density, of the gas entering the cylinders, and the faster any given engine is made to run the lower the density of the incoming charge.

The lower the density of the charge the lower become both the compression and the mean explosion pressure.

Hence increasing the speed of rotation of any engine, other conditions remaining unchanged, must decrease the mean effective pressure developed.

For any given engine there will be a range of speed over which this effect is negligible, but it eventually shows itself by a marked falling off of the m.e.p. and the torque developed.

Therefore the problem of efficiently increasing the speed of rotation of any given engine beyond a certain limit becomes one of increasing the mean effective pressure at the higher speed.

Very largely this problem reduces to one of the design of inlet pipes, valves, and valve gearing which will offer the minimum of air resistance to the inflowing charge.

Both main lines of development and both the forms of the second line mentioned lead to higher intensity of stress in the working parts of the engine.

The use of material better adapted for its purpose leads to a reduction in size of a member carrying a given load.

Increase in the developed mean effective pressure obviously leads to increased stress intensity ultimately, since such items as bearing surfaces and so forth cannot be enlarged beyond definite limits imposed by the general layout and leading dimensions of the engine, except at the cost of excessive weight in other parts.

Increase in the speed of the engine increases all inertia loads throughout the engine.

A Matter of Overloading.

Thus the whole development of the aero-engine must be regarded as merely one huge conspiracy to load every working part to as near its ultimate strength as possible.

This process has been extended to all, or nearly all, the accessories of the engine proper.

Increased output from a cylinder of given size means that a greater amount of heat must be transferred through the cylinder walls.

In the water-cooled engine this calls for an increased speed of water circulation through the jackets. The process of loading up thus extends to the circulating pump.

Increased bearing pressures call for increased oil supply, therefore the oil pump shares the fate of the water pump.

Even the magneto, always a source of amaze and wonder, on account of the unexpected reliability of this piece of high-tension electrical apparatus most brutally ill-treated, is forced to do its share of the extra work.

A Rough Classification.

And in consequence it is possible to divide the modern aero-engine roughly into two classes.

One, and it is by no means the least effective class at the moment, is in the main just a decently designed engine based in all its main features upon its motor-car ancestor, run up to what is, for the original design, a violent overload, and covered with what can only be described as "gadgets" applied to fortify those parts which practice has shown most to need it.

The second class, which will almost certainly outlive the first, consists of those types of engine which have actually been designed without reference to the conventions of the ancestral car engine, but with an eye to so disposing their parts that they shall best withstand the heavy stress intensities under which they will have to work.

(To be continued.)

BY ERROR.

Sir,—With reference to your account of the lecture on "All Metal Aircraft" in a recent issue of The Aeroplane will you please correct the errors in my name and Service. I was never in the R.N.V.R., and my name is not Thurstan.

The Thurstons of East Anglia are not related to the Thurstans of Mercia, at least from very early times.

(Signed) A. P. Thurston (Capt. R.A.F.).

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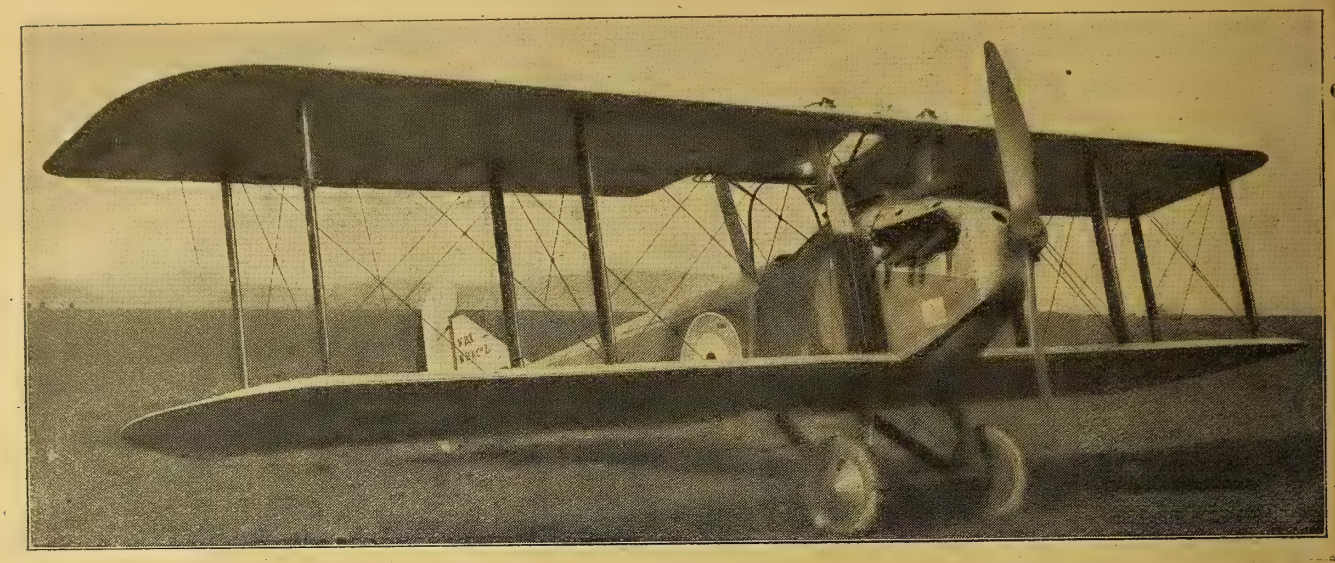
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MODERN BRITISH AEROPLANES.

V.—Sir Wm. Beardmore & Co., Ltd.—(*Continued.*)



The Beardmore Type "W.B.V" Ship Plane (200 h.p. Hispano-Suiza Engine).

THE BEARDMORE BIPLANE W.B. V.

This machine was also designed as a ship single-seater fighter, and was of very much the same overall dimensions as the W.B. IV.

Instead of placinf the engine over the C.G., driving the propeller by a shaft passing between the pilot's legs and designing the fuselage to provide the necessary buoyancy for flotation after alighting on the sea, the conventional engine in front arrangement was adopted, and the necessary buoyancy had to be provided by external air bags.

SPECIFICATION.

Type of machine	Biplane.
Name or type No. of machine	W.B. V.
Purpose for which intended	Ship's Scout.
Span	35 ft. 10 ins.
Gap	4 ft. 9 ins.
Overall length	26 ft. 7 ins.
Maximum height	11 ft. 10 ins.
Chord	6 ft. 3 ins
Total surface of wings, including ailerons	394 sq. ft.
Span of tail	11 ft. 9 ins.
Total area of tail	50.5 sq. ft.
Area of elevators	24 sq. ft.
Area of rudder	12 sq. ft.
Area of fin	8 sq. ft.
Area of ailerons	18.8 sq. ft. each, 37.6 sq. ft. total.
Maximum cross section of body	11.5 sq. ft.
Horizontal area of body	46.5 sq. ft.
Vertical area of body	58 sq. ft.
Engine type and h.p.	Hispano-Suiza 200 h.p.
Airscrew, diam. and revs.	9 ft., 1,500 r.p.m.
Weight of machine empty	1,860 lbs.
Load per sq. ft.	6.33 lbs.
Weight per h.p.	12.5 lbs.
Tank capacity in hours	2.55 hours.
Tank capacity in gallons	37 gallons.
PERFORMANCE—	
Speed low down	112 m.p.h.
Speed at 10,000 feet	103 m.p.h.
Landing speed	45 m.p.h.
Climb—	
To 5,000 feet	6 mins.
To 10,000 feet	17 mins.
Disposable load apart from fuel	340 lbs.
Total weight of machine loaded	2,500 lbs.

THE BEARDMORE TORPEDO CARRIER W.B. VI.

The Beardmore single-seater, torpedo-carrying, folding ship-aeroplane, type W.B. VI, was the result of many efforts to produce a satisfactory, fast torpedo-carrier. The general arrangement is on conventional lines, with the pilot well back in the fuselage.

The under-carriage is arranged to permit the stowage and dropping of a torpedo under the centre of gravity.

SPECIFICATION.

Type of machine	Biplane.
Name or type No. of machine	W.B. VI.
Purpose for which intended	Torpedo Carrier.
Span	Top 53 ft. 6.5 in., bottom 47 ft. 10.5 in.
Gap	7 ft. 6 in.
Overall length	34 ft.
Maximum height	12 ft. 6 in.
Chord	Top 8 ft. 10 in., bottom 7 ft. 9 in.
Total surface of wings, including ailerons	796 sq. ft.
Span of Tail	15 ft. 9 in.
Total Area of Tail	80 sq. ft.
Area of Elevators	32.4 sq. ft.
Area of rudder	12 sq. ft.
Area of fin	10 sq. ft.
Area of ailerons	47.75 sq. ft. each. total 95.5 sq. ft.
Maximum cross section of body	10 sq. ft.
Horizontal area of body	62 sq. ft.
Vertical area of body	100 sq. ft.
Engine type and h.p.	Rolls-Royce Eagle 350 h.p.
Airscrew, diam. and revs.	12 ft., 1,080 r.p.m.
Weight of machine empty	3,027 lbs.
Load per sq. ft.	7 lbs.
Weight per h.p.	15.6 lbs.
Tank capacity in hours	3 hours.
Tank capacity in gallons	70 gallons.
PERFORMANCE—	
Speed low down	102 m.p.h.
Speed at 10,000 feet	91 m.p.h.
Landing speed	47 m.p.h.
Climb—	
To 5,000 feet	15 minutes.
To 10,000 feet	41 minutes.
Disposable load apart from fuel	2,060 lbs.
Total weight of machine loaded	5,637 lbs.

THE BEARDMORE TRIPLANE W.B. VIII.

The Beardmore three-engine passenger and cargo triplane is designed on similar lines to the Caproni triplane long-distance bomber. There are two fuselages, with passenger compartments in the nose of each, and a central nacelle carrying the crew and one power unit.

Three power units, each a 500 h.p. Beardmore "Atlantic" engine, are carried, the two outer ones driving geared airscrews through shafts running along the top inside longeron of each fuselage, and the central engine driving a single pusher in the rear of the nacelle.

The tail is a biplane, with three comma-edged balanced rudders.

SPECIFICATION.

Type of machine	Triplane.
Name or type No. of machine	W.B. VIII.
Purpose for which intended	Passenger and Cargo Carrier
Span	Top 120 ft.. bottom 118 ft.

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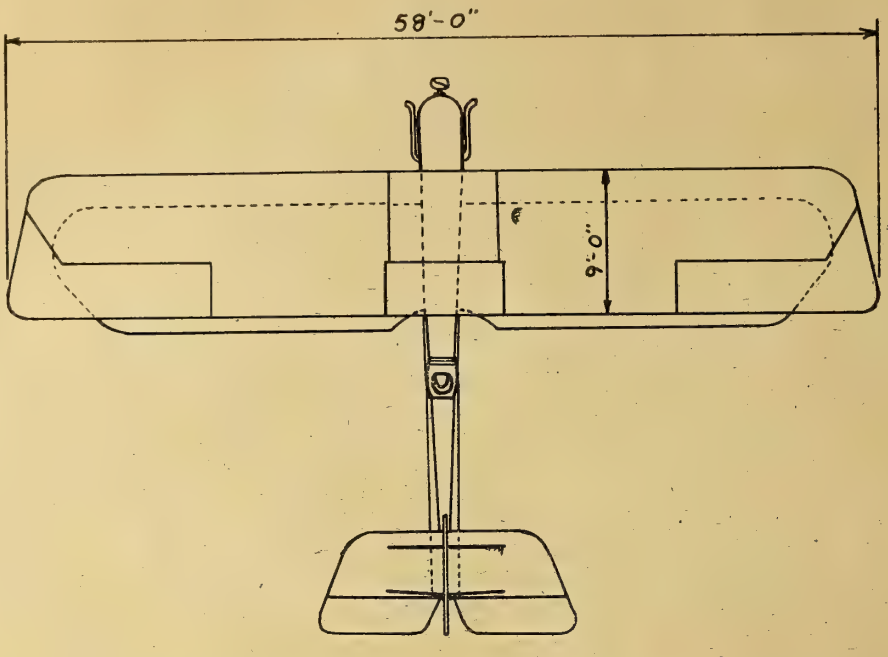


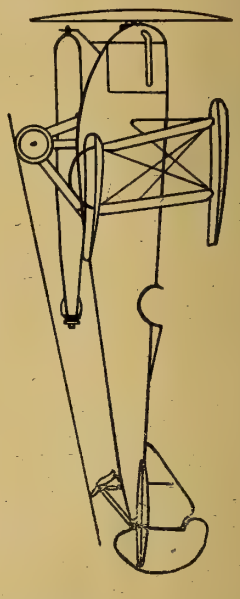
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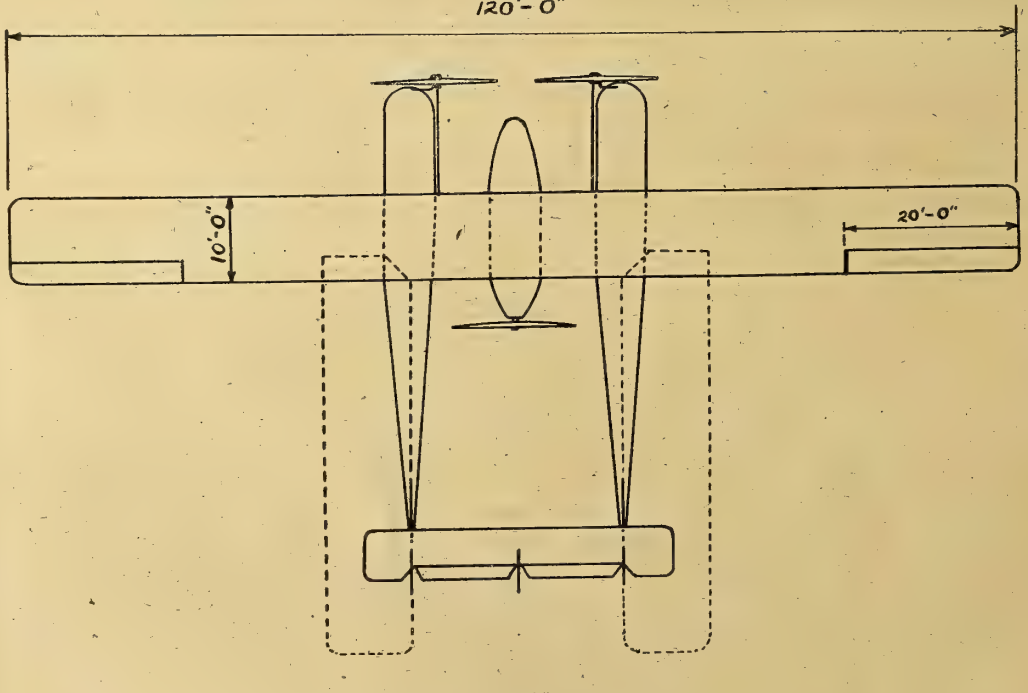


BEARDMORE SINGLE SEATER TORPEDO CARRYING FOLDING SHIP AEROPLANE

TYPE W.B. VI.

FORD-JONES '19

0 1 2 3 4 5 6 7 8 FEET
SCALE





BEARDMORE PASSENGER CARRYING AEROPLANE.

TYPE W.B.8.

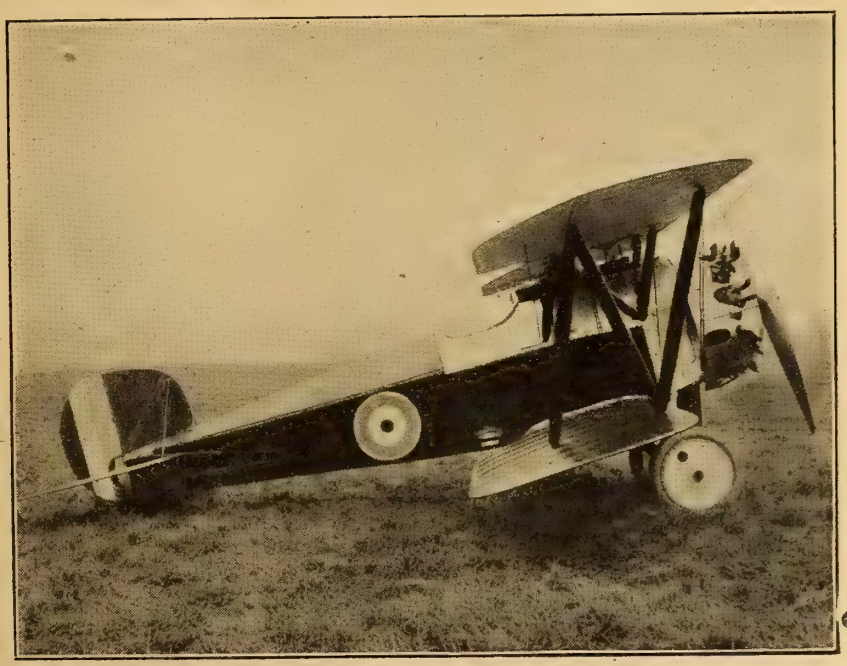
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FEET
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10,000 FEET IN 5 MINUTES 25 SECONDS

AT FARNBOROUGH IN APRIL, 1919, A BRISTOL SCOUT FITTED WITH A "MERCURY" ENGINE CLIMBED 10,000 FEET IN 5 MINS. 25 SECS., & 20,000 FEET IN 16 MINS. 15 SECS., SPEED AT 10,000 FEET 143 M.P.H. OFFICIAL CORRECTED BAROGRAPH FIGURES.

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20,000 FEET IN 16 MINUTES 15 SECONDS

Gap	8 ft.
Overall length	62 ft.
Maximum height	23 ft.
Chord	10 ft.
Total surface of wings, including ailerons	**3,260 sq. ft.**
Span of tail	37 ft.
Total area of tail	430 sq. ft.
Area of elevators	72 sq. ft.
Area of rudder	105 sq. ft.
Area of fin	77 sq. ft.
Area of ailerons	55 sq.ft. each ; total 220 sq.ft.
Maximum cross section of body	132 sq. ft.
Horizontal area of body	645 sq. ft.
Vertical area of body	490 sq. ft.
Engine type and h.p.	Three Beardmore Atlantic, 500 h.p. each.
Airscrew, diam. and revs.	15 ft., 900 r.p.m.
Weight of machine empty	14,262 lbs.
Load per sq. ft.	8.37 lbs.
Weight per h.p.	18.2 lbs.
Tank capacity in hours	6 hours.
Tank capacity in gallons	660 gallons.
Performance (estimated)—	
Speed low down	92 m.p.h.
Speed at 10,000 feet	81 m.p.h.
Landing speed	53 m.p.h.
Climb—	
To 5,000 feet	15 minutes.
To 10,000 feet	41 minutes.
Disposable load apart from fuel	7,450 lbs.
Total weight of machine loaded	27,320 lbs.

THE VICKERS COMMERCIAL TYPE "VIMY" MACHINE.



The Vickers "Vimy" Commercial Type (2 Rolls-Royce "Eagle" Engines, 375-h.p. each).

This aeroplane is a modification of the Vickers "Vimy" bomber, which is being supplied in great numbers. It is necessary to mention this in order to emphasise :—

(1) That this aeroplane has been flown under stringent war conditions.

(2) The obvious advantage of an aeroplane that can be used either for war or commercial purposes by the rapid interchangeability of the respective fuselages.

It is of interest to note that the fuselages constitute the sole difference between the "Vimy" bomber, the "Vimy" commercial, and the "Vimy-Rolls" trans-Atlantic aeroplane.

In dealing, then, with the 'Vimy" commercial, those who already know the bomber will have a fair idea of its general appearance.

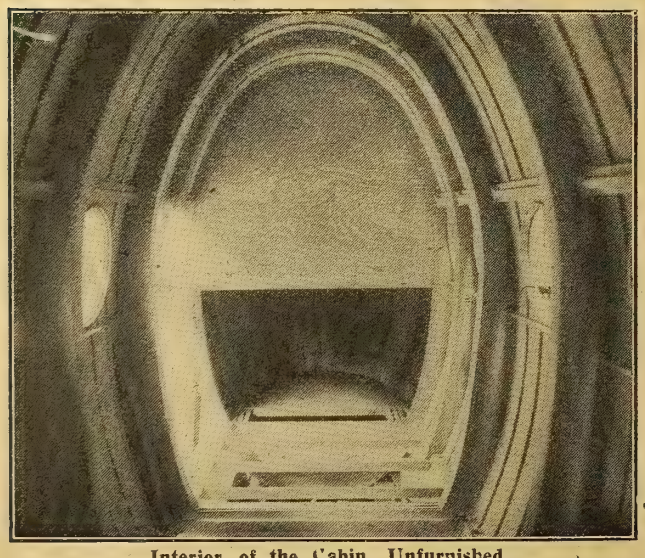
The fuselage is constructed on the "Monocoque" principle, the "shell" of the cabin being attached to oval wooden rings of box section.

These rings are built up of three-ply, are light, and have immense strength. The cover of the cabin is made under the "Consuta" patent, manufactured by S. E. Saunders, Ltd., of Cowes, who are allied with the Vickers Company.

Consuta is constructed of thin layers of selected wood, with the grain placed diagonally, glued and sewn together with rows of stitching running in parallel lines about 1½ inches apart. The strength of this material is very great, it gives a high factor of safety to the whole construction of the cabin, and entirely dispenses with any cross-bracing wires in any direction. The doors in the fuselage are watertight, and the machine will float in a normal position on water.

Two pilots are carried side by side in a cockpit placed high up in the "nose," giving a wide range of vision, and dual controls are provided throughout.

All the spars are of box section of spruce and three-ply wood bound with fabric; the interplane struts are of hollow spruce, except in the engine bay, where the struts are of round steel tube, reinforced where necessary and fitted with wooden fairings; the ribs are of spruce. The engine mounts are carried



Interior of the Cabin, Unfurnished.



The Cabin of the New Vickers Passenger-carrier.



One of the Formers for the Cabin Structure.

on four struts each side, and the chassis is attached below the engine mountings, thus minimising the load in the anti-lift wires.

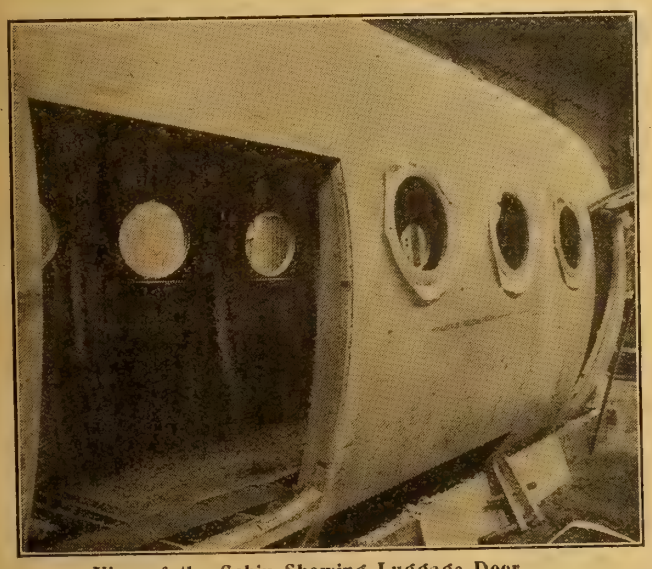
The after part of the fuselage is of wood and swaged tie rod construction, the longerons being made under Vickers-Ryan patents.

Throughout the machine, streamline steel tie rods are used in external bracing, and round steel rods in all internal bracing; looped wires and ferrules are not used in any important part.

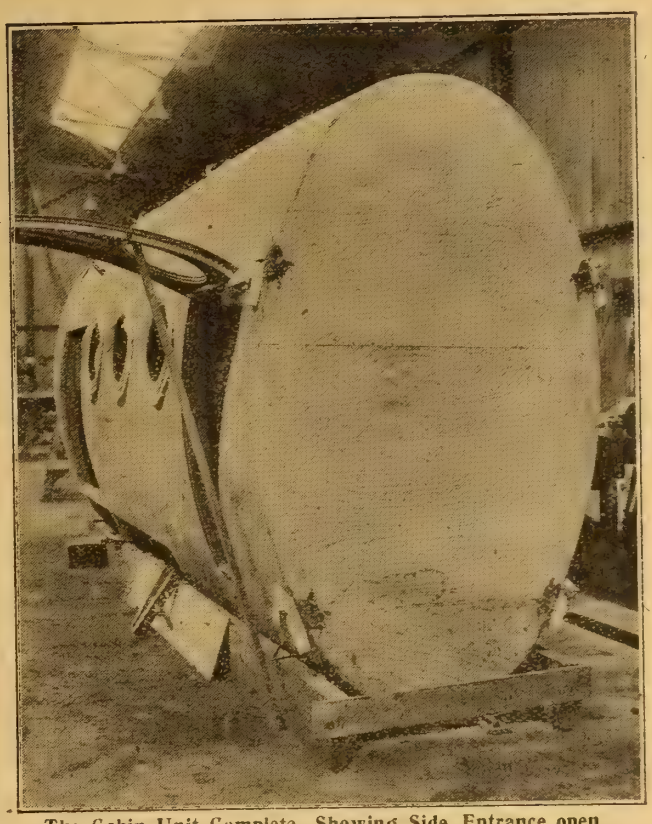
Two Rolls-Royce "Eagle" Mark VIII are installed, giving a total of 750 h.p. Should one engine fail completely, the machine can fly on the other engine alone at a speed of 70 miles per hour.

The petrol supply is maintained by fan-driven petrol pumps with regulating valves to maintain a constant flow to a service tank with overflow return to main tanks.

Sufficient petrol is carried for a continuous flight of 5 hours.



View of the Cabin Showing Luggage Door.



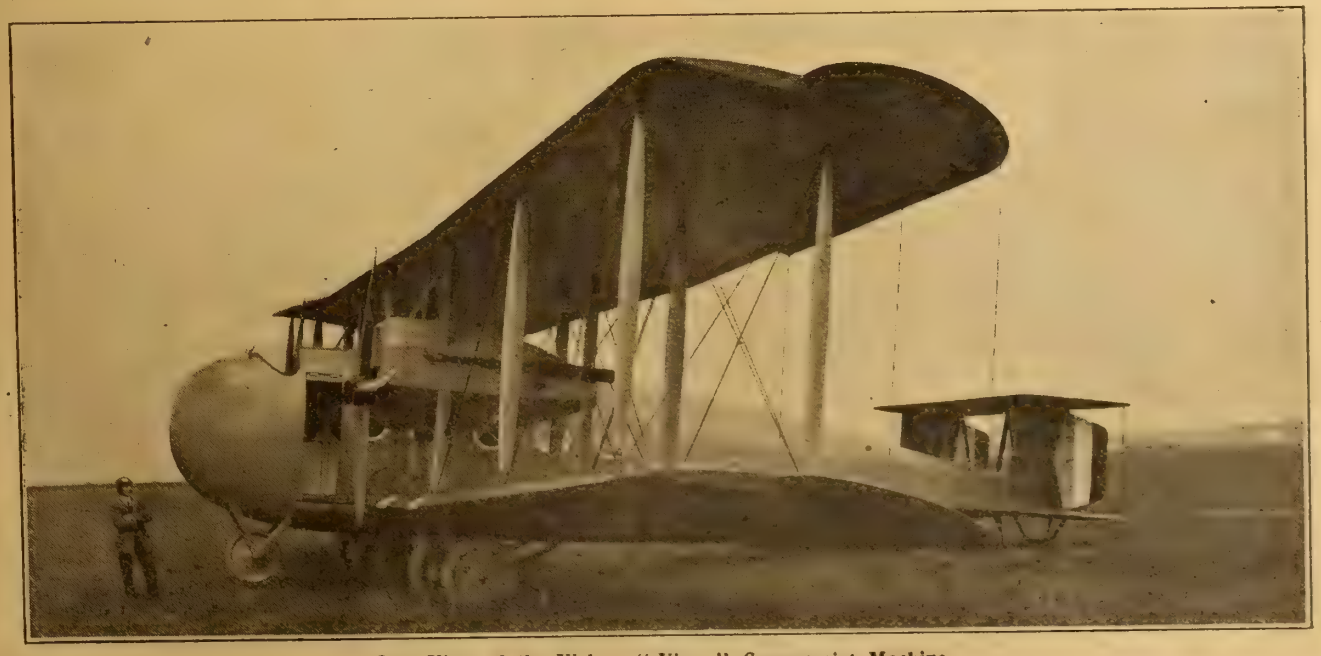
The Cabin Unit Complete, Showing Side Entrance open.

Should a greater endurance be required, extra tanks can be fitted.

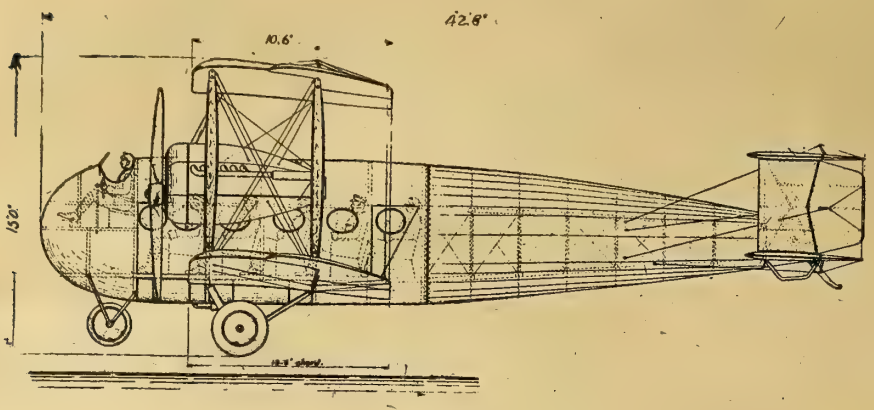
All flying controls are remarkably light in operation, as balanced control surfaces are used where necessary.

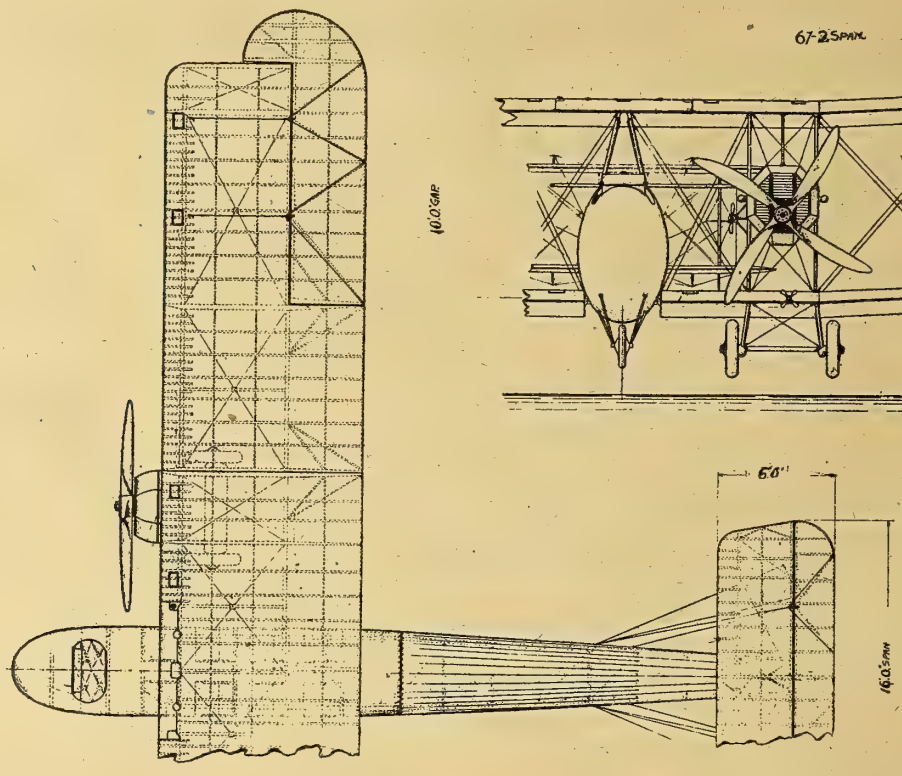
In no part has strength and solidity of construction been sacrificed to lightness, a factor of safety of $4\frac{1}{2}$ being provided throughout the machine.

The cabin is totally enclosed, and has a seating capacity for 10 passengers in separate armchairs. A gangway runs down the centre of the car, and there is ample space between the chairs. Cupboards are provided at the end of the cabin for the storage of light hand luggage. A separate window is placed at the side of each person, and both height and speed indicators are fitted for those who are interested in the new conditions of travelling. Telephonic conversation can be carried on between the pilot and the passengers, and the ventilation and heating can be adjusted as desired to suit any temperature conditions.



Side View of the Vickers "Vimy" Commercial Machine.





General Arrangement of the Vickers "Vimy" Commercial Model (2 Rolls-Royce "Eagle" Engines 375 h.p. each).

Noise has been reduced to a minimum, and vibration entirely abolished.

The seats in the cabin can be detached in a few minutes, giving a floor area of 53 square feet, and a volumetric capacity of 300 cubic feet for freight, which can be kept at an even temperature and dry. The maximum weight which can be carried is 2,500 lbs.

When mail-carrying, sorting-boxes are fitted, and the process of sorting can be carried out on similar lines to the arrangements now in operation on the mail trains.

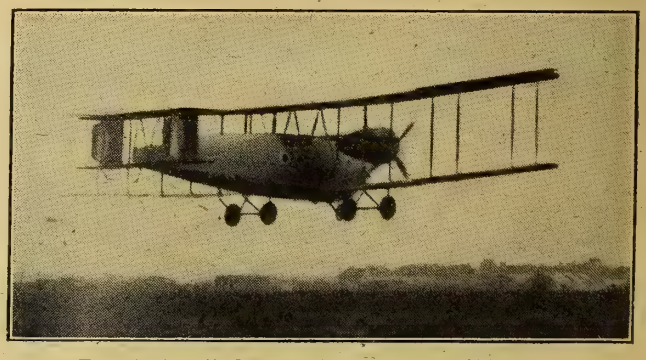
The following table gives the plain particulars of the machine :—

SPECIFICATION.

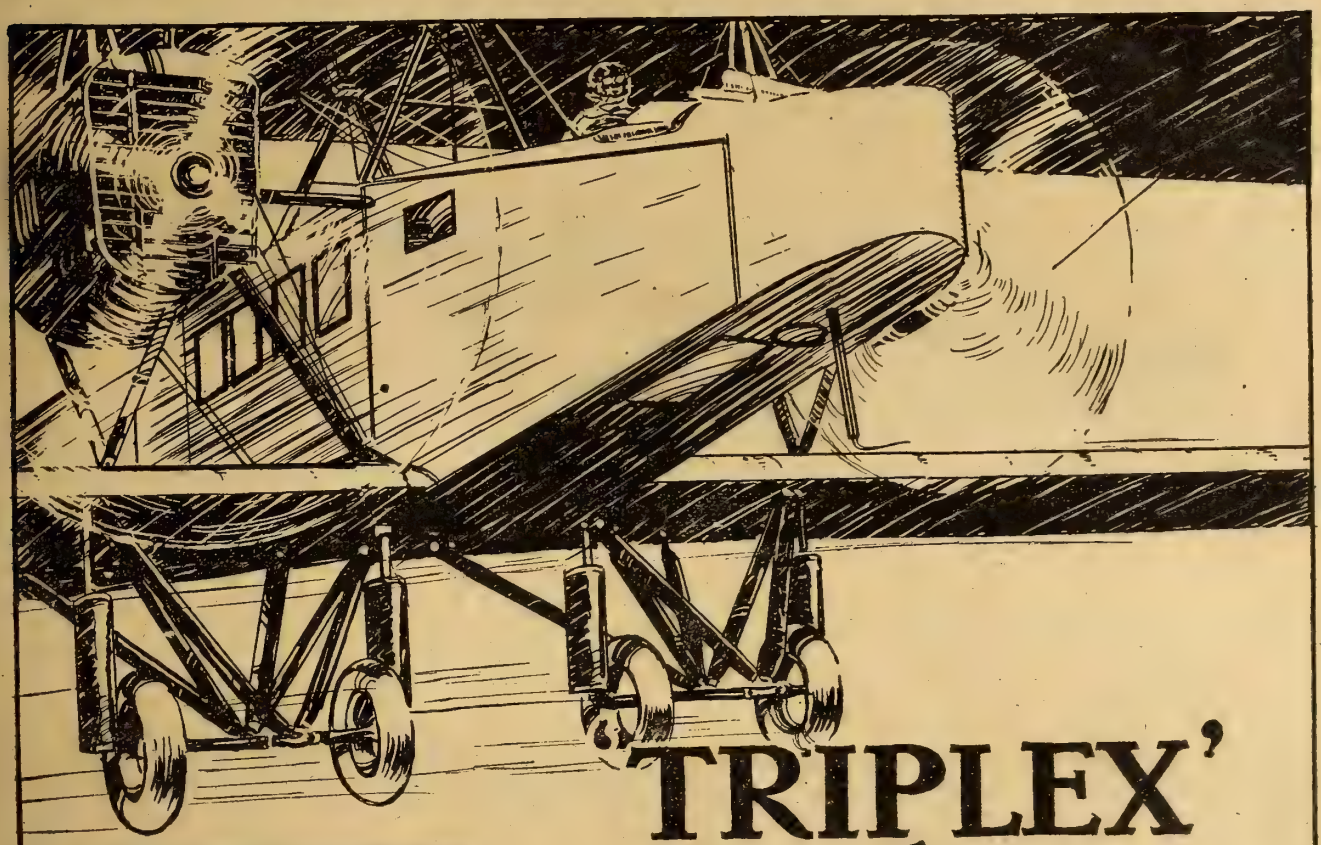
Type of machine	Twin-engined tractor biplane.
Name or type No. of machine	Vickers "Vimy."
Purpose for which intended	Commercial.
Span	67 ft.
Gap, maximum and minimum	10 ft.
Overall length	42 ft. 8 ins.
Maximum height	15 ft. 3 ins.
Chord	10 ft. 6 ins.
Total surface of wings	1,330 sq. ft.
Span of tail	16 ft.
Engine type and h.p.	2 375 h.p. "Eagle" Rolls-Royce.
Weight of machine empty	7,292 lbs.
Load per sq. ft.	8.4 lbs.
Weight per h.p.	16.4 lbs.
Tank capacity in hours	5 hours.

PERFORMANCE—

Speed low down	110 m.p.h.
Speed at 6,000 ft.	103 m.p.h.
Speed at 10,000 ft.	99 m.p.h.
Landing speed	45 m.p.h.
Climb—	
To 6,000 ft. in minutes	17 mins.
To 10,000 ft. in minutes	48 mins.
Disposable load	2,308 lbs.
Total weight of machine loaded	11,120 lbs.



The "Vimy" Commercial Biplane in Flight.



'TRIPLEX' Safety GLASS IN CIVILIAN FLYING



Interior of a Handley Page Passenger Aeroplane.



Inside of H.M. Air Liner "Silver Star."



Showing windows in H.M. Air Liner "Great Britain."

The whole question of the public support of flying, and of the establishment of public confidence in travelling by air, depends much upon the provision of every possible safety precaution in machines employed for civilian service. Amongst the most important of these essentials is the stipulating of "Triplex" Safety Glass for all panels, windows and windshields, and for the eyepieces of goggles, for without this precaution many serious and perhaps fatal accidents must occur from flying splinters of glass on the least concussion or shock of landing. "Triplex" Safety Glass is absolutely and definitely unsplinterable under any impact or communicated shock. Catalogue No. 3 explains exactly what "Triplex" can withstand and how it is made.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

NOTES ON PARACHUTES AND PARACHUTE FLARES.—II.

By LIEUT.-COL. H. S. HOLT.

(All rights reserved.)

These papers were originally designed for technical readers, but at the Editor's suggestion I have put this and succeeding ones in more popular form. This entails the addition of a certain amount of explanatory matter that would be superfluous for parachute specialists.

GERMAN PARACHUTES.

With the exception of the Robert, all the single parachute systems mentioned in the first paper function on the same principle: The parachute case or receptacle is fixed to the aircraft, the parachute and the parachute lines being packed inside. The main cable of the parachute is made fast to the passenger's harness, so that when he jumps overboard his weight withdraws the parachute, the crown or apex being the last portion to leave the case.

In the German parachutes, which are scientifically designed although rather roughly made, the case is usually carried on the passenger's back and attached to the harness, though in one type it is hinged in such a way that the passenger can sit on it when not in use. The principle on which the parachute is withdrawn is the inverse of that already described.

A cord is attached to the crown or centre of the parachute, and made fast to the aircraft. When the passenger goes overboard the parachute is withdrawn from its case by this cord, which is made sufficiently light to break or become detached when the man's weight comes on it.

This is a better principle in so much as the parachute is pulled from the crown or centre instead of from the circumference, so that the lines are not taut when the circumference of the parachute leaves its receptacle. There is thus much less chance of the mouth being kept closed and suction taking place from the centre hole to the folds so that the parachute either does not open at all or not till after it has fallen a considerable distance. On the other hand, as the parachute lines are slack when they leave the case there is more risk of their getting entangled. In his own parachutes the writer has got over this in a special way which he will describe later on.

But although somewhat different in principle, the German parachutes have the same defect as those already described, viz., that they offer little or no chance of escape from a falling machine.

The writer made very careful inquiries in France last autumn, and though he found records of a certain number of Germans escaping from their aeroplanes in parachutes, there was not a particle of evidence to prove that they had ever escaped from a machine that was actually falling. The presumption is therefore very much to the contrary.

THE HOLT COMPOUND PARACHUTE SYSTEM.

It was, the writer thinks, in the spring of 1912 that he happened to be present at an aerodrome in England in connection with some experiments with his parachute flares, when a set of the Cody-kites were being sent up, and it was the grouping of these kites that first suggested to him the employment of parachutes in tandem. But in those days the scheme did not seem to have any practical use. The life or man-dropping parachute was little more than the stock-in-trade of professional parachutists, and large parachute bombs had not been dreamt of. Colonel Maitland was undoubtedly the pioneer of Military parachuting in England; and the kite balloon crews of to-day owe much to his adventurous enterprise in the past.

The compound or tandem parachute system consists of a large or "main" parachute, to the crown or centre of which a smaller parachute, which the writer calls a "pilot" parachute, is attached.

It was not till the writer returned from France in the middle of 1915 that he saw his way to making practical use of this system, and he believes in the near future all large parachutes of 20 feet diameter or over will be fitted with this device. If the difficult problem of salving an aeroplane itself out of control is ever solved, the solution will be some form of triple or quadruple parachute.

The difficulty of designing a large parachute especially for life-saving purposes is that such an enormous factor of safety has to be allowed for, over and above that which would be required for the mere support of the load carried. The strain put on a parachute at the moment of opening is infinitely greater than any other; and unfortunately it is a very variable quantity depending, in the case of a parachute launched from a captive balloon, on the distance it falls before opening.

If a parachute is launched from a rapidly moving aeroplane additional and severe strains may be thrown on the parachute fabric and the difficulty of design increased. In the compound or tandem parachute system the strain on the main parachute is always the same within small limits, and can be accurately estimated. A small strongly built pilot parachute is released and opens first. Its "pull" then withdraws the main parachute from its case.

By simple timing devices the release of the main parachute can be delayed as long as desired; but the strain on it when opening will always be the same, because a well-designed pilot parachute attains its equilibrium or terminal velocity in a few feet.

In certain cases the writer employs a secondary pilot parachute of very small diameter and made of as light and thin a material as possible, whose function is to draw out the first pilot parachute. This is only necessary where the first pilot has to be made of considerable diameter and very strong and heavy.

Theoretically the strain on the main parachute can be reduced to any extent by varying the relative areas of the main and pilot parachutes. But practically there are limits beyond which one cannot go; as, for instance, if one made the pilot larger than the main, which would be an absurdity.

The essentials for a good pilot parachute are smallness of area relative to the main parachute, great strength of material and design and rapid inflation. Roughly speaking, the proportion of load on the main parachute varies in the ratio of the effective areas of the two; but other factors affect the figure, such as the distance of the main from the pilot and the area of the hole in the former.

The writer in practice attaches the pilot to the main by cords from the cable of the pilot to the circumference of the hole in the main. Correctly speaking, the pilot cable should be attached directly to the cable of the main at the point where the lines meet. In this way the load on the pilot parachute would be transmitted direct to the cable of the main instead of through the fabric of the main. But there are obvious practical objections to this.

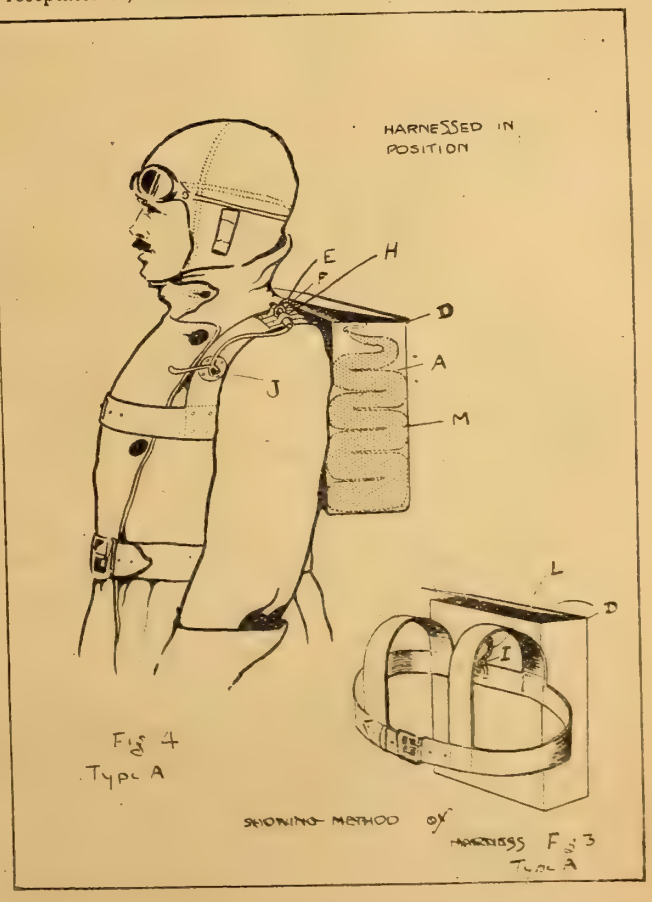
The writer has already successfully employed this compound system in his large parachute flares and to adapt it to life-saving parachutes was merely a matter of modifying details and proportions to suit somewhat different conditions. This the writer has endeavoured to accomplish in what he calls the "Autochute."

THE "AUTOCHUTE."

The general arrangement of the "Autochute" was schemed out by the writer comparatively early in the war, but it was not until last autumn when the demand for life-saving parachutes became urgent that he started to put it into practical shape. As designed now, it is in two different types.

TYPE A.

(Figs. 3 and 4.)—The main parachute M is carried in a receptacle A, to which there is a spring lid D, which is



normally kept closed by a spring hinge. The main parachute cable is attached by the ring I to the shackle on the harness.

In the first form of this invention the parachute lines were wound on a reel provided with a yoke and the main cable was attached to the yoke at one end and to the harness at the other. This had the effect of keeping the lines more or less taut until they were actually unwound by the pull of the main parachute, and which would no doubt have been an efficient means of preventing the lines getting entangled. But the writer subsequently adopted an entirely different device, which he will describe presently.

Figs. 3, 4, 5 show the general arrangement of Type A.

The cable from the main parachute is first attached to the harness, after which the main parachute is folded and packed into the receptacle.

The cable connecting the main parachute to the pilot parachute is furnished with a ring capable of being detachably secured to the harness by a spring bolt H. This spring bolt is so constructed that under ordinary circumstances it is free to open so that when the pilot parachute is released and inflates, it can pull out the main parachute at once. It is fitted with a small lever J and strong spring on the harness, by turning which the release bolt can be kept from opening, so that the pilot parachute will pull on this instead of on the main parachute, and the latter will not be pulled out until the lever is released.

The pilot parachute is then laid on the top of the main parachute and the box closed, or the pilot parachute may be carried in a small cylindrical case attached to the waist with a pull-off lid, as in Fig. 5.

The modus operandi is as follows (see Fig. 5):—

The pilot parachute N is withdrawn and held in the hand, and the man gets in a position to jump overboard. The instant *before* jumping he releases the parachute, which opens as soon as he begins to fall and draws out the main parachute.

In certain circumstances he may wish to fall for a considerable distance under the pilot parachute only. Thus if he found he was close to the coast and was afraid the main parachute might drift out to sea before it reached the earth, he might wish to fall very quickly to within a few hundred feet of the ground. Or, again, in war time, if the passenger thought the enemy airmen would attack him with their machine guns while falling, he could drop under the small pilot until near the ground, and then release the main.

In this case before jumping off he will turn the lever J on the harness, thereby locking the release bolt so that the main parachute is not withdrawn. Until he releases the lever the main parachute will be retained in its receptacle.

When falling under the parachute a man is apt to grip and cling on to anything that he can get hold of, and the lever locking this bolt is arranged in such a way that he cannot do this, and the moment he leaves go of the lever the bolt will be released.



Fig. 5
Type A

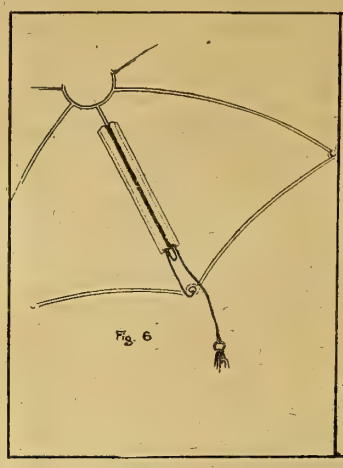


Fig. 6

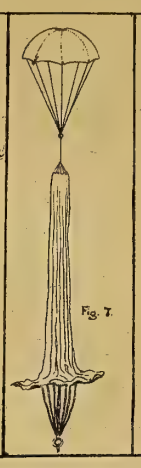


Fig. 7.



Fig. 8.

The main parachute is constructed in the following way. Down each seam a double tube of silk is sewn sufficiently long to contain the entire length of parachute line and extending to about 6 inches from the circumference of the parachute. By means of a hooked wire this line is drawn up throught the two tubes in a double loop. (See Fig. 6.) Once this has been done the parachute can be handled, rolled and unrolled as much as desired without any danger of entangling the line. By its use all risk of entangling is absolutely eliminated as can easily be seen.

Moreover, this helps to ensure the quick first stage of opening of the parachute. Owing to the fact that the tubes are not carried down to the edge, the extreme edge is left free until the very last instant when the pull comes on the last bit of cord. The 6 inch round the circumference is then as it were pulled down in the wind and inflates instantaneously. (See Fig. 7.)

As has been pointed out already, there is much less suction from the aperture at the apex or the centre of the parachute than there is with a single parachute, the reason being that during the withdrawal of the main parachute there is hardly any motion of translation of this parachute beyond a leisurely fall of a few feet per second, due to its weight acting on the pilot parachute.

At the moment the cords become taut the strain falls on the pilot parachute, which acts as a brake on the whole system and lessens the shock when the main parachute opens to full expansion a moment later. Thus the shock due to the coming into action of the parachute system is divided into two portions separated by a fraction of time from one another. For this reason it seems probable that shock absorbers will be quite unnecessary in the compound parachute system. The relative proportion of the two shocks depends chiefly on the relative sizes of the two parachutes.

This suction is one of the greatest dangers in connection with parachutes as it causes a vacuum between the folds of the parachute and effectually prevents its opening. But even such small amount of suction as might be present is entirely eliminated by the device the writer has adopted of closing the central hole with a disc of specially flexible paper. This is arranged to be easily replaced each time after use. It remains intact till the pressure inside the parachute becomes sufficient to burst it. With this arrangement and the system of tubes already described, it matters very little how the parachute is folded, and nothing in the nature of skilled attendance is necessary.

Further, the combination of these two simple devices obviates the use of elaborate and costly receptacles and elaborate systems of folding the lines, which may take hours to carry out, and, in any case, involve great risk of errors unless done by experienced hands.

(To be continued.)

ELECTRIC WELDING.

Alloy Welding Processes, Ltd., of 149, Leadenhall Street, E.C., have issued an interesting catalogue dealing with special flux-coated electrodes for arc electric welding, and with the work which can be carried out therewith.

The catalogue is, in addition to being a price list, an excellently illustrated article on some of the possibilities of the process.

It will doubtless come as rather a shock to many readers to discover that one firm, using the arc welding process, repaired 350 broken crankshafts during 1918, and that only one of them failed in use. This work was done with A.W.P. electrodes.

This case was eventually traced to bad lining up of the bearings, which was rectified, the crankshaft again repaired, and put into use.

Alloy Welding Processes claim that with the use of their electrodes it is possible to make welds in H.T. alloy steels which have a tensile strength of 40 tons per sq. in. across the weld.

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THE AIRCRAFT TRADER

THE PRODGER-ISAAC AVIATION CO., LTD.

One of the most interesting results of the war was the production of the Prodger-Isaac Aviation Co., Ltd., which was formed with the idea of providing the services of a thoroughly capable pilot for testing experimental aeroplanes, putting standard machines through their acceptance tests, and delivering aeroplanes from aerodrome to aerodrome.

At first thought one might be tempted to imagine that the only essential to such a business was a first-class pilot, but if that pilot enjoys anything approaching a clientéle, the matter is not so simple as all that.

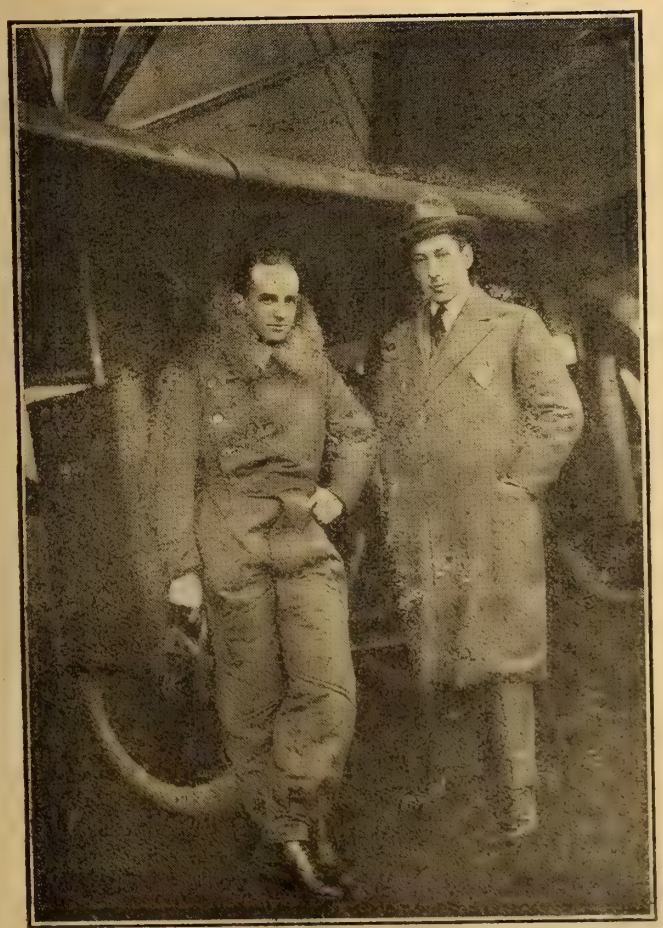
In the space of one week he may find his work in a dozen different places distributed impartially all over England, and it is necessary, if he is to get through a quarter of his work, that all his arrangements shall work like clock-work.

Mr. Clifford B. Prodger, therefore, who is the principal pilot of the firm has in association with him Mr. Bernard Isaac, who is as skilful as an organiser as his partner is as a pilot.

The amount of detail work which is necessary for Mr. Isaac to do to keep Mr. Prodger working without delay is quite amazing. It is necessary for him to reserve for his pilot seats in railway trains, beds in hotels, conveyances at stations, and similar conveniences. It is also necessary for him to keep in constant touch with every firm for which testing is being done for weeks ahead. Should the work at one firm be held up, and Mr. Prodger be kept waiting while the machine was being got ready for trial, it would cause endless delay with work for other concerns. By keeping in active touch with each machine which is being prepared for test, and by finding out whether it is absolutely ready, and that the engine has been run, Mr. Isaac is able to prevent wastage of time.

From time to time, when pressure of work is unusually great, Mr. Prodger is assisted by other proved test pilots.

During the period of the war the Prodger-Isaac Aviation Company has been responsible for the experimental tests of machines of every type, including large and small land machines, and large and small seaplanes. The fund of knowledge acquired by Mr. Prodger is at the disposal not only of firms who are engaged in building new machines, but of firms who contemplate designing new types, and who wish to know what to avoid. The future services, therefore, of the Prodger-Isaac Aviation Company, not only as testors, but as practical technical consultants, should be invaluable to the Aircraft Industry.



Mr. Clifford B. Prodger and Mr. Bernard Isaacs.

TO PLUG BUYERS.

Messrs. Leo Ripault and Co., of 1, King's Road, St. Pancras, London, N.W.1, state that they have now obtained from the printers their latest temporary retail descriptive list, illustrating the various types of plugs which they are in a position to deliver quickly, and would be glad to hear from any inquirers.

As is well known "Oleo Plugs" have a world-famous name for hard wear and reliability under the most strenuous conditions, and a long list of Aviation and Road records to their credit, including all pre-war "Daily Mail" prizes.

A POST-BELLUM BY-PRODUCT.

The Air Navigation and Engineering Co., Ltd., Blériot and Spad Works, Addlestone, Surrey, have designed and are putting into production a two-seater light car to be known as the "Blériot Whippet," possessing a number of interesting features.

The car is fitted with an 8 h.p. two-cylinder air-cooled "Blackburne" engine, chain driving a countershaft gear. Transmission to the back axle is by an enclosed belt drive. The change-speed gear is of the infinitely variable type—though no particulars as to whether it is of the pulley or the friction type are given.

The springing is of the semi-cantilever type, and it is claimed that the proportion of sprung to unsprung weight is such that the car will hold the road comfortably at all speeds.

The car has a track of 4 ft. 2 ins., and a wheel base of 6 ft. 9 ins.

Detachable wire wheels with 700 × 80 mm. tyres are fitted.

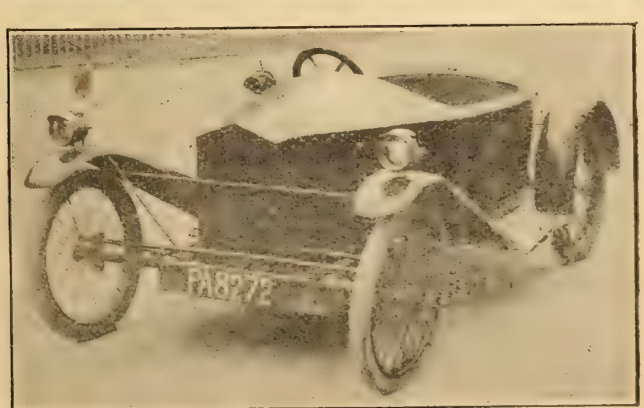
The gear and hand-brake levers are central, and pedal clutch, accelerator and brake controls are fitted.

The foot-brake is a shoe on the rear axle belt rim, and the hand-brake lever controls an internal expanding brake on the countershaft.

The clutch is of the three-plate floating disc type housed in the engine fly-wheel.

The price has been provisionally fixed at £175, and it is hoped that deliveries will commence in August or September next.





Two Views of the Blériot-Whippet Light Car.

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INDIRECT PROFITS.

By "MEDWAY."

I notice in a recent issue of THE AEROPLANE that one of the big hotels in Atlantic City is providing an aerial service to bring guests to its doors from their homes. The news particularly interests me because I have had this use of the aeroplane in mind for a very long time past. In fact, if I possess such a person as a reader who took the trouble to peruse what I wrote eight or nine months ago, and in spite of that still remains a reader, he may conceivably remember that I went into some considerable detail a long time back on this subject.

Doubtless the news item about the Hotel Fraymore of Atlantic City is abbreviated and does not represent the entire scheme. Obviously, if an hotel proprietor is going so far as to run an aerial service of his own, he will also provide thoroughly good facilities for guests who come and go on their own private aeroplanes. In fact, this would very likely prove more profitable than the aerial service. They will need supplies and attention for themselves as well as for their machines, and there is a profit to be made out of everything that is done for either of them.

THE IDEAL SITUATION.

My idea of the ideally situated hotel for aerial development is one which either possesses a lake in its private grounds or is quite close to a sheltered bay or harbour on the surface of which seaplanes can alight. There is room for a good deal of enterprise and ingenuity in the provision of facilities for alighting and departure, whether the visiting machine is equipped with wheels or with floats.

A MATTER OF PRINCIPLE.

I do not, however, propose to repeat in detail what I tried to suggest months ago. I would rather draw attention to the somewhat important matter of principle. When an hotel proprietor starts an aerial service he does not do so with the prime object of making that service a financial success on its own account. If he can succeed so far as to do so, well and good. If not, the service may still be worth running.

What he is chiefly playing for are indirect profits. Of these, the least indirect is the profit to be made for the hotel itself out of the visitors who are brought by aeroplane. These would no doubt be considerable. The bare fare would not be all the guests would have to pay for the privilege of reaching the hotel. Doubtless the most expensive rooms would be allocated to them at somewhat inflated cost, and in general they would be treated as a country inn used to treat, and sometimes still treats, motorists. In other words, they would be treated as people of wealth and of reckless disposition, well suited to be plundered by the honest tradesman.

In point of fact, it would probably only be the very well-to-do pilot, or the highly prosperous business man, who would be attracted; but, despite taxation and the inroads of Socialism, there remains enough in these classes to give good possibilities of success.

INDIRECT PROFIT.

The next indirect profit is that which can be made by charging dues for the landing of private aeroplanes and high prices for their supplies, for any work needed to be done upon them, and for the incidental services of the aerodrome staff. The profits made in these ways would go a long way towards paying for all the supplies required for the aeroplanes used in the hotel's own service.

Next, but not least, we have the advertising value of the whole proposition. The inauguration of the service would be accompanied by notes and comments in practically every journal in the country and a good many outside it. The name of a hotel would become a household word, and this is worth a good deal of money to the hotel proprietor. Probably he could knock off all his other advertising and balance the saving thus secured against the costs of his aerial service, and in the end be a great deal better off than he was before.

The next point is that the kind of people who would be attracted by this scheme would, to say the least of it, be cheery. An hotel, twenty-five per cent. of the guests of which come by aeroplane, would never be dull or frowsy. The chances are that life within it would be given a fairly frequent fillip in the way of an attractive bit of scandal. All this, combined with the useful publicity obtained, would create just that atmosphere that would popularise the place among people who are out to spend money and to have a good time. Even those who do not care to fly would come by motor or by train. The hotel would get a reputation for smartness and its guests for lavish expenditure. The hotel proprietor would reap the profits.

AN EXCELLENT EXAMPLE.

The whole thing is, in fact, an excellent example of dependence upon indirect profit. There are many points of view that may be taken when the starting of an aeroplane service is contemplated. One may go out merely for direct profit, charging fares accordingly. If, when all the costs have been reasonably estimated, we come to the conclusion that the fares, to show a profit, would have to be more exorbitant than anyone would pay, then it does not in the least follow that the project must be abandoned.

Suppose we assume that if we charge the maximum fares consistent with decent patronage of the service, we shall show a loss of £5,000 a year. The next thing to ask is whether, if we start the service and face this loss, we can expect to get back more than that amount in some other way. The most obvious opportunity is in the direction of publicity. The next most obvious is so to arrange matters that the fare is not the only payment that we get out of the people who travel. From both these points of view the hotel proposition is absolutely right, provided that the accommodation available in the hotel is big enough and smart enough to carry the thing through.

A MUNICIPAL SERVICE.

It is not, however, the hotel proprietor only who may be justified in aerial speculations on the grounds of indirect profit. An enterprising municipality in a district possessed of natural and artificial attractions would find it well worth while to look into the proposition from a

similar point of view. It might be a bit difficult to get the ratepayer to see the point, but I believe there are many districts in which, by incurring a loss of £5,000 or £10,000 on the running of aeroplanes each season, the town or district could be so far popularised as to enable the average ratepayer to pay his increased rates and to have a bigger income left over after doing so.

There are plenty of most attractive places which are at present a little bit too far from the big centres of population to be patronised on a really big scale. The aeroplane will bring them nearer, will get them talked about, and will introduce just that type of visitor whose presence will draw others in his or her train. If, for instance, various places in Wales, in Devon and Cornwall, and in Ireland do not appreciate these facts, in my opinion they will be losing a very big opportunity.

U.S. AERIAL MAIL PROFITS.

The Washington to New York Aerial Mail Service completed its first year of operation on May 15th last. An official report has been issued by Mr. Otto Praeger, the Second Assistant Postmaster-General, as to the results of the year's working.

According to Mr. Praeger, a total of 128,037 miles was flown on this route at a total operating cost of $142,881. This includes the cost of one machine totally destroyed on trials, but it is not stated whether capital charges, depreciation, and the like are included.

A total of 193,021 lbs. of mails were carried, and for this service a total revenue of $159,700 was received.

Thus the operating cost of the service was $1.12 per mile (4s. 8d.), and the revenue $1.24 (5s. 2d.) per mile. The average revenue for mails works out to $0.84 per lb., or 5.25 cents per oz. (2⅝d. per oz.).

The gross profit on the undertaking is $16,819 for the year.

The "New York Times" of May 15th gives some statistics as to the service. The journey, New York to Washington, is flown in two stages, New York to Philadelphia and Philadelphia to New York.

Ten pilots during the year flew a total of 804 of these stages, or a total of 91,566 miles. Of these 804 journeys 782 were completed without untoward incident, 10 were completed after intermediate forced landings, and 12 stages were not completed at all.

It may be assumed that, in accordance with standard American practice, these figures are chosen from the whole to make the best possible showing, and that the 36,471 miles, representing the difference between the 91,566 miles mentioned above and the total flown in the year, but not accounted for in these figures, would reveal a very much larger number of incomplete or delayed journeys.

Nevertheless, even if the whole of this 36,000 odd miles were entirely composed of incompleted journeys, this gives the efficiency of the service as 70 per cent., and the figures, if accurate, show that it is possible to improve very considerably upon the figure of 60 per cent. put forward by the British Postmaster-General as that which could be obtained in an Aerial Mail.

It is of particular interest to note that the preliminary attempts at this service were carried out with converted war type aeroplanes, with very poor results. These machines were soon abandoned in favour of machines designed for the work and for a moderate all-round performance.

AN INTERNATIONAL AIRCRAFT EXHIBITION.

An International Aircraft Exhibition will be held at Amsterdam during August, 1919.

There will be a British Section, comprising the following groups:—Historical, Department of War, Marine Department, ordinary aeroplanes, seaplanes, motors, motor-cars and motor-cycles, aeroplane building, photography, maps and literature, telegraphy and telephone, orientation and lighting, implements, meteorology, experimental aeroplanes, medical branch, clothing, equipment and heating.

The Exhibition is being organised by prominent technical experts in Holland. The Chairman of the General Committee is General Snyders, formerly Commander-in-Chief of the Netherlands Land and Sea Forces, assisted by Flight-Commanders A. Plesman (as acting manager) and Lieut. M. L. J. Hoftsee (as secretary). All the Dutch Ministers of the Crown are honorary presidents, and are taking a leading part in the work.

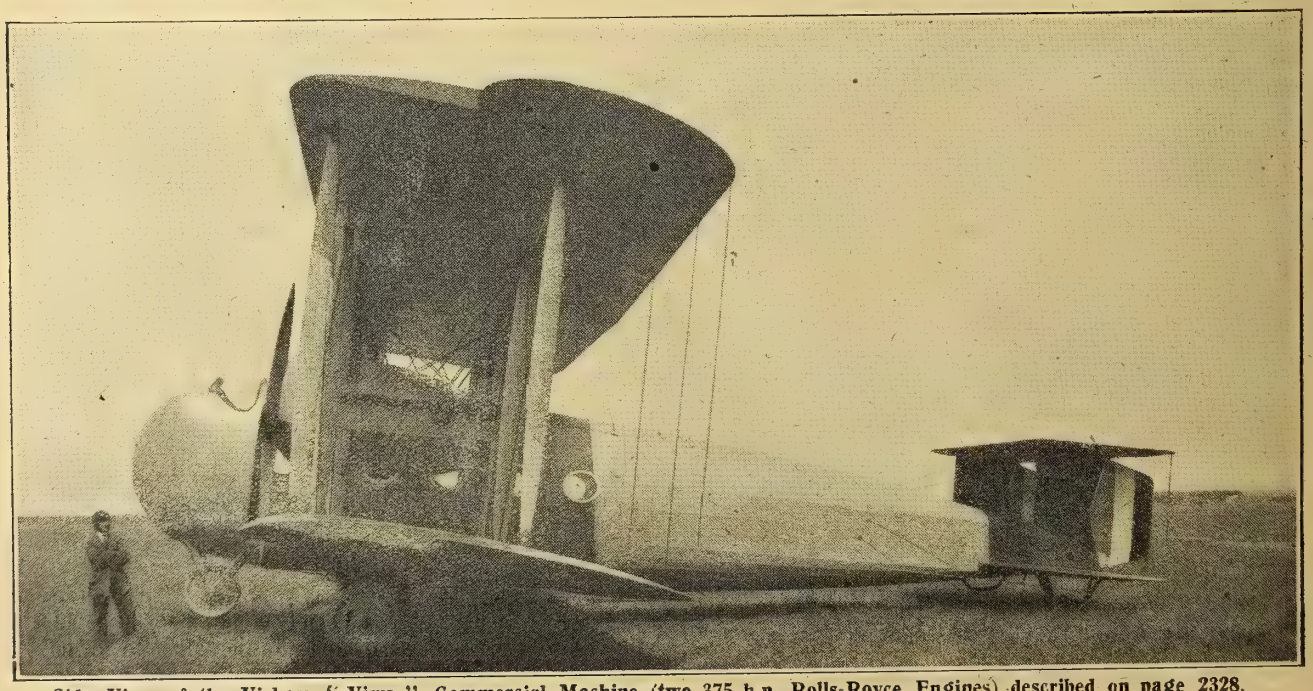
The British Section will be fully representative. Many of the leading firms of constructors have promised their co-operation. It is being realised that there is a great opportunity for British industry to show on the continent to the visitors to the Exhibition, who will be drawn from all parts of the world, that Great Britain is playing a leading part in aviation.

It is understood that the British Government has declared itself in great sympathy with the formation of a British Section, and has recommended it. The matter has been referred to the Comptroller-General of Civil Aviation, who has viewed the proposal with great interest and who considers that such an exhibition should prove of the greatest assistance to British manufacturers and should do much to promote the interest of British commercial aviation. The Comptroller-General is anxious to do all in his power to make the British Section of the Exhibition a success and intends to take steps to make it as representative as possible. Only the Allied countries are invited to exhibit.

At the invitation of the General Committee, Dr. W. R. Bisschop, of 2, Dr. Johnson's Buildings, Temple, E.C.4, has in an honorary capacity undertaken the supervision of the work connected with the British Section, while Mr. J. Vandersteen has been appointed organising manager of that Section. Temporary offices have been obtained at Trafalgar Buildings, Trafalgar Square, W.C.2, where full information can be obtained.

A SEAPLANE SERVICE.

A seaplane service from Southampton will be started shortly to take passengers around the Isle of Wight. It is to be worked by A. V. Roe & Co., Ltd., and the pilot is to be Capt. F. Warren-Merriam, A.F.C., R.A.F.



Side View of the Vickers "Vimy" Commercial Machine (two 375 h.p. Rolls-Royce Engines) described on page 2328.

First Aircraft Exhibition, Amsterdam
AUGUST, 1919.

In view of unaccounted rumours it is now officially notified that

No exhibits of enemy origin will be admitted and that the exhibition is exclusively limited to entries from Allied and Neutral countries.

The Exhibition will open on the 1st August, 1919.

Owing to the limited amount of space in the British Section, exhibitors who have not yet done so are urgently requested to send in their applications without delay.

A certain amount of space will be available for the exhibition of motor cars and accessories.

Any information required may be obtained from the London Offices, Trafalgar Buildings, Trafalgar Square, W.C.2. Telephone: Regent 2648.

FOR THE MOST HAZARDOUS WORK OF THE WAR



For aerial warfare, the most hazardous work of the war, and the work upon which successful strategy so largely depended, the *only* spirit used by the British Forces the world over, from the outbreak of the war till the summer of 1917 (when the demand exceeded the supply), was

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FLYING AT HENDON, 1919.

None can doubt that the London Aerodrome at Hendon has vast possibilities as a centre at which to educate the people of the British Empire in general and of London in particular to a proper appreciation of Civil Aviation. Likewise, none who knew Hendon as it was before the war and who visited the aerodrome during Whitsuntide can have any hope of those possibilities being fulfilled unless and until the methods of running the aerodrome and the entertainment which it professes to provide are entirely altered.

If the shade of the late and ever-to-be-regretted Richard T. Gates did happen to be at Hendon during the alleged entertainment at Whitsun he must have smiled his most sarcastic smile when he compared what was being done in the year of grace 1919 with what he and his able coadjutor, Mr. Bernard Isaac, used to do five, six or seven years before, when flying was supposed to be in its infancy. Of course, one is quite prepared to make all due allowance for the fact that the aerodrome has only been in civilian occupation for a few weeks. But curiously enough it is not the things which take time which are wrong, it is the things which take knowing-how.

The railings are all in place, the enclosures are all nicely arranged, there is a better tea-shop and pavilion than ever there was—seeing that it was built as solid R.A.F. quarters and that the R.A.F. officers have been evicted into wooden huts at the other end of the ground in order to make room for the expected crowds of holiday-makers. Our old friend, Mr. Plant, is in charge of the gate. The megaphone man is there with unabated strength. The R.A.F. band makes quite reasonably good music—much better than the Coke-Crusher and Gas-Jet band which used to perform before the war. In fact, everything in the garden is lovely, till one gets to the object with which one has visited the place, namely, to see some post-war flying, illustrative of the advances made in aviation during the war

What Went Ye Out For to See?

One starts with the programme, for which the public are charged threepence, apparently so that they may learn how many Rolls-Royce cars Mr. Grahame-White has for sale. With due diligence one finds a list of the entrants for the races on Saturday and Whit-Monday—one race on each day. They comprise two Avros with 110 Le Rhônes, a Grahame-White single seater (called a "Bantam") with an 80 h.p. Le Rhône, an Airco with a 90 h.p. R.A.F. (which is a demobbed D.H.6 with flat planes—quite a useful civilian aeroplane), and one of the Bat Company's original Bantams, with an A.B.C. Wasp engine.

One looks out over the aerodrome and one sees three or four aeroplanes painted hideously in yellow and blue like a travelling showman's vans. The planes and tails are blue. The fuselages are yellow, so that seen from a distance they remind one of the flags used in military camps to indicate the whereabouts of an item in camp lay-out which we are supposed to have borrowed from the Turks. One feels sorry to see erstwhile elegant war machines thus disfigured.

During most of the afternoon these machines are more or less busy carrying passengers. There seems to be quite a fair demand for "joy-rides." Most of the passengers are taken up in Blackburn "Kangaroos," long, thin twin-engined biplanes, which seem to fly uncommonly well, and, though a humourist in the R.A.F. remarked "they look like badly-nourished Handley Pages," they are said to be very strong and to control particularly easily, qualities which make them eminently suitable for their jobs.

At intervals a Mr. Chamberlayne careers about the aerodrome on the Grahame-White single-seater—also disfigured in yellow and blue. He is a dashing pilot, but either the side-surfaces of the machine need re-designing or he had a curious way of handling it, for it has an ugly habit of progressing corner-wise for an appreciable time before getting onto a bank when starting a turn.

During the afternoon the race of the day takes place. It is flown from the aerodrome to Bittacy Hill and back, two miles out and two miles home. The machines in getting off head straight at the crowd, do an awkward turn, are seen sideways for a moment as they round the turning-pylon, and the rest of the time they are seen in end elevation. The race takes about a quarter of an hour, and is without any absorbing interest. The handicapping on Saturday was so good that in order to catch the leading Avro the Bat-Bantam would have had to do a matter of 20 miles in somewhere about 5 minutes, which is a speed as yet outside the capability of even Mr. Koolhoven's products.

The rest of the Saturday and all Sunday was devoted to the evolutions of Mr. Chamberlayne, the Kangaroos and the two or three Avros.

Whit-Monday's performance was no particular improvement on those of the previous days, so far as the ordinary spectator was concerned. For those who were on the inside of things the dullness was relieved by the flying of the Bantam Bat, which, piloted by Mr. Cyril Turner (late R.F.C.), put up a fine speed in winning the one race.

Incidentally Captain Gathergood, on the demobbed D.H.6, finished first, after doing some really good flying, but was disqualified for going the wrong side of a signal flag of whose significance he had not been advised—at any rate he did not know that he had been told about it. Considering the amount of waste timber lying about all the aeroplane workshops in these days one cannot understand why proper pylons were not put up to mark the course.

During the race the engine of a blue and yellow Avro flown by Major R. H. Carr cut out of action just over the railway. He might have scraped back into the aerodrome, but an approaching train decided him to change his course, so he landed on his nose just outside. He was somewhat shaken, but happily was not seriously injured. The blue and yellow eye-offender was abolished.

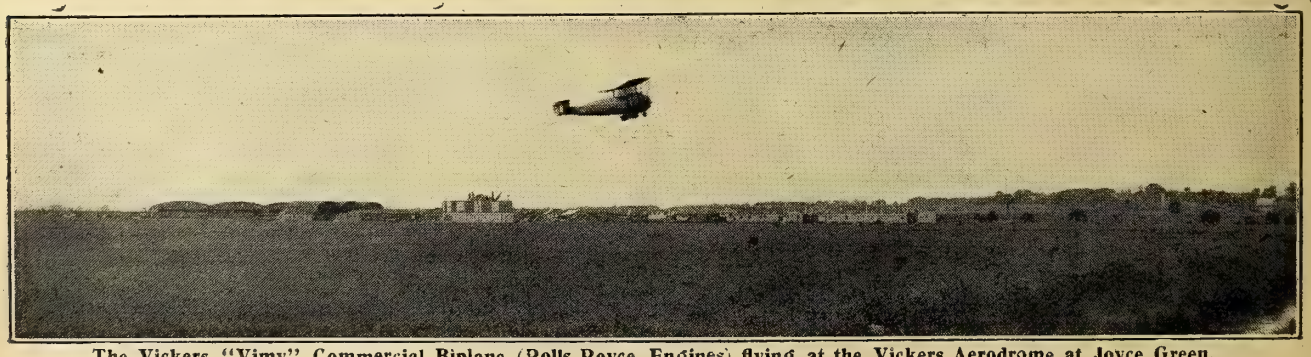
After finishing, Mr. Turner gave a show of very pretty flying on the Bantam, and later Mr. Duke also flew well on the same machine, which is easily the most quickly manœuvred machine of its class. With a little practice in cornering, Mr. Turner will make a very useful racing pilot. Mr. Chamberlayne on the Grahame-White single-seater continued his dashing career. —It might be noted by exhibition pilots that the Air Ministry Regulations distinctly order that flying shall only be done in one direction round an aerodrome. Confidence in aviation is not given to the public by seeing three or four machines cavorting around all in different directions and apparently in imminent risk of collision.

Some Real Interest.

The one really interesting thing on Saturday was a series of trial flights by Major Draper (late R.A.F. and R.N.A.S.), on the big Commercial Bat (Rolls-Royce 375 h.p.), the first machine to be designed and built solely for civil aerial transport. It is quite one of the most beautiful machines ever produced. Its lines are superb, and it is so perfectly proportioned that in the air it looks quite a small machine.

A remarkable thing about the machine is that no *mis-au-point* has been needed. It flies exactly as it came out of the shop in accord with the drawing-board. There has been no adjusting of surfaces nor altering of rigging. But the late Mr. Peter Legh and Major Draper agree that it is absolutely perfect on its controls. The only alteration needed anywhere has been in the arrangement of the radiators, which were purely experimental in any case, and these have needed very little moving. Despite the outstanding successes of the "Bantam" and the "Basilisk," and the Ack-Ws. and the pre-war Deperdussins, one is inclined to think that the Commercial Bat is the crowning achievement of Mr. Koolhoven's genius.

On Sunday morning Major Draper took Commander Towers (N.C.3), Lieut.-Commander Bellinger (N.C.1), another officer of the U.S. Navy, and Lieut.-Col. Spenser Grey (late R.A.F.), in this machine to lunch at the R.A.F. mess at Joyce Green and brought them back in the afternoon. They were all delighted with the machine, which, in the words of one of them, is "Cer-



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tainly *some* ship." The speed of the huge machine may be gauged from the fact that Mr. Cyril Turner, who accompanied them on the Bat-bantam with a 170 h.p. A.B.C. engine was unable, so far as could be seen, to catch them when he started behind them nor to get away when he started in front. And the little Bantam is well up among the 120 m.p.h. class.

What Hendon Needs.

However, to return to the matter of the London Aerodrome. One has given one's impressions just as one received them, in the hopes that they may indicate to the propietors just where improvements are needed. One wants to see Hendon the hub of British Aviation, the place to which everybody will go when they want to see first-class flying or the latest types of aeroplanes. It was so before the war, and it may become so again under capable management. But at present it is rather duller than ditchwater, for there, at any rate, one may see expert swimming by æsthetically coloured animalculæ, and one is not offended by primary colours nor by elementary antics.

If the proprietors do not feel justified in paying a number of expert pilots as they did before the war—which seems reasonable with aviation in its present precarious state—one would suggest that they might buy up a number of Pups, Camels, S.E.5s., D.H.4s., R.E.8s., and such machines, cheaply at the Air Ministry Sales, and offer the use of them at a nominal fee to demobbed R.A.F. pilots who would like to do a little flying on Saturdays and Sundays. This would, at any rate, ensure some pretty flying and some variety in types of machines, which would keep visitors amused. Also it would provide entries for the races, for most of these sportsmen would like to have the chance of winning back the price of the hire of their machines.

Furthermore, the course for the races should be properly laid out so as to give the public the best possible view of the machines as they enter and pass along and leave the aerodrome. At present the arrangement is just about as wrong as it can be as well as being dangerous.

Still further, if there is going to be a programme let it be done well or not at all. The public wants to know something about flying as it is, and does not want to pay for pictures dug out of pre-war programmes nor for catalogues of Mr. Grahame-White's cars.

Support from and for the Industry.

Again, encouragement should be given to other firms to send their machines and pilots to fly at Hendon, in order to draw a gate. Even if shed accommodation has to be given free, and if no landing fees are charged for outside machines which come to give exhibition flights, and if no percentage is charged on passenger flights given in such machines, it would pay the aerodrome in the end, because the aerodrome must succeed or fail on its gate-money, and not on what it makes out of "side-lines."

Lastly, if the London Aerodrome is to obtain the support of the Aircraft Industry—which it must have if it is to become the hub of British Aviation—it ought to be under separate management from the Grahame-White Co., Ltd., makers of aeroplanes and dealers in motor-cars. It is as impossible for an aerodrome to be run successfully by a manufacturing concern as it would be for this paper to succeed if it had any interest in any firm concerned with the making of aircraft, their parts, or the material thereof.

No manufacturer is going to put money into a competitor's pocket, and if the London Aerodrome tries to run on such lines it will be found that all the manufacturing firms and passenger-carrying firms, and air-line firms, will take their experimental machines, or their "joy-ride" shows, or their terminal stations to some independent aerodrome, such as either the R.A.F. Civil Aerodrome at Hounslow, or the Brooklands Aerodrome, when it is opened again.

It remains to be seen whether the proprietors of the London Aerodrome will make Hendon the great aerial show-ground of the British Empire, or merely a kind of miniature Coney Island appended to a firm manufacturing and dealing in aircraft and motors. Unless the present system of management is altered it will certainly not be the former.—C. G. G.

CIVIL AERIAL TRANSPORT NOTES.

UNITED KINGDOM.

A regular air service to Paris for passengers and goods has been organised by Aircraft Transport and Travel, of which General Festing is managing director. Airco machines will leave London at 4 a.m., arriving in Paris at 6 or 6.30 a.m., and cargo to the weight of 900 lbs.—consisting of newspapers or light urgently consigned goods may be carried. There will probably be space also for a passenger or two.

Flying in Lancashire.

According to the "Liverpool Echo" the "Birkdale Palace Hotel will commence a private service with several Avro machines. Guests who book rooms from the Isle of Man or Blackpool and wish to come by air will be waited upon by hotel aeroplanes." The term waited upon by hotel aeroplanes seems to need explanation.

Over a thousand passengers were carried in Avro machines at Blackpool and Southport during last week. Some passengers have become so enthusiastic about flying that they take the air regularly every day. Many have experienced all the thrills of looping, rolling, and spinning, and now want fresh sensations. sensations.

The Manchester-Blackpool service has been running twice daily despite heavy mist at Manchester on several occasions. High tides at Blackpool have somewhat curtailed flying, but the increase in the number of machines available —12 being now in commission—has enabled the amount of flying done to cope with the demand from passengers. All types of passengers, from children of 4 or 5 years to old men and women of 60 or 70, have made flights, and some have done as much as two or three hours in the course of the week.

A steady demand for long distance cross-country flights is springing up, but until fresh aerodromes are opened at popular centres these journeys cannot be executed. Flying both at Blackpool and Southport has taken place regularly without a day being missed for the past three weeks, and so far not a single accident has been recorded. A couple of broken tail-skids is the only damage to the machines.

Flying at Hounslow.

On June 4th, in spite of Air Ministry restrictions, 44 passengers were taken from Hounslow Aerodrome to a landing ground at Walton Heath Golf Club. Seven machines were employed. Cars took the passengers from the landing ground to the course, at Epsom, and all arrived in good time for the races.

Owing to the landing ground not being licensed, passengers were taken free. The weather conditions were most unfavourable, and just between four and five p.m., when the passengers began to return from the course, it was practically impossible to return owing to land fog and very low clouds. In spite of this the machines flew in formation back, taking thirty passengers to Hounslow. The remaining passengers were sent to London by car. These machines did three trips in formation.

The following cross-country flights were successfully carried out during the week:—One to Frinton-on-Sea; two to Hastings; one to Llandudno. In each case return flights were made.

Three machines left Hounslow on Saturday, the 6th inst., with passengers for the week-end for Margate. These machines flew at Manston Aerodrome during the week-end.

An interesting incident showing the use of aeroplanes for quick repairs took place on Sunday, the 7th inst. An Avro machine required urgent repair at Ringwood. Colonel Henderson left Hounslow by air at 8.15 a.m. for Ringwood. He refitted a magneto and despatched the repaired machine on its flight to Bournemouth, and was back at Hounslow Aerodrome at 10.45 a.m., a distance of 180 miles having been covered.

Five out of six of the pilots employed at Hounslow appeared in the Birthday Honours List on June 4th, four being awarded the Air Force Cross and one the Distinguished Flying Cross.

SCANDINAVIA.

A Commission composed of one representative each of Sweden, Denmark, Finland, and Norway to formulate a scheme of common air traffic legislation has been suggested by the Inter-Scandinavian Air Conference at Christiania.

The first official Scandinavian Air Traffic Conference, which began its sittings at Stockholm on June 2nd, closed on June 5th after discussing a scheme for the regulation of aircraft traffic for the four Scandinavian countries, including Finland.

The Conference recommended that common rules should be adopted for the granting of certificates for the efficient of aeroplanes and seaplanes, and discussed the question of the qualifications of applicants for pilot certificates, took into consideration various schemes for promoting air traffic, and asked the Governments concerned to nominate as soon as possible a Scandinavian Committee of experts, one for each country, to work out the details and draft a scheme of inter-Scandinavian legislation.

Finally, the Conference expressed the wish that the four Governments should come to an agreement with other nations to promote international air navigation.

By Error Again.

Owing to an unfortunate printer's error an illustration of the experimental Austin triplane which appeared in this paper recently was called an Austin biplane. A domesticated Naval officer points out that if the person who wrote the inscription had been a married man he would have had a better appreciation of the difference between two and three. One tenders apologies to readers of this paper for the error.

A SALE OF FABRIC.

The Aircraft Equipment Board, Disposal Section, Kingsway, W.C.2, are selling quantities of aeroplane fabric. The width of the material varies from 36 inches to 74 inches, and the price is from 1s. 8d. a yard to 4s. 6d.

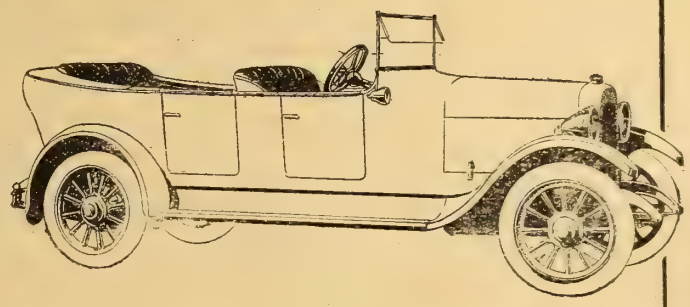
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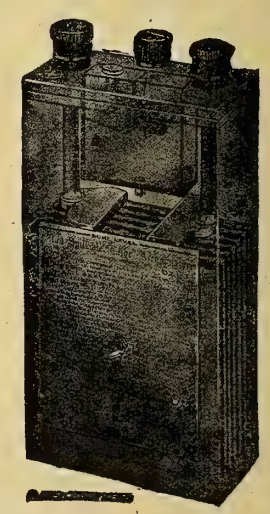
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AIRCRAFT FINANCE

PERSONAL INSURANCE OF PILOTS.

Insurance of Pilots.

It is very satisfactory to observe that the basis of aviation insurance is gradually broadening. True, one hears very little about the policy and intentions of the Tariff Offices. Stimulated by the action of the few enthusiasts at Lloyd's in creating a new venture to deal exclusively with aircraft, they also decided, it will be remembered, to enter the new sphere. There is a suspicion that they are purposely going "dead slow," hoping to benefit from the experience of the pioneers, and are not pushing aircraft exclusively, but treating the risks as a side line capable of bringing in general business.

Association with Shipping.

In these circumstances the recent appearance of the Aviation and General Insurance Company is to be welcomed. As implied by the title, it is to specialise in the business and must do some pioneering. It is sponsored by Lord Furness of the big shipping combine with ramifications everywhere. Apart from admiration of the spirit of enterprise on the part of the shipping magnate, one is particularly pleased to welcome the more intimate relationship thus established between the youthful and untried aviation industry and the firmly established shipping industry. Aviation, it cannot be denied, must follow in its development on the experience of the shipping industry, and this will be helpful and beneficial in many ways.

Specialisation.

The Aviation and General Insurance is going the "whole hog" in respect of all kinds of aircraft risks, but it is specialising in air pilots' personal accident business. This is worth noting. The greater the number of specialists the better, because by specialisation perfection is accelerated.

Details of the Policy.

These personal accident policies for pilots are comprehensive enough, it must be admitted. There are four sections, ranging from £1,000 payment at death in schedule A to £250 under schedule D, and combining claims for loss of a limb or of limbs, or an eye or of eyes, as well as compensation over a specified period in respect of total disablement. Alternatively one can cover the risk of death only without providing for the risk of accidents.

A Noteworthy Clause.

All this may appear to be the usual stodgy type of general insurance, but that inference is wrong. It is particularly specified that rebates of premiums are allowed if through sickness or accident the insured is prevented from flying during any period or periods of thirty consecutive days, or in the event of the insured failing to pass any medical re-examination required by the Air Ministry or other authority, subject to there being no claim under the policy and the total premium not being less than £20.

This provision should prove of considerable value and is worthy of consideration. The reservations are clear enough and quite reasonable, as is also that one which limits travel to the United Kingdom and France, it being provided that the area may be extended upon payment of an additional premium.

The Question of Costs.

The question of the premium is, of course, determined by the physical condition of the pilot, coupled with his or her qualifications, which, of course, is an important factor, just as the nature of the flying, which also enters into the calculations. A pilot with a clean record and first-class qualifications naturally expects better treatment than one subject to trouble and accidents.

A Multitude of Queries.

Conceivably the questions asked in the proposal form will provoke sarcasm. This is the case ever since aviation insurance became a reality, and really they seem to be too personal to the modest individual. But one must regard the matter from the point of view of the people accepting the risks. It is their business to accept reasonable risks at a reasonable premium, and therefore they must safeguard themselves against any physical or other deficiencies of the insured.

Aero Club and Arbitration.

An interesting feature that will please many people is that these pilots' personal accident policies are issued under the approval of the Royal Aero Club. Not only is this a novelty in some respects, but it is very significant that the Aero Club should take an active interest in this necessary branch of aviation.

As a matter of fact, it is specified in the policy that, should any question or difference arise under the policy, the matter shall be referred to an arbitrator appointed on the application of either party by the Committee of the Royal Aero Club.

All Kinds of Aircraft Risks.

The authorised capital of the Aviation and General Insurance Company is £1,000,000, of which £500,000 is subscribed and £100,000 paid up. It would be a mistake to suppose that because it is specialising in pilot insurance it is not so keen on other risks. On the contrary, it is out to develop aviation insurance business generally, including loss or damage to aeroplanes, third party indemnities, passenger insurance, passengers' effects, cargoes, postal packets, and accidents to persons or property caused by aircraft, etc. Thus the range of business is comprehensive, and this must be borne in mind.

Wm. J. Davies.

CURRENT TOPICS.

After the New Funding Loan.

Once the new Funding Loan is properly masticated and thoroughly digested the Financial World will be in a healthier condition. Therefore, it is imperative that everyone should help towards that desirable end, for the sooner normal business and industrial conditions are restored the more comfortable will things become. Reconstruction can then be proceeded with, not in the half-hearted, uncertain manner as now, but seriously, and with a hope of ultimate success. At present the Financial World may be likened to the small boy who ate too much pudding.

Cheerfulness not to be Expected.

Until the operation is out of the way there is not expected to be much activity or cheerfulness on the Stock Exchange, nor will it be so easy to raise the requisite money for financing new schemes. The stagnation is already apparent, and one finds little of interest to chronicle in relation to fluctuations in Aircraft and kindred securities.

Morane-Saulnier Profits.

The French Morane-Saulnier Co. reports a net profit for last year of 245,961 francs, compared with 755,388 francs for 1917, after providing 1,288,188 francs for war profits tax. It is pointed out that during the five years of the war the company has dealt with work to the value of 61 million francs, on which the profit approximated 10 million francs. Of this the State has taken 5½ million francs in the form of taxes. The dividend for last year is to be 8 francs per share with 16 francs on the parts.

AIRCRAFT IN PARLIAMENT

The following oral answers were given on May 29th :—

ROYAL AIR FORCE.—SURPLUS AEROPLANES.

Col. ASHLEY asked the Under Secretary of State to the Air Ministry if he will offer to the Overseas Dominions and Colonies some of the surplus aeroplanes now in the possession of the Air Ministry, with a view to their being used for postal and similar services

The UNDER SECRETARY of STATE for AIR (Major-Gen. Seely) : This question is at this moment being considered Perhaps my hon. and gallant friend will repeat his question next week. Since I drafted this answer a satisfactory conclusion has been arrived at by the Government and I hope to make a satisfactory announcement when the hon. Member repeats his question.

Lieut.-Col. ASHLEY : Will this be given as a free gift or will it be a purchase ?

Maj.-Gen. SEELY : As a free gift to the Dominions, the Crown Colonies, and to India.

Lieut.-Col. Sir SAMUEL HOARE asked the Under Secretary of State to the Air Ministry whether, in view of the high prices now being realised for obsolete and old motor cycles and cars being sold by Government Departments, it would be desirable to offer some of the new aeroplanes, now being broken up by his Department, to the public by auction sale so as to test the market on this matter.

Major-Gen. SEELY : The aeroplanes which are being reduced to produce are those which are obsolete for war purposes and unsuitable for civil aviation His Majesty's Government accordingly could not accept the responsibility of putting them on the market The responsibility of the Air Ministry ends when they have decided what machines are surplus and which of them are obsolete for service use and unsuitable for civil aviation. Thereafter the question of disposal rests with the Disposal Board under the Ministry of Munitions.

Lieut.-Col. S. HOARE : Why could not the right hon. gentleman put some of these on the market to see if there is a demand for them, and at the same time make it clear that any purchaser purchases them at his own risk ?

Major-Gen. SEELY : That is a matter for the Disposal Board of the Ministry of Munitions, and questions on that subject should be addressed to them.

Lieut.-Col. MOORE-BRABAZON : Have steps been taken to dispose of some of these machines to neutral countries for trade purposes ?

Major-Gen. SEELY : I have just announced the decision of the Government to make a free gift to the Dominions, Colonies, and India of those required for certain specific purposes, but the disposal of the machines is a matter for the Disposal Board of the Ministry, and I shall be obliged if the hon. and gallant gentleman will address his questions to them, as they have all the facts at their disposal.

YATE AERODROME (WOMEN AND GIRLS DISCHARGED).

Mr. RENDALL asked the Under Secretary of State to the Air Ministry whether he was aware that many girls and women who volunteered for work at the Yate (Glos.) aerodrome have been recently discharged and their places taken by other women; whether this action is locally regarded as unjust and results in the turned-off women receiving out-of-work donation; whether, as the result of newspaper correspondence, no women received fresh notices on Friday, May 16th, but many girls left that week owing to previous notices and eight or nine fresh ones were taken on; and will he say what justification there is for this conduct.

Major-Gen. SEELY : Apart from compassionate discharges (to which I presume my hon. friend is not referring) I find that thirteen members of the Women's Royal Air Force at Yate were recommended for discharge in April last. The work in certain branches had then greatly diminished and the least efficient workers were selected for discharge when the staff was reduced. Discharges were carried into effect as regards eight of the women on May 9th and as regards five on the 16th. Forty-seven members of the Women's Royal Air Force have since been enrolled, but only three of them, who were miscellaneous labourers, are of the same trade as those discharged. The women whose places they took were regarded as inefficient. Two civilian subordinates have also been discharged since April 1st and their places taken by two members of the Women's Royal Air Force.

Mr. RENDALL : Will my right hon. friend explain why women are turned off and receive out-of-work donation and at the same time an equal number are being taken on and being paid ?

Major-Gen. SEELY : I have asked for a full report from the officer commanding. I have not yet received it. I admit the point is somewhat obscure. If my hon. friend will repeat the question next week I hope to be able to give an auswer.

Lieut.-Commander KENWORTHY : Cannot discharged soldiers do this work instead of women ?

Major-Gen. SEELY : That raises a very big question. Where women are already engaged in doing work well it would be wrong to displace them if they are fully efficient for the work, and more efficient than men would be. It is a big question which I cannot argue at present.

SOUTH-EASTERN AREA HEADQUARTERS.

Lieut.-Col. Sir JOHN POPE asked the Under Secretary of State to the Air Ministry whether the headquarters of the South-Eastern Area is the only unit of the Air Force accommodated in No. 4, Thurloe Place; by what number of officers and men the strength of this unit has been reduced since November 11th, 1918; and how much further it is intended to reduce the strength after the signing of Peace

Major-Gen. SEELY : With the exception of two officers and three clerks the headquarters staff of the South Eastern Area is the only Royal Air Force unit accommodated at 4, Thurloe Place. On November 11th, 1918, the total numbers of this staff were sixty-four officers and 195 other ranks; yesterday the figures were sixty-seven officers, 173 other ranks and fifty-six civil subordinates. The increase shown has been made in consequence of the great increase of work due to rapid demobilisation. Thus, while the reduction of the whole force during the period mentioned is : Officers and cadets, 64 per cent., other ranks 74 per cent., an increase is necessary in the staff of the areas in order to complete the great volume of work involved in this rapid reduction, and assist in building up the smaller permanent force.

OCCUPATION OF PREMISES.

Major BOYD-CARPENTER asked the Under Secretary of State to the Air Ministry what is the Statute under which the Royal Air Force occupies premises; and whether an Order under the Defence of the Realm Act issued by the War Office is deemed to be valid in such a case.

Major-Gen. SEELY : The Statute under which premises can be compulsorily taken by the Royal Air Force is the Defence of the Realm Act, Regulation 2, made under that Act, provides for any competent naval or military authority taking possession of any buildings or other property, when it is necessary to do so for the purpose of securing the public safety or the defence of the Realm.

Major LANE-FOX : Has the right hon. gentleman any right to hand them over to the Insurance Commission ?

Major-Gen. SEELY : That is a legal matter. I should presume it must be legal, otherwise we should not have done it.

Major LANE-FOX : Has the right hon. gentleman taken the advice of the Law Officers ?

Major-Gen. SEELY : I am quite sure my predecessor must have done, because he was a most wise man, but I will inquire at once. It was before my time.

HALTON PARK CAMP (DISCHARGES OF MEN).

Mr. BRIANT asked the Under Secretary to the Air Ministry whether about 300 men have been discharged during the last month from the works now in progress at Wendover; if the cause for this is the delay in the passing of the plans for the continuation of the scheme; and, if this is so, will he take steps to see that there shall be no further delay involving, as it has, the discharge of many demobilised soldiers.

Major-Gen. SEELY : The recent discharges of men employed on construction work at Halton Park have been due to the approaching completion of buildings.

MISS DOUGLAS-PENNANT.

Sir ROBERT THOMAS asked the Under Secretary of State to the Air Ministry whether he has received a communication from Miss Violet Douglas-Pennant, dated May 3rd, which is a *prima facie* case, such as he required to have before granting the inquiry; whether an answer has been sent to Miss Douglas-Pennant; and whether he will now assure the House that the Government will fulfil its pledge and grant the inquiry ?

Major-Gen. SEELY : The communication referred to has been received and an answer sent. In the view of the Secretary of State, no case for a public inquiry has been made out. He has informed Miss Douglas-Pennant that he is prepared to publish the papers if the House desires it, and has asked what are her wishes in the matter. The Secretary of State has received no answer to his question, and, in view of the Debate which it is desired to have in another place, he has decided to lay the papers at once.

Sir R. THOMAS : Is the right hon. gentleman aware that a Committee of both Houses of Parliament has been sitting to consider Miss Douglas-Pennant's statement with corroborative evidence, and has come to the unanimous conclusion that a *prima facie* case has been established, and under these circumstances will the right hon. gentleman appoint a committee of this House to decide whether a *prima facie* case has been established or not, and not take the responsibility upon himself ?

Major-Gen. SEELY : I will communicate my hon. friend's views to the Secretary of State for War, who is dealing personally with the matter.

HAWKER-GRIEVE ATLANTIC FLIGHT.—RECOGNITION OF DANISH GALLANTRY.

Mr. CHADWICK asked if the British Government has officially conveyed to the captain and crew of the Danish steamer "Mary" its appreciation of their gallantry in rescuing Mr. Hawker and Commander Grieve in mid-Atlantic in a gale.

Mr. BRIDGEMAN : An expression of appreciation of the services rendered and the gallantry exhibited in the rescue of Mr. Hawker and Commander Grieve by the captain and crew of the Danish steamer "Mary" will be conveyed to the Danish Government for communication to the master and crew. The Board of Trade are considering what further recognition should be given. I take this opportunity of associating my right hon. friend and the Board of Trade with the general expression of satisfaction at the rescue.

Mr. J. JONES : Can the hon. gentleman tell us whether the Danes are to come under the Aliens Restriction Act ?

BRITISH CELLULOSE AND CHEMICAL MANUFACTURING COMPANY.

Mr L. RAPER asked when the report of Lord Sumner's Committee regarding the British Cellulose and Chemical Manufacturing Company will be forthcoming.

Mr. BONAR LAW : I regret that it is not possible for me to name a definite date, but I hope that it will be ready within a week or two.

AMERICAN AVIATION (TRANS-ATLANTIC FLIGHT).

Mr. GRANT (*by Private Notice*) asked the Under Secretary of State for Air whether, in view of the achievement of American aviators in crossing the Atlantic, suitable arrangements have been made to welcome the flying-boat N.C.4 on its arrival in this country, so that our admiration for the exploit may be publicly expressed.

Major-Gen. SEELY : Yes, Sir. All possible arrangements are being made by the Air Ministry to give fitting reception to these intrepid American aviators so soon as they have completed their course. Our flying-boats and seaplanes will meet them, if possible, and escort them to Plymouth. Our Air Station at Cattewater is arranging to entertain them, and I am informed that the naval, military, and civil authorities will co-operate in every way possible. I may add that my latest information is that the N.C.4 has not yet started. It is expected to start to-morrow.

[This was on May 29th. The leading article this week shows how officialdom keeps its word.—Ed.]

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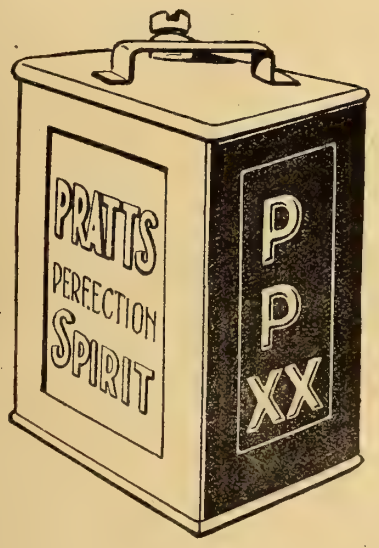
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AERONAUTICS and The LAW

CURIOSITIES OF AIR LEGISLATION.

By "THE LINCOLN IMP."

The Fountain Pen of the Law.

Until after the Armistice "Thou shalt not fly" was the sum and substance of legislative air law. Then came the Aerial Navigation Act, 1919. This is a temporary Act to endure until 1920 only. It empowers a Secretary of State to regulate Aerial Navigation. The only restrictions on the extreme generality of this language are that his powers of regulation are limited to the British Isles and the territorial waters adjacent, and that he is to legislate "by order." As soon as made, his orders are law, but they must be laid on the table of the House and are liable to be annulled on address.

Our Sovereign, on land and at sea, is the King in Parliament. But in this matter of air law the Sovereign has all but abdicated in favour of Mr. Churchill, whose sceptre is a pen. It is a self-filling fountain pen which the Secretary for Air wields, and he supplies his own ink.

The Air Navigation Regulations, 1919.

Mr. Churchill the Lawgiver, in pursuance of his powers, has signed the Air Navigation Regulations, 1919. You have read or glanced over them in The Aeroplane. The Imp regrets to have to record his opinion that the fountain pen has a bad nib. The Regulations are ill-drawn. Not that they do not set forth much that is of value. Not that it could be expected of such an experimental production that it should be above reasonable criticism. But that in fact and in truth the language of the Regulations is often inapt, their meaning obscure, and their form and conception not worthy of the subject.

The Imp is no iconoclast, but recognises that criticism is only valid and useful if directed towards reconstruction. He will therefore not seek to destroy what he conceives to be ill-drawn without suggesting a substitute. But healing treatment may be drastic!

The Art of Drafting.

The Air Regulations suffer from bad conception, bad arrangement, bad drafting, bad grammar, bad law, and bad language. But their substance is not bad.

Mind speaks to mind through the medium of words. The art of selecting the appropriate words and so arranging these words as to convey the mind of the Sovereign to the mind of the subject has the technical name of drafting. Drafting, like all other arts, has its technical terms of art and its technical modes of expression. The draftsman of the Regulations has ignored the art of drafting. It is a rule of this art that any change of expression implies a change in the meaning to be conveyed. The draftsman of the Regulations prefers the literary convention that the repetition of identical phrases is odious. Hence his work is bad drafting. But he cannot plead in extenuation that it is good literature either. For he ignores also the rules of grammar—"The aerodrome at which he departed."

Bad Conception and Arrangement.

The Imp finds the Regulations ill-conceived and ill-arranged. Problems of intention and of evidence are not fully thought out. Principles are not framed and applied with consistency. Penalties are not varied so as to adapt them to the crimes. There is lacking any vision of the Merchant Air Fleet of the future. The arrangement is bad.

Tiring of Regulation No. 1, which is disjointed and long, the draftsman starts a new one "without prejudice" to the last. Tiring of this again, he bethinks him of Schedules, and after inserting a reference to these his mind wanders to the future and he takes power to issue "Directions."

After these little excursions he reverts to the business in hand and regulates aerodromes, then makes safety provisions. Next he jumps to licences, returns to aerodromes and factories, and proceeds to his exceptions, which he places before the penalties from which exceptions have to be made. After a further reference to licences, the draftsman then concludes in the orthodox fashion with Interpretation, Saving, and Short Title. Eight Schedules follow which are just more Regulations.

Bad Classification.

Classification is inartistic when made on more than one principle. A division of "Mankind" into White Men, Women, Airmen, and Lawyers is a cross-classification and bad. The Imp, out of curiosity, has counted the separate principles on which "Aircraft" are classified in the Regulations. He finds them to be 12—viz.: (1) Mode of support or propulsion. (2) Ownership. (3) Registration. (4) Purpose for which intended to be employed. (5) Purpose for which actually employed. (6) Point of arrival or departure. (7) Type. (8) Flying by night or by day. (9) Position relative to other aircraft. (10) Position relative to the earth, air, or water. (11) Position relative to the U.K. (12) Intentions of their pilot and other people. Such a classification is bad.

Redundance and Ambiguity.

Three times is one enjoined in the Regulations that the rules as to lights and twice that the rules of the air must be complied with. On inspection many other redundancies will be found, and the Regulations will be seen to abound in ambiguities. The Saving contains what is perhaps the neatest of these: "Nothing in these Regulations shall be construed as conferring any *right to land* in any place as against the owner of the *land* or other persons interested therein." In spite of its immediate context the first "land" seems to be meant as a verb and not a noun. It is "*adire*," not "*solum*." Here is another: "No aircraft entering the U.K. from abroad shall land *for the first time* in the U.K. except at an appointed aerodrome." Suppose it does not land *for the first time* in the U.K., but for the second or subsequent time. Has an aircraft flying from Paris to Manchester, which lands for the first time at Marquise and next time at a non-appointed aerodrome near Manchester, contravened the regulation

Oversight and Contradiction.

The use of parachutes is expressly forbidden by the Regulations—apparently by an oversight. "When looking up-wind the right-hand one shall be the taking-off zone" (Rules of the Air, No. 40). This zone is the landing-zone in the illustration, and the taking-off zone is on the left. The drawing seems correct and the text must be wrong.

[This has since been corrected by the Air Ministry.—Ed.]

Uninterpretable Interpretation.

Some care has been displayed in drafting the interpretation clause, but without attaining perfection. Let us examine first the best attempts:—

"*Aircraft*" includes airships and flying machines, all balloons whether fixed or free, and kites.

"*Airship*" means an aircraft lighter than air and having means of propulsion.

"*Balloon*" means an aircraft lighter than air and having no means of propulsion.

"*Flying machine*" includes aeroplanes, seaplanes, flying boats, and other flying machines heavier than air, and having means of propulsion.

In the light of these definitions how should we answer the following questions?—

(1) Is a kite-balloon when attached to a moving motor-lorry on land or to a ship in motion on the sea (a) an aircraft, (b) an airship, a balloon, or a kite, (c) a fixed or free balloon?

(2) Is an aircraft lighter than air whose means of propulsion has broken down an airship or a balloon? Which is it when being towed (a) by a lorry or a ship, or (b) by an airship or a flying machine?

(3) What is an airship or a balloon which has become heavier than air?

(4) When is a flying machine not a flying machine? When its engine having seized up, it has no means of propulsion!

(5) What is propulsion? Does it include (a) ascension, (b) retrogression, (c) traction, (d) descent? Are gravity and displacement respectively means of propulsion?

Impudent Alternatives.

In pursuance of his promise that his criticism shall be constructive, The Imp has designed alternative definitions. They are these:—

"*Aircraft*" includes airships, flying machines, balloons, and lifting kites.

"*Airship*" means an aircraft designed to be lighter than air and to have means of self-propulsion.

"*Flying machine*" includes aeroplane, seaplane, flying-boat, and any other flying machine designed to be heavier than air and to have means of self-propulsion.

"*Balloon*" means an aircraft designed to be lighter than air and to have no means of self-propulsion. It includes an attached and a free balloon.

"*Attached balloon*" means a balloon which is attached to some external object. It includes a fixed balloon.

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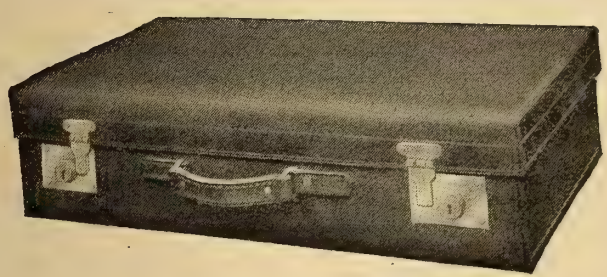
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"*Fixed balloon*" means a balloon purposely attached to some external object designed to be stationary.

"*Free balloon*" means a balloon which is not purposely attached to any external object.

"*Lifting kite*" includes a kite or series of kites designed for lifting a person or other considerable weight. It does not include a kite-balloon.

"*Glider*" means a machine designed for gliding-flight only and without means of self-propulsion. It is not an aircraft.

"*Air tow*" means an aircraft in the air and having attached to it a means of propulsion external to itself.

"*Air tug*" means an aircraft in the air and attached as a means of propulsion to an object external to itself.

"*Propulsion*" includes tractive and propulsive motion in all directions, but does not include motion imparted by the winds or due solely to the force of gravity.

(*To be continued.*)

THE ROYAL AERO CLUB.

A Special Meeting of the Committee was held on Monday, June 2nd, 1919, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair, Mr. Ernest C. Bucknall, Lieut.-Col. John D. Dunville, R.A.F., Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. Alec Ogilvie, and Mr. H. E. Perrin, Secretary.

New Members.

The following new members were elected:—

Capt. Charles Keith Chase, R.A.F.; Lieut.-Col. Harold Borlase Triscott Childs, R.A.F.; Capt. Joseph Terry Chitty, R.A.F.; Capt. John Dennis Coales, R.A.F.; Capt. Francis Patrick Dickson, R.A.S.C. (M.T.); Major Albert Edgar Gendle, R.A.F.; Capt. Vincent Greenwood, R.A.F.; Capt. Edward Gribben; Capt. Charles Ernest Hilton-James, R.A.F.; Herbert Osborn Lewis; Lieut. Ralph Charles Michaelson, R.A.F.; Major James Herbert Tyler, R.A.F.; Lieut. Philip Basil White (East Surrey Regt.); Capt. Henry Roger de Wilde, R.A.F.

Federation Aeronautique Internationale.

The report of the Conference of the Fédération Aéronautique Internationale held in Paris on May 19th, 20th, and 21st, 1919, was received from the delegates, Lieut.-Col. Mervyn O'Gorman, C.B., Lieut.-Col. Alec Ogilvie, and Lieut.-Col. F. K. McClean. Full details of this report will be issued later.

A unanimous vote of thanks was passed to the delegates who attended the Conference on behalf of the Royal Aero Club.

The Flying Services Fund Committee.

The grants and allowances made by the Flying Services Fund Committee at its meeting on May 28th, 1919, were confirmed.

N.C.4.

The crew of the N.C.4, accompanied by representatives of the U.S. Naval Forces operating in European Waters, visited the Royal Aero Club on Sunday, June 1st, immediately on their arrival in London, and met with an enthusiastic welcome.

In response to a congratulatory message from the Chairman of the Royal Aero Club, the following cablegram was received from Rear-Admiral H. S. Knapp, U.S.N.:—

> "The Duke of Atholl, Chairman, Royal Aero Club, I thank you sincerely for your own congratulations and those of the members of the Royal Aero Club on the successful crossing of the Atlantic by the United States Seaplane N.C.4. I shall take pleasure in bringing to the attention of the Commander of the N.C.4 your courteous message.—Knapp."

£10,000 Prize Offered by the Australian Government for a Flight from Great Britain to Australia.

The following entries have been received:—

Lieut. Bert Hinkler: Sopwith "Dove" biplane, 80 h.p. Le Rhône engine.

Lieut. C. Kingsford Smith and Lieut. V. Rendle: Blackburn "Kangaroo" biplane, two 250 h.p. Rolls-Royce Falcon engines.

The Flying Services Fund.

A meeting of the Flying Services Fund Committee was held on Wednesday, May 28th, 1919, when there were present:—H.R.H. Prince Albert, K.G., in the Chair, Mr. Chester Fox, Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Brig.-Gen. R. H. More, C.M.G., and Mr. Harold E. Perrin, Secretary.

Chairman.

On the motion of Brig.-Gen. R. H. More, C.M.G., seconded by Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., H.R.H. Prince Albert, K.G., was elected Chairman.

Grants and Allowances.

The following grants and allowances were made:—

(36) An allowance of £5 a month for six months to the widow of a Leading Mechanic in the Royal Naval Air Service who had been killed on active service.

(47) An allowance of £3 a month for six months to the widow of a Corporal in the Royal Flying Corps who had been killed on active service.

(67) An allowance of £2 a month for six months to the mother of a 3rd Class Air Mechanic in the Royal Flying Corps who had been killed on active service.

(97) An allowance of £2 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who had been killed on active service.

(107) An allowance of £1 a month for six months to the mother of a 3rd Class Air Mechanic in the Royal Flying Corps who had been killed on active service.

(118) An allowance of £4 a month for three months to the mother of a 3rd Class Air Mechanic in the Royal Air Force who had been killed on active service.

(179) A grant of £10 to an ex-2nd Class Air Mechanic in the Royal Flying Corps who had been incapacitated on active service.

(193) An allowance of £4 a month for 12 months, to cover rent, rates, etc., to the mother of a Sec. Lieut. in the Royal Flying Corps who had been killed on active service.

(202) An allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who had died on active service.

(203) An allowance of £2 a month for six months to the mother of a 1st Class Air Mechanic in the Royal Air Force who had been killed on active service.

(205) An allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who had died on active service.

(206) An allowance of £2 a month for six months to the mother of a Private in the Royal Air Force who had died on active service.

(207) An allowance of £3 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force who had died on active service.

(208) An allowance of £4 a month for three months to the mother of a Cadet in the Royal Air Force who had died on active service.

(209) An allowance of £2 a month for six months to the mother of a 2nd Class Air Mechanic in the Royal Air Force who had died on active service.

(210) An allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who had died on active service.

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Total subscriptions received to May 6th, 1919.....	15,001	9	10
Proceeds of Church collections at the Headquarters, North-Western Area, Royal Air Force, Glasgow	3	13	6
Headquarters, South-Western Area, Royal Air Force, Salisbury (tenth donation, making a total of £1,186 3s. 6d.)	50	0	0
Collected by H. Leslie Rollett	4	6	1
Collections made at Church Parade at No. 143 Squadron, Royal Air Force, Detling (second contribution)	1	0	0
Max Worms	2	2	0
Total, June 3rd, 1919	£15,062	11	5

THE POSSIBILITIES OF AVIATION IN PERU.

The paper read before the Royal Aeronautical Society on Wednesday, May 28th, by Mr. G. M. Dyott, late Squadron Commander, R.N.A.S., on the possibilities of the commercial use of aircraft in Peru proved to be of extreme interest.

Mr. Dyott departed very considerably from the printed paper, mainly because the extraordinarily interesting lantern-slides and cinema films shown called for a detailed description of the country. The spoken word and the illustrations must therefore be regarded as a complement to the written lecture which gives Mr. Dyott's opinions as to some of the possibilities of aviation in this little known part of the earth.

Those who heard the lecture must have received a very vivid idea of a country with an extraordinary mixture of very serious obstacles to the use of aerial vehicles, and entirely unexpected natural facilities for landing grounds.

Those who read the paper as printed will gain a very high idea of certain possible ways of overcoming the apparent obstacles and turning the natural facilities to profitable use.

It must be regretted that so excellent a series of pictures and so interesting a discourse should have been handicapped by the extraordinarily bad projection arrangements, and the defective acoustic properties which characterise the Theatre of the Royal Society of Arts.

Mr. Dyott's verbal description of the country in question cannot be reproduced to any effect without the use of the cinema pictures which illustrate it, and one must, therefore, content oneself with an abstract of the printed paper:

THE PAPER

To anyone who has made a careful study of aeronautics and its possibilities in the commercial world it is evident that South America offers unusual opportunities for development by aircraft, and of all South American countries Peru, on account of its climate, its rich natural resources, its geographical position, and its peculiar topographical configuration, is almost ideal. To fully appreciate the significance of this remark it is necessary to have a very clear conception of all those factors which go to make aerial transport a commercial possibility.

The topography of the country is of peculiar interest because it is more marked and more intense than that of any other part of the great American continent. Sandy desert vibrating with heat; mountain peaks glistening with perpetual snow; deep rocky gorges and vast tropical forests are all within a few days' ride of each other. In the interior we find that distances are relatively short, but the difficulties encountered in traversing them are colossal. Range after range bars the traveller's progress as he journeys eastward from the coast, and when after weeks of incessant travelling he finally emerges on the flat ground of the Amazon and its tributaries his passage is blocked by miles of impenetrable forest through which it is impossible to proceed farther.

Forced to travel by river, periodic whirlpools and rapids make



A possible alighting place in the Andes. The lake in the foreground is three-quarters of a mile across and at an altitude of several thousands of feet.

progress slow and dangerous. Even when these are left behind, submerged logs are a continual menace to navigation; besides, the river, as it winds and wriggles over the low-lying ground, covers two or three times the actual distance represented by a straight line drawn from point to point.

This, then, is the dominant reason for regarding Peru as so amenable to aeronautical exploitation, especially when on top of all it is remembered that many of these inaccessible districts are rich in mineral and other natural resources which make it worth while bringing them within reach of the outside world.

On the coast there is an infinite number of natural landing grounds available, and even amongst the high peaks of the Andes there are frequent table lands of considerable size which could be drained and levelled at no great cost.

In the region of woods the rivers afford mile after mile of waterways upon which hydro-aeroplanes could alight.

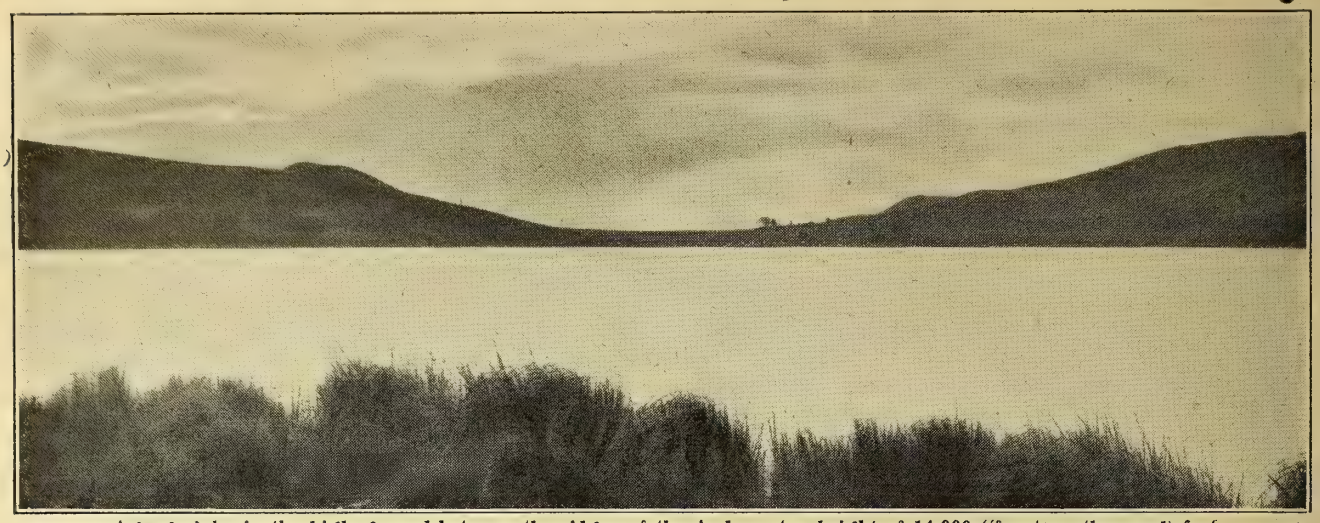
The mountain ranges would probably be the worst obstacles to overcome, but the highest of these need not be tackled at the outset, and much valuable work could be immediately accomplished on the coast. At a later period routes could be established over the lower passes of the Andes, such as Huarmaca, and then in the light of additional experience the highest ranges could be surmounted with ease.

In the general scramble of recent years to produce war machines of startling performance the question of cost has been almost entirely lost sight of. The fact that an aeroplane could accomplish things which no other known mechanism could do was sufficient to justify its existence. In the business world an entirely different state of affairs exists and cost is the final verdict upon which the art must sink or swim.

A comparison of costs between canal barge, railway, motor lorry, and aeroplane shows that the cost per ton-mile varies



The Valley of the Maranon, the actual main stream of the Amazon. Not a suitable landing ground for anything but the "very slow speed machines with claws" suggested by Mr. Dyott.



A large lake in the high ground between the ridges of the Andes, at a height of 14,000 ((fourteen thousand) feet.

from a small fraction of a penny in the first case to as much as eighteen or nineteen shillings in the last.

In the face of this very alarming figure it is by no means easy to define just what position is occupied by aircraft in the world of transportation.

If I were called upon to do so I would say that it is not a load-carrier, but essentially an expensive piece of machinery for saving time. Now throughout all Latin American countries, with the exception of a few large cities, time is of little or no value. Therefore there is no need of introducing costly machinery to save it.

There can be no doubt but what the opportunities for saving time are extraordinarily great, but this feature can only be appreciated by those who have travelled through the interior.

A typical example may serve to illustrate the point. Bauga-Chica, a small but important town on the Utcumamba river, is barely 140 miles from the Pacific coast. Yet to travel there by present means of locomotion takes two whole weeks of hard riding on mule back. A moderately fast aeroplane could accomplish the journey under two hours.

Briefly, we find Peru and its adjacent Republics highly susceptible to development by aircraft, but the most important element of all which would justify such costly means of locomotion is almost entirely lacking. Fortunately, Peruvians on the coast are already beginning to fall in line with modern ideas, and Europeans, to whom time is a very valuable asset, are acquiring large business interests all over the country, and their wants will have to be considered.

It would be a fatal error to count on the support of local inhabitants in any shape or form. Of course there are a few exceptions, but the very people to be benefitted might be openly hostile. Quite recently the Columbian Government was approached by an American firm with a view to establishing aerial service between Bogota and the coast. After some discussion the authorities replied that should the venture prove a failure it probably meant fatal accidents in which Columbians would be killed. If, on the other hand, it was successful, then a lot of foreigners would be brought to the capital, both of which alternatives were undesirable. This is typical of the attitude of the inhabitants of many sections of South America.

An aeroplane cannot possibly compete in the transportation of freight and merchandise with other means of locomotion under normal conditions. When abnormal conditions obtain, an aerodrome can often come to the rescue and show a profit.

The following typical examples of abnormal conditions in Peru are well worth serious consideration in view of the fact that others of a similar nature can be found.

On the east side of the Maranon river, near Soledad, in the department of La Libertad, are some gold-mines being developed by a Russian, Sr. Tarnivisky. About 60 tons of material and machinery have been brought up from Salaverry on the coast 90 miles away at a cost averaging £100 a ton. It has taken three full years to do this, and another six months will have passed before the mine and mill are in operation.

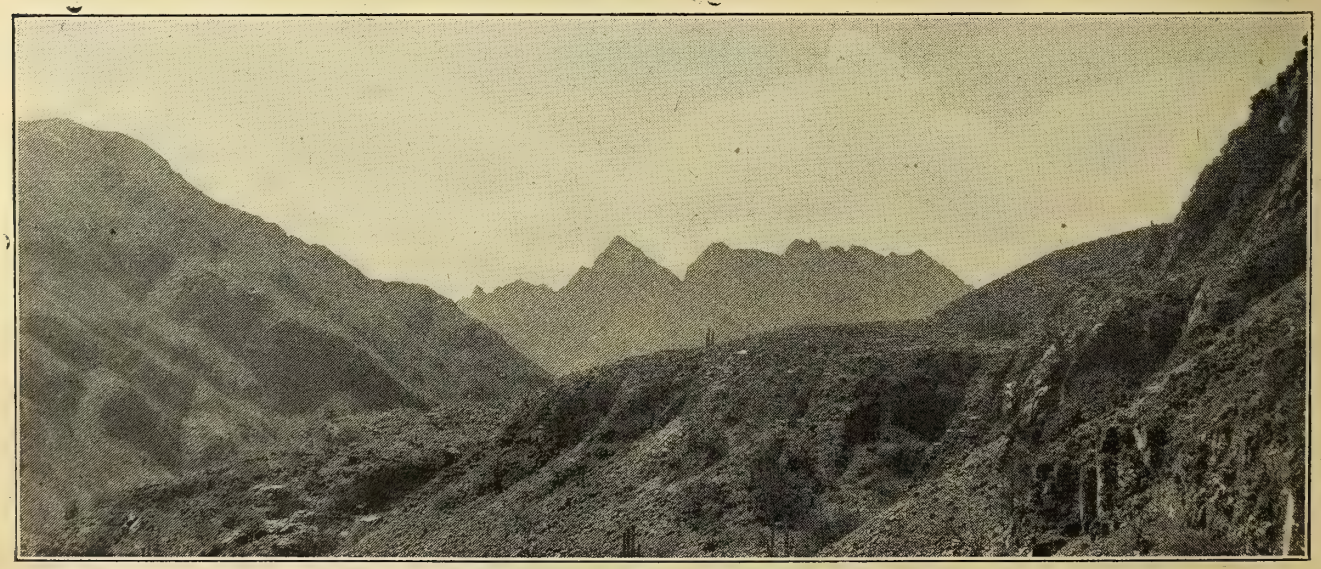
A suitable aeroplane would have moved the same freight with the greatest ease within six months and shown a profit at the same rate of £100 per ton. The profit would not have been all on the side of the transportation company either, as the owners of the mine would have started production three years earlier and thus saved interest on capital for three barren years, to say nothing of profits that might have been made during that time had the mine been working.

The machinery was all built in special small sections suitable for mule transport. This increased its first cost and delayed delivery. An aeroplane could have transported every piece in its normal section.

Sr. Sota, the manager of the mine, figured out that the company could have afforded to pay £140 a ton to get the machinery on the ground within a year.

It so happened that but a short distance above the mine was a large pampa and of such proportions as to make an excellent landing ground at very little cost. Not only would the mine have benefitted, but the villages of Soledad, Parcoy, and others which now lead a life of complete isolation, although only 90 miles from the coast.

(To be continued.)



A typical scene in the " Puna lands " of the Andes.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

ADMIRALTY, May 30th.

Lt. to be Lt.-Comdr. :—F. G. Brodribb, May 30th.

AIR MINISTRY, June 3rd.

R.A.F.—The following temp. appointments are made at the Air Ministry :—Staff Officers, 1st Cl.—Lt.-Col. T. E. St. C. Daniell, O.B.E., M.C. (T.), Maj. G. Laing, O.B.E. (T.), Maj. J. H. Hills, O.B.E. (D.), Maj. A. L. C. Neame (Q.), Capt. H. Cumming, O.B.E. (T.), Capt. L. P. Ball, O.B.E. (Q.), Capt. R. W. Thomas (Q.), May 1st.

Staff Officers, 2nd Cl.—Maj. P. C. A. Bridgeman (T.), Maj. O. H. Powell (T.), Capt D. W. Wilson (T.), Capt. R. G. Lord St. Oswald (Q.), Capt. W. H. G. Maton, M.B.E. (Q.), Capt. C. Mason (Q.), Lt. G. W. Longstaff (T.), Sec. Lt. F. A. Holmes (Q.), May 1st; Capt. L. Auker, O.B.E. (Q.), May 14th.

Staff Officers, 3rd Cl..—Capt. C. Rayner (T.), Capt. T. G. Skeats (T.), Capt. W. Burkinshaw (T.), Capt. H. L. Crichton (T.), Capt N. R. Fuller (T.), Capt. F. D. Newbury (T.), Lt. (Hon. Capt.) H. W. Clarke (Q.), Lt. H. F. Walker (T.), Lt. F. E. Hobley (T.), Lt. C. H. Masters (T.), Lt. H. P. Bridges (Q.), Lt. H. J. Birtles (Q.), Sec. Lt. (Hon. Capt.) D. R. Thomas (Q.), Sec. Lt. (Hon. Lt.) W. E. Harper, M.C. (T.), Sec. Lt. (Hon. Lt.) T. H. Evans (T.), Sec. Lt. A. K. Murray (Q.), Sec Lt. E. L. Ridley (Q.), Sec. Lt. A. T. Cooper (Q.), Sec. Lt. W. J. Bray (Q.), Sec Lt. T. H. Sills (Q.), Sec. Lt. A. J. Somers (Q.), Sec. Lt. B. F Browne (Q.), May 1st.

Staff Officers, 4th Cl.—Lt. A. H. Comfort (T.), Lt. L. T. Sanderson (T.), Lt. J. T. Vernon (T.), Sec. Lt. C. H. Boreham (T.), Sec. Lt. C. Y. Mitchell (T.), Sec. Lt. J. Hobbs (T.), Sec. Lt. D. W. Dean (T.), May 1st.

The following temp. appointments are made :—Staff Officers, 2nd Cl. (P.).—Maj. W. G. W. Prall, May 27th

Staff Officer, 3rd Cl. (P.).—Lt. F. V. Goode, April 9th, and to be actg. Capt. until April 30th.

FLYING BRANCH.—Lt.-Col. C. R. Finch-Noyes to be Lt.-Col. (A. and S.), from (S.O.), March 5th (substituted for notification in "Gazette," May 9th).

R. Williams, D.S.O. (Lt.-Col., Australian Flying Corps), is granted a temp. supplemental Commn. as Lt.-Col. (A.), June 28th, 1918 (substituted for notification in "Gazette," April 8th).

Capt. F. W. Hudson to be actg. Maj. while empld as Maj. (A.), from Dec. 30th, 1908, to April 30th.

Capt. O. R. Griffin to be graded for pay and allowances while empld as Capt. (A.), from Aug. 1st, 1918, to April 30th

Lt. G. E. Tugwell to be actg. Capt. while empld. as Capt. (A. and S.), from Aug. 1st, 1918, to April 30th

Lt. H. D. Lewis to be actg. Capt. while empld. as Capt. (K.B.), from May 31st, 1918, to April 30th.

Lt. T. J. Gillow to be Lt. (A.), from (Ad.), Jan 20th

Sec. Lt. V. Ross to be Lt., Sept. 6th, 1918.

Sec. Lt. H. W. F. Pennick (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt. (A.), Dec. 30th, 1918.

Sec. Lt. S. C. Paice (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt. (A.), May 1st (since killed).

29702 Flt. Comdt. F. R. Atkinson is granted a temp. commn. as Sec. Lt. (A.), Oct. 18th, 1918.

The following relinquish their commns on ceasing to be empld. :—Sec. Lt. (Hon. Lt.) W. J. Kolosoff, M.M (Lt., B. Col. R.), Feb. 3rd; Lt. L. Holman (Lt., Hussars), Feb. 14th; Lt. G. G. Edgell (Lt., Gen. List), Feb. 16th; Sec. Lt. (Hon. Lt.) W. J. Jackson (Lt., Rif. Bde.), Feb. 24th; Capt. (actg. Maj.) P. A. Landry (Capt., B. Col. R.), Feb. 28th; Lt. F. C. Aulagnier (Lt., Essex R.), March 14th; Lt. R. H. Lev (Lt., B. Col. R.), March 17th; Lt. (actg. Capt.) C. H. J. James (Capt., Can. M.G.C.), March 21st; Lt. H. L. Kennedy (Lt., E. Ont. R.), March 31st; Lt. (Hon. Capt.) E. M. Ashton (Capt., Suff. R.), April 1st; Lt. S. A. Villier (Lt., R.F.A.), April 3rd; Sec. Lt. (Hon. Lt.) L. A. W. Knight (Lt., Worc. R.), April 11th; Sec. Lt. (Hon. Lt.) C. D. Moorhead (Lt., Manchester R.), April 14th; Lt. (actg. Capt.) G. F. Armstrong (Capt., E. Ont. R.), April 24th; Lt. (actg. Maj.) L. Scott, D.C.M. (Capt (actg. Maj.), E. Ont. R.), May 8th; Lt. (actg. Capt.) C. B. Cowley (Capt., E. Ont R.), May 12th; Lt. B. Cockshott (Lt., B. Col. R.), May 16th; Sec. Lt (Hon Lt.) A. R Cowan, May 19th; Lt. (Hon. Capt.) Sir R. T. Leighton (Capt., West. and Cumbld Yeo.), May 27th.

Transferred to the unempld. list :—Lt. R. S. Gregory, Jan. 28th; Lt. L. J. Frost, Jan. 29th; Sec. Lt. (Hon. Lt.) C. F. Laxton, Feb. 3rd; Sec. Lt. R. Bond, Feb. 7th; Lt. G. Bullen, Feb. 11th; Lt A. H. Burton, Feb. 11th (substituted for notification in "Gazette," Feb 28th); Sec Lt. G. A. Pearson, Feb. 16th; Lt. G. Graham-Green, Feb 21st; Sec Lt D. McG. Spencer, Feb. 27th; Sec. Lt. W. K Van-Ness, Feb 28th; Lt. R. Biggar, Sec. Lt. R. M. Rodgers, March 1st; Sec. Lt. J. F Dodd, March 4th; Lt. J. C. Anderson, March 6th; Sec. Lt. W. C. Allardyce, March 7th; Sec. Lt. (Hon. Lt.) J. Scott, March 12th; Sec. Lt. M. H. Davis, March 15th; Lt. W. Seagram (R.F.A.), March 15th; Lt A. T. Smith, March 26th; Lt. F. Shepherd, March 27th; Lt W. E. Watt, March 31st; Sec. Lt. W. J. H Hawkins, Lt. J. A. Hesselden, Lt. B. V. Richardson, Sec. Lt. G. N. Russell, Sec. Lt. C. J. Robinson, Sec. Lt. J. G. Spence, Sec. Lt. C. G. Tallmadge, Sec. Lt. T. L. Watson, April 1st; Lt. A. L. Greer, Capt. P. G. Williams, April 4th; Lt (actg. Capt.) J Gregory (R.F.A., T.F.), Sec. Lt. O. H. White, April 5th; Sec Lt. S. Lovett, Lt. (actg. Capt.) G. W. Shuter, April 7th; Lt. H. L. Young, April 9th; Capt. D. E. FitzGibbon, D.S.C., Sec. Lt. W. A. Wilson, April 10th; Sec. Lt. E. Henriques, Lt. H. I. Sier, Capt. T. P. Whitcomb, April 11th; Sec. Lt. H. Godfrey, April 12th; Lt. R. E. C. Spencer (Wilts. R.), Sec. Lt C. M. Willy, April 13th; Sec. Lt. T. W. Griffiths, Sec. Lt H. H. Gardner, April 14th; Capt. (actg. Maj.) E. Cadbury, D.S.C., D.F.C., Lt. E. J. Frich (London R., T.F.), Lt. V Henry, Sec Lt A. C Heyes, Lt. W. A. McKay, Sec. Lt. E. P. Nickless, Lt. R. Waugh, Lt. W. M. Wessel, Sec. Lt. L. Wilson, April 15th; Sec. Lt. F. G. New, Sec. Lt. E. H. Smy, Sec. Lt. D. West, Lt. P. W. Smith, April 16th, Capt. V. D. Drury, Lt. F. J. O'Shea, April 17th; Sec. Lt. N. Wallace, Sec Lt. L. Wyeth, Sec. Lt. H. R. Wolton, Sec. Lt. R. D. Wayman, April 18th; Sec. Lt. T. F. Birbeck, Sec. Lt. P. H. Carson, Sec. Lt. H. G. Darroch, Sec. Lt. W. H. Doherty, Sec. Lt R. J. Groome, Sec. Lt. R. G. Lockwood, Sec. Lt. W. T. Martin, Lt. W. H. O'Neail, Sec. Lt. E. L. Peters, Sec. Lt. J. Priestman, Lt. G. L. Vezine, April 10th; Capt. C. F. Denning, M.C. (R. West Surr R.), Sec. Lt. N. I. Spencer, Lt. C. F Warren, April 21st; Lt. (actg. Capt. P. W. Spurr (R. Berks. R.), Lt. S. G. Williams, Lt. H. J. Youngman, April 22nd; Sec. Lt. R. E. La F. Wyatt, April 24th; Maj. A. Somervail, M.C., A.F.C., Lt. C. H. Williams, April 26th; Sec. Lt. F. G. Lake, Lt (Hon. Capt.) E. T. Lavarack, Capt. H. Shaw, April 27th; Lt. E. S. Williams, Sec. Lt. J. Wooding, April 28th; Capt S. G. Gilmour, Sec. Lt. C. W. Gill, Lt. E. D. Salthouse, Capt. R. N. Wolton, April 29th; Capt. T. P. M. Alexander, Lt. G. F. Dell (Yorks. R., T.F.), Lt. S. S. Henry, Lt. J. Henry, Sec. Lt. G. A. King, Sec Lt (Hon. Lt.) J. C. F. Wilkinson, M.C., April 30th; Sec. Lt. N. E. Smith, May 1st; Sec. Lt. G. H. Collins, Sec. Lt. O. H. P. Lloyd, Capt. J. A. Shaw, Sec. Lt. E. F. Shaw, Sec. Lt. A. S Sinclair, May 2nd; Lt K. Norwood, Capt. W. H. N. Shakespeare, M.C., A.F.C., May 4th; Capt. M. B. Frew, D.S.O., M.C., May 5th; Sec. Lt. C. M. Tupling, May 6th; Maj. K. S. Savory, D.S.O., May 7th; Sec. Lt. D. W. Harris, Capt. R. M. Stirling, Lt R. B. L. Taylor (S. Lan. R.), May 8th; Lt. L. N. T. Stuart-Campbell, Sec. Lt. J. Tibbatts, Lt. T. C. Stewart, May 9th; Sec. Lt. (Hon Lt.) F. E. J. Shiner, M.C., Capt. T. G. C. Wood, May 10th; Sec. Lt. R. C. Cornell, Sec. Lt. A. S. Cowlishaw, Capt. C. F. Davies (R. Highrs., T.F.), May 11th; Lt. R. J. Aitken, Sec. Lt. H. D. Anderson, Sec. Lt. H. O. K. Ayling, Lt. T. B. Tully, A.F.C., May 12th; Lt. (Hon. Capt.) P. A. Broder, Sec. Lt. C. R. Coulson, Sec. Lt. J. P. Cross, Lt. G. Dixon, Sec. Lt. W. D. Evans, Sec. Lt. G. R. St. C. Gwynne-Timothy, Lt F H Thompson, May 13th; Lt. G. A. Anderson, Lt. A. J. Fisher, Maj. E. E. M. L. Gower, Lt. F. C. Leonard, Lt A. C. McArthur, Sec. Lt. G. S. Scott, May 14th; Sec. Lt. (Hon. Lt.) O. P. Allcock, Sec. Lt. S. N. Bown, Lt. J. Carrey, Maj. C. Draper, D.S.O., Lt. C. J. Heywood, Lt. E. D. Mackay, Lt. (Hon. Capt.) C. de P. D. Swains, May 15th, Sec. Lt. F. Clarke, Sec. Lt. T. Fairley, Lt. A. L. Seddon, Sec. Lt. W. Shackleton, Lt. K W. Switzer, Sec. Lt. G. Scott, May 16th; Sec. Lt. A. Adam, Lt. W. Adams, Sec. Lt. W. Alexander, Lt. D. Alliban, D.F.C., Lt. J. G Blane, Sec. Lt. C. A. Bonar, Lt. W. B. C. Buchanan, Lt. H. A. A. Brosse, Sec. Lt. E. Charge, Sec. Lt. W. R. N. Cheetham, Sec. Lt. J. W. Fidlin, Lt. W. G. Gwatkin, Sec. Lt. C. C. Salmon, May 17th; Sec. Lt. T. Bailey, Sec. Lt. L. Dawson, May 18th; Sec. Lt. E. H. Alliott, Capt. C. Cooper (Capt., R. W. Surr. R.), Capt. C. C. R. Edwards, D.S.C., Capt. C. A. Maitland-Heriot, Sec. Lt. C. E. Parker, Sec. Lt. F. M. Tobin, May 19th; Sec. Lt H. L. Allward, Sec. Lt. E. J. Bell, Lt. A. C. Bencher (London R., T.F.), Sec. Lt. B. Champion, Sec. Lt. E. R. Cossar, Lt. A. W. Cullington, Sec Lt. W. D. E. Donaldson, Sec. Lt. S. L. Dunlop, D.F.C., Sec. Lt. E. L French, Sec. Lt. G. B. Gardiner, Lt. J. C. Gilchrist, Sec. Lt. R. H. Goodwin, Lt. L. M. McNab, May 20th; Lt. C. P. Adamson, Sec. Lt. S. D. Bickmore, Lt.-Col. R. G. Blomfield, D.S.O., Lt. E. V. Culverwell, Sec. Lt. M. Dawson, Sec. Lt. C. T. Marshall, Lt. F. E. Short, May 21st; Lt. N. D Armstrong, Lt M. E Barlow, Sec. Lt. R. P. D'Alton, Sec. Lt. J. W. Morris, Lt. D. W. Paton, Lt. C. Packham, Lt. S. H. C. Waller (Suffolk R., T.F.), May 22nd; Sec. Lt. M. F. S. Burger, Capt. R. A. Birkbeck, D.F.C., Lt. G. F. Bayne, Sec Lt. H. D. Buchanan, Sec. Lt. F. A. R Borris, Sec. Lt. J. M. Calnek, Lt. A. H. Craig, Lt. K. H. Crane, Sec. Lt. K. W. Cumming, Lt. L. Daly, Sec. Lt. T. H. Delaney, Sec. Lt. F. M. Dunlop, Sec. Lt. A. Gertrey, Sec. Lt. G. M. Gossage, Sec. Lt. C. S. Griffiths, Sec. Lt. J. A. Muir, Lt. H. S. Maxwell, Lt. R. S. Martin, May 23rd; Sec. Lt. T. A. Greig, Capt. O. R. Griffin, May 24th, Sec. Lt A. MacKinnon, May 26th; Capt. R. D. Simpson, D.F.C., May 27th; Lt A. G. Cooper, May 28th; Lt. H. W. Campbell, May 29th; Lt. N. L. Knight, May 31st; Sec. Lt. G. W. Armstrong, June 2nd.

The following Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—B. G. Nicholson, April 24th (substituted for notification in "Gazette," Jan 19th); A. Crozier (contracted on active service), May 20th; W. R. McCoo (caused by wounds), May 22nd.

The following Lts. relinquish their commns on account of ill-health :—G. L. Barrett (caused by wounds), March 12th (substituted for notification in "Gazette," March 11th); T. Nicholson (D.L.I.) (caused by wounds), June 1st.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank.—A K Barter, D.F.C. (contracted on active service); H. Lawrence (caused by wounds), May 22nd.

Lt. J. E. Ferrand to take rank and precedence as if appointment as Lt. bore date July 1st, 1918.

Lt. R. Kilpatrick to take rank and precedence as if his appointment as Lt. bore date July 1st, 1918.

The initials of Lt. C. W. Turner are as now described, and not as stated in "Gazette," Oct 22nd, 1918

The notification in "Gazette," Nov. 8th, 1918, concerning Sec. Lt. G. J. Gawthorne (K.B.) is cancelled.

The notifications in "Gazette," April 4th, concerning the undermentioned officers are cancelled :—Sec. Lt. G. A. King, Sec. Lt. G. A. King, Lt. S. R. Coward.

The notification in "Gazette," April 16th, concerning Lt. W. H. Gibson is cancelled.

The notification in "Gazette," April 20th, concerning Lt. M. A. Fisher-Brown is cancelled.

The notification in "Gazette," April 20th, concerning Lt. G. B. Dixon is cancelled.

The notification in "Gazette," May 9th, concerning Sec. Lt. C. L. Tench is cancelled (notification of May 23rd to stand)

The notification in "Gazette," May 20th, concerning Sec. Lt. J. I. Duval is cancelled.

ADMINISTRATIVE BRANCH.—Capt. H. N. Walker, M.C., to be Capt., from (S.O.), May 1st.

Lt. H. R. Evcott-Martin, M.C., to be actg. Capt whilst empld. as Capt. (from Jan. 27th to April 30th).

Lts to be Lts., from (A.) :—D. W. Paton, April 17th (substituted for notification in "Gazette," April 20th): A. L. Hitt, May 17th

Sec. Lt. C. T. H. Page to be Lt., April 30th

Sec. Lt. (Hon. Lt.) J. D. C. Curtis, M.C., to be actg. Lt whist empld as Lt. (from April 1st, 1918, to April 30th)

Sec. Lts. to be Sec Lts., from (A.) :—M. A. Jordan, D. H. Edmiston, May 15th; A. C. Porter, S. T. Crowe, May 20th.

Sec. Lt. A. D. Miller (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt., Nov. 21st, 1918.

H. Priestman (Maj., New Brunswick R.) is granted a temp. commn. as Sec. Lt., May 31st, 1918, and to be Hon. Maj.

A. Ashby is granted a temp. commn. as Sec. Lt., May 19th

The following relinquish their commns. on ceasing to be empld. :—Capt. F. K. Jones (Capt., Lond. R.), Feb. 16th; Lt. F. E. B. Duff, March 10th; Lt. (actg. Capt.) H. C. Griffith (Lt., S. Wales Bord.), April 8th;

Lt. (actg. Capt.) R. B. L. Persse (Lt., Shropshire L.I.), April 16th; Sec. Lt. R. R. Orchard (Sec. Lt., R. Welsh Fus.), April 20th; Sec. Lt. (actg. Lt.) J. McCarthy (Sec. Lt., Cheshire R.), April 2nd; Sec. Lt. (Hon. Capt.) J. Graham (Capt. and Qrmr., Scot. Rifs.), May 12th; Lt. J. W. J. Cheyney (commd. Shipwright, R.N.), May 16th; Lt.-Col. R. G. Talbot, C.B.E. (Lt.-Commdr., R.N.), May 21st.

Transferred to the unempld. list:—Capt. R. G. Norman, Jan. 15th; Lt. J. W. Murray, March 1st; Capt. R. J. Whiteley, March 22nd; Lt. D. S. Gray, Lt. C. A. R. Judd, April 12th; Sec. Lt. J. C. Garratt, April 14th; Sec. Lt. (actg. Lt.) G. N. J. Shaw, Lt. E. E. N. Smith, Sec. Lt. C. Wiseley, April 19th; Lt. (actg. Capt.) G. F. Golding, April 20th, Sec. Lt. A. W. A. Wyett, April 24th; Sec. Lt. W. C. Faulkner, April 27th; Sec. Lt. J. F. Groom, April 28th; Lt. C. R. Joung, April 30th; Capt. J. D. H. Osborn, May 1st; Sec. Lt. W. Sangster, May 2nd, Sec. Lt. (Hon. Capt.) L. H. Tosswill (Worc. R.), May 9th; Sec. Lt. F. D. Owen, Sec. Lt. G. F. W. Raines, May 12th; Sec. Lt. C. N. Cruttwell, Sec. Lt. W. R. Glossop, Lt. F. V. Tattersall, May 14th; Maj. F. E. Cooper, May 15th; Capt. R. H. Gee (K.R.R.C.), Sec. Lt. E. Slinger, May 16th; Sec. Lt. C. M. Collett, Sec. Lt. E. G. Delgrave, May 20th; Lt. W. Swire, May 21st; Maj. E. A. Ewart, O.B.E., Sec. Lt. (Hon. Lt.) H. W. Middleton, May 22nd; Lt. C. McK. McGavin, May 24th; Lt. N. Smith, May 30th; Lt. H. C. R. Milward, May 31st; Sec. Lt. R. W. Turner, D.F.C. (Yorks. R.), June 1st; Sec. Lt. A. J. Garton, June 2nd.

The following Capts. relinquish their commns. on account of ill-health:—G. Goodwin (Suffolk R.), G. R. Page (Capt., Lond. Yeo.) (caused by wounds), May 16th.

The following Lts. relinquish their commns. on account of ill-health:—W. J. Wyatt (Devon R.), contracted on active service, May 20th; G. Gilling (and retains his rank).

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—J. T. Elliott, May 20th; Lt. E. Walmsley, May 22nd.

The notification in "Gazette," Feb. 14th, concerning Sec. Lt. W. Twamley is cancelled.

The notification in "Gazette," March 28th, concerning Sec. Lt. C. Campbell is cancelled.

Technical Branch.—Capt. E. I. David to be actg. Maj. whilst empld. as Maj., Grade (A), June 6th, 1918 (substituted for notification in "Gazette," Nov. 15th, 1918).

Capt. D. C. Waylen to be Capt., Grade (A), from (S.O.), April 23rd.

Lt. W. L. Shaw to be actg. Capt. whilst empld. as Capt., Grade (A), from March 11th to April 30th.

Lt. G. Thomas to be graded for purposes of pay and allowances as Capt., while empld. as Capt., Grade (A), May 1st.

V. P. Turner (Lt., Aus. Flying Corps) is granted a temp. supplementary commn. as Lt., Grade (A), July 24th, 1918 (substituted for notification in "Gazette," April 8th).

Lt. H. C. Bobbett to be Lt., Grade (B), from (S.O.), May 1st.

Sec. Lt. W. Liniker to be actg. Lt., whilst empld. as Lt., Grade (B), April 1st, 1918, to April 30th.

Sec. Lt. L. G. Bullock to be Sec. Lt., Grade (A), from (A), and to be actg. Lt. while empld. as Lt. (from Jan. 13th to April 30th).

Sec. Lt. J. W. Smith to be Sec. Lt., Grade (A), from (Ad.), Feb. 18th.

Sec. Lt. E. A. Blundell to be Sec. Lt., Grade (A), from (A'ships), June 29th, 1918.

Sec. Lt. L. F. E. Smith to be Sec. Lt., Grade (A), from (K.B.), May 1st.

Sec. Lt. C. E. Tidy to be Sec. Lt., Grade (B), from (A), April 29th.

The following relinquish their commns. on ceasing to be empld.:—Lt. (Hon. Capt.) the Hon. E. H. J. Boscawen (Capt., Coldstream Gds.), June 29th, 1918; Lt. P. Irwin-Packington (Lt., R.G.A.), March 14th; Sec. Lt. (Hon. Lt.) W. E. Hughes (Lt., Leic. R.), June 3rd.

Transferred to unempld. list:—Capt. P. J. James, March 11th; Capt. (actg Maj.) F. A. Bumpus, March 21st (substituted for notification in "Gazette," April 1st); Capt. W. G. Watson, April 2nd; Sec. Lt. (Hon. Lt.) J. R. Gibson (Lond. R., T.F.), April 4th; Sec. Lt. R. S. Lewis, April 4th; Sec. Lt. C. White, April 11th; Sec. Lt. L. Henri, April 12th; Lt. (actg. Capt.) R. Gregory, April 13th; Sec. Lt. H. D. Harrison, Sec. Lt. (actg. Lt.) R. W. Hogg, April 19th; Sec. Lt. (Hon. Capt.) E. R. Loder, April 24th; Sec. Lt. (Hon. Lt.) C. E. Wilkin, April 29th; Sec. Lt. P. R. Williams, April 30th; Capt. J. F. G. Fitzgerald, May 2nd; Sec. Lt. E. Sidey, May 4th; Capt. O. C. Fry, May 6th, Sec. Lt. (Hon. Lt.) R. C. Graham, Capt. J. W. B. Simeon, May 7th; Capt. E. D. Dent (Durh. L.I.), May 9th; Sec. Lt. B. V. Seaward, May 10th; Lt. A. H. Cray, May 11th; Capt. F. Christie, M.B.E., May 13th; Maj. F. G. Atkinson, Capt. B. F. Crane, Lt. J. Farquharson, May 15th; Capt. J. J. Botterill, Lt. H. W. K. Jellings, Sec. Lt. R. A. Winfield, May 16th; Lt. G. Adams, Sec. Lt. (Hon. Capt.) J. E. Appleyard, Lt. D. E. Barnett, May 17th; Capt. J. H. Ball, May 20th; Sec. Lt. N. G. Arnold, Sec. Lt. (Hon. Lt.) G. Pellew, May 21st; Sec. Lt. W. W. Ball, May 24th; Sec. Lt. A. J. Evans, May 30th.

Sec. Lt. C. W. Mayne relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Lt., May 27th.

The notification in "Gazette," March 28th, concerning Capt. P. J. Jones, is cancelled.

The notification in "Gazette," April 29th, concerning Sec. Lt. (Hon. Lt.) R. W. V. Midland, is cancelled.

Dental Branch.—Lt. R. S. H. Drabble is transferred to unempld. list, April 17th.

Chaplains Branch.—The Rev. J. A. Chesterton is transferred to unempld. list, May 20th.

Memoranda.—Maj. J. D. K. Restler to be actg. Lt.-Col. while empld. as Chief Electrical Engineer in the Dept. of A.W.B., May 1st (substituted for notification in "Gazette," May 27th).

E. G. Knox (Capt., Australian Flying Corps) is granted a temp. supplementary commn. as Capt., and to be actg. Maj. from Oct. 11th, 1918, to April 30th (substituted for notification in "Gazette," April 8th).

The following relinquish their commns. on ceasing to be empld.:—Maj. E. P. A. Melville, O.B.E., from (S.O.), April 1st, and is granted the rank of Lt.-Col.; Temp. Hon. Lt. W. J. Duncan, April 16th; Capt. O. W. Latimer, May 3rd.

Transferred to unempld. list:—Lt. (Hon. Capt.) (actg. Maj.) W. Reid (King's L'pool R., T.F.), from (S.O.), April 13th, Sec. Lt. actg. Maj.) W. G. Webber, from (S.O.), April 22nd; Capt. P. C. Carr, from (S.O.), May 6th; Lt. (Hon. Capt. G. W. Frost, from (S.O.), May 29th.

Col. (Bt. Col. in Army) F. L. Festing, C.M.G., relinquishes his commn. on ceasing to be empld., and is granted the hon. rank of Brig.-Gen., May 31st (substituted for notification in "Gazette," May 30th).

The notification in "Gazette," April 15th, concerning Maj. (actg. Lt.-Col.) E. P. A. Melville, O.B.E., is cancelled.

St. James's Palace, June 3rd.

The King has been pleased, on the occasion of His Majesty's Birthday, to give orders for the following promotions in, and appointments to, the Most Excellent Order of the British Empire, for valuable services rendered in connection with the war:—

C.B.E. (Military Division).

Maj. (temp. Lt.-Col.) J. C. G. A. Hankey, O.B.E., M.V.O., R.A. (R. of O.).

M.B.E. (Military Division).

Lt. (temp. Capt.) G. K. Chambers, R.G.A. (Spec. Res.).

Temp. Capt. W. E. de B. Whittaker (Gen. List).

Air Ministry, June 3rd.

Order of the Bath.

The King has been pleased, on the occasion of His Majesty's birthday to give orders for the following appointments to the Most Honourable Order of the Bath, in recognition of distinguished services during the war:—

C.B.

Maj.-Gen. J. F. A. Higgins, D.S.O., A.F.C. (R. Arty.) (France); Col. (actg. Brig.-Gen.) H. R. M. Brooke-Popham, C.M.G., D.S.O., A.F.C. (Oxf. and Bucks. L.I.) (France); Col. actg. Maj.-Gen.) C. L. Lambe, C.M.G., D.S.O. (Flanders); Col. (actg. Maj.-Gen.) T. I. Webb-Bowen, C.M.G. (Bedford R.) (France); Col. (actg. Brig.-Gen.) F. L. Festing, C.M.G. (North'd. Fus.) (France).

Order of St. Michael and St George.

The King has been pleased, on the occasion of His Majesty's birthday, to give directions for the following appointments to the Most Distinguished Order of Saint Michael and Saint George in recognition of distinguished services rendered during the war:—

K.C.M.G.

Maj.-Gen. W. G. H. Salmond, C.B., D.S.O. (R.A.) (Egypt).

C.M.G.

Col. (actg. Brig.-Gen.) J. M. Steel, C.B.E.; Col. (actg. Brig.-Gen.) E. A. D. Masterman, C.B.E., A.F.C.; Col. (actg. Brig.-Gen.) H. P. Smyth-Osbourne (France); Col. F. C. Hallahan, D.S.O., M.V.O.; Col. (actg. Brig.-Gen.) P. R. C. Groves, D.S.O. (Shrop. L.I.); Lt.-Col. (actg.-Col.) R. C. S. Hunt; Lt.-Col. (actg. Col.) C. R. Samson, D.S.O., A.F.C.; Lt.-Col. (actg. Brig-Gen.) E. R. Ludlow-Hewitt, D.S.O., M.C. (R. Ir. Rifles) (France); Lt.-Col. (actg. Col.) U. J. D. Bourke (Oxf. and Bucks. L.I.); Lt.-Col. (actg. Brig.-Gen.) A. E. Porton, D.S.O., A.F.C. (R. Highrs.) (Egypt); Lt.-Col. (actg. Brig.-Gen.) A. Fletcher, C.B.E., M.C. (R.E.); Lt.-Col. A. D. Warrington-Morris, O.B.E.; Lt.-Col. actg. Brig.-Gen.) J. A. Houison-Craufurd, C.B.E. (Ind. Army); Maj. (actg. Lt.-Col.) J. A. Chamier, D.S.O., O.B.E. (Ind. Army) (France); Lt.-Col. A. S. Barratt, M.C. (R.A.) (France); Lieutenant-Colonel C. Fraser, O.B.E. M.C. (N. Staff. R.) (Egypt); Maj. (actg. Lt.-Col.) R. A. Bradley (N. Staff. R.) (Mesopotamia)

Order of the British Empire.

The King has been pleased, on the occasion of his Majesty's birthday, to give orders for the following promotions in, and appointments to, the Most Excellent Order of the British Empire, in recognition of distinguished services rendered during the war:—

D.B.E. (Military Division).

Comdt. Mrs. H. C. I. Gwynne-Vaughan, C.B.E., Women's R.A.F.

C.B.E. (Military Division).

Lt.-Col. (actg. Brig.-Gen.) R. K. Bagnall-Wild, C.M.G. (R.E.); Lt.-Col. B. C. Bartley; Col. A. M. Bent, C.M.G. (R.M. Fus.); Lt.-Col. the Hon. J. D. Boyle, D.S.O. (Rif. Bde.); Lt.-Col. C. S. Burnett, D.S.O. (H.L.I.) (Egypt); Col. (actg. Brig.-Gen.) B. H. H. Cooke, C.M.G., D.S.O. (R. Bde.); Lt.-Col. (actg. Col.) E. H. Davidson, O.B.E., M.C. (G. Highrs.); Col. (actg. Brig.-Gen.) B. C. H. Drew, C.M.G. (Ind. A.); Lt.-Col. J. Dunville, O.B.E.; Maj.-Gen. E. L. Ellington, C.B., C.M.G. (R.A.); Lt.-Col. (actg. Brig.-Gen.) P. L. W. Herbert, C.M.G. (N. and D. Regt.) (Egypt); Lt.-Col. (actg. Brig.-Gen.) C. G. Hoare, C.M.G. (Ind. A.) (Canada); Lt.-Col. C. F. Jenkin, M.B.E.; Lt.-Col. (actg. Brig.-Gen.) C. C. Marindin, D.S.O. (R.A.); Maj. (actg. Lt.-Col.) E. P. A. Melville, O.B.E. (Ind. Army); Lt.-Col. (actg. Brig.-Gen.) R. H. More, C.M.G. (Imp. Yeo.); Lt.-Col. (actg. Col.) R. H. Mulock, D.S.O. (I. Force) (France), Lt.-Col. (actg. Brig.-Gen.) C. L. N. Newall, C.M.G., A.M. (Ind. Army) (I. Force) (France); Maj. (actg. Lt.-Col.) E. Osmond (Flanders); Col. (actg. Brig.-Gen.) D. Le G. Pitcher, C.M.G., D.S.O. (Ind. Army) (France); Lt.-Col. R. E. M. Russell, D.S.O. (R.E.) (Egypt); Maj. (actg. Lt.-Col.) W. J. Ryan, O.B.E. (A.S.C.) (I. Force) (France); Lt.-Col. (actg. Col.) S. E. Smith, O.B.E. (Glouc. R.); Col. (actg. Brig.-Gen.) O. Swann, C.B. (Mediterranean); Lt.-Col. A. Sykes, O.B.E. (R. Ir. Fus.); Lt.-Col. (actg. Brig.-Gen.) J. G. Weir, C.M.G. (R.F.A., T.F.); Lt.-Col. H. V. Wells; Col. (actg. Brig.-Gen.) K. Wigram, C.B., D.S.O. (Ind. Army) (France).

O.B.E. (Military Division).

Capt. (actg. Maj.) P. Adams; Capt. (actg. Maj.) S. W. Addison (Aus. F.C.) (Palestine); Maj. V. A. Albrecht, M.C. (Manc. R.) (I. Force) (France); Maj. R. D. Anderson (R. Defence Cps.); Maj. J. O. Archer (R.F.A.S.R.) (Egypt); Capt. (Hon. Maj.) W. B. Armitage (Lanc. Fus.); Capt. (actg. Maj.) J. E. Arrol-Hunter; Capt. (Hon. Maj.) W. R. G. Atkins (Egypt); Capt. (actg. Maj.) C. H. Awcock (K.G.A.) (Italy).

Lt.-Col. J. E. A. Baldwin, D.S.O. (8th Hussars) (I. Force) (France); Capt. (actg. Maj.) J. H. Banks (A.S.C.); Maj. (actg. Lt.-Col.) G. D. Bateman; Capt. (actg. Maj.) P. M. Beachcroft (K.A.); Lt.-Col. W. D. Beatty (R.E.); Maj. V. A. Beaufort, M.C. (Devon R.) (Egypt); Capt. (actg. Maj.) C. H. Bell; Capt. (actg. Maj.) A. Belton (Roy. Fus., S.R.); Capt. (actg. Lt.-Col.) H. R. Bently (Ches. R.); Chaplain Revd. R. S. B. Berry (I. Force) (France); Maj. P. Bishop, M.B.E.; Capt. (actg. Lt.-Col.) J. D. Blyth (R.E.); Lt.-Col. C. Bovill (R.A.) (Egypt); Lt.-Col. the Hon. C. M. P. Brabazon (I. Gds.); Lt.-Col. C. R. S. Bradley (I. Army); Capt. (actg. Lt.-Col.) J. S. T. Bradley (M.G.C.); Lt.-Col. (actg. Col.) E. F. Briggs, D.S.O.; Maj. (temp. Lt.-Col.) H. C. Brinsmead, M.C. (24th Bn., A.I.F.); Capt. (actg. Maj.) E. J. Briscoe (France), Maj. R. V. C. Brook; Maj. P. R. Burchall; Maj. L. A. Burrowes (Midd'x R.); Capt. (actg. Maj.) V. Buxton (Leic. R.) (Mesopotamia).

Lt.-Col. C. F. Campbell, C.I.E. (I. Army); Lt.-Col. H. Campbell, D.S.O. (R. Fus.); Capt. (actg. Maj.) G. B. Chainey; Lt.-Col. A. H. Cheatle; Capt. (actg. Lt.-Col.) A. J. Child, M.C. (Lond. R.) (France); Maj. (actg. Lt.-Col.) A. J. Clark (Lond. R.) (France); Maj. H. Cockerell; Lt.-Col. R. H. Collier, D.S.O. (I. Force) (France); Capt. (actg. Lt.-Col.) L. B. Cook; Maj. F. E. Cooper; Maj. J. W. Cordingley; Capt. (actg. Maj.) L. H. B. Cosway (France); Lt.-Col. I. T. Courtney (R.M.L.I.); Lt.-Col. (actg. Col.) A. D. Cunningham.

Maj. (actg. Lt.-Col.) M. O. Darby, Capt. (actg. and Hon. Maj.) J. H. Davies (Ches. R.); Capt. (actg. Lt.-Col.) M. Deacon (R.E.); Lt.-Col. G. C. St. P. de Dombasle (Can. Forces); Lt.-Col. H. Delacombe; Capt. (actg. Maj.) R. B. C. M. T. de Poix (Norf. R.) (France); Maj. (actg. Lt.-Col.) J. Dickson (S.A. Engrs.); Maj. (actg. Lt.-Col.) J. E. Dixon-Spain (Hants R.) (Egypt); Maj. G. Dixon-Spain, M.C. (R. Fus.); Capt. (actg. Maj.) G. W. Dobson (19th Hussars); Capt. (actg. Maj.) M. R. Dobson, M.B. (R.A.M.C.); Maj. J. F. Dyer (E. Lancs.).

Capt. (actg. Maj.) A. S. Ellerton (France); Maj. A. T. Evans; Capt. (actg. Maj.) W. S. Evans (Welsh R.) (France); Capt. (actg. Maj.) R. M. Everett.

Maj. (actg. Lt.-Col.) G. F. Hay Faithful (I. Army) (France); Maj. (actg. Lt.-Col.) R. L. Farley (Cavly. Res.); Lt.-Col. W. S. Fetherstonhaugh (Can. F. Cps.) (France); Maj. S. J. V. Fill; Maj. H. F. Fisher (Canada); Capt. (actg. Maj.) H. G. Ford (France).

Capt. (actg. Lt.-Col.) P. Gadsby (A.O.D.); Maj. A. E. Gendle; Capt. (actg. Maj.) D. Goad; Capt. (actg. Maj.) G. L. Godden (France); Maj. R. E. Goddard; Maj. H. F. A. Gordon (Y. and L. R.); Maj. J. W. Gordon; Lt.-Col. E. H. Griffith (Leic. R.); Capt. (actg. Maj.) G. Gude (Paris).

Maj. (actg. Lt.-Col.) R. Hall, M.B.E. (Egypt); Capt. (actg. Maj.) W. W. Hall (France); Col. Revd. R. F. V. Hanson (D./Chaplain-in-Chief); Maj. W. B. Hargrave (Suff.R., T.F.); Capt. (actg. Maj.) E. St. C. Harnett (R. Highrs.) (France); Maj. C. A. L. Harrison (Paris); Maj. A. P. Hartley (Ches. R., T.F.); Capt. (actg. Maj.) F. H. Hawksford (Canada); Maj.

E. M. W. Hearn; Lt.-Col. S. A. Hebden (France); Capt. (actg. Maj.) F. E. Hellyer (Hants. R., T.F.); Maj. C. H. A. Hirtzel (Salonika); Maj. A. H. Hogarth, D.C.M. (R.A.M.C.) (Mediterranean); Maj. G. E. W. Humphery; Capt. (actg. Maj.) A. Hunter (W. Rid. R.).

Capt. (actg. Lt.-Col.) D. Iron.

Capt. (actg. Maj.) D. C. James (Worcs. R.); Lt.-Col. F. H. Jenkins, M.C.; Capt. (actg. Maj.) J. F. Jones, D.S.C. (I. Force) (France); Maj. W. D. L. Jupp (France).

Capt. (actg. Maj.) M. Keegan, M.M. (R. Dub. F.) (Egypt); Lt.-Col. (A. Col.) F. H. Kirby, V.C., D.C.M. (R.E.); Capt. (actg. Maj.) W. C. Lambert (Notts. Yeo., T.F.); Lt.-Col. J. H. A. Landon, D.S.O. (I. Force) (France); Capt. (actg. Maj.) P. A. Landry (Can. Inf.); Maj. (actg. Lt.-Col.) C. E. Lawder (R.F.A.) (France); Maj. A. R. Layard (Adriatic); Capt. (actg. Maj.) F. W. H. Lerwill (R.E.); Maj. (actg. Lt.-Col.) A. Levick (G. Gds.); Capt. (actg. Lt.-Col.) O. Lindquist; Capt. (actg. Lt.-Col.) P. D. L. Lyall (Can. For. Corps) (France); Maj. O. G. W. C. Lywood (Norfolk R.).

Maj. (actg. Lt.-Col.) A. E. G. MacCullum (Inteil. Corps); Capt. (actg. Maj.) K. H. McLean (R.N.V.R.); Capt. (actg. Maj.) T. MacLeod; Maj. (actg. Lt.-Col.) G. M. G. Visct. Maidstone, D.S.C. (Flanders); Capt. (actg. Maj.) R. B. Mansell (4th Glouc., T.F.); Capt. (actg. Maj.) H. P. Maybury (France); Maj. H. A. Michell; Capt. (actg. Maj.) A. M. Miller, D.S.O.; Hon. Capt. (actg. Maj.) H. Milman (R.E.); Capt. (actg. Maj.) R. G. Mitchell (R. Scots); Maj. (actg. Lt.-Col.) R. Money (R. Lanc. R.); Capt. (actg. Maj.) E. F. Monk; Capt. (actg. Maj.) A. T. Moore; Maj. D. A. B. Morle; Lt.-Col. (Hon. Col.) L. Munro (Hamps. R.).

Maj. A. L. C. Neame (R.E.) (France); Capt. (actg. Maj.) C. G. Nevatt (France); Maj. H. R. Nicholl (I. Force) (France); Capt. (actg. Maj.) J. MacA. Nicolle (3rd S. Staffs.); Capt. (actg. Maj.) S. Nixon.

Lt.-Col. D. A. Oliver, D.S.O. (Adriatic).

Capt. (actg. Maj.) L. E. Palmer (York. and Lanc. R.); Maj. C. H. Parkes; Maj. S. C. Parr (Canada); Maj. R. H. Peck (11th E. Surr. R.); Lt.-Col. W. H. Pope; Maj. (actg. Lt.-Col.) E. W. Powell (Egypt); Asst. Comdt. Mrs. L. M. K. Pratt-Barlow, M.B.E.; Capt. (actg. Maj.) J. E. M. Pritchard; Maj. (actg. Lt.-Col.) W. J. D. Pryce, D.C.M. (Gord. Highrs.).

Capt. (actg. Maj.) C. F. Rasmusen; Maj. G. J. Read (4th N. Staffs); Lt.-Col. L. W. B. Rees, V.C., M.C., A.F.C. (R.G.A.); Capt. (actg. Maj.) T. S. Rippon (R.A.M.C.); Lt.-Col. C. MacI. Robertson (R.F.A.); Maj. (actg. Lt.-Col.) H. M. M. Robertson, M.C. (R.F.A.); Lt.-Col. R. S. Robinson; Lt.-Col. N. Roche; Maj. J. T. Rodwell (France); Capt. (actg. Maj.) S. G. Rome, M.C. (A. and S. Highrs.); Capt. (Hon. Maj.) A. A. Ross; Lt.-Col. A. Ross-Hume (Sco. Rif.); Maj. (Hon. Lt.-Col.) the Hon. V. A. F. V. Russell (Beds. R., T.F.) (I. Force) (France).

Maj. F. R. Samson; Capt. (actg. Maj.) E. Selby; Maj. J. P. C. Sewell (France); Capt. (actg. Maj.) H. T. Shaw; Maj. A. F. Sidgreaves; Maj. G. E. Smith (E. Yorks); Capt. (actg. Maj.) J. D. Smith; Maj. S. W. Smith (R.A.); Capt. (actg. Maj.) W. E. Smith (France); Capt. (actg. Maj.) G. Somers-Clarke (Mesopotamia); Capt. (actg. Maj.) D. C. L. Speed (K.R.R.C.); Capt. (actg. Maj.) F. Steel (Essex R.); Maj. J. V. Steel (R.E.); Capt. (actg. Maj.) F. D. Stevens (M.G. Corps); Capt. (actg. Maj.) G. Stevens (France); Capt. (actg. Maj.) J. Stewart (R. Scots. F.); Capt. (actg. Maj.) A. H. Stradling (Gord. Hdrs.) (France); Lt.-Col. L. H. Strain, D.S.C.; Capt. (actg. Lt.-Col.) H. W. Stratton (6th D.G.); Capt. (actg. Maj.) L. M. P. Sulivan (R.E.).

Maj. (actg. Lt.-Col.) G. H. Thomson (Ægean); Lt.-Col. G. E. Todd (Welsh R.) (Salonika); Maj. H. C. Tweedie, D.S.O. (N. Staffs).

Maj. (actg. Lt.-Col.) F. H. Unwin.

Lt.-Col. R. H. Verney.

Capt. (actg. Maj.) W. J. Waddington (G. Gds.); Capt. (actg. Maj.) W. Wade (Middx. R.); Capt. (actg. Lt.-Col.) H. N. Walker, M.C. (Welsh R.); Lt.-Col. A. T. Watson (Nigerian R.); Maj. G. W. Williamson, M.C. (Manch. R.); Capt. (actg. Maj.) H. A. J. Wilson; Maj. (actg. Lt.-Col.) A. B. Winch (R. Scots Greys); Capt. (actg. Maj.) C. W. Wise, M.C. (A.S.C.) (Salonika); Maj. T. Worswick (France); Capt. (actg. Maj.) H. E. F. Wyncoll, M.C. (Notts and Derby R.).

Maj. (actg. Lt.-Col.) H. I. F. Yates, M.C.; Capt. (actg. Maj.) C. F. Yeomans; Capt. (actg. Maj.) A. Young.

M.B.E. (Military Division).

Capt. W. J. Adkins (Glouc. R.); Lt. (actg. Capt.) S. L. Amor (France); Lt. J. C. Andrews; Lt. (Hon. Capt.) B. O. Angell (France); Lt. W. M. Arnot (Egypt); Lt. H. J. Axten (R. Fus.).

Capt. A. H. S. Baker (Egypt); Capt. P. C. Barber (Chaplain); Capt. H. O. Barnaby (R.F.A., T.F.); Lt. (actg. Capt.) P. H. Barr; Admstr. Miss C. T. Bayley; Capt. B. J. Beeton; Capt. R. Belli-Bivar (R. I. Fus.) (I. Force, France); Capt. C. B. Belt, M.C. (S. Staffs. R.); Capt. H. L. Betteridge; Lt. (actg. Capt.) J. P. P. L. Biggs (France); Capt. E. I. M. Bird; Lt. H. Booker; Sec. Lt. (actg. Capt.) J. A. Bonnyman (Welsh R., T.F.) (Egypt); Lt. (actg. Capt.) W. Bowring (France); Lt. H. E. Brackenboro; Lt. (actg. Maj.) C. J. Brockbank; Capt. J. Brown, M.C. (Egypt); Capt. W. E. G. Bryant (R. Fus.); Lt. (actg. Maj.) T. L. F. Burnett; Sec. Lt. (Hon. Lt.) P. J. Burns (R.G.A.); Capt. W. L. Burt (Essex R.) (France); Lt. (actg. Capt.) L. C. Bygrave (I. Force, France).

Lt. D. Cairns (High. Cyc. C.) (France); Lt. A. E. Cambridge; Lt. (actg. Capt.) M. Campbell (R. W. Kent R.); Capt. E. P. Carmody (R.A.M.C.); D. Admstr. Mrs. M. Carnley; Capt. A. W. Carter, D.S.C. (France); Lt. (actg. Capt.) H. Cassels (Canada); Sec. Lt. (actg. Lt.) W. R. Castings; Capt. J. Chambré, M.D. (Egypt); Capt. C. K. Chandler; Sec. Lt. (actg. Lt.) B. Cheeseman (France); Capt. S. Clare (France); Lt. (Hon. and actg. Capt.) P. Colbeck (Northd. Fus.) (Egypt); Lt. (actg. Capt.) R. A. W. Collet; Capt. W. J. Cooper (Aus. F.C.) (France); Capt. B. F. Crane (I. Force, France); Lt. (Hon. Capt.) A. T. Cranmer (Middx. R., T.F.); Lt. (actg. Capt.) W. E. Cranmer (Middx. R.); Capt. H. L. Crichton (A.O.D.); Lt. (actg. Capt.) R. L. Crofton; Capt. W. G. M. Crothers (Suff. R.) (Egypt); Lt. (actg. Capt.) S. Currington (W. Rid. R.); Sec. Lt. (Hon. Lt.) J. D. C. Curtis, M.C. (R. Lancs. R.).

Lt. (actg. Capt.) F. Dance (France); Lt. J. H. Dand; Sec. Lt. (actg. Capt.) H. Dawes; Lt. (actg. Capt.) W. Dawson; D. Admstr. Miss F. Day; Lt. G. E. M. Dean (Can. Fd. Arty.); Capt. R. Donald (France).

Sec. Lt. (actg. Lt.) F. G. Eckford; Lt. R. W. Everett.

Sec. Lt. (actg. Capt.) H. K. Fairbrother; Capt. T. Fawdey (N. Lancs. R.) (Egypt); Sec. Lt. C. A. Firmin (5oth Sudn.) (France); Sec. Lt. (actg. Lt.) M. B. Fitzgerald (France); Lt. (actg. Capt.) J. R. Frankish (France); Sec. Lt. L. Freeborn (Ægean); Capt. S. T. Freeman (Ægean); Capt. O. H. Frost, M.C. (Middx. R.) (France); Capt. A. A. Fry (France); Capt. N. R. Fuller (Mesopotamia); Sec. Lt. A. R. Fulton; Lt. (actg. Capt.) R. G. Fyfe (Salonika).

Lt. (actg. Capt.) E. W. Geer; Capt. T. M. Gerrard; Lt. (actg. Capt.) H. H. Giles; Capt. S. C. Godfrey, M.C. (R. Scots Fus.); Lt. (actg. Capt.) G. F. Golding (France); Sec. Lt. (actg. Capt.) R. C. Graham (N. Staffs.); Lt. (Hon. and actg. Capt.) F. Grave (Lond. R.); Capt. A. G. Griggs; Capt. A. W. W. Groome (Norfolk Yeo.); Capt. P. E. Gwyer (R.M.A.); Capt. T. G. Gordon (I. Force, France).

D. Admstr. Mrs. M. Halcrow; Capt. W. E. Hayward; Capt. L. Henshaw



An Aerial Photograph of London, showing the Admiralty Arch and Trafalgar Square. This Photograph was taken during the March of the Overseas Troops through London some time since. The black spots are the crowd waiting for the Troops and do not indicate the usual march formation of Colonial Units.

(S. Lancs. R.); Lt. G. A. Hill, M.C. (Manch. R.) (Russia); Lt. (actg. Maj.) C. E. Hodgson (R. War. R.); Capt. H. Hulbert.

Capt. F. Jefcoate (Suff. R.) (Egypt); Sec. Lt. (actg. Maj.) H. Jones.

Capt. H. R. Kavanagh (R. I. Fus.) (France); Lt. W. G. Kewley (France); Lt. (actg. Capt.) A. G. Knight; Sec. Lt. (actg. Lt.) J. M. Knight (France); Capt. the Hon. E. G. W. T. Knollys (Lond. R.) (France); Capt. E. G. Knox (Aus. F.C.) (France).

Lt. (actg. Capt.) J. W. Langmuir (Canada); Lt. (actg. Capt.) E. J. Langridge (N. Staffs. R.) (France); Capt. E. P. Leigh-Bennett; Capt. A. F. Livingstone (K.R.R.C.); Lt. (temp. Capt.) R. E. L. Lott (West Ontario R.).

Lt. P. A. McBain (Aus. F.C.) (Palestine); Sec. Lt. R. D. G. Macrostie (Egypt); Lt. R. Macdonald (Liverpl. R.); Sec. Lt. (actg. Lt.) W. J. Maley; Capt. H. C. Mallett; Capt. D. T. W. Manwell (Aus. F.C.); Sec. Lt. A. P. Marchant, D.S.M. (I. Force) (France); Lt. L. J. Mars (York Hrs., Yeo.); Capt. T. B. Marson (Lond. Yeo.) (I. Force) (France); Lt. J. B. Mawdsley (Can. F.C.) (France); Lt. (actg. Capt.) K. A. Meek (W. Yorks. R.); Sec. Lt. (Hon. and actg. Lt.) D. R. Mitchell (France); Lt. H. S. Morris (Cold. Gds., S.R.) (France); Lt. (actg. Capt.) P. H. Morrissey; Admstr. Miss D. C. Muir; Lt. (actg. Capt.) F. Murphy.

Lt. (actg. Capt.) T. H. Nesbitt (France); D. Admstr. Mrs. F. M. S. Newton; Capt. W. S. Newton-Clare (France); Capt. B. J. Nicholson; actg. Comdt. Miss C. Noel; Lt. H. P. Northcote (W. Yorks.); Capt. W. E. Nuttall.

Capt. G. Palmer (Devon R.); Lt. (actg. Capt.) G. W. Panter (R. I. Rif.) (Adriatic); Admstr. Miss K. Pearce; Lt. (actg. Capt.) P. P. C. Penberthy (Shrops. L.I.); D. Admstr. Mrs. G. Pertwee; Lt. (actg. Capt.) F. Petch (France); Sec. Lt. C. W. Phipps (France); Capt. D. W. Pinckney; Sec. Lt. (actg. Capt.) J. M. Pinkerton; Lt. (actg. Capt.) E. E. Porter, D.C.M. (Som. L.I.) (France); Lt. F. H. Postlethwaite; Lt. F. J. B. Powell; Sec. Lt. W. P. B. Pugh.

Sec. Lt. J. C. Raine (France); Admstr. Mrs. A. Rathbun; Sec. Lt. (actg. Capt.) D. M. Rees (Adriatic); Capt. W. Ricketts (Dgn. Gds.); Capt. A. Ridley (Dgn. Gds.); Capt. E. Rivers-Smith (Middx. Yeo.) Capt. J. Robinson; Lt. (Hon. and actg. Capt.) G. W. Rogers (N. Staffs.); Lt. G. O. Roper; Lt. (actg. Capt.) A. J. M. Ross (France); Lt. (Hon. Capt.) A. A. Rowe (R.E.); Lt. (Hon. Maj.) C. W. Rowe (Hunts Cyc. Bn.), (Egypt).

Capt. J. W. Scandrett, M.C. (Canada); Capt. A. E. Siddons-Wilson; Lt. (actg. Capt.) R. J. Sladden, D.C.M.; Capt. A. G. H. Smart, M.B. (R.A.M.C.) (France); Capt. H. Stansfield (France); Capt. D. S. Stevenson, M.B. (Flanders); Sec. Lt. J. G. McK. M. Stronach; Lt. (actg. Capt.) F. Susans; Sec. Lt. (actg. Capt.) J. Sutherland (Adriatic); Lt. (actg. Capt.) W. Sutherland (Middx. R.) (Egypt); Capt. J. B. R. Swan, Sec. Lt. (actg. Lt.) R. Swan (France); Lt. (actg. Capt.) F. A. Swoffer (Middx. R.) (France).

Sec. Lt. A. H. Taylor (France); Capt. B. A. Taylor; Capt. L. F. Taylor (R.E.); Hon. Lt. (actg. Capt.) H. H. Thomas (R.F.A., S.R.) (Palestine); Admstr. Miss E. Thomson; Capt. A. P. Thurston; Lt. (actg. Capt.) E. Trist; Lt. (actg. Capt.) S. H. Twining (Middx. R.).

Lt. (actg. Maj.) H. Waddington (Manch. R.); Capt. H. C. Waghorn (Lond. R.); Sec. Lt. (actg. Maj.) F. Waldron (Worcs. R., T.F.); Lt. (actg. Capt.) H. F. Walker; Lt. (actg. Capt.) P. Warburton (R.G.A.); Capt. W. G. J. Wardle; Lt. (actg. Capt.) A. M. Watson (Shrops. L.I.) (France); Lt. (actg. Maj.) W. Watson (Highd. Cyc. C.); Capt. W. Mol. Watt (R. Highrs.); Lt. (actg. Capt.) F. M. J. Watts (Worcs. R.) (Mesopotamia); Capt. D. C. Waylen; Lt. L. G. Western (France); Capt. F. T. Williams (W. Yorks. R.); Lt. (actg. Capt.) C. A. Williams (France); Capt. O. Williams; Lt. (actg. Capt.) A. McC. Wilson (H.L.I.) (France); Capt. A. M. Wilson (4th Gord. Highrs.) (I. Force) (France); Capt. F. A. Woolfe; Lt. W. T. T. Wright (Can. Fces.) (I. Force) (France).

Sec. Lt. H. J. Young (France).

HON. M.B.E.

Mulazim Tani, Mahmud Effendi Mustafa Maher, 4th Bn., Egyptian Army, attd. R.A.F., Helmia, Egypt.

WAR OFFICE, June 5th.

The following are mentioned for distinguished and gallant services during the period from Oct. 1st, 1918, to March 1st, 1919, in a dispatch which has been received by the Secretary of State for War from Lieut.-Gen. Sir G. F. Milne, K.C.B., K.C.M.G., D.S.O., Commanding-in-Chief, British Salonika Force :—

ROYAL AIR FORCE.

Capt. (actg. Maj.) F. A. Bates, M.C. (Denbigh Yeo., T.F.).
Lt. (actg. Capt.) R. G. Fyfe.
Lt. F. L. Goodacre.
Maj. C. H. A. Hirtzel.
Capt. (actg. Maj.) W. R. B. McBain, M.C. (R.F.A., T.F.).
Lt.-Col. G. E. Todd (Maj., Welsh R.).
Capt. F. G. M. Williams.
Capt. (actg. Maj.) C. W. Wise, M.C. (R.A.S.C., S.R.)
5755 Ch. Mech. J. W. Airey, 17433 Ch. Mech. E. C. Aston, 3279 Serjt. Mech. W. J. Blatchford, 10659 Serjt. Mech. W. Chesmore, 2075 Serjt. Mech. J. G. Day, 1751 Serjt. Mech. A. Dingle, 3917 Cpl. Mech. W. C. Dunn, 8146 Flt. Clk. E. A. A. Evans, 7677 S.M. L. R. Fears, 13181 1st A.M. F. A. Fryer, 12575 Serjt. Mech. (actg. Ch. Mech.) H. E. Green, 21092 Serjt. Clk. S. V. Hicks, 93769 Serjt. Mech. J. Johnston, 36440 1st Cl. Clk. (actg. Cpl. Clk.) A. March, 42457 Flt. Clk. H. Moss, 36612 Serjt. Mech. J. H. Partridge, 18304 Serjt. Clk. J. E. Pays, 3651 Serjt. Mech. A. H. Pottier, 8872 Ch. Mech. V. P. C. Rook, 19196 1st A.M. F. C. Swain, 22111 Serjt. Mech. A. Thornley, 6476 Serjt. Clk. W. A. Wicks.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, June 5th.

The Prince of Wales, attended by Capt. the Lord Claud N. Hamilton, visited the works of the Sopwith Aviation Company this morning.

His Royal Highness, attended by Captain the Lord Claud N. Hamilton, was present at a luncheon given by Major-General the Right Hon. J. E. B. Seely, M.P. (Under Secretary of State for Air) at the House of Commons.

BUCKINGHAM PALACE, June 6th.

H. Darley, Royal Air Force, had the honour of being received by The King this morning.

BUCKINGHAM PALACE, June 7th.

The King held an Investiture in the Quadrangle of the Palace at 11 o'clock this morning.

The following were severally introduced into the presence of The King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

THE MOST DISTINGUISHED ORDER OF SAINT MICHAEL AND SAINT GEORGE.—Companions.—Brig.-Gen. James Weir, R.A.F., and Lieut.-Col. Grahame Christie, R.A.F.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE.—Commander.—Military Division.—Lieut.-Col. Francis Muecke, R.A.F.

THE DISTINGUISHED SERVICE ORDER.—Major Andrew MacElroy, U.S. Air Service; Brig.-Gen. Frederick Willcock, R.A.F.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE.—Officers.—Military Division.—Lieut.-Col. Alfred Hellawell, late R.A.F.; Major Herbert Corin, R.A.F.; Major Richard Hoyn, R.A.F.

Member.—Military Division.—Lieut. Howard Sampson, R. Warwickshire Reg., attd. R.A.F.

Major-Gen. Sir Hugh Trenchard, K.C.B. Chief of the Air Staff), had the honour of being received by the King this morning.

OFFICIAL COMMUNIQUES.

On June 3rd the War Office issued the following statement concerning the Archangel front :—

On May 30th, on the Vaga, one of our aeroplanes, dropping bombs, obtained a direct hit on an enemy barge.

THE CASUALTY LIST.

AIR FORCE.

Reported June 6th.

KILLED.—Barclay, Sec. Lt. J. G., R.A.F.
Barker, Capt. L. I., R.A.F.
Jacobi, Lt. E. W. S., R.A.F.
McEachran, Lt. N., R.A.F.
Prince, Sec. Lt. F. G., R.A.F.
Smith, Sec. Lt. H. C., R.A.F.
Spratt, Sec. Lt. S., R.A.F.
Weaver, Lt. H. J., R.A.F.
DIED OF INJURIES.—Gibbs, Sec. Lt. S. H., R.A.F.
Jemmesson, Sec. Lt. G. E., R.A.F.
Rawlings, Capt. P. T., R.A.F.
Turner, Lt. B. E. N., R.A.F.
Wright, Lt. C. V. C., R.A.F.
Wyatt, Sec. Lt. W., R.A.F.
MISSING.—Jefferson, Capt. E. B. B., R.A.F.

PERSONAL NOTICES.

MILITARY.

DEATHS.

JEFFERSON.—Capt. Elgie B. B., Jefferson, 1st The King's (Liverpool) Regt. and R.A.F., who was killed on May 15th while carrying aerial dispatches to Paris was the husband of Muriel Jefferson, and only son of Mr. and Mrs. Jefferson, of "Ballahott," Isle of Man.

RANSOM.—Sec. Lieut. Hubert W. Ransom, R.F.C., who was officially reported missing is now presumed to have been killed in action on March 27th, 1918. He was the third son of Mr. and Mrs. Francis Ransom, of "The Chilterns," Hitchin, Herts.

MARRIAGE.

KEMP—SNOW.—On June 2nd, at St. Paul's, Knightsbridge, Capt. W. Kemp, A.S.C., R.A.F., was married to Margery Olga, only daughter of the late Colonel E. B. Snow, R.M.L.I., and of Mrs. Snow, 8, Pont Street, by the Rev. F. L. Boyd.

AIR FORCE.

DEATHS.

BANNERMAN and WILSON.—The "Nation Belge" of June 9th states that a British aeroplane performing the postal service between Cologne and Folkestone, carrying Lieut. Bannerman, R.A.F. (pilot), and Lieut. Wilson, R.A.F. (observer), crashed at Floreffe, near Namur. Both aviators were killed.

The "Soir" gives the following version of the accident :—

The machine crashed down at Soye, near Floreffe. It first made a spiral dive and then turned completely over. The pilot, who was not fastened into his machine, was thrown out 250 yards from the observer, who was pinned down by the engine. There were no mails on board.

ENGAGEMENTS.

IRVING—WOOLNER.—The engagement is announced of Capt. Laurence Irving, late R.A.F., only son of Mr. and Mrs. H. B. Irving, of 10, Sudbury Hill, Harrow, to Rosalind Frances, fourth daughter of Mr. Hugh Woolner, of 23, Stanley Crescent, W.11.

OXLAND—DUMBLETON.—The marriage arranged between Capt. B. D. Oxland, R.A.F., and Miss Thelma Dumbleton will take place at Bloxham, Banbury, on Wednesday, June 18th.

MARRIAGES.

DAWES—UPTON.—On June 3rd, at St. Mary's, Market Drayton, Capt. Richard Wilkinson Dawes, R.A.F., was married to Ruby Grace Apelina, only daughter of Mr. and Mrs. J. St. C. Upton, of Market Drayton, Shropshire, by the Ven. Archdeacon Lambart, assisted by the Rev. F. S. Girdlestone, rector of Moreton Gay, and the Rev. R. L. White, vicar of the parish.

KINGSMILL—MORANT.—On June 3rd, at St. Stephen's Church, Dulwich, Capt. Geoffrey Major Kingsmill, R.A.F., only son of Mr. and Mrs. Kingsmill, of Herne Bay, was married to Constance Margaret, widow of the late Capt. Gerald Alex. Morant, M.C., by the Rev. W. F. James.

MURRAY—LAND.—On June 2nd, at St. Andrew's Church, Westminster, Thomas Graham Murray, D.F.C., son of the late Capt. J. S. Murray, of The Sandpatch, Wentworth Falls, New South Wales, was married to Mabel Isabel, only daughter of George Land, Esq., and Mrs. Land, Hastings, New Zealand, by the Rev. E. St. C. Schomberg.

BIRTHS.

LANE.—On June 4th, at 1, South Eaton Place the wife of Major R. C. Lane, R.A.F., of a daughter.

MACKAY.—On June 7th, at a nursing home, the wife of L. Hugh Mackay, R.A.F., of Whitecroft, Beckenham, of a son (Peter Lewis).

"THERE ARE NONE SO BLIND——"

Once upon a time an Army officer of somewhat advanced rank had occasion to lunch at a Naval mess. The Naval mess possessed a white ensign.

"I see," said the Army officer, "you have the flag of the Royal Yacht Squadron."

The mess were troubled and annoyed.

A polite N.O. proceeded to explain: "It's ours really, you know; we only lend it to them."

The Army officer—who was really old enough to know better, although his advanced rank precluded the possibility of such knowledge—went home and told the tale against the Navy, as an example of their stupidity and "sloppy habits."

So much has been said lately concerning the above-mentioned "sloppy habits" that it is a great relief to those who still hold their faith in the Royal Navy—despite the little mishaps of war-time—to read that so far as airships are concerned the Navy has been anything but sloppy.

In 1913 the Army—always so perfect and far-seeing—did not think sufficiently well of their airships to keep them, but handed them over to the despised Navy, who accepted them gratefully, developed them, and despite the sneers of a discomforted Army, calmly proceeded with the day's work to the detriment of the German Submarine Service.

It was not the fault of the Navy that an unkind and thoughtless Government saw fit to waste money upon things other than airships in the early days of the war. The Navy suffered for it in many ways, for it was not to be expected that the British Public should blame their chosen representatives while it was possible to blame the Service that was the chief sufferer.

But those days being past, the Navy would appear to be coming into its own in the matter of airships. There are several ships under construction and several others have just completed tests, and if only a Pacifist Government does not insist upon their demolition, in time the Navy should have quite enough airships for its purpose.

During the war little has been heard of the Airship Service and—in an age of newspaper advertisement of the less worthy people—that in itself is a good sign. It was a service run by Naval personnel, and, one believes, is even yet strictly Naval in its outlook.

The sea is obviously the right place for airship reconnaissance, as the Germans proved beyond all doubt, and the Navy, for all their "sloppy habits," realised this and took advantage of it.

Therefore it is possible that the aforementioned Army officer judged the Navy a little hastily, and that, after all, the stupidity of the R.N. is only a pose assumed for the purpose of hiding the skill which lies beneath.—S. F. B.

THE ATLANTIC FLEET.

On the Active Force of the Home Station a Flying Squadron under Rear-Admiral Sir R. Phillimore, consisting of "Furious" (flag of rear-admiral), "Argus," "Vindex," and "Vindictive," has been formed as a unit of the Atlantic Fleet.

AVIATION IN AFGHANISTAN.

The following is among the armistice terms presented to the Afghanistan Government by the Indian Government:—

Our aeroplanes shall be allowed to reconnoitre over the Afghan lines, but not to bomb.

A message, dated June 2nd, states that aeroplanes co-operated successfully in the relief of Fort Thal by bombing and machine-gunning the enemy holding the ridges.

THE REPATRIATION OF R.A.F. OFFICERS.

The Air Ministry announces that demobilised officers of the R.A.F. who are entitled to repatriation, but have made their own arrangements for passages over seas have no claim to a refund of the expense incurred or of the cost of a public passage.

Instead of making their own arrangements officers should apply for passage to the Officer i/c R.A.F. Repatriation Records, Winchester, who will make provision for a public passage for anyone who has been serving in the Royal Air Force and who is entitled to repatriation.

THE SEARCH FOR MISSING AVIATORS.

A special unit of the Royal Air Force with 20 officers on the establishment crossed to France on June 5th. These officers will be attached to Army formations and their main duty will be searching for officers and other ranks of the Royal Air Force who have been listed as "missing." It is considered possible that some pilots may still be in isolated districts, unable to move owing to injuries and sickness.

THE R.A.F. AND MOTOR-CARS.

The Interim Report of the Parliamentary Select Committee on National Expenditure which will be published during the week, contains references to the private use of Government motor-cars by R.A.F. officials. It is stated that these cars have been not only in London, but also in the provinces, used for conveying officials to dinners, the theatre, and for pleasure trips into the country.

THE ROYAL NAVAL, MILITARY, AND AIR FORCE TOURNAMENT.

Representatives of the W.R.N.S., the Q.M.A.A.C., the W.R.A.F., and the Women's Legion will take part in the Royal Naval, Military, and Air Force Tournament at Olympia on June 26th.

ATHLETICS IN THE R.A.F.

The R.A.F. football eleven which is touring Holland played a game at Amsterdam on June 6th against a team representing Holland, which resulted in a draw, each side scoring one goal.

After the unexpected drawn game on June 5th the R.A.F. Association football team on June 8th played a second match with the Dutch Swallows and won by 3 goals to 2. The Dutch left inside, van Diermen, scored the first goal for the home team after 10 minutes' play with a clean shot. A blunder by the Dutch left back let in Halse to make the score one all. Before half-time Cannon, after some clever combination, gave the R.A.F. the lead.

In the second half both R.A.F. backs were beaten by the Dutch centre forward, Buitenweg, who scored a brilliant goal. Shortly afterwards Tomkins from a free kick scored the winning goal.

This time no international players were included in the Dutch team. The scientific game of the airmen was appreciated highly.

FLYING IN INDIA.

Major H. A. Tweedie, R.A.F., arrived at Simla from Ambalia on May 4th, making a successful landing on the Annadale gymkhana ground. This is stated to be the first flight made over the Himalayas.

LONG-DISTANCE FLYING.

Lieut.-Col. Wilson, General Staff, Mesopotamia, recently flew from Mosul, on the Tigris above Baghdad, to Cairo on a D.H.10 recently. The route taken constituted roughly 1,000 miles. Three stops were made altogether. From Cairo Col. Wilson continued the journey by train and steamship.

WIRELESS TELEPHONY.

On May 13th various experiments in wireless telephony were carried out in London between an aeroplane flying low over the Thames and Major Erskine Murray, R.A.F. The lecture hall of the Institute of Civil Engineers was used as a receiving station.



(Photograph by Russell.)

Major-General E. L. Ellington, C.B., C.M.G., Controller-General of Equipment, who has just been appointed Commander of the Order of the British Empire.

A NEW CIRCUIT OF BRITAIN FLIGHT.

The following is an extract from the official account of the recent R.A.F. tour, part of which has already been described to the Press :—

A Handley Page (two 350 h.p. Rolls-Royce engines) carrying two pilots (Major K. R. Park, R.A.F., and Captain Stewart, R.A.F.), two navigators (Major B. E. Smythies and Lieut. Wilson), three engineers and fitters, and two wireless operators.

The flight was begun from No. 1 R.A.F. School of Navigation at Andover at 2.15 a.m. The first stage was to Waddington *via* Portsmouth, along the coast past Brighton to Ashford and Canterbury, and thence by Shoeburyness, Clacton, Lowestoft, Hunstanton, and across the Wash to Waddington, which was reached at 9 a.m.

Certain necessary engine adjustments were effected here, and the flight resumed at 1.28 p.m. on the same day. The weather had improved somewhat, and Grimsby, Scarborough, and South Shields were passed in better visibility. By the time Alnwick was reached at 5 p.m., however, conditions had deteriorated rapidly. Rain set in, with low clouds and a strong westerly wind, which rendered it necessary to descend from 3,000 to 800 feet and then to 350 feet, at which height St. Abb's Head was rounded. It had been intended to proceed to Longside on this stage, but in view of the weather conditions the machine was turned west to Edinburgh and a landing was effected at Turnhouse at 6.45 p.m.

The following day the machine got away again at 11.50 a.m., and by way of Arbroath, Aberdeen, Longside, Inverness, and the Mull of Kintyre, Belfast as made at 7.5 p.m. Once again the weather was bad and visibility so poor that the aerodrome of Aldergrove could be picked up.

Aldergrove Aerodrome was left at 1.35 p.m. the next day and a course set for Dublin and thence to Bardsey Sound, which involved an oversea passage of 68 miles. Newquay was the next point made, and the day's stage was completed at Pembroke at 5.50 p.m., where some further engine adjustments were effected. The last day of the circuit provided the best weather. An early start was made at 4.26 a.m., and after another oversea passage of 17 miles Burry Holmes was reached. Thence the coast was followed to Boscastle, where a course was set inland to Bodmin and Plymouth, and then along the coast once more to Bournemouth before turning in to Andover, thus completing the circuit at 9.32 a.m. on the fourth day.

The average air speed maintained throughout was 66 miles per hour, while each day's run averaged 450 miles.

Another very successful night flight, also made from this same R.A.F. Navigation School, was from Andover to Baldonnel (Dublin). The night was intensely dark, and it was practically impossible to pick up landmarks. Accordingly the flight was done on compass bearings, due allowance being made for "drift." The calculations had been so accurately worked out and the course so skilfully set that the navigator brought the machine out directly over Dublin. The entire journey was completed in 6½ hours.

WIRELESS TELEPHONY.

The following has been received from the Air Ministry :—

The extraordinary value of wireless telephony for directional purposes in connection with aircraft has been emphasised recently in its relation to night-flying. It often happens, of course, that in daylight inter-communication between planes, or between wireless stations and aircraft is unnecessary, but in flying across country at night the use of the wireless 'phone will certainly become more and more efficacious.

Some details are now available of a test carried out during a recent night flight from Kenley to Paris in a Rolls-Royce-engined Handley Page. This in no way constitutes a record; but is, nevertheless, interesting, as indicating what is being done as a matter of routine. Wireless telephony has now been definitely adopted as a means of ground to air communication and vice versa on the London-Paris route, and the test in question was made with one of the first machines on this service fitted for the purpose.

Communication was opened as soon as the Handley Page had obtained height, and, after speaking to the ground station, the receiver was turned in and speech was very clearly heard from Kenley. The officer conducting the test emphasises in his report speech quality and strength, and states that he easily recognised the voice as that of an officer known to him To a distance of about 35 miles the strength of signals was so great that speech from the machine could be clearly heard at Kenley with the receiver laid upon the table. At 50 miles it was still distinct and constant, and was heard until the aeroplane was crossing the Channel and was in touch with Marquise—the first ground station on the French side.

On the return journey conversation between the machine and Marquise was again picked up at Kenley, and the latter station itself, was in communication with the machine 30 minutes before it landed

One of the recent developments in this connection is the production of an aeroplane set which can be converted within a few moments for transmission of either voice or Morse signals.

TO HOLLAND BY AIR.

A few days ago, Dutch seaplanes made the flight for the first time to British shores, arriving at Felixstowe for the purpose of taking back to Holland two Dutch medical officers who had been visiting this country to investigate the British system of medical examination of pilots.

On the return journey, as neither of the Dutch seaplanes—two-seater float machines of the Friedrichshafen type—were equipped with wireless, a British F.5 flying-boat (two Eagle VIII Rolls-Royce engines) was detailed to escort them as far as Scheveningen.

At this place the Dutch seaplanes turned inland, and, following the canals, reached Amsterdam, where they alighted safely. The British machine returned to Felixstowe.

Both the out and return journeys occupied 1 hour and 55 minutes, and throughout the whole trip the F.5 was in wireless communication with its base at Felixstowe.

THE SWEDISH AIR SERVICES.

The Swedish Government has appointed a Commission to examine proposals with the object of systematising arrangements in the Military Aviation Service concerning material and the training of fliers as well as the investigation of the causes of accidents to military aeroplanes. Another Commission has been appointed to deal with similar matters in connection with the Naval Air Service.

Capt. Luebeck, the Chief of the Swedish Naval Flying Corps, is shortly coming to England to study naval aviation and to purchase flying material. He will later visit France and Italy. Capt. Luebeck will be accompanied by Capt. Werner.

ANOTHER FLYING COMPETITION.

The Portuguese Government has officially entered the lists of prize-givers. The first military aviator who flies from Lisbon to Rio de Janeiro within a period of 78 hours will receive a prize of £4,000. A sum of £40,000 has been allotted towards the organisation of the flight.

DESERTION BY AEROPLANE.

On June 7th a Russian aeroplane was observed over Säinio railway station, in the province of Viborg. It subsequently landed a short distance from the station. The aviator, who was obliged to land owing to lack of petrol, was taken prisoner.

Examination proved that he was a lieutenant named Gurland, belonging to General Denikin's Army. He started that he had been in the Bolshevist service but fled. He took the aeroplane in Petrograd intending to give it to the White Guards.

SWISS MILITARY AVIATION.

The Swiss Military Authorities have evolved a very neat little two-seater biplane, specially constructed with regard to local conditions, i.e., a country in which "high or bold relief" is the chief physical feature. Of course, it cannot compare with the scouting machines produced during the war by the various belligerents.

A Swiss-made motor of 190-h.p. is fitted. It is well to remember that Switzerland having no "breadth" and no intention of fighting, did not need machines with a large radius of action.

At the end of 1918, the Authorities commenced the demobilisation of the Swiss Armies; only a few score pilots have been retained, and these are obliged to do eight hours' flying per month in order to qualify for their £2 per hour bonus. The pre-war pilot, now a Cavalry Lieutenant, Bider, is the chief pilot.

Most of the Military aviators have formed themselves into an association to defend the national interests against German penetration.

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ON THE RE-ORGANISATION OF THE R.A.F.

On June 14th the Independent Force, R.A.F., gave a dinner to itself and a few fortunate friends to commemorate its efforts in the great war, and apparently also to lament the fact that the war was stopped before it was ready to bomb Berlin. Happily the Chief of the Air Staff, Major-General Sir Hugh Trenchard, K.C.B., D.S.O., was able to take the chair, as was fitting for the former G.O.C., I.F., R.A.F. Among those present were Captain His Royal Highness Prince Albert, K.G., General Newall, General Courtney, Lieut.-Col. Christie, Lieut.-Col. Beatty, and most of the squadron commanders who did such fine work under such difficult circumstances in the Independent Force.

General Trenchard made the gathering an opportunity for giving an outline of the future development of the R.A.F. As he explained, it was as unofficial an announcement as his position as C.A.S. permitted, but it must be of the most intense interest to all officers and men of the R.A.F., and therefore it is quite the most important event of the present period.

It was particularly apposite that the announcement should be made to the Independent Force, for that force perhaps came nearer to being what the R.A.F. of the future must be than did any other section of the R.A.F., in that the units of the R.A.F. working with the Navy were still almost purely Naval at the end of the war, and those with the Army were distinctly part and parcel of the Army. The I.F., on the other hand, had already begun to take on itself an independence which justified its name.

A Glance at the Past.

In proposing the toast of the Royal Air Force, General Trenchard gave a brief review of the past. He reminded those present that the Independent Force was the only force not run by the Navy or Army, though it was animated by the same spirit as the old parent services. They would remember that it consisted of the old 8th Brigade, R.F.C. While it was still the 8th Brigade, and before it became the I.F., it dropped 107 tons of bombs, made 57 day raids and 67 night raids, bombed 156 different targets, and also got to Cologne for the first time.

All this work was done in one of the worst of winters by 55 Squadron under Major Baldwin; by 100 Squadron —the first squadron ever formed essentially for night bombing—under Major Christie; and by that hastily-formed 216 Squadron under Major Savory. In May they were joined by 99 Squadron under Major Pattinson. The 8th Brigade was formed from what had been the 41st Wing.

The Spirit of the Independent Force.

General Trenchard said that he believed that when the Independent Force was formed it put still more keenness into the squadrons. The pilots never seemed to think of the strain which the work put on them. Referring to the strain on C.Os. of squadrons when waiting for suitable weather, he said he believed they scored over the enemy because waiting put more "ginger" into the subsequent attack. They would all remember the anxiety of those left behind while waiting to see the raiders come back, and the pride of the mechanics when their own machines returned bearing honourable scars.

The courage of the I.F. when real disaster befell was of the highest. Disaster, such as the loss of the greater part of a squadron, only made the survivors the keener to repeat the raid, and to turn disaster into victory. In this they scored over all other nations.

While the I.F. existed it dropped 553 tons of bombs in 250 day raids and 373 night raids. In addition to the original 8th Brigade it consisted of 104 Squadron (Major Quinnell), 97 Squadron (Major Albrecht), 215 Squadron (Major Fleming Jones), 115 Squadron (Major Garden), and 110 Squadron (Major Nicholl). They should also remember the good work of No. 3 A.S.D. under Lieut.-Col. Warwick Wright and later under Lieut.-Col. Collier.

As General Trenchard mentioned squadron by squadron the room rang with cheers, demonstrating convincingly that *esprit de corps* and squadron tradition is a very live force in the I.F., R.A.F.

The Effect of Bombing.

Continuing, Sir Hugh said that he had been asked for an opinion as to the relative value of day and night bombing. He believed that if they only bombed at night they lost half the value of night bombing and all the value of the day bombing. By bombing day and night the Hun was never allowed to be comfortable. Despite their own losses in bad weather they kept pressing on the Hun, and so they saved the lives of thousands of infantry—beside whose losses their own were very small indeed.

He had also been asked when was the right time to bomb Germany. Some of those present wanted to do it now. (A statement which produced loud applause.) He believed that the right moment came in the Spring of 1918, when the Hun was well held all along the line, before the Allied advance began. At that period that great R.A.F. force under General Salmond was bearing the whole weight of the Huns in the air. It was an extraordinary thing that the *moral* of the Air Force never went down even when they were beaten by sheer numbers.

General Trenchard acknowledged handsomely the help given to the I.F. by the various administrative services lent by the Army and the good done by the 8th Canadian Stationary Hospital under Colonel Munro.

He concluded this section of his remarks by paying a fitting tribute to those who had fallen. He said that the effort and example of those killed inspired the others to still greater efforts, and he asked those who remained that they should never forget to help the maimed and wounded.

He then proposed the toast of the R.A.F., coupling with it the name of General Newall, their able leader.

The Evidence of Experience.

Lieut.-Colonel Newall—late temporary Brigadier-General Commanding the 8th Brigade—who responded, said that his chief difficulty was to express what was in the minds of all present. General Trenchard had omitted to say what he did himself for the 8th Brigade. (At this point the I.F. had its opportunity of expressing what it felt about General Trenchard, and it took many minutes to do it.)

It was a great thing for an officer commanding in the Field to know that he would be backed up. No force was ever better supported than they had been by General Trenchard, and this knowledge was the foundation of all the work of the 8th Brigade. He recalled how pleased they all were by General Trenchard's message on the signing of the Armistice. He expressed his profound admiration for the pilots and observers, and he proposed the health of General Trenchard.

An Outline of the Future.

After the toast had been duly honoured, and after the consequent effusion of enthusiasm had been quelled, General Trenchard proceeded to give the long-desired outline of the future of the R.A.F.

He said that it had been easy to command such a force as the I.F., but what was interesting them was the future. What he was going to say would be as unofficial as it could be, coming from him. Characteristically he told them that what he had to say would probably not please them, and then he proceeded to be as comforting as possible under the circumstances of a devastating peace.

He said that those who were working on the organisation of the peace-time R.A.F. had to build for the future, and not for the present (or for those present). He asked them to forgive the delay which had occurred and asked them to put their trust in the Powers that Be. Those Powers had the profession of the Service aviator at heart and desired that the R.A.F. should have as high a reputation in peace as in war.

They had formed a scheme and were going to stick to it in spite of criticism, and they expected and invited criticism. They intended to do as much for the rank and file as for the officers.

When the terms of service and pay were settled they could let them know more, but they did not expect to please everybody. Speaking from some years' knowledge of service aviation, he had never known two men to agree on any aeronautical subject, and no man liked other men's decisions.

The General Scheme.

Turning to the general scheme, General Trenchard said that the Air Force List would consist primarily of those holding Temporary Commissions. The holders of Permanent Commissions would be limited strictly to those who were assured of permanent careers and quick promotion in the R.A.F., for they could not have majors 70 years of age, nor people who were merely holding on for a pension.

Temporary Commissions would be granted for periods of two or four years, including training. There would be a gratuity at the rate of £75 per annum at the end of the period. When the period was finished the officer would go to the Reserve.

In addition a certain number of officers of the Navy and Army would be given Temporary Commissions in the R.A.F. and would be seconded from their own Service. They would bring their Services more closely in touch with the R.A.F., and on returning to their units they would spread knowledge of aeronautics. Thus closer co-operation between the Services would be obtained in time of war.

A Territorial Air Force.

General Trenchard said that there would also be a Territorial scheme. On this point he did not vouchsafe any information, but it is eminently satisfactory to know that such a scheme is under consideration, as it is a subject in which many ex-officers and men of the R.A.F. are keenly interested. It will be remembered by the regular readers of this paper that a Territorial scheme for the R.F.C. was strongly advocated long before the war, and that both during and since the war the desirability of a Territorial Air Force has been expressed.

An R.A.F. Sandhurst.

Looking still further into the future General Trenchard said that the underlying intention was that the Air Force of the future should be controlled by officers trained in the Air Force Colleges. This, be it noted, is a very important point, for it implies the formation of a species of R.A.F. Sandhurst and Woolwich, where the youth of the future may learn to become an officer and gentleman, as well as learning to be a pilot at an ordinary R.A.F. aerodrome.

General Trenchard also said, on this same subject, that he hoped some day to see a Chief of the Air Staff who would be an R.A.F. officer trained in an Air Force College.

Pay and Promotion.

On the immediately important subject of pay Sir Hugh said that, though he could not then state the rates of pay, it was definitely decided that they should be such as to allow an officer to live, and live well, on his pay.

Promotion would be rapid, so that a good man would have a chance of being a captain at 25 or 26 and a major at 30.

Present Commissions.

Appealing particularly to those present, he said that he hoped that those who were not chosen for permanent commissions would take temporary commissions, for at first only a few permanent commissions could be given. And it was hoped, when it was possible to decide the number of permanent commissions available, that there would be enough of them to give permanent commissions to some holders of temporary commissions. The ultimate size of the R.A.F. could not be decided till the Peace Conference had fixed the size of armaments.

Maintaining Service Traditions.

General Trenchard said that he hoped to keep R.A.F. units together and make them the homes of officers and men, just as the famous regiments of the Army were the homes of those belonging to them. He hoped also to see permanent stations at home with the same tone as that which prevailed among the squadrons in France. Further, he said that the great war squadrons would continue to exist, though the number could not be known till after the Peace Conference had finished its work. (These remarks were received with prolonged applause, which again gave evidence of the strength of a proper service tradition among the active-service people of the R.A.F.)

The whole scheme of the R.A.F. would be in the direction of economical use in peace and rapid expansion in war.

It was intended that those who held temporary com-

missions R.A.F. should be assisted, as much as possible, on leaving at the end of their period of service, to secure positions in civil life. (One assumes that the intention is to give them permanent jobs in the Civil Aviation Service, whenever that Service is properly established. This would be excellent, as a means of transmitting proper Service tradition into Civil Aviation.)

From Temporary to Permanent.

Continuing, Sir Hugh said that there would be a matter of four years of a transition period before cadets began to come through from the Air Force Colleges. Meantime, the second and subsequent batches of permanent commissions would be given to those holding temporary commissions.

Also some permanent commissions must be given to technical officers who had very just claim on account of their services.

Later on a few temporary officers would be elected each year by a specially chosen committee to become permanent officers.

It must in any case be two or three years before stability could be reached in the R.A.F., so there must be delay in deciding who was and who was not to have a permanent commission. He even hoped, if all were well, to bring back some of the good men who had left the Air Force.

He asked the R.A.F. to have a little faith in those who were reorganising the Air Force, and not to leave in haste.

He believed that in two years' time those who had left would be sorry they had gone. And it was his ambition that when they met again in two years' time they should drink his health with that same good feeling that they had shown that evening.

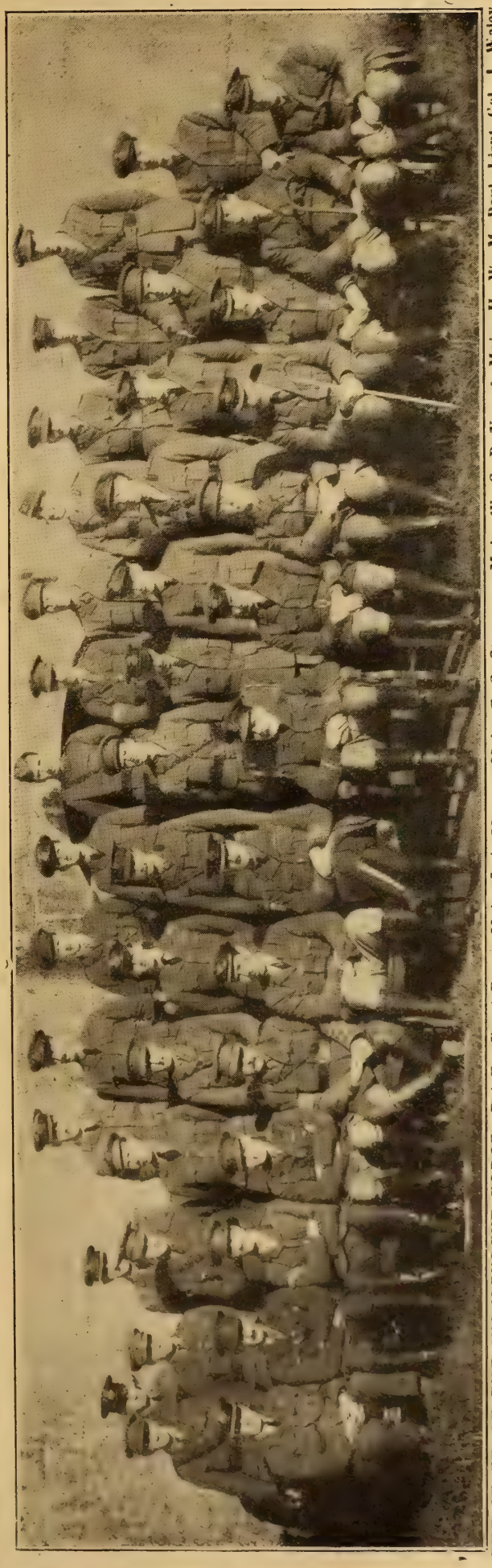
A Matter of Faith.

The response was such as to leave one in little doubt as to the faith in their Chief which was felt by those in the room. It is true that there were only a little over 100 of them, but they represented all ranks of officers in all squadrons, with the great majority very much of the junior ranks. And they may safely be taken as a very fair average of the R.A.F. as a whole.

There is no need for any doubt about the faith of the R.A.F., in its Chief, but there is grave doubt in the mind of the R.A.F. about the Government, and the Treasury, and above all about this fatuous idea of the League of Nations. One merely points out that there is no need to have faith in such things. The spirit of the Nation is stronger than Governments or Leagues, and the spirit of the Nation is formed by the inward grace and the outward signs of such as those who form the Royal Air Force.

One does not propose to discuss this subject further at the moment. One prefers to leave the statements of the Chief of the Air Staff as they are, without comment, and let them sink into the minds of the younger officers of the R.A.F.

At a later date one will return to some of the points mentioned. Meantime it would be interesting to have any ideas on these subjects which may occur to those who have served in the R.A.F. There is plenty of matter for discussion and suggestion, without destructive



THE STAFF OF THE INDEPENDENT FORCE, R.A.F.—Front Row.—Major J. A. Murray, Major F. G. Stammers, Major W. G. P. Young, Major H. W. M. Paul, Lieut.-Col. J. Waley Cohen, Lieut.-Col. A. V. Bettington, Brig.-Gen. E. B. Gordon, Major-Gen. Sir H. M. Trenchard, Capt. H.R.H. Prince Albert, K.G., Col. Sir W. R. Lawrence, Bart., Major the Hon. M. Baring, Lieut.-Col. the Hon. V. A. F. V. Russell, Major J. W. Burt, Major T. V. Smith.

Middle Row.—Captain D. Brunt, Sec. Lieut. S. S. Witcombe, Captain the Hon. J. St. V. B. Saumarez, Major L. Greig, Major C. S. MacNab, Captain C. J. Temperley, Captain H. C. Thornton, Lieut. N. B. Harris, Captain F. J. Terrell, Captain R. B. Bivar, Major E. K. Brown, Captain A. Hawley, Captain E. B. A. Rayner, Major R. A. Trelease.

Back Row.—Lieut. G. H. Brown, Major S. M. Cleverley, Major J. E. Hume, Sec. Lieut. F. A. Osborn, Sec. Lieut. F. Salisbury, Sec. Lieut. S. Thomas, Lieut. A. G. Baker, Lieut. C. F. Bryant, Lieut. E. Keating, Sec. Lieut. E. Duguet, Captain E. Lansdowne, Captain L. C. Bygrave, Captain O. M. D. Bell.

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criticism, but even destructive criticism is useful at times in its own way, and one will be glad to have it in any form.

None realises better than does the present writer how much the whole future of these islands depends on the Royal Air Force. One's greatest ambition is to see it not only the most efficient but the greatest of the King's Services, and to that end the remaining years of one's life are dedicated. And towards that end one bespeaks for the Powers that Be the faith and trust not only of those who still remain in the Royal Air Force, but of those who have left it but can still help it, and of those who, like oneself, can merely help in a humble civilian way from outside its gates.—C. G. G.

ON THE SUCCESS OF THE PIONEERS.

Congratulations to Captain Jack Alcock, D.S.C., and his navigator-assistant-pilot Lieutenant Arthur Whitten Brown on winning the *Daily Mail's* £10,000. If they could not have the distinction of being the first people in history to cross the Atlantic by air, they have, at any rate, the satisfaction of being the first to do a non-stop crossing, and the solid reward of what is, even in these days, a fairly considerable cash prize for their trouble.

One can only hope that His Majesty's Commissioners of Income Tax will refrain from levying toll on the prize on the grounds that it is part of the regular earnings of professional aviators. At any rate it cannot well be taxed at 5s. 9d. in the pound as "unearned income."

There is nobody in all aviation who better deserves to win the £10,000 than Jack Alcock, and nobody who was better fitted to win it by temperament, by training and by experience. He is one of the pioneers of British aviation, and he has served the King gallantly on active service, and those two facts give him a prescriptive right to the prize.

One's memory fails to record one's first meeting with Jack Alcock, but he was certainly among the very early inhabitants of Brooklands, if not actually one of the aborigines. One remembers him first as one of the assistants of Mr. Maurice Ducrocq, working on that funny little Henri Farman "racing" biplane which was originally (if one recollects rightly) the property of Mr. Snowden-Smith, now Lieut.-Col. A.S.C. and a bright star in Army Transport. At any rate it was from Mr. Ducrocq that he learned the art of tuning an aeroplane. and one remembers the respect in which he held the hawk-like eye of Mr. Ducrocq when it detected errors in the truing of cellules which even string and straight-edges failed to reveal.

Though he had been flying and working on aeroplanes for a long time, Jack Alcock only took his certificate at the end of 1912, his ticket being No. 368, dated 26/11/12. And it was taken (as a reward for good service) on that same old racing Farman, which, incidentally, passed into the R.N.A.S. at the outbreak of war and was crashed in 1915 by a clumsy pupil.

When Mr. Ducrocq ceased to spend his money on flying Jack Alcock was engaged by Mr. Louis Coatalen of the Sunbeam Co. to fly and maintain a Maurice Farman on which was mounted an experimental 150 h.p. Sunbeam engine which was the first Sunbeam used regularly on an aeroplane. On this job Jack Alcock's skill as an engineer, his diligence and perseverance, and his soundness as a pilot found full scope. With two or three assistants he kept that machine in perfect flying order. It was always ready for demonstration flights, and on it he put up some quite wonderful performances in the way of cross-country flights, especially in the "London-Manchester and Back" Race, and in one of the Aerial Derbys. He always knew exactly what the machine and engine would stand, and drove them just to the limits of safety, but never beyond. And he never "chucked stunts." His was always plain straightforward flying which inspired confidence.

Thus in those early days he did good service to aviation by demonstrating the safety and reliability of flying. And one knows that Mr. Coatalen will agree when one says that much of the reputation of the Sunbeam engine was built up on the results achieved by the skill and sound common sense with which Jack Alcock handled that early example.

A Fine War Record.

When war broke out Jack Alcock went and enlisted in the R.N.A.S., where he was put onto the job of instructing in flying. One forgets the rank with which he joined, but his earnestness and diligence and his imperturbable good temper, not less than his skill as a pilot and instructor, soon won him a commission. As a commissioned officer he continued to do instructional work at Eastchurch, where he developed, from being a school pilot of the slow and steady type, into a first-class scout pilot of quite unusual skill.

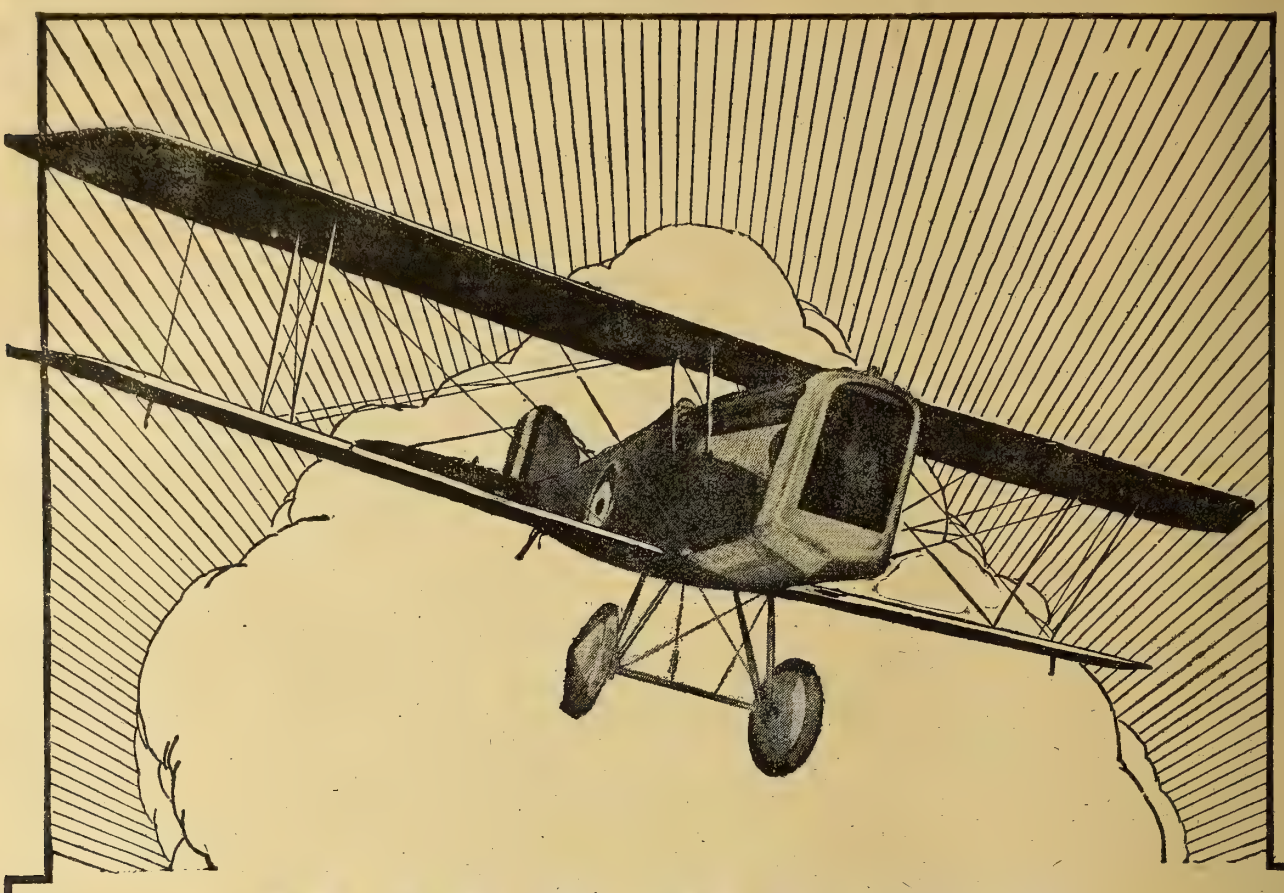
Thence he was sent out to the Mediterranean, where he served for some months before the first Handley Page, piloted by Lieut. McClelland and Capt. Savory, made its famous raid on Constantinople. When these officers returned to England their machine—very much second-hand—was turned over to Jack Alcock, who made several raids on it, including one of particular note on Adrianople.

Finally, while returning from a successful raid on Constantinople, one of the engines (the one which had been damaged in Lieut. McClennan's first raid) gave out, and after holding the machine aloft with one engine for many miles Jack Alcock was compelled to come down. With great skill he ditched the machine in the sea to the north of the Gallipoli Peninsula, hoping to be picked up by some of our patrol boats. But, as in other instances, the British Navy was not to be found where it might have been expected, so ultimately the H.P. crew were rescued by the Turks, who treated them as well as their own poor circumstances allowed, and sent them to Constantinople.

The rest of the war Jack Alcock spent in a prison camp, but beyond being somewhat bored by inactivity he never lost his cheerful spirit, nor his interest in flying. In the very first letter which one had from him after his capture he said: "Tell Coatalen I shall be ready for any big stunt after the war." And one is delighted to see that he has pulled off the biggest contemporary "stunt" open to any aviator—albeit not with the aid of his old friend and employer, Mr. Coatalen.

A Combination of Pioneers.

As soon as he returned from captivity Jack Alcock set about searching for an opportunity to do something big. It was not that he wanted to advertise himself, or to become a popular hero—for he is, and always has been, one of the quietly confident sort who does much and talks little—but that he wanted to do that "big stunt" of which he wrote. He found his opportunity



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with the Vickers people, among his old friends at Brooklands. Mr. Muller—a hard-headed Scot, a Miller by descent for all his Germanised name—had been a fellow-worker with Jack Alcock in the Ducrocq days, and had joined the Vickers works at Dartford. His ability was recognised by the late Major Wood, and he together with Mr. Archibald Knight (certificate No. 60, dated 14/2/11)—one of the first of the Vickers crew at Brooklands, and still earlier of the Bristol Co.—were appointed to organise the new Vickers works out of what had been the Itala works just outside the Brooklands track.

This proved to be the most successful of all the Vickers aircraft ventures and achieved record outputs during the war. Mr. Peirson, the chief designer of the Vickers firm, under the instructions of Major Wood, designed the Vickers "Vimy" bomber somewhere about the end of 1917, and the machine when produced proved to be one of the best of all twin-engined aeroplanes. The late Major Gordon Bell, who flew the experimental machines, was enthusiastic over its maniability and its all-round performance.

When, after the usual Air Ministry delays and muddles, it was put into quantity production about a year after it was designed, the Vickers Weybridge works were turned onto the job of manufacturing it. Thus it came about that when Jack Alcock went down to pay a visit to his old friends Muller and Knight he found the instrument for his big stunt ready and waiting for him.

Captain P. D. Acland, who had been Major Wood's Chief of Staff at G.H.Q., Vickers, Ltd., for some years —— after being invalided from active service—and who succeeded Major Wood so ably as head of the Vickers Aviation Dept., at once recognised in Jack Alcock the right man for the trans-Atlantic attempt. Colonel Caddell, O.C., Vickers' Civil Aviation ventures, concurred cordially. And so Jack Alcock got the job.

Thus for once Fate has been kind to the deserving, and those pioneers of the old Brooklands days, Jack Alcock, Percy Muller, and Archibald Knight, have met with deserved success, for they have pulled off the biggest prize open to them at the time when they made their effort. None could have succeeded without the others, so to all of them the credit is due.

One ought perhaps to include in the congratulations Mr. Royce, of Rolls-Royce, Ltd., who, although not a pioneer of aviation, is certainly a pioneer of motor making. His ruthless policy of testing and scrapping, testing and scrapping, has produced certainly one of the most reliable engines in the world. And without that quality of reliability the trans-Atlantic journey could not have been done. To him also one offers congratulations on his success.

Further, one would like to congratulate the Vickers firm on this great success, after years of hard work and consistent bad luck. One regrets deeply that that good little sportsman, Major Bertie Wood, did not live to see the success of the machine which he fostered so carefully. But one rejoices that an equally good sportsman, Captain Acland, had a hand in the affair.

Jack Alcock's career has been recorded in some detail, but, knowing his modesty, one will refrain from comment on his personality, beyond saying that he is a big, hefty fellow of the sort who would be a comforting companion in a street or music-hall row, that he is quite passably good-looking, and that he possesses a most undefeatable good temper. He hails from the North—one believes from Manchester in particular —so here, at any rate, is another excuse for the existence of that part of England. The way in which he appears to those who know him is best summed up in the phrase of another aviator, who remarked simply, "I'm glad old Jack has got it. He's such a damned good chap."

The Navigator.

One has not the pleasure of knowing Lieutenant Arthur Whitten Brown intimately, but the fact that the Vimy met the Irish coast at Clifden, a projecting point of Ireland which might easily have been missed, shows him to be a navigator of considerable ability. It is to be hoped that he will relate his experiences and will demonstrate his methods to the Royal Aeronautical



Capt. J. ALCOCK, D.S.C.



Lieut. A. W. BROWN.

Society, as one gathers Lieut.-Commander Grieve is to do.

Judging by the newspaper stories Mr. Brown would also appear to be a humorist of no mean order, for it is reported that he told some inquiring—or perhaps one might say inquisitive—person at Clifden that at times the Vimy was upside down 10 feet from the surface of the Atlantic. How, under the circumstances, a machine 67 feet in span and 40 in length succeeded in coming right side up again, even in the hands of Jack Alcock, passeth human understanding, but apparently does not defeat the gullibility of the newspaper reporter and editor.

For the sake of getting away with this yarn, if for no other reason, Mr. Brown deserves to be received with open arms into the innermost brotherhood of the Royal Aero Club. And even if he did not do it on purpose, he deserves credit for whatever the original story may have been from which the Press distorted it. Quite apart from that, one gathers that he has been an R.F.C. pilot with flying on active service to his credit, and anyhow he is a friend of Jack Alcock's, and those are good enough credentials for anybody.

The daily news-sheets emphasise the fact that he is about to be married. One wishes him as good fortune in his new partnership as befell him in his trans-Atlantic effort.

The papers also state that, though he was born in England, his parents are American citizens. Therefore one supposes one ought in this case also to thank the United States for showing the English the way across.

Further Attempts.

We have been told *ad nauseum* by journals of all descriptions that the attempt to cross the Atlantic in a non-stop flight demonstrates the finest qualities of the British Race. So it does. But, now that these excellent qualities, which include that invincible optimism and that marvellous disregard of logical sense which won the war for us but are precious little use in business have been demonstrated, perhaps one may ask what is the use of future attempts?

So far as one can see they can be of no use whatever. We are no nearer to a regular trans-Atlantic air service to-day than we should have been if the Atlantic had not been flown at all. Further attempts to fly across cannot be of any value to commercial aeronautics nor to civil aerial transport. They merely involve needless risk of valuable lives, and of machines representing money which will be badly needed in the Aircraft Industry in future.

If any other machines get across they win no prize, and they do not prove anything that is not known already. If the owners of those machines want to prove something, and want to demonstrate the commercial value of aviation, the best thing they can do is to send them off on a non-stop flight from Newfoundland to New York, or to Toronto, and then keep them in America, demonstrating to the United States and Canada the real possibilities of aerial transport.

What is Commercial Flying?

One of the pioneers of aviation, and one of the best business men in the Aircraft Industry, was asked the other day to define Commercial Aeronautics. His reply was simply: "Any flying that pays is Commercial Aeronautics, any other isn't." That sounds like a platitude, but in essence it is an epigram. Flying the Atlantic at present is not going to put a penny into anybody's pocket, and it is going to cost a lot of money. Demonstrating British machines in both the American Continents can be made to pay its own way on the spot, and will bring further business. One is Commercial Aeronautics and the other is not.

Flying in the Aerial Derby next Saturday is a commercial proposition because the successful machines will demonstrate their qualities at small risk and expense, and the makers advertise them in this way with reasonable prospects of getting orders for others like them. But nobody is going to buy a trans-Atlantic machine for fun, and Governments who want machines of more or less similar types do not require a trans-Atlantic flight by way of an acceptance test. Therefore trans-Atlantic flying is not Commercial Flying. Nor is it sporting flying, for the prize offered has now been won. It is simple foolhardiness.

Therefore one hopes that those firms whose machines are in or on the way to Newfoundland will devote the aeroplanes and their crews to some purpose which is more likely to bring business to the Aircraft Industry. In this way they will do more to help forward progress in aviation.—C. G. G.

A WELL-EARNED HONOUR.

All officers and men of the early R.F.C. and all those of the R.A.F. who have served in the East will rejoice at the well-earned honour conferred on Major-General W. G. H. Salmond, C.B., D.S.O. (R.A.), whose appointment to be K.C.M.G. was recorded in the "Gazette" of June 3rd. Unfortunately, the date on which the "Gazette" appeared has prevented any earlier reference to the appointment.

After doing distinguished service with the R.F.C. in France in the early days of the war, Major Salmond (as he then was) was appointed to command the first R.F.C. units in Egypt, at the time when the Turks were making their attacks on the Suez Canal. When the R.F.C. units in the Near East grew into a Brigade, General Salmond was appointed to command, and took over not only the Forces in Egypt and Palestine, but those in the Balkans as well.

Later, again, the R.F.C. Middle-East detachments in Mesopotamia and in India came under his command, and he was promoted to Major-General.

Huge permanent workshops were set up in Egypt, and an immense training school came into operation there during 1917. Thus the whole of the training arrangements, as well as the active service operations in all Eastern areas came under General Salmond. The success of the R.F.C. in all these areas under the most difficult circumstances gives the best possible testimony of General Salmond's remarkable all-round ability.

When the R.A.F. came into being on the fatal April 1st, 1918, the R.N.A.S. units in all the Eastern war areas also came under General Salmond's command, and those who have been at all closely in touch with these units cannot fail to have been impressed by the appreciation expressed by all ranks of the way in which General Salmond has dealt with them, again despite remarkable difficulties as regards the supply of matériel.

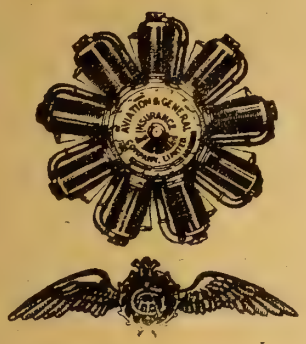
One has referred to the difficulties under which General Salmond has worked, and lest one should be suspected of expressing a merely personal opinion, one would quote in proof of one's own statement the following passages from a vivid article in the June number of "Blackwood's Magazine" by Captain Alan Bott, M.C., who served in Palestine during 1918:—

"Up till the last few weeks of 1917 the Flying Corps in Palestine had, frankly, a difficult time. This was by no manner of means the fault of the pilots, nor of the R.F.C. Staff on the spot. It was an inevitable result of the policy of gentlemen in England who were giving the Eastern Fronts certain types of machines which seemed specially designed to give their crews a minimum chance of defending themselves—types which had to be dumped somewhere, because other gentlemen in England had ordered them in hundreds and thousands long after they should have been obsolete as regards active service.

"Thus, apart from a few Beardmore-Martinsydes—excellent as light bombers, but never much good as fighting craft, even when they were first used on the French Front in 1916—the only British aircraft in Palestine prior to the last few weeks of 1917 were the much too 'inherently stable' B.E. brands, officially designed, officially promoted, officially ordered by the thousand, while better privately-designed types were ordered by the score, and officially foisted on oversea squadrons, so that they became the unofficial bugbear of active service pilots. And the German fighting pilots in Palestine, particularly one Oberleutnant Felmy, with their Albatros single-seaters, enjoyed themselves immensely—for a while.

"With the arrival of a few Nieuports on the British side they enjoyed themselves rather less, and when some Bristol Fighters, and, later still, some S.E.5s, flew into the arena, the Air Boche, Palestine species, had a perfectly beastly time. The R.F.C. Brigadier-General used his reinforcements to the best advantage, and after one or two special exploits (like that of Capt. Peter

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Drummond, D.S.O., M.C., who, on a Bristol Fighter, destroyed three German machines over their own aerodrome within 10 minutes of attacking them), we seldom found any black-crossed craft over our part of the lines."

Further on, writing about the opinion of a captured German aviator, Capt. Bott says:—

"His opinions on our airmen and machines were interesting. Our pilots were splendid, but too reckless, he thought. As for the machines, the Bristol Fighter was the work of the devil, and to be avoided at all costs; the R.E.8 might safely be attacked unless it were well protected, the British single-seaters were good, but the German Flying Corps regarded the B.E. types as 'sehr komisch.' Later, when I was myself a prisoner, I found these statements echoed by other German pilots."

These sentences, better than any of one's own, will give an idea of the difficulties against which Sir William Salmond has had to contend.

As in the West, under Sir Hugh Trenchard and Sir John Salmond (the younger brother of Sir William Salmond), the R.F.C. people in the East have always been full of admiration of their G.O.C., and the loyalty which Sir William Salmond inspires in those who serve under him in all ranks is proved by the frequency with which one hears it said by the people from the East that if only their General had been in France instead of being buried in the East, he would certainly have been G.O.C., R.A.F., on the West Front.

One may perhaps hazard a guess that Sir William Salmond's success is due to his talent for recognising a good man when he finds him, putting him into the right job, and then leaving him alone to do the job in his own way. And equally the loyalty which he inspires in those under him may be ascribed to everybody's faith in his absolute fairness and freedom from personal bias or prejudice, and his firmness in supporting his subordinates.

The R.F.C. throughout the war has been singularly fortunate in its senior officers in the war areas (unlike the R.N.A.S.), and in no war area has it been more fortunate than in the East. All who have served with him will join in congratulating Sir William Salmond on his well-won title.

THE AIR MINISTRY AND CIVIL AVIATION.

On Thursday last the following letter was sent from this office to each of seven leading London papers which profess to take a lively interest in the progress of aeronautics:—

People who are interested in the development of Civil Aviation will regret to learn that owing to an extraordinarily short-sighted action on the part of the Air Ministry, the British Aircraft Industry is to be deprived of its first opportunity of demonstrating its superiority over the Industries of other Nations.

As is pretty well known, the Circuit of London Race, commonly known as the "Aerial Derby," is to be flown at Hendon on Saturday, June 21st. A number of firms have entered their very fastest machines for this race, and as so much interest is being taken in the race by everybody, and as it is certain to receive an enormous amount of attention in the Press, naturally the machines which put up good performances would, in the ordinary course of events, receive an excellent advertisement all over the world, which would not merely be for the good of the particular firms concerned, but would ultimately react on the whole British Aircraft Industry, and so on the reconstruction of British Industry in general.

One now learns that the Air Ministry has forbidden the Aircraft Industry to use in that race any machines or engines which are either the actual property of the Government, or have been built to the order of the Government but not delivered. This order will bar from the race the Sopwith 'Dragon" (A.B.C. engine), the Martinsyde "F.4" (Hispano-Suiza engine), the B.A.T. "Basilisk" (A.B.C. engine), and any other of the very high-speed machines fitted with A.B.C., Cosmos, Hispano, or Rolls-Royce engines which happen to have been allocated to the firms in question to be fitted into machines ordered by the Government.

I venture to submit through your columns that this action on the part of the Air Ministry is exceedingly detrimental to British Industry as a whole. None of these machines is wanted in a hurry for military purposes, and, from what one knows of Air Ministry methods, if they were all delivered to-morrow they would either be crashed the next day, or else would be kept hanging around for weeks without ever being used. Therefore, it cannot matter to the Air Ministry whether they have to wait for delivery until the Monday following the "Aerial Derby" or whether they have to wait for completely new machines to be built if the whole lot are crashed in the course of the race.

On the other hand, the performances of the machines in the race would be an excellent indication to the Air Ministry itself of the relative values of the machines.

May I suggest that your readers will be interested in this example of our official method of helping British Industry.

(Signed) C. G. Grey, Editor, The Aeroplane.

One has only been able to trace one reference to the subject in any newspaper—the "Daily News" to wit. Therefore, readers of The Aeroplane may form their own judgment as to the amount of real interest which the Press takes in flying, whether from the point of view of sport or commerce.

It would seem, furthermore, that the Press is equally blind to its own interests, for if the barred machines had put up particularly brilliant performances they would have afforded our journalists an opportunity for letting loose their most fulsome superlatives, and if one or more of these very fast machines had crashed still greater opportunities would have been offered to the Press in that the hack writers could have revelled in horrible details.

The list of machines affected by this dog-in-the-manger policy are:—An Armstrong-Whitworth machine (details unknown); a Bristol, with a Cosmos engine; a Vickers machine (details unknown); a new Sopwith, with "Dragon-Fly" engine; a Nieuport "Nighthawk," with "Dragon-Fly" engine; one of the F.4 Martinsydes, with Rolls-Royce engine; an Airco D.H.10 (twin-engined); a B.A.T. "Basilisk" ("Dragon-Fly" engine); a Boulton and Paul "Bourges" (twin A.B.C. engines).

And there may be others of which one has not actual knowledge.

This, then, is the Air Ministry's idea of encouraging aviation, after all the talk that we have had from General Seely and General Sykes about their earnest intention to assist Civil aviation in every possible way.

Although the list of machines which have been entered in spite of the Air Ministry's best endeavour to spoil sport will undoubtedly provide a very fine race, the result cannot be taken as actually representing in any way the genuine progress of British aviation. Until the various assorted controls exercised over Civil aviation by the Air Ministry are themselves adequately controlled we cannot hope to get a really representative exposition of what the British Aircraft Industry can do.

C. G. G.

AIR MINISTRY ASSISTANCE.

The following letter has been received:—

Sir,—Encouraged by the publicity given to my letter in the "Times," Monday, 9th inst., in your paper, on the subject of Civilian Flying, I wish through your columns to ask the Air Ministry a question.

Is Civilian Flying being assisted, subsidised, or taxed? My answer is that it is not being assisted, that it is certainly not being subsidised, and that it is being very heavily taxed. In proof of this I paid last week to the Government £80 for housing and landing fees of eight machines, on the average. Assuming the normal civilian accommodation of Hounslow Aerodrome to admit of 48 machines, this would produce a weekly revenue to the Government of £480, and an annual revenue of £25,000.

This charge of £80 is made to me without any of the assistance which is provided for in the way of labour under the Air Navigation Acts, as I provide my own personnel entirely.

In addition to this no spectators are allowed into the Aerodrome, as the Air Ministry have informed me verbally that they do not want them.

Thirdly, no exhibition flying is allowed within 2,000 yards of the aerodrome, and both I and my pilots have frequently been warned for alleged infringement of this regulation.

Most of the extravagant charges and strict regulations are justified by the Air Ministry on the ground that Hounslow is *the* London terminus, and that the dignity of the Station as *such* requires support. My flying has also been termed "not serious" by a member of the Staff of the Controller-General of Civilian Aviation.

All these things, besides many others, incline me to the view that civilian aviators are at present looked upon as a nuisance and treated as dangerous. As an ex-officer and ex-Wing Commander, Royal Air Force, I naturally feel the imputation very strongly.

You are at liberty to verify my figures from the accounts which are presented to me weekly.

One other point to assist my argument—I am still being charged for petrol to include the 6d. tax which was removed by the Treasury as from June 1st. One more indication of the value of this "assistance."

G. L. P. Henderson, Lieut. Col.

AERODROMES FOR SALE.

The Disposal Board of the Ministry of Munitions are including several aerodromes that are not required for Government purposes in the present sale of Government property. Of these, two are situated at Goldhanger and Stowmarket in Essex, two in Suffolk at Burgh Castle and Covehithe, one at Lilbourne on the borders of Northants and Warwickshire, and the others are at Ramsey (Hunts), Telscombe (Sussex), and Edzell (Kincardine).

In some cases the buildings, with the land on which they stand, might be required without the aerodromes, as suitable for factories, hospitals, convalescent homes, training centres, etc. The various buildings are of brick, corrugated iron, and timber, with water supply and electric light, and could readily be adapted for any of the purposes mentioned. There are also permanent roads.

Intending purchasers can obtain further particulars by applying to the Disposal Board, D.B.I.a.3, Room 135, Charing Cross Buildings, Villiers Street, W.C.2.

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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

Subterranean Flying.

The following official communiqué has been received from the U.S.A. War Department News Bureau :—

"Ellington's 'Gulf to Pacific' squadron of De Havilland Fours has returned home after a remarkable cross-country flight of 3,300 miles. This squadron, under command of 1st Lieut. R. O. Searle, has charted unknown territory, has skimmed the waters of the Gulf of Mexico, has darted over the backbone of the continent at a height of 16,000 feet, has tasted salt water at San Diego, and has even flown 600 feet underground."

One wonders if it was after "tasting salt water" at San Diego that the pilots flew 600 feet underground, or if they were trying the experiment of boring for oil with aeroplanes.

At the end of the communiqué, however, one finds the following :

"Lieut. Rugh and Mr. Lewyn, the motion-picture man, actually flew down into the canyon. They got down to 600 feet below the edge of the canyon."

Life is full of these disappointments.

The History of the R.N.A.S.

The proposal by a correspondent for a history of the R.N.A.S. is excellent so far as it goes, but where would it finish? Surely not at the birth of the Royal Air Force, because the R.N.A.S. preserved its identity long after that unhappy event. The final effort to break the *esprit de corps* of the Naval Service was the order forbidding the use of the White Ensign. The peculiar significance attached to the flag cannot be expressed in words, or understood by those who have not served in the senior Service, but the order caused great resentment, and was flatly ignored at some Stations.

At one such Station an inspection was to be held by a General, and the tip was given that he was particularly keen on suppressing the White Ensign. On the great day it was replaced by four flags, ostensibly to indicate the direction of the wind. The Great Man made his inspection, glancing occasionally at the Ensign Staff with a puzzled expression, until his curiosity overcame his discretion, and he asked, "What are those flags up there?"

"Four flags of the Naval Code, Sir," was the reply.

Silence for a space while he digested this information. At last he fell right into the trap. "What do they signify?" he asked

With a countenance devoid of expression, his guide replied : "R.N.A.S., Sir, in the Naval Code." Tableau.

This story might do to wind up the proposed History of the Cinderella Service.

Ex-Pilot.

M.Os. with Wings.

The American Air Service is encouraging Medical Officers to fly, and the following announcement has been made :—

"Flight Surgeons have full charge of everything connected with the physical condition and care of the flier, and live and associate with the cadets and aviators constantly. In this way they are able to determine when any individual is not in proper condition to fly. Many of these surgeons take flying training and become pilots, authority having been granted Medical Officers to receive this training. When they qualify, they are entitled to all the rights and privileges of aviators, including the "wings," and also a 25 per cent. increase in pay from the time training is started. Medical Officers who have been Flight Surgeons are enthusiastic over this work."

This is a thoroughly sound scheme. If the dug-out M.Os. of the R.A.F. had a little more practical knowledge of flying they would not make themselves ridiculous in the eyes of pilots so frequently. If some of the medical tests that theorists have suggested had been introduced early in the war a very large number of the pilots who distinguished themselves would have been relegated to the manure heap—an impolite expression by which ground duties are sometimes indicated.

The pilot may have exaggerated when he said that the Vet. made him touch his left ear with his right ankle and hop round the room on his other leg, meanwhile carrying a tube of mercury in his mouth to show his wind pressure, but there is some truth in the burlesque. Medical Officers with actual flying experience would be less humorous but more practical.

Another Ruthless Rhyme.

Ferdinand, a bright young feller,
Built himself a new propeller.
Some way up it came unglued—
A wreath was sent by Ermyntrude.

The Altiplane.

The following are the salient points in an address by Samuel D. Mott, an Edison pioneer, to the Pan-American Aeronautic Convention on the lessons of the Atlantic flight :—

"We have read of many men tarrying at Newfoundland for several weeks waiting—waiting for the weather," he said. "That trial was a glorious undertaking, our Navy's expedient was wise, and all honour to the brave men attempting the test. But I submit that waiting indefinitely for ideal weather conditions for long-distance flying over land or sea will not do for the demands of commerce. Therefore, I would bring to your attention the possibilities of the antithesis of the submarine—the altitude plane, or altiplane, as distinguished from the airplane or hydroplane, to go into the stillness of nature above the weather.

"The problem is evidently one of equipment of our planes to function in rarified air and protection of navigators against its tenuity, likewise protection of their body warmth and comfort in extremes of temperature. I believe it possible to go 15 or 20 miles aloft. It is obviously a matter of equipment plus climbing ability of aircraft designed for the purpose.

"When we double the time to do a risky thing we double the risk incurred. Less gasoline, less weight and expense, for if environment permits to go 100 miles with twice the fuel we formerly used to go 25 miles our economic gain is obviously 100 per cent., because we may then go 100 miles with the amount of fuel we formerly consumed to go 50 miles."

The last paragraph strikes one as being somewhat involved. For example, what does Mr. Mott mean by "when we double the time to do a risky thing we double the risk incurred"? If he refers to *any* risky thing, then it would be safer for a soldier after going over the top to stroll quietly towards the enemy than to charge as fast as he jolly well could. Also, it would be safer to drive a motor-car through London at 40 miles an hour than at 20. If Mr. Mott refers to aeroplanes specifically, then he means that the faster a machine is the safer it is—which it isn't.

The sentence following this dogmatically stated un-truism is merely a laboriously involved statement of the transparently obvious.

War Dreams.

For some reason "The Christian Year" did not attract me, nor did I feel any need of a somewhat dingy volume on "Grouse Sickness." The rest of the bookseller's stock was much of the same order, and I had just turned to leave the shop when my guardian angel made me pause and look at a dusty shelf, marked "All of these, 1½d." It was there that I found "War Dreams and Their Meanings." The cover promised much : reunited lovers in evening dress and ermine, trench-hatted stalwarts eviscerating the enemy, and a Sleeping Beauty with lace insertions. . . .

To dream of an "aerodrome," it appears, means "good news to a maiden." An aeroplane signifies that "a beloved one will soon visit you from over the sea," and the blunt information is given that a dream in which an air raid is involved can only mean "an increase in family!" Should you dream of an air pilot, it may be construed as signifying that "your virtue will be assailed, but you will resist successfully." A dentist indicates felicitously that "someone is pulling against you," and visions of fleas portend "malicious attacks, insidious enemies." Haunted by dreams of hemp, "you have met your fate, therefore seek no further." (A sinister work this!) A propeller involves "a change of lodgers," and a parachute "moral danger to the maiden." This modern Daniel must stand responsibility for the portent of a Zeppelin, "this can only mean that you are to look out for a policeman with black whiskers."!—R. H. B.

Looping Lunacy.

The office of the Director of Air Services, Washington, has issued the following :—

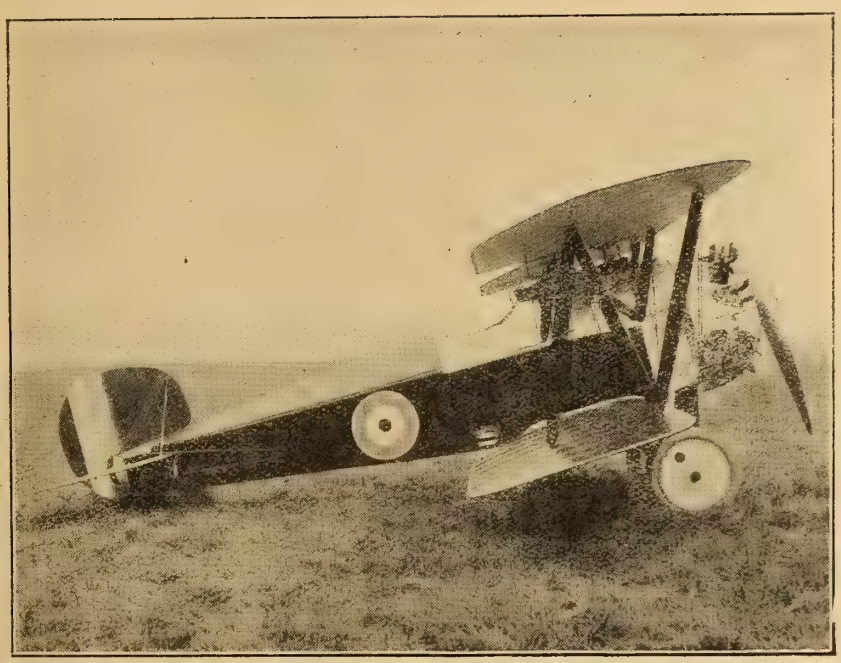
"The feature of the week's work was the new world's record established at Carlstrom Field in looping by Lieut. Ralph J. Johnson, who has many unrecorded stunts to his credit. He was accompanied by Sec. Lieut. Mark R. Woodward as a passenger. Johnson made 457 continuous loops in his Lapere Fighter in 1 hr. 54 mins. 10 secs. His elevation varied from 6,000 to 4,000 ft."

One would think that these lunatic looping stunts might now be stopped. If they continue much longer one may expect Americans to introduce a machine that can only make progress in a series of loops, and possibly some self-advertising aviator will try to make aerial somersaults all the way across the Atlantic. But it will not prove anything except that there are still foolish people in the world, and that does not require further demonstration.

10,000 FEET IN 5 MINUTES 25 SECONDS

AT FARNBOROUGH IN APRIL, 1919, A BRISTOL SCOUT FITTED WITH A "**MERCURY**" ENGINE CLIMBED 10,000 FEET IN 5 MINS. 25 SECS., & 20,000 FEET IN 16 MINS. 15 SECS., SPEED AT 10,000 FEET 143 M.P.H. OFFICIAL CORRECTED BAROGRAPH FIGURES.

CONSTITUTING TWO BRITISH RECORDS



300 H.P. MERCURY IN BRISTOL SCOUT.

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MERCURY	300 H.P.	WEIGHT 587 LBS.
LUCIFER	100 H.P.	WEIGHT 220 LBS.

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20,000 FEET IN 16 MINUTES 15 SECONDS

The WORLD of AERONAUTICS (continued)

On that Matter of Hospitality.

One hopes that certain notes in this paper last week on the apparent lack of courtesy which the crews of the American N.C. Flying-boats received in this country will not be taken by our relatives across the Atlantic as indicating that the Authorities of the various aeronautical associations in this country were guilty of any intentional discourtesy.

The lack of hospitality merely indicates that the Englishman collectively retains his Teutonic boorishness, despite the fact that the English gentleman individually is the finest example of his class in the world. In support of this statement it is worth while to re-tell two stories told by an aviator recently returned from "foreign parts," to wit a neutral country.

According to the first story a great ceremony was organised at the British Embassy in the capital of a certain neutral Nation at which ceremony sundry British decorations were to be presented to certain officers of that country who had done very distinguished service in a strictly neutral capacity for the benefit of our wounded and sick soldiers.

A wonderful programme was arranged, according to which the British Ambassador was to make a speech and the band was to play the British National Anthem; then the chief notability of that particular neutral country was to make a speech and the band was to play his National Anthem; then the senior officer who was to receive a decoration was to be presented, and after he had made his speech the band was to play an appropriate air, and so forth all down the list. Everything was beautifully arranged and the noble company was duly assembled.

The Ambassador and the leading notability made their speeches, the National Anthems were played. And only then was it discovered that the officials of the Embassy had entirely forgotten to invite the officers on whom the decorations were to be conferred.

Unfortunately what happened afterwards is wropped in mystery. Presumably, swift runners were sent into the highways and byways to compel the recipients of the decorations to come in.

The other story also concerns a British Embassy in a neutral country. In this case a great function had been arranged to which all the Military, Naval and Society leaders of the neutral capital were invited to the British Embassy to meet a number of British aviators who had arrived by air in that country. The function was a great success. Everybody wore his or her most brilliant clothes; the music, the food and the drink were of the best; and all concerned enjoyed themselves thoroughly—except the British aviators, who did not hear about the function until the following day.

Nevertheless, they had actually enjoyed themselves very much, because they had spent the evening at a private dinner and dance given by certain personal friends of their own in that neutral capital.

Thus, it may be seen that the official Englishman even carries his curious notions of hospitality, and incidentally of organisation, abroad with him.—C. G. G.

No. 1 R.A.F. Cadet Wing Dinner Club.

A dinner will be held at the Café Royal on June 25th at 7.30 p.m. Officers wishing to attend are requested to communicate at once with Mr. L. Banister, 5, Argyle-Mansions, W. 14.

The Truth Revealed.

The following appeared in the "Daily Mail" on June 13th:—

"The compulsory fitting of life-saving parachutes to all Royal Air Force aeroplanes has been agreed to by the Government, and an instruction to this effect will shortly be issued by the Air Council.

"Whether this order will be applied also to British commercial aircraft is not yet decided; but it is probable that training machines at least will be compelled to carry some form of life-saving appliance.

"Ever since the 'Daily Mail' pointed out the urgent necessity of fitting our fighting aircraft with 'aerial lifeboats'—and demonstrated their practicability by successfully delivering newspapers by air by means of 'Guardian Angel' parachutes, the authorities have had the matter under consideration and the most extensive experiments have been carried out."

It is interesting to note that it was the "Daily Mail" that demonstrated the practicability of the "Guardian Angel" parachute to the authorities. One had an idea that the Air Ministry had heard vague rumours of the existence of this "aerial lifeboat" before the "Daily Mail" used it for delivering its newspapers.

Flying at Hendon, 1919.

The following letter has been received:—

Sir,—After reading your article entitled "Flying at Hendon, 1919," one feels distinctly pleased at the suggestion put forward concerning the buying up of old Service machines and letting them out to "demobbed" R.A.F. pilots at a nominal fee, for use on Saturdays and Sundays.

I am an old pilot, having taken my certificate in 1915, and would very much like to "keep my hand in" in this way.

One reads of the scandalous burnings of "demobbed" Service machines, and yet when one tries to purchase one, the price quoted is beyond even an ex-R.A.F. officer, these days.

I hope, and I think I am not only speaking for myself, that your suggestion will be pushed forward again.

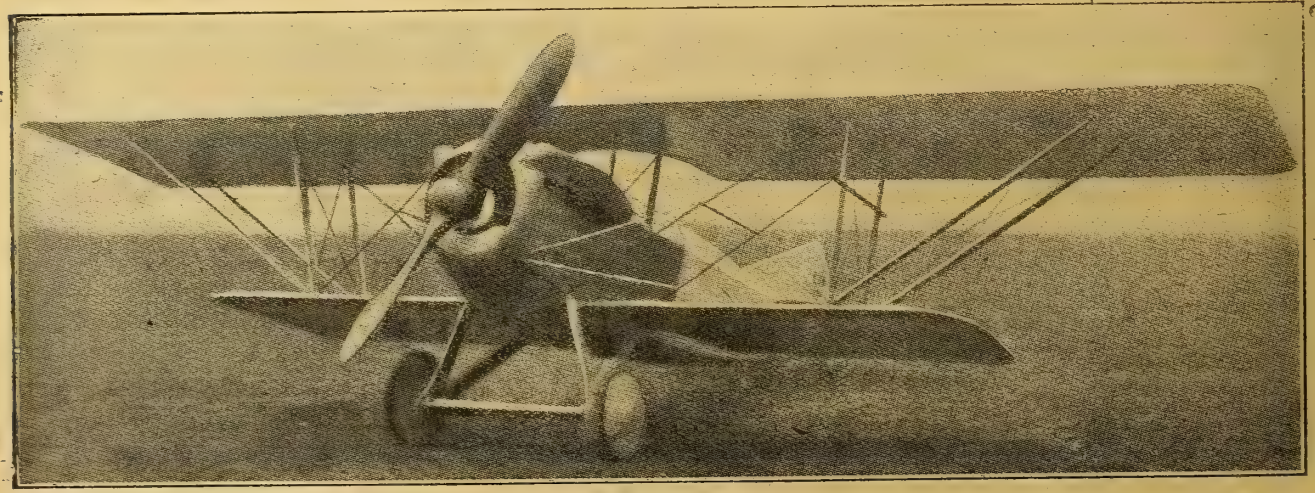
Alan H. Curtis (Capt., late R.A.F.).

De-assembling and Dissembling.

Colonel M. O. Darby, R.A.F., Assistant Controller of the Aircraft Disposal Department, recently told a representative of the "Daily Mail" that "the only cases of de-assembling of new machines refer to certain types of aircraft, now obsolete, which were designed solely for fighting. They were dangerous in the hands of the most experienced pilots. Many refused to fly them, and the machines have since been replaced on the active list by later and more efficient types. The Air Ministry has forbidden the sale of the dangerous machines.

"They have, therefore, been scientifically dismantled. Every instrument and part is accounted for and either stored or sold. Obsolete metal fittings are melted down. Even the dope is extracted from the fabric, and the canvas itself is sold for making bank-notes. These parts are yielding a big return, and batches of obsolete engines, which have done considerable service, have been sold for what the Government paid for them."

One wonders if it was the "canvas" that made these machines dangerous. Bank-notes made from the canvas of dangerous machines ought to be issued at a premium as curiosities.



The de Marcay single-seater fighter (300 h.p. Hispano-Suiza engine), which, on test at Villacoublay showed a speed of 252 k.m.h. (162 m.p.h.) low down, 237 k.m.h. (148 m.p.h.), at 3,000 metres, 231 k.m.h. (143 m.p.h.), at 4,000 metres, and 208 k.m.h. (139 m.p.h.), at 6,000 m. Span 9m./50, overall length 6m./50. Balanced ailerons. An overall factor of safety of 14 is claimed for the machine.


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The WORLD of AERONAUTICS (continued)

The International Air Code.

Reuter reports that:—"The Aeronautical Commission of the Peace Conference has completed the drafting of an Air Code in the form of an International Convention for Aerial Navigation. It has now been submitted to the Allied Governments for signature."

Aerial Hearses.

According to the "Daily Mail," Messrs. Handley Page have just received a request for aerial hearses. An undertaker with imagination conceived the possibility of a person dying in London having expressed a wish to be buried in Scotland, and of making the funeral journey by air instead of by rail. The firm, however, have replied that they have no intention, at present, of doing business of this kind.

Another rather grim proposition is that for an aerial service in India to carry sick and dying Hindus to the sacred waters of the Ganges.

The Value of Speed.

On June 14th, Mrs. Leon Errol, a lady who wished to go to America, lost the boat-train at Waterloo. The "Aquitania" was to sail in a few hours, and no other train would arrive at Southampton in time.

She was driven to Hounslow, where she changed into an aeroplane, and flew to Hamble, Southampton, where another car enabled her to catch the boat.

The Aircraft Exhibition at Amsterdam.

Further particulars of the forthcoming aircraft exhibition at Amsterdam have been published. On June 11th the "Morning Post" stated that the Overseas Department of the Board of Trade are giving their assistance and affording what facilities they can, though they are sadly hampered by the limited funds placed at their disposal by the Treasury The Air Ministry are also giving their support.

The exhibition buildings are to be on ground within a short distance of the central station in Amsterdam. They will occupy a square quarter of a mile. An amusement park is to be attached. There is a flying ground slightly over a square mile in extent, and there are plenty of water areas for seaplanes

The Dutch are eager to establish flying services not only at home, but in their colonies, the Administrations of the latter having already sent Commissions to promote inter-colonial aerial routes, and study the various types of machines. Flying demonstrations will be a feature of the exhibition.

About 60 per cent. of the space allotted to Great Britain has been taken up. The largest exhibit will be that from Messrs. Vickers,, which will occupy 430 metres. This firm has secured the central area in the British section. There will be a big Marconi installation. Other firms taking part are the Aircraft Manufacturing Company, the Handley Page Company, the Blackburn Aeroplane Company, the Cosmos Engineering Company, the British Aerial Transport Company, Beardmore and Co., the Siebe Gorman Company, the Gosport Aircraft Manufacturing Company, and the hangar building firm, Albion, Richards, and Co.

In all there will be 15 groups, including an historical one, the others being for aeroplanes, hydroplanes, motors, motor-cars, and motor-cycles, tools, photography from the air, map making, wireless telegraphy and telephony, instruments, meteorology, etc.

A regular flying service with other countries will, if possible, be inaugurated, and there will be a series of lectures.

A Sequel to an Aeroplane Smash.

Leonard Edgar Minns, a youth living at Monkshaven, Great Nelmes, Hornchurch, was summoned at Stratford, on Saturday, for having in his possession an aeroplane compass.

Mr. Harold Pearce, prosecuting for the Director of Public Prosecutions, said that on May 15th, at about eleven o'clock in the morning, an aeroplane went up at Hornchurch, and unfortunately it crashed down at Bull-street, Dagenham. The pilot was killed, and a very large crowd immediately gathered. Whilst the pilot was being removed from the wreckage the defendant was seen to take the compass from the machine, place it in his haversack, and then cycle away. He was, however, followed, and the compass—which was bespattered with the dead aviator's blood—was taken away from him. Mr. Pearce added that one would have thought that such a tragedy would have deterred souvenir-hunters, but the peculiar thing in connection with accidents of that kind was that people frequently stole various parts of the machine. On one occasion important dispatches were stolen, and the thief could not be traced.

The defendant admitted that he took the compass but said that he had no idea that he was stealing.

Mr. Eliot Howard (the chairman) said these thefts were very mean indeed, and might at times mean that the cause of a serious accident could not be fathomed. A fine of £5 would be imposed.

Entertainments for the Atlantic Fliers.

It is understood that on Friday, June 20th, the "Daily Mail" will entertain Capt. J. Alcock and Lieut. A. Whitten Brown at a luncheon at the Savoy Hotel, when the prize of £10,000 will be awarded.

On Monday, 23rd, a banquet at the Savoy will be given in honour of the aviators by the Royal Aero Club. Members are requested to apply for tickets to the Secretary of the Royal Aero Club.

No. 4 Squadron's Dinner.

A reunion dinner of No. 4 Squadron, R.A.F., will be held at an early date. Major-General C. A. H. Longcraft, C.M.G., D.S.O., A.F.C., will be present as guest of honour. Any officer, past or present, wishing to attend should communicate with Mr. F. W. Rennie or Mr. Douglas Welch, R.A.F. Club, Bruton Street, enclosing £2 2s. cheque.

Meteorological Information.

Requests for information regarding weather conditions in connection with flights in various parts of the United Kingdom are frequently received by the Air Ministry. For the present it is necessary that such inquiries should be made three to four hours before the information is required. They should be addressed to:—Controller-General of Civil Aviation, Controller of Meteorology, 5, John Street, Adelphi, W.C.2. Telephone: Regent 8,000. Extensions, 1672, 1673, or 1674.

An Accident.

While flying with two passengers at Southport on June 10th, a Sopwith three-seater aeroplane crashed on the sands and turned over, immediately afterwards bursting into flames. The pilot, Capt. Barnard, was badly burnt, one of the passengers, Lieut. Sampele, suffered slight injuries, and the other escaped unhurt. The machine had made a trip to and from Blackpool.

A Volunteer Air Force Reserve.

The following letters have been received:—

Sir,—As a reader of THE AEROPLANE, and an ex-pilot, I entirely endorse the remarks of Mr. Collins and others as to the desirability of forming a Volunteer Reserve Air Force.

The only way by which pilots can retain their efficiency is by practice; this, of course, applies to everything, but especially with regard to flying.

There is no doubt at all that a very large number of ex-pilots and observers would willingly give a considerable amount of their spare time for training, and it seems an awful pity that the results of so much money expended on each individual's training should be wasted, as, indeed, it will be, if some scheme is not formed.

I should consider a scheme whereby pilots could fly an hour or so a week a very favourable solution; this might be done either during the week-ends, or in summer time during the long summer evenings. Each pilot would be detailed to the R.A.F. aerodrome nearest his home—not furthest away as might happen if this were not emphasised.

There would, of course, be difficulties as to mechanics working on Saturdays and Sundays, but the difficulties could easily be overcome.

I am sure it is the earnest desire of many ex-R.A.F. pilots that a scheme of some sort should be formulated. I hope the Government in an effort to save money will not do so to the detriment of the country's future aerial efficiency.

R J. MORTON.

Sir,—Respecting the invitation, which appeared in THE AEROPLANE some weeks ago, to air one's views respecting the formation of a Volunteer Air Force, I think that the scheme is an excellent one, and I, for one, would willingly join.

To the many hundreds of R.A.F. officers who have been demobilised, the many new types of aeroplanes, engines, methods of warfare, etc., that may be introduced would be more or less unknown; and it will only be by having some form of Volunteer Air Force, similar to the old Territorials, in which a certain amount of time per year be devoted to training under service conditions, that the already fully trained pilots, technical officers, etc., whose services the country should not ignore, can "keep their hand in" on the latest machines or become familiar with the *dernier cri* on aero-engines or armament, etc.

LATE R.A.F.

Another Height Record.

On Friday, 13th inst., Lieut. Casale raised the world's height record to 33,100 feet with his standard-type 29 Nieuport, fitted with a Lumiere propeller. He now proposes to attempt the speed record with the same machine.

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C.D.C.

PARIS NOTES

The Old, Old Tale.

It is said that intrigue and or indecision in high places has a bad moral effect on those whose mission in life is to act and not to order or rescind. However that may be, one has once again to record a change in the directional administration of French aviation. It was at one time hoped that the change, when it came, would mark a clean breakaway from the old, entangling, interministerial, and inter-service method of control, and that an Air Ministry, as a separate entity, would rise phœnix-like, out of the past or dead efforts of the innumerable stop-gap administrations.

Not so, however, owing to the successful opposition of one or more older-established ministries who would, in such case, find themselves with depleted responsibilities, depleted staffs, and perhaps depleted salaries. After many exchanges of view between the heads of the different ministries an agreement was arrived at whereby a separate organisation should be set up under the style and title of "Co-ordination Générale de l'Aviation Française."

By a decree of June 6th in the "Journal Officiel," General Duval, Director of Military Aeronautics at the moment, is charged with the task of initiating this new organisation, retaining, for the moment at any rate, his present post.

In a few words, the idea of this new organisation, to meet the growing needs of a growing industry and enterprise, is best explained as an effort to centralise all projects necessitating careful study, and to decide on policy, whilst at the same time decentralising the execution of the same.

All legal, administrative, or technical questions will be examined by the Central Authority. All information on French or foreign aviation will be collected and circulated to the Departments interested. Whenever a point arises that will involve joint action or the consent of two or more ministerial departments it will be examined by this central organisation.

The central organisation is to have sole control over personnel, the technical service, the constructional side, aerial navigation service, air attachés on diplomatic missions and foreign missions. At the same time each chief of a department retains the administration of his credits and the elaboration of his own experimental or constructional programme.

These programmes must be submitted to the War Minister, who will assure their execution. The choice of constructors is within the province of the department interested.

The War Minister will be responsible for all aeronautical material, and his staff will see to their reception, their construction, their delivery, and repair.

The central organisation will be responsible for creating the trunk lines of aerial communications, and will submit plans for the industrial mobilisation of the aeronautical industry.

The Naval, War, and Colonial Ministers retain autonomy over aviation in their respective spheres.

The Constructional Service will look after the acceptance of material which will be examined subsequently by the technical commission before being delivered to each department. On the other hand, the Ministry interested will nominate the members for the commission to examine material destined for their own department.

Women Aviators.

I have lately had occasion to record the increasing activity in France of women aviators, among them Mme. de la Roche, a well-known pre-war flier with several good performances to her credit. Last week she attempted to make a height record at Issy. Piloting a little G.3 Caudron, she left the ground at 8.38, and returned to earth at 10.27 min. 30 sec., having been in the air, therefore, 1 hr. 49 min. 30 sec., and, according to the officially-sealed barograph, having reached a height of 3,900 metres.

During the inevitable post-flight interview Mme. de la Roche stated that she flew as far as Chartres, rising all the time. The atmosphere at this point was completely covered with clouds, but on descending below them she found it easy to pick out her return journey by means of the railway. The flight took place in the presence of Mr. Louis Zorra, representing the Aero Club de France. It has since transpired that Miss Ruth Law, the American aviatrice, claims to have reached an altitude of 4,240 metres in September, 1917, although it seems that it has never been officially admitted.

Mme. de la Roche is at the moment the holder of the Coupe Femina for the duration record with a flight of 4 hrs. 2 mins.

Mme. de la Roche announces her intention of undertaking some epoch-making flights in the near future, in the interests of civilian aviation.

The World's Height Record Beaten Again.

Last week I was able to record the fact that Lieut. Casale had beaten the height record, but that, in view of other aspirants to this honour, he had decided to try to beat his own with a view to taking the record to well over 30,000 ft. Though he did not accomplish as much as he wished, he beat his previous record by 200 metres. Going up from Issy-les-Moulineaux, he reached a height of 9,500 metres (30,875 ft.) on his 300 h.p. Nieuport Hispano machine. He was forced to descend on reaching this height by reason of a choke in the induction pipe.

The Commission Sportive.

Apropos the numerous attempts on world or national records now taking place, the Commission Sportive of the Aero Club de France reminds all pilot-aviators holding the F.A.I. brevet that to establish officially a record, or to participate in a meeting or other manifestation held under their auspices, they must hold a pilot's licence delivered by the Commission Sportive.

From Paris to Constantinople in One Day.

It is probable that before these lines are in the printers' hands Capt. Lafon will have flown from Paris to Constantinople in one day, or, to put it more poetically, from the Sacré-Cœur to Saint-Sophia.

Capt. Lafon was due to leave on the 11th inst. at 2.30 a.m., but a choke in the petrol feed took so long to clear that valuable time was lost, and he decided to put off the attempt till the next day. He is using an S.E.A. machine fitted with a 400 h.p. Lorraine Diétrich engine. The design and construction of this machine was carried out in the works of H. Potez at Aubervillers, near Paris, and passed its trials shortly before the Armistice. Primarily it is a fighting two-seater, and its official performances are:—Speed near ground, 220 k.p.h.; speed at 5,000 metres, 200 k.p.h.; climb to 5,000 metres, 21 min., with a useful load of 600 kilogs.

Its general characteristics are:—Surface, 38 sq. metres; span, 12 metres; length, 8 metres 50; height, 3 metres 10.

Captain Lafon's intention is to complete the journey in one day, but in three stages. Refilling stops will be made at the Villaverla aerodrome, near Florence, and at the Semlin aerodrome, near Belgrade. The first stage covers 850 kilometres, 150 of them being over the Alps between the Geneva lake and Lac Majeur. Starting away at between two and three in the morning, he hopes to land near Florence about 6.30. Leaving at 7.30 a.m. for the second stage of 800 kilometres, he will attempt to cross the Adriatic between Venice and Fiume, and land at Belgrade about 11.30 a.m. He will stop here for an hour, then start the third stage of 850 kilometres, following the Balkan Express railway line, and landing at San Stefano aerodrome at five in the afternoon. Thus does he hope to cover 2,500 kilometres in thirteen hours.

Captain Lafon joined the military aviation service in 1915, and spent all his time at the Front, on different missions and piloting numerous types of machines. The end of the war found him commanding fighting squadron 174. He is a Chevalier of the Legion of Honour, and has the Croix de Guerre. He will take his mechanic with him on his ambitious and fatiguing flight.

Three Squadrons Across the Mediterranean.

With reference to the contemplated raid by three squadrons of hydravions to Algeria or Tunis, this will be accomplished, or at least attempted, by eighteen machines, divided as follows:—No. 1 Squadron, 6 hyd., G. Levy, fitted with 300 h.p. Renault; No. 2 Squadron, 6 hyd., Tellier, fitted with 350 h.p. Sunbeam; No. 3 Squadron, 6 hyd., Tellier, fitted with twin-engined 300 h.p. Hispano-Suiza.

The affair is to be well organised, as may be judged by the fact that it will be "practised" first. In practice, ten machines per squadron will be used and six finally selected. The pilots are to be chosen from a list of 150. There is likely to be immense interest in the attempt due to the sporting way in which it is being organised: it will be a kind of eliminating trial for machines, motors, pilots, construction and design. The route mapped out is from St. Raphael to Bizerta, to Algiers, and back to St. Raphael. It is hoped that this raid will take place before the end of August, *i.e.*, before the equinoctial season, which would be unfavourable for such an attempt. The machines are to be taken from Paris to St. Raphael by train.

Dirigible Doings.

Vice-Admiral Ronarch has mapped out a series of manœuvres for the dirigibles under his command at the station d'Aubagne (Bouches du Rhone). These craft are due to take up their new moorings in Toulon Harbour this week. Special moorings have been erected.

The "Orion" Destroyed.

The High Seas "Orion," of which so much was expected, has had a comparatively short life. This giant flying boat, weighing four tons and carrying three motors, was at a height of about 100 ft., when one of the motors stopped, the machine dived and fell heavily in the harbour, out of control, where it quickly sank. The pilot, Jean Le Borgne, was badly injured, and the mechanic is missing. Onlookers report that he jumped off just before the machine struck the water, but that he fell under the machine.


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PARIS NOTES

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In a few words, the idea of this new organisation, to meet the growing needs of a growing industry and enterprise, is best explained as an effort to centralise all projects necessitating careful study, and to decide on policy, whilst at the same time decentralising the execution of the same.

All legal, administrative, or technical questions will be examined by the Central Authority. All information on French or foreign aviation will be collected and circulated to the Departments interested. Whenever a point arises that will involve joint action or the consent of two or more ministerial departments it will be examined by this central organisation.

The central organisation is to have sole control over personnel, the technical service, the constructional side, aerial navigation service, air attachés on diplomatic missions and foreign missions. At the same time each chief of a department retains the administration of his credits and the elaboration of his own experimental or constructional programme.

These programmes must be submitted to the War Minister, who will assure their execution. The choice of constructors is within the province of the department interested.

The War Minister will be responsible for all aeronautical material, and his staff will see to their reception, their construction, their delivery, and repair.

The central organisation will be responsible for creating the trunk lines of aerial communications, and will submit plans for the industrial mobilisation of the aeronautical industry.

The Naval, War, and Colonial Ministers retain autonomy over aviation in their respective spheres.

The Constructional Service will look after the acceptance of material which will be examined subsequently by the technical commission before being delivered to each department. On the other hand, the Ministry interested will nominate the members for the commission to examine material destined for their own department.

Women Aviators.

I have lately had occasion to record the increasing activity in France of women aviators, among them Mme. de la Roche, a well-known pre-war flier with several good performances to her credit. Last week she attempted to make a height record at Issy. Piloting a little G.3 Caudron, she left the ground at 8.38, and returned to earth at 10.27 min. 30 sec., having been in the air, therefore, 1 hr. 49 min. 30 sec., and, according to the officially-sealed barograph, having reached a height of 3,900 metres.

During the inevitable post-flight interview Mme. de la Roche stated that she flew as far as Chartres, rising all the time. The atmosphere at this point was completely covered with clouds, but on descending below them she found it easy to pick out her return journey by means of the railway. The flight took place in the presence of Mr. Louis Zorra, representing the Aero Club de France. It has since transpired that Miss Ruth Law, the American aviatrice, claims to have reached an altitude of 4,240 metres in September, 1917, although it seems that it has never been officially admitted.

Mme. de la Roche is at the moment the holder of the Coupe Femina for the duration record with a flight of 4 hrs. 2 mins.

Mme. de la Roche announces her intention of undertaking some epoch-making flights in the near future, in the interests of civilian aviation.

The World's Height Record Beaten Again.

Last week I was able to record the fact that Lieut. Casale had beaten the height record, but that, in view of other aspirants to this honour, he had decided to try to beat his own with a view to taking the record to well over 30,000 ft. Though he did not accomplish as much as he wished, he beat his previous record by 200 metres. Going up from Issy-les-Moulineaux, he reached a height of 9,500 metres (30,875 ft.) on his 300 h.p. Nieuport Hispano machine. He was forced to descend on reaching this height by reason of a choke in the induction pipe.

The Commission Sportive.

Apropos the numerous attempts on world or national records now taking place, the Commission Sportive of the Aero Club de France reminds all pilot-aviators holding the F.A.I. brevet that to establish officially a record, or to participate in a meeting or other manifestation held under their auspices, they must hold a pilot's licence delivered by the Commission Sportive.

From Paris to Constantinople in One Day.

It is probable that before these lines are in the printers' hands Capt. Lafon will have flown from Paris to Constantinople in one day, or, to put it more poetically, from the Sacré-Cœur to Saint-Sophia.

Capt. Lafon was due to leave on the 11th inst. at 2.30 a.m., but a choke in the petrol feed took so long to clear that valuable time was lost, and he decided to put off the attempt till the next day. He is using an S.E.A. machine fitted with a 400 h.p. Lorraine Diétrich engine. The design and construction of this machine was carried out in the works of H. Potez at Aubervillers, near Paris, and passed its trials shortly before the Armistice. Primarily it is a fighting two-seater, and its official performances are:—Speed near ground, 220 k.p.h.; speed at 5,000 metres, 200 k.p.h.; climb to 5,000 metres, 21 min., with a useful load of 600 kilogs.

Its general characteristics are:—Surface, 38 sq. metres; span, 12 metres; length, 8 metres 50; height, 3 metres 10.

Captain Lafon's intention is to complete the journey in one day, but in three stages. Refilling stops will be made at the Villaverla aerodrome, near Florence, and at the Semlin aerodrome, near Belgrade. The first stage covers 850 kilometres, 150 of them being over the Alps between the Geneva lake and Lac Majeur. Starting away at between two and three in the morning, he hopes to land near Florence about 6.30. Leaving at 7.30 a.m. for the second stage of 800 kilometres, he will attempt to cross the Adriatic between Venice and Fiume, and land at Belgrade about 11.30 a.m. He will stop here for an hour, then start the third stage of 850 kilometres, following the Balkan Express railway line, and landing at San Stefano aerodrome at five in the afternoon. Thus does he hope to cover 2,500 kilometres in thirteen hours.

Captain Lafon joined the military aviation service in 1915, and spent all his time at the Front, on different missions and piloting numerous types of machines. The end of the war found him commanding fighting squadron 174. He is a Chevalier of the Legion of Honour, and has the Croix de Guerre. He will take his mechanic with him on his ambitious and fatiguing flight.

Three Squadrons Across the Mediterranean.

With reference to the contemplated raid by three squadrons of hydravions to Algeria or Tunis, this will be accomplished, or at least attempted, by eighteen machines, divided as follows:—No. 1 Squadron, 6 hyd., G. Levy, fitted with 300 h.p. Renault; No. 2 Squadron, 6 hyd., Tellier, fitted with 350 h.p. Sunbeam; No. 3 Squadron, 6 hyd., Tellier, fitted with twin-engined 300 h.p. Hispano-Suiza.

The affair is to be well organised, as may be judged by the fact that it will be "practised" first. In practice, ten machines per squadron will be used and six finally selected. The pilots are to be chosen from a list of 150. There is likely to be immense interest in the attempt due to the sporting way in which it is being organised: it will be a kind of eliminating trial for machines, motors, pilots, construction and design. The route mapped out is from St. Raphael to Bizerta, to Algiers, and back to St. Raphael. It is hoped that this raid will take place before the end of August, *i.e.*, before the equinoctial season, which would be unfavourable for such an attempt. The machines are to be taken from Paris to St. Raphael by train.

Dirigible Doings.

Vice-Admiral Ronarch has mapped out a series of manœuvres for the dirigibles under his command at the station d'Aubagne (Bouches du Rhone). These craft are due to take up their new moorings in Toulon Harbour this week. Special moorings have been erected.

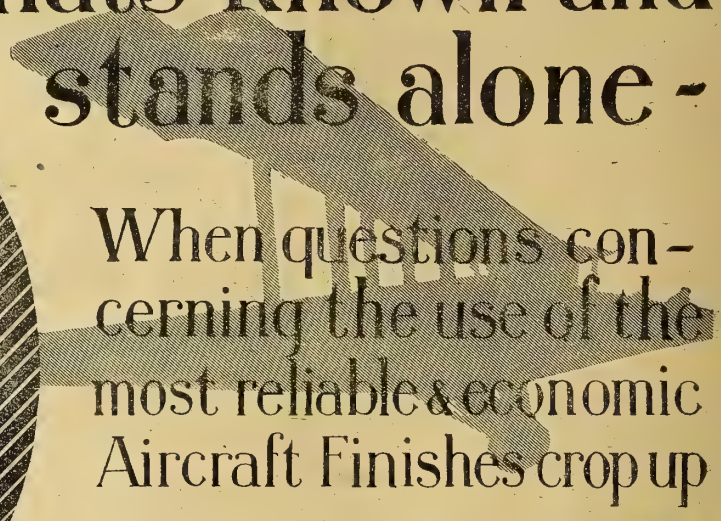
The "Orion" Destroyed.

The High Seas "Orion," of which so much was expected, has had a comparatively short life. This giant flying boat, weighing four tons and carrying three motors, was at a height of about 100 ft., when one of the motors stopped, the machine dived and fell heavily in the harbour, out of control, where it quickly sank. The pilot, Jean Le Borgne, was badly injured, and the mechanic is missing. Onlookers report that he jumped off just before the machine struck the water, but that he fell under the machine.



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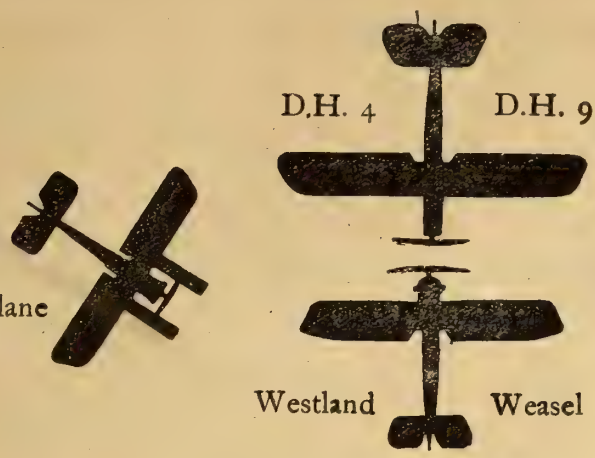
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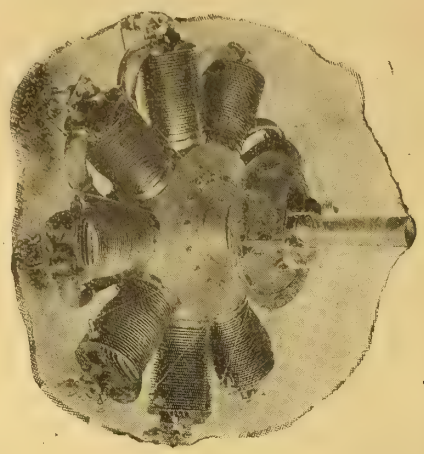

Short Seaplane
225 HP. Sunbeam


Sopwith 1½' Strutter


D.H. 9A

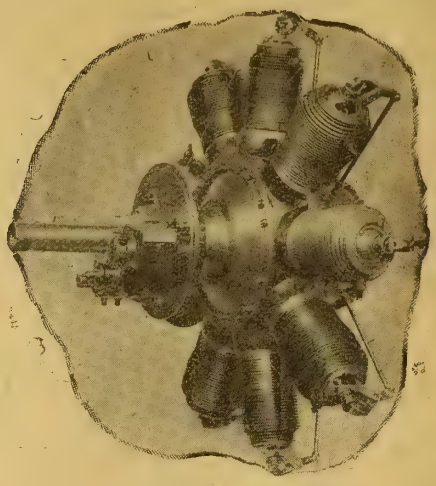


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THE WEEKLY COMMENTARY.

In continuation of the article on "Aero Engine Development, Past and Future," Capt. Sayers describes the general lines along which the aero-engine has evolved, and the nature of the failures to which it is subject, and concludes that those failures which are due to essential parts of the engine itself could be very greatly reduced by a relatively small "easing off" of existing engines, without a great increase in their weight-power ratio.

The failures due to accessories, such as magnetos, carburetters, and their attachments, and controls, are much more numerous and less affected by such a process of easing off.

Some of the aeroplanes built by the British Aerial Transport Co., Ltd., to the designs of Mr. Frederick Koolhoven are described in this week's instalment of the series, "Modern British Aircraft."

Although the B.A.T. Company is a comparatively new firm, Mr. Koolhoven is one of the most experienced and one of the most inspired of aeroplane designers, and the machines built by his firm are of the greatest interest.

It will be remembered that Sir Samuel Waring is the moving spirit of the B.A.T. firm.

A further instalment of Lieut.-Col. Holt's article on the Holt pilot parachute system appears on page 2439.

THE DEVELOPMENT OF THE AERO-ENGINE, PAST AND FUTURE.—II.

By Capt. W. H. SAYERS, late R.A.F.

The classification of aero-engines into the overloaded "car type" and the "specially designed" class is very general, and all aero-engines are to some extent or other hybrids between the two. Nevertheless, there are very few which do not distinctly incline towards one or other of these classes in their general arrangement.

Roughly, all the vertical and vee type engines may fairly be considered as developments of the car type, and all the radial, both stationary and rotary, as of the "special design" class.

Engines of the "broad arrow" types, such as the Napier "Lion" and the 450 h.p. Green, and the 400 h.p. 16 cylinder Clerget, which has four rows of four cylinders each, arranged as a "cross," are amongst the more noticeably intermediate types.

The Earlier Rotaries.

The earlier specialised types of aero-engine—for instance, the Gnôme rotaries—sacrificed practically every consideration to the weight of the engine itself. High-grade materials, machined everywhere to fine limits, were employed throughout.

Water cooling was abandoned, and to overcome the difficulties of air cooling relatively large cylinders, low compression—and therefore low explosion temperatures—rotation of the cylinders to increase the air velocity past them, and copious lubrication were adopted.

Low compression means low thermal efficiency; the rotation of the cylinders requires a large part of the engine power output to overcome air resistance, and consequently the fuel consumption of this type of engine was large.

Stresses in the cylinders and crankcase, due to centrifugal force, were so great that high tensile steel was the only possible cylinder material. Such steels are not ideal for cylinder walls; they score easily, and pistons seize in steel cylinders on the slightest provocation.

In spite of these and other troubles, it was possible to fly with these engines in cases where it was impossible with others.

Therefore the designers of other types of aero-engines were forced to lighten their products in an endeavour to equal the rotary type.

The End of Cast-Iron Cylinders.

The "car type" engine abandoned cast iron for copper as a water-jacket material, or adopted air cooling, sometimes with a fan blast as an adjunct, set two rows of cylinders in vee form to drive a common crankshaft, thus saving weight in both crankcase and crankshaft, used steel castings instead of iron ones for cylinders, substituted steel or aluminium for C.I. in their pistons, and generally followed the lead of the rotary in the matter of using materials of the highest available grades throughout the working parts.

This by itself did not suffice. To equal the rotary in performance the car type engine had still to cut down its weight/power ratio, and therefore the process of pushing up the power output of a given-sized engine commenced.

High speed of rotation of the engine itself, increased compression ratios and the consequent mean effective pressures have been the result.

High speed of rotation has directly led to greater attention to balancing of the moving parts and to the very general adoption of reduction gears for the airscrew drive. The indirect effect of the increased gas velocities due to high speeds upon the design of cylinder heads, valve gears, and induction systems are practicaly inseparable from those due to the other methods adopted for increasing the power output.

In low compression, low speed engines, small variations in combustion chamber volume are unimportant, and valve pockets cast on the side of the cylinders are practicable.

With high compression ratios it is important to keep the clearance volumes uniform throughout the cylinders, and cylinder heads which can be machined all over are therefore imperative. Valve pockets have therefore disappeared, and overhead valves are universal.

With overhead valves the overhead camshaft has followed more or less as a matter of course, with the advantage of dispensing with long tappet rods, which, by springing when opening a valve and by adding to the mass which has to be put into motion by the valve spring at closing, reduce the effective opening of valves operated through them.

By a continuous process of improvement in detail design the power output from stationary engines of given dimension of the car type has been raised in an astonishing degree, at the same time conserving the superior reliability and the great fuel and oil economy of the type.

But the specialised types of aero-engine have not stood still.

Air-Cooling Advances.

Improvement in the design of cylinders, securing better cooling, such as careful fin arrangements and the deposition upon steel cylinders of metal of high heat conductivity, has enabled the air-cooled engine to run at compression and explosion pressures which secure nearly as high a thermal efficiency as is possible with the water-cooled cylinder.

The development of alloy steels and their heat treatment has made it possible to produce cylinders of high tensile steel which require little more lubrication than do cast steel ones.

These two developments, in combination with the great saving in crankcase and crankshaft weight which is possible with the radial type of engine, have led to the production of air-cooled radial engines of great power, great fuel and oil economy, and of very low weight per h.p., which, so far as the performance which can be obtained from any given machine is concerned, cannot be equalled by any of the more conventional types of the water-cooled engine.

At the same time the radial air-cooled engine has the reputation of being less reliable than the water-cooled type.

The Needs of the Future.

Considering the requirements of the future, particularly with an eye to the development of commercial aerial transport, there can be no doubt that the aero-engine of the future must be, above everything else, reliable.

It must also be economical, and as light as possible for its power, but these desiderata will occupy more or less the same secondary position as reliability has occupied during the phase of engine development which ended with the cessation of hostilities.

To forecast the probable, or rather the desirable, line of future evolution it will be well to consider what are now the main causes of failure of aero-engines.

There can be no question that, so far as the better class of engine is concerned, more than 75 per cent. of all the failures which occur in flight are due to engine accessories.

Failures of magnetos, ignition plugs, water circulation fittings, carburetters, oil or petrol pumps, pipes, filters, and the like outnumber the cases of actual failure of any essential part of the prime mover itself by certainly three to one.

Of those failures which occur to the engine parts themselves, failures of valve springs and valves are the most prevalent.

Breakages of the gear drive to the propeller in high speed engines are not unknown, but are, strictly speaking, no more to be classed as engine failures than is the crashing of the gear box of a car. In so far as the reduction gear is usually made as an integral part of the power unit, and is designed by the engine designer, it does concern the engine designer, however.

Failures of Essential Parts.

Taking the relatively small number of failures of essential parts as distinct from accessories, it is very obvious that these can be indefinitely reduced by easing up any given motor.

Thus all those loads which lead to failure of valves, valve springs, valve rockers, etc., are acceleration loads, and are proportional to the square of the speed of rotation of the engine.

Since the power of an engine varies, if anything, less rapidly than does its speed, the loads in such parts are reduced at a much greater rate than is the horse-power, if the speed is cut down.

The reliability of materials subjected to this type of load increases much more rapidly than in the inverse ratio of the load applied to it, and therefore a comparatively small reduction in speed and horse-power adds greatly to the reliability of such parts.

And of Accessory Parts.

So far as the accessory failures are concerned, a reduction of running speed will not have so large an effect.

Such a reduction helps towards greater reliability on the part of the magneto, all forms of toothed gears, etc., and makes it easier to secure even gas distribution to a number of cylinders, and to some extent reduces the ill-effects of unevenness in such distribution.

By allowing a greater interval between successive explosions it allows a longer interval for cooling of cylinder walls and sparking plugs, thus reducing both the mean and the maximum temperatures in the cylinder.

Bearing pressures, in so far as they are due to the acceleration of moving parts, are reduced in the same manner as are the loads on valves, valve springs, and rockers, and lubrication conditions are thus eased.

There is little of the engine proper which does not gain immensely by a small reduction in the speed of running from that at which it just does give trouble occasionally.

With its accessories unfortunately this does not hold to anything like the same extent.

If it be admitted that the aero-engine must carry such appliances as carburetters, radiators, magnetos, with the attendant mass of connections and controls which they imply, then there is no way of avoiding 75 per cent. of all the troubles from which they now suffer, other than that of careful design and installation of such accessories.

That there is room for an immense improvement in this respect is undeniable, but is it the only hope?

(To be continued.)

"A LITTLE KNOWLEDGE——"

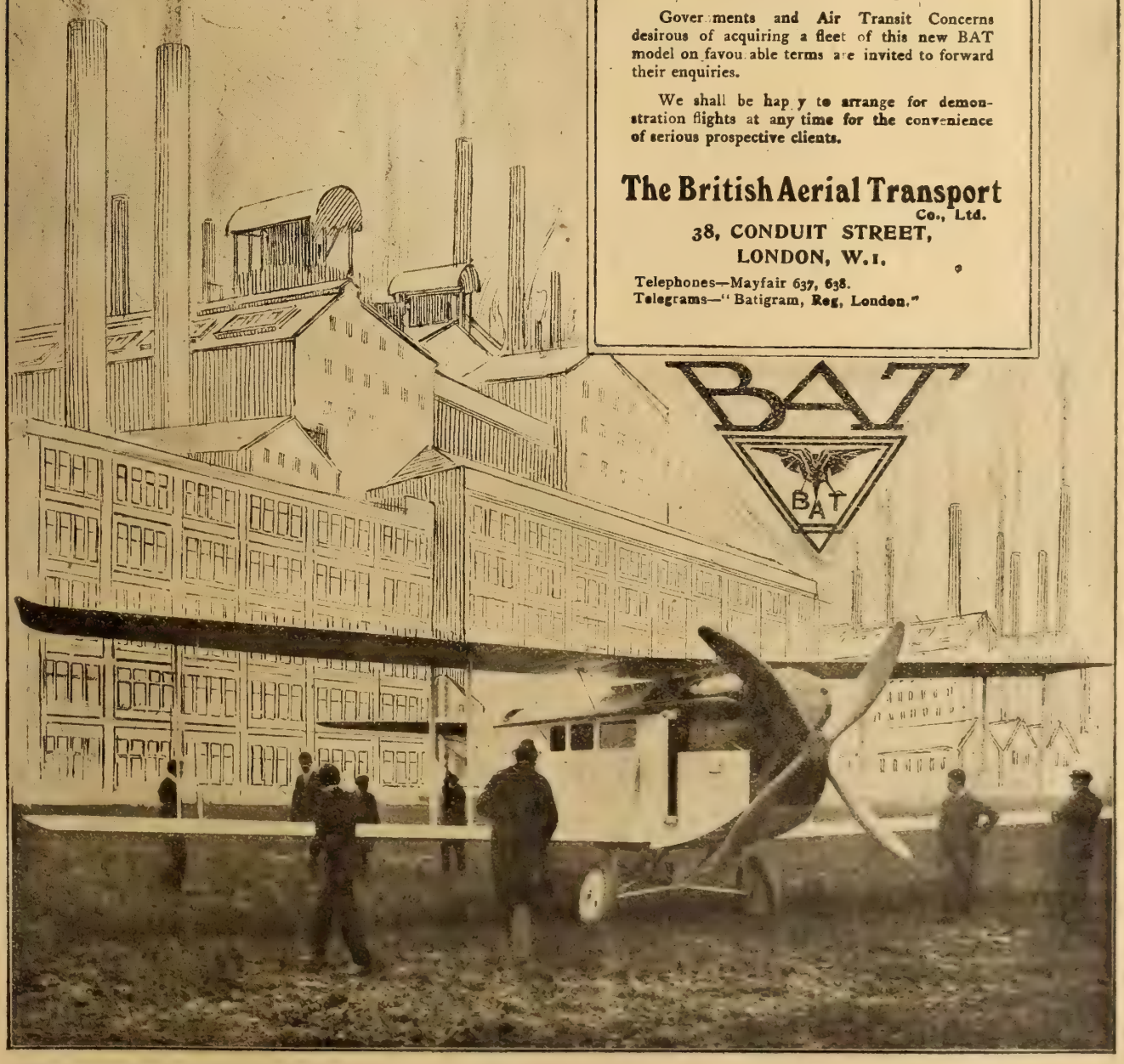
In "Engineering," of May 30th, Sir George Greenhill discusses the possibilities of the Atlantic flight in a distinctly learned manner.

Unfortunately, his assumptions are, in the main, based upon such misleading factors as to lead him to state, referring to the published statements made by the Handley Page firm that 2,000 gallons of petrol will give a range of 2,500 miles in the case of their trans-Atlantic machine, that:—" . . . We read a claim of petrol consumption at the rate of 0.4 lb./h.p. hour, whereas it is prudent to double this figure, or to reckon an allowance of more like a pint, or 1 lb., ... lubrication included, and at 100 knots the petrol supply of 2,000 gallons must not be expected to last more than ten hours—a flight of 1,000 miles." . . . . "And so on for the other machines where any figures are divulged which can be subjected to the test of arithmetical calculation."

"It seems prudent . . . . to assign a diameter of action of the H./A. (heavier-than-air) machine of not more than 800 miles . . ."

In the issue of June 6th, Mr. J. D. North has reproved the author for lending the weight of his distinguished name to such utterly unfounded statements

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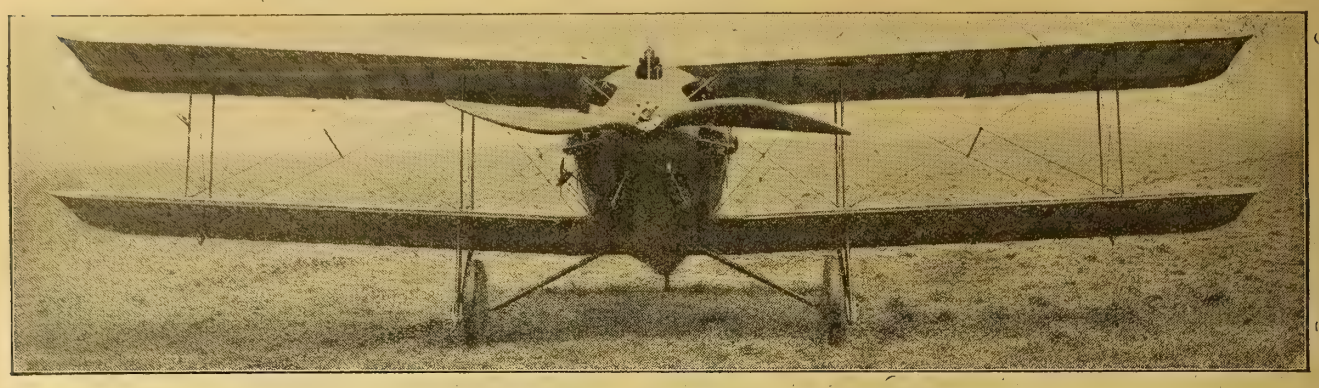
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MODERN BRITISH AEROPLANES.

VI.—The British Aerial Transport Co., Ltd.



Front View of the B.A.T. "Bantam" (200 h.p. A.B.C. "Wasp" Engine).

The B.A.T. firm as it is generally known was founded by Mr. Samuel Waring—since created K.B.E. The manager and technical director of the firm has been from its formation Mr. Frederick Koolhoven—who, conjointly with M. Béchereau was responsible for the design of the 1913 Gordon-Bennett Deperdussin monoplane—which was the first aeroplane to fly 120 miles in the hour—the 1912 British Military trials Deperdussin monoplane—which was still flying in 1916 and became famous as the 100 h.p. Anzani monoplane, flown by Lieut. J. C. Porte, R.N. (now Colonel, R.A.F.), and for the well-known Armstrong-Whitworth F.K.3 and F.K.8 machines.

Mr. Koolhoven's work since the formation of the B.A.T. Co. has added still further to his reputation as one of the most, if not actually the most, brilliant of the aeroplane designers of the world.

THE B.A.T. "BANTAM."

A diminutive single-seater fighter produced in 1917.

Its most noticeable characteristics—other than smallness—are:—Monocoque fuselage, filling up the whole interplane gap, the position of the pilot, whose head emerges from the fuselage between the front and rear spars of the upper wing, and the great width of the undercarriage.

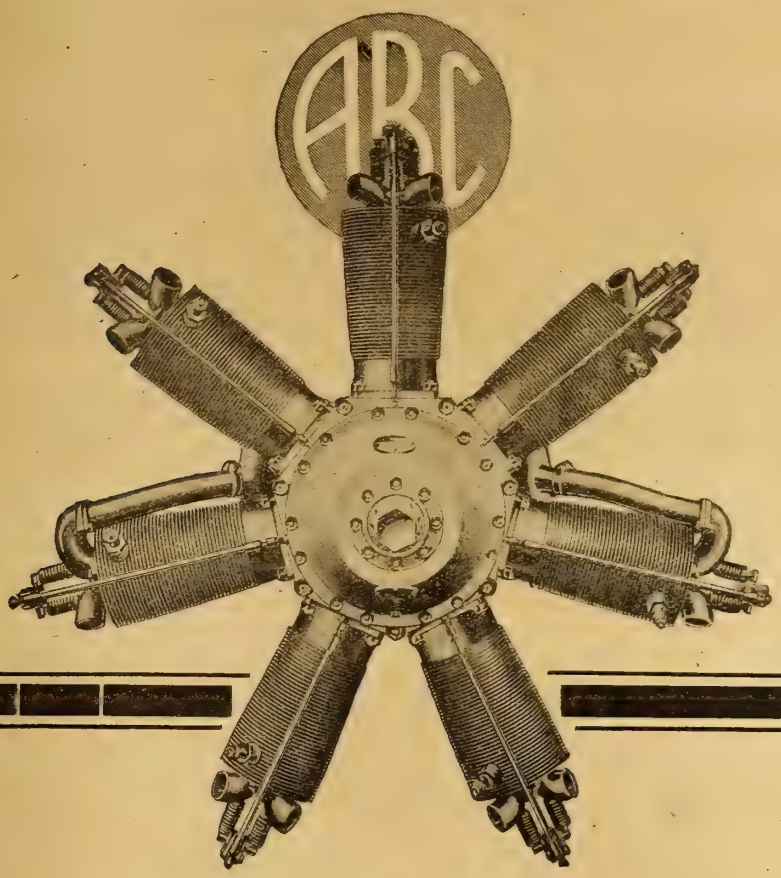
This machine has a phenomenal performance, is amazingly manœuvrable, and gives the pilot an excellent view, but in spite of its excellent qualities, and the admiration which they compelled both in England and in France, it was never put into production.

SPECIFICATION.

Type of machine	Biplane.
Name and type No.	"Bantam" F.K. 23.
Purpose	Single-seater Fighter.
Span	25 ft.
Gap	3 ft. 3½ ins.
Overall length	18 ft. 5 ins.
Maximum height	6 ft. 9 ins.
Chord	3 ft. 11¼ ins.
Total area of wings	185 sq. ft.
Span of tail	9 ft. 2 ins.
Total area of tail	23 sq. ft.
Area of elevators	6.3 sq. ft.
Area of rudder	4.4 sq. ft.
Area of fin	2.86 sq. ft.
Area of ailerons	4.5 sq. ft. each; 18 sq. ft. total
Max. cross sectional area of body	8.7 sq. ft.
Horizontal area of body	32 sq. ft.
Vertical area of body	30 sq. ft.
Engine type and h.p.	A.B.C. "Wasp," 200 h.p.
Airscrew	"Bat" dia. 7 ft. 10⅛ ins.; revs. 1,850; pitch 5 ft. 4 ins.
Weight of machine empty	830 lbs.
Load per sq. ft.	7.2 lbs.
Load per h.p.	7.85 lbs.
Tank capacity, hours	3½
Tank capacity, gallons	22
Performance—	
Speed at ground level	138 m.p.h.
Speed at 10,000 feet	134 m.p.h.
Speed at 15,000 feet	127 m.p.h.
Speed at 20,000 feet	121 m.p.h.
Landing speed	50 m.p.h.



Side View of the B.A.T. "Bantam" (200 h.p. A.B.C. "Wasp" Engine).



WAR-PROVED FOR PEACE

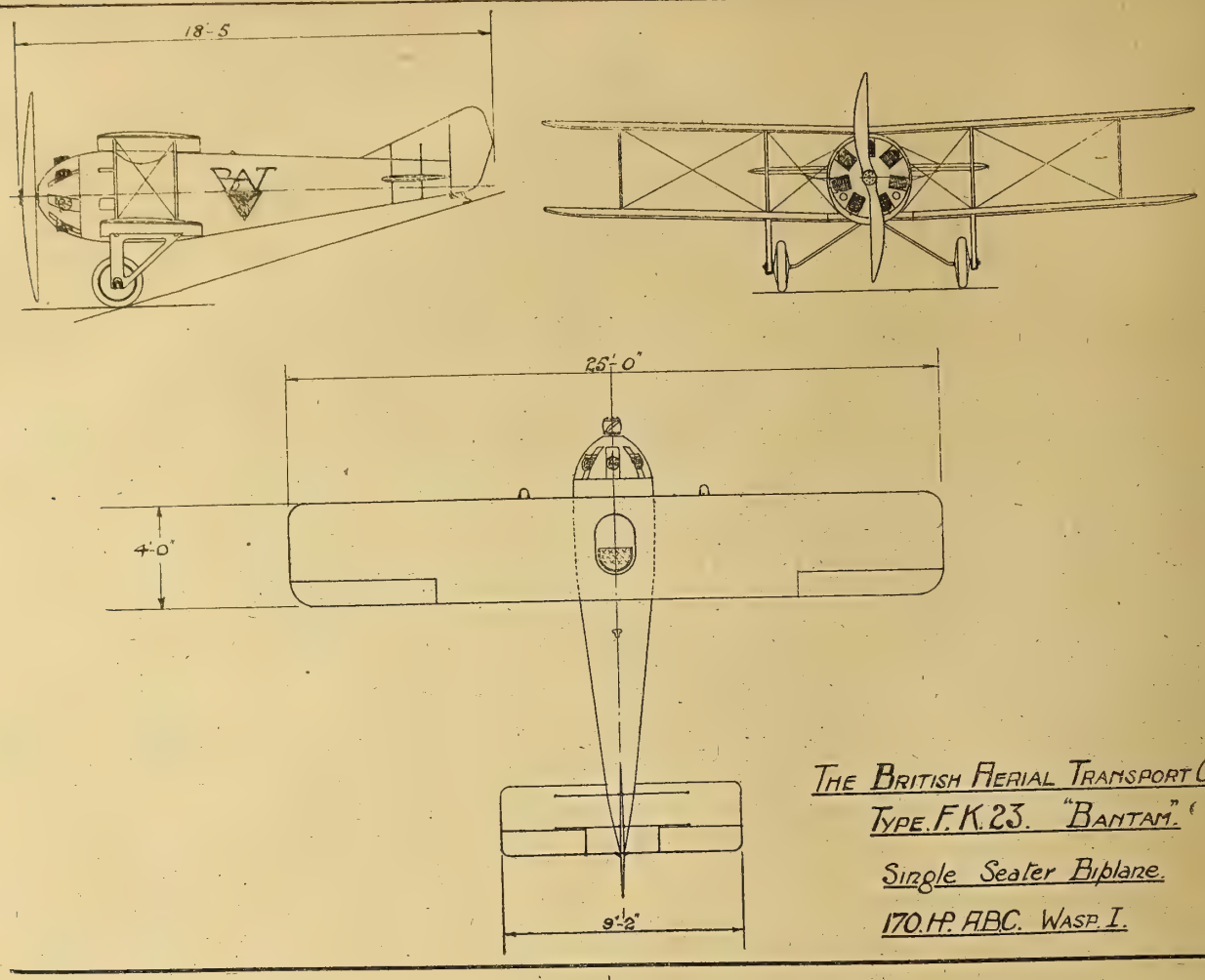
The A.B.C. WASP I with modified design and strengthened components is now known as the WASP II, and will lead on the Air-routes of peace.

It presents the lightest aero engine for its power; 350 lbs. in a 200 H.P. engine—1.75 lbs. per b.h.p.

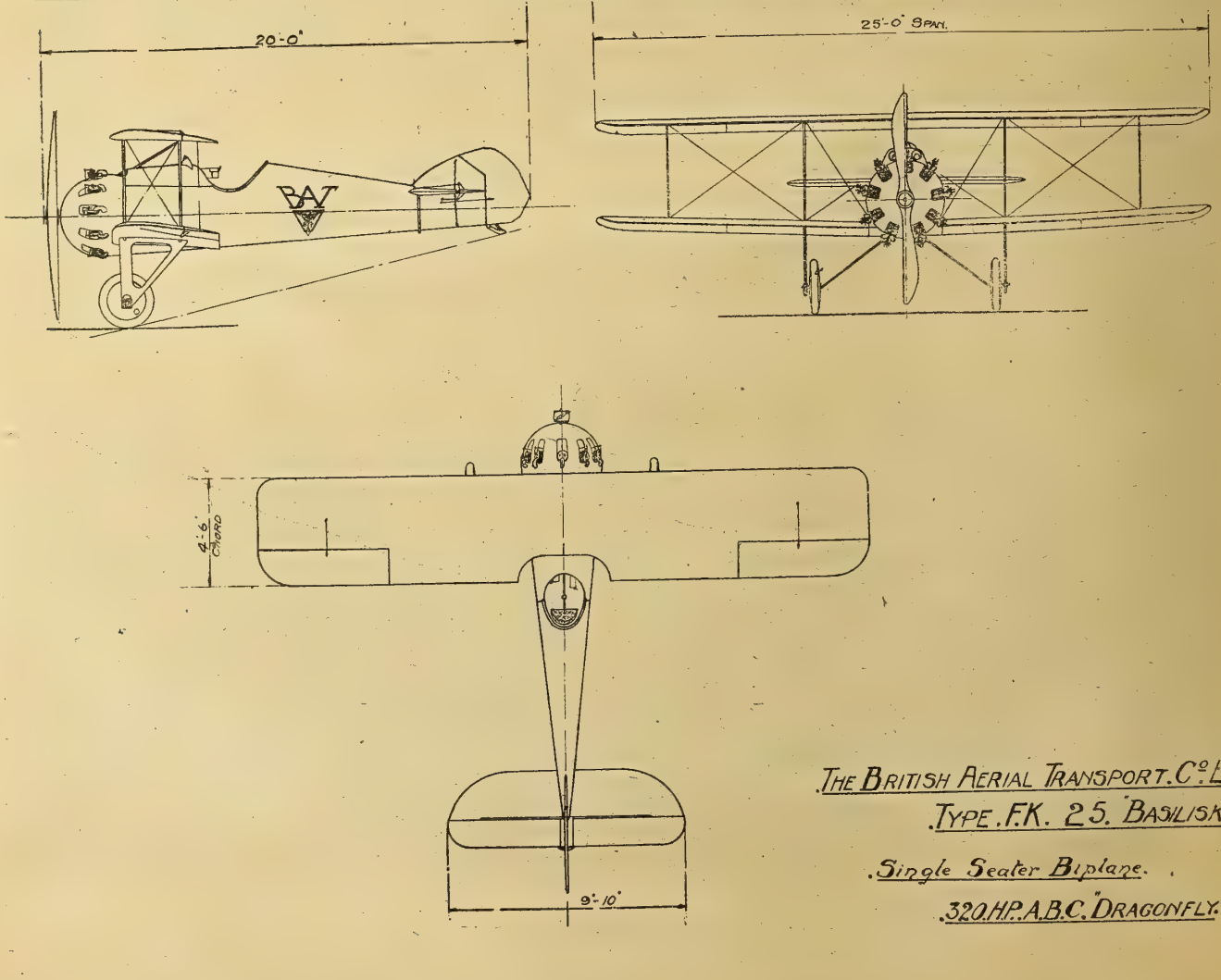
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Type F.K. 25. "Basilisk."
Single Seater Biplane.
320 H.P. A.B.C. "Dragonfly."

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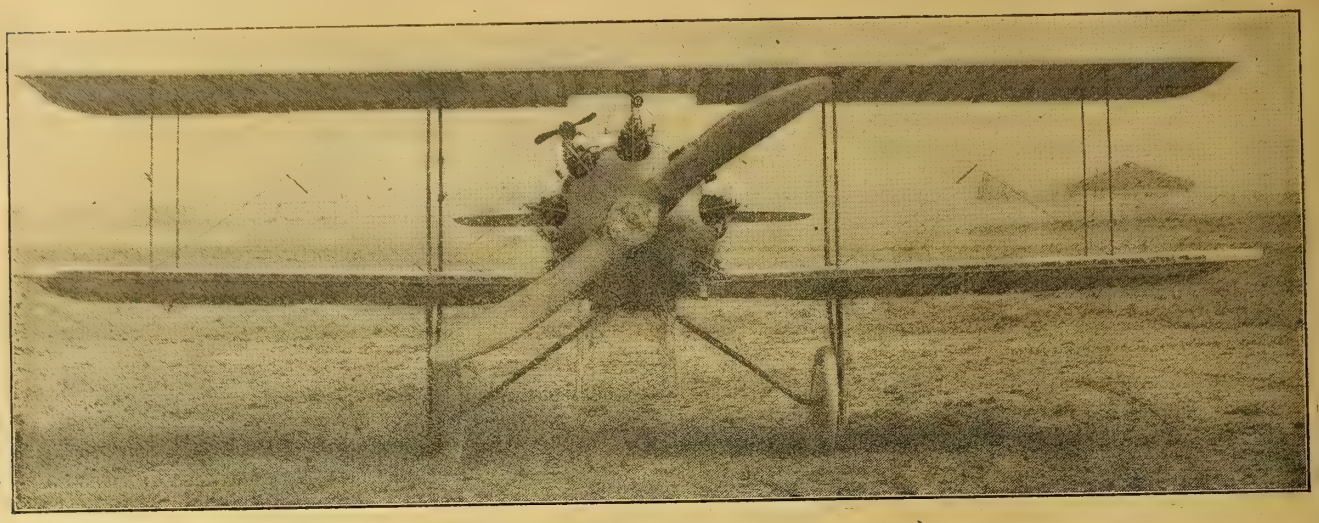


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Aviation Department,
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KNIGHTSBRIDGE, S.W. 3.

Telegraphic Address:
Vickerlyta Knights
London.



Front View of the B.A.T. "Basilisk" (320 h.p. A.B.C. "Dragonfly" Engine).

Climb—	
To 5,000 feet	3 mins. 10 secs.
To 10,000 feet	7.20 mins
To 20,000 feet	21.48 mins.
Disposable load apart from fuel	378 lbs.
Total weight of machine loaded	1,333 lbs.

THE BAT "BASILISK."

Almost an enlarged edition of the "Bantam," fitted with a more powerful engine.

The fuselage does not quite fill the gap, and the pilot's seat has been removed to a position behind the trailing edge.

Otherwise the machine is very like the "Bantam" in appearance.

A small number of this type were ordered by the R.A.F., but they have not yet been demanded in quantity.

SPECIFICATION.

Type of machine	Biplane.
Name and type No.	"Basilisk" F.K. 25.
Purpose	Single-seater Fighter.
Span	25 ft. 4 ins.
Gap	4 ft. 4 ins.—4 ft. 1 in.
Overall length	20 ft. 5 ins.
Maximum height	8 ft. 2 ins.
Chord	4 ft. 6 ins.
Total area of wings	220 sq. ft.
Span of tail	9 ft. 10 ins.
Total area of tail	22 sq. ft.
Area of elevators	8.3 sq. ft.
Area of rudder	4.5 sq. ft.
Area of fin	2.6 sq. ins.
Area of ailerons	7.5 sq. ft. each; 30 sq. ft. total
Max. cross sectional area of body	9.2 sq. ft.
Horizontal area of body	29.5 sq. ft.
Vertical area of body	47 sq. ft.
Engine type and h.p.	A.B.C. "Dragon-fly," 320 h.p.
Airscrew	"Bat" dia. 8 ft. 8 ins., pitch 8 ft., 1,650 r.p.m.
Weight of machine empty	1,340 lbs.
Load per sq. ft.	9.5 lbs.
Load per h.p.	6.3 lbs.
Tank capacity, hours	2.
Tank capacity, gallons	40.

PERFORMANCE—

Speed at G.L.	162 m.p.h.
Speed at 10,000 feet	154 m.p.h.
Speed at 15,000 feet	144 m.p.h.
Speed at 20,000 feet	132 m.p.h.
Landing speed	52 m.p.h.
Climb—	
To 5,000 feet	2 mins.
To 10.000 feet	5 mins.
To 15,000 feet	9 mins. 20 secs.
To 20,000 feet	16.40 mins.
Disposable load apart from fuel	400 lbs.
Total weight of machine loaded	2,028 lbs.



Three-quarter Front View of the B.A.T. "Basilisk" (320 h.p. A.B.C. "Dragonfly" Engine).

NOTES ON PARACHUTES AND PARACHUTE FLARES.—III.

BY LIEUT.-COL. H. S. HOLT.

(Continued.)

TYPE B.

In this type the writer employs a delay or timing mechanism in connection with the pilot parachute. (See last article.) The general arrangement is the same as in Type A except that in place of the spring-lid D, a special kind of flap is employed. This is set in motion by the man in the aeroplane leaving his seat or climbing out of the cockpit of the machine, the method being as follows:—The delay mechanism is locked by a pin to which a short length of cord is attached and made fast at its other end to the aviator's seat, or to the fuselage. The cord is of sufficient length to enable him to move about but not to leave the machine. A pull on the cord withdraws the pin and releases the delay. This delay mechanism is made of uncorrodible material and requires no lubricant of any sort. It is attached to the bottom of the main receptacle, and the cable from the centre of the main parachute M goes to the release bolt as before and thence to the pilot parachute N.

Instead of the spring lid the writer employs a flap; under this flap, which is held down by a bolt attached to the delay mechanism, the pilot parachute is stowed. Attached to this pilot parachute there is a secondary smaller pilot parachute built of very thin silk with silk connections to the first pilot. This is packed on the top of the first pilot under the flap.

The delay mechanism can be set to give a delay of anything from ½ to 5 seconds, thus enabling the passenger to jump clear of the aeroplane or airship before the pilot parachute becomes operative.

At the same time in both this and type A there is no mechanical connection between the parachute and the aeroplane from the time the passenger leaves the latter.

Type B with the delay mechanism is specially intended for carrying out realistic trials with dummies. With this arrangement the parachute case and the dummy can be strapped to the side of the fuselage, and if the delay mechanism is put in use it will fall like a bomb at first. Thus it will be possible to try experiments with aeroplanes flying at all sorts of angles, which would not be safe with any of the existing parachute systems.

Below various illustrations are given with the aeroplane falling in different positions and showing what might be expected to happen with the ordinary single parachute system and with the Holt "Autochute" system.

As already pointed out, the smaller the parachute the easier to ensure absolutely certain opening, and if drops are made over water, even if the main parachute did not open, the passenger would only reach the water with a velocity of something under 90 feet per second, which is only equivalent to the rate he would reach the water from a dive of less than 100 feet.

But for experimental purposes even the risk of the pilot parachute not opening can be eliminated in this way, if an airship instead of an aeroplane is used. The airship is reduced to a slow speed. The pilot parachute is then released and opens with the draught, then, and not till then, the passenger jumps off; this, of course, should be done over a lake or over the sea.

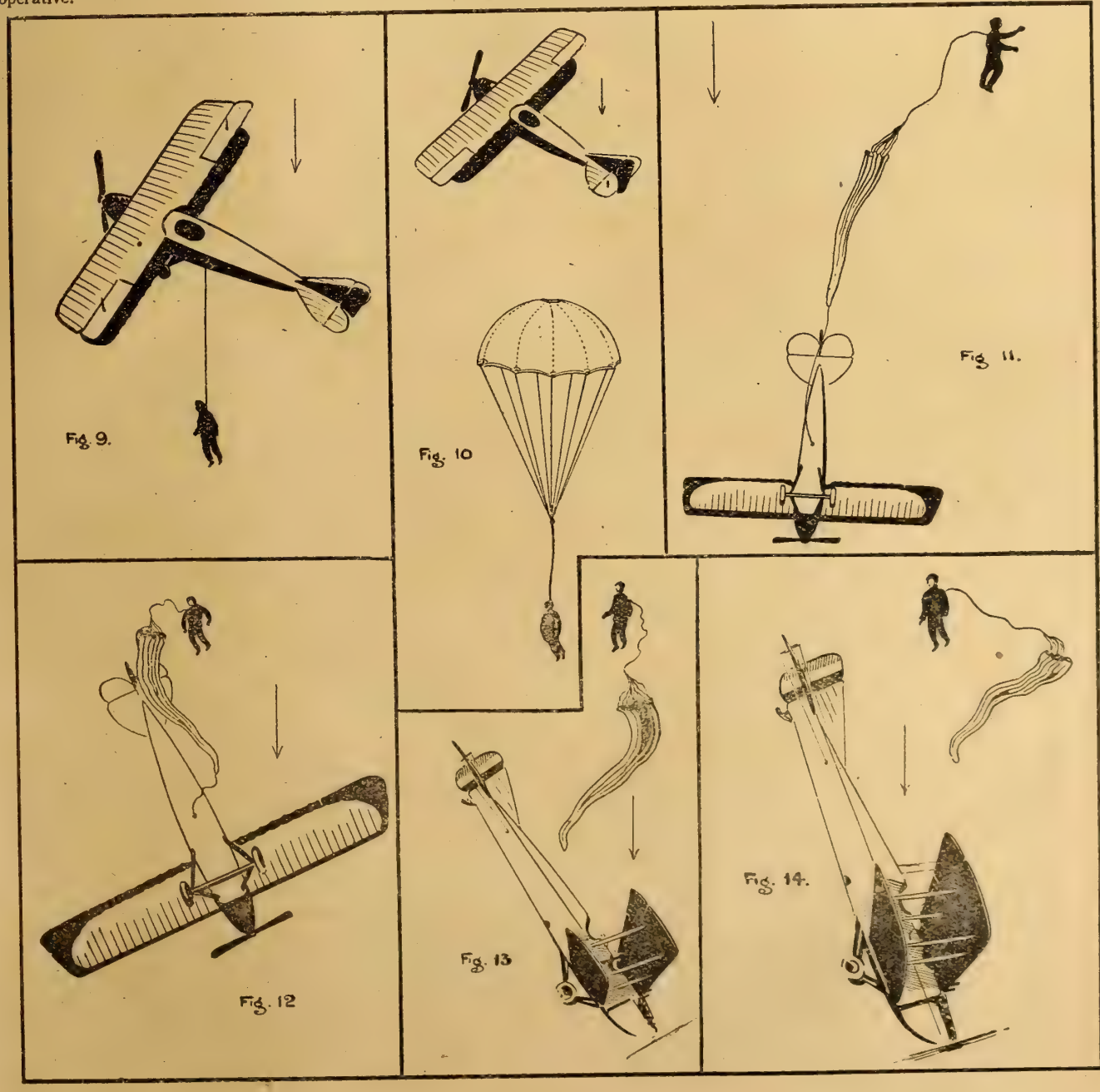


Fig. 9.

Fig. 10

Fig. 11.

Fig. 12

Fig. 13

Fig. 14.

Description of Figs. 9 to 17.

Fig. 9.—Single Parachute.—Machine falls sideways and slower than the man, but difference of speed is not sufficient to withdraw the parachute, and the man and machine crash to the ground.

Fig. 10.—Single Parachute.—Machine falls sideways and slower than the man. Parachute opens, but probably the machine will fall on top of it.

Fig. 11.—Single Parachute.—Machine falls end on and faster than the man. The parachute is pulled out below him, and will almost certainly become entangled in the tail. Even if that does not happen it is probable the man will fall onto the parachute and become entangled in the lines.

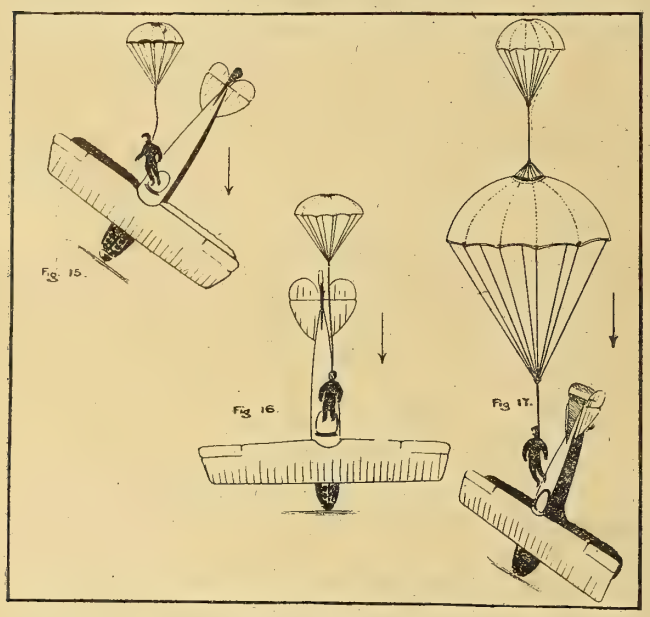
Fig. 12.—Single Parachute.—The machine falls sideways and faster than the man. But the wind is in the wrong direction, or not strong enough to overcome the suction of the falling machine, and the parachute is sucked into and becomes entangled in the tail.

Fig. 13.—Single Parachute.—Machine is falling, as in Fig. 12, but there is no wind and no suction, or enough wind in the right direction to overcome suction. The man falls on to the parachute.

Fig. 14.—Single Parachute.—Machine falls, as in Figs. 12 and 13, but the wind is in the right direction and sufficient to overcome suction and blow the parachute to one side. In this case the man should fall clear of his parachute and have a fair chance of escape.

Every balloon observer knows that with the ordinary single parachute he must jump *before* his balloon begins to fall.

With the "Autochute" it matters little what the relative velocity of fall of the man and machine happens to be.



"Autochute" Type A.

Fig. 15.—Machine falls sideways. Aviator releases pilot parachute, which draws him out of the machine, but retains the main in its case by pressing the lever. As soon as he is clear of the machine he releases the main parachute. Aviator should certainly escape (compare this with Figs. 9 and 10).

Fig. 16.—The aviator releases the pilot parachute, as in Fig. 15, but retains the main in its case. The pilot parachute may foul the tail if the machine is falling absolutely end on. But the pilot parachute is only 6 ft. diameter, and there is a good chance of escape. As soon as the aviator is clear of the machine he lets go of the lever thereby releasing the main parachute (compare with Fig. 11).

Fig. 17.—Machine falls, but not in a perfectly vertical position. Aviator releases pilot parachute, as in Figs. 15 and 16. If he is falling at a very high speed, he will retain main parachute as before till the pilot parachute has reduced his rate of fall, thus avoiding a heavy shock when the main parachute opens. But if he is not falling very fast he may allow the pilot parachute to pull out the main parachute at once.

Comparing the illustrations above we see that under the circumstances represented in Figs. 9, 10, 11, 12 and 13 with the single parachute the aviator would almost certainly have been killed. In the "Autochute," on the other hand, he should certainly escape in every one with the exception of Fig. 9, and even in that he has a fair sporting chance. It may be objected to that in some of these cases the writer presumes that the main parachute is retained in its receptacle for a certain length of time by the voluntary action of the aviator.

It is usually supposed that from the moment the aviator jumps off the machine till the main parachute is opened, he cannot be expected to retain any volition of his own, but must be considered more or less as a dummy, but with the "Autochute" system it must be remembered that he is falling under the pilot parachute at a strictly limited velocity and not like a stone.

But even if he had not sufficient coolness to retain the main parachute for a time, he would have a fair chance of escape in all these cases, as he is independent of the rate of fall of the machine.

If Type B is used, the whole action is automatic, and the passenger has absolutely nothing to do but to jump overboard.

It is said, the writer does not know with what truth, that the Authorities are rather adverse to the installing of parachutes as a standard equipment for aeroplanes, for two reasons:—

1. That it might frighten the civilian off flying. This seems rather like the ostrich burying its head in the sand. One never hears that anybody was deterred from making a sea voyage because they saw lifeboats in the davits.

2. The other supposed reason is that that they think an aviator might be apt to leave a machine in the parachute when there was still a chance of saving it.

There may be perhaps something in this reasoning if the single parachute system which gives so little chance of saving life after a machine starts to fall is employed; but, on the other hand, it is a strong argument against the installation of this system.

To sum up, then, it would seem, if the writer is correct in his contentions, the aviator in the future will have the choice of two alternatives—they may either instal one of the ordinary single parachute systems, which, in the majority of peace-time accidents, will almost certainly be quite useless; or they may choose the compound system, which, provided the aeroplane is left at some height from the ground, will afford a more than sporting chance of escape under almost any conceivable conditions.

PARACHUTES.

The following letter has been received:—

Sir,—My attention has been called to an article in a recent issue, entitled "Notes on Parachutes."

I think some of the author's statements are open to criticism. In particular I take exception to his opening remark that "the A.F. Technical Department is in possession of all available knowledge concerning previous experiments," etc., etc.

I yield to no one in appreciation of the Technical Department's patient and scientific investigation of the parachute problem, but it should be remembered that some "outsiders" were experimenting with parachutes years before some of the Technical Department had even *seen* a parachute, and to say that they know the result of all these experiments is going a little too far.

I may mention as an instance that it was only a few months ago that I was asked by members of the Technical Committee of the R.A.F. to explain the action of the Tandem or Compound Parachute System, as they had no knowledge of it and had never seen it used.

I will only make one other comment, or this letter will be too long. A quite arbitrary distinction is drawn between what the writer terms "positive and non-positive types."

"Positive," like "streamline" and "Mesopotamia," is a blessed word, but it would be interesting to know why, in the writer's opinion, a single parachute system is positive and the compound non-positive."

As a matter of fact, as I hope to show in my next paper on parachutes,* the compound system should be more certain in action than the single, if only because of the absence of "suction," that ever-present and sinister danger that attends all single parachute systems, though some makers may lessen the danger by ingenious and costly receptacles or "holders" and elaborate methods of stowing the lines.

But this is not the main point.

The real fact is that aviators are faced with two alternatives. They can either have one of the well-designed single parachute systems hitherto in use, which are good enough to escape by, provided the aviator leaves his machine *before it begins to fall*, but which is useless afterwards. Or he may adopt the compound system, which provides an almost equally good chance of escape, whether the machine is falling or not, when the aviator leaves it.

(Signed) H. S. Holt, Major and Hon. Lt.-Col.

(* The paper referred to is reproduced above.—Ed.)



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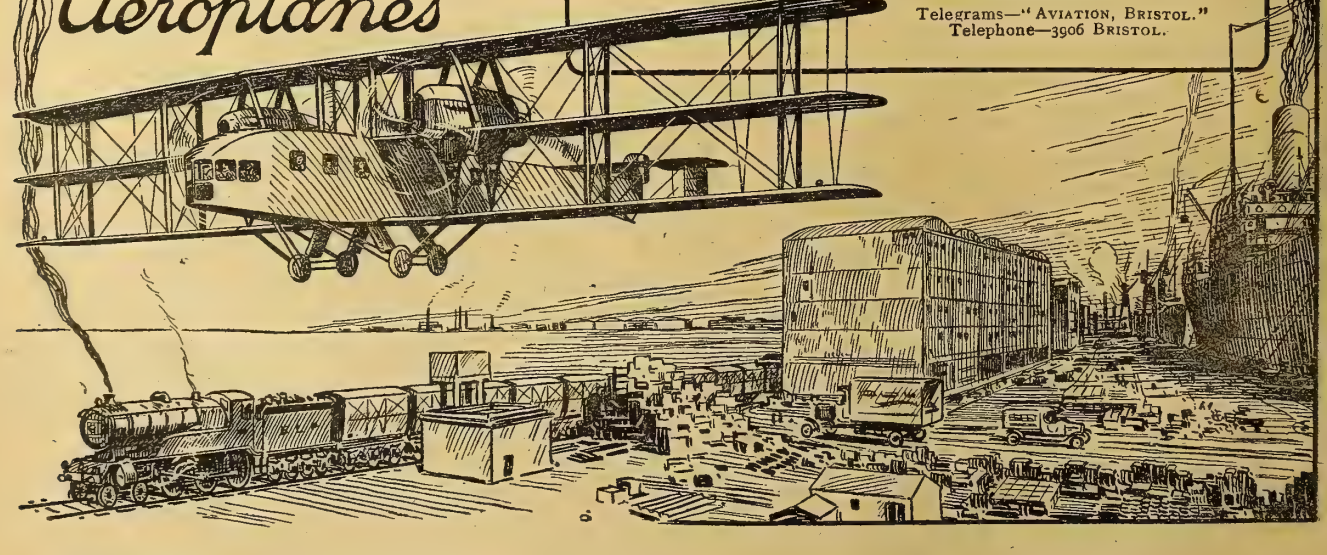
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THE AIRCRAFT TRADER

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

JUNE 11th, 1919.

COPPER.—This market is still quiet, and consumers are not yet showing any interest in the metal, nevertheless, prices continue firm; in fact, it is not expected that prices will decline much further for some considerable time, and buyers would not be taking great risks if they commenced to cover their future requirements. There are, of course, other factors which are influencing consumers, including the high prices prevailing in the Iron and Steel market.

These remarks do not apply to manufactured Copper, the prices of which compared with Ingot Copper are very high, and there is no reason why they should not be reduced, even after allowing for high wages and other increased costs.

The market in America is a little more active, but the stocks are still very high, the estimated amount being about 500,000 tons, and the production, although reduced approximately 60 per cent., is still estimated to be about 20,000 tons per month in excess of the consumption.

It is understood that American stockholders have been compelled to seek financial help from the banks to enable them to carry their stocks; nevertheless, the latest reports indicate that there is a certain amount of optimism prevalent, but it remains to be seen whether expectations will be fulfilled. So far as can be observed at present the future does not look very promising.

COMPARATIVE PRICES.

	Per Ton. £ s. d.
To-day, June 11th	80 10 0
Last week	78 10 0
Last month	76 12 6
Average price, 1918	115 10 0

TIN.—The position of the Tin market continues uncertain and irregular, and consumers lack confidence. The outlook is very obscure and does not encourage optimism. The stocks everywhere are large, and although it is expected that America will make large purchases when the embargo has been lifted, the reports that their buyers have been busy placing orders in the East must not be ignored. In fact, according to a recent report, about 4,000 tons have been purchased in the F.M.S.

It is very difficult to indicate what will happen in the future, the general position being so uncertain, and buyers are certainly justified in continuing to buy hand-to-mouth.

COMPARATIVE PRICES.

	Per Ton. £ s. d.
To-day, June 4th	235 0 0
Last week	234 0 0
Last month	227 17 0
Average price, 1918	329 10 0

LEAD.—The situation here is very dull; in fact, very little interest has been shown since the Government reduced their price. Buyers quite naturally wonder if the reduction is the forerunner of a still further decline. A fair amount of business has been transacted in America, but the price is now higher than the price now ruling here.

The situation generally is fairly satisfactory, and the present price should encourage business if the Government will only act with caution and foresight. No business was done on Monday, and the net price remains at £22 17s. 6d. average.

STEEL.—Although there is a healthy demand for certain classes of Steel, the position generally is unsatisfactory. It is becoming extremely difficult to obtain deliveries, even at the advanced prices ruling to-day. There is an inclination on the part of some buyers to wait for supplies from America, owing to the prices being more favourable than the prices quoted by British makers.

This point was brought to the front by Sir F. Hall (Normanton), at the end of last month, when he asked the President of the Board of Trade if America was now to send Steel to this country at a price which enabled American manufacturers to undersell British manufacturers by £4 per ton and upwards after allowing for freight by the Government to meet the position.

In reply, Sir A. Geddes stated that he understood American manufacturers were quoting prices for delivery in the United Kingdom lower than those quoted by British manufacturers, though not so far, as he was aware, to the extent suggested. He also stated that the Government was not prepared at present to impose any restriction upon the importation of Iron and Steel in view of the demand in the country.

It is also reported that American manufacturers are quoting Australian firm prices which are £2 per ton cheaper than British prices. The same remarks apply to Steel Billets for delivery into this country, the difference in price being 5s. to 10s. cheaper than British makers.

It will be seen from the foregoing that the position is not at all healthy.

The Labour position is again causing anxiety. Those firms which are fairly booked up with orders cannot get a satisfactory production, the reduction in working hours having, in the majority of cases, resulted in a reduction of output per man per hour, and the promises of the Labour leaders are not being fulfilled. It will be remembered that they stated emphatically that the reduction in hours would not result in a reduction of output.

The workers fail to realise that national prosperity can only be attained by every man giving maximum production; this is an economic law which needs to be driven home, as the majority of the workers appear to be intent upon giving as little output as possible.

It is also understood that in the north of England engineers have refused to work any overtime whatever until the 44-hour week has been granted them. If this kind of thing goes on it will certainly result in disaster, export trade will disappear, owing to the prohibitive prices which manufacturers will be compelled to pay, and the result will be idle works, out-of-work demonstrations, hunger marches, etc.

A report has recently been received that German Steel is now being offered on the Continent at lower prices than either American or British prices.

Another factor which is causing buyers to hesitate is the covering clauses which are still being inserted in quotations, and buyers can hardly be expected to place large contracts where quotations are not firm. The High-speed Steel and Cast Steel market is still very quiet.

TIMBER.—Although there has during the past week been a reduction in the price of English Ash, the Timber market, generally, appears to be hardening, and the decline in Ash prices has been primarily caused by the Government flooding the market. There is certainly a much better demand for Timber, especially for Mahogany.

There appear to be very large stocks of Plywood held in various parts of the country; some holders appear to be very anxious to dispose of their stocks, and are offering them at very low prices; in fact, they must be selling at an actual loss. It is quite probable that the object is to release capital which they have locked up. The demand for Plywood is likely to be very large in the near future.

The demand for Aircraft Timber is still dull, and, in fact, the stocks held are very small indeed.

THE MONTHLY MARKET PRICE LIST.

JUNE 5th, 1919.

The prices given below are the prices ruling on the above date.

ALUMINIUM.

Ingot	£150 per ton.*

BRASS.

Sheets	13⅝d. per lb.
Strip	11⅝d. per lb.
Wire	12d. per lb.
Tubes	14¼d. per lb.
Castings	14d. per lb.
Turning Rod	9¼d. per lb.
Brazed Tubes	15¾d. per lb.

COPPER.

Ingot, Standard, Cash	£80 10s. per ton.
Ingot, Standard, 3 mos.	£81 per ton.
Best Selected (Net)	£84 per ton.
Sheets	£114 per ton
Wire	10⅞d. per lb.
Tubes, S.D.	15⅝d. per lb.
Tubes, Brazed	15⅝d. per lb.
Rivets	1s. 9½d. per lb., basis.

Fabric.*

Linen, R.A.F., 17C, Spec., 36 in. wide, 3s. 1d. p. yd.
Linen, R.A.F., 17C, Spec., 38in. wide, 3s. 3d. p. yd.
Linen, R.A.F., 17C, Spec., 42 in. wide, 3s. 7d. p. yd.
Spaced, R.A.F., 17C, Spec., 37½ in. wide, 2s. 1d. p. yd

Gun Metal.

Castings, Plain ..... 1s. 7d. to 2s. per lb.

Lead.*

Virgin Pig .....£23 per ton, c.i.f.
Virgin Pig .....£24 per ton, ex stores.
Sheets .....£38 per ton, D/d.
Pipes .....£38 10s. per ton.
Dry White .....£50 per ton, less 5 per cent.
White in Oil, Grnd. .....£64 5s. per ton.
(lots over 5 cwt. less 5 per cent.)
Red .....£44 10s. per ton, less 2½ per cent.

Nickel.

Nickel ..... £195 per ton.

Phosphor Bronze.

Ingots, 5 cwt., and under .....£122 to £145.
(Subject to Copper and Tin Fluctuations.)
Castings.....1s. 3d. to 1s. 6½d. per lb.

Phosphor Copper.

Ton lots .....£140 to £146

Silver.

Silver .....5s. 8d. per oz.

Solder.

Plumber's .....101s.
Tinman's .....126s.

Steel.

High Speed, 14 p. cent., Tungsten, 3s. 4d. p. lb., basis
High Speed, 18 per cent., Tungsten, 3s. 11d. p. lb. basis.

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Specification No. S16 .....£70
Specification No. S17 .....£75
Specification No. S18 (oil-hardened) £86
Specification No. K1 .....£75
Specification No. K2 .....£75
Specification No. K3 .....£86

The above prices are for ¼ in. to 5/16 in. only, other sizes are proportionate.

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	.455 and .525	.601 and .710
Specification S2	£79	£77
Specification S8	£79	£77
Specification S2 (bright-drawn),	£112	£112
Specification S8 (bright-drawn),	£112	£112

Spelter.

English f.o.b., Birmingham .....£35 15s.

Tin.

Tin .....£235 10s.

Tinplates.

Tinplate .....33s. 6d., basis, f.c.t.

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	Merchants.
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Walnut	1s. 6d.

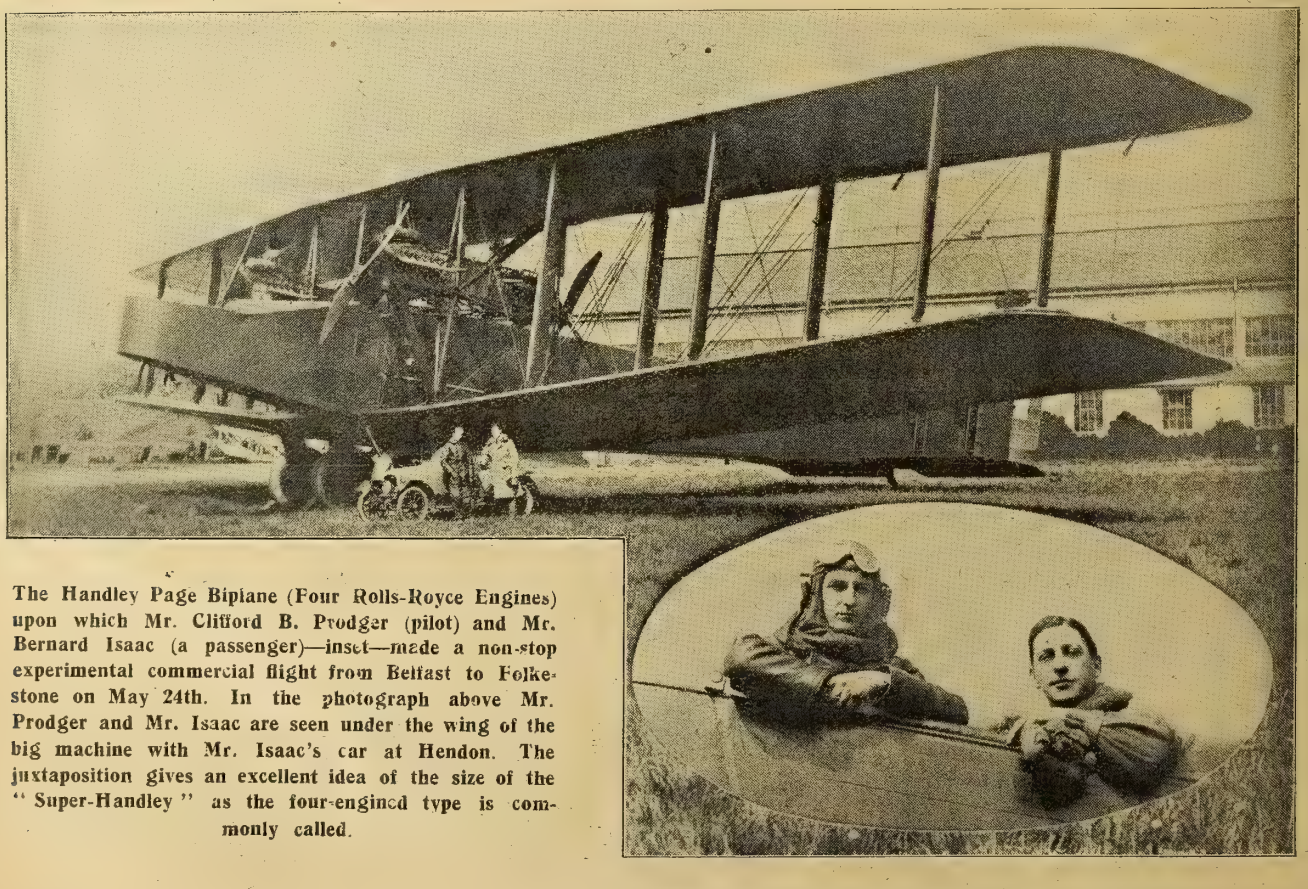
Zinc.

Zinc sheets (America), £65 to £70, f.o.b., New York.

Scrap Materials (London Prices).

Description.	Price per ton.
Aluminium	£85 0 0
Brass, General	50 0 0
Copper, Clean	74 0 0
Copper, Brazing	69 0 0
Gun-metal, Scrap	74 0 0
Lead, no Draft	21 0 0
Zinc, Old	26 0 0

* Official Prices. † Includes Parcel Inspection only. ‡ Prices include Delivery in the U.K.



The Handley Page Biplane (Four Rolls-Royce Engines) upon which Mr. Clifford B. Prodger (pilot) and Mr. Bernard Isaac (a passenger)—inset—made a non-stop experimental commercial flight from Belfast to Folkestone on May 24th. In the photograph above Mr. Prodger and Mr. Isaac are seen under the wing of the big machine with Mr. Isaac's car at Hendon. The juxtaposition gives an excellent idea of the size of the "Super-Handley" as the four-engined type is commonly called.

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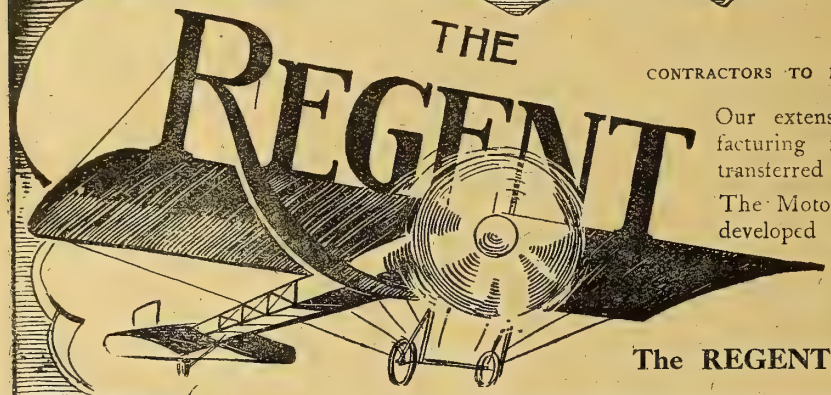
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PILOT AND NAVIGATOR: A QUESTION OF EDUCATION.

By "Medway."

I feel sure that no one will be more cordially in agreement with me than Mr. Hawker himself when I say that, in my opinion, the balance of publicity given to him and to Grieve was very badly maintained in many quarters. The risks run by the two were absolutely identical, and it is an open question on which of the two the greater responsibility devolved.

My readers are already aware that I hold what some people will regard as extremist's views on the subject of the trans-Atlantic Flight, possibly because it is my job to endeavour to look at all important aerial events from a purely commercial standpoint. In pursuance of this object I have endeavoured to find out what has really been learnt from the trans-Atlantic attempts up to the present, they can fairly be said to have sufficient value to justify the extreme risk of very valuable lives.

From this point of view it seems to me that the greatest achievement of all up to date has been that of Grieve, who apparently navigated his aeroplane accurately for something over 1,000 miles of trackless sea under atmospheric conditions that were by no means favourable, and without any extraneous guidance. I am not qualified to say whether, before this performance, there was any large number of people holding the convinced opinion that the thing could be done with certainty. From the organisation of the American Navy in connection with its own aerial enterprise I assume that, in many well-qualified quarters, it was supposed that something much more tangible and visible was needed as a guide.

Now, in point of fact, the system of what may be called light-ships devised by the American Navy did not pan out particularly well in practice Despite its assistance, two out of three of the seaplanes failed to reach the Azores as a result of trouble connected with navigation and not with machinery. It would seem, therefore, that the main lesson we have learnt up to the present is that aerial navigation across oceans will be definitely a matter of scientific observation of position under circumstances of considerable difficulty. I suggest that even on over-land routes the same will, broadly speaking, hold good.

The Scientific Navigator.

The navigator must, therefore, be a scientist of no mean attainments and a man of comprehensive experience, capable of meeting and overcoming unexpected difficulties and thinking clearly under conditions of considerable stress.

On the other hand, as time goes on, it seems to me that the work of the commercial pilot will become more and more a matter of routine. He will always need to have a head on his shoulders, but that difficulties with which he personally will have to fight will be more in the nature of a combination of those encountered by the steersman of a sailing ship and the engineer of a steamer.

As the size of aeroplanes increases, the duties of the pilot will be more and more divorced from those of the engineer. Certain members of the crew will be carried solely for the purpose of steering, others for the purpose of keeping the machinery in perfect running order, anticipating and dealing with possible breakdowns.

We shall, in short, reach the point at which the crew becomes a sort of miniature replica of the crew of a liner. In that case, the chief navigator will occupy the position of captain. I can imagine that the day will come before very long on which, when some exceptional test is performed, the Press of the world will ring with the name of the navigator, and comparatively little will be heard of the name of the pilot. That day is not yet. At present the tendency is in the opposite direction, but we are already beginning to realise that the thing is not quite as it should be.

The Need for Education.

If my general ideas turn out to be right, then it follows that the really responsible and well-paid positions in connection with aerial transport will not go to the men whose sole or main qualification is their ability to pilot an aeroplane. To my mind, there will be no room for the pilot pure and simple in any but the subordinate ranks. In other words, the educated man who wishes to make the air his profession must be incidentally a pilot, but the main part of his training will have to be in matters connected with navigation, wireless telegraphy, and the use and understanding of delicate scientific instruments of many kinds.

If there are any men whose qualifications are simply those of the war pilot, and who are looking to a future in which they will hold prominent positions in connection with commercial aeronautics, I suggest that the interval that will have elapsed before new projects mature ought to be filled by a very strenuous course of scientific training. We have a series of schemes for assisting demobilised officers to undergo vocational courses, but so far as I am aware no specialised course has been devised which would fit the young pilot, who left school to join the Air Force, to perform a feat such as that which stands to the credit of Grieve.

Is not this a state of affairs that is worthy of the attention of one of our Universities? Cambridge has the scientific and mathematical experience, and the younger Universities at big seaports —as, for example, Glasgow and Liverpool—must necessarily be equipped for the teaching of navigation and nautical astronomy. Who will be the first to offer a real course of training for officers of Aerial Mercantile Service?

"PUSSIGRAMS, ETC."

The following letter has been received:—

Dear Sir,—I see that in your issue of the 14th inst., your correspondent, "Medway," has taken up the question of "aerograms" in a satirical vein. Firstly, he credits me with being a man of many ideas, but the credit of this idea is, in the first place, due to Mr. A. S. Baxendale, an expert on cable matters, and the matter was brought before me, owing to its great interest, a long time ago, by Colonel O'Gorman, a member of my staff.

"Medway" says: "Let us examine the process critically," and whilst it is an excellent idea, I do not think he has quite carried it out. A great deal of his criticism refers to "mutilated messages," but this criticism is, of course, directed against the telephonic or telegraphic part of the "aerogram" and not the aerial transmission, in which, of course, no mutilation is possible.

He then proceeds to show, under the heading of "Rivals in Speed," that he has "no high opinion of the prospects of the 'aerogram' as a competitor of the cablegram." It is on this point particularly that I differ from him, and it is especially on this point that I have been interested in "aerograms" for a long time after studying the question.

The use of "aerograms" entirely depends, of course, on the Postal Authorities, but the whole idea is linking up the existing telephonic or telegraphic facilities of one country with those of another, using aerial mail in between. Firstly, I think I can prove that the aeroplane is considerably faster than the cable. I think it is a fact beyond dispute that if you handed in a message of 5,000 words to a Cable Company in this country for dispatch to Paris, and at the same moment you handed me a duplicate, my machine would be in Paris before the message had been put through the cable. Secondly, I think I can prove that the aeroplane can carry "words," which is what "Medway" is talking about, much more cheaply than the cable.

In order to be beyond dispute, we will take General Sykes' estimate of weight as carried on a D.H.4 on the London-Paris Service, viz., 6 cwts. Taking 2,000 words to the ounce—and I think this is less than half the number which one could get into an ounce—type-written on thin paper—one arrives at 21,500,000 words, carried from London to Paris, say, in 2¼ hours. Assuming a cost of 10s. a mile, or, £120, the cost is, roughly, 700 words a penny. I am not, of course, suggesting for one moment that this load would always be obtainable, but the fact that the number of words carried in a given time is roughly as above is interesting.

In looking at any idea one has to look at it on large lines to see whether there is anything in the idea at all. "Medway" suggests that in thinking of 'aerograms" I am trying to make the aeroplane do something for which it is not intended, but I think you will give me credit for having, during the last 13 years, done exactly the opposite.

I am not suggesting that at present machines should be devoted to this Service, but I do seriously suggest that if machines were known to be going at a given time, with a load made up of all sorts of matter, that an "aerogram" Service added would be a great benefit to business men living in provincial towns in two such countries as France and England.

G. Holt Thomas.

THE POSSIBILITIES OF AVIATION IN PERU.—II.

(A Paper read before the Royal Aeronautical Society by Squadron-Commander G. M. DYOTT, late R.N).

If owners of properties in these inaccessible districts could once get in their preliminary plant to open their mines and prove their value, money would be forthcoming for building good trails or even railways at a later date. As it stands, capital will not interest itself in undeveloped properties, and owners cannot afford to spend money on trails and wait years for their machinery, hence everything is at a standstill.

To handle work of this kind successfully, aeroplanes of special design would have to be employed. A slow-speed multiple-engine machine with fuselage of large volume would be the best type.

In a general way we may say that carrying freight under abnormal conditions really means exploration and development work. As soon as an industry was well established in a certain district and contact with the outside world became easy then the railway with its cheaper rates would follow with full assurance of procuring sufficient traffic to make it pay.

To make such a scheme successful a complete understanding would have to exist between the aerial transport company and the railway companies, because the former would not agree under normal conditions to open up a district, and, the minute it was beginning to pay well, to have a railway come in and take all the business.

Possibilities for Hydro-Aeroplanes.

The prospects of developing the inland waterways of the country with hydro-aeroplanes are decidedly good. The many tributaries of the Amazon offer natural landing areas over thousands of miles of territory which would cost nothing to prepare or maintain. Launch service on the rivers is slow, uncertain, and at some seasons difficult.

A comprehensive system of hydro-aeroplanes would do wonders to bringing wild and uninhabited regions within easy reach of civilisation. It took the writer nearly a month to go from Iquitos to the Pongo de Manseriche, a distance which a fast hydro-aeroplane could traverse inside five hours. There would be nothing very difficult about starting regular services of this kind—in fact, it would be extremely easy as compared with service in the Sierra, when once a definite plan of action had been decided on. A town like Moyobamba would benefit largely, for although situated on the river Moyo, which is of ample width, it is cut off from all communications with the main river on account of a quarter of a mile of rapids below the town, which is an effective barrier to all launch service. A hydro-aeroplane could fly past this trivial obstruction and thus afford a much-needed outlet to the Huallaga river and thence to Iquitos. As it is, Moyobamba is completely isolated, but for three perilous trails, which are enough to deter the most hardened traveller.

Gold-dredging has been attempted by many companies in the Santiago and Alto Maranon rivers. Each effort has met with failure after spending colossal sums on machinery and strenuous efforts in bringing the equipment up river. Failure has always resulted because adequate communication with civilisation was never maintained. In one case a small but important part of the machinery broke; a canoe was dispatched to Iquitos with the part, but all was lost in the river. After two months waiting another party set out, and after eight months returned only to find the dredge overgrown with vegetation and abandoned by the few remaining men who had not died of fever. Had the company spent £3,000 on a good hydro-aeroplane, they would have been within four hours of Iquitos and able to meet a situation of this kind with great promptness. After all, an expenditure of 2 per cent. on the value of the machinery would not have been an extravagant price to pay.

Equally important as the aeroplanes themselves is the provision of suitable and adequate landing grounds upon which they can alight to take on or discharge their cargo.

On the coast zone the preparation of these would be very easy, as there is hardly a place which could not be turned into a perfect landing ground at a very low cost. On the high puna lands also there are some fine stretches of ground that could be chosen, and the chief expense would be drainage and the erection of a shed to house the machines in when they landed. At slightly lower altitudes some inter-Andean valleys have ideal grounds that could be used with very little preparation. For example, Cajamarca, Huamachuco, and the valley of the Mataro river about Huancayo. In the lower or more abrupt valleys the problem is more difficult, but even here there are a few places that could be utilised.

The most difficult places of all to find good landing grounds would be in the very abrupt valleys or on the shoulders of some of the hills. Small sections of ground would be available in such places, and the solution of the problem would probably be the employment of very slow speed machines that could alight on restricted areas. Machines of this particular kind would only fly short distances and would have to be of special design.

On the wooded eastern slopes of the Andes lying towards Brazil, possible landing grounds would be few and far between until one arrived at the flat ground of the Amazon basin. Even here the cost of making a clearing would be very high, and it could only be done in special cases. Development of this section of the country would be difficult. In the low-lying ground this would not matter, as hydro-aeroplanes would be used, and the rivers themselves would afford the most perfect landing facilities possible.

During the year I spent in travelling through the Andes and the upper reaches of the Amazon I found my daily notes of the wind and weather conditions a source of continual and absorbing interest. In the limits of a paper such as this it is impossible to deal with the subject in anything like an exhaustive manner, but the general results of my observations may be of interest.

Peru can be divided into three territorial zones running more or less parallel with the coast, each one having its own peculiar and distinctive features; they are generally known as the Coast Zone, the Sierra, and the Montana.

The first, as its name implies, is a belt of country adjacent to the Pacific Ocean. It varies in width from a fraction of a mile up to 10 miles, and is a sandy sterile desert, void of all traces of vegetation except in those localities where artificial irrigation has been practised. It extends inland as far as the foothills of the mountains, at which point we encounter the Sierra, or the great rocky barrier of the Andes, with its abrupt valleys, its towering peaks, and cold, bleak, uninviting uplands.

On the eastern slope of the Andes we enter the Montana or region of woods, with its heavy rainfall, humid heat, and dense virgin forests. Generally it is flat, stretching from the Andes to the eastern border of Peru to the Atlantic seaboard.

Peculiarities of Wind.

It is to be expected that over country of such widely dissimilar nature weather of great variety should occur. What surprised me most was the close proximity of some of these local variations.

There are only two prevailing winds encountered in Northern Peru, which, although varying in intensity, appear to maintain a constant direction within certain well-defined limits. All other winds appeared to me to be purely local and the direct result of sunshine and shadow. The first and most important of these air currents comes sweeping across Brazil from the eastward, laden with moisture drawn up by the action of the sun from the great Amazonian forests; on striking the most easterly ridge of the Andes, the majority of the moisture is precipitated in the form of rain or snow, and the current continues on its way at a height of 14,000 feet and over, finally losing itself somewhere over the Pacific Ocean.



The Amazon above Iquitos.

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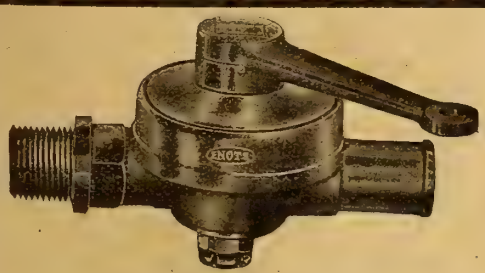
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On keeping close observations of the direction of this wind I noticed that it might occasionally veer round to the north-east or possibly southward to the south-east, but between these limits it seemed to blow with the greatest regularity.

The second prevailing wind is found on the coast, and blows from between south and south-west. It is a cold wind, and, so far as I could judge, a shallow one. On striking the hot sandy coast of Peru it apparently rises to about 6,000 feet, but not more. At times its velocity drops to almost zero, and at other times it may reach as high as 30 miles per hour. Apparently it is steady, but does not extend to any great height as in the case of the easterly wind over the mountains.

For some reason which I could not altogethr understand, clouds in the vicinity of the coast and in the mountains seemed to confine themselves to certain definite strata.

The first of these, particularly noticeable in the coast zone, were found between elevations of 4,000 and 6,000 feet. At some seasons of the year, especially in the last six months, they would assume a lower elevation, extending from the earth's surface to about 4,000 feet. Higher up in the mountains another stratum is encountered between 10,000 and 14,000 feet, and at a still greater altitude a third layer could be observed between 19,000 and 22,000 feet. The low-lying stratum in the coast zone would reach up to a certain altitude and then end abruptly, as if held down by some invisible blanket on top.

When viewed from a high ridge above the cloud line, it resembled a lot of floating seaweed with roots and tentacles stretching downwards to the earth in fantastic form. The strata observed in the mountains, however, seemed to be just as ragged on the upper surface as on the lower.

In the coastal strata I could observe no transfer of air from the clear to the cloud strata, but on two occasions I saw hot air rising locally like boiling water, pushing the clouds out of its way in all directions and leaving an aperture that would gradually close on itself again when the disturbance had ceased. This phenomenon, I think, is unusual, and I am inclined to believe that the lower stratum is actually more dense than the upper one, in spite of the chill imparted to the easterly wind in its passage over the mountains.

Many are under the impression that to cross the Andes involves the passage of but a single ridge, and that it is then a steady descent to the Amazon forest.

Only in one instance can this be done, and that is in the north, where the Andes reach their minimum elevation at Huarmaca. Here one can cross at 7,000 feet, follow the river Huancabamba to Bella Vista, and thence by raft down the Maranon to the region of the woods. All other passages mean crossing at least two and generally four and even six ridges. Between these are found high, bleak puna, or table lands, covered with a coarse grass, or else fertile valleys 8,000 to 12,000 feet above sea level.

Frequently deep narrow valleys are encountered, such as that of the Maranon, into which the sun pours its burning rays, raising the temperature to furnace heat. The deeper valleys are the centre of local winds of a highly interesting nature, and to study them I had to resort to the observation of bird flight and cloud movement.

Bird Aviation.

In 1911 and 1912, when I was flying in Mexico and Central America, I found that the conditions of the atmosphere could be judged very accurately by careful observation of the flight of the turkey-buzzards. These birds are found all over Peru, and between them and the giant condors of the mountains I was able to gather many interesting facts.

The former of these two birds can only maintain flight in calm still air with considerable effort, and they depend on horizontal or vertical air currents to keep aloft for any time.

About eight or nine o'clock in the morning they would leave their resting places and test the air, sometimes giving it up immediately and sometimes losing so much altitude that they would be unable to regain their perch and would have to take refuge on a lower ledge or some dried-up tree in the valley. As soon as conditions for soaring flight prevailed, they would all be circling and circling till lost in the blue. Invariably they seemed to prefer the sides of the valleys, which I took as an indication that they were on the look-out for food; but be this as it may, closer observation showed that the air in the centre of the valley was almost always descending, and it was for that reason that they avoided it. Many times I noticed them glide from one side to the other, and invariably this manœuvre was accompanied by a big loss in altitude.

Towards four-thirty all the heat eddies had stopped, and down would come the turkey-buzzards to roost for the night. Frequently, if their return was postponed till a late hour, their landing on tree-tops was very strenuous, as, unable to support themselves in the falling air, they would fall like a lump of lead on an extending branch and there remain until the morning.

Cloud Observation.

The behaviour of the wind over the mountain tops was of as much interest as the heat eddies in the valleys. Practically all main ridges in Peru run roughly north and south—that is to say, at right angles to the prevailing wind. The eddies set up are therefore the resultant of the east wind and the hot air rising from the valleys. Three distinct effects are noted.

On ridges of 14,000 feet and over, the easterly wind would be so chilled that on passing the ridge it would drop down into the valley, meeting the hot air coming up on the other side. This would cause local disturbance in the atmosphere on the lee side of the summit anywhere from 200 to 1,000 feet down the slope, according to the velocity of the wind and the force of the upward air currents.

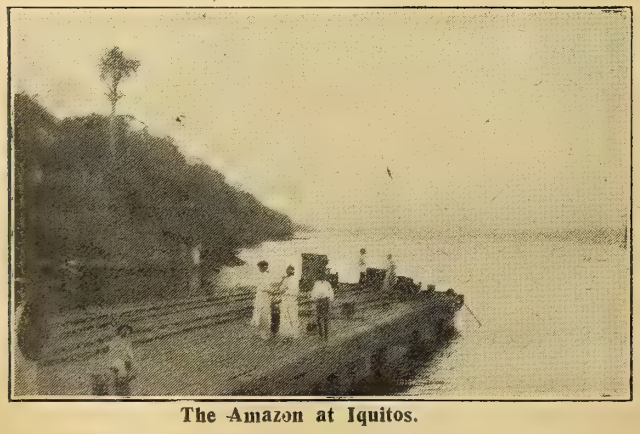
Reversal of wind was not uncommon in cross valleys running up into ridges of this altitude. If the parent valley was narrow and subject to the sun's rays over much of its length, cold air to replace the rising warm air would be drawn from the cross valley. If the head of this valley lay to the east, then down would sweep the clouds till they arrived at a spot where the heat of the sun was enough to disperse them and kill their velocity. One day I counted 11 reversals in 12 hours.

Over lower ridges having an altitude of about 12,000 feet, the heat eddies would, as a rule, prove the strongest, especially along the east coast of the narrow Maranon valley. This was apparent because as the clouds came drifting over from the east they would be folded back on themselves, rolled up, and diverted to a higher elevation. Several times I witnessed collisions between some newly formed cloud as it travelled up a short cross valley and a low straggling one carried before the east wind. The two would meet in a silent crash, sending up a column of whiteness that was marvellous to behold. Reversals of wind in the vicinity of these ridges was not so noticeable as in the higher ones, as the conditions most suitable for the phenomenon were a combination of a short narrow valley running out of a deep hot one up to a high ridge.

On the most easterly chain of the Andes, which is heavily wooded and rises to 5,000 or 6,000 feet, a continuous reversal of wind was frequently noted during the entire day. Undoubtedly this was due to the enormous suction caused by hot air rising from the Amazon woods drawing in the cool air over the mountain tops to replace it. At night this wind would die down, but during the day would attain considerable velocity.

During all my wanderings in the mountains I never once encountered a wind blowing across a valley unless it was the prevailing easterly wind over some high puna land. In all cases local winds blew either up or down the valleys, and it was extremely interesting on some occasions where three valleys united together to observe clouds floating up or down them, sometimes in diametrically opposite directions.

Yet another point was that not only did clouds follow ridges, but they always chose the highest ones for preference. A mass of clouds, for instance, arriving at the head of a valley would as likely as not be split in half, each half following its own side



The Amazon at Iquitos.



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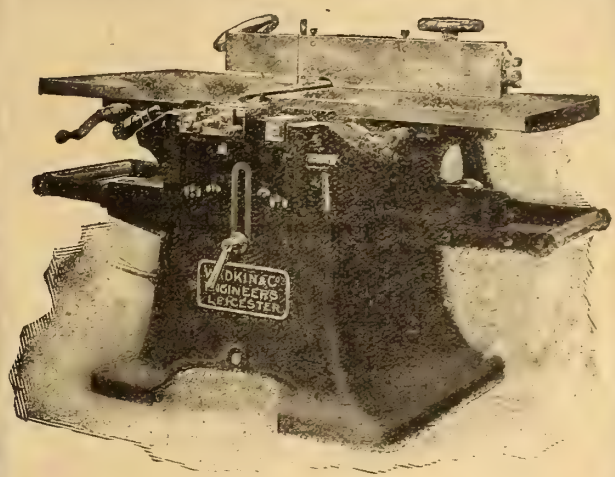


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of the valley. If one side happened to be considerably higher than the other, then the clouds would all veer off to that side

Contrary to general opinion I would not consider the passage of the high ridges to be very difficult. On the other hand, crossing some of these Andean valleys, I feel sure, would be risky with under-powered machines, and after 4 p.m. dangerous.

In closing I would like to make a few remarks in regard to the river Amazon, as I suppose that there is no one who having had experience with seaplanes has not thought about flying up this mammoth river and its many tributaries.

Personally, I would prefer to do the first 2,147 miles as far as Iquitos, the inland port of Peru, in one of the comfortable ocean-going steamers belonging to the Booth Line. This part of the journey can be divided into three sections—Salinas, where a pilot is taken on, to Para 110 miles; Para to Manaos 865 miles, and thence to Iquitos 1,172 miles.

Up to this point the river is so colossal that there is not much pleasure in traversing it even in a 3,000-ton steamer. Its overall width at Iquitos is roughly two miles, the main channel being 850 metres, then an island, and then a more shallow channel of 1,700 metres width.

High-water marks occur in the months of March, April and May, and low-water July, August, September.

From Iquitos to the Pongo de Manseriche there are a few tiny settlements and a small military post at Baranca.

The hydro-aeroplane could alight anywhere along this part without the slightest trouble, but as there are so few habitations, sometimes 100 miles apart, and these only inhabited by half-caste Indians, there would not be much opportunity of trading.

From the Pongo to Bella Vista, a distance of approximately 150 miles, landings on the river could only be made at special points, as there are many gorges and rapids and the water runs with considerable velocity.

In all of this section of the country the idea of providing landing grounds by cutting down the virgin forest is not as easy as is generally supposed. Even if this were done it would need very determined effort to keep the ground clear, as the rapidity with which vegetation grows is enormous.

Beyond Bella Vista the main river is too swift for hydroaeroplane work, but should one have in mind to reach the Pacific Coast it is only a 140 mile journey, and there is but a single low pass of 7,000 feet to be surmounted.

There is no doubt that if, for strategic reasons, rapid aerial transport between Iquitos and the Pacific Coast was essential, then this route would be far the most practical to open up, as that one via the river Pachitea is considerably longer and over a particularly high section of the Andes.

An Indifferent Population.

The greatest difficulty of aerial navigation through the Amazon and its tributaries would be that the population along its banks is so small as to be negligible except in the Ucayali river, Furthermore, the produce of the woods is bulky and awkward to handle. Rubber might offer inducements, but palm fibre, vegetable ivory, timber, etc., are out of consideration for aerial transport. The question of fuel would also be very serious, as at the present time ordinary petrol in Iquitos costs 7s. a gallon, and by the time it had been spread over numerous river depots it would be higher still.

There would be as great opportunities for saving time in the regions of woods as there is in the mountainous districts. The town of Yurimaguas on the Huallaga river is 150 miles away from Iquitos in a direct line, but by canoe or launch the actual distance covered is 450 miles.

People often think of the Amazon as a glorified edition of the Thames, but in reality the only resemblance is that there is water in both. In a previous paragraph I spoke of the value of time as being the all-important factor in the field of commercial aeronautics. If this is applicable in the mountainous districts then it is doubly so in the rivers as here life is very primitive. The unit of time is six months, that is to say, the wet or the less wet season, each of which lasts half a year. The unit of distance is a river bend which varies anywhere between 100 yards up to many miles. All of the inhabitants are poor and the majority underfed, sickly and barely realising that they are alive. Even lower down the river where there are some prosperous planters, to rush them through the air in a few hours to their destination would be to rob them of two weeks of keen enjoyment spent on a river launch, so at the moment one can only look on aerial transport in the Amazon as an adjunct to European enterprise.

THE DISCUSSION.

Brig.-General H. R. M. Brooke Popham, C.M.G., D.S.O., A.F.C., R.A.F., said that he considered the lecture one of the most interesting that he had yet heard at the Royal Aeronautical Society's meetings. It was, he thought, of the utmost importance that those connected with the development of aviation should have accurate information as to the physical characteristics of the less well known parts of the earth, such as the lecturer had given, so that they might have a clear idea of both the difficulties to be overcome and the opportunities which exist in such places.

Col. I. B. Davson, R.A.F., congratulated Mr. Dyott on the very interesting lecture. He regretted that no attention had been given to the prospects of aviation in British Guiana.

Here was a territory of over 100,000 sq. miles under British control, very rich in minerals, with rivers giving facilities for seaplane landing equal to those of the Upper Amazon, where the characteristic South American indifference to time and hostility to progress was not to be found.

Capt. A. P. Thurston, R.A.F., said that when war broke out he was himself on a voyage of exploration up the Amazon, and he wished to confirm in every way Mr. Dyott's remarks. His party had explored the upper wind all the way across the Atlantic and up the Amazon by means of pilot balloons.

Over the Amazon the wind was a steady one from the East – generally N.E., but occasionally veering to S.E This wind swept the Amazon itself clear of mosquitoes, but the tributaries were full of them, and, consequently, of fever.

The Amazon was quite a practicable river for seaplanes. At its narrowest (presumably within the navigable portion) it was one mile wide with a nine-knot current.

One point of importance was the effect of the climate upon an aeroplane. No glue and no fabric that he knew of would stand the heat and moisture combined, and the woodwork of an ordinary aeroplane might easily disappear in a single night, thanks to ants and other destructive insects.

The Chairman, General Ruck, entirely agreed with General Brooke Popham as to the importance and interest of the type of paper which they had just heard read.

As far as he was personally concerned the impression which the paper had given him regarding the prospects of commercial aviation in South America was a depressing one.

He had hoped that the lecturer would have pointed out certain possible openings for enterprise, but he had rather emphasised the total absence of any enterprise in the country.

Were there not possibilities in postal services? It looked as though the Amazon might afford a mail route to the Western coast, and if such a mail service were established the country on the route might develop rapidly.

Mr. Dyott's Reply.

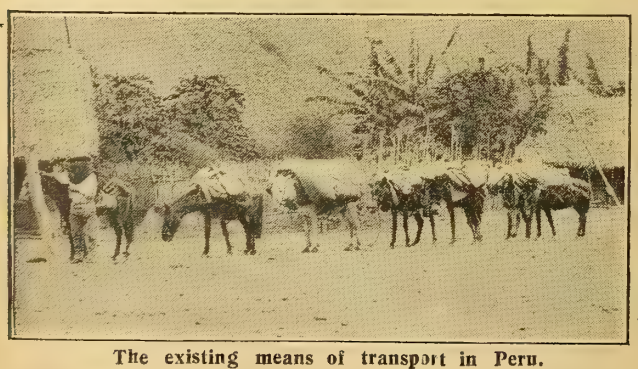
Mr. Dyott said that he had purposely not painted the possibilities in rosy colours. He thought there were commercial possibilities, but there were very great difficulties to be overcome.

There were also certain strategic possibilities.

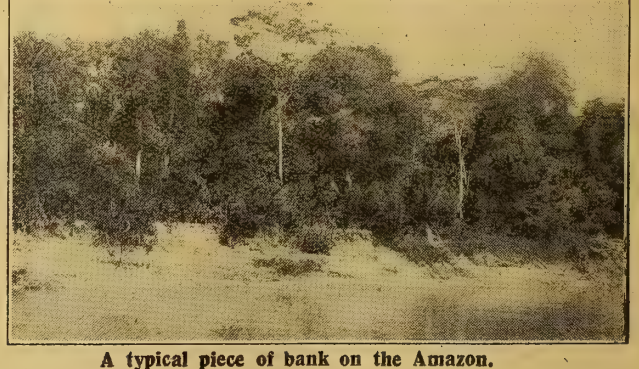
Iquitos was in Peru and was the richest part of Peru. If money were required for paving a street in Lima, that money was obtained by the Government from Iquitos, and Iquitos gained nothing from money so spent.

Consequently, Iquitos did not greatly love Peru, and since Trans-Andean communications were so bad, Peru might have grave difficulties in keeping its hold on this district

Aerial transport across the Andes would assist the Government very considerably, and might be worth attempting on these grounds alone.



The existing means of transport in Peru.



A typical piece of bank on the Amazon.

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CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

The following cross-country flights were made from Hounslow during the week ending June 14th :—One to Folkestone and return. Two to Southampton and Southsea and return. One to Liverpool and return. One to Broadstairs and return.

South Africa.

A commercial aviation company, with an initial capital of £100,000, has been started at Johannesburg. Services will be run at the end of the year between Johannesburg, Pretoria, Maritzburg, and Durban.

The largest machine will carry 24 passengers and about 500 lb. weight of parcels. The fare from Johannesburg to Durban, as far as can be estimated at present, will be about £10, and the parcel rate 1s. per lb. As soon as regular services are in operation the company will tender for the carriage of mails.

The following are comparisons of the times taken respectively by train and estimated to be taken by aeroplane between various towns.

	By Train.	By Air.
Capetown to Pretoria, 1,001 miles	47¾hr.	9hr.
Durban to Pretoria, 519 miles	24hr.	4hr.
Pretoria to Johannesburg, 39 miles	80min.	30min.
Bloemfontein to Johannesburg, 290 miles	11½hr.	3½hr.

A flying school is about to be opened in Johannesburg, the course lasting about six weeks, and including 20 hours' solo flying, ground instruction, care and maintenance of aircraft, map-reading, cross-country flying, and aerial navigation.

Canada.

A new aeronautical company, known as the Bishop-Barker Aviation Co., Ltd., has just been registered. Among the directors are Lieut.-Cols. Barker, V.C., and Bishop, V.C. They intend to carry on business principally in Canada and the U.S.A.

Brazil.

The Brazilian Minister of Transport has instructed the Department of Maritime and River Transport to study the conditions of aerial transport in order to draw up regulations regarding aerial navigation in Brazil.

It is reported that an Italian-Brazilian company has been formed for the purpose of establishing aerial communications in Brazil, and have entered into negotiations for concessions to that end from the Ministry of Transport.

It is proposed to commence with a service between Rio Grande and Porto Alegre.

The machines to be used will be Caproni seaplanes—"much less perilous than aeroplanes," as the Brazilian paper puts it.

Concessions have been granted by the Brazilian Government to : Senors Joao Lexeira Soares and Antonio Rossi to institute aerial transport services between the principal cities of Brazil. (Decree No. 13,244, Oct. 23rd, 1918.)

Senors João Baptista dos Santos and Augusto de Aranjo Goes to use aerial means of transport—including seaplanes for the transport of passengers and goods in Brazil. (Decree No. 13,504, March 12th, 1919.)

A HANDLEY PAGE ENTERPRISE IN BRAZIL.

According to "Auto-Propulsao" (Rio de Janeiro) of May 1st, one of the first commercial air services likely to be established in South America is that projected by Handley Page, Ltd., who, through their representatives, Major Ivor Bellairs and Mr. W. Douglas, are seeking from the Brazilian Government certain concessions to that end.

These same gentlemen are to make a journey which is to include Chili and the Argentine, with the object of obtaining similar concessions in these countries.

It is proposed to establish a service between Pernambuco and Buenos Aires.

It is suggested that either an all day and night taking 44 hrs. 30 mins. start to stop, or a service flying by day only, and taking three days and a quarter could be run over the route.

The following tables give suggested time tables :—

DAY AND NIGHT SERVICE.

Stage.	Hours' flight.	Miles.	Depart.	Arrive.
Buenos Aires-Montevideo	1¾	120	2.0 p.m.	3.45 p.m.
Montevideo-Rio Grande	5	345	4.45 p.m.	10.0 p.m.
Rio Grande-Porto Alegre	2¼	160	11.0 p.m	1.15 p.m.
Porto Alegre-Florianopolis	3½	250	1.45 a.m.	5.15 a.m.
Florianopolis-Santos	4½	320	5.45 a.m.	10.15 a.m.
Santos-Rio	3	220	10.45 a.m.	1.45 p.m.
Rio-Victoria	3½	250	2.15 p.m.	5.45 p.m.
Victoria-Carvellas	3	220	6.15 p.m.	9.15 p.m.
Carvellas-Bahia	5½	390	9.45 p.m.	3.15 a.m.
Bahia-Maceio	4½	320	3.45 a.m.	8.15 a.m.
Maceio-Pernambuco	1¾	130	8.45 a m	10.30 a.m.
Total	38¼	2,725		

DAY ONLY SERVICE.

Stage.	Hours' Flight	Miles.	Depart.	Arrive.
Buenos Aires-Montevideo	1¾		6.30 a.m.	8.15 a.m.
Montevideo-Rio Grande	5		9.15 a.m.	2.15 p.m.
Rio Grande-Porto Alegre	2¼		3.15 p.m.	5.30 p.m.
FIRST DAY	9 hrs.	—625 miles.		
Porto Alegre-Florianopolis	3½		6.0 a.m	9.30 a.m.
Florianopolis-Santos	4½		10.0 a.m.	2.30 p.m.
Santos-Rio	3		3.0 p.m.	6.0 p.m.
SECOND DAY	11 hrs.	—790 miles.		
Rio-Victoria	3½		6.0 a.m.	9.30 a m.
Victoria-Carvellas	3		10.0 a.m.	1.0 p.m.
Carvellas-Bahia	5½		1.30 p.m.	7.0 p.m
THIRD DAY	12 hrs.	—860 miles		
Bahia-Maceio	4½		6.0 a.m.	10.30 a.m.
Maceio-Pernambuco	1¾		11.0 a.m.	12.45 p.m.
LAST DAY	6¼ hrs.	—450 miles.		

Major Bellairs and Mr. Douglas are stated to have expressed themselves enthusiastically as to the prospects of commercial aviation in Brazil, particularly in regard to the excellent weather conditions in South America.

FROM SEAPLANES TO RIVER BOATS.

Messrs. Short Bros. have turned over a large part of their works at Rochester, Kent, for the mass manufacture of standardised types of river craft, from Canadian canoes to power-launches.

A USEFUL SIDE-LINE.

By way of keeping the shops busy pending the development of Civil Aviation, the Supermarine Aviation Works, Ltd., of Southampton, are re-opening their motor-boat and launch department in continuation of their pre-war practice.

This department has been considerably enlarged and equipped on the most modern lines. The experience gained by the firm in building flying-boats has naturally taught them much which can be applied to the improvement of motor-boats and launches, and, therefore, these products of the firm may be regarded as in the very first class.

Two types are being manufactured, both of 25 ft. length by 5 ft. 8 in. beam, and maximum 2 ft. draught, with a speed of about 11 knots. The first is of the yacht's pinnace type, whereas the other is of the All-Weather Sea-Going type intended for the use of the owner-helmsman. The engine fitted in each type is the Thornycroft A/B4 type of 25-30 h.p.

Firms who intend to run a seaplane service, which naturally necessitates keeping a motor-boat as a tender to the seaplanes, would do well to get in touch with the Supermarine Company and investigate these launches in detail.

ACTIVITIES AT CHELTENHAM.

Major-Gen. Sir Sefton Brancker, K.C.B., in an Airco 9, visited Cheltenham recently to inspect an aerodrome in the vicinity.

Also during the last few days a former habituée of Hendon, Major E. Prosser, late of the Australian Flying Corps, and formerly of Hendon, and one of the first English aviators, flew from Bournemouth to Cheltenham, accompanied by Mr. G. H. Bettinson, in a 70-h.p. Caudron biplane, and after a day's halt to look round the aerodrome at Badgeworth the machine was flown back to Bournemouth, this time taking as passenger Sec. Lieut. R. R. H. Bruce, late R.A.F., one of the Cheltenham School staff pilots.

It is understood that efforts are being made to organise a "Cheltenham Aviation Week" and a regular "joy-ride" service during the season for carrying passengers. A fleet of specially-adapted and equipped fast machines will also be available shortly for business and express requirements.

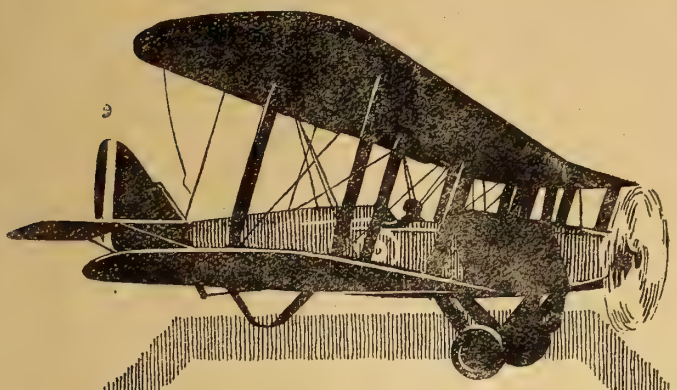
The aerodrome at Badgeworth is now completed, and is suitably situated to accommodate the air traffic of the two circular air lines which, it is hoped, will be operated from this base.

A flying club is also being formed, which will place at the disposal of qualified fliers and others the facilities of a completely equipped aerodrome, with garage accommodation for privately-owned machines, combined with the conveniences of a modern club-house.

The entire enterprise is being organised by Lieut. Horace C. Wright, who had considerable pre-war experience as an aeroplane pilot, and who has recently been demobilised from the Royal Air Force.

TO BUYERS OF "SALVAGE" AIRCRAFT.

Purchasers or intending purchasers of "salved" aeroplanes and spares who do not feel themselves competent to judge of the condition of the fabric and dope on their purchases should note that Aero Coverings, Ltd., of Tennyson Works, Willesden Lane, London, N.W.6, are prepared not only to advise upon the subject, but to collect, re-cover, re-dope, and finish to any required scheme and re-deliver wings and the like in a very short time.



Aeroplane Equipment.

Manufacturers interested in specialised T unks, Valises, Tool Cases, etc, for Aeroplanes, should forward enquiries to J. B. BROOKS & Co., Ltd., makers of the well-known

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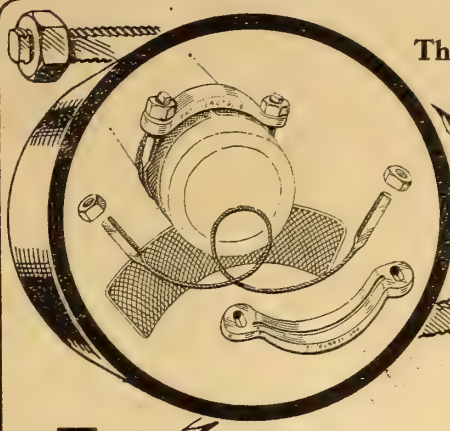
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AIRCRAFT FINANCE

NATIONALISATION AND AVIATION.

History is frequently dull, but usually instructive and sometimes helpful, and when one considers the past experience of the railways of this country in conjunction with the present agitation for nationalisation the question of the degree of intimacy between the Government and the newer phase of transportation facilities forces itself out rather prominently.

The Imperfections of the Railways.

Take, to begin with, the contemplated aerial postal and mail services. Admittedly the State has devised some regulations bearing upon the conduct of aviation, but that is a mere detail. The point is that no one wants all the faults of the railway system to be repeated in the aerial services of the future. This being so, would it not be prudent for the State to act now right at the beginning before anything savouring of vested interest—that imaginary evil so strongly anathematised by every type of social reformer—is created?

Ineradicable.

Judged as an effective section of the transportation organisation, the railways are anything but good now. Before the war they did not approach perfection, either physically or economically. Some of the imperfections were acquired at birth; some are the result of faulty principles of operation; many are ineradicable; others might be eliminated at a cost which could not be undertaken.

Private Enterprise Is Imperative.

Admittedly, if the development of the newer business of aviation transport were dependent upon a Government, there would not be much progress on the right and proper lines calculated to produce efficiency coupled with permanency. This scarcely calls for contradiction. When the State assumes control, if brains do not run off to a discount, it is indisputable that the expense ratio is absurdly high, and economically the results are not equal to those of private enterprise, nor are the physical results so good.

A Passive Interest for the State.

Therefore it is necessary that private enterprise alone should be responsible for the development of commercial aviation without any interference on the part of the State. But in these days of communalism—in the abstract—it would be advantageous if some means could be devised whereby the State acquires some interest in the project. It would be discreet, possibly helpful without being a drawback. The man in the street would be protected because he would have an indirect interest.

The Possible Disadvantages.

There are many who argue that, no matter how small and passive the State interest was, the possibilities would be seriously menacing and perhaps pernicious. The State would, they fear, exceed its privileges. The politicians, the amateur statesmen, might suffer from brain-storms, to the detriment of aviation. One knows what this means. It is not pleasant to contemplate.

But the advantages might outweigh the disadvantages in a properly conceived scheme, and the matter should be regarded in this way. A great deal, of course, would depend upon the elaboration of the scheme. The interests of the State would have to be protected. It is equally true that the interests of private enterprise would have to be protected at the same time.

The Point of View of the Public.

If the position of the State, as custodians of the rights and privileges of the public were properly defined, and if, as satisfaction for the sacrifice of a part of its independence, private enterprise received some small compensation, there would be an incentive to development, to progress, and to efficiency. But private enterprise must not be curbed or annoyed by the State usurping its defined privileges.

The Parallel of Shipping Subsidies.

There are countless objections but many advantages to both parties. The subsidisation of shipping services is common enough, but if the same principle is followed out in the case of aviation it need not necessarily be carried out on exactly the same lines. As a matter of fact, a direct subsidy might not prove the perfection of human ingenuity in the special case of aviation. In the present phase of aeronautical science it might stultify rather than stimulate. Progress as rapid as is consistent with physical and economic efficiency is called for.

Already the nucleus of a possible scheme for a Government partnership exists.

W. J. Davies.

CURRENT TOPICS.

The Financial World Idle.

The great idea in the Financial World generally now is to get the big Funding Loan out of the way as speedily as possible so that business can be taken in hand seriously. It is like a dose of physic, nasty to the palate but good for the system. The greater the success it proves the better for the country at large.

Aircraft Shares are Sliding.

In the meantime, the Stock Exchange is not blessed with much business, and domestic securities provide little of especial interest. Aircraft Manufacturing shares have been drooping with the "B" Preference no better than 18s. This is due to apprehension of the immediate future of the Industry. There is moderate support for Rolls-Royce, and the new Handley Page Participating Preference are being dealt in at 17s. 6d. to 18s. 3d. Whiteheads 10 per cent. Participating Ordinary are scarcely better than 4s. 3d. Some people are wondering what they should do with the shares: sell them or hold on in the hope of the company improving its position? It is difficult to probe the future.

Sopwith in Australia.

The registration of an Australian auxiliary of Sopwiths is interesting. The name is the Larkin-Sopwith Aviation Co. of Australia, and the nominal capital is £31,500 in 30,000 £1 preference shares and 30,000 deferred ordinary shares of sixpence each. The first directors—all permanent—are H. B. Larkin, R. J. Turner, and J. T. Leete, all permanent directors, too. The sixpenny deferred shares are not exactly a novelty but they are uncommon. In time, one will probably hear of penny shares!

Some New Ventures.

There is nothing exceptional about a new company that intends to combine the business of cabinetmakers and the manufacture of aeroplanes, like one just detailed at Somerset House, but Transport International, Ltd., which has been formed with a nominal capital of £1,000 in £1 shares to operate postal, passenger and freight services strikes the fancy. Evidently, it is purely the registration of the name.

The Spanish Mail Scheme.

By the way, one awaits with expectancy the report and findings of the Commission nominated by the Postmaster-General of Spain for the purpose of studying the question of an aerial post. There are to be given some estimates of cost, etc., etc., which should be instructive from several aspects. Spain has been enriched sufficiently by the war to do a lot in aviation.

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Fonck — 29,530 feet

He is going to attempt a climb to over 10,500 metres. Lumiere propeller.

Casale — 30,510 feet

Climbed in 41 mins. on May 28th with a 300 h.p. Nieuport 29, and raised the world's record to nearly 10,000 metres with the same machine on June 7th. Lumiere propeller.

Sadi-Lecointe — 29.200 feet

Flying a 300 h.p. Spad made the previous record on May 19th, also used a Lumiere propeller.

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AIRCRAFT IN PARLIAMENT

COMPENSATION FOR DAMAGE BY AEROPLANES.

Notice of the following question had been given by Sir PHILIP MAGNUS on June 2nd:—

To ask the President of the Board of Trade whether he is considering the measures necessary to provide compensation for damage to private property or loss of life caused by any kind of aeroplane, whether in use for commercial, experimental, or other objects.

Sir P. MAGNUS: I put this question down on Wednesday, and transferred it to this day. On Thursday I saw the answer to it in the "Times" newspaper. I propose to put some supplementary questions on some other day.

* * *

The following oral answers were given on June 2nd:—

ROYAL AIR FORCE.—LIGHTER-THAN-AIR SERVICE.

Captain W. BENN asked the Under Secretary of State to the Air Ministry whether he can make a statement about the future organisation of the lighter-than-air branch of the Air Service.

The UNDER SECRETARY of STATE for AIR (Major-Gen. Seely): Proposals to transfer the responsibility for airship construction from the Admiralty to the Air Ministry are now under discussion between the two Departments. I think it would be inadvisable to make any further announcement at present, but I will do so as soon as details have been arranged.

OBSOLESCENT AIRCRAFT (CONTRACTS).

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether he will state what contracts for obsolete or obsolescent aircraft remained uncancelled; and the date when it may be anticipated that these contracts will be concluded.

Mr. KELLAWAY: All contracts for obsolete and obsolescent aircraft are now concluded.

TARRANT TRIPLANE.

Captain ORMSBY-GORE asked the Under Secretary of State to the Air Ministry whether he will publish a Report on the causes and circumstances of the failure on trial of the Tarrant triplane at Farnborough, which resulted in the loss of the lives of two officers of the Air Force.

Major-Gen. SEELY: The Tarrant triplane was built for military purposes to the order of the Government, and it would not be in the interest of the public service for the results of a technical investigation into the causes of the accident to be published.

GENERAL SYKES' STAFF.

Mr. RAPER asked the Under Secretary of State to the Air Ministry if he will state what is the total amount of money per annum being allocated for the payment of General Sykes' staff; whether there are any restrictions as regards maximum salaries to be paid to his staff, and, if so, what; and what are the exact terms under which the assistants in General Sykes' department are engaged so far as duration and termination of agreement are concerned.

Major-Gen. SEELY: Proposals as to the staff required by General Sykes for his department have been laid before the Treasury, and until the Treasury decision has been received I am unable to answer the questions raised.

* * *

The following written answer was given on June 2nd:—

ROYAL AIR FORCE.—SEC. LIEUT. J. R. FOX (DEATH).

Major NALL asked the Under Secretary of State to the Air Ministry why Second Lieutenant J. B. Fox, Royal Air Force, has not been officially reported killed, although ample evidence is available that he died from wounds on August 19th, 1918, at Ingweiler, and was buried in the Ingweiler Cemetery.

Major-Gen. SEELY: The question doubtless refers to Second Lieutenant J. R. Fox, 10th Manchester Regiment and Royal Air Force, who was reported missing on August 16th, 1918. This officer's death has been accepted for official purposes as having occurred on or since 16-8-18, and a letter to that effect was sent to the next of kin on 30-4-19.

* * *

The following oral answers were given on June 3rd:—

AERODROME CONTRACTORS (MOTOR LORRY).

Mr. HUGH MORRISON asked the Secretary for War whether he is aware that, in spite of the representations of the Salisbury Rural District Council to the road transport officer of the Southern Command, the Royal Air Force are using a three-ton lorry for the purpose of conveying about four persons each day from Winterslow to Lopcombe Corner Aerodrome, and that in consequence considerable damage is being done to the roads in the district by this unnecessary heavy military traffic; and will he take steps to stop this waste of money.

Mr. CHURCHILL: The lorry in question belongs to the contractors working at Lopcombe Corner Aerodrome, and is used for the conveyance of stores and workmen to and from the station. There are generally about sixteen men, while the stores consist mainly of drain pipes, for which a conveyance of this kind is necessary.

MISS DOUGLAS-PENNANT.

Sir R. THOMAS (*by private notice*) asked the Leader of the House whether the Government are now prepared, in view of what occurred in the other House last week, to agree to set up a Committee of Inquiry in respect of Miss Douglas-Pennant's dismissal.

Mr. BONAR LAW: I think it only right, in view of the Resolution in another place, that the subject should be considered by the Cabinet. It has not been possible to do so to-day, on account of the pressure of more important work, but if my hon. friend will put down a question to-morrow or Thursday, I hope to be able to give him a definite answer.

Sir R. THOMAS: I will do that, Mr. Speaker.

* * *

The following written answers were given on June 3rd:—

ROYAL AIR FORCE.—SERVICE FUNERALS.

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether officers, on transference from the Royal Naval Air Service to the Royal Air Force, lose their right to a Service funeral unless death is due to a flying accident; whether this is contrary to Air Force Memorandum No. 1, Paragraphs 6 and 7, which provides that no financial loss should be incurred on transference; and whether he will have inquiries made in the case of Second Lieutenant A. W. Benfield, who transferred from the Royal Naval Air Service to the Royal Air Force died in hospital at Norwich last November, and whose funeral expenses are still unpaid owing to the refusal of the Air Ministry to allow the same and the fact that the next-of-kin are not in a financial position to meet the obligation.

Major-Gen. SEELY: Officers of the Royal Air Force who die in this country are not entitled to a funeral at the public expense unless they are killed as the result of a flying accident. This rule applies equally to officers transferred from the Royal Naval Air Service as to those transferred from the Royal Flying Corps, and, as my hon. and gallant friend will appreciate, no discrimination could be made in this matter between the two classes. As regards the particular case of the late Second Lieutenant Benfield, I shall be glad to consider whether an ex gratia allowance can be made towards the funeral expenses, if my hon. and gallant friend will furnish me with information as to the financial circumstances of the deceased officer's next-of-kin.

AEROPLANES (SALE).

Lieut.-Col. Sir S. HOARE asked the Parliamentary Secretary to the Minister of Munitions whether, in view of the high prices now being realised for obsolete and old motor-cycles and cars being sold by Government Departments, it would be desirable to offer some of the new aeroplanes, now being broken up, to the public by auction sale so as to test the market on this matter.

Mr. KELLAWAY: No aeroplanes have been broken up by the Disposal Board except those which have been declared by the Air Ministry to be obsolete for Service use and unsuitable for civil aviation, and such machines as, by reason of their condition, could not be made safe for flying without unprofitable expenditure. The Disposal Board is offering aeroplanes and engines to the public by the various recognised methods of sale, including sale by auction. An auction sale was held at Hendon yesterday, after having been widely advertised for the past two weeks.

ROYAL AIR FORCE (ROBERT DAVIDSON).

Mr. NEIL MACLEAN asked the Secretary of State for War whether he was aware that Robert Davidson, No. 220282, L.A.C., Royal Air Force, was demobilised on March 8th, 1919, after four years and three months' service, and although due, approximately, £40 balance of pay and £26 gratuity, has received nothing, and, as a consequence, had to enlist again for two years on April 8th, 1919; if he is aware that he has allotted 18s. per week, which, with allowance, should entitle his wife to £2 1s. per week, but that she has received nothing; if he is aware that the paymaster at Woking has been written to and interviewed, but nothing has been done; and whether he proposes to take any steps to secure to this soldier and his family the money and leave to which he and they are entitled.

Major-Gen. SEELY: I think the hon. Member must be referring to No. 229282, and not 220282 Leading Air Mechanic Robert Davidson. The sum due to this man on dispersal was, I find, not £40, but £5 18s. 6d., and this has been paid, with the exception of 6d. deducted for National Health Insurance. A complete statement of the man's account is being sent to his commanding officer for the man's information. The gratuity payable amounted to £25. Of this £24 was deposited with the Post Office Savings Bank on June 1st. The remaining £1 would have been issued on the return by the man of his overcoat. The money allotted by Davidson on re-enlistment and separation allowance have, I am informed, now been issued, with arrears to the date of re-enlistment. The man will receive any leave to which he is entitled.

* * *

The following question was answered on Monday last, but a copy of the reply was not received in time for inclusion in the Official Report of that day's Proceedings:—

ROYAL AIR FORCE.—OFFICERS (TECHNICAL PAY).

Lieut.-Col. Sir F. HALL asked the Under Secretary of State to the Air Ministry whether any decision has yet been arrived at as to awarding technical pay to officers in Category B of the Royal Air Force; whether their duties are of less importance than those of the officers in Category A; and whether, when a decision is arrived at, in the event of it not already having been reached, emoluments will be made retrospective to temporary officers as and from the date of the Air Ministry Order of September 26th, 1918.

Major-Gen. SEELY: This matter has been very carefully considered, and it has been decided not to award technical pay generally to officers in Category B, as their duties do not involve the same standard of technical knowledge as those of officers in Category A.

Sir F. HALL: Is it not the case that the duties which attach to officers in Category A include the inspection of fire appliances and sewing of gas balloons, whereas in Category B it is necessary for officers to be well up in armaments and chemistry, and why are they treated on the same lines?

Major-Gen. SEELY: This is a highly technical matter on which we might spend a quarter of an hour in arguing together. I shall be glad to write to my hon. friend.

* * *

The following oral answers were given on June 4th:—

AFGHAN TOWNS (BOMBING)

Lieut.-Commdr. KENWORTHY asked the Secretary of State for India if day and night aeroplane bombing raids have been carried out against Jellalabad and other Afghan towns; if so, what steps are taken to avoid the killing of women and children in these raids; and will he publish assurances on this subject for the information of the Moslem subjects of the Empire and of our allies.

Colonel WEDGWOOD asked the Secretary of State for War whether any and, if so, what instructions have been given as to the bombing of Afghan towns and villages with a view to prevent injury to non-combatants.

The SECRETARY of STATE for INDIA (Mr. Montagu): As far as is known, aeroplane bombing raids on Afghan towns have been solely by day, I have ascertained from the Viceroy that all possible care is taken to confine operations to attacks on troops and military objectives and to avoid villages and other unfortified places. British military practice in this respect is sufficiently known to make a public announcement on the subject unnecessary.

Lieut.-Commdr. KENWORTHY: Are any instructions given as to the height from which bombs are to be dropped in the day time?

Mr. MONTAGU: No.

[One wonders whether Lieut.-Comdr. Kenworthy and Col. Wedgwood have ever seen that verse of Mr. Kipling's which runs:—

"When you're wounded and left on Afghanistan's plains
And the women come out to cut up what remains,
Just roll to your rifle and blow out your brains
And go to your God like a soldier"]

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THE AERIAL DERBY.

At 5.54 p.m. on Monday, June 16th, a telegram was received by the officials of the London Aerodrome, Hendon, from Captain Alcock, entering his name for next Saturday's Aerial Derby.

It is hoped that the chassis of Captain Alcock's Atlantic machine will be repaired in time for this to take part in the contest, otherwise he will probably fly another Vickers machine.

Captain Alcock will be accompanied by his Atlantic navigator Lieut. Brown in the observer's seat.

The entry list is as follows:—

1. Clifford B. Prodger. B.A.T. "Bantam." 170-h.p. A.B.C. "Wasp." 120 m.p.h.
2. Captain P. R. T. Chamberlayne. Grahame-White "Bantam." 80-h.p. Le Rhône. 90 m.p.h.
3. Major C. Draper, D.S.O. B.A.T. (Sporting two-seater). 200-h.p. A.B.C. "Wasp II." 125 m.p.h.
4. Lt.-Col. G. L. P. Henderson, A.F.C., M.C. Martinsyde "F.4." 250-h.p. Rolls-Royce "Falcon II". 145 m.p.h.
5. Major R. H. Carr, A.F.C., D.C.M. Grahame-White "Bantam." 80-h.p. Le Rhône. 90 m.p.h.
7. Capt. G. Gathergood, A.F.C. Airco "R.4." 450-h.p. Napier "Lion." 140 m.p.h.
8. Marcus D. Manton. Airco "4." 375-h.p. Rolls-Royce "Eagle VIII." 130 m.p.h.
9. Capt. H. J. Saint, D.S.O. Airco "9" (three-seater). 240-h.p. Siddeley "Puma." 111 m.p.h.
10. Lieut. Robert Nisbet. Martinsyde "F.4." 275-h.p. Rolls-Royce "Falcon III." 144 m.p.h.
11. Major L. R. Tait-Cox. Nieuport "L.C.1." 320-h.p. A.B.C. "Dragonfly." 143 m.p.h.
12. Major C. H. C. Smith, D.S.O. Bristol Monoplane. 110-h.p. Le Rhône. 110 m.p.h.
14. Capt. H. A. Hammersley. Avro "Baby." 35-h.p. Green. 70 m.p.h.
15. Lieut. C. Turner, A.F.C. B.A.T. "Commercial" (five-seater). 375-h.p. Rolls-Royce "Eagle VIII." 115 m.p.h.
16. Capt. C. R. Vaughan. B.A.T. "Bantam." 170-h.p. A.B.C. "Wasp." 120 m.p.h.
17. H. G. Hawker. Sopwith. To be announced later.
18. Capt. J. Alcock, D.S.O. Vickers. To be announced later.

All pilots whose rank is shown are ex-Royal Air Force Officers.

All pilots are British, with the exception of Mr. C. B. Prodger (No. 1), who is an American.

All machines are biplanes, except No. 12 (Major Smith), which is a monoplane.

The course is a double circuit of London, a distance, approximately, of 190 miles, with six turning points, i.e., Kempton Park, Epsom, West Thurrock, Epping, Hertford and Hendon.

The airmen leave The London Aerodrome, Hendon, at 3.30 p.m., and after completing the first lap will again pass over the Aerodrome, entering the second circuit at about 4.10 p.m., the winner being expected to cross the finishing line soon after 4.45 p.m.

Each aeroplane will have its official number boldly displayed on the under surface of the bottom planes, on the upper surface of the top planes, and on both sides of the rudder, which will enable the public at the turning points to identify them.

The enclosures at The London Aerodrome, Hendon, where the start and finish take place, are being enlarged, and special traffic and catering arrangements are being made.

IMPROVING THE LONDON AERODROME.

The following letter has been received:—

Sir,—My attention having been drawn to your article in the current issue of your journal, I beg to express to you on behalf of this company my appreciation of the interest you evince in the future success of the London Aerodrome. I thank you for the criticisms and suggestions which you so kindly give, and note the allowance which you are prepared to make on account of the continued Government occupation and control of the aerodrome, which indicates that you recognise how embarrassing such circumstances are to our business.

As to the colour of the company's aeroplanes; colours, it may be agreed, are matters of taste, good or otherwise, in cases where they are for artistic effect only, but it evidently has not occurred to you that colour in this case has more utility from the practical point of view, as a means of easy identification in the air, and the comparison you draw as between the colour which offends your taste and the dressings of the aeroplanes for war purposes is obviously beside the point.

As to "Mr. Chamberlayne's dashing career on the Grahame-White single-seater," this machine was, I believe, specially designed with abnormal side surfaces, as Capt. Chamberlayne is anxious to demonstrate that aeroplanes can be flown sideways as well as forwards, backwards, and upside down.

With reference to the race on Saturday the 7th inst., I regret that the direction of the wind made it necessary for the machines to take off from the position they did. Perhaps in future you would prefer them to take off with the wind on the beam, but in any case I shall be glad of your further suggestions and advice.

[In the pre-war days machines started on the starting line no matter which way the wind blew. But there were pilots in those days.—Ed.

The handicapping evidently did not meet with your approval, and in this connection no doubt the Officials of the Royal Aero Club would welcome your valuable technical advice in this by no means easy task. I would, however, bring to your notice the fact that the handicapping was in the hands of one, if not two, of the most experienced Aircraft handicappers in this country, but in view of the lapse of five years since the last Aeroplane race, it is not surprising that the relative speeds of machines of such totally different construction could not very accurately be estimated. I believe that it took several years in pre-war days to obtain close finishes in handicaps.

As the race in question was "point to point," and the turning points were clearly indicated on the Aerodrome by a pylon and two white sheets, and at Bittercy Hill by a large brick building, surely no further pylons were absolutely necessary.

Regarding the Air Ministry's Regulations governing civilian flying, I would point out that, until my Company is again in control of the London Aerodrome, they have no power to enforce any regulations, as the entire flying area is still in the absolute control of the Officer in Charge of the Hendon Aircraft Acceptance Park.

I can assure you that it is the desire no less of my Directors than of yourself to maintain Hendon and the London Aerodrome as the hub of British Aviation, and to strengthen and consolidate the premier position which it undoubtedly held in pre-war days, but this unfortunately will only be possible when the Company obtains full and unrestricted use of its unique facilities, and is not bound and fettered, as it now is, in every step it desires to take.

Your suggestion of my Company acquiring certain Government aircraft, as you will doubtless be surprised to learn, already occurred to my directors, and active steps have long since been taken in this direction, but in view of your own often expressed opinion regarding the rapidity of obtaining Government decisions, you will not, I am sure, regard the position as hopeless. On inquiry, however, you will ascertain that certain of the machines mentioned by you *are not for sale*, being considered by the department concerned both obsolete and dangerous.

As to the course for the races, as soon as permission can be obtained for the necessary pylons to be erected, the races will be conducted in such a manner as to afford the best possible view of the machines with the least possible danger to the public, as was our custom in the days when we were able to organise and carry our arrangements into effect without "let or hindrance."

At the present time my Company has not sufficient accommodation for its own machines, and it will only be possible to meet all the demands for shed accommodation and flying facilities which we have already received from the Aircraft Industry when, as already stated, the Government relinquish their occupation of the Company's property.

As to the best, soundest and most convenient and satisfactory method of running the London Aerodrome, whilst noting your remarks, this is a matter which I think can safely be left to the judgment and discretion of my directors, who have with no small amount of courage, determination and foresight, brought this pioneer British Aircraft enterprise through some very lean and difficult periods, when I believe neither you nor the bulk of the British public had much faith in the future of aeronautics, and at a time when it was well nigh impossible to obtain any financial support for the industry.

[If one had not had faith in the future of aeronautics long before Hendon was heard of one would not be here now.—Ed.]

There is plenty of room for other aerodromes around London, and your pessimistic fears regarding the future of the London Aerodrome are, I hope, without any real foundation.

However, "time will prove," and with your valuable and wholesome criticism and suggestions always at hand, the success of the London Aerodrome in the future is, I hope, assured.

(Signed) H. E. Hutchins, Secretary.

[One is glad to have this reply to the friendly criticisms published in The Aeroplane. It shows that Hendon is properly conscious of its own defects.—Ed.]

THE AIRCRAFT DISPOSAL BOARD.

The Aircraft Disposal Board has been selling recently large quantities of cars, motor-cycles, etc., at the Agricultural Hall, Islington. Near the main entrance there is a representative show of aircraft and accessories which attracts much interest. The bulk of the aircraft stores for disposal are at Hendon and Waddon (near Croydon), and permission to view may be obtained from the Controller, Disposal Dept., Kingsway, W.C.2.

THE TRANS-ATLANTIC COMPETITION.

The Atlantic has at last been crossed by direct flight from Newfoundland to Ireland. Two attempts only have been made, the first of which ended halfway across, after a flight in which the navigation was singularly skilful and accurate. At the second attempt the prize was won. This rapid success is symbolic of the advance made in aeronautics during the years of the war.

On June 14th at 4.28 p.m., Greenwich mean time, Captain John Alcock, D.S.C., R.A.F., and Lieut. Whitten Brown, R.A.F., flying a Vickers "Vimy" biplane (two 375 h.p. Rolls-Royce engines), left ground near St. John's Newfoundland, and landed 16 hrs. 12 mins. later (8.40 a.m., G.M.T.) on the following morning at Clifden, Co. Galway. Unfortunately, in landing, the machine ran into a bog and turned onto its nose and was consequently somewhat seriously damaged. The landing was made in rain and mist. The machine left Newfoundland with about 3½ tons of petrol on board.

The following is extracted from a "Daily Mail" interview with Captain Alcock on June 15th :—

"We landed," he said, "in the softest part of Ireland, but really it is a wonder we ever got here, for our wireless was cut of action. Within half an hour of starting the armature arm connected to the propeller of the wireless set sheered completely off.

"We started at 5.13 p.m., summer time. The weather reports were very good, and for the first hour the conditions were excellent. We passed Signal Hill at 5.28. We crossed the coast of Ireland at 9.25 a.m. to-day after a flight of 15 hours 57 minutes.

"We were going to start at 5 a.m. yesterday and we have had no sleep since, but the wind was right across the aerodrome, and we had to postpone it.

"Later on it turned round, and it was possible to get off. It was a very strong wind, about 40 miles an hour. We had to fly up a valley, and we got some very bad bumps. That was the only time I ever had the engines full out.

"We climbed quickly to our height of 1,000 ft. At Signal Hill Lieut. Brown set out a course for the ocean on 124 degrees compass course. We kept that course until well on in the night. I had the engine throttled down nicely and I let her do her own climb. At dark we were about 4,000 ft. up. We found it very cloudy and misty. We were between two layers of cloud and could see neither sea nor sky. After the first hour we had got into these clouds, one lot 2,000 ft. up, and the other 6,000 ft.

"It was impossible to see the sea to get our drift. The clouds above obscured the sun, and when night came we could see neither stars nor moon, so we flew on our original course until we struck a patch about 3 a.m. We saw a few stars.

"'I got a cut on Polaris and Vega,' said Lieut. Brown, interrupting. "'I got my position then, and found I was about 2 degrees south.'"

Continuing, Capt. Alcock said: "Brown gave me the new course of 110 degrees compass points. We went on steadily until the weather started to get very thick again.

"That would be about 4 a.m. or 5 a.m. We could see nothing. The bank of fog was extremely thick, and we began to have a very rough time. The air speed indicator jammed. It stood at 90, and I did not know exactly what I was doing. It jammed through sleet freezing on it, and it smelt smoky. We did some comic 'stunts' then. I believe we looped the loop and by accident we did a steep spiral. It was very alarming. We had no sense of horizon. We came down quickly from 4,000 ft. until we saw the water very near. That gave me my horizon again, and I was all right. That period only lasted a few seconds, but it seemed ages.

"It came to an end when we were within 50 ft. of the water with the machine practically on its back. The air speed indicator had again begun to work as the result of the swift dive. We climbed after that and got on fairly well until we got to 600 ft., and fog was there again. I climbed twice on top of it, only to find banks of clouds. We went higher and saw the moon and one or two stars. We carried on until dark. We never saw the sun rise. There was a bank of fog also on top of the lower one.

"We climbed up to 11,000 ft. It was hailing and snowing. The machine was covered with ice. That was about 6 o'clock in the morning, and it remained like that until an hour before we landed. My radiator shutter and the water temperature indicator were covered with ice for 4 or 5 hours.

"Brown had continually to climb up to chip off the ice with a knife. The air speed indicator was full of frozen particles and gave trouble again. They came out when we got lower, an hour before we landed.

"We came down and flew over the sea at 300 ft. It was still very cloudy, but we could see the sun as he tried to break through. It was a terrible trip. We never saw a boat and we got no wireless messages at all.

"We flew along the water and we had doubts as to our position, although we believed we were 'there or thereabouts.' We looked out for land, expecting to find it at any time.

"We saw land about 9.15 a.m., when we suddenly discovered the coast. It was great to do that. We congratulated each other. We were very pleased our job was over.

"We saw two little islands which must have been Eashal and Turbot Islands. We came along and got to Ardbear Bay (an inlet of Clifden Bay), and when we saw the wireless mast we knew where we were exactly. We flew along looking for a place to land.

"When still over Clifden village I saw, after a few minutes, what I took to be a nice field—a lovely meadow. We came down and made a perfect landing. But it was a bog. The wheels sank axle deep in the field, the Vimy toppled over on her nose. The lower plane is badly damaged and broken, and both propellers are deeply sunk in the bog, but, I think, not broken. The engines are all right.

"After breakfast I went back to the machine and rescued the mails and the instruments. Messrs. Vickers are sending two men to rescue the machine, but it will need several mechanics and they will have to lay out a track to get it out."

I asked the airmen how they had done it so quickly. Lieut. Brown answered :

"The winds all the way were favourable. I said before we started that if the wind held we should do the trip in 16 hours, but we never expected to." Captain Alcock continued :—

"We ate meat sandwiches. I ate three and Brown five. I drank four cups of coffee and so did Brown. We fed spasmodically—3 or 4 times—just when we felt we wanted to. We ate chocolates, too. I was not hungry, but frightfully thirsty. We shared the last cup of coffee. We did not suffer from cold. Our suits kept us warm.

"The cockpit was very cosy indeed, but when we peered over the side, sleet and ice chewed bits out of our faces.

"For a time we spoke to one another by means of communication telephones, but they broke down and we had to discard them after 4 hours. After that we had to shout."



The Vickers "Vimy" Biplane (two 375 h.p. Rolls-Royce engines) on which the first direct cross-Atlantic flight was made.

On hearing of the successful conclusion of the flight, H.M. the King sent the following telegram to Major-General Sir F. H. Sykes, K.C.B. :—

"The King was delighted to receive your welcome announcement that Capt. Alcock and Lieut. Brown have safely landed in Ireland after their trans-Atlantic flight. His Majesty wishes you to communicate at once with these officers and to convey to them the King's warmest congratulations on the success of their splendid achievement."

Many other famous and notorious people also sent messages, none of which need reproduction as the English would appear to lack genius in the art of congratulation.

The necessary inspection of the seals on the Vickers biplane was made by Major Mayo, R.A.F., on June 15th, and the necessary certificate signed.

The average speed of the flight was about 118 miles an hour. The greatest credit is due to Lieut. Brown for his high skill in navigation under conditions of great difficulty.

The Vickers Vimy had been taken up for a trial flight on June 9th at 8.17 p.m. (G.M.T.). A forty minutes' flight was made. The wireless installation on this occasion worked satisfactorily.

Other Competitors.

The Handley Page biplane has made several trial flights during the past week. On June 13th a flight of eighty minutes was made with five passengers on board, and everything worked satisfactorily.

It was intended to make an attempt on the trans-Atlantic flight on Friday last, but the radiators were found to be defective and a further delay was necessary. The radiators have now been replaced by others sent from England and an early attempt at the flight may be expected.

Mr. Raynham has almost completed the repairs of the Martinside machine and his new navigator, Lieut. Biddlecombe, has arrived from England .

The R.34.

The British rigid airship, R.34, is now at East Fortune waiting an opportunity to cross the Atlantic. Preparations have been made near Atlantic City, U.S.A., for the reception of this ship, and a party of R.A.F. officers are in America in charge of all arrangements. The United States Government is giving every possible assistance in this matter.

On June 14th she was taken up on a trial flight, leaving East Fortune in company with R.29. They left ground shortly after 10 p.m. and flew over North Berwick, Edinburgh, Rosyth, Mary Island and back to East Fortune, landing at that place at 4 a.m. Wireless communication was made with the Azores, a distance of 1,200 miles.

THE FELIXSTOWE FURY.

By CAPTAIN P. A. BARRON (late R.A.F.)

In a recent issue of The Aeroplane there appeared a letter appropriately headed "Fury at Felixstowe." The writer of this letter appears to be suffering severe cerebral emotion over the abandonment of the projected attempt to fly the Felistowe "Fury" across the Atlantic.

A few lines from the letter may be repeated. The writer says:

"Since the last long trial a few weeks ago new engines (low compression) have been fitted, and now comes the first instance of red tape in which we are entangled. A new mid-ship propeller was necessary. This took five weeks to order, because the Treasury would not grant the expenditure involved. Even so, they are paying millions per week on tomfoolery in other ways, and I am sure the taxpayers would not begrudge £30 or £40 extra for the honour of making the country's attempt successful.

"At the same time, the Navy refused to carry the boat to Newfoundland as they had no 'finger in the pie,' notwithstanding the fact that all the officers and men were old R.N.A.S. people. So it was decided to fly from this side. Now for the crowning insult to all of us who stood by to see her finished. The Right Hon. Winston Churchill refuses to sanction the Atlantic flight and makes the miserable excuse that private firms should have the first chance, and this after all the time and money that have been spent in designing and building the most successful seaplane in existence."

On the day following the publication of this letter the "Daily Mail" stated that:—

"With a picked crew of five, it has been in readiness for the attempt since early in April, but the numerous postponements and finally the abandonment of the venture on account of 'the great cost' were ascribed yesterday to Mr. Churchill's refusal to give his consent.

"The first estimate for shipping the 'Felixstowe Fury' to Newfoundland in a British battleship—no other shipping was available—and flying to Great Britain was £80,000; but an alternative project for flying to Newfoundland from Felixstowe, *via* the Azores, submitted later, was estimated to cost £20,000."

It appears, therefore, that in certain quarters there is a strong feeling that Great Britain was by official apathy robbed of the honour of being first to make the trans-Atlantic flight. This may be little more than an *attaque des nerfs* following the outbreak of hysteria over Mr. Hawker's attempt, which the public regarded as the most successful failure on record.

Mr. Hawker thoroughly deserved his handsome consolation prize and the pleasant things that were said about him at the Savoy luncheon when the cardboard model of his aeroplane rocked in the backwash of the cheers. The mobbing he received from the public, however, must, one imagines, have been embarrassing.

But now that the neurotic outburst of

"The poor little street-bred people
Who vapour and fume and brag."

is passing into oblivion it is only to be expected that as their heads grow cool they should ask questions. The public has always taken, if not a scientific, at least a very human interest in the fauna of Governmental Departments, and it is understandable that they should wonder by what mental processes some of the species arrive at their decisions.

In this matter of the "Felixstowe Fury" it would certainly be interesting to have further information. If the £80,000 is correctly stated as the cost of shipping the aircraft to Newfoundland in a British battleship and flying it back, one wonders upon what data the estimate was based. Frankly, one doubts the figure. Transport at the rate of £20 a mile seems somewhat expensive, even when one remembers that it is supposed to be an official estimate, and not one submitted by a private company of profiteering patriots who have unfortunately not been repatriated by the Zionists.

The Navy would not have to consider the pay of officers and men—on the new scale—in their estimate, for that is a constant whether the ships are accumulating barnacles in harbour or burning the product of over-paid coal-miners on the high seas. To the non-departmental mind it would appear that the cost of ocean transport would be confined to fuel and depreciation, as Service labour costs the same whether it is employed on useful work or is limited to holystoning and brass polishing. One repeats, therefore, that the figure of £80,000 does not appear to be a reasonable estimate and one is disinclined to believe that it is an official one.

The correspondent's suggestion that the Navy refused to carry the "Fury" to Newfoundland because they had "no finger in the pie" may, of course, be inspired by memories of the time when the R.N.A.S. loved the Navy as much as sparrows love hawks. However, one does not give undue importance to this view. The Archimandrites of the Silent Service probably did not make the decision.

One believes that the "Felixstowe Fury" was designed and built in answer to the demand of the Admiralty for an aircraft that could cruise to any part of the North Sea with the Fleet, and carry sufficient fuel to return to England. It is a R.A.F. product in name only, for those responsible for it are ex-R.N.A.S. officers, so it is hard to believe that the Admiralty could have taken up the attitude suggested.

One must admit, however, that those concerned have not shown the energy that might have been expected, and in this connection it is interesting to note a view expressed in an American journal.

This newspaper, which at the time the comment was made was under the impression (fortunately incorrect) that Mr. Hawker and Commander Grieve had lost their lives, said:—

"But it is difficult to withhold blame from the British Admiralty, who so carelessly and deliberately allowed these gallant lives to be sacrificed without any adequate preparation whatever to aid the aviators in their great effort, or to rescue them if they met with disaster.

"Americans may feel proud of the efficiency and the humanity of their Naval Administration, especially when we compare these qualities with the absolute lack of them displayed by the British Admiralty."

One fears that our Allies will find it even harder to understand why, having produced a flying boat that is still believed by many to be equal if not superior to the N.C.4, we should, through lack of co-operation between the Services, or other causes, have failed to make a serious effort to be first across the Atlantic by air.

However, the consideration of the things that might have been is as dreary a proceeding as a post mortem on a badly played bridge hand. We have lost the credit of doing what everyone ardently desired to see accomplished, it only remains to see if it possible to mitigate our failure by making a success of some other project.

The flight to Australia has still to be accomplished. If the "Felixstowe Fury" is all that it is claimed to be, why not try it on this route, which, from the Imperial point of view, is of greater importance than the Atlantic crossing?

It seems a poor use of the Nation's money to spend it on the construction of such a machine as this, and then fail to prove anything by the experiment.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

War Office, June 3rd

The following are mentioned for their services during the period from Sept. 19th, 1918, to Jan. 31st, 1919, in a dispatch which has been received by the Secretary of State for War from General Sir E. H. H. Allenby, G.C.B., G.C.M.G., Commander-in-Chief, Egyptian Expeditionary Force :—

Royal Air Force.—Capt. (actg. Maj.) A. J. G. Anderson, Maj. C. W. Anstey, Maj. J. O. Archer, Capt. and Hon. Maj. W. R. G. Atkins, Lt. J. E. Atkinson.

Lt. L. C. Bailey, Capt. A. H. S. Baker, Lt. (actg. Capt.) S. Baker, Lt. R. S. Barbour, Maj. V. A. Beaufort, M.C., Sec. Lt. and Hon. Lt. H. C. Blachford, Lt. C. F. Blunt, Lt.-Col. (actg. Brig.-Gen.) A. E. Borton, D.S.O., A.F.C., Capt. R. C. Boddie, Lt. E. L. Botham, Lt.-Col. C. Bovill, Lt. J. S. Bowker, Lt.-Col. H. Le M. Brock, D.S.O., Capt. J. Brown, M.C., Lt. W. C. Brown, Lt.-Col. H. Burchall, D.S.O., Lt.-Col. C. S. Burnett, D.S.O.

Capt. J. Chambre, M.D., Sec. Lt. G. S. Coggan, Capt. P. Colbeck, Capt. J. A. Cooper, Rev. G. V. Cotton, C. to F., 4th Cl. (R.A., Chap. Dept.), Lt. (actg. Capt.) D. F. Cox, Lt. (actg. Capt.) K. A. C. Creswell, M.B.E., Capt. W. G. M. Crothers.

Sec. Lt. C. F. Dakin, Sec. Lt. C. T. Davis, Lt. R. J. Divers, Capt. I. N. Dracopoli, Capt. (actg. Maj.) R. M. Drummond, D.S.O., M.C.

Sec. Lt. W. C. Egerton, Capt. J. Edwardes-Evans, Lt. (actg. Capt.) A. Eggar, Lt. G. M. Eiloart, Lt. A. T. Essex.

Capt. T. Fawdry, Sec. Lt. G. Felstead, D.C.M., Sec. Lt. C. A. C. Fidler, D.C.M., C.M.G., Lt. D. J. Fleming, Lt.-Col. C. Fraser, O.B.E., M.C.

Lt. (T./Capt.) P. J. Gething, M.C., Lt. (T./Capt.) H. J. Gibson, Lt.-Col. N. Goldsmith, O.B.E., Lt. W. E. Gower, M.C., Lt. and Hon. Capt. E. H. Grant.

Maj. (actg. Lt.-Col.) R. Hall, M.B.E., Lt. C. M. Hallett, Lt. B. Heath, Lt. L. A. C. Helbert, Col. (actg. Brig.-Gen.) P. L. W. Herbert, Sec. Lt. R. J. Hibberd.

Lt. (actg. Capt.) T. S. Ivens.

Capt. F. Jefcoate, Lt. C. F. R. Johnston.

Maj. (actg. Lt.-Col.) A. H. C. Kearsley, D.S.O., Capt. (actg. Maj.) M. Keegan, M.M.

Lt. R. H. Ley, Hon. Lt. (actg. Capt.) P. L. Lindup, Lt. (actg. Capt.) C. E. W. Lockyer, Capt. (actg. Maj.) S. H. Long, D.S.O., M.C.

Lt.-G. C. Macintosh, Sec. Lt. and Hon. Lt. L. G. Martin, Lt. P. D. S. Milnes, Lt. R. Morrogh, Capt. B. Mott, Lt. L. A. Mudge.

Lt. A. G. Oliver, Capt. T. D. H. Osborn.

Lt. (actg. Capt.) J. Page, Lt. and Hon. Capt. S. J. Palmer, Capt. (actg. Maj.) A. H. Peck, D.S.O., M.C., Maj. (actg. Lt.-Col.) E. W. Powell, Lt.-Col. W. H. Primrose, D.F.C.

Lt. and Hon. Maj. C. W. Rowe, Lt.-Col. R. E. M. Russell, D.S.O.

Maj.-Gen. W. G. H. Salmond, C.B., D.S.O., Capt. A. G. Saxty, Capt. K. G. Selanders, M.C., Lt. W. L. Shaw, Lt. (actg. Capt.) W. Sutherland.

Maj. (actg. Lt.-Col.) A. W. Tedder, Capt. F. Tedman, Lt. (actg. Capt.) D. N. Thomson, M.C., Qmr. and Capt. F. Tuttle, D.C.M. (R. Berks. R.).

Maj. H. C. Wakefield, Lt. and Hon. Capt. G. N. Wales, Sec. Lt. and Hon. Lt. N. W. Walmsley, M.C., Lt. R. Watson, Lt. A. H. Waugh, Lt. and Hon. Maj. W. A. Webb, Lt. P. G. Wells, Sec. Lt. F. Whilton, D.C.M., Capt. (actg. Maj.) F. R. Williams, Sec. Lt. R. D. Wills, Sec. Lt. (actg. Lt.) H. Woffenden, Lt. J. Wood.

403415 Serjt. Clk. S. E. Ambrose, 68010 Cpl. Clk. (actg. S./Serjt.) J. H. Austing.

27360 1st A.M. H. G. Banks, 107782 Ldg. Aircraftman A. Barber, 403800 Serjt. Mech. F. A. Bartlett, 25694 Chief Mech. F. Beaumont, 31097 1st A.M. T. Berry, 67455 1st A.M. A. F. Bicknell, 28790 1st A.M. F. C. Boxall, 148893 1st A.M. J. H. A. Brain, 4326 Cpl. Mech. F. Brookes, 33294 Serjt. Mech. L. Brown, 29089 Chief. Mech. W. A. Brown, 7135 Cpl. Mech. N. H. Brownstone, 9494 Serjt. Clk. C. W. Burrell.

404019 Cpl. Mech. J. Cairnes, 403924 Cpl. Mech. J. Candlish, 27418 Cpl. Mech. W. H. Clarke, 8086 1st A.M. C. H. Coleman, 510530 3rd A.M. A. Collins, 407186 Ldg. Aircraftman H. W. Couch, 12215 1st A.M. J. Crabtree.

78263 Cpl. Mech. F. W. Davies, 18034 Cpl. Clk. R. W. Dawson, 135715 1st Aircraftman J. A. De Garis.

1168 Chief Mech. H. O. Edwards, 101935 Cpl. Clk. C. Ellison, 130473 Ldg. Aircraftman W. J. Everest.

11258 1st A.M. H. S. Fernee, 5507 Chief Mech. W. A. Fernee, 78043 S.M. J. P. Flanagan, 59122 Serjt. Mech. R. W. Forder, 403599 Chief Mech. S. Fouracre.

403893 1st A.M. A. T. Gambrell, 5999 Chief Master Mech. G. R. Guinea.

26802 Serjt. Mech. J. Hack, 21924 Ldg. Aircraftman F. H. Hammond, 61023 Cpl. Mech. G. Hawkyard, 3724 Chief. Mech. H. A. Hemmings, 2931 Chief Mech. E. Hewitt, 28063 1st A.M. T. H. Hewlett, 19331 Serjt. Clk. W. E. Hicks, 51041 Cpl. Clk. S. C. Holbrook, 2371 Chief Mech. W. C. Holding, 38555 Cpl. J. F. Holliday, 403822 Serjt. Mech. B. Holt, 404054 Serjt. Clk. E. C. Howell, 11577 1st A.M. A. Hulett.

40258 Chief Mech. F. W. Jackson, 37413 1st A.M. W. E. Janes, 403605 Serjt. Clk. H. A. Jenkerson, 50463 1st A.M. E. C. H. Johnstone, 28131 Cpl. Mech. F. W. Judd.

403568 Cpl. Mech. (actg. Serjt. Mech.) A. Knight.

403502 Chief Mech. B. Lamb, 12128 Chief Mech. J. W. Large, 403615 Serjt. F. Lee, 403884 Cpl. Mech. J. Lumsden, 301121 Serjt. J. Lyndon.

85474 Cpl. D. Macfarlane, 409128 Serjt. Mech. R. C. Margetts, 403093 1st A.M. E. T. Matthews, 35702 Serjt. Mech. W. G. Mathis, 5648 Chief Mech. J. W. Maud, 23677 Cpl. Clk. T. Mayor, 403677 1st A.M. S. McBride, 49022 Cpl. Mech. W. E. Meavers, 33553 Flt. Clk. W. Mendoza, 4800 Chief Mech. J. G. Menneer, 16816 1st A.M. B. Milne, 33300 Serjt. Mech. W. C. Moorhouse, 10505 Chief Mech. A. Morgan, 2712 Serjt. Clk. A. R. Morris, 75876 Cpl. Clk. J. G. Moses.

18528 1st A.M. H. F. Nicholl, 103710 Cpl. Clk. J. A. Nicholls, 22607 1st A.M. J. R. Nield (died), 403504 Chief Master Mech. F. Norton.

9004 1st A.M. A. Oliver, 6551 Chief Mech. J. Owen.

39655 Cpl. Mech. G. Papworth, 63158 1st A.M. H. L. Parkes, 23414 Serjt. Clk. H. Parsons, 33674 Chief Mech. D. Paton, 405632 Cpl. Clk. (actg. Serjt. Clk.) E. B. Payton, 49736 Cpl. Mech. T. L. Pearce, 8805 Serjt. Mech. E. Perryman, 127212 2nd A.M. F. W. Phares, 107074 2nd A.M. A. G. Prentice, 33067 Chief Mech. T. Prescott, 41354 Cpl. Mech. H. Prime, 403420 Cpl. P. Pritchard.

68588 Ldg. Aircraftman (actg. Cpl.) E. C. Rapkin, 37666 Cpl. Clk. W. H. Reed, 18539 Flt. Clk. J. Richard, 403808 S.M. F. Rowden, 133747 1st Aircraftman F. L. Russell.

30862 Serjt. Mech. J. T. Sankey, 32237 Chief Mech. F. W. Sant, 143329 Serjt. Clk. R. Scott, 107124 Ldg. Aircraftman L. R. Selby, 108970 Serjt. Clk. F. Shelley, 6654 Serjt. Mech. E. R. Shutter, 31593 Serjt. Mech. A. R. Simmons, 407454 Flt. Clk. R. E. Simpson, 68595 1st Aircraftman E. G. G. Sparkes, 32904 Cpl. G. Stanborough, 10100 Flt. Serjt. R. R. Stanbridge, 3494 Serjt. Mech. R. E. Stickley, 51544 1st A.M. F. W. Swatton, 50879 Sert. Mech. A. V. Teitien, 27170 Pte. G. F. Thorp (Norf. Yeo., T.F.) (attd. R.A.F.), 5002 Serjt. Mech. A. Tyler.

19211 Ldg. Aircraftman J. M. Unwin.

14785 1st A.M. G. E. Varney.

404056 Cpl. Clk. (actg. Serjt. Clk.) C. G. White, 75282 Cpl. Clk. P. White, 103714 Cpl. Mech. E. W. E. Wicks, 7830 Serjt. Mech. (actg. Chief Mech.) T. P. Wilkins, 57177 Serjt. J. Wilson, 405325 Cpl. Mech. J. Wilson, 30283 Chief Mech. G. H. Womersley, 32780 Serjt. Mech. G. Wood, 32578 Serjt. Clk. T. Woodcock, 23382 Chief Mech. G. R. Woods.

Air Ministry, June 3rd.

The King has been pleased, on the occasion of His Majesty's birthday to confer the following awards :—

OTHER REWARDS.

The King has been pleased to approve of the following rewards to officers and other ranks of the Royal Air Force in recognition of distinguished services rendered during the war :—

Bar to the Distinguished Service Order.

Lt.-Col. F. W. Bowhill, D.S.O. (Mediterranean). (D.S.O. gazetted Feb. 22nd, 1918.)

Distinguished Service Order.

Capt. (actg. Maj.) W. L. Birch, M.B.E. (W. Yorks. R.) (Egypt).
Lt.-Col. E. L. Gossage, M.C. (R. Arty.) (France).
Capt. R. King, D.F.C. (Aus. F.C.) (France).
Lt.-Col. C. T. Maclean, M.C. (R. Scots Fus.) (France).
Maj. (actg. Lt.-Col.) L. A. Pattinson, M.C., D.F.C. (R. Fus.) (I. Force) (France).
Lt.-Col. C. E. Risk (R.M.L.I.) (Mediterranean); Maj. J. C. Russell (R.E., T.F.) (France).

Second Bar to the Distinguished Flying Cross.

Lt. (actg. Capt.) W. H. Longton, D.F.C., A.F.C. (France). (First Bar gazetted Feb. 8th, 1919. D.F.C. gazetted Nov. 2nd, 1918. A.F.C. gazetted June 3rd, 1918.)

Bar to the Distinguished Flying Cross.

Lt. E. O. Amm, D.F.C. (France) (D.F.C. gazetted Dec 3rd. 1918); Capt. R. N. G. Atkinson, M.C., D.F.C. (France) (M.C. gazetted Oct. 18th, 1917; D.F.C. gazetted Nov. 2nd, 1918).
Sec. Lt. E. G. Davies, D.F.C. (France) (D.F.C. gazetted Feb. 8th, 1919).
Lt. (actg. Capt.) D. Grinnell-Milne, D.F.C. (R. Fus.) (France) (D.F.C. gazetted Feb. 8th, 1919).
Lt. (actg. Capt.) M. C. McGregor, D.F.C. (France) (D.F.C. gazetted Nov. 2nd, 1918).
Capt. J. W. Pinder, D.F.C. (France) (D.F.C. gazetted June 3rd, 1918).
Capt. W. D. Thom, D.F.C. (I. Force) (France) (D.F.C. gazetted Aug. 3rd, 1918).

Distinguished Flying Cross.

Lt. A. H. A. Alban (R.F.A.) (France).
Lt. (actg. Capt.) F. H. Baguley (France); Maj. C. Baker (Aus. F.C.) (France); Lt. (actg. Capt.) J. M. Batting (India); Lt. E. B. S. Beaton (Aus. F.C.) (Palestine); Lt. (actg. Capt.) V. Beecroft (France); Lt. A. L. B. Bennett (Hants R.) (Palestine); Capt. N. A. Bolton (R.F.A.) (Palestine); Sec. Lt. P. Boulton (France); Capt. (actg. Maj.) G. H. Bowman, D.S.O., M.C. (R. War. R.) (France); Lt. C. A. Bridgland (E. Surr. R.) (I. Force) (France); Sec. Lt. H. P. Burmell (Flanders).
Sec. Lt. D. S. Carrie (France); Sec. Lt. (Hon. Capt.) W. A. Carrothers (Can. Inf.) (France); Lt. (actg. Capt.) H. C. Chambers (I. Force) (France); Lt. A. E. Chittenden (France); Sec. Lt. (Hon. and actg. Lt.) W. Coker (E. Surr. R.) (France); Lt. H. N. Compton (France); Capt. (actg. Maj.) A. Coningham, D.S.O., M.C. (France); Sec. Lt. I. B. Corey (France); Sec. Lt. R. C. Creamer (France); Lt. (actg. Capt.) C. W. Cudemore, M.C. (France); Lt. D. B. Cumming (I.A.R.O.) (India); Lt. (actg. Capt.) J. Cunliffe (I. Force) (France).
Lt. (actg. Capt.) E. E. Davies (Aus. F.C.) (France); Lt. (actg. Capt.) W. H. Demel (Manc. R.) (France); Sec. Lt. J. C. Deremo (France); Lt. J. H. Dewhurst (France).
Sec. Lt. C. H. Dickins (Can. Inf.) (France); Capt. T. M. Dickinson (Mesopotamia); Lt. N. S. Dougall (Lincs. R.) (Flanders); Sec. Lt. G. E. Dowler (France); Lt. S. L. Dowsell (Can. Inf.) (I. Force) (France); Lt. (actg. Capt.) J. E. Doyle (France); Lt. (actg. Capt.) A. T. Drinkwater (France); Lt. (actg. Capt.) L. de S. Duke (Can. Inf.) (France); Lt. D. C. Dunlop (France); Sec. Lt. A. C. Dutton (R. W. Kent R.) (France).
Lt. (Hon. Capt.) C. S. Emden (R. W. Kent R.) (France); Lt. P. A. A. Enright (Ægean).
Lt. (actg. Capt.) R. T. Fagan (France); Capt. C. Fawssett (R. Suss. R.) (France); Lt. (actg. Capt.) H. Ford (Northd. Fus.) (France); Lt. S. G. Ford (France); Lt. (actg. Capt.) J. W. Foreman (France); Lt. W. T. Fraser (R.F.A.) (Palestine).
Capt. W. C. Gage (France); Capt. E. J. Garland (I. Force) (France); Maj. (actg. Lt.-Col.) A. G. R. Garrod, M.C. (Leics R.) (France); Sec. Lt. A. J. Garside (France); Lt. (actg. Capt.) F. G. Gibbons (France); Lt. (actg. Capt.) H. M. Golding (France); Sec. Lt. F. S. Gordon (France); Lt. R. J. P. Grebby (Palestine); Lt. (actg. Capt.) J. C. Green (France); Lt. (actg. Capt.) R. Grice (France).
Lt. F. A. D. Hamilton (Aus. F.C.) (France); Sec. Lt. E. C. Harris (K.R.R.C.) (France); Capt. G. J. Harter (Palestine); Lt. F. C. Hawley (Aus. F.C.) (Palestine); Lt. G. R. Hicks (France); Lt. J. C. Holmes (I. Force) (France); Lt. J. A. Hoogstero (France), Lt. (actg. Capt.) G. H. Hooper, M.C. (R.E., T.F.) (France); Lt. (actg. Capt.) G. V. Howard (France); Capt. O. Hughes (India).
Lt. W. Jack (France); Lt. N. H. Jenkins, D.S.M. (Flanders); Lt. F. R. Johnson (France).
Sec. Lt. P. A. H. King (France).
Lt. O. Lamplough (Aus. F.C.) (France); Lt. J. H. Latchford (France); Capt. W. B. Lawson (I. Force) (France); Capt. (actg. Maj.) C. M. Leman,

M.C. (France); Lt. (actg. Capt.) W. K. R. Liddell (H.L.I.) (France); Lt. W. S. Lighthall (Dorset R.) (Palestine); Lt. H. N. Loch (I.A.) (France).

Lt. (actg. Capt.) A. R. McAfee (France); Lt. (actg. Capt.) G. N. McBlain (France); Lt. (actg. Capt.) F. S. McClurg (France); Lt. (Hon. Capt.) A. D. MacDonald (42nd Sqdn.) (Can. Eng.) (France); Lt. E. N. MacDonald (I. Force) (France); Lt. N. S. MacGregor (France); Lt. (actg. Capt.) W. J. MacKenzie (Flanders); Capt. G. Mackrell (India); Sec. Lt. H. McLean (France); Lt. M. P. MacLeod (France); Lt. C. E. Maitland (R.G.A.) (France); Sec. Lt. (Hon. Lt.) C. M. Moore (France); Sec. Lt. J. R. Moorhouse (France); Lt. A. W. Murphy (Aus. F.C.) (Palestine); Sec. Lt. (Hon. Lt.) C. W. Murray (Glasgow Yeo.) (France)

Lt. F. Noble (France).

Lt. (actg. Capt.) H. A. Oaks (France); Lt. (actg. Capt.) G. C. O'Donnell (Palestine); Lt. (Hon. Capt.) J. E. A. O'Dwyer (Notts. and Derby. R.) (Salonika); Lt. K. J. Oldfield (Egypt).

Capt. (actg. Maj.) K. R. Park, M.C. (R.F.A.) (France); Lt. L. F. Pendred (Flanders); Sec. Lt. A. R. Pengilly (France); Lt. A. Pickin (France); Lt. G. A. Pitt (France); Sec. Lt. (Hon. Capt.) H. A. Porter (R.G.A.) (France); Lt. (actg. Capt.) H. V. Puckridge (Shrops. L.I.) (France); Sec. Lt. H. R. A. V. Puncher (I. Force) (France)

Lt. T. G. Rae (France); Capt. (actg. Maj.) W. R. Read, M.C., A.F.C. (Dgn. Gds.) (I. Force) (France); Lt. (actg. Capt.) T. Roberts (France); Lt. F. E. Robinson (France); Sec. Lt. A. Rogerson (France); Lt. H. Ross (Aus. F.C.) (France); Lt.-Col. F. M. Roxby, O.B.E. (N. Staffs. R.) (France); Lt. F. S. Russell, D.S.C. Flanders); Sec. Lt. (actg. Capt.) R. Russell (France)

Lt. H. P. Schoeman (France); Sec Lt. F. W. Seed (France); Lt. R. A. Skelton (France); Lt. (Hon. Capt.) C. C. Snow (France); Sec. Lt. R. Stafford-Langan (Leinster R.) (France); Lt. (actg. Capt.) F. J. Stephens (France); Lt. F. J. Stevenson (France); Sec. Lt. (Hon. and actg. Capt.) H. W. Stockdale (France); Lt. J. A. Stronach (I. Force) (France); Lt. C. S. Style (Italy).

Sec. Lt. (actg. Capt.) J. F. D. Tanqueray (Can. Fces.) (France); Lt. R. A. Thomas (R. Welsh Fus.) (France); Sec. Lt. F. Thomasson (France); Lt. F. O. Thornton (France); Lt. U. G. A. Tonge (Flanders); Lt. (actg. Capt.) S. E. Toomer (R.G.A.) (France); Lt. (actg. Capt.) G. R. Travis (India); Lt. N. C. Trescowthick (Aus. F.C.) (France); Sec. Lt. (actg. Lt.) J. Turner (France).

Lt. E. W. Unmack (Ægean).

Lt. (actg. Capt.) C. L. Veitch (N. Lancs. R., T.F.) (France)

Lt. (actg. Capt.) I. Welby, M.C. (France); Lt. J. J. Wellwood (Aus. F.C.) (France); Lt. (actg. Capt.) H. A. White (France); Capt. T. W. White (Aus. F.C.) (Mesopotamia); Lt. P. Wilkins, M.C. (R.E.) (France); Lt. B. C. W. Windle (102nd Sqdn.) (France); Lt. E. H. Williams (France); Sec. Lt. H. C. Wood (France); Lt. F. Woolley (France); Capt. J. W. Wright (Aus. F.C.) (France); Capt. H. N. Wrigley (Aus. F.C.) (France).

Air Force Cross.

Lt. E. M. Ackery; Lt. C. L. Adamson; Capt. G. Alchin (R.F.A., S.R.); Lt. (actg. Capt.) W. Algie, D.S.O. (Northd. Fus.); Lt.-Col. D. L. Allen (R. I. Fus.); Capt. (actg. Maj.) F. G. Andreae; Lt. H. W. Arnott (R.E.); Lt. L. B. Aylen.

Capt. L. M. Bailey (Egypt); Capt. G. Barrett (R.E.); Capt. T. A. Batchelor, D.F.C.; Capt. (actg. Maj.) F. A. Bates, M.C. (Denbigh. Yeo.) (Salonika); Col. (actg. Brig.-Gen.) J. H. W. Becke, C.M.G., D.S.O. (Notts. and Derby. R.); Lt. (actg. Capt.) R. J. B. Benson (Welsh R.); Capt. (actg. Maj.) H. J. T. Berryman (Adriatic); Col. A. W. Bigsworth, C.M.G., D.S.O.; Lt.-Col. H. Blackburn, M.C. (France); Lt. C. W. Blain; Capt. (actg. Maj.) R. S. Booth; Lt. (actg. Capt.) W. T. Breach (A.S.C.); Lt. H. G. S. Broad; Capt. H. S. Broad; Lt. (actg. Capt.) D. C. M. Brooks, M.C.; Capt. L. O. Brown, D.S.C. (S. Afr. Arty.); Maj. R. S. Brown (Aus. F.C.); Lt. G. M. Bryer; Lt. (actg. Capt.) V. W. Burgess (Aus. Eng.); Maj. A. J. Butler, M.C. (R. I. Rif.).

Lt. (actg. Capt.) W. B. Callaway; Lt. (actg. Capt.) G. G. Callender (Aus. D.F.); Capt. C. W. Carleton (S.A.D.F.); Lt.-Col. G. I. Carmichael, D.S.O. (R.F.A.); Lt. (actg. Capt.) E. T. Carpenter (War. Yeo.); Capt. (actg. Maj.) A. W. Cassy; Capt. T. C. Chamberlain (Middx. R.); Lt.-Col. E. T. R. Chambers; Lt. L. P. Chase (Aus. F.C.); Lt. (actg. Capt.) F. W. Clark (France); Maj. E. E. Clarke (Y. and Lan. R.); Capt. G. M. Clarke (Leins. R.); Lt. (actg. Capt.) L. Clarke (Manc. R.) (Egypt); Capt. G. E. Clinton (Lond. Scots); Capt. (actg. Maj.) D. Cloete, M.C.; Capt. R. B. Corfield; Maj. G. H. Cox (N. Staffs. R.); Lt. (actg. Capt.) W. R. Cox, M.C. (D.C.L.I.); Capt. (actg. Maj.) H. E. Craufurd; Capt. (actg. Maj.) G. M. Croil (Gord. Highrs., T.F.) (Egypt).

Lt. (actg. Capt.) H. Daniel, M.C.; Capt. R. Davies; Maj. H. G. Dean (Y. and Lan. R.); Capt. D. M. Deighton; Capt. J. R. S. Devlin, D.S.C. (Canada); Maj. B. P. H. de Roeper (Egypt); Capt. N. H. Dimmock; Lt. (actg. Capt.) N. P. Dixon, Lt. R. M. Dixon (oth Berks.); Lt. H. H. Down (Artists Rif.); Lt. S. E. Dreschfeld; Lt. D. H. Drew; Lt. J. Drew; Capt. H. F. S. Drewitt, M.C. (N.Z.F.); Capt. (actg. Maj.) A. Duguid (R.F.A.); Capt. (actg. Maj.) A. Durston.

Maj. T. H. England, D.S.C.; Maj. (actg. Lt.-Col.) D. C. S. Evill, D.S.C.; Lt. R. T. Eyre.

Capt. A. B. Fanstone; Lt. (actg. Capt.) G. W. Ferguson, M.C. (R.A.S.C.); Maj. F. B. Fowler; Lt. G. J. Fowler; Sec. Lt. (Hon. Lt.) H. A. Francis; Capt. A. Frauenfelder; Capt. M. B. Frew, D.S.O., M.C. (H.L.I.); Capt. (actg. Maj.) P. F. Fullard, D.S.O., M.C. (R. I. Fus.).

Capt. A. N. Gallehawk; Lt. (actg. Maj.) F. C. Garratt (Canada); Capt. P. C. Garratt; Capt. C. L. E. Geach (Dgn. Gds.); Lt. T. Gilbert (I.A.R.O.) (India); Lt. (actg. Capt.) J. L. S. Gill (I. Force) (France); Lt.-Col. S. Grant-Dalton, D.S.O. (Yorks. R.) (Egypt).

Lt.-Col. (actg. Col.) J. C. Halahan, C.B.E. (R. Dub. Fus.); Sec. Lt. F. Hall (Y. and Lan. R.); Lt. H. Hamer; Capt. W. A. Hannay (L'pool R.) (Washington); Lt. D. A. Harding (Egypt); Maj. (actg. Lt.-Col.) S. H. B. Harris (K. E. Hse.); Capt. B. E. Harrison; Sec. Lt. (actg. Lt.) R. L. Hartley; Lt. (Hon. Capt.) F. W. Hartridge (R.A.S.C.); Lt. G. Harwood (Essex R.); Lt. H. R. Hastings; Capt. W. L. Hay; Lt. (actg. Capt.) A. E. Hedges (Y. and Lan. R.); Maj. (actg. Lt.-Col.) G. L. P. Henderson, M.C. (R.E.); Lt. (actg. Capt.) J. B. Henry (R. Innis. Fus.); Capt. W. V. Herbert (Aus. F.C.); Lt.-Col. W. C. Hicks; Maj.-Gen. J. F. A. Higgins, C.B., D.S.O. (France); Lt. (actg. Capt.) D'A. F. Hilton, M.C. (Canada); Lt. A. H. Hinton (C.F.A.); Lt. G. S. Hodson (Flanders); Capt. L. H. Holden, M.C. (Aus. F.C.); Capt. (actg. Maj.) F. P. Holliday, D.S.O., M.C. (Can. Eng.); Capt. H. T. Horsfield (Worcs. R.); Lt. (actg. Capt.) R. T. B. Houghton (Northants R.); Capt. G. F. Hughes, M.C. (Aus. Inf.); Capt. (actg. Maj.) R. E. A. W. Hughes-Chamberlain; Lt. C. A. Hyde (R. Fus.).

Capt. H. C. Irwin.

Lt. J. H. Jennings (R.A.S.C., M.T.); Capt. (actg. Maj.) M. R. N. Jennings, M.C.; Capt. C. N. Jones (Notts. and D. R.).

Capt. I. G. Kelly; Capt. N. Kemsley; Capt. J. Kerr (Gord. Highrs.); Lt. (actg. Capt.) S. G. Knock (Seaforth Highrs.).

Lt. (actg. Capt.) C. McM. Laing, M.C. (R. Scots Fus.) (Mediterranean); Capt. F. C. Lander; Maj. R. T. Leather (War. Yeo.); Lt.-Col. (actg. Brig.-Gen.) C. F. Lee, C.M.G. (K.R.R.C.) (Washington); Lt. (actg. Capt.) A. M. Lewis (R.G.A., S.R.); Capt. (actg. Maj.) G. L. Lloyd, M.C. (Staffs. Yeo.); Lt. N. B. Lovemore; Capt. (actg. Maj.) R. S. Lucy (Worc. R.); Lt. G. J. Lusted; Lt. (actg. Capt.) H. T. Lydford.

Capt. (actg. Maj.) W. R. B. McBain, M.C. (R.F.A., T.F.) (Salonika); Capt. A. J. H. MacColl; Capt. (actg. Maj.) W. H. Mackenzie; Capt. N. MacMillan, M.C. (H.L.I.); Lt. R. J. Macpherson (Dorset R.); Lt. S. E. Mailer (Aus. Inf.); Capt. G. F. Malley, M.C. (Aus. F.C.); Maj. (actg Lt.-Col.) P. C. Maltby, D.S.O. (R. Welsh Fus.); Capt. A. Mann, M.C. (R.A.S.C., T.F.); Lt. G. H. Martingell; Capt. G. C. Matthews (Aus. F.C.); Capt. (actg. Maj.) G. J. C. Maxwell, M.C., D.F.C. (Lovat's Scouts); Capt. (actg. Maj.) F. H. M. Maynard; Capt. H. Meintjes, M.C. (S.A. Forces); Capt. F. J. W. Mellersh; Lt. C. W. Meredith (S.A. Eng.); Capt. A. L. Messenger; Lt. (actg. Capt.) N. C. Millman, M.C. (Can. Eng.); Lt.-Col. R. P. Mills, M.C. (R. Fus.); Maj. G. A. N. Mitchell (R. Fus.); Lt.-Col. (actg. Col.) W. G. S. Mitchell, D.S.O., M.C. (H.L.I.); Lt. S. J. Moir (Aus. F.C.); Capt. H. H. de B. Monk, M.C. (K.R.R.C.); Maj. A. M. Morison (France), Capt. C. C. Morley; Lt. F. W. Morter (R. War. R.); Capt. (actg. Maj.) D. O. Mulholland (Conn. R.).

Capt. M. D. Nares; Lt. O. S. Neill; Capt. G. D. Nelson, D.S.C. (Vendome); Maj. C. H. Nicholas (S. Wales B.) (Egypt); Capt. J. Noakes, M.M.; Maj. M. W. Noel (L'pool R.).

Lt. G. S. O'Brian (Canada); Lt. H. D. O'Neill (R. Dub. Fus.); Capt. (actg. Maj.) J. O. C. Orton, M.C. (Norf. R.).

Lt. (actg. Capt.) G. S. D. M. Pape (France); Lt. R. S. Park; Lt. J. A. Paull (Can. Eng.); Capt. (actg. Maj.) L. G. S. Payne, M.C. (Suff. R.); Lt. (actg. Capt.) A. G. Peace (Can. Inf.); Lt. A. J. D. Peebles (Lond. R.); Lt. F. B. Pelly (Adriatic); Lt. M. W. Piercey (France); Lt. (actg. Capt.) C. Pilkington (Shrops. L.I.); Lt.-Col. C. F. Pollock, O.B.E.; Lt. S. H. Preston; Maj. E. R. Pretyman (Som. L.I.) (France); Lt. F. H. Prime (Can. Inf.).

Lt.-Col. C. E. C. Rabagliati, M.C. (Yorks. L.I.) (France); Sec. Lt. L. T. McK. L. Ray (Aus. F.C.); Lt. A. D. Reid (Vendome); Capt. C. E. Rich; Capt. A. I. Riley (Artists Rif.); Capt. H. J. Roach, Lt.-Col. R. M. Rodwell (W. Yorks); Lt. A. D. Rogers; Lt.-Col. R. P. Ross, D.S.O.; Lt. (Hon. Capt.) H. B. Russell (R.F.A.); Lt. W. L. Rutledge, M.M. (Can. Inf.).

Lt. (Hon. Capt.) D. C. W. Sanders (R.F.A.); Sec. Lt. B. Scovell; Lt. G. Sewell (Lincs. R.) (Egypt); Lt. (actg. Capt.) W. Sharpe (Gren. Gds.) (Egypt); Lt. F. H. G. Shepard; Capt. W. A. Shirlaw (H.L.I., T.F.); Capt. (actg. Maj.) A. M. Shook, D.S.O., D.S.C.; Lt. F. D. J. Silwood; Capt. (actg. Maj.) L. H. T. Sloan (Cam. Highrs.); Lt. C. G. H. Smith; Capt. R. M. Smith, M.C., D.F.C. (Aus. F.C.) (Egypt); Lt. (actg. Capt.) R. N. Smith; Capt. (actg. Maj.) S. O. Smith; Capt. (actg. Maj.) D. Stewart (R. Scots); Lt. J. L. Stocks; Lt. E. A. Sullock (L'pool R.); Lt. J. H. R. Sutherland, M.B.E.; Capt. A. M. Swyny (R. I. Rif.).

Lt. (actg. Capt.) R. K. Tailyour (R.F.A.); Capt. W. M. Tait (Dur. L.I.); Lt. L. Taylor; Capt. M. L. Taylor (R.E.) (France); Capt. G. Thom; Capt. M. Thomas (Welsh R.); Lt. J. A. Thompson; Maj. (actg. Lt.-Col.) A. A. B. Thomson, M.C. (R. War. R.); Capt. D. R. Thurstan; Capt. A. M. Tidey; Maj. B. Travers; Lt. C. T. Travers; Lt. C. C. T. Turner; Lt. (actg. Capt.) L. M. V. Tyssen.

Lt. H. A. Vineberg.

Capt. (actg. Maj.) L. J. Wackett, D.F.C. (Aus. F.C.); Capt. S. Walker (Aus. F.C.); Capt. W. H. de W. Waller; Maj. (actg. Lt.-Col.) R. B. Ward; Capt. W. K. F. G. Warneford; Maj. (Lt.-Col.) H. E. M. Watkins; Capt. D. Watson (E. Yorks); Lt. W. E. Watt (K. E. Hse.); Lt. H. S. Whitby; Lt. A. S. White; Lt. (actg. Capt.) C. A. B. B. Wilcock (R. W. Surr. R.); Lt. S. Wilkinson; Lt.-Col. (actg. Col.) H. A. Williamson, C.M.G.; Lt. C. E. Wilmot; Lt. (Hon. and actg. Capt.) G. H. B. Wilson, M.C. (R.A.S.C.) (Egypt); Capt. G. C. Wilson, M.C., D.C.M. (Aus. F.C.); Capt. T. E. Withington (O. and B. L.I.); Lt. (actg. Capt.) F. T. Woods (Northants R.); Lt. (actg. Capt.) F. St. J. Woollard (E. Kent R.); Lt. (actg. Capt.) A. B. Wright (H.L.I.); Maj. A. C. Wright (Egypt).

Lt. F. Yorke-Smith.

Note.—Since the list of names appearing in this "Gazette" were placed in the hands of the printers the "Acting Ranks" indicated have been relinquished in the great majority of cases.

Royal Red Cross (1st Class).

Miss C. Cameron, Q.A.I.M.N., Service (Reserve), Matron, R.A.F. Nursing Service, Matlock.

Miss L. M. Holroyde, Matron, R.A.F. Aux. Hosp., Eaton Square, London.

Medal of British Empire Order.—Military Division.

No. 20924 Member (1) Mrs. M. B. Brisley, Women's Royal Air Force, Upton, Chester. For gallant conduct and devotion to duty at Upton on Dec. 17th, 1918, in extricating one of the occupants from a crashed aeroplane, and assisting to remove the second man from the wreckage.

Honorary Rank.

Granted the Hon. Rank of Capt. on retirement in recognition of good service during the war:—Lt. M. C. Caley; Lt. A. D. MacDonald, D.F.C. (Can. Eng.).

Bar to Distinguished Flying Medal.

223740 Serjt. Mech. J. Chapman, D.F.M. (Newcastle-on-Tyne) (France).

Distinguished Flying Medal.

86267 Serjt. E. Antcliffe (83th Sqdn.) (France)

233777 Serjt. Mech. A. H. Banks (Rickling, Essex) (I. Force) (France); 214412 Serjt. Mech. G. Betteridge (Vauxhall, S.W.) (France); 223197 Serjt. Mech. W. S. Blyth (Stepney) (France); 23773 Serjt. W. Bonnor (Ilford) (France).

217755 Serjt. (Obs.) M. C. Day (Beckenham) (Flanders).

240137 Serjt. W. Greenwood (Haslington) (France); 402734 Serjt. Mech. J. Jones (Tenbury, Worcs.) (I. Force) (France); 222304 Serjt. (Obs.) R. S. Joysey (Flanders).

109538 Serjt. P. A. McGuinness (Felling-on-Tyne) (No. 11 Sqdn.) (France).

93272 Serjt. Mech. G. Packman (Rochester) (France).

187480 Serjt. Mech. C. W. Riseboro (S. Kensington) (Palestine); 402609 A.C.2 W. Roper (Leeds) (France); 91975 Serjt. Mech. I. H. Rowe (Newton Abbot) (France).

10550 Serjt. N. Sandison (Grangemouth) (France); P/39365 Serjt. F. Sefton (98th Sqdn.) (France); 96639 Serjt. A. Shepherd (Birmingham) (France); 7958 L.A.C. (actg Cpl.) C. R. C. Shorland (Margate) (France).

10786 Serjt. A. H. Woolgar (Stratford) (France).

Air Force Medal.

201182 Ch. Mech. W. Angus (East Fortune)

205926 Cpl. Mech. W. J. Baker (Bristol); 232626 Serjt. (Obs.) H. A. M. Balls (Dunkirk); Aus./275 Serjt. J. M. Bennett (Windsor, Victoria, N.S.W.); 215839 A.M.1. (E) A. Berry (Calshot); 201271 Serjt. Mech. J. Burrell (Lawthorne-Howden).

206005 Cpl. A. C. Chrisp (Calshot); 214875 Cpl. C. Davis (Longside).

316711 Flt. Serjt. H. S. Eltringham (Longside); 232633 A.M. 2.S. J. A. Emery (Anglesey); 216420 Cpl. G. W. Ewbank (East Fortune).

243541 A.M.1 J. N. Forteath (Farnham, Surrey); 222627 A.M.1 T. L. Griffiths (Anglesey); 201589 Cpl. Mech. W. J. Greatholder (Killingholme).

R.N.201503 Serjt. Mech. S. J. Heath (Portsmouth); 167344 Serjt. A. C. Howarth (Seahouses).

205004 Cpl. C. F. Kidd (Longside); 212913 Flt. Serjt. G. Kidd (Seaton Carew).

313806 Serjt. C. H. Lewry (Longside).

313843 Flt. Serjt. P. Norton (Longside)
313853 Ch. Mech. T. Parry (Peterhead).
238860 Ch. Mech. A. G. Poole (East Fortune).
208923 Col R. Reekie (East Fortune); 229884 Serjt. Mech. F. Reynolds (East Fortune).
Aus./8974 1st A./Mech. W. H. Shiers (Adelaide, South Australia).
95461 Serjt. Mech. C. N. Tabiner (Leeds) (I Force) (France)
260822 Serjt. J. R. Welsh (Hornsea); 218546 Ch. Mech. A J. Woolhead (Killingholme).

(To be continued.)

War Office, June 5th.

The following are mentioned for distinguished and gallant services during the period Sept. 15th, 1918, to Dec. 31st, 1918, in a dispatch dated Jan. 18th, 1919, has been received by the Secretary of State for War from General F. R. Earl of Cavan, K.P., K.C.B., M.V.O., Commander-in-Chief of the British Forces in Italy :—

Royal Air Force.—Sec. Lt. H. Baldwin, Sec. Lt. F. M. M. Ellis. Lt. A. J. Evans, Sec. Lt. J. L. Geddes, Sec. Lt. (actg. Capt.) H. K. Goode, D.S.O., D.F.C., Lt.-Col. (actg. Col.) P. B. Joubert de la Ferté, C.M.G., D.S.O. (Commdg. 14th Wing, R.A.F.) (Maj. and Bt. Lt.-Col., R.A.). Lt. A. L. McLaren, Sec. Lt. (actg. Lt.) S. E. Mills; Sec. Lt. and Hon. Lt. A. G. Mortlock, Sec. Lt. and Hon. Lt. F. C. Winby.

24961 Cpl. H. Atkinson, 30635 Serjt. J. Heslop, 4991 Cpl A. E. Hicks, 65830 S.M. A. McGarry, 24887 1st Aircraftman R. McLaren.

War Office, June 6th.

Regular Forces Establishments.—Royal Flying Corps.—Military Wing.—Cdt. Wing Sqdn. Comdr.—Capt. W. J. May (Cambs. R., T.F.), from an Adjt., Cdt. Wing., Jan. 27th, 1918

Air Ministry, June 6th.

R.A.F.—The following temp. appointments are made :—Group Commander (graded as Col., Staff).—Lt.-Col. P. B. Joubert de la Ferte, C.M.G., D.S.O., June 3rd, vice Lt.-Col. W. R. Freeman, D.S.O., M.C.

Col. (Staff).—Col. B. C. H. Drew, C.M.G., C.B.E., June 8th.

Staff Officers, 2nd Cl. (P.).—Maj. J. S. T. Bradley, from Staff Offr., 1st Cl., May 31st, vice Lt. H. J. G. Newman, M.B.E. (substituted for notification in "Gazette," May 27th).

Staff Officers, 2nd Cl. (graded for pay at Air Ministry rates).—Maj. G. R. Moser, Feb. 14th to March 4th; Capt. (actg. Maj.) W. J. C. Kendall, March 5th, and to retain actg. rank of Maj. till April 30th

Staff Officers, 3rd Cl. (graded for pay at Air Ministry rates) (P).—Capt. N. Robertson, Feb. 19th; Sec. Lt. (actg. Lt.) R. Wight Feb. 14th, and to be actg. Capt. till April 30th; Lt. J. A. W. Bourne, Feb. 18th and to be actg. Capt. until April 30th (substituted for notification concerning the above officers which appeared in "Gazette," April 8th); Lt. (actg. Capt.) H. E. Burrell, March 24th, and to retain actg. rank until April 30th.

Flying Branch.—Capt. C. H. Darley, D.S.C., D.F.C., ceased to be graded for purposes of pay and allowances of Maj. (A.), May 19th.

Capt. C. W. C. Browne to be Capt. (A. and S.), from (S.O.), May 31st.

The following Lts. ceased to be graded for purposes of pay and allowances of Capts. (A.) :—H. M. Coombs, D.F.C. G. S. White, May 19th.

Lt. H. C. Beeston to be Lt. (A. and S.), from (O.), April 20th, 1918 (substituted for notification in "Gazette," May 24th, 1918).

Flt. Cdt. 92559 L. Bacon is granted a temp. commn. as Sec. Lt. (A.), Oct. 8th, 1918.

P.F.O. J. M. Gray (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (O.), Nov. 7th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. R. W. Jackson (Lt., Cent. Ont. R.), Jan. 2nd; Sec. Lt. (Hon. Lt.) T. J. L. Ryan (Lt., Cent. Ont. R.), March 10th; Sec. Lt. (Hon Lt.) I. R. B. Francis (Lt., Can. M.G.C.), Sec. Lt. (Hon Lt.) J. F. A. H. Lindsay, D.C.M., M.M. (Lt., Sask. R.), Sec. Lt. (Hon Capt.) A. C. Rees, March 28th (substituted for notification in "Gazette," March 4th); Sec. Lt. (Hon. Lt.) F. Fletcher (Lt., R.A.), March 29th; Sec. Lt. (Hon. Lt.) W. W. Halsall (Lt., E. Kent R.), April 10th; Lt. (actg. Capt.) H. C. Sootheran (Westn. Ont. R.), April 13th, Capt. G. L. Lowis, A.F.C. (Lt., R.N.), April 21st; Lt. F. J. Simpson (Lt., Brit. Columbia R.), April 24th; Lt. C. D. Palmer (Lt., Argyll and Suth'd. Highrs.), April 30th; Lt. G. G. Bell (Capt., E. Ont. R.), May 6th; Sec. Lt. M. G. Penny (Lt., R.A.), May 20th; Capt. C. E. Barrington, M.C. (Lt., R.A.); Lt. A. G. Foster-Sutton (Lt., E. Kent R.), May 22nd; Sec. Lt. (Hon. Lt.) A. E. Haynes, M.C. (Lt., R.A.), May 23rd; Lt. T. J. Denton (Lt., Canterbury Mtd. Rif., N.Z.), May 27th; Sec. Lt. A. D. Macpherson, May 31st.

Transferred to unempld. list :—Sec. Lt. H. C. Wood, Feb. 2nd; Sec. Lt. E. C. Nickerson, Feb. 27th; Sec. Lt. H. Walmsley, March 4th; Sec. Lt. F. Cornwall, March 8th; Sec. Lt. (Hon Lt.) T. W. Watts, March 13th; Sec. Lt. C. Dixon, March 14th; Lt. E. C. Bridgman, March 15th; Capt. F. J. Gibbs, M.C. (S. Staffs. R.), March 28th; Lt. C. H. Andrews, Sec. Lt. J. E. Watkins, Lt. A. Watson, Lt. P. Wilson, April 1st; Lt. D. Watt, Sec. Lt. D. P. Smith, April 4th; Sec. Lt. G. H. Wilson, April 5th; Lt. C. B. Weston, Sec. Lt. W. A. Westwood, Capt. J. S. Wright, April 9th; Sec. Lt. J. M. Welshman, April 10th; Sec. Lt. C. G. Gass, M.C. (Lond. R., T.F.), Sec. Lt. J. Hamilton, Sec. Lt. E. W. A. Smith, Lt. E. R. Watts, Sec. Lt. J. H. Yalden, April 11th; Sec. Lt. J. E. Elliott. Lt. H. J. Hinde, April 12th; Sec. Lt. K. W. Dunmore, Lt. V. H. G. Parker, April 13th; Lt. A. Williamson, April 14th; Lt. W. L. S. Keith-Jopp, Sec. Lt. H. C. Webb, April 12th; Sec. Lt. (Hon. Lt.) H. O. Edmonds, Sec. Lt. H. F. Griffith, Sec. Lt. F. A. D. Vaughan, April 16th; Lt. B. M. Wainwright, Sec. Lt. N. H. Waite, April 17th; Lt. C. W. Usher, April 18th; Sec. Lt. B. A. Shields, Sec. Lt. P. H. Wade, Sec. Lt. G. E. Vickers, Sec. Lt. A. V. Whiteley, April 19th; Lt. V. R. Blow, Lt. R. H. Horwood, April 20th; Sec. Lt. K. L. Vernon, Sec. Lt. (Hon. Lt.) H. S. Winkworth, April 21st; Lt. E. H. Snell, April 22nd; Sec. Lt. W. H. Bennett, Sec. Lt. W. J. Hatrick, Lt. C. F. A. Wagstaff, April 24th; Lt. L. D. A. Dircks, Lt. (actg. Capt.) H. Sanders, April 25th; Sec. Lt. R. A. Jacquot, April 26th; Capt. W. H. Chisham, April 27th; Lt. W. B. B. Freer, April 28th; Lt. H. J. Gearing (High. L.I.), Sec. Lt. A. J. Gwynn, M.C. (W. Yorks. R.), Lt. G. N. Hardwick, April 29th; Sec. Lt. W. G. Gadd, May 1st; Capt. T. C. Lloyd, May 3rd; Capt. N. Deakin (R.N. Devon Yeo., T.F.), May 5th; Lt. G. Cameron, May 6th; Sec. Lt. H. J. Heaton, Sec. Lt. A. J. Sanford, Sec. Lt. J. L. Sherwin, May 8th; Lt. J. M. Brisbane, M.C. (R. Scots), Sec. Lt. J. M. Heathcote, Sec. Lt. P. J. Shaw, May 9th; Capt. K. G. Selanders, M.C., May 10th; Lt. C. Byron, May 11th; Sec. Lt. F. J. Lotzer, Lt. F. G. M. Sparks, May 12th; Sec. Lt. E. L. Baddeley, Lt. F. H. Thompson, May 13th; Sec. Lt. S. J. Brain, Sec. Lt. T. H. Buxton, Sec. Lt. S. G. French, May 4th; Sec. Lt. S. G. Bates, Sec. Lt. A. R. Bell, Lt. C. L. Blake, Sec. Lt. A. J. Bonar, Sec. Lt. C. A. Bonar, Lt. W. D. Peock, May 15th; Lt. D. B. Barbour, Capt. H. D. Davis, A.F.C., Lt. W. F. Williams, May 16th; Lt. A. T. Baker, Lt. M. Taylor, Sec. Lt. A. Thom, May 17th; Sec. Lt. J. R. A. Barnes, Sec. Lt. A. H. Fuller, Lt. F. W. Palmer, V.C., M.M., Sec. Lt. W. J. Tucker, Sec. Lt. H. R. Smith, May 18th; Sec. Lt. P. R. Clare, Sec. Lt. M. J. Swanston, May 19th; Sec. Lt. J. Gries, Lt. C. V. H. Harrison, Lt. E. J. Jacques, Sec. Lt. J. J. Snow, Sec. Lt. F. W. Riley, Lt. J. Russell, Sec. Lt. G. M. Sampson, Sec. Lt. W. D. Saunders, Sec. Lt. C. A. Smith, Lt. G. F. Townsend, Sec. Lt. W. H. Settle, May 20th; Sec. Lt. S. E. Calvert, Sec. Lt. L. E. F. Dale, Sec. Lt. C. G. G. Fortune, Lt. G. D. Marks, Sec. Lt. J. Scholes, May 21st; Lt. C. H. Cooper, Capt. J. H. Storey, D.F.C., May 22nd; Sec. Lt. R. S. Carey, Sec. Lt. W. H. Corsan, Sec. Lt. S. W. Margetts, Sec. Lt. G. W. Perks, Lt. E. L. Roberts, May 23rd; Lt. C. B. Collins, Sec. Lt. R. J. Ewins, Capt. C. S. O'Grady, Lt. W. N. Porritt, May 24th; Sec. Lt. T. J. Mann, Sec. Lt. J. D. S. MacCullum, Sec. Lt. (Hon. Lt.) A. H. Malan, Sec. Lt. C. F. Melville, Sec. Lt. A. A. Moir, Sec. Lt. J. W. Newdigate, May 25th; Sec. Lt. T. G. Evans, May 26th; Lt. C. R. McMullin, Lt. G. M. Metcalfe, Sec. Lt. K. W. J. Oldridge, Sec. Lt. N. S. Smith, May 27th; Sec. Lt. J. C. Baxter, Sec. Lt. R. Evans, Lt. J. F. N. Macrae, Lt. R. Musgrave, Sec. Lt. A. C. Porter, May 28th; Lt. H. D. Barton, D.F.C., Lt. F. P. Bellingham, Sec. Lt. E. Bernstein, Capt. F. W. Merriam, Lt. F. G. Newell, Sec. Lt. A. C. Porter, May 29th; Sec. Lt. R. J. Palmer, June 2nd; Lt. L. S. Birbeck, M.C., Lt. S. A. Gibbons, Lt. C. J. McCrane, June 3rd; Capt. R. O. Abercromby (Gord. Highrs.), June 5th.

The following relinquish their commns. on account of ill-health, and are permitted to retain their rank :—Maj. E. Dalziel, May 24th; Capt. J. R. S. Delvin, D.S.C. (contracted on active service), May 16th; Capt. A. T. Hope, May 22nd; Lt. J. A. Baker (contracted on active service), May 17th; Lt. C. H. P. Hughes, Lt. C. G. Tysoe (contracted on active service), May 26th; Lt. W. J. T. Oliver, June 7th; Sec. Lt. A. H. Butler (caused by wounds), April 14th; Sec. Lt. G. V. Straker, May 8th; Sec. Lt. S. H. Whipple (contracted on active service), May 22nd; Sec. Lt. H. C. Allen (contracted on active service), Sec. Lt. J. Cornyn (contracted on active service), May 27th.

The following relinquish their commns. on account of ill-health :—Lt. F. C. J. Whigham (Can. Local Forces), May 24th; Sec. Lt. M. C. Burt, May 26th.

Maj. J. D. Maude is removed the services, the King having no further occasion for his services as an officer, March 8th.

The notification in "Gazette," April 1st, concerning Sec. Lt. G. F. Holford is cancelled.

The notification in "Gazette," Feb. 14th, concerning Lt. C. H. Dunster is cancelled.

The notification in "Gazette," Feb. 28th, concerning Lt. R. Main is cancelled.

The notification in "Gazette," April 29th, concerning Lt. (actg. Capt.) O. C. Bridgeman, M.C., is cancelled (notification in "Gazette," April 18th, to stand).

The notification in "Gazette," May 23rd, concerning Lt. R. H. Johnson is cancelled.

The notifications in "Gazette," May 27th, concerning the undermentioned officers are cancelled :—Capt. (Hon. Maj.) F. B. Binney, Lt. T. A. Byers.

Administrative Branch.—Lt. (Hon. Capt.) (actg. Capt.) A. M. Watson is graded for purposes of pay and allowances as Staff Officer, 3rd Class (P.), whilst empld. as Camp. Commandant for the period April 1st to April 30th.

Lt. (Hon. Capt.) A. M. Watson is graded for purposes of pay and allowances as Staff Officer, 3rd Class (P.), whilst empld. as Camp. Commdt., May 1st.

Majs. to be graded for purposes of pay and allowances as Lt.-Cols., from May 1st to May 7th :—J. B. Batten, D.S.O., R. M. R. Lamb, D.S.O. S. Snow, M.C. (temp. Capt. and Qmr., Gen. List), is granted temp. commn. as Capt., July 1st, 1918, seny. April 1st, 1918.

Lt. J. B. Pirie to be actg. Capt. whilst empld. as Capt. from Dec. 24th, 1918, to April 30th (substituted for notification in "Gazette," Feb. 21st).

Lts. (A.) to be Lts. :—G. M. Metcalfe, May 21st; B. S. Johnston, May 22nd.

Lt. E. C. Richards to be Lt., from (O.), April 17th (substituted for notification in "Gazette," May 13th).

Sec. Lt. G. Thomson to be Lt., Dec. 27th, 1918.

G. N. Clift (Lt., R.E.) is granted a temp. commn. as Lt., April 1st (substituted for notification in "Gazette," May 23rd).

Sec. Lt. W. E. Tunks to be Sec. Lt., from (A. and S.), May 24th.

Sec. Lt. C. R. French to be Sec. Lt., from (O.), May 21st

The following are granted temp. commns. as Sec. Lts. :—W. J. Begley, H. Cartwright, V. B. Randford, H. A. Williams, May 30th.

The following relinquish their commns. on ceasing to be empld. :—Lt. (actg. Capt.) H. Richardson (Lt., Norf. R.), April 9th; Lt. D. N. Stewart-Savile, M.C. (Lt., 12th Prince of Wales R. Lrs.), May 3rd; Lt. V. C. Roberts (Lt., E. Yorks. R.), May 6th.

Transferred to unempld. list :—Lt. W. D. Baird, Feb. 27th; Lt. J. E. Histed, March 31st; Sec. Lt. H. S. Peacop, April 7th; Lt. O. D. Hay, Sec. Lt. C. T. Smith, April 9th; Sec. Lt. A. Longson, Sec. Lt. (Hon. Lt.) T. W. Walker, April 17th; Lt. C. H. Hartley, April 20th; Capt. (actg. Maj.) W. V. Sherwell, April 30th; Capt. H. Parker-Jervis, May 3rd; Capt. Q. S. Shirriff, May 10th; Capt. H. M. Tysoe, May 15th; Sec. Lt. W. J. Scarff, May 19th; Sec. Lt. W. J. Baldwin, Sec. Lt. N. Cummings, Lt. A. H. Tarper, May 20th; Sec. Lt. A. E. Chester, May 22nd; Sec. Lt. F. B. Morris, May 25th; Capt. H. A. Dawson, May 28th; Capt. W. T. Morris, May 29th.

Lt. J. W. Holdsworth is granted the hon. rank of Capt., May 9th.

Lt. J. W. Holdsworth relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., May 14th (substituted for notification in "Gazette," May 23rd).

Lt. (actg. Capt.) E. Gibbons relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., May 27th

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—K. A. Creery (contracted on active service), May 9th; L. H. Wrightmeyer, May 22nd; A. L. Freeman, May 27th.

Lt. (Hon. Capt.) A. P. Lunam, M.C., relinquishes his commn. on account of ill-health, May 23rd.

Sec. Lt. J. T. F. Neary relinquishes his commn. on account of ill-health, and is permitted to retain his rank, May 24th.

Sec. Lt. (Hon Lt.) A. H. Searle resigns his commn., May 28th (substituted for notification in "Gazette," Dec. 13th, 1918).

The rank of Lt. E. C. Chapman is as now described, and not as stated in "Gazette," Feb. 25th.

Notification in "Gazette," Dec. 20th, 1918, concerning F. W. Crawford, is cancelled (notification in "Gazette," Nov. 12th, 1918, to stand).

Technical Branch.—Lt.-Col. T. E. St. C. Daniell to be Lt.-Col. from Depy. Dir., April 1st, and to relinquish the actg. rank of Col

Capt. H. K. Kennedy-Skipton to be Capt., Grade (A.), from Grade (B), April 7th.

Lt. N. Penty to be actg. Capt. whilst empld. as Capt., Grade (B), from Oct. 15th, 1918, to April 30th.

Lt. G. F. Drudge ceased to be graded for purposes of pay and allowances as Capt., Grade (B), May 19th.

Lt. W. V. Hunt to be Lt., Grade (B), from (Ad.), Oct. 1st, 1918.

Sec. Lt. H. C. Hull to be Lt., without pay and allowances of that rank, Nov. 11th, 1918.

Sec. Lt. R. J. Costigan (late Gen. List, R.F.C., on prob.) is confirmed as Sec. Lt., Grade (A.), May 6th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Capt. D. H. Saunders-Davies (Lt., War. R.), May 7th; Lt. J. H. Turner (Capt., 2nd Dgn. Gds.), June 7th; Temp. Hon. Capt. F. J. Toulmin, June 7th.

Transferred to unempld. list :—Lt. (actg. Capt.) R. Scott, April 3rd; Lt. V. P. Spurway, April 15th; Lt. C. S. Kent, April 15th; Sec. Lt. A. West, April 10th; Sec. Lt. (actg. Lt.) A. Spring, April 24th; Sec. Lt. P. W. Bowman, May 6th; Capt. A. B. Davies, Sec. Lt. G. C. Harrison, May 8th; Sec. Lt. C. B. Southey, May 10th; Capt. (Hon. Maj.) J. Goodman, May 11th; Lt. H. R. Gregg, Lt. L. J. Pearce, May 14th; Capt. E. G.

Batt, Sec. Lt. S. F. Blanck, May 10th; Lt. (Hon. Capt.) A. H. Guerrier, Capt. A. V. Taylor, Capt. W. J. Walker, May 17th; Sec. Lt. R. H. Clarke, May 18th; Sec. Lt. G. W. Cox, M.C., May 20th; Sec. Lt. F. J. Harrington, May 22nd; Maj. C. W. De Roemer, R.F.A., May 23rd; Lt.-Col. I. B. Dayson (City of Lond. Yeo., T.F.), May 24th, Sec. Lt. F. Garrett, May 25th; Capt. W. H. J. Eldridge, Capt. H. F. Melville, May 26th; Sec. Lt. G. Epcole, Capt. J. H. Ward, May 27th; Capt. E. A. Gorton, June 6th.

Lt.-Col. A. E. G. MacCallum relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, May 24th.

Capt. H. Riddell relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, May 27th.

Sec. Lt. (actg. Lt.) J. A. McMullan, M.B.E., relinquishes his commn. on account of ill-health, and is permitted to retain rank of Lt., May 23rd.

Lt. (Hon. Capt.) F. Campbell (L'pool R., T.F.), relinquishes his commn. on account of ill-health contracted on active service, May 27th.

The following Sec. Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank:—A. D. Birkhead, May 8th; J. H. Lester (contracted on active service), May 26th.

The notification in "Gazette," May 23rd, concerning Capt. S. E. Neal is cancelled.

MEDICAL BRANCH.—Maj. A. W. Iredell to be Lt.-Col., May 16th.

G. F. Marshall is granted a temp. commn. as Capt., April 17th.

E. A. Lumley is granted a temp. commn. as Capt., May 19th.

J. Fanning is granted a temp. commn. as Lt., May 19th.

Transferred to unempld. list:—Capt. C. Webb, April 1st; Capt. J. D. Bridger, Maj. R. R. Fasson, R.N., May 14th.

DENTAL BRANCH.—I. M. Thomson is granted a temp. commn. as Capt., July 15th, 1918 (substituted for notification in "Gazette," July 19th, 1918).

CHAPLAINS BRANCH.—The Rev. A. S. Bishop, temp. Chaplain to the Forces, 4th Cl., R.A.C.D. (Wesleyan), is granted a temp. commn. as Chaplain with the relative rank of Capt., and is granted the relative rank of Maj. while empld. as Asst. Principal Chaplain (Wesleyan), Jan. 1st.

MEMORANDA.—The following are granted the actg. ranks stated against their names, with effect from May 1st:—

To be actg. Lt.-Cols.:—Maj. F. F. Minchin, D.S.O., M.C., while specially empld.; Maj. C. E. Maude, while specially empld.

To be actg. Majs.:—Capt. H. A. Tweedie, A.F.C., while specially empld.; Capt. D. Cloete, M.C., while specially empld.; Capt. W. H. Dolphin, while specially empld.; Capt. W. P. Groves, while specially empld.; Capt. E. A. de L. DeVille, while specially empld.; Capt. L. P. Ferris-Scott, while specially empld.

To be actg. Capts.:—Lt. L. J. Stuart, while specially empld.; Lt. H. Tilley, while specially empld.; Lt. R. Halley, D.F.C., while specially empld.; Lt. G. R. Travis, while specially empld.; Lt. P. Warburton, while specially empld.; Lt. W. J. Butler, A.F.C., while specially empld.; Lt. B. G. H. Keymer, D.F.C., while specially empld.; Lt. J. H. Robertson, while specially empld.; Lt. O. R. Gayford, D.F.C., while specially empld.; Lt. T. B. W. Spencer, while specially empld.; Sec. Lt. R. J. Bright, while specially empld.; Sec. Lt. A. W. Brittain, while specially empld.; Sec. Lt. J. H. Boyd, while specially empld.; Sec. Lt. R. R. Trout, while specially empld.

The following is granted the actg. rank stated against his name, with effect from May 26th:—To be Lt.-Col.—Maj. F. W. Lucas, O.B.E., while specially empld.

To be Lt.-Col.:—Maj. F. W. Lucas, O.B.E., while specially empld.

The following Overseas Cdts. are granted temp. commns. as Sec. Lts.:—916053 F. W. Anley, 1260563 H. R. Allan, 154969 S. A. Anfield, 72217 P. H. Applebee, 172288 M. L. Applegate, 154678 G. E. Archibald, P.F.O. J. W. D. Archibald, 172594 J. E. Asselin, 171714 F. A. Bastien, 102854 T. A. Bayly, 137667 A. C. Benedict, 172456 M. L. Bisson, 154603 W. R. Blight, 316215 M. C. Blunt, 304488 A. F. Poddy, 316209 H. D. Bolton, 171530 L. R. Booth, 332889 E. A. Boyle, M/280692 U. E. Boulanger, 9279 A. O. Bower, 808087 S. F. Bradley, 76129 W. T. Broome, 171421 D. W. Bryant, 171432 M. C. Bundy, 180189 E. P. Burchett, 337860 C. Burton, 301574 H. G. Burley, 461118 G. N. Burwash, M2/152954 W. R. Busby, 172431 E. E. Cannon, 166370 D. G. S. Cameron, 171444 J. H. Cameron, 778497 L. De Y. Campbell, 177155 F. W. Carter, 12974 W. E. Chambers, 1006183 R. F. H. Charlick, 55392 L. G. Chavigunard, 504901 W. F. Cherry, 11227 C. F. Clarke, M2/153302 E. W. Clarke, 3444 R. J. L. Clarke, M2/167190 A. E. Coates, 211275 J. MacP. Cowan, 154281 J. A. S. Cooke, 40546 J. Colling, 430668 J. B. Cooper, 316339 A. Cordell, 110104 F. M. Cornell, 172078 L. J. Cousineau, 28265 E. P. Croll, 513370 G. M. Crooks, 154295 A. M. Cummings, 1261441 W. E. Daley, 316084 F. R. Darrow, 24785 H. M. Davidson, 171757 J. Davis, 316317 R. W. Davis, 171417 F. T. De Hart, 154688 D. E. De St. Dalmas, 171412 K. D. Dewar, 154781 G. M. Dickie, 154895 R. M. Dickinson, 529550 J. J. Douglas, 171702 R. J. Downey, 69732 P. A. Durbrow, 660921 L. P. Dussault, 175984 C. H. A. Duk 316138 A. F. Eaton, 527685 W. J. Eddington, 137690 R. L. Evans, 175076 E. T. Everett, 1269 E. Farr, 316161 T. E. Fisher, 153864 G. St C. B. Flett, 347485 F. R. Flook, 65149 T. E. Fogarty, 306649 A. V. Forster, 64834 E. Fortin, 129287 F. Fraser, 324841 E. G. Fuller, 342840 W. S. Fuller, 198762 S. J. Fullerton, 172479 J. F. Galbraith, 171325 C. Gamsby, 154543 R. Gendron, 154678 A. B. Gilker, 235640 W. J. Gilson, 176147 D. G. Gregoric, 508707 J. I. Greig, 307455 J. D. Haddock, 154784 H. A. Halliday, 171572 E. M. Hankin, 154697 E. Hanley, 216850 G. R. Harland, 179154 N. F. Harston, 510556 R. O. Harris, 172457 R. L. Harvey, 42724 S. W. Hayward, 12977 A. Hendrie, 154515 F. S. Hewson, 114269 J. H. F. Hock, 154716 G. T. Horne, 769118 E. Hunter, 1261669 N. A. Hunting, 5190 T. C. Ingram, 504171 T. R. Iredale, 87329 F. G. Jerome, 503836 T. E. Job, 154908 S. R. Kerr, 171449 G. W. C. Kinney, 137649 S. H. Kirtikar, 172390 R. J. Klean, 171171 T. S. Laird, 316145 L. De C. Lalime, 154678 L. A. Lalonde, 264178 D. L. Lamson, 316090 R. D. Lawrence, 154164 J. G. Leask, 505494 C. Le Beuf, 171639 W. R. Lethbridge, 244440 W. E. Lissaman, 97804 S. J. Livingstone, 40382 H. Lowther, 100391 H. C. Lyons, 56012 R. J. MacDonald, 184038 S. M. MacDonald, 541225 H. F. MacKay, 179523 J. E. MacLaren, 211491 J. W. MasLeod, 2043531 C. R. McCulag, 154288 R. L. McFadden, 154139 E. A. McKay, 911357 F. L. McLeod, 183187 H. L. McNeill, 42977 S. C. McNeill, 51063 J. McNay, 1353 A. A. McQuiston, 811331 G. L. Maddrell, 50405 N. E. Marsh, 2114895 W. A. Mathieson, 56631 W. L. Maude, 304393 G. H. Mayor, 427021 A. L. Maquard, 91689 G. O. Merrill, 179454 H. M. Michael, 154701 A. H. Miller, 2118 J. S. Miller, 500797 T. Miller, 171834 L. M. Montgomery, 80211 A. L. Morfee, 171465 E. Morrland, 157 H. Mortimer, 2502940 E. G. Murphy, 72188 K. C. Murray, 316403 G. A. Nagle, 154785 V. Neil, 172264 L. A. Nettleton, 316075 A. R. Nichols, 218942 E. N. Nicol, 541200 W. H. Nixon, 348750 F. G. Orr, 348833 W. S. Page, 407034 A. D. Palmello, 364590 W. C. Parker, 154930 A. Paterson, 778203 G. R. Paterson, 171744 W. A. Paterson, 629919 L. R. Paton, 171054 A. J. Pauley, 51280 J. W. Pearson, 330636 L. D. Piket, 171493 J. G. Porter, 15600 R. N. Potter, 154079 G. H. Pound, 150787 W. J. Riddell, 338864 C. V. Raine, 689 L. W. Raines, 871872 A. S. Read, 154000 W. Reddy, 316123 H. J. Reilly, 316200 R. D. Richardson, 475305 C. D. Robarts, 154003 L. Roberts, 316308 A. B. Robertson, 171226 J. Robertson, 12886 H. P. Robinson, 171431 N. W. Rogers, 171174 A. E. Rowley, 794060 C. A. Russell, 171147 H. V. D. Russell, 227726 H. J. Rush, 316074 W. T. Sanderson, 46078 W. B. Saunders, 154842 R. R. Sewell, 487353 F. C. Smith, 316110 H. S. Smith, 316035 H. W. Smith, 2720 C. F. Snook, 469083 R. M. Stevens, 103432 I. Stewart, 406405 L. V. Stewart, 62560 B. V. St. George, 154390 C. M. Stovell, 1428 H. Sykes, 421061 A. G. Taylor, 58052 E. J. Taylor, 925073 P. Taylor, 133 N. C. Taylor, 137471 W. C. Tennant, 171440 E. Thomson, 433206 J. C. Thompson, 453229 R. H. Thorne, 37232 C. W. Travers, 85537 T. Turner, 1260418 S. A. Vey, 1350 R. A. W. Vickers, 171170 T. Walker, 174791 K. R. Walsh, 171568 W. B. Watt, 171814 E. M. Way, 316406 G. Webb, 316509 P. A. Wentzell, 171571 L. A. Werner, 614413 N. A. West, 316086 R. R. West, 14547 J. T. White, 1551445 H. B. Whitehouse, 3819 E. Williamson, 923055 E. R. iWilson, 171558 H. C. Wilson, 401098 P. Wyld, 171691 J. Young, Feb. 15th.

Flt. Cadet 176666 M. J. O'C. Hefferman (since killed) is granted an hon. commn. as Sec. Lt., Jan. 29th.

The following relinquish their commns. on ceasing to be empld.:—Col. H. D. Briggs, C.M.G. (Capt., R.N.), Lt.-Col. R. A. Wilson, D.S.O (Commdr., R.N.), May 15th.

Transferred to unempld. list:—Lt. (Hon. Mai.) (actg. Maj.) H. K. Payne (R.N.R.), from (S.O.), April 9th; Sec. Lt. T. H. Bulley, April 19th; Capt. (actg. Lt.-Col.) H. St. C. Smallwood, from (S.O.), April 30th; Capt. H. de B. C. Garfit, from (S.O.), Lt. C. Q. Steel, from (S.O.), May 1st; Lt. T. N. Jennings, from (S.O.), May 9th; Lt. W. Lienard, M.B.E., from (S.O.), May 13th; Capt. C. D. Morrison, from (S.O.), May 26th; Capt. F. V. Stillingfleet, from (S.O.), May 29th; Lt. B. A. Clay, from (S.O.), May 30th; Lt. B. K. O. Mathews, from (S.O.), June 1st.

Capt. M. H. Stephens relinquishes his commn. on account of ill-health caused by wounds, and is permitted to retain his rank, May 28th.

The names and numbers of the following cadets are as now described, and not as stated in "Gazette," May 6th:—154733 D. Anderson, 171994 P. M. Bealer, Z636 C. D. C. B. Braine, 125806 Ads. Bullard, 171023 H. L. Chisholm, 128247 J. Carmichael, 178163 C. J. Du Toit, 178166 H. M. Edwards, 175123 J. W. Gay, 170528 E. R. Gilson, 740 J. G. Goff, 182262 S. G. Livingstone, 178991 U. P. A. Lawrenson, 181840 A. W. Lewis, 176561 H. G. Lovell, 182236 M. D. Miller, 182215 E. L. Melville, 176564 C. E. Mowat, 183887 J. L. Munro, 182264 V. V. Melville, 182091 P. L. Morris, 183864 J. W. Macaskill, 184537 F. J. Martin, 182114 L. H. Maytham, 182115 E. G. Murray, 184540 G. R. Muller, 182216 B. Meth, 180378 E. F. Moffatt, 182266 B. S. Mannion, 182267 A. H. Marsh, 184541 R. C. Musson, 176577 L. A. Magennis, 184268 P. H. Mellet, 208 J. F. Maberly, 134267 J. Mackintosh, 184536 J. A. McLean, 184534 K. M. McLennan, 137812 H. W. McLeod, 182276 C. McAninch, 111154 R. M. McLaren, 9276 W. McLoughlin, 184542 B. L. C. Norton, 137919 F. Olive, 182914 S. H. Oertel, 184544 C. F. Oberhauser, 182195 J. J. O'Donovan, 180803 E. F. Pett, 181865 W. V. Peacock, 182117 L. F. Perry, 182218 W. G. Paul, 183287 A. T. Povall, 183888 G. G. Parkin, 182196 C. F. Palvie, 182236 J. M. Patrick, 176517 J. Quinn, 182185 J. D. Rossouw, 184548 V. W. Ryley, 182166 E. J. Rocher, 182167 G. C. G. Rocher, 316611 L. B. Rethman, 183893 J. A. Rautenbach, 182179 S. E. Rosebrook, 183607 R. K. Ross, 178297 H. Rothstein, 178620 L. J. de Silva, 182181 A. P. K. Sinclair, 184554 G. G. Southgate, 184553 H. P. Stroebel, 183807 T. Sheppard, 182099 L. D. A. Seeligshon, 182221 A. C. Sparks, 182202 H. B. Steyn, 183894 E. E. Stuart, 178212 J. B. Struthers, 182534 V. P. de V. Steytler, 183895 W. G. Stafford, 184845 F. J. Schravesande, 137946 V. C. Sheppard, 178213 M. S. Steyn, 183901 D. W. M. Thorrold, 182222 C. E. Taylor, 184277 E. W. Tuck, 183905 E. V. K. Tucker, 183903 R. W. J. Tutton 183902, V. E. Tutton, 182123 R. G. Thorp, 183000 P. Toems, 184559 H. J. Van Graan, 108077 W. K. P. Van Der Spuy, 17776 R. De Verteuil, 10383 N. A. A. Van Buren, 178225 A. L. Wynne, 184560 T. W. Walters, 184562 K. P. Woolmore, 183907 H. T. Wood, 182183 J. B. Wood, 1094 W. R. Wakeford, 4805 B. N. Wainwright, 1144 J. D. Woolfe, 179181 A. G. Webster.

WAR OFFICE, June 7th.

The following is among the decorations awarded by the President of the French Republic to the British Forces for distinguished services rendered during the course of the campaign. The King has given unrestricted permission to wear the Decoration in question:—

ORDER OF NICHAN IFTIKHAR.

Officier.

Temp. Sec. Lt. J. G. Beckham, R.F.C.

AIR MINISTRY, June 10th.

R.A.F.—The following temp. appointments are made at the Air Ministry:—Air Secretary.—Lt.-Col. A. J. L. Scott, M.C., A.F.C., May 22nd, and to be actg. Col. while so empld.

Staff Officers, 3rd Cl. (P.).—Capt. S. Henderson, May 31st, vice Capt. E. V. Andreini.

Staff Officers, 4th Cl. (T.).—Sec. Lt. P. E. Stubbs, April 1st, 1918, and to be actg. Lt. till April 30th.

The following temp. appointments are made:—Staff Officers 1st Cl. (G.).—Lt.-Col. F. H. Kirby, V.C., O.B.E., D.C.M., May 1st, relinquishing the appt. of Group Commander.

Staff Officers, 3rd Cl. (P.).—Lt. (actg. Capt.) T. Gibson, April 10th, and to retain the actg. rank of Capt. until April 30th. (T.).—Sec. Lt. (Hon. Lt.) G. A. Tilly, Feb. 9th, and to be actg. Capt. until April 30th, vice Sec. Lt. (actg. Capt.) A. B. Staples (substituted for the notification concerning this officer which appeared in "Gazette," May 20th).

FLYING BRANCH.—Capt. T. R. Spence to be graded for purposes of pay and allowances of Maj. (K.B.) whilst empld. as Maj., May 1st.

Capt. S. E. Taylor, D.S.C., to be graded for purposes of pay and allowances as Lt. (A'ship), May 1st.

Lt. (actg. Capt.) E. Burney, M.C., to be Lt. (A.), from (S.O.), April 9th, and to retain the actg. rank of Capt. whilst empld. as Capt. (A.), till April 30th (substituted for notification in "Gazette," April 29th).

Sec. Lt. R. P. Bourne to be Lt., May 4th.

Sec. Lt. G. J. Gawthorne, D.S.M., to be Sec. Lt. (K.B.), from (T.), and to be actg. Lt. whilst empld. as Lt. (K.B.) from June 30th, 1918, to April 30th (substituted for notifications concerning this officer which appeared in "Gazette," Nov. 8th, 1918, and March 14th).

A. Drummond (temp. Sec. Lt., Rif. Bde.) is granted a temp. commn. as Sec. Lt. (A.), Oct. 29th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. C. J. B. Fox (Sec. Lt., D.L.I.), July 13th, 1918; Lt. H. L. C. Aked (Lt., W. Yorks. R.), Jan. 27th; Sec. Lt. (actg. Capt.) V. M. Lavery (Capt., Can. Engrs.), Sec. Lt. T. A. Spradbury (Sec. Lt., R. Warwicks. R.), Feb. 4th; Capt. J. Clisdal, M.C. (Capt., Spec. List), April 30th; Lt. H. V. Acland (Lt., Brit. Columbia R.), May 20th; Lt. M. F. Farquharson-Roberts (Lt., R.A.S.C.), Sec. Lt. J. B. Martin (Lt., Brit. Columbia R.), May 27th.

Transferred to unempld. list:—Lt. G. R. McIntyre, Jan. 23rd; Lt. W. E. Macpherson, D.F.C., Feb. 8th; Sec. Lt. W. T. S. Cairns, Feb. 15th (substituted for notification in "Gazette," March 28th); Sec. Lt. D. H. Cameron (H.L.I., T.F.), Feb. 22nd; Sec. Lt. L. H. Rice, Feb. 28th; Capt. A. R. Johnston, March 15th; Lt. E. E. Ballough, Sec. Lt. R. M. Craigmyle, Sec. Lt. H. C. Graham, April 1st; Lt. C. Leven, April 11th; Sec. Lt. G. M. Hughey, April 13th; Lt. (actg. Capt.) G. E. Gibbons, M.C., D.F.C., April 15th; Sec. Lt. F. I. Baughart, Sec. Lt. W. D. Bryan, Sec. Lt. J. M. Byrne, April 19th; Lt. W. C. Harveyson, April 20th; Lt. C. C. Casewell, Capt. J. Palethorpe, M.C., A.F.C., May 1st; Lt. C. Flavell (Mon. R., T.F.), May 2nd; Sec. Lt. A. Burns, May 3rd (substituted for notification in "Gazette," May 16th); Sec. Lt. A. McL. Mooney (substituted for notification in "Gazette," May 30th), May 4th; Sec. Lt. F. V. Henderson, May 7th; Sec. Lt. J. W. Haig, May 8th; Capt. F. V. Branford, May 9th; Lt. E. W. Fletcher, D.F.C. (Essex R., T.F.), May 10th; Lt. A. Y. Moncrieff, May 11th; Sec. Lt. W. F. Hedley, Lt. A. S. Panworth, May 14th; Sec. Lt. A. G. Hilton, Lt. H. J. Paine, May 15th; Lt. A. B. Dees (R.W. Surr. R.), May 16th; Lt. E. S. Dowdall (Lond. R.,

T.F.), May 17th; Sec. Lt. A. S. Hunt, May 18th; Sec. Lt. J. D. Coates, May 19th; Sec. Lt. H. H. Harvey, May 20th, Capt. J. T. Collier. Lt. A. O. Greeves, Sec. Lt. P. Robinson, May 21st; Sec. Lt. E. Turnbull, R.F.A., May 22nd; Sec. Lt. A. P. Besley, Lt. T. D. Cole, Lt. L. E. G. Hawkins, Sec. Lt. W. B. Henderson, Lt. J. A. H. Seyres, Lt. A. T. K. Shipwright, Sec. Lt. T. Stroud, Lt. C. A. J. Thompson (Ches. R.), May 23rd; Lt. F. E. Bond, Sec. Lt. A. G. E. Briggs, Sec. Lt. L. J. Dennis, Sec. Lt. A. S. Fussell, May 24th; Sec. Lt. A. E. Cuthbert, May 25th; Sec. Lt. K. W. J. Oldbridge, Sec. Lt. H. B. V. Vaughan-Evans, May 27th; Lt. W. M. Foster, Sec. Lt. A. L. Mawer, Lt. P. H. O'Lieff, Sec. Lt. W. V. Pearce, Lt. C. R. Selman, May 28th; Sec. Lt. F. W. A. Dawkins, Sec. Lt. A. H. Greatrex, Lt. D. H. Oliver, M.C., May 29th; Capt. A. H. Chandler, May 31st; Sec. Lt. F. T. West, June 2nd; Lt. H. E. Duncan, June 3rd; Lt. R. B. Wainwright, June 4th; Sec. Lt. R. Darby, June 5th, Lt. J. G. Aronson, Sec. Lt. D. A. Stenhouse, June 6th (substituted for notification in "Gazette," March 18th); Sec. Lt. H. G. Penwarden, June 7th; Sec. Lt. S. R. Austin, June 10th; Lt. A. K. Prentice relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., April 30th (substituted for notification in "Gazette," Jan. 7th).

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—G. J. Ellesmere (contracted on active service), May 20th; T. H. A. Vivers, May 21st; C. G. F. Carver, E. Conning, W. Hodder, May 30th.

The Christian name of Sec. Lt. John Sellars is as now described, and not as stated in "Gazette," May 28th.

The notification in "Gazette," March 11th, concerning Sec. Lt. G. M. Hughey is cancelled.

The notification in "Gazette," May 23rd, concerning Lt. J. O. Chantler is cancelled.

The notification in "Gazette," May 30th, concerning Sec. Lt. K. C. Whitwell is cancelled

ADMINISTRATIVE BRANCH.—Capt. T. L. Stevens to be actg. Maj. whilst emplds., as Maj., from April 14th to 30th.

Sec. Lts. to be Sec. Lts., from (A.) :—C. R. Roushorne, May 9th; G. E. Watson, May 12th.

Sec. Lts. to be Sec. Lts., from (O.) :—H. T. Ecob, May 8th; R. W. Silk, May 12th.

Sec. Lt. R. C. E. Vernede to be Sec. Lt., from (K.B.), April 17th.

The following relinquish their commns. on ceasing to be empld. :—Lt. (Hon. Capt.) (actg. Capt.) D. A. G. Dallas (Capt., Ind. Army), Feb. 1st; Sec. Lt. (actg. Lt.) C. G. Campbell, Feb. 21st; Sec. Lt. T. A. P. Proctor (Sec. Lt., R. Welsh Fus.), April 20th; Lt. J. A. S. Trydell (Lt. K.O.Y.L.I.), May 28th; Lt. M. G. Sykes, May 29th.

Transferred to unempld. list :—Lt. B. M. Machin, Feb. 11th; Sec. Lt. C. H. Dawson, April 10th; Sec. Lt. (actg. Lt.) S. S. Vanderhook, April 14th; Sec. Lt. D. A. Henning, April 16th; Sec. Lt. (Hon. Lt.) A. V. Collins., April 26th; Sec. Lt. A. L. Quarterman-Gear, April 30th; Lt. S. A. Young, May 6th; Sec. Lt. H. B. Walker, May 6th; Lt. C. W. Winwood-Smith, May 14th; Maj. H. L. Webb, May 15th; Sec. Lt. D. Craig, Lt. H. Rowbotham, May 20th; Sec. Lt. H. F. Broadribb, Lt. A. H. Tapper, May 21st; Sec. Lt. W. Seddon, May 23rd; Sec. Lt. A. MacKinnon, May 26th; Sec. Lt. F. W. Musgrave, Sec. Lt. E. Staples (Lincs. R., T.F.), Sec. Lt. R. C. Sugars, May 28th; Lt. E. D. S. Groome, May 29th; Lt. H. A. Birks, June 3rd.

Capt. G. R. Page (Lond. R., T.F.) relinquishes his commn. on account of ill-health caused by wounds, May 16th.

Lt. J. S. Bowler relinquishes his commn. on account of ill-health, and is granted the rank of Capt., May 30th.

Sec. Lt. J. Jaffray (Gord. High.) relinquishes his commn on account of ill-health contracted on active service, and is permitted to retain his rank, May 27th.

Sec. Lt. G. A. Beith is removed the Service, his Majesty having no further occasion for his services as an officer, May 17th (substituted for notification in "Gazette," May 16th).

The notification in "Gazette," April 11th, concerning Lt. F. W. Dogherty is cancelled.

The notification in "Gazette," May 13th, concerning Lt. S. H. H. Heaver is cancelled.

TECHNICAL BRANCH.—Capt. B. Thomson to be Capt., Grade (A.), from Grade (B.), March 10th.

Lt. F. N. Trinder to be Lt., Grade (A), from Grade (B), Nov 1st, 1918.

Lt. E. Porter, D.C.M., to be Lt., Grade (B), from (Ad.), May 29th.

Sec. Lts. to be Lts., without pay and allowances of that rank :—W. E. Westwood, Feb. 19th; R. J. Costigan, Feb. 26th, B. A. Gunner, April 2nd.

Sec. Lts. to be Sec. Lts., Grade (A), from (A.) :—E. Barker, March 1st; W. C. Garner, April 23rd.

Sec. Lt. T. E. H. P. Kennedy to be Sec. Lt., Grade (A), from (A. and S.), Feb. 22nd.

Capt. F. R. Hardie (Lt., 3rd Hussars) relinquishes his commn. on ceasing to be empld., May 28th

Transferred to unempld. list :—Lt. F. E. Cooper, Feb. 2nd; Sec. Lt. (Hon. Lt.) A. Hunnings, Feb. 11th; Sec. Lt. (actg. Lt.) C. E. Ebbutt, Sec. Lt. (actg. Lt.) H. F. West, April 14th; Sec. Lt. (actg. Lt.) S. E. W. Taylor, April 19th; Capt. C. N. Hutt, April 26th; Lt. (Hon. Maj.) E. D. Maddick, O.B.E., April 30th; Capt. R. T. Vernon, May 2nd; Lt. N. C. Watt, May 4th; Lt. W. T. W. Wartnaby, May 6th; Capt. J. G. Wilson, May 10th; Lt. J. A. Woods, May 15th; Sec. Lt. H. C. Blachford, May 20th; Lt. L. C. H. Cave, May 21st; Sec. Lt. (Hon. Lt.) A. H. Francis (R. Sussex R.), Lt. W. Randell (Middx. R., T.F.), May 22nd; Sec. Lt. R. C. Bookless, Sec. Lt. E. Redpath, May 24th; Lt. D. Greenwood, May 25th; Lt. C. A. Stevenson, May 26th; Lt. A. W. Sutton (D.L.I., T.F.), May 27th; Sec. Lt. A. L. Parry, Lt.-Col. L. Sadler, Maj. T. F. G. Strubell, May 28th; Capt. B. Thomson, May 29th; Capt. W. C. A. Meade, May 31st.

Sec. Lt. B. E. D. Pratt relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Lt., May 30th.

The rank of Capt. L. Crooks is as now described and not as in "Gazette," May 27th.

MEDICAL BRANCH.—C. T. O'Neill is granted a temp. commn. as Lt., June 2nd.

CHAPLAINS BRANCH.—The Rev. J. W. G. Pearse is transferred to unempld. list, May 27th

MEMORANDA.—The following Overseas Cdts. are granted temp. commns. as Sec. Lts. :—154924 J. L. Armstrong, 182171 G. S. C. Airey, 3327 A. G. Arthur, 178104 A. E. Austen, 184508 H. T. Baker, 182140 A. S. Brown, 177683 W. H. Bushe, 264511, T. L. Boney, 171004 P. M. Bealor, 178456 R. M. Black, 184792 F. J. Booth, 183983 C. V. Brain, 182765 C. Barton, 6515 V. J. Back, 540470 E. Boucher, 6039 B. Bryan, 184251 A. Berry, 182282 R. V. Campbell, 872 J. R. Caldwell, 1151 H. Cannard, 184151 J. Cavill, 1102 W. T. Calley, 316050 J. H. Cahttaway, 10643 J. W. Cromrton, 137211 A. W. Crisp, 182140 E. Ciotzer, 184005 T. N. Clarke, 254251 F. B. Campbell, 1708 B. J. Carnegie, 128101 A. W. Clark, 64061 A. E. Curtois, 183092 C. F. Campbell, 606 J. A. Clarke, 5647 J. N. Cartier, 12564 E. Crowther, 316237 C. E. Cutress, 183093 A. O. Curry, 182153 J. D. Dodsfield, 182228 A. Dickson, 182134 H. H. Denton, 316748 H. E. A. Davey, 565 R. W. Douglas, 254522 V. O. De Costa, 182187 G. H. Dodd, 1405 F. B. Dawson, 183846 G. Dixon, 205065 E. Dircks, 183107 R. S. Elworthy, 6511 C. D. Egan, 110099 S. B. Escourt, 1617 E. W. Eyles, 128243 A. H. Field, 184504 W. Fisher, 339447 G. B. Finlay, 739822 A. K. Fleming, 182244 H. G. Gain, 225238 M. Galgut, 201748 B. E. Grieve, 5775 R. J. Grimsdell, M2/102284 M. Gray, 12276 E. G. Gamble, 4826 C. R. Green, 1999 E. G. Greaves, 137321 E. Gordon-Davis, 121167 W. C. Haslewood, 15345 G. T. Harvey, 6309 L. W. Healey, 3460 G. J. Horton, 154642 B. H. Howland, 8068 A. E. Hughes, 182595 W. A. Hopkins, 183359 A. L. Henderson, 9339 C. A. Hillary, 183859 F. H. Harford, 184516 S. R. Harrison, 170152 F. Hazlett, 176241 G. F. Hall, 6310 L. H. Hammond, F45628 H. Hughes, R23103 C. W. Hirschbeig, 15409 C. P. Hirst, 2005039 W. M. Jackson, 8702 F. A. Jacka, 107651 H. H. John, 6028 J. G. Jurgenson, 172155 L. J. Kaufman, 184524 L. J. Kerr, 316547 E. Kindberg, 172084 C. E. Kitching, 182191 B. V. Lambert, 14251 F. Lamport, 81209 P. E. Livingstone, 9693 H. C. Lindsell, 183653 L. P. Lyne, 1247 G. M. Little, 4385 J. R. Lloyd, 1620 G. S. Lownds, 176577 L. A. Magennis, 182702 H. W. Marchant, 180378 E. F. Moffatt, 184369 E. R. Miller, 182114 L. H. Maytham, 183887 J. L. Munro, 184268 P. H. Mellet, 184540 G. R. Muller, 182216 B. Meth, 182113 J. Mansfeld, 176724 S. B. Muller, 183128 W. C. Mitchell, 182264 V. V. Melville, 182115 E. G. Murray, 182144 A. Michelsohn, 182292 A. S. Manchip, 184271 D. J. Muir, 182267 A. H. Marsh, 182215 E. L. Melville, 182293 A. Martin, 182250 E. D. Moses, 182265 A. E. Marshall, 182266 B. S. Mannion, 182599 M. A. Manhire, 182291 A. E. Manchip, 183886 T. W. Mills, 182236 M. D. Miller, 182600 G. A. Morse, 2898 H. B. Moreton, 114553 C. R. Morrison, 327889 W. R. Mott, 407 A. G. Moodie, 182295 W. B. Mills, 181864 C. S. Milne, 184345 L. E. Maher, 184541 R. C. Musson, 184538 C. B. Miles, 316375 A. G. Muir, 182091 P. L. Morris, 208 J. F. Maberley, 180499 C. L. Melbye, 1539 J. H. Mitchell, 4827 J. N. Morrison, 184580 C. Mortimer, 183865 R. V. Mansfield, 48322 F. Merrifield, 2900 G. S. Mathie, 184476 J. E. McCarthy, 18388 A. McDonald, 182214 F. A. McKay, 182276 C. McAninch, 9276 W. McLoughlin, 184532 J. V. McNevin, 184532 J. A. McLean, 184267 J. Mackintosh, 11054 R. M. McLaren, 182008 J. B. McCullock, 179492 H. W. McFarlane, 376339 F. W. McCrea, 475274 F. B. McMaster, 182601 A. E. W. McDonald, 183864 J. W. Macaskill, 184531 H. C. McCallum 182251 C. H. McLear, 182602 A. F. McArthur, 184530 W. H. McKenzie, 184533 G. G. A. McHardy, 184534 K. M. McLennan, 137812 H. W. McLeod, R./4029 C. W. McGeady, 1785 S. C. McKenzie, Z.138 L. S. McLean, 184272 C. N. Norton, 14551 E. W. Naude, 657236 A. P. Nicholson, 195523 B. S. Ottley, 182217 H. H. Oldfield, 184273 E. P. Oertal, 180584 E. A. O'Connor, 153890 E. C. Polkinghorne, 182093 F. S. Purchase, 183225 A. V. Pickering, 1706 L. Perringuey, 8920 H. W. Page, 184238 M. F. Perry, 176801 L. Pryce, 1044 R. W. Patterson, 184546 A. M. Porter, 184794 O. D. B. L. Perrin, 176594 L. D. Penny, 430190 W. W. Pettigrew, 182277 G. P. Pinney, 179494 A. C. Parson, 2122 W. S. Potter, Z261 L. J. Pare, 182254 A. O. Roberts, 182720 R. B. Reynolds, 184744 J. Ross, 22522 A. Rogers, 154702 W. B. Reid, 182270 A. W. Ridgway, X571 C. E. Ralph, 132622 S. W. Shaw, 178213 M. S. Steyn, 182098 E. P. Stanfield, Z208 F. G. Swords, Z207 S. Sides, 513093 F. C. Simpson, 154437 H. L. Stone, 767457 F. G. Sharp, X293 M. A. Smuts, 181208 F. C. Steinhobel, 183896 J. J. Sandiland, 182220 B. A. E. Shaffner, 316708 J. J. Stewart-Malir, 184550 J. Sharp, 3204 M. A. Smith, 781263 R. C. Smyth, 879 M. V. Smith, X307 A. W. Southern, 4725 L. J. Seddon, 6714 E. H. Surgeson, 184532 A. V. Sheldon, 182004 P. L. Tatham, 184556 L. H. S. Trow, 182103 L. Thompson, 537 F. W. Tilbrook, 2108 C. E. Tebbott, 184558 J. E. Tomlinson, 175158 E. P. Troughton. 182256 R. Tate, 10253 W. P. Tudhope, 568 J. Trudgeon, 436248 F. A. Urquhart, 170178 A. B. Van Niekirk, 182230 D. J. Vorstet, 183906 C. H. W. Vos, 183863 J. Van Rensberg, 183859 G. Vernon-Harcourt, 182124 H. E. Waters, 182205 A. R. Wolmarons, 182105 A. Wevell, 171641 H. F. White, 6605 D. Warman, 685 G. G. Wood, 179397 A. B. Willis, 1620 G. K. Weakley, 154690 J. L. Warner, 181867 O. E. G. Whatley, 176617 G. L. Webster, 179496 E. D. Williams, 3723 F. Wallis, 1146 W. H. Wood, Feb. 15th.

Capt. M. McK. Wood, O.B.E., is transferred to unempld. list, from (S.O.), May 6th.

The names and numbers of the following Overseas Cdts. are as now described, and not as stated in "Gazette," May 2nd :—137885 C. W. Abrams, 177137 W. B. C. Alderman, 183876 T. D. Andrews, 181874 J. E. Andresen, 184741 C. C. N. Andrews, 6606 J. J. Allan, 176451 C. J. R. Ashfield, 1287 L. H. Austen, 12509 C. F. Anderson, 184248 F. J. Basson 182833 A. W. Bramwell, 182280 A. K. H. Brooks, 181868 K. T. Barr, 181855 D. L. Bradfield, 184126 A. A. Boon, 179473 W. B. Brown, 183974 J. Bothwell, 184497 J. J. Boulle, 178295 G. Burrus, 182283 W. E. Caisey, 179718 F. H. Collins, 176462 N. A. Couper, 137905 J. M. Coen, 184233 R. S. Cunliffe, 184498 D. L. Cheshire, 18356 M. E. Coombes, 183857 K. Cumming. 325 H. Chandler, 184252 M. N. Campkin, 183854 P. McL. Churcher, 182152 M. P. Croxford, 182132 E. E. Crose, 18725 D. T. Cochrane, 181870 E. J. Davies, 182259 T. L. Drost, 176471 C. H. Dreyer, 183605 J. M. Deenik, 182141 H. W. Donovan, 184254 J. F. Dykman, 182088 A. S. Downham, 182206 H. A. Davis, 183858 C. S. Erswell, 176514 E. C. Elliott, 176480 R. H. Elliott-Troy, 181869 F. D. Edwards, 172138 S. A. Fish, 184257 W. V. M. Fowler, 182173 D. F. Francis, 184256 L. W. Frewen, 176520 K. R. Fiddian-Green, 18187 F. R. Gray, 182288 P. D. Grant, 179468 A. V. Gladstone, 182230 A. L. Gillespie, 184510 V. C. Gowlett, 182209 S. J. Grinstead, 4738 R. Greener, 184508 L. P. Grey, 184513 C. V. Groom, 182592 S. A. C. Gallichan, 184509 N. R. Gilbert, 184260 D. H. Haikney, 184181 D. F. Hall, 182246 W. V. J. Hendry, 182219 H. N. Hart, 183861 W. N. Hulet, 184516 R. Harrison, 182211 V. D Hurd, 181872 S. R. J. Heard, 182090 L. R. Hooper, 182594 R. H. D. Hall, 184518 T. W. Hartwell, 184519 R. Hesom, 176545 A. O. Hassall, 184703 P. E. B. Halliwell, 182212 H. Jones, 182232 D. J. King, 1586 P. T. Koch, 182248 R. O Kenmuir, 183884 H. Le Roux, 182112 N. J. Lotz, 182182 J. S. Lister, 182110 C. A. Leeson, 184526 C. E. G. Laver, 175763 W. S. Mills, 181866 W. J. Plaistowe, 170405 J. V. Richards, 181769 E. L. Rose, 180310 A. T. Tasker, 1293 J. W. Wilson, 184131 W. W. Withell.

The names and numbers of the following Overseas Cadets are as now described, and not as stated in "Gazette," May 6th :—154733 D. Anderson, 125806 A. Bullard, 171023 H. L. Chisholm, 170487 W. Coles, 128247 J. Carmichael, 177776 R. De Verteuil, 178163 C. J. Du Toit, 137937 C. W. A. Doherty, 178166 H. M. Edwards, 176528 E. B. A. Gilson, 740 J. G. Goff, 175123 J. W. Gav, 179400 J. H. N. Keith, 182262 S. G. Livingstone, 926 B. C. Lyttel, 178091 U. P. A. Lawrenson, 176561 H. G. Lovell 182267 A. H. Marsh, 184537 F. J. Martin, 184535 C. B. Marshall, 182236 M. D. Miller, 176564 C. E. Mowat, 184542 B. I. C. Norton, 182193 T. H. Nel, 117911 E. D. O'Connor, 179167 B. L. Orr, 182194 S. H. Oertel, 137010 G. Olive, 183287 A. T. Povall, 182196 C. F. Palvie, 182218 W. G. Paul 182236 J. M. Patrick, 183888 G. G. Parkin, 181865 W. V. Peacock, 180803 E. J. Pett, 176517 J. Quinn, 182166 E. J. Rocher, 183893 J. A. Rautenbach, 183607 R. K. Ross, 182179 S. E. Rosebrook, 316611 L. B. Rothman, 178207 H. Rothstein, 182210 R. B. P. Randall, 184540 V. W. Ryley, 176662 E. G. Raw, 183895 W. G. Stafford, 182188 A. P. R. Sinclair, 80 E. M. Schmidt, 179173 L. Sherriff, 184554 G. G. Southgate, 182002 L. D. A. Seeligsohn, 182120 H. W. Stevenson, 137046 V. C. Shepherd, 110125 F. B. Shepherd, 183902 V. E. J. Tutton, 184277 B. W. Tuck, 171753 F. J. Thring, 183901 D. W. M. Thorrold, 182160 V. Valantyne, 10585 N. A. A. Van Buuren, 178225 A. L. Wynne, 184278 C. S. Way, 11411 L. D. Woolfe, 150181 A. G. Webster, 182225 T. G. Wood, 1034 W. R. Wakeford, 4605 B. N. Wainwright.

ADMIRALTY, June 11th.

The King has been pleased to give orders for the following appointments in recognition of the valuable services of the following officers during the war :—

ORDER OF THE BRITISH EMPIRE.

C.B.E. (Military Division).

Engr Capt. Robert Boles Garde, R.N.—Services as Engineer Overseer at the works of Messrs J. S. White and Co., and at Sunderland.

O.B.E. (Military Division).

Lt.-Comdr. Leslie Charles Bott, R.N.—Services as Navigating Officer of H.M.S. "Furious."

AIR MINISTRY, June 13th.

R.A.F.—The following temp appointment is made at the Air Ministry:—Staff Officer, 1st Cl.—(Air.).—Maj. F. K. Haskins, D.S.O., May 20th, and to be actg. Lt.-Col. whilst so empld.

The following temp. appointments are made:—Staff Officers, 3rd Cl.—(Air.).—Lt. (actg. Capt.) J. H. Truscott, Feb. 11th, and to retain actg. rank of Capt. till April 30th. (v.).—Capt. A. Smith, June 10th, 1918.

Staff Officer, 4th Cl.—(Air.)—Lt. A. V. Burbury, M.C., May 27th.

FLYING BRANCH.—Capt. W. G. Pigott to be graded for purposes of pay and allowances of Maj. (K.B.) whilst empld. as Maj., May 1st

Lts. to be graded for purposes of pay and allowances of Capts. whilst empld. as Capts.:—C. Chrimes (A. and S.), H. Copley (K.B.), May 1st.

Sec. Lt. G. Roberts (late Gen. List., R.F.C., on prob.) is confirmed in rank as Sec. Lt. (A.), July 7th, 1918 (substituted for notification in "Gazette," Nov. 26th, 1918).

G. M. Angier (Lt., R. Suss. R., T.F.) is granted a temp. commn. as Sec. Lt. (A.), Nov. 6th, 1918, and to be Hon. Lt.

A. Cox (Lt., R.W. Fus.) is granted a temp. commn. as Sec. Lt. (O.), Sept. 11th, 1918, and to be Hon. Lt.

Flight Cdt. B. Loutitt is granted a temp. commn. as Sec. Lt. (A. and S.), Aug. 28th, 1918 (substituted for notification in "Gazette," Sept. 10th, 1918).

The following relinquish their commns. on ceasing to be empld.:—Lt.-Col. J. W. Seddon (Lt.-Commdr., R.N.), June 15th, 1918; Sec. Lt. E. R. A. Biggs (H.L.I.), Aug. 10th, 1918; Sec. Lt. L. W. Hopkins, (Capt., E. Ont. R.), Nov. 18th, 1918; Lt. R. G. Smith (Lt., Manitoba R.), Dec. 9th, 1918; Sec. Lt. G. Hill (North'd Fus.), March 27th; Lt. H. H. Cotton (Lt., actg. Capt., Quebec R.), March 28th; Lt. H. V. Brisbin (Lt., 1st Cent. Ont. R.), April 24th; Lt.-Col. R. B. Davies, V.C., D.S.O. (Lt.-Commdr., R.N.), May 7th; Sec. Lt. (Hon. Lt.) C. R. Fraser (Lt., Can. Engrs.), May 12th; Sec. Lt. (Hon. Lt.) A. A. Creswell (Lt., Sask. R.); Lt. A. C. Holmes (Lt., Newfoundland R.), May 21st; Maj. R. C. Hayes, O.B.E. (Lt.-Commdr., R.N.), May 30th; Lt. J. K. Parker (Lt., R. Scots Fus.), June 14th.

Transferred to unempld. list:—Sec. Lt. A. T. Bower, Jan. 28th; Sec. Lt. P. E. Youngs, Feb. 2nd; Sec. Lt. R. C. Macaulay, Feb. 5th; Lt. N. R. Harben, D.F.C., Feb. 14th; (substituted for notification in "Gazette," March 25th); Sec. Lt. H. C. W. Smith, Feb. 15th, Sec. Lt. T. C. Blencowe, Feb. 28th; Lt. E. G. Rumfitt, March 12th, Sec. Lt. (Hon. Capt.) E. E. C. Wilcocks, March 13th; Sec. Lt. C. C. Creighton, March 15th; Lt. G. A. C. Manley, March 16th; Sec. Lt. R. Hugo, Sec. Lt. C. A. Schiller, April 1st; Lt. J. Whitehead, April 4th; Sec. Lt. R. Woodhead, April 9th; Lt. (Hon. Capt.) (actg. Capt.) H. N. Whitting, April 11th; Sec. Lt. G. P. Woods, Lt. H. St. J. E. Youens, April 12th; Sec. Lt. L. T. Armstrong, Lt. S. P. Kerr, April 13th; Sec. Lt. J. H. Damon, Sec. Lt. (Hon. Capt.) H. B. Wilson, D.F.C., April 14th; Lt. J. Oliver (Lord R.), Lt. H. S. Scott (W. Yorks. R., T.F.), Sec. Lt. C. Watkins, April 15th; Lt. E. A. Latter, April 16th; Sec. Lt. E. B. Hyndman, Lt. E. G. Lunn, Lt. C. E. Woohhams, April 17th; Sec. Lt. R. G. Hilton, April 18th; Sec. Lt. J. McL. Campbell, April 19th; Lt. F. L. Willis, April 22nd; Sec. Lt. A. H. Hill, Lt. O. M. Hills, Lt. J. G. Lovelace, Lt. F. Y. Smith, April 23rd; Sec. Lt. H. G. B. Lovatt, April 25th; Capt. E. G. Hutton, Sec. Lt. L. B. Irish, Capt. J. Palethorpe, M.C., A.F.C., Sec. Lt. C. Reilly, May 1st; Lt. N. M. Irvine, Sec. Lt. A. E. Loveday, Sec. Lt. F. L. Wraight, May 2nd; Sec. Lt. L. A. Stammer, Lt. F. C. Yandell, May 3rd; Sec. Lt. T. B. Lamble, May 4th; Lt. J. S. Robson, May 5th; Sec. Lt. A. Iredale, Sec. Lt. A. H. Walton, Sec. Lt. B. McL. Williams, May 6th; Sec. Lt. N. M. Ireland, May 7th; Sec. Lt. L. Darche, Sec. Lt. V. R. Scheich, May 8th; Lt. J. S. Mackenzie, Capt. H. R. De Wilde, Sec. Lt. A. H. Watters, D.F.C., May 10th; Sec. Lt. A. S. Farquhar, May 11th (substituted for notification in "Gazette," May 13th); Capt. M. W. Wilson, Sec. Lt. P. L. Watney, Sec. Lt. F. E. Winter, Lt. H. G. Yearsley, Lt. G. N. Wilton, May 12th; Sec. Lt. C. Volk, May 13th; Capt. G. G. Hubbard, Lt. J. B. Weiss, May 14th; Sec. Lt. C. G. Hitchcock, May 15th; Lt. L. Allden (London R., T.F.), Lt. F. E. Short, May 16th; Sec. Lt. J. W. McKinty, Lt. F. A. Laughlin, D.F.C., May 18th; Maj. R. H. Carr, A.F.C., D.C.M., Sec. Lt. H. D. Lane, Sec. Lt. M. F. Poulter, Sec. Lt. B. Rogers, May 19th; Sec. Lt. O. W. Clarke, Sec. Lt. H. M. Brettell, Sec. Lt. F. Eppinger (substituted for notification in "Gazette," May 23rd); Sec. Lt. M. B. Lacey, Sec. Lt. A. P. Leslie, Sec. Lt. W. Shaw, Sec. Lt. H. Shone, Sec. Lt. H. W. Spencer, May 20th; Sec. Lt. P. Addison, Sec. Lt. N. R. McKinlay, May 21st; Sec. Lt. P. F. Fenner, May 22nd; Lt. A. N. Appleford, Sec. Lt. R. S. Auden, Lt. J. Faulkner, Lt. S. E. C. Lamb, May 23rd; Lt. D. C. W. Sanders, May 24th; Sec. Lt. W. L. Andrews, Lt. W. D. Blatch (Derby Yeo., T.F.), May 25th; Sec. Lt. M. Corcos, May 27th; Lt. W. A. Hemmings, May 28th; Sec. Lt. J. L. Fisher, Sec. Lt. R. T. Gray, Capt. S. A. Meller, May 31st; Lt. C. K. M. Douglas, A.F.C., Sec. Lt. G. Martin, Lt. N. J. Parkhurst, June 1st; Sec. Lt. P. J. A. Fleming, June 3rd; Sec. Lt. J. R. A. Farfan, June 9th; Lt. R. S. Davey, June 10th; Lt. J. Angus, Capt. T. R. Irons, June 11th; Lt. W. S. Grace, Lt. F. R. C. Hewitt, June 12th; Sec. Lt. A. S. J. Davies, Sec. Lt. C. G. Goldsbury, June 13th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—S. V. R. Lewis (caused by wounds), April 24th; J. W. Lockhart (caused by wounds), May 9th; F. L. Gall, May 20th (substituted for notification in "Gazette," Jan. 24th); A. H. Gitsham (contracted on active service), May 30th; K. J. Isaac (caused by wounds), May 31st; R. J. G. Stewart (contracted on active service), June 4th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—L. L. De Jean, May 31st; W. P. Small, June 4th.

Sec. Lt. R. R. Truscott relinquishes his commn., being physically unsuited for the duties of pilot or observer, Jan. 6th (substituted for notification in "Gazette," Nov. 5th, 1918).

The notification in "Gazette," April 11th, concerning Lt. L. G. Bullock is cancelled.

The notification in "Gazette," May 9th, concerning Lt. F. H. Prime is cancelled.

ADMINISTRATIVE BRANCH.—T. Gibson (temp. Lt., Dorset R.) is granted a temp. commn. as Lt., and to be actg. Capt while empld. as Capt., from Jan. 14th to April 30th.

Lt. N. F. Bardell to be Lt., from (K.B.) and to be graded for purposes of pay and allowances of Capt. whilst empld. as Capt., May 1st.

Sec. Lts. to be graded for purposes of pay and allowances of Capts. while empld. as Capts.:—H. Gambier, May 1st; (Hon. Capt.) A. N. Wyatt, May 30th.

The following relinquish their commns. on ceasing to be empld.:—Lt. K. Owen (Lt., E. Lancs. R.), Feb. 21st; Lt. M. O'Loughlin (Lt., Conn. Rangers, Spec. Res.), May 29th.

Transferred to unempld. list:—Sec. Lt. C. J. V. Bowles, Feb. 28th; Lt. A. H. Cocking, March 12th; Lt. H. I. Pole, April 7th; Sec. Lt. H. W. Hills, April 12th; Sec. Lt. L. J. W. Ingram, April 15th; Sec. Lt. C. A. Henshaw, Sec. Lt. R. Sharples, April 16th; Sec. Lt. L. H. Simmons, April 17th; Lt. K. F. Hilder, April 20th. Lt. O. C. Skinner (16th Lancers, Spec. Res.), April 22nd; Lt. (actg. Capt.) S. E. Tidy (Army Cyclist Corps), April 23rd; Sec. Lt. S. W. Saunders, May 2nd, Capt. A. H. Hulton, May 9th; Lt. G. F. W. Brett (R. Fus.), Sec. Lt. T. Temple, May 21st; Sec. Lt. J. N. T. Spence, May 20th; Sec. Lt. T. Temple, May 21st; Sec. Lt. A. K. P. Ivey, May 22nd; Sec. Lt. E. A. J. Brown, May 23rd; Lt. (Hon. Capt.) H. W. Bunbury, May 26th; Lt. E. R. Ortner, May 30th.

Lt. (Hon. Capt.) G. J. Elliott relinquishes his commn. on account of ill-health, and is granted the rank of Capt., May 30th.

Lt. W. Nuttall relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, May 30th.

Sec. Lt. N. W. Seyler relinquishes his commn. on account of ill-health and is permitted to retain his rank, June 4th.

The notification in "Gazette," April 4th, concerning Lt. J. R. Fuller is cancelled

TECHNICAL BRANCH.—Capts. to be graded for purposes of pay and allowances of Majs., Grade (B), whilst empld. as Majs.:—F. W. Mansell, H. A. Whelen, May 1st.

Lt. R. B. Stephenson to be graded for purposes of pay and allowances of Maj., Grade (A) whilst empld. as Maj., May 1st (substituted for notification in "Gazette," May 27th).

To be graded for purposes of pay and allowances of Capts., Grade (A), whilst empld. as Capts.:—Lt. L. A. Hooper (substituted for notification in "Gazette," May 27th); Sec. Lt. D. M. Rees, May 1st.

To be graded for purposes of pay and allowances of Capts., Grade (B), whilst empld. as Capts.:—Lt. T. C. Penna, Sec. Lt. J. Sutherland, May 1st.

Sec. Lt. J. H. Furniss, O.B.E., to be Sec. Lt., Grade (B), from (Ad.), and to be graded for purposes of pay and allowances of Capt., Grade (B), whilst empld. as Capt., May 1st.

Lts. (O.) to be Lts.:—B. L. Blomley, July 27th, 1918 (substituted for notification in "Gazette," Aug. 30th, 1918); W. V. Hunt, Grade (B), Oct. 1st, 1918 (substituted for notification in "Gazette," June 6th).

Lt. H. T. Thompson to be Lt., Grade (A), from (S.O.), and to retain the actg. rank of Capt., from April 1st, 1918, to April 10th

Sec. Lt. (actg. Lt.) L. G. Bullock to be Lt., March 26th.

Sec. Lt. H. H. Weller to be actg. Lt. whilst empld. as Lt., Grade (A), from March 20th to April 30th.

Sec. Lt. J. Dale to be graded for purposes of pay and allowances as Lt. whilst empld. as Lt., Grade (A), May 1st.

Sec. Lt. W. W. Hammond to be Sec. Lt., Grade (B), from Grade (A), June 4th.

Sec. Lt. A. Shepheard (late Gen. List, R.F.C., on prob.)) is confirmed in rank as Sec. Lt., Grade (B), April 17th.

Sec. Lt. J. H. Stone to be Sec. Lt., Grade (A), from (Ad.), Nov. 13th, 1918.

Sec. Lt. E. C. G. Vines to be Sec. Lt., Grade (B), from (Ad.), Nov. 1st, 1918.

Sec. Lt. J. W. McKee (Sec. Lt., R.F.A.) relinquishes his commn. on ceasing to be empld., March 15th.

Transferred to unempld. list:—Capt. F. J. Colet, March 6th; Capt. C. R. Lymn, April 1st; Lt. G. B. Wilkins, April 4th; Sec. Lt. E. Whitmore, April 16th; Sec. Lt. G. F. W. Thomas, April 26th; Capt. G. Hindle, May 3rd; Sec. Lt. J. W. Fry, Sec. Lt. E. Hickman, May 5th; Sec. Lt. A. Potter, May 6th, Maj. C. R. Huggins, May 13th; Sec. Lt. S. H. Child, Sec. Lt. A. Isles, May 15th; Capt. F. de B. Collenette, May 16th; Lt. S. Wilson, May 20th; Sec. Lt. W. A. Huntley, May 22nd; Sec. Lt. A. Higham, May 23rd; Lt. E. A. Comeau, Lt. C. A. Drew, Sec. Lt. (Hon. Lt.) N. H. de Y. Heathcote, Sec. Lt. (Hon. Lt.) H. M. Over, May 28th.

Sec. Lt. L. V. Mackenzie relinquishes his commn. on account of ill-health contracted on active service, and is granted the rank of Lt., June 4th.

The initials of O. C. Lees are as now described, and not as stated in "Gazette," May 27th.

The surname of H. D. Staniar is as now described, and not as stated in "Gazette," May 27th.

The notification in "Gazette," March 28th, concerning Lt. (actg. Capt.) R. W. Mitchell is cancelled. The notification in "Gazette," April 8th, to stand.

MEDICAL BRANCH.—W. A. Malone (Capt., R.A.M.C., S.R.) is granted a temp. commn. as Capt., June 1st.

DENTAL BRANCH.—Lt. B. G. Kechnie is transferred to unempld. list, Feb. 5th.

CHAPLAIN'S BRANCH.—The Rev. W. P. Young, D.C.M. (R.A.C. Dept.), relinquishes his commn. on ceasing to be empld., June 14th.

MEMORANDA.—The following Overseas Cadets are granted temp. commns. as Sec. Lts.:—171603 G. R. Abraham, 79802 R. W. Anderson, 316087 R. R. Annett, 183669 A. G. Archer, 316236 W. D. Armstrong, 316081 M. L. Ashmore, 316064 R. G. Austin, 153566 R. J. Ayriss, 152627 J. Abraham, 453352 H. R. Aikens, 409220 F. L. Apps, 5305 W. S. H. Atkinson, 1208 A. E. Austin, 2393460 G. D. Adams, 316389 W. H. Barton, 154675 G. H. Barber, 1003309 H. R. Blackie, 73415 R. E. Banning, 171009 H. Barlow, 154893 R. Barrett, 171352 A. Bartlett, 172266 L. E. Bartlett, 172516 J. W. Baybutt, 172406 E. M. Beekman, 316029 J. S. Bell, 171824 W. Bergman, 171815 G. M. Bernier, 181508 A. R. Beverley-Giddins, 172034 W. Blackman, 522649 A. A. Botsford, 666307 J. P. Bourgeois, 868003 J. F. Bain, 126211 W. Barclay, 400405 J. Birkenhead, 316198 G. K. Boomer, 316367 G. O. G. Burnett, 150897 J. W. Brown, 172205 R. E. Brown. 512268 E. J. Bucknam, 171954 A. H. Burns, 6657 E. H. Butler, 183386 B. O. Browning, 316006 J. E. Briggs, 172007 N. K. Bowman, 781296 K. Buell, 12674 W. J. Burgess, 316320 F. B. Chauvin, 316241 E. E. Chowns, 171967 J. R. Coulson, 316253 R. J. Crane, 316292 J. R. Cruikshank, 172018 C. A. Campbell, 316101 G. Carlisle, 3429999 O. A. Carson, 310868 R. J. Carson, 153345 E. Charron, 2046 R. L. Chevrier, 153984 J. R. Clark, 316016 V. R. Clerihue, 184854 L. V. C. Coates, 316179 F. D. Collins, 173066 M. Connell, 171553 J. M. Cooper, 347451 A. T. Corner, 696577 W. A. Cory, 154715 H. S. Coulter, 316237 C. E. Cutress, 472336 G. G. Carr, 252476 W. R. Chester, 84020 S. M. Coutts, 137059 W. R. Cox, 1251617 A. J. M. Craig, 791227 A. F. Crowe, 154771 B. M. Collins, 316102 A. P. Cameron, 510393 A. Coldwell, 59153 W. Charles, 316139 G. A. Clark, 316269 A. V. Clarry, 316321 J. R. Christie, 411128 H. A. Craig, 316265 E. C. Dudley, 171983 C. C. Dryden, 92384 A. E. Dinsmore, 153273 J. E. Douglas, 304480 F. H. Duncan, 154306 F. W. Davis, 171929 J. Devereux, 316062 H. H. Dixon, 400732 R. B. Donald, 171542 J. C. Dornan, 316095 J. A. Downton, 524525 R. H. Duncan, 316382 C. W. Del Plaine, 687155 J. F. Dunfield, 310724 G. G. Duncan, 316282 H. Edwards, 316174 R. B. Earley, 316268 I. M. Eastwood, 172829 R. M. Edgar, 171456 C. Entwistle, 316238 R. L. Esmonde, 316293 W. W. Elliott, 2501106 N. F. Evans, 911873 R. L. Empey, 316354 R. H. Elgie, 110151 F. G. G. Ewart, 1977 M. S. Fellows, 649 W. I. Finlay 154749 F. W. Fairburn, 177974 H. M. Fergusson, 154712 G. F. Fisher, 171359 J. F. Flanagan, 316329 L. E. Fairburn, 92726 E. A. Ferguson, 316294 S. Field, 316370 F. V. Friend, 1261632 L. J. Foss, 316353 J. C. Forsyth, 316218 A. G. Galloway, 171602 S. L. Garvin, 183195 G. E. Green, 911769 A. C. Goodman, 79400 A. W. Griffin, 172099 G. B. Gordon, 14559 R. A. Gray, 787626 O. R. Gorman, 171728 R. M. Gray, 212487 F. V. Grimn, 171600 R. E. Guest, 207532 M. H. Gooch, 316221 A. Gillespie, 690063 G. N. Goodman, 153622 R. W. Grant, 776071 J. A. Green, 513494 A. G. Green, 21300 N. H. Grills, 171770 H. Gilker, 316220 T. D. Guernsey, 316039 E. Haynes, 171633 G. Higgs, 316390 C. Hollingham, 316303 S. Horne, 211254 R. D. Hoyt, 513207 S. E. Hill,

527894 E. R. Hooey, 316116 H. L. Huxtable, 171723 E. R. Heppa, 172415 C. H. Hall, 154760 R. S. Hamilton, 89515 R. S. Hardisty, 523621 R. M. Harwood, 316179 G. R. Heaman, 171730 H. E. Heath, 112151 D. Henderson, 316278 A. W. Heron, 070090 A. Hogg, 316344 A. F. Huff, 153772 R. J. Howard, 184107 N. W. S. Hunter, 2527 G. A. Heffernan, 116072 S. T. Harvey, 316234 W. L. Hastings, 316222 H. Hayward, 542174 T. W. Holtze, 75712 S. M. C. Honeyman, 172729 F. V. Hudon, 57020 R. Hulland, 153348 E. H. Hanbury, 18 R. S. Hallett, 172057 D. Hannesson, 316263 J. F. Hockey, 172511 K. C. Irving, 171781 R. Johnson, 110269 J. R. Jeffrey, 430271 S. Jones, 316383 W. C. Juniac, 192248 E. F. Jenkins, 154094 C. R. Johnson, 316017 L. A. Jordan, 316254 J. A. Johnson, 316019 E. A. Keeping, 316386 F. V. Keen, 171647 J. E. Kerr, 340805 S. G. Kulp, 154236 A. W. Kerridge, 1258006 L. D. Keating, 172353 A. E. Kerr, 50953 H. A. Kemp, 316384 T. W. Lawler, 6355 J. H. Lewis, 302930 A. C. Laing, 1261379 H. W. Lea, 171792 A. E. Long, 1225 W. C. Lowe, 316245 R. Laing, 348860 C. D. Law, 266 A. G. Lorraine, 316235 J. Lowe, 769132 G. V. Lowrie, 316233 J. G. Lyons, 502497 J. P. Lafremboise, 316330 D. L. Ludgate, 318994 S. MacDonald, 316018 J. R. McLeod, 535467 W. McIlquhan, 100673 R. K. McIntosh, 540115 T. D. McSweeney, 171437 J. E. McArthur, 154791 T. T. McBain, 171567 C. J. McCall, 171836 T. W. McClure, 316034 A. M. McCormack, 316177 W. L. McDonald, 154798 H. A. McGill, 171934 W. S. McKeown, 316012 E. G. B. McMynn, 172717 R. A. McNaught, 433393 S. McL. McNintch, 154967 D. W. McQueen, 901888 H. G. MacKay, 541229 W. S. McCutcheon, 316241 J. H. McDonald, 316259 D. H. McKeague, 153977 S. A. McLean, 316327 N. P. McDermot, 316299 R. McLanaghan, 127197 T. H. Millian, 81598 C. A. Mitchell, 316279 H. S. H. Moore, 316019 D. J. Moorman, 154891 C. W. Morean, 552098 C. F. Moriarty, 171471 F. H. Morten, 154277 A. T. Murphy, 73682 W. H. Martin, 776044 V. H. Metcalf, 153428 S. Musgrove, 316004 D. Mitchell, 316271 G. G. Markle, 316236 H. K. Mason, 504910 J. Menagan, 172751 D. Moir, 487413 L. L. Moore, 67439 D. Morrison, 231151 D. E. Mould, 316266 G. C. D. Norman, 513116 J. R. Nind, 316392 G. A. Norris, 525562 G. B. Neelands, 171900 E. J. O'Carroll, 171557 J. H. O'Connern, 2480307 A. E. Oliver, 270 A. V. O'Mearn, 316316 R. G. A. Overing, 654728 C. R. Papst, 171926 F. E. Palmer, 171145 W. C. Filgrim, 405385 T. V. Phillips, 129561 G. Preston, 802712 T. Pryc, 907621 C. M. Partridge, 346822 V. A. Payne, 171457 G. F. Penny, 171125 A. L. Phelps, 154694 H. N. Polley, 460883 A. J. Potter, 172589 P. J. Potter, 316028 E. L. Price, 172872 L. N. Peine, 316369 R. S. Pidock, 316356 C. F. Plumb, 184743 C. J. Portsmouth, 316290 C. W. Perrett, 171918 G. S. Routcliffe, 60578 A. B. Reid, 408599 A. L. Robb, 186339 S. McM. Richardson, 316612 J. H. G. Royston, 171587 J. G. Robertson, 316239 J. L. Robinson, 171976 J. Robinson, 171552 J. C. Roger, 316395 E. L. Rose, 171703 W. H. Roxburgh, 316248 S. F. Roe, 540244 W. H. Russell, 316313 A. Rae, 189335 W. J. A. Roulston, 316324 A. H. Roy, 316351 R. C. C. Rolph, 171378 J. G. Reid, 104707 W. H. Spencer, 67426 J. Stark, 316301 J. A. Stephen, 152828 A. F. Styles, 154987 M. D. St. Clair, 171150 J. H. St. Martin, 316031 E. G. Saigle, 154513 L. G. Scheiwetzer, 501371 G. T. Scott, 171729 H. W. Scott, 316040 G. Sealy, 316021 A. E. Seon, 171863 A. E. Smith, 171599 J. M. Sowden, 181936 V. C. Spencer, 154275 W. H. Spurr, 171592 G. H. Stadler, 171028 G. L. Stevens, Z.461 E. Stieri, 318981 H. Smith, 534429 L. B. Sears, 303420 C. W. Scott, 1261748 C. L. Shields, 339356 F. G. Solloway, 154817 D. A Stewart, 171856 A. St. Jean, 171036 C. N. Stevens, 171341 O. C. Sturdy, 151922 R. W. Smith, 92879 W. A. Smith, 659 G. K. Spruit, 316305 W. H. Stanton, 316315 H. C. Startup, 112138 C. E. Summer, 171963 A. V. Trayner, 2134935 R. L. Tindall, 172811 J. M. Tate, 23325 T. W. Tite. 171927 B. Tomkins, 154669 G. M. Totten, 488909 C. T. Traise, 171579 F. G. Trescott, 418511 J. Turnbull, 21896 F. R. Turnley, 2003600 E. T. Timmons, 172347 J. H. Townsend, 166438 J. M. Thompson, 316286 A. R. Thornton, 301500 W. B. Unsworth, 154773 L. C. Vair, 154319 G. H. Vallett, 223119 D. L. Vincent, 503869 A. Wagstaff, C. J. H. Van Velden, 172576 E. W. Wallace, 316093 A. A. Warren, 128157 E. P. Warren, 152856 J. W. Watts, 316212 W. Wright, 172463 K. M. Wears, 154819 V. S. Webster, 154220 A. L. Wheeler, 1006810 H. A. Wheeler, 4809 J. R. Wight, 148451 J. E. Wright, 50741 H. G. Wrinch, 302 H. Watkins, 316229 E. J. Wain. 183357 H. W. Whistler, 171545 V. B. Whitley, 513672 G. S. Williamson, 478014 H. I. Wilson, 154790 A. E. S. Wintermure, 895270 D. S. Wylie, 316366 A. E. Walker, 316325 L. S. Weldon, 316213 L. B. West, 316246 F. Wright. 171370 G. W. Ward, 136160 W. E. Warner, 316352 W. C. H. Webb, 349045 C. S. Weight, 129111 W. H. Wells, 129654 C. T. Welsh, 316305 C. L. Wraith, 316396 V. G. Wrigglesworth, 81176 S. F. Youhill, 182903 G. A. Young, 316277 H. F. Young, Feb. 15th.

Flt. Cdt. 177075 F. Silver is granted an hon. commn. as Sec. Lt., April 9th.

Transferred to unempld. list:—Maj. R. E. Childers, D.S.C., from (S.O.), March 10th; Capt. S. F. Ingram, from (S.O.), April 4th; Capt. A. H. White, from (S.O.), April 16th, 1918; Lt. C. P. Brady, from (S.O.), May 17th; Capt. H. Foord, from (S.O.), June 1st.

Sec. Lt. V. B. Napier to take rank and precedence as if his appointment as Sec. Lt. bore date March 26th.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, June 12th.

The King held an Investiture in the Quadrangle of the Palace at 11 o'clock this morning.

The following were severally introduced into the presence of His Majesty, when The King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE.—Commander.—Military Division.—Lieut.-Col. Charles Randall, R.A.F.

BAR TO THE DISTINGUISHED SERVICE ORDER.—Lieut.-Col. Peregrine Fellowes, R.A.F.

THE DISTINGUISHED SERVICE ORDER AND THE MILITARY CROSS AND BAR.—Capt. Matthew Frew, R.A.F.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE.—Officer.—Military Division.—Capt. William Hodgson, R.A.F.

His Majesty then conferred decorations as follows:

THE DISTINGUISHED SERVICE CROSS.—Major William Wilson, R.A.F.

THE MILITARY CROSS AND BAR.—Capt. John Burd, R.A.F.

BUCKINGHAM PALACE, June 14th.

The King held an Investiture in the Quadrangle of the Palace at 11 o'clock this morning.

The following officer was introduced into the presence of the King, when His Majesty invested him with the Insignia of the Division of the Order into which he has been admitted:—

THE MOST DISTINGUISHED ORDER OF SAINT MICHAEL AND SAINT GEORGE.—Companion.—Lt.-Col. Hugh Williamson, R.A.F.

The King then conferred decorations as follows:—

THE MILITARY CROSS.—Maj. Eric Crewdson, R.A.F.; Lt. John Cooper, Arg. and Suthd. Highrs., attd. R.A.F.; Lt. Walter Horrocks, R.A.F.

OFFICIAL COMMUNIQUES.

ESTHONIA.

June 9th.—An aeroplane landed near Narva on Sunday, and two others to-day, bearing German nationality marks. The passengers were German officers and soldiers and Baltic Germans who had flown from Riga, and have been arrested.

ADMIRALTY APPOINTMENTS.

The following appointments have been made:—

JUNE 14th.—Surg. Lt. (temp.).—S. O. Rashbrook, to "Ark Royal," June 13th.

JUNE 16th.—Actg. Payr. Sub-Lt.—C. McG. Webb, to "Furious," June 14th.

PERSONAL NOTICES.

NAVAL.

MARRIAGES.

BUTCHER—HODGSON.—On June 16th, 1919, at All Souls, Langham Place, London, Lieut.-Col. Osborne Arthur Butcher, D.S.C., R.A.F., was married to Beatrice Viola, younger daughter of the late Edward Dorman Hodgson, of the Middle Temple, Barrister-at-Law, and Mrs. Dorman Hodgson, of 12, Montpelier Place, Brighton, and The Sycamores, Newick, Sussex.

CLARK HALL—ELIOTT LOCKHART.—On June 11th, at All Saints, Lockerbie, Lieut.-Colonel R. H. Clark Hall, D.S.O., R.A.F. (Commander, R.N.), was married to Lillias, daughter of Colonel and Mrs. R. Eliott Lockhart, of The Hewke, Lockerbie, by the Rev. J. C. Grieve.

MILITARY.

DEATH.

WATERLOW.—Capt. Eric Waterlow (Flight Commander), M.C., D.F.C., 25th Squadron, R.A.F., who was previously reported missing on July 16th, is now officially presumed died on or after that date. He was the son of Herbert and Marian Waterlow, of 154, Gloucester Terrace, Hyde Park, W.2, and had been mentioned in dispatches.

ENGAGEMENT.

DOUGALL—ATHORPE.—The engagement is announced of Mr. Charles Robert Dougall, late of the Argyll and Sutherland Highlanders and R.F.C., only son of Mr. Charles Shirra Dougall, J.P., and Mrs. Dougall, of Dollar, Scotland, and Dorothy Phyllis, elder daughter of Mr. Marmaduke Athorpe, J.P., and Mrs. Athorpe, of Dinnington Hall, near Rotherham, Yorkshire, and granddaughter of the late Mr. Gordon Pyper, of Hantane, Ceylon.

MARRIAGES.

SEAVER—SEAVER.—On June 12th, 1919, at St. George's, Cam, Glos., Capt. Joseph Abbott Seaver, North'd. Fus., youngest son of Capt. Jonathan Seaver, R.A.F., and grandson of the late Thomas Seaver, Heath Hall, County Armagh, was married to Mary Violet, daughter of Rev. William Seaver, Vicar of Cam, and granddaughter of the late Dean Seaver, of Belfast, by the Rev. Jonathan Seaver, B.D., uncle of the bride.

SUGDEN-WILSON—SLOCOCK.—On June 3rd, at All Saints' Church, Marlow, Captain William Hodgson Sugden-Wilson, West Somerset Yeomanry and R.A.F., second son of Mr. Hodgson Wilson and the late Mrs. Hodgson Wilson, of Hexgreave Park, Southwell, was married to Elinor, widow of the late Mr. L. A. N. Slocock, and third daughter of Mr. and Mrs. Arthur Cook, Oaken Grove, Marlow, by the Rev. Canon McKee, assisted by the Rev. O. F Spearing.

YARDE—PARGITER.—On June 11th, at St. Margaret's, Westminster, Capt. Gilbert Ferrers Yarde, R.A.S.C. and R.A.F., eldest surviving son of Mr. and Mrs. J. E. Yarde, of Bedford, was married to Constance Marianne, youngest daughter of the late A. H. Pargiter, of Ceylon, and Mrs. Pargiter, of 11, Victoria Street, Westminster, by the Rev. Jocelyn Perkins.

BIRTHS.

COOK.—On June 13th, at Brafferton Hall, the wife of Lieut. W. W. Cook, M.C., R.A.F., of Palmerston North, of a son.

HYDE.—On June 6th, at "Eagle House," Woodford Green, Essex, to Dorothy (née Wayman), the wife of Capt. Frank Hyde, M.C. (late R.A.F.), a son.

SCHOLTE.—On June 8th, at 1, Burgess Hill, N.W.8, to Hilda, wife of Lieut.-Col. F. L. Scholte, C.B.E., late R.F.C.—a daughter.

AIR FORCE.

DEATHS.

INGLEBY.—An aeroplane which ascended from the Castle Bromwich Aerodrome, Birmingham, on June 11th, crashed to the ground, striking a tree in its descent. The pilot, Lieut. Ingleby, R.A.F., was killed and the passenger was injured.

PAULL.—On June 12th, Lieut. Paull, A.F.C., R.A.F., of 34, Princess Street, Chester, was killed while giving an exhibition flight in connection with the Peace Carnival at Worcester. The accident was caused through the high wind, and the machine fell 100 ft. The passenger, an air mechanic, named Ackroyd Bentley, of Halifax, was slightly injured.

Engagements.

BARTON—LEE.—A marriage has been arranged and will very shortly take place between Lieut. C. F. Barton, R.A.F., of Toronto, Canada, and Mary Letitia Driffield Lee, younger daughter of the Rev. Frederick and Mrs. Lee, of Woodton Rectory, Bungay.

CUMMING—MARTIN.—An engagement is announced between Lieut. W. N. Cumming, R.A.F., eldest son of Robert Cumming, 20, Bute Gardens, Hillhead, Glasgow, and Phyllis Maude, youngest daughter of Mr. and Mrs. W. Martin, Inverness Court Hotel (late of Hampstead.)

Marriages.

BURKE—GREEN.—On June 5th, at St. James's Church, Twickenham, S.W., Capt. J. M. Burke, R.A.F., second son of the late M. Burke, I.S.O., of Glasgow, was married to Dorothy, eldest daughter of Mr. and Mrs G. Green, Pelham House, Twickenham, S.W., by the Very Rev. Canon English.

HARTFORD—HARTFORD.—On June 4th, at St. Philip and St. James's Church, Oxford, Major Irving Henry Bibby Hartford, A.F.C., R.A.F., son of the late Henry William Hartford, of Christchurch, was married to Dorothea Ramsay Hartford, of Rossett, Denbighshire, widow of Capt. H. I. St. J. Hartford, the Cheshire Regt., by the Rev. C. Rawlins, assisted by the Rev. C. E. D. Biggs.

MATTHEWS—FITCHIE.—On June 7th, 1919, at Clapham Presbyterian Church, Capt. A. W. R. Matthews (late R.A.F.), son of Mr. and Mrs. A. Ratcliff Matthews, 188, Elms Road, Clapham Park, S.W., was married to Annie Ewan, daughter of Mr. and Mrs. T. Tindal Fitchie, 113, Hambalt Road, Clapham Park, S.W., by the Rev. J. Smyth Wood, M.A.

Births.

CUNNINGHAM.—On June 8th, at 7, Milton Road, Eastbourne, the wife of Lieut.-Col. A. D. Cunningham, R.A.F., of a daughter.

FLETCHER.—On June 12th, at Iveing Cottage, Ambleside, the wife of Lieut.-Col. J. N. Fletcher, A.F.C., R.A.F., a son.

MORTON.—On June 4th, at 7, St. John's Park, Blackheath, Joan, the wife of Major Rowland Morton, R.A.F. (née Watkins) of a daughter.

SEEDHOUSE.—At Dundee, on June 12th, Elspeth Anderson, wife of Capt. C. N. Seedhouse, R.A.F., of a son.

TURNBULL.— On June 3rd, at 12, Adelaide Terrace, Truro, Cornwall, Ethel Muriel, (née Dowsing), wife of R. B. E. Turnbull, late R.A.F., of a daughter.

AVIATION IN RUSSIA.

On June 8th British seaplanes on Lake Onega attacked four Bolshevist craft of unarmed type with bombs. Although no direct hits were obtained the seaplanes succeeded in silencing the anti-aircraft gun-fire by machine-gunning the gun crews. The Bolshevists fled along a zig-zag course, the seaplanes in pursuit.

A Bolshevist wireless message, undated, which deals with the capture of Ufa on June 9th by the Red troops, states :—

Our aeroplanes took part in the fighting for the first time during the campaign, during the crossing of the river Bielaya.

A British naval officer who has just reached London from the Black Sea, where he has been in close touch with General Denikin's administration, describes the valuable help which the British Government is giving to the Volunteer Army.

When he left Ekaterinodar there were lying on the quays and in the warehouses munitions, guns, clothing, tanks, aeroplanes, etc., to the value of some £17,000,000.

British instructors who have been training Denikin's soldiers say that they show great aptitude, both in aviation and in working the tanks.

A large British aviation centre has also been established at Ekaterinodar.

THE AERIAL DEFENCE OF THE BRITISH EMPIRE.

On June 5th in the Union House of Assembly Col. Mentz (Acting Minister of Defence), stated that the Imperial Government will present a number of aeroplanes, not exceeding one hundred, to any of the Dominions wishing to establish an aerial defence.

Concerning the above offer, New Zealand does not seem so keen on accepting it. Sir J. Allen, Minister of Defence, says that the offer represents about £500,000, but its acceptance depends upon the policy of the New Zealand Government, which has not been determined.

ATHLETICS IN THE R.A.F.

The Army will oppose the Royal Air Force in a two-day match to be played at Lord's on Friday and Saturday next (June 20th and 21st), in aid of the funds of the Chevrons Club. Both Services have strong teams.

THE DEMOBILISATION OF THE W.R.A.F.

A certain number of the immobile members of the Women's Royal Air Force are being demobilised. These women are less useful to the Force than the mobile section; if one station closes they cannot be transferred to another, as they live in their own homes. Some of them are married women whose husbands have been demobilised; others are returning to their civilian occupations.

About a month ago a detachment of the W.R.A.F. were sent to France for the first time. There are also some with the Army of Occupation in Germany, these being mainly clerks, cooks, and mess orderlies.

A COURT-MARTIAL.

A general court-martial was held at Upton-by-Chester on Lieut. Edwin Arnold Clear, M.C., R.A.F., who pleaded not guilty to a charge of low-flying at Chester, and guilty to a charge of escaping from arrest at Shotwick aerodrome. While taking exercise in the charge of another officer it was stated that he got into a machine and flew to the Isle of Man.

Accused told the Court that the officer commanding the station had told several pilots that they had "got the wind up." "This got my goat," added accused, "so I went up."

The findings of the Court will be promulgated.

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ON A STUDY IN CONTRASTS.

The past week has been somewhat remarkable, in that it has displayed the British Nation at its best and at its worst. With a splendid sense of the fitness of things the honour of knighthood has been conferred by the King himself on the winners of the trans-Atlantic Competition. By an action which is typical of the congenital imbecility of our Government Departments the Air Ministry has prevented British Industry from obtaining an advertisement which would have followed fittingly on the achievement of Sir John Alcock and Sir Arthur Brown.

The conferring of these knighthoods is Royal in thought and deed. It places the trans-Atlantic fliers definitely in the same class as our famous Arctic and Antarctic explorers, where, curiously enough, this paper placed them some weeks ago. This country has had from time to time a fine array of adventurous, or, as Mr. Churchill might say, audacious, men who have won knighthood by performing some dangerous feat which was of little immediate practical value except for the fine example which it set to the youth of the country.

Sir John Alcock and Sir Arthur Brown rank with the Franklins, McClintocks, Scotts, Shackletons, Stanleys, and Burtons of years now past. It is so unusual in these democratic days to hear of a man being knighted for doing something instead of doing somebody that the idea of the trans-Atlantic fliers being knighted never seems to have occurred to anybody. It would have seemed far more in keeping with modern practice if the Cabinet had recommended a knighthood for the Mayor of Euston, or some such civic functionary who received them on their arrival in London.

Yet a knighthood is eminently the fitting reward of men who have not merely served their country by setting a fine example to adventurous youth, but have served their King in the field. Happily the first two men to be knighted for aeronautical work, and civil aviation at that, are thus far removed from the war-profiteers, brewers, distillers, grocers, theatrical mummers, music-hall artists, lawyers, newspaper persons, and politicians—to put them approximately in order of importance—for whose sake the honour of knighthood has been prostituted of late years.

Our International Courtesy.

The rapidity with which affairs have moved in thus honouring those so deservedly honoured casts into heavy relief the apathy with which this country received the American Naval officers of the N.C. Squadron, who, after all, were the first people in the world to cross the Atlantic by air.

Captain Alcock and Mr. Brown—as they were—arrived in London on Tuesday of last week, and were accorded a welcome by the populace only a trifle inferior to that accorded to Mr. Hawker and Lieut.-Commander Grieve. On the Friday they were entertained by the Northcliffe Press, and were met by the fine flower of our commercial notability—surely a high honour. On Saturday they were received by His Majesty the King and were knighted. On Monday they were banqueted by the Royal Aero Club.

The flying officers of the Navy of our Allies, the United States, arrived in London on a Sunday, and were met by a scratch crew from the Royal Aero Club, whipped up in a hurry by one member—an ex-Lieut.-Colonel R.A.F., who happens to be a friend of Commander Towers. On the following Thursday they were invited to an informal lunch given personally by the Under-Secretary for Air. On the same night they went to a subscription dance somewhere in Bayswater direction, got up by their friend of the Royal Aero Club.

On the Monday they were privately invested with the Air Force Cross by the Under-Secretary for Air, who, whatever may be his faults, seems to have been the one official person who took any interest in them. At no time did the Government, the Royal Navy, the Royal Air Force, the Royal Aero Club, or the Royal Aeronautical Society pay them the compliment of inviting them to a full-dress function.

That is merely by way of illustrating the contrast between our official methods when we do anything ourselves and when it is done by another nation. It is so likely to enhance our reputation as sportsmen.

Another Contrast.

None can deny that the Air Ministry has done all it could to make the trans-Atlantic flight a success, both before and after the event. But when one comes down to more practical matters of immediate commercial value one finds a contrast as remarkable as that between our methods of receiving our own heroes of the air and those heroes who were made in America.

After demonstrating and advertising to the full the success of a British aeroplane and British engines in the longest non-stop flight in history it would seem natural that everything possible should have been done to acquire for British products an equal advertisement in the matter of speed, pure and simple.

An excellent opportunity offered itself in the Aerial Derby which was to be flown the very week in which the winners of the Atlantic competition arrived in England. Naturally one would have imagined that the Air Ministry would have done its best to help in making that speed competition a worthy pendant to the Atlantic flight. French and Italian aeroplanes and engines have been putting up speed and altitude records and advertising them to the world at large. Here was the chance of proving that on this side of aviation also British aircraft could hold their own.

The Air Ministry Way.

But no! Such is not the Air Ministry's way. Instead of encouraging the competition, it put its foot down heavily, and forbade the use of any machine and/or engines ordered by the Air Ministry, whether the engines and other material were supplied by the Ministry of Munitions or were merely bought by the makers.

This barred at least six of the fastest machines in England and possibly in the world. The makers offered to buy the machines and engines from the Government at the contract price, or alternatively to replace them with others. The Air Ministry refused point-blank to do a deal of any sort. Sir John Alcock and Mr. Hawker —among other crack pilots—were barred from competing. Consequently the firms had to turn out their pilots on touring machines or second-string mounts, which put up a speed of about 125 miles an hour round the course instead of an expected 160 miles an hour.

And so the British Aircraft Industry was deliberately deprived of an advertisement which would have had excellent effect abroad as propagandist work, and would have re-acted ultimately with good effect on British Trade as a whole.

WHY?

Of course one cannot expect the Air Ministry as a body to take any interest in mere commercial aviation. And one at once acquits General Sykes, the Controller of Civil Aviation, of any suspicion of having been concerned in this absurd and detrimental order, if indeed he ever knew anything about it. The order came from the Technical side—that dire department which seems as determined to ruin Civil Aviation in Peace as it was to ruin our Flying Services during the War.

The assumption is, further, that it did not come from the Research department, for the order did not affect research so much as supply. Therefore it would seem that it is the Supply department which raised the objection. And one is forced to ask why?

It cannot be that the machines were wanted for the R.A.F., for practically all flying has been stopped by an order which is supposed to effect economy in the use of petrol and the abuse of machines. The Air Force does not fly in these days. It merely accepts machines and then burns them or breaks them up. And it has cancelled almost all contracts for future deliveries. In fact, it is emulating with remarkable success the pre-war cavalry who had no horses and manœuvred on its own flat feet.

What then is the reason? One ingenious person advances the theory that most of the barred machines are fitted with engines about which certain royalties are in dispute with the Air Ministry, and that if these machines had put up big performances the engine-makers' claim to royalty fees would have been considerably strengthened. But one scarcely believes this theory. It is too much like a sound business reason.

A far more likely reason is simply that the makers of the machines entered them for the race without humbly asking leave of some petty, or at any rate petty-minded, official in the Supply department, and that this official determined to punish these mere tradesmen for daring to omit this tribute to his dignity. The fact that the majority of the pilots of such machines would have been war pilots who served the King on active service while the official was wearing his trousers shiny on an office chair would make no difference to such an official. In fact it would rather aggravate the offence, for above all things the dignity of the office chair must be impressed on the mere fighting man.

Such then would seem to be the only possible explanation of this strange order. But it is evident that whether such be the true explanation or not, the matter must be carried further and the Air Ministry must be asked to give an official reason for its action.

CIVIL AVIATION AND THE AIR MINISTRY.

Until war breaks out again it will be well for the Air Council to remember that it is the servant and not the master of the Nation, and to impress this fact on its subordinate officials.

One's chief aim and object in life is to see the R.A.F. the greatest of the King's Services. One remembers that the R.F.C. suffered grievous loss in this war owing to the bigotry, officiousness, and crookedness of Government officials and owing to the lack of a strong and adequately large Aircraft Industry. It is one's duty to see that no such fate befalls the R.A.F. in the next war.

One has played a humble but one hopes a not inconsiderable part in the breaking of certain incompetent officers and officials during the past three or four years, and one will take supreme pleasure in helping to break a few more if the new Air Ministry shows any signs of following in the footsteps of the late Department of Military Aeronautics or of the Admiralty Air Department.

The Department of Civil Aviation is conducting itself in a way which is calculated to hinder the progress of aeronautics and to harm the Aircraft Industry. The Department of Research and Production is likewise acting in a way which seems likely to prejudice the welfare of the R.A.F. and of the Industry. The Controllers-General of those departments will be wise in their own interests as well as in those of the State if they investigate the work of their minor officials more closely than they appear to be doing at present.

So far one has given merely a general outline of the contrasts in our methods in this country. One hopes to tackle the subject in greater detail at an early date, just by way of assisting the heads of departments to set their houses in order. Meantime one hopes that so much as one has said may help in the right direction.

C. G. G.

THE ADVISORY COMMITTEE ON CIVIL AVIATION.

The Air Ministry made the following announcement on June 23rd:—

The Secretary of State for Air has appointed a Standing Advisory Committee on Civil Aviation, with the following terms of reference:—

> To advise and report to the Secretary of State for Air on the best method of organising Imperial air routes and on such other subjects relating to civil aviation as may be remitted to the Committee by the Secretary of State.

The Committee will be composed as follows:—

Lord Weir of Eastwood, late Secretary of State for the Royal Air Force (Chairman).

Lord Inchcape of Strathnaver.

Sir James Stevenson, Bt. (member of the Army Council and member of the Air Council).

Colonel J. T. C. Moore-Brabazon, M.P.

The Chairman of Lloyd's (Mr. Charles Irving de Rougemont).

The Chairman of the Society of British Aircraft Constructors (Mr. H. White Smith, C.B.E.).

Mr. L. Bairstow, F.R.S.

The Chief of the Air Staff (Major-General Sir Hugh Trenchard, K.C.B., D.S.O.).

The Controller-General of Civil Aviation (Major-General Sir F. H. Sykes, K.C.B., C.M.G.).

The Secretary of the Air Ministry (Sir Arthur Robinson, K.C.B., C.B.E.).

Secretary of the Committee, Mr. F. G. L. Bertram, O.B.E., Air Ministry.

Sir James Stevenson, Bt., will be the Vice-Chairman of the Committee. The Committee will have the power to co-opt such additional members as may be thought desirable for the discussion of any particular question remitted to them.

THE ROYAL NAVAL, MILITARY AND AIR FORCE TOURNAMENT.

The Royal Naval, Military, and Air Force Tournament opens on Thursday, June 26th. The Royal Air Force will exhibit a Fokker biplane, but it has not yet been stated what part they are to play in the Tournament.

ON THE REGULATION OF CIVIL AVIATION IN THE BRITISH ISLES.

(PART VI AND LAST.)

The last of all the Schedules of the Regulations deals with the rules as to aircraft arriving in or departing from the United Kingdom. In this case, as in the last, one proposes to interpolate remarks where necessary. The Regulations read thus :—

SCHEDULE VIII.

Rules as to Aircraft Arriving in or Departing from the United Kingdom.

PRELIMINARY.

1.—(1) For the purposes of the rules in this schedule the following aerodromes are appointed aerodromes, that is to say :—

New Holland, Lincolnshire;
Hadleigh, Suffolk;
Lympne, Kent;
Hounslow, Middlesex.

Provided that the Secretary of State may by directions add any aerodrome to the list of appointed aerodromes or remove any aerodrome from that list.

(2) For the purposes of the rules in this schedule—

"Importer" has the same meaning as in the Customs Consolidation Act, 1876;

"Commissioners" means Commissioners of Customs and Excise;

"Examination station" means a space at an appointed aerodrome approved by the Commissioners as an examination station;

"Pilot" includes person in charge.

Other expressions have the same meaning as in the general provisions of these regulations.

The first thing that strikes one is that there is no provision whatever for seaplanes coming to this country from France, Belgium, Holland, Denmark, or Norway—all of which countries will, one hopes, be in regular communication with us by seaplane service this year. One would have expected that Dundee, the Forth, the Tyne, the Humber, Harwich, the Thames, Folkestone, Eastbourne, the Solent, and other localities farther West would have been specified as alighting places for seaplanes.

It is true that "the Secretary of State may add any aerodrome to the list," but the entire omission of ports of entry for seaplanes from the original list indicates a sloppiness of mind and method which has not only been characteristic of the Air Ministry throughout the war, but seems to be the outstanding feature of these Regulations. The two things required to make Civil Aviation a success are intelligence and thoroughness, and they are precisely the characteristics which are most obviously lacking from these Regulations.

Even the list of land aerodromes is sufficiently absurd. Who, for example, is going to fly a land machine across the North Sea and land at New Holland, right opposite to Hull? And, if anybody were fool enough to make such a trip on a land machine, would he want to land on the wrong side of the Humber, at a place where it would take him nearly as long to get to Hull by land and water as it had taken him to cross the sea by air?

Also, who would fly right round London to Hounslow for the fun of a ten-mile journey back again into London unless forced to do so by an idiotic regulation? Hendon is miles nearer. And Cricklewood is nearer still, with better communications than either. Furthermore, if it is desired to have a "foreign" terminal aerodrome well outside London for some reason or another, why not have it at least on the line from the Continent to London, as, for example, at Biggin Hill or Croydon? Why, in the name of common sense, make a man at the end of a long journey fly ten miles past his destination and give him the trouble and expense of coming back again?

One had to put up with the methods of the late Bolo Pasha during the war, but we are certainly not going to stand anything of the sort in time of peace, so people at the Bolo House who are merely there because they cannot find jobs in a competitive commercial life had better make up their minds right now that they will have to get on or get out.

Let us now proceed to details :—

ARRIVAL AT AND DEPARTURE FROM APPOINTED AERODROMES.

2. No aircraft entering the United Kingdom from abroad shall land for the first time in the United Kingdom except at an appointed aerodrome: Provided that this rule shall not apply where an aircraft is compelled to land before arriving at an appointed aerodrome, owing to accident, stress of weather, or unavoidable cause, in which event the procedure laid down in rule 21 (hereafter) will be followed.

3. No aircraft shall fly to a place outside the United Kingdom unless it has departed from an appointed aerodrome.

4.—(1) No person in any aircraft entering the United Kingdom shall carry or allow to be carried in the aircraft—



ENDON AS IT IS.—The crowd at the Aerial Derby. The pseudo-Swiss chalêt is the mess-pavilion. Behind it are the Grahame-White Works. The old gate to the enclosure is on the extreme right.

(a) any goods the importation of which is prohibited by the laws relating to Customs;

(b) any mails, except with the permission in writing of the Postmaster-General.

(2) No person in any aircraft entering the United Kingdom shall break or alter any seal placed upon any part of the aircraft or upon any goods therein by a Customs officer at the aerodrome at which he departed for the United Kingdom.

5. No aircraft shall enter or leave the United Kingdom, having any secret or disguised place adapted for concealing goods.

The intention of these rules, like all the rest, is good. Hell, one remembers, is paved with good intentions. As regards paragraph 2 the meaning is clear, though the "Lincoln Imp" twisted the wording recently with his usual impishness.

Paragraph 3 is less clear, besides being less easily enforced. Does it mean that no machine starting from a private aerodrome—for example—may go outside the "three-mile limit"? It seems as if the destination of a machine which leaves the United Kingdom, whether from an "appointed aerodrome" or any other, is rather the affair of the nation in whose territory it alights. There is, for instance, the classic case of Mr. Biheller (if that is how the sportsman spells his name) who left an "appointed aerodrome" during the war and landed right away off the prescribed course—but that is another story, which deserves to be told all by itself after the Peace Treaty has been signed.

Sub-section (b), paragraph 4, might well be more specific. What precisely constitutes "mails"? May the pilot (including the person in charge) of an Orient Air-liner bring gifts of gold, frankincense, and myrrh from the O.C. an air station in Persia to his best girl in Tooting? Or may he bring butter (on or not on a lordly dish) from Brittany—as was the custom of ferry-pilots during the war. Or may he bring ivory, apes, peacocks, or rabid dogs? The last-named would come under another ban, but none would appear to come within the province of the Postmaster-General.

Paragraph 5 suggests subject-matter for a whole article on aerial smuggling. One must really tackle it at some future date, for the benefit of the Custom House. Think, for one thing, of the possibilities of bladders full of liqueurs in the petrol tanks, or of hollow struts full of saccharin. The Customs officials at the "appointed aerodromes" are going to have such a busy time when commercial flying becomes common.

6. The pilot of any aircraft arriving at an appointed aerodrome from a place outside the United Kingdom shall, on landing, forthwith take his aircraft to the examination station at that aerodrome; provided that a pilot shall not be deemed to have contravened or failed to comply with this rule if he proves that circumstances over which he had no control prevented him from taking his aircraft to the examination station, and that, after the report required by rule 7 (hereunder) had been duly made by him, all goods carried in the said aircraft were removed to the examination station in the presence of an officer of Customs and Excise or some person duly authorised by the Secretary of State.

7. Within twenty-four hours after the landing at any appointed aerodrome of an aircraft from a place outside the United Kingdom the pilot shall—

(a) make a report to the proper officer of Customs and Excise in the form prescribed by the Commissioners; and

(b) truly furnish the several particulars required by such form; and

(c) deliver to such officer with such report his log book, manifest, and declaration of the goods on board his aircraft signed by the proper Customs officer at the aerodrome from which he departed for the United Kingdom; and

(d) land at such aerodrome for examination of baggage all passengers carried in such aircraft, and, after making such report shall produce, and, if required to do so, shall land, all goods in such aircraft for examination.

These Rules call for no special comment, beyond pointing out to future commercial pilots that besides all the log-books prescribed in the earlier Regulations they will have to deal also with "manifests," "Customs declarations," "way-bills," "clearance certificates," and so forth (section (c), paragraph 7, and section (d), paragraph 10), so that they will be wise to take a short course at a commercial correspondence school before starting out as pilots (including persons in charge) of commercial aircraft.

8. If at any aerodrome or other place within the United Kingdom goods or passengers are loaded for conveyance by air to an appointed aerodrome, the pilot shall obtain from the proprietor of the aerodrome of departure a certificate of departure in the form prescribed by the Secretary of State and the Commissioners, and on arriving at the appointed aerodrome the aircraft and all goods and passengers carried therein, shall, on production of such certificate, be exempt from inspection by an officer of Customs and Excise, unless such officer has reason to suspect that the aircraft has, since the issue of such certificate, called at a place outside the United Kingdom.

9. The pilot of every aircraft in which goods are to be exported shall, before any goods be taken on board, deliver to the proper officer of Customs and Excise a notice of departure for a foreign destination in the form prescribed by the Commissioners, in which shall be truly stated the particulars required by such form.

10.—(1) Every pilot of an aircraft carrying goods to any place outside the United Kingdom shall deliver to the proper officer of Customs and Excise at an appointed aerodrome, together with any log books belonging to the aircraft, an application for clearance from that aerodrome in the form prescribed by the Commissioners, in duplicate, and also, if the aircraft carries any goods, a manifest and declaration in the form prescribed by the Commissioners, declaring the goods and stores on such aircraft, and shall truly state therein the particulars required by such forms respectively; and such forms, when signed by such officer, shall be the clearance and authority for the aircraft to proceed to its foreign destination.

(2) No pilot shall depart in any such aircraft from the United Kingdom until he has obtained such authority, or shall, after obtaining such authority, call at any other place in the United Kingdom before proceeding to his foreign destination. Any pilot intending to land at one or more appointed aerodromes before proceeding to his foreign destination shall apply for the said clearance and authority at the last appointed aerodrome at which he lands.

These Rules seem a trifle complicated, but they appear to have been drafted by somebody who understands his job—which is unusual in Air Law.

Paragraph 8 introduces a seemingly unnecessary complication. It means apparently that if an aircraft flies up from Plymouth and lands at Hounslow it must carry the prescribed "certificate of departure," otherwise the passengers' luggage will be searched by the Customs officers. But if it lands at Hendon, or Brooklands, or Cricklewood, it need not carry such a certificate and is not liable to search. The moral is:—"Don't land at Hounslow if you are flying within the British Isles.

Section (2), paragraph 10, seems likely to be rather a nuisance. If one starts from Hounslow for Hamburg, complete with clearance certificate as fitted, and finds after a few miles that a plug is misfiring, or that a terminal is loose, or that one has forgotten one's handkerchief, one may not land at Hendon, or Croydon, or Sutton's Farm, or Joyce Green, to remedy the trouble. One must either carry on, or else if one comes down one must go back to Hounslow or go on to Lympne (which, by-the-way, is pronounced Limm—one believes) and go through all the Customs formalities again, and get a fresh clearance certificate.

IMPORTATION, ENTRY, AND UNLOADING OF GOODS.

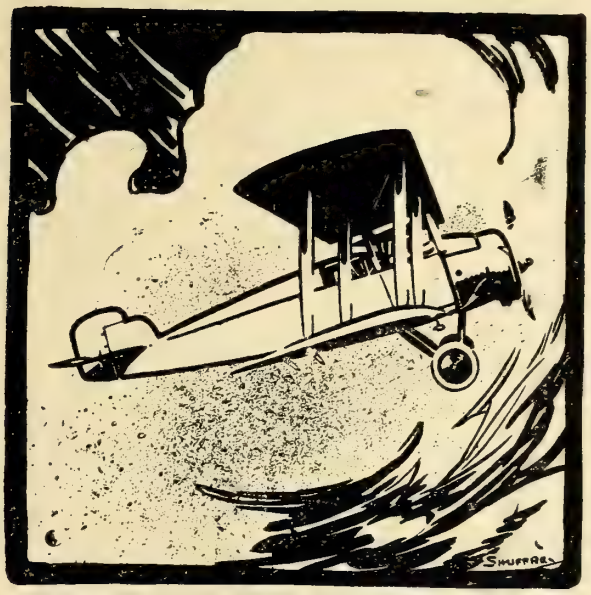
11. No person importing goods in an aircraft shall bring the goods into any place in the United Kingdom other than an appointed aerodrome, or shall unload the goods from any aircraft except at an examination station (unless such goods are unloaded in the presence of an officer of the Customs and Excise under the provisions of rule 6 above) and shall not unload the goods except between such hours as the Commissioners prescribe, or remove the goods from an examination station unless the goods have first been duly entered in manner provided by these rules and produced to the proper officer of Customs and Excise and duly cleared by him.

12. No person shall remove from any aircraft any goods imported therein until the report required by rule 7 (above) has been made, and the authority of the proper officer of Customs and Excise has been obtained.

13. The importer of any goods imported in aircraft shall deliver to the collector of Customs and Excise in whose district the aerodrome of importation is situated an entry of such goods, in accordance with the provisions of the Customs Act, and shall truly furnish thereon the several particulars required by the form

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of entry, and shall pay to such collector all duties chargeable thereon at the times and in the manner prescribed by the said Acts; provided that no entry shall be required in respect of diamonds or bullion or the baggage of passengers.

14. All goods imported into an appointed aerodrome in any aircraft shall be duly entered and unladen within seven days from the time of the arrival of such aircraft at that aerodrome or within such further period as the Commissioners may allow.

15. All goods imported in aircraft which have not been examined and cleared by the proper officer of Customs and Excise shall be stored in a transit shed at the appointed aerodrome, and no person shall remove such goods from the transit shed before examination and clearance by such officer.

This is all in accord with shipping practice and quite sound in principle. Paragraph 12 may also be interpreted as a warning to souvenir-hunters that they must not loot crashed machines which have come in from overseas. They may take away bits of the pilot's corpse according to custom, and all the aeroplane itself. But they must not "remove from any aircraft any goods imported therein."

EXPORTATION OF GOODS.

16.—(1) The exporter of any goods intended for exportation in aircraft shall deliver to the proper officer of Customs and Excise at the appointed aerodrome from which such aircraft is cleared to its foreign destination, an entry in the form prescribed by the Commissioners, and shall truly state in such form the particulars hereby required; and such form when signed by the proper officer of Customs and Excise shall be the clearance and authority for the exportation of such goods.

(2) No person shall export goods on such aircraft until such authority has been given by the proper officer of Customs and Excise.

17. No person shall without the consent of the proper officer of Customs and Excise unload from any aircraft any goods loaded thereon for exportation which have been cleared under rule 16 above, or open, alter, or break any lock or mark or seal placed by any officer of Customs and Excise on any goods in any aircraft about to depart from the United Kingdom.

This again is in accord with shipping practice and calls for no comment.

GENERAL PROVISIONS.

18. No person shall make any signal to or from an aircraft entering or leaving the United Kingdom except such signals as are authorised by these regulations; provided that no offence shall be deemed to be committed under this rule if the person making such signal proves that the signal was not given for the purpose of evading or of assisting any person in evading these rules.

That is to say, if the pilot (including the person in charge) of an aeroplane going overseas signals "Cheerio, Old Egg!" or some such term of endearment, to his fiancée as he passes over Balham, *en route* for Buda-Pesth with supplies of Government clothes for perishing Bolshevists, he may be brought down by anti-aircraft fire at the coast and compelled to land at Lympne (pronounced Limm) and held in custody till he has convinced our Democratic Government that his signal is not part of a plot to smuggle Austrian aristocrats back into their own proper places.

19. If any officer of Customs and Excise in the execution of his duty boards any aircraft in any place, the pilot thereof shall not convey him in the aircraft away from such place without his consent.

Here is the first gleam of real humour in all the Regulations. The drafter of paragraph 19 must have been reading Mr. Kipling's "Steam Tactics." One can imagine an aerial Kipling, assisted by the immortal Hinchcliffe and Pyecroft, becoming thoroughly annoyed with an interfering Customs officer and taking him off to some weird corner of the Continent with them, as they transported the Sussex policeman to Wootton Hatch.

It is almost a pity that such a lovely plot for a story should have been given away by a stolid official regulation. Fancy the typical Customs officer left stranded in the Republic of Andorra! But that paragraph 19 shows an uncanny knowledge of aviators and their pleasant little ways.

20. No dutiable goods shall be removed in aircraft from the Isle of Man to Great Britain or Ireland except from an appointed aerodrome and with the consent of the proper officer of Customs and Excise.

This is really put in to convince aeronautical people of their astounding ignorance. Did *you* know that there were any goods which were dutiable as between Manxland and England, Ireland, Scotland, or Wales? Paragraph 20 might at least have satisfied our curiosity by specifying what goods are dutiable within what is erroneously called the United Kingdom.

21. If any aircraft arriving from a place outside the United Kingdom shall land in any place other than an appointed aerodrome, the pilot shall forthwith report to an officer of Customs and Excise or police constable, and shall, on demand, produce to such officer or police constable the log books belonging to the aircraft, and shall not allow any goods to be unloaded therefrom without the consent of an officer of Customs and Excise, and no passenger thereof shall leave the immediate vicinity without the consent of an officer of Customs and Excise or police constable. If such place of landing shall be an aerodrome the pilot shall forthwith report the arrival of the aircraft and the place whence it came to the proprietor of the aerodrome and the proprietor of the aerodrome shall forthwith report the arrival of aircraft to an officer of Customs and Excise, and shall not allow any goods to be unloaded therefrom or any passenger thereof to leave the aerodrome without the consent of such officer.

More trouble for the police. Imagine the local constable of, say, Pudcombe-Bagpuize surrounding the crowd emerging from a super-Handley Page and compelling them to "stay put" while he inspects the hieroglyphics in all the log-books of all the engines, and watches that no goods are removed, and sends for a Customs officer, and otherwise complies with the Regulations. This is adding an unfair burden to the peaceful existence of the rural police, and can only produce further unrest in the outlying branches of the Force.

22.—(1) The proprietor of any aerodrome shall at all times permit any officer of Customs and Excise to enter and inspect his aerodrome and all buildings and goods thereon.

(2) The pilot of any aircraft shall permit any officer of Customs and Excise at any time to board and inspect his aircraft and any goods laden thereon.

(3) The importer or exporter of any goods imported or exported in aircraft shall produce such goods to the proper officer of Customs and Excise at the aerodrome of importation or exportation, as the case may be, and permit him to inspect such goods.

23. Any provisions for the time being in force of the Aliens Restriction Order or of the Defence of the Realm Regulations with respect to persons arriving in or departing from the United Kingdom by sea, shall apply to persons arriving or departing by air as if the same were herein set out, with such modifications as are necessary for adapting them to such purpose, and in particular with the substitution of appointed aerodrome for the approved ports specified in the Aliens Restriction Order.

24. All persons importing or exporting or concerned in importing or exporting goods, mails, or passengers, into or from the United Kingdom in aircraft and all pilots of aircraft arriving in or departing from the United Kingdom shall observe and comply with the provisions of sections 53, 76, 102, 104, and 118 of the Customs Consolidation Act 1876, as if any references in such provisions to ships or vessels and the masters or captains thereof, and to the loading or unloading of goods thereon or therefrom, included references to aircraft and the pilots thereof, and to the loading or unloading of goods thereon or therefrom, and as if references in such provisions to a quay included a reference to an examination station.

All of these are perfectly right and proper, especially paragraph 23, which applies the Aliens Restriction Order to passengers in aircraft. No rabid dog ever imported by air from France is half as dangerous as would be the rabid Bolshevist who might come by air, if and when our Government worked up sufficient courage to stop the breed from arriving by sea.

THE LAST OF THE DIRECTIONS.

We may now pass on to the last of the Directions. These do not apply to any of the Schedules, but to that paragraph 4, section (4) of the Regulations dealing with Government aerodromes which have been turned over



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for civilian flying. Here follows the text of the Directions :—

VI.—R.A.F. Aerodromes and Seaplane Stations.

1. With reference to Regulation 4 (4), the dues to be charged at R.A.F. aerodromes are as follows :—

A.—ACCOMMODATION.

The charge for accommodation will be based on the floor space occupied, i.e., the product of span and overall length. With folder aircraft the span to be taken as the overall width when folded. Charges will be as follows :—

	8 Hours or Less.	Up to 24 Hours.
	£ s. d.	£ s. d.
Small type, less than 900 sq. ft.	0 2 6	0 5 0
Medium type, not exceeding 1,800 sq. ft.	0 5 0	0 10 0
Large type, over 1,800 sq. ft.	1 0 0	1 0 0

MONTHLY RATES.—Accommodation for monthly periods will be at rates of £5, £10 and £20 respectively. Any accommodation so reserved, but not made use of, to be available for hire to other aircraft. No refund to be made to the monthly lessee, unless he is thereby prevented from obtaining accommodation, in which case a proportionate refund will be made as in the opinion of the Secretary of State appears reasonable.

B.—LANDING FEES.

These will be in respect of the cost of maintenance of the aerodromes, use of landing lights and beacons and supply of navigational information.

The charges will include ordinary attendance, e.g., guiding machines, starting propellers, re-fuelling, etc. (For pushing machines with stopped engines any considerable distance charges will be made in accordance with 3 (a) below.) At R.A.F. aerodromes where no attendance is available the charges will remain the same. The charges will be :—

	For Single Landing.	For books of 10 Coupons.
	£ s. d.	£ s. d.
Small type	0 2 6	1 0 0
Medium type	0 5 0	2 0 0
Large type	0 10 0	4 0 0

Each coupon to permit of one landing on any R.A.F. aerodrome for a period of 3 months from date of issue Coupons to be transferable between aircraft, but not between owners.

No extra landing fee will be charged in respect of test flights before departure.

2. The R.A.F., its servants or agents, will not be liable for loss or damage by fire, flood, tempest, explosion, or other inevitable accident to aircraft or to the pilots, engineers, or other members of the crew thereof, or to any passengers, goods, or mails carried therein landing at or accommodated in any R.A.F. aerodrome.

3. (a) Attendance on civil aircraft by R.A.F. personnel other than the ordinary attendance included in the landing fees, will be charged for on the basis of labour and time. Such R.A.F. personnel will be available to assist civil aircraft only to a limited extent, and at certain aerodromes to be specified by the Secretary of State.

(b) Stores, such as fuel, oil, tyres, etc., and any standard spares that may be available, will be supplied to civil aircraft by the R.A.F. wherever possible, to meet emergency demands and when no other source of supply is available. Such supplies will be charged for, at the current retail prices.

(c) Repairs will be carried out by the R.A.F. for civil aircraft on emergency when no other arrangements can be made. Repairs will be confined to such work as will enable the aircraft to proceed by air within a short period. No repair which will exceed a cost of £10, exclusive of the cost of stores and spares supplied, will be undertaken before an estimate has been made and submitted to the owner of the aircraft.

Repairs carried out by the R.A.F. will be carried out to the satisfaction of the responsible inspecting officer, but no responsibility as to the airworthiness of the aircraft shall rest on the R.A.F. aerodrome staff.

(d) Where R.A.F. workshops are available but no R.A.F. personnel can be spared, arrangements will be made to permit the use of the workshops by civilian firms on appropriate terms.

(e) Subject to the exigiencies of the service, salvage of aircraft will be undertaken by the R.A.F. inside R.A.F. aerodromes, and as far as possible outside R.A.F. aerodromes. In both cases charges will be made accordingly to the cost involved.

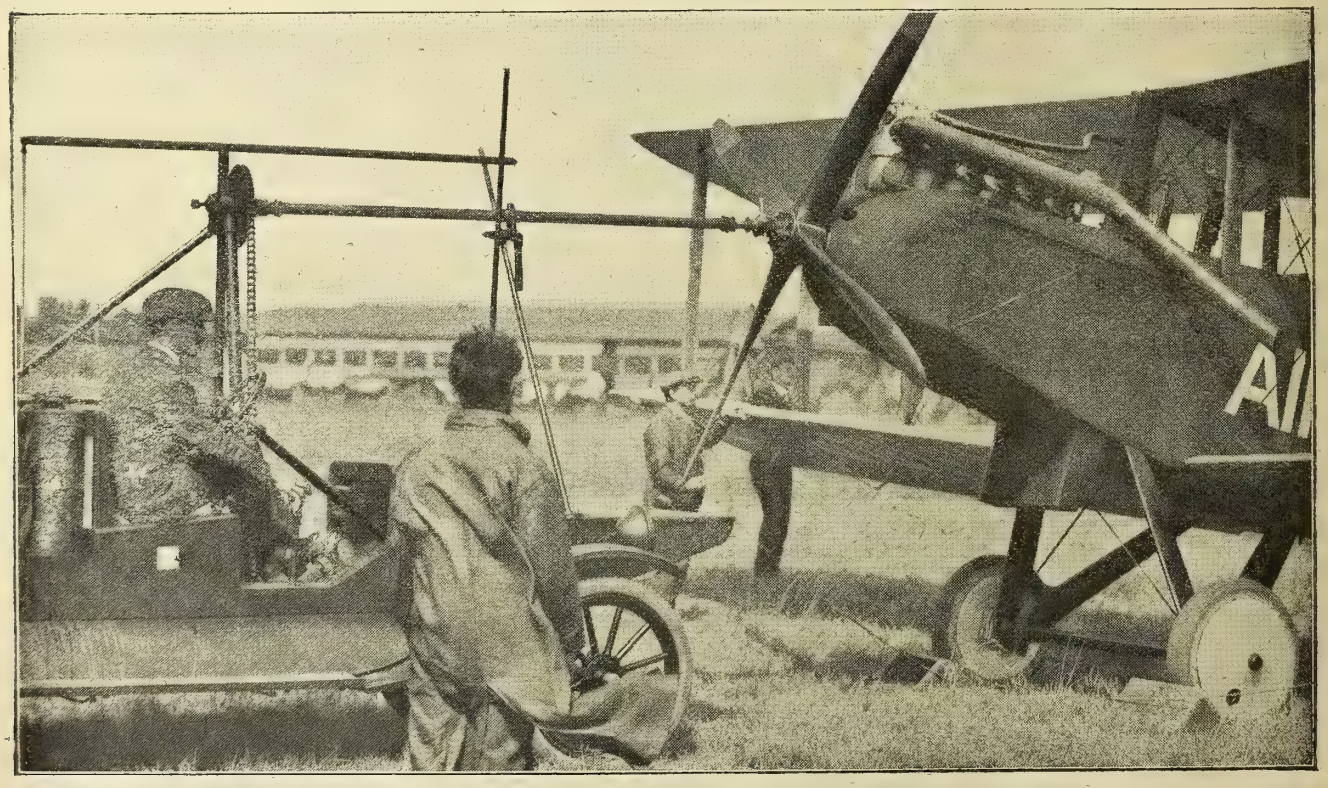
(f) Mechanical transport at R.A.F. aerodromes will be placed at the service of the civil firms on emergency, and when circumstances permit. The rates to be charged will be :—

	Per Mile.
	s. d.
5-ton lorry	1 9
3-ton lorry	1 6
30-cwt. lorry	1 3
Motor car	1 0
Motor cycle	0 4

These charges to include the driver; no vehicle being hired without an R.A.F. driver.

(g) Arrangements will be made for the use of telephone, telegraph, and Post Office facilities at R.A.F. aerodromes by civilian firms using the aerodromes.

4. Arrangements will be made for the use of aerodromes for purposes of tuition, exhibitions, or sporting contests. The charge



THE HUCKS-FORD STARTER.—An ingenious arrangement invented by the late Captain B. C. Hucks, in which an ordinary Ford car is fitted with an adjustable shaft with which the engine of any ordinary aeroplane may be started. It is here seen starting the Siddeley-Puma engine in Captain Saint's Airco D.H.9.

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will be in the form of a lump sum for the period for which the aerodrome is required.

The firm leasing an aerodrome for any such meeting shall be entitled to charge such entrance fees to spectators as they may desire. But they shall not charge more than the prescribed landing fees for any aircraft landing during the meeting. Such landing fee shall remain the property of the firm holding the meeting.

SEAPLANE STATIONS.

5. The arrangements and charges at R.A.F. seaplane stations will be, as far as practicable, similar to the above arrangements and charges at R.A.F. aerodromes.

VII.—Licensed Aerodromes.

1. The proprietors of licensed aerodromes will be regularly supplied through the Air Ministry with the latest approved meteorological information, and will be responsible for exhibiting the same in a conspicuous place, and for supplying the same to pilots requiring it.

2. Proprietors of licensed aerodromes should, as far as possible, keep records of wind and weather.

3. Adequate first-aid appliances must be kept at all licensed aerodromes.

WINSTON S. CHURCHILL,
Secretary of State for Air.

The first and obvious objection to these Directions is that they announce that the Air Ministry is setting up in trade. State trading is always bad business.

Nevertheless there is no help for it. The aerodromes are needed. They belong to the State. Aircraft owners cannot expect to have the use of them for nothing. So there is no way out of it except for the Air Ministry to set up as aero-garage proprietors.

One can only hope that these State aerodromes will be properly run and that the right people will be put in charge of them. The Air Ministry cannot be expected to find a Lindsay Lloyd or a Richard T. Gates or a Bernard Isaac to run each and every aerodrome, but it is to be hoped that capable and experienced business men will be appointed as managers and not young and swelled-headed R.A.F. officers, nor dug-out case-hardened sailors or soldiers who have gravitated down to the R.A.F. because their own services do not want them. There are, in fact, plenty of excellent men in the R.A.F. itself if the Controller-General of Civil Aviation will devote the necessary time and trouble to discovering them.

The garage fees do not strike one as being excessive, but they might well be reduced, and one fails to see why the landing fee for a small machine should be as high as the price for garage for 8 hours. A shilling should be quite enough for a mere landing, if the machine is left out on the ground and is not pushed into a shed.

If it is pushed into a shed, then 2s. 6d. is moderate enough. But when once it is there it costs nothing to the State, so the 2s. 6d. ought to cover it for the whole 24 hours.

Though it is not specified, one assumes that "joy-rides" given to the pilot's friends after landing are reckoned as "test flights before departure," and so do not involve any further landing fees. But it would be well to have an official dictum on this.

LANDING HABITS.

The idea of charging extra for pushing machines long distances is excellent. This will teach haphazard pilots not to go and stop their engines away out at the other side of the aerodrome, and will save the mechanics much sweat and swearing. From what one has seen of late, some of our war pilots really do need to learn a great deal about aerodrome flying, and this is one thing that will help.

But who is to judge what is "any considerable distance?" Recollect that side-slip landings and such "stunts" are forbidden, and that machines must alight in the proper direction in the prescribed "landing zone." That may take them a more considerable distance from the sheds than if they were allowed to do an Immelmann turn and a side-slip in over the sheds. These things must all be taken into consideration.

IN FINE.

Taking them all round, the Directions seem sufficiently reasonable in principle. The charges, on the whole, are less than those which would be made by ordinary aerodrome or garage proprietors. It only remains to be seen whether the principles are properly handled in practice. And that depends entirely on the selection of the men who are placed in command of these civil aerodromes. It may take some time to find the right men, but it is not difficult to do so, and one wishes General Sykes success in his task.—C. G. G.

MORE AIR MINISTRY METHODS.

The following letter indicates another of the Air Ministry's queer methods of assisting Civil Aviation:—

Sir,—Re Ground Engineers' Certificates.

Having forwarded a letter, copy of which please find enclosed, requesting an explanation as regards my examination for the above certificate, and up to time of writing not having received a reply, perhaps you will be good enough to find room in your columns for my experiences when applying for same.

I applied for a licence for all types of machines and engines. When being examined, I was faced by seven officials who gave me an oral exam.: but first informed me that I could only be examined in specified machines. Why?

Mentioning one or two types of machines and engines, I was examined in D.H.9s, and Clergêt and B.H.P. engines. The questions, in my opinion, on rigging and construction, were very fair, but although a number of questions were asked as regards carburation, ignition, etc., a great number seemed directed to finding out whether examinees had Pelmanised engine clearances as specified by the makers, and not as to how to take up play on big ends, bedding a crankshaft, and similar practical questions.

Two of the four candidates were recalled whilst I was there, and were informed that they had failed. An official came out to me, and informed me that I need not wait, as I should hear from London.

On the 6th inst., I received a licence which entitles me to check the rigging, and periodically overhaul Avros and Airco machines (How do the Air Ministry define an overhaul?), although no mention of the former machine was made, except that I stated that I had been inspecting for that company. But not a word about engines or an enclosure to say that I had passed or failed, only the usual request to return the enclosed receipt.

As you will note, I am a qualified inspector of Avros, although I have not been examined for that type of machine. It so happens that I have had considerable experience of the Avro machine, what will be the result if the Ministry issue certificates in a similar manner to persons who have not had the necessary experience?

Are not candidates entitled to know that the members of the Board who are examining them are fully qualified to do so? I believe in many instances the candidate would be found to have had far more experience than the examiners.

Personally, I have been responsible for the inspecting and submitting to A.I.D. of 450 D.H.9 machines, and I am wondering what experience the pilot who examined me on rigging, etc., had had of that machine, especially as my experience of pilots who have applied for positions as inspectors under me is, that although they may be remarkably good airmen, their knowledge of rigging and general aircraft construction is nil.

June 9. (Signed) "INSPECTOR."

THE RE-ORGANISATION OF THE R.A.F.

The following letter has been received:—

Sir,—You invite criticism of the proposals outlined by Major-General Sir Hugh Trenchard, K.C.B., D.S.O., in his speech of the 14th inst.

The following questions occur to me:—

1. Why should officers be invited to take temporary commissions and so enter a "blind alley" occupation?

2. Why should officers if they are proved fighting pilots and otherwise qualified as to age and education be chucked out of the Service to make room for officers trained in a "R.A.F. Sandhurst?" (whatever that training may be, I fail to see how it can compare with the training of actual warfare).

The Territorial Air Force is a sound idea, and if it could be run entirely with its own, or Navy, or Army, organisation would attract the best of the proved fighting and civilian pilots, and, I think, in case of need, would prove at least as efficient as the new R.A.F. outlined in the speech. "AUDAX."

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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

Inverted Aviators.

Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., told the British Science Guild the other day that aviators had told him that when they were flying upside down in fog or cloud "they had not felt any rush of blood to the head, and the only thing that suggested to them that they were flying upside down was the knocking of their cigarettes against their noses."

Of course, another method of proving whether one is upside down or not is to undo one's safety belt.

The remark also recalls the story of the boy who asked why the blood rushed to his head when he stood on it but did not rush to his feet when he stood upright. He was told it was because his feet were not empty.

"Name—Address—Description."

A correspondent writes to the "Times":—

In the parish register of Whittington, Salop, is an entry of a marriage, under date Sept. 11th, 1837, in which the "condition" of the parties is recorded thus:—"The man fat," "The woman rather lean."

A letter was published in the "Times" of Monday pointing out that in legal documents "description" is often taken too literally.

This reminds one that during the war the numerous forms that had to be filled up were a source of innocent merriment to many. One remembers the following dialogue between a worried officer and a dazed airman:—

"What's your name?"

"Jones, Sir."

"What initials?"

"Church of England, Sir."

Side-Step Landings.

Describing the Aerial Derby, an evening newspaper stated that "Colonel Henderson was another who was up and did some beautiful side-step landings."

The ability to side-step is very useful when a pilot is visiting a civil aerodrome and has landed in the taking-off zone owing to the confusion caused by contradictory regulations.

It now remains for the "Daily Mail" to continue its aerial activities by offering a prize of a golden slipper for the side-stepping aeroplane with the smallest feet.

Those D—— Dots Again.

The "Daily Chronicle," evidently feeling that the successful trans-Atlantic flight has united the two nations, has begun to study the American language. Observe:—

"Captain Alcock's achievement has set optimists talking of the near future, when aircraft will 'compete commercially with the fastest liners and cable companies.'

"Well, the liners are beaten to a frazzle already, but the cable companies are not likely to worry yet awhile. The time taken for a signal to travel the Atlantic cable from Valentia to Nova Scotia—2,690 miles—is 0.28 sec., and the aeroplane that beats that will have to hurtle along at something like a quarter of a million miles an hour!"

The attempt to write American is better than the arithmetic. The M.P.H. would be over thirty-four and a half millions, which is something very unlike a quarter of a million miles an hour.

One feels that the writer would be a worthy successor to the famous Statesman who explained that he "never did understand what those damned dots meant."

Sympathy.

The U.S.A. War Department reports that "Col. Archie Miller, from an airplane, dropped the ball for the Yale-Princeton Game, Saturday."

A sympathetic member of the W.R.A.F., who read the announcement, was heard to remark, "Hard luck."

Another Ruthless Rhyme.

Felix, of the Zeppelin huns,
Watching anti-aircraft guns,
Laughed and laughed, and laughed and laughed,
Till he fell out, and thus was strafed.

* * *

A p'liceman and a copper's nark
Found him in St. James' Park.

The Faithful Camera.

On June 20th, the "Daily Mirror" published a photograph with this inscription:—"The R.34, provisioned for several days, starting off for Heligoland and Kiel Canal."

In large letters and figures one sees R.33 painted fore and aft on the airship which is depicted. "Ah, well! these little mistakes will happen," as the bank clerk explained to the manager, who complained that he had added the date to the amount standing to a customer's credit.

Unexciting Inactivity.

According to the Air Service News Letter from Washington:—

> Lieutenant William McBreck, R.M.A., A.S.A., accompanied by representative of Pathé News Service, flew over Mount Lassen an inactive volcano taking moving pictures."

But can a volcano that is taking moving pictures be called inactive?

If the writer means that the Pathé representative, and not Mount Lassen, was taking the kinema photographs, then one wonders who would pay to see moving pictures of an inactive volcano. It would be even less exciting than a film showing a slumbering Boloafer taking the necessary inaction in the Bolo.

It Merits Punishment.

It is announced that:—

"Captain Louis E. Appleby, commanding the fliers covering Arizona on general recruiting, carried in his airplane from the people of the Imperial Valley, California, to the Governor of Arizona, a crate of cantaloupes—distance 260 miles, time 200 minutes."

A flippant Pressman remarked that judging by the speed Captain Appleby can't-a-looped on the way.

The Aeroplane Linen Deal.

The daily newspapers have indulged in somewhat ill-considered criticism of the sale of forty millions of yards of aeroplane linen to Mr. Leonard J. Martin for the sum of £4,000,000. It is said that by this deal Mr. Martin has "cornered" the market.

The "Morning Post" of June 20th remarked:—

". . . . In 1915 the whole produce of the Irish factories was commandeered. The demand grew enormously as aircraft production expanded, and millions of yards were called for, practically unlimited orders going to Ireland, all weaving for other purposes being stopped. The result is that outside of Great Britain there is practically no linen cloth at all. France and Italy are clamouring for it, and Germany presents a vast market. She has no linen.

"Last year the Government took the further step of buying up, for £12,000,000, the whole Irish crop of flax, the acreage of which had been greatly extended, as no flax was coming from Russia. This price worked out at about £40 per acre, whereas the normal figure was £2 10s. The British Government, in fact, had a monopoly of the world's flax, for Russia, having gone Bolshevist, did not count. They also spent over £1,500,000 on trying to cultivate flax in Yorkshire, but the experiment was not a success.

"Mr. Martin is now in possession of the whole woven output of the Irish mills and stuffs produced elsewhere. It was made to certain specifications, and is probably the strongest fabric made, capable, as one of the leading manufacturers told a representative of the 'Morning Post,' if taken from the loom and used as a cable, of holding a battleship. It is unbleached, but can be used for ladies' dresses, sheets, table linen, underclothes, and is more enduring than cotton.

"In an announcement in these columns this year the Government said it had great quantities of linen on sale, but limited the unit to 1,500 yards, at 7s. per yard. Mr. Martin has been enabled to buy 40 million yards for £4,000,000—2s. a yard. If he sold to-day at 3s. a yard he makes a gross profit of £2,000,000. What the cloth has cost the Government is not known. A Belfast manufacturer put it at nearly 4s. per yard at the very lowest, because all prices were enhanced, the women and children who gathered the crop last year getting over £1 per day. Formerly they were paid 15s. per week. The difference between 2s. a yard and 7s. a yard is £10,000,000.

Belfast will be seriously affected by this deal. Till Mr. Martin has disposed of it they will probably have to shut down their mills. He makes no disguise of the fact that he can undersell

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1. The Pilot of the English machine which has now crossed the Atlantic, thereby winning the "Daily Mail" prize of £10,000, stated "that he thought the flight should be done not with an Aeroplane or Seaplane, but with a FLYING BOAT," vide "Daily Mail," 16th June, 1919.

2. Messrs. Hawker & Grieve in an efficient Land Machine failed only because of a choked filter. Had a FLYING BOAT been used it would have been possible to alight on the water in order to rectify the trouble.

3. The first machine to cross the Atlantic was a FLYING BOAT N.C.4. Another FLYING BOAT of this type was forced to alight on water, but succeeded in reaching port 200 miles away under its own power.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The WORLD of AERONAUTICS (continued)

them in any market. It will also prove disastrous to the cotton trade, for the finer counts cannot be sold owing to the present price of cotton.

"The situation caused the utmost consternation yesterday among all engaged in what the Americans call "the dry goods trade."

Other journals publish letters from correspondents who, in language of varied temperatures, demand to know why the Government have not sold the linen directly to the public, as a monopolist's profits might then have been saved and the country might have obtained from its property a sum approaching that at which it was purchased.

The demand seems reasonable until one reflects upon all that might have happened if the Disposal Board had decided to peddle 40,000,000 yards of linen. Having some knowledge of departmental methods, one thinks that the first step would probably have been to commandeer another London hotel in the most fashionable and expensive quarter that has not yet been Governmentalised. Then there would have been carried out a recruiting campaign with the aid of expensive highly-coloured posters, to inform linen drapers' assistants that their King and country needed them. Those assistants would have to be fitted out with specially-designed uniforms and drilled. Officers would then be appointed by the Air Ministry from the mass of those who are not sufficiently acquainted with any branch of human knowledge to be able to earn a living in any civil capacity, and an establishment would be drawn up to provide some chances of promotion, such as appointments as Controller-General of Surplus Textiles, Deputy Assistant Controller-General of Lingerie Department, Technical Adviser in Chief to Controller-General of Surplus Textiles, Juvenile Underclothing Department, and so on.

By the time the fashionable hotel had been converted into a departmental store and all the officials had been gazetted it is probable that two years would have elapsed, and by this time the Special Legion of Royal Linen Drapers and Haberdashers would have grown into a vast organisation and have been reviewed complete with bands in Hyde Park, loudly cheered by the taxpayers.

Officers in brass hats would have been sent for special courses of instruction at Oxford to learn the art of shopwalking from experts enlisted from Peter Robinson's, and who had been given rank of acting colonels for the purpose.

What fun we might have had! On the whole one is inclined to think that the Bolo has missed a great opportunity, but that the country is probably quite a lot in pocket by this deal.

And, anyhow, it gets £4,000,000 for the linen, whereas if it had sold the stuff itself, the whole of the value, and a bit over, would have been dissipated in selling expenses.

An American Invention.

According to the "Telegraaf," of Amsterdam, a large flying-boat is in the course of construction in America which will be driven by two steam turbines together developing 1,200 h.p.

The R.A.F. Club.

At the anniversary dinner of the Lyceum Club, Piccadilly, on June 23rd, Lady Strachey, the president, announced with regret that that would be the last Monday dinner of the club, because the premises had to be vacated shortly in order that the Air Force might take possession.

Flying to India.

According to a message dated June 21st, a squadron of British aeroplanes left Athens recently for India, *via* Crete and Egypt.

Folkestone to Cologne Air Mail.

The daily aerial service between Hawkinge and Cologne has increased very much. The service was instituted on March 1st with four aeroplanes and carried 25 bags of mails. Since then the mail has increased to a total of 2,276 outward and 886 inward bags for the three months ending May 31st.

Correspondence leaving Cologne one morning has been delivered to all parts of England and Wales by the first post on the following morning.

Flying Fatalities in Peace-Time.

Records of flying fatalities at U.S. flying fields show an increase in the fatality rate in recent months as compared with the average rate up to the Armistice. From June 1st, 1918, to the Armistice the average hours flown per fatality was 3,149; from the Armistice to date the average is only 1,852 hours per fatality, or an increase in the rate of 41 per cent.

The following table shows the pre-Armistice rate compared with monthly rates since the Armistice:—

Period	Fatalities.	Hours flown.	Hours flown per fatality.
June 1st to Nov. 11th, 1918.....	156	491,283	3,149
Nov. 11th to Jan., 1919	42	78,831	1,877
January	6	16,498	2,750
February	17	15,688	922
March	14	28,072	2,005
April	6	14,650	2,441

The Dutch Aircraft Exhibition.

It is now stated that the Vickers "Vimy" biplane (Rolls-Royce engines), which crossed the Atlantic on June 14th, will be exhibited at the Dutch Aircraft Exhibition at Amsterdam this August. Capt. Sir John Alcock, K.B.E., D.S.C., R.A.F., is expected to pilot the machine.

The "Daily Telegraph" correspondent states that this show is to be kept entirely for the British and Allied Aircraft Industries, but adds that at present the French are better represented than the British.

Among the British firms exhibiting are Handley Page, Ltd., the Aircraft Manufacturing Co., Ltd., the British Aerial Transport Co., Ltd., the Blackburn Aeroplane and Motor Co., Ltd., and the British and Colonial Aeroplane Co., Ltd.

The Territorial Air Force.

General Sir Hugh Trenchard opened on June 20th the first aircraft instructional wing in connection with the Territorial Air Force movement at 25, Camden Road, St. Pancras. He emphasised the importance of the formation of such wings, and said that those working with him at the Air Ministry were devoting great attention to the development of aircraft in the Territorial Force.

This instructional wing is affiliated to the 19th County of London Battalion of the London Regiment, and its object is to instruct boys between the ages of fourteen and seventeen in aeronautics. Some forty boys have been accepted as cadets, and wear khaki uniform with the old R.F.C. cap, which are lent to them on payment of the entrance fee of 2s. 6d. and can be bought for 28s.

The Air Ministry has supplied a number of engine and aeroplane parts with many diagrame, and also they have obtained three aeroplanes and a new 110 h.p. Le Rhône engine.

The O.C. is Major Moore, of the Territorial Force Association, and he is assisted by a few officers and ex-officers of the R.A.F., who voluntarily lecture and instruct the cadets, together with a technical sergeant-major who is stationed at the depot.

Classes are held on Tuesday and Thursday evenings from 7.30 to 9.30, lectures on engines and rigging being alternate. Unfortunately, only half the cadets take advantage of these classes, but they are all very keen on the trips to aerodromes and aeroplane works.

There is accommodation for another twenty or thirty good class cadets at the Camden Road depôt, but boys are wanted who are really keen on aeronautical engineering; and ex-officers of the R.A.F. are also urgently required for instructors.

Several other instructional wings are shortly to be opened, affiliated to other battalions of the London Regiment in other parts of London, and there is no doubt that as soon as they become known of a great many boys will take advantage of the training.

These instructional wings are excellent for teaching boys to become aeroplane mechanics, or perhaps even aeronautical engineers, but they do not help to form a Territorial R.A.F. of ex-flying officers and cadets which is so urgently required to be formed before all the demobilised pilots lose their keenness to fly and get swallowed up in civil life.

The statement at the beginning of this article that "the Air Ministry were devoting great attention to the development of aircraft in the Territorial Force" might mean many things, but one hopes it indicates the start of a real Territorial R.A.F., about which one may be able to write more next week.—G. L. DORE.

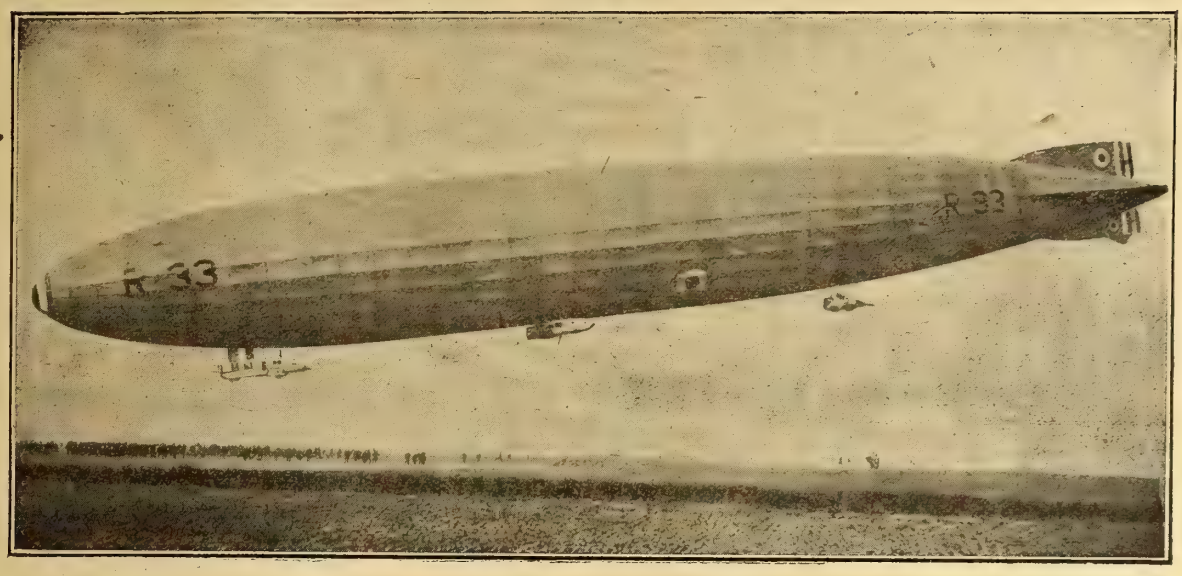
The Accident Near Sleaford.

At Lincoln Assizes on June 20th, before Mr. Justice Shearman, Flight Cadet Trevor Walter Chater, R.A.F., aged nineteen, was acquitted on the charge of the manslaughter of Captain Robt. Garspar Dunn and Lieut. William John Pegg, two convalescent officers, who were driving to a hunt meeting at North Ranceby, when an aeroplane swooped down on them and killed them.

Edward Labraham, stud groom at Caythorpe Court, who was driving the trap, said that he saw the aeroplane following them on the road. It dived, and then for a time disappeared over the Cranwell Aerodrome. When he saw it again the aeroplane was right on top of them. It hit him on the head, and he became unconscious. When he recovered he was still in the trap and the two officers were in their places—dead.

The defendant said that he was the pilot. He saw the trap on the road, and went over the aerodrome to give it an opportunity of going forward. He was practising diving, and travelling 90 miles an hour. There was a haystack fifteen yards from the road, and that was his diving objective. He turned and dived for the stack. At that time he saw nothing on the road, but felt a bump. At first he took it for an air bump, but on reflection thought the pressure he felt was too great for that. He turned and searched along and around the road, but saw no trace of the horse and trap. He was informed of what had happened later.

The defence set up was that there was no such culpable negligence as would justify a verdict of manslaughter. A breach of discipline in flying low over the road was not sufficient to establish manslaughter.



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The WORLD of AERONAUTICS (continued)

Hawking German Aeroplanes.

It was announced on June 20th that arrangements had been made with the Air Ministry to supply six captured German aeroplanes for Trafalgar Square. These will be placed on the square on June 26th, 27th, and 28th, and will be dismantled and given away in parts to those who purchase Victory Loan or War Savings Certificates.

One believes that the scheme is likely to benefit the Loan much as one dislikes the idea of the Government hawking fragments of these aeroplanes for the sake of pandering to somewhat morbid tastes.

Aviation and India.

On June 5th, Brig.-General the Lord Montagu of Beaulieu read before the Indian Section of the Royal Society of Arts a highly interesting paper on aviation as affecting India.

Unfortunately the pressure of current events has prevented the publication of that paper hitherto, and the paper itself is of such importance as to make it impossible to publish a brief résumé of it. Therefore one hopes at an early date to publish the bulk of the paper and all the comments thereon.

General Ashmore and the L.A.D.A.

Major-General E. B. Ashmore, C.B., C.M.G., M.V.O., R.A., unveiled a memorial at Poplar on June 23rd to the 18 children who were killed in their class-room at the Upper North Street London County Council School on Wednesday, June 13th, 1917, by the explosion of a bomb dropped by enemy aircraft.

Speaking as the officer to whom was entrusted the duty of organising London's air defences, General Ashmore said that the authorities did not know at the time how decisive was their victory. Personally, he felt at the time of the last raid that the enemy would not try to get to London again, although he did not like to prophesy, for that was a very dangerous thing to do. Between that day and the signing of the armistice he had perfected a new system of defences, and when November 11th, 1918, came the defences of London were at least four times as strong as they were on the preceding May 19th.

Up to the raid which killed the children at Poplar, the enemy had come in the daytime with impunity. The bomb which killed the children weighed 100 lb. In a way the school was lucky, for the bomb broke in two in going through the floors, and only one part of it exploded. It was after this that the L.A.D.A. were started, and during the time they were in progress there were two more day raids made with a view to reaching London. One was stopped at Southend and the other at Ramsgate, and at the latter place the guns shot down two of the raiders.

So far as the night raids were concerned, he himself at one time looked as though he would be hanged, but the Government spared nothing in the way of guns and searchlights. London, however, owed its defence more particularly to the gallant boys who flew by night, and so splendidly did they do their work that two squadrons were made up to do night fighting work over the lines in France.

The balloon aprons which were erected in certain localities were also found very serviceable. Accordingly, on May 19th, 1918, when seven machines were brought down, this finally decided the Huns and they left London alone and turned their attention to Paris, which they afterwards raided sixteen times.

PARIS NOTES

Height Records.

Lieut. Casale is a most persevering aviator. On June 14th he set out for the third time in the short space of two weeks to beat the height record. Each time he has beaten it, and in so doing has had the satisfaction of beating his own. His present (and the world's) height record is 10,100 metres (32,825 ft.)—what memories does it conjure up of Paulhan's first attempt on a height record, when, at Brooklands he attained the dizzy height of 970 ft.! Thus one has no hesitation in affirming that he has been higher than living man, unless, perchance, the few balloons and dirigibles that have "escaped" have carried their unwilling occupants higher; but then they have never returned to say.

He left Issy-les-Moulineaux at 9 a.m., and landed at Villacoublay one hour and fifty-five minutes later. The lowest temperature recorded during the flight was 50 deg. Cent. (80 deg. Fahr. of frost). As in his previous attempts, he flew a 300 h.p. Hispano-engined Nieuport with a Lumière propeller.

Urged no doubt by the claim made by Miss Ruth Law of having flown at a greater height than her recent record, as far back as 1917, Mme. de la Roche decided to make an attempt and to beat her own record. With this object in view, the aviatrice left Issy-les-Moulineaux on the 12th inst. at 7.8 p.m. on her tiny G3 Caudron. Climbing with remarkable regularity, she reached rapidly a height of 4,800 metres (approximately the height of Mont Blanc). At this altitude she encountered fog, and as the night was approaching she was obliged to land at 9.15, at Gastins, 8 kiloms. from Nangis, in a clover field. The landing was without incident. The following day she returned to Issy, accomplishing the 70 kilometres in 1 hr. 40 min. The attempt was witnessed on behalf of the Aero Club, by Capt. Madon, Adjudant Chainat, and Sgt. Jalaquier.

Two Competitions Deferred.

The competition that was to have been organised by the "Echo de Paris" with prizes of 300,000 francs has been postponed till 1920 for various reasons, chief among them being the wish to give constructors sufficient time to design and construct machines specially suitable to the conditions of the competition.

The Aerial Circuit of the Battlefields has also been postponed, though for different reasons, chief among these being the difficulty, nay, impossibility, of preparing sufficient landing grounds in the middle of the devastated areas

[The devastated areas are full of the best aerodromes in France, built by the Germans regardless of (French) cost. Probably the real reason is the impossibility of getting a "gate" in the devastated areas.—Ed.]

The cross-country contest organised by "L'Avenir" with 100,000 francs in prizes will be held as originally arranged.

Voisin Works Ablaze.

Part of the Voisin Works and hangars at Issy-les-Moulineaux were burnt out this last week. Most of the buildings affected were of wooden construction, so that the fire spread rapidly, and it was only after great efforts that the Caudron Factory was isolated. Another achievement of the scratch fire brigade was the isolation of the petrol store. The saddest part of this conflagration is the fact that Mr. Gabriel Voisin's laboratory particularly suffered, and that many dossiers of his plans and inventions, some not yet public, were completely destroyed.

Coming Events.

The French aeronautical authorities have recently communicated to the Press a note of the great flight which is in course of preparation, under official patronage, and also a list of the pilots chosen to accomplish them; even the makes of machines and motors have been published as chosen. The routes are:—Paris-Constantinople, Paris-Madrid, Paris-Prague-Warsaw-Vienna, Paris-Brussels-Amsterdam, Paris-Cairo *via* Constantinople, Paris-Tunis and return, and Paris-Dakar. The fortunate pilots selected are:—Commandant Vuillemin, Capt. Fonck, Lieut. Marinovitch, Lieut. Flacnaire, Lieut. de Romanet, and Lieut. Lemaitre, and the machines and engines adopted are:—Nieuport, single-seater, 300 h.p. (235 k.p.h.); S.E.A. fighting two-seater, 400 h.p. (210 k.p.h.); Spad, single-seater 300 h.p.(231 k.p.h.). Caudron, twin motor (touring type); Farman twin motors (touring type); Bréguet, two-seater, 400 h.p.

Under the direction of Squadron Commander Poli-Marchetti all this organisation is grouped, the main idea apparently being economical utilisation of effort and material.

There is likely to be considerable criticism of this plan, because it deprives the industry of the necessary stimulus for making these intercapital flights itself, and because it savours too much of a prejudiced selection of machines and pilots, particularly the latter, as there are so many thousands from whom to choose. No doubt, when the authorities fixed on the scheme and promised it their official support, they were mainly concerned with satisfying themselves that these flights would be accomplished by the best pilots and best machines, helped by the best State organisation, in order that the best effect possible should be produced in the foreign and adjacent markets. One of the most puissant arguments against this method of State fostering is that the official list of pilots does not contain either Roget, Fontan, or Lemaitre!

The Air Code.

The Aeronautical Commission of the Peace Conference has finished the draft of the Air Code. This convention, which will regulate and control future international aerial navigation, was agreed to unanimously, and has been signed by the different Allied States, and now only awaits its final ratification.

Captain Ropert, secretary to the Commission, recently went to Brussels and London by aeroplane, in order to get the code signed by statesmen who were unable to sign it in Paris.

The New Aerochirs' Trial Flight.

The new model of the aeroplane fitted for surgical work made its trial flight near Paris this week, taking on board Dr. Tuffier, member of the French Academy of Medicine, and Dr. Foveau de Cournelles. On landing, they expressed themselves well satisfied with M. Neminowski's arrangement.

A New Aviation Journal.

Another aviation paper, called "L'Air," has made its appearance as a monthly illustrated. It has passed through all the difficulties, and has all the defects of a first number, but is brightly written for the lay public. One hopes it will have greater success than "La Poste Aerienne," which made its first and last appearance three months ago.—F. T. N.

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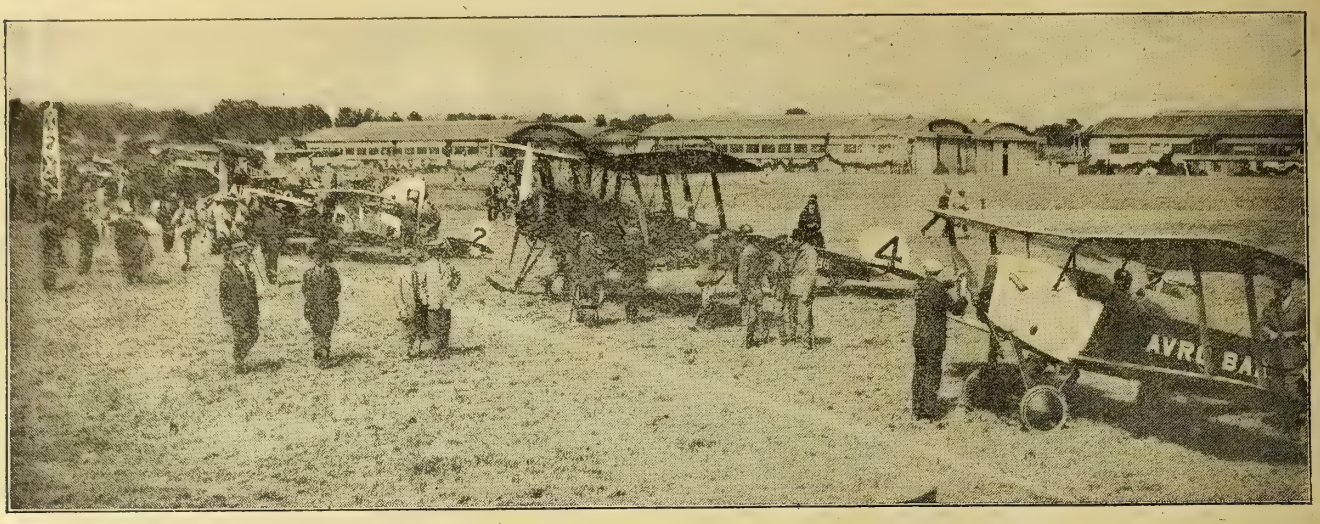
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THE AERIAL DERBY.



THE START FOR THE AERIAL DERBY.—As seen from the Enclosure.

The London Aerodrome at Hendon bore quite a remarkable likeness to its pre-war self when the Aerial Derby was flown on June 21st. There was quite a good crowd, albeit the enclosures only covered about half the area available before the war. There were many fine cars present. And there were some quite good people among the crowd, though it is evident that even the advertisement given to flying during the war has not convinced either the newspapers or the better classes of Society that aeroplane racing is as important as horse-racing to the future of this country.

One is as yet unable to lay hold upon the precise psychological cause which makes a second-rate horse-race a "function" while a first-class air-race remains only a "show." Perhaps it is that the newspapers overdo the advertising of aviation instead of accepting it as an ordinary fact of daily existence, and so set against it the better-class people who object to having things rammed down their necks by ignorant journalists. If the papers merely reported aviation events day by day as they report horse-racing and cricket and boxing and so forth, perhaps flying might soon be accepted as a national sport instead of merely as a newspaper stunt. On which point one recommends a study of "Medway's" article under the "Commercial Aeronautics" heading this week.

However, to return to the Aerial Derby. The accommodation for visitors at the aerodrome has been improved since Whitsun. The private boxes, called cattle-pens by the irreverent, are a good idea, in that they provide a certain amount of privacy from the crowd for the elect who can afford to indulge in luxuries, and should also provide useful protection for the crowd if a machine should suddenly go mad and bite and decide to charge the railings. It is obviously better that an aeroplane running *amok* should wipe out a few sparsely inhabited private enclosures than that it should hew its way through a closely packed crowd.

The catering arrangements will doubtless be got right in time, but some early visitors were rather annoyed to see a dozen or more waitresses hanging around doing nothing while people were sitting waiting to get some lunch before the race began. One recommends this department generally to the attention of the aerodrome management.

Thanks to the efforts of Mr. Bernard Isaac, who generously gave his services and his vast experience to organising the race, probably out of sheer devotion to the sport of aviation, and owing to a desire that the first post-bellum Aerial Derby should not disgrace those with which he had been concerned before the war, the actual arrangements for the race were very well made. Still, one man cannot do everything, and he must rely on the intelligence of those who have to carry out his instructions, and so, human intelligence being what it is, those who complained about minor defects in the organisation should blame those who had to operate the plans rather than the man who made them. For example, it was presumably not part of the original plan that the machines on the starting line should be pulled and pushed into new positions over and over again during the hour or so before the start.

The race itself was, on the whole, quite a satisfactory effort, despite the best efforts of the Air Ministry to ruin it. The best speeds were at any rate 20 miles an hour below what they would have been if the Air Ministry had not tried to spoil sport, but they were high enough to give the public a very fair idea of pace.

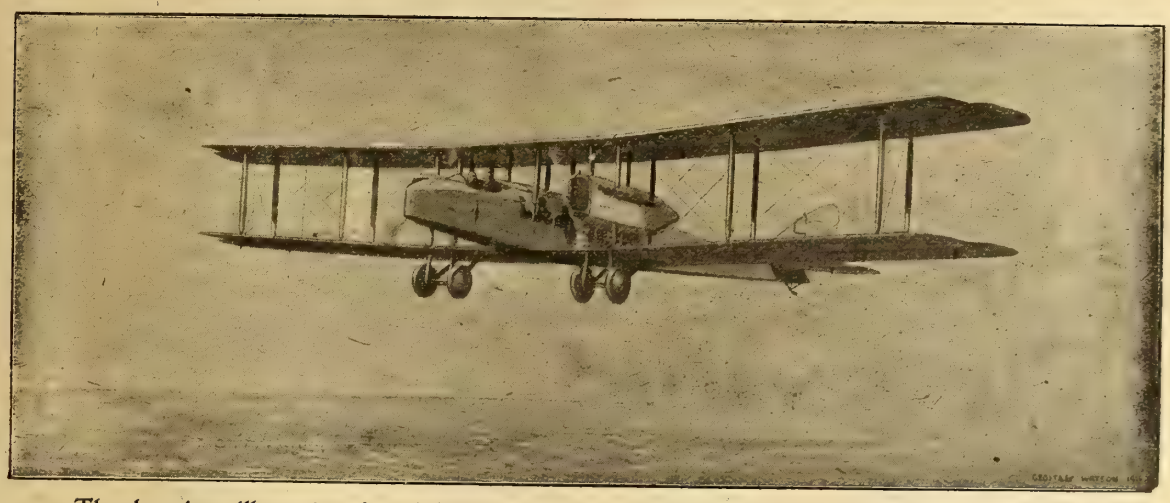
The winner's machine, an Airco D.H.4 with a 450 h.p. Napier Lion engine, had been speeded up by the simple process of cutting off the lower plane for a complete bay on each side, thus giving a vast overhang to the upper plane. This meant less surface, and so heavier loading per square foot, and less head-resistance. The result was a machine which flew faster, but seemed to be dragged through the air rather than to float, as is the manner of other D.Hs. Nevertheless it was a fine speed machine, and Captain Gathergood flew an excellent course.

The finish of the race was entirely spoiled by a Kangaroo and a Grahame-White Avro, the former with a parachute *artiste*, which played around and distracted attention just when the most tense interest should have been aroused by the arrival of the winner. The aerodrome official who let this raree show occur at precisely the wrong moment should evidently be prevented from interfering in future serious flying.

The second machine in the Handicap, which was also the third in the scratch race (or Derby), the 170 h.p. A.B.C.-Bantam-



THE PRIZE WINNERS.—Left to Right: Capt. Gathergood (First in the Derby); Capt. Hamersley (First in the Handicap and Last in the Derby); Lieut. Nisbet (Second in the Derby and Third in the Handicap); Major Draper (Second in the Handicap and Fourth in the Derby); Mr. Marcus Manton (Third in the Derby and Fourth in the Handicap).



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Bat flown by Major Chris. Draper, had likewise had its lower plane abbreviated right up to the undercarriage struts. Its terrific speed for its size made a very great impression. The long upper plane, the white body with its black cowl, and the generally slender and minute appearance of the machine, inspired a humorist to call it "the Skinned Bat," and as such it is likely to be known in future. Major Draper, who has an excellent war record, showed that he has the makings of a first-class competition flier, as well as being a wonderful demonstration pilot. He never gave away an inch at the corners of the aerodrome, nor—one is told—at the turning points along the course. One expects big performances from him in the classic air races of the future.

Lieutenant Nisbet's Martinsyde, which has the beautiful lines which one associates with all Martinsyde design, had rather hard luck in losing the Derby, for one believes that it was a shade faster than the Airco-Lion of Captain Gathergood. Mr. Nisbet obviously flew a very good course across country, but he flew wide on the turns, and may have lost himself the race in consequence. He also will do well in future races. After all the good work Messrs. Martin and Handasyde have done since the earliest days of flying, everybody would be glad to see them pull off a big event, and one wishes them luck in future.

Though the crowd had gone before he finished, those on the inside of things and those who were sufficiently interested to stay to the end gave Captain Hamersley a fine reception when he finished on the little 35 h.p. Green-Avro. Considering that Captain Hamersley had flown the machine from Southampton in the morning, he put up a very plucky performance, and he thoroughly deserved his win in the Sealed Handicap.

He went up again a few minutes after he had finished and gave a display of fancy flying which quite fascinated the onlookers. He is certainly one of the neatest pilots in this country to-day. The little Green engine—which, incidentally, is nine years old, and is the identical engine with which Colonel Beatty, Captain Pixton, and several other famous aviators took their certificates on the original Avro biplane in 1910 and 1911—ran like a sewing-machine, and the machine's neat lines and obviously easy flying quite took the fancy of everybody who knows anything of aviation, and of a great many who do not. If the engine can be produced at a reasonable price, here is evidently the prototype of the light sporting machine of the future.

It is another proof of the fact that if a thing *is* right it *looks* right. Also it proves once more that the man who has a natural eye for design, and who has learned the art of construction in the school of experience, can more than hold his own with the designer who has merely swallowed an N.P.L. Blue-Book and suffers from mental indigestion in consequence.

The fastest machine in the race was the Jazz-painted Nieuport Nighthawk piloted by Lieut. Tait-Cox. The builders had somehow managed to get hold of an A.B.C. Dragonfly engine in spite of the Air Ministry. It put in a fearsomely fast first lap, but apparently the engine expired about half-way round the second lap. Another Nighthawk, very skilfully piloted by Mr. James, gave a very impressive show of trick-flying during the afternoon, and made one regret all the more that its stable-companion failed to finish.

Mr. Clifford Prodger, who flew a standard Bantam Bat with a Wasp A.B.C., was stopped at Fairlop by broken tappet-rods. This was particularly hard luck, as he had refused a mount on other machines in order to fly the Bat which he admires so much. One gathers from him that his engine failure has in no way affected his high opinion of the Bat machine.

The big Commercial Bat was unfortunately put out of action in the morning before the race by Mr. Cyril Turner, who apparently tried to land too slowly after his first trip on the machine, and buckled a tube in the landing-gear. The machine was unhurt, but as the undercarriage was not working properly Mr. Koolhoven refused to allow the machine to start. The previous day Major Draper had flown it round the course at a speed which would have put it somewhere between the Martinsyde and the Skinned Bat in the Derby.

Mr. Marcus Manton put up a very good performance on a D.H. (Airco) 4 with a 375-h.p. Rolls-Royce, and finished slightly in front of Major Draper, who had started just in front of him.

Another pilot who had bad luck was Major C. H. C. Smith, D.S.C., who started on a Bristol monoplane with a 110 h.p. Le Rhône. His start showed him to be a very able pilot, and the known speed of the machine should have assured him a place in the Handicap. Unfortunately his engine went wrong, and he came in at the end of the first lap far behind his proper time, with his engine missing badly. His landing was beautifully judged and confirmed the impression made by his start.

Major Carr on one of the Grahame-White single-seaters also fell out on the first lap owing to engine trouble, Capt. Chamberlayne on the other G.-W. failed to finish the second lap.

Lieut.-Colonel Henderson was entered to fly another F.4 Martinsyde, but was stopped by the Air Ministry, so he started pluckily on a standard Avro, but was handicapped too heavily to make a show at the finish. Captain Saint, on a D.H.9, also finished the course.

Altogether the race was well worth seeing, but, except for Mr. James' exhibition on the Nieuport, there was little of interest while the competitors were away. Presumably shortage of machines and pilots prevented the pylon-racing which used to take place in the dull moments of the Aerial Derbys before the war. Still, no doubt matters will improve in future if Mr. Isaac continues his connection with the aerodrome and if he is given a free hand.—C. G. G.

SOME TECHNICAL NOTES.

(1) BAT "BANTAM."—The Bat "Bantam" flown by Mr. C. B. Prodger was a standard machine of the type already described in THE AEROPLANE.

The principal dimensions of the machine are:—Span, 25 ft.; gap, 2 ft. 3½ ins.; length, 18 ft. 5 ins.; area of wings, 185 sq. ft.; engine, "A.B.C., 170 h.p., Wasp; speed at ground level, 138 m.p.h.; weight (loaded), 1,333 lbs.

(2 and 5) GRAHAME-WHITE "BANTAM."—Two Grahame-White "Bantams" started.

The principal dimensions are:—Span, 20 ft., gap maximum and minimum of 3 ft. and 2 ft. 9 ins.; length, 16 ft. 6 ins.; area of wings, 130 sq. ft.; engine, 80 h.p. (le Rhône); speed low down, 100 m.p.h.; weight (loaded), 995 lbs.

(3) BAT "BANTAM."—This machine, flown by Major Draper, D.S.C., was also a standard machine, except that the lower plane had been cut down to a point just outside the first set of interplane struts, which gave the machine an appreciable increase of speed. The resultant overhang of the top plane was braced by inclined struts, the aileron-control wires being taken along this inclined strut and over pulleys to the single ailerons on the top plane.



THE WINNING MACHINE.—Captain Gathergood's Airco D.H.4, with a Napier "Lion" Engine (450 h.p.), which won the Aerial Derby.

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STARTERS, TIMES, AND HANDICAPS.

Pilot.	Machine.	Engine.	Actual Time hr min sec	Handicap hr min sec	Hand'p Time hr min sec
1. Capt. G. Gathergood, A.F.C.,	Airco D.H. 4R.	450 h.p. Napier	1 27 42	Scratch	1 27 42
2. Lieut. R. Nisbet	Martinsyde F.4.	275-h.p. Rolls	1 31 3 3/5	0 4 0	1 27 3 2/5
3 Marcus D. Manton	Airco D.H.4.	375-h.p. Rolls.	1 36 41 4/5	0 9 30	1 27 11 4/5
4. Major C. Draper, D.S.C.,	B.A.T. Bantam	170-h.p. A.B.C.	1 37 7	0 13 20	1 23 47
5. Capt. H. J. Saint, D.S.O.,	Airco D.H.9.	240-h.p. B.H.P.	1 51 55	0 23 30	1 28 25
6. Lt.-Col. G. L. P. Henderson, M.C., A.F.C.	Avro.	110-h.p. Le Rhône	2 30 45 1/5	0 57 0	1 33 45 1/5
7. Capt. H. A. Hamersley, M.C.	Avro "Baby."	35-h.p. Green.	2 41 23	1 25 0	1 16 23

(4) AVRO TWO-SEATER BIPLANE, TYPE 504K.—Lieut.-Colonel Henderson was unable to procure a Martinsyde F 4 biplane, with which he entered, so flew an ordinary standard "Avro." This machine has already been fully described in THE AEROPLANE. Principal dimensions are:—Span, 36 ft.; length, 29 ft. 5 ins.; engine, 1,100 h.p. (le Rhône); weight (loaded), 1,829 lbs.

(7) THE AIRCO 4R.—The Airco 4R appeared to be a standard Airco 4 very hurriedly altered to take the 450 h.p. Napier "Lion" engine. The fuselage had been shortened in front and a square radiator bolted on. On the top of the fuselage was installed the Napier "Lion" engine driving a four-bladed airscrew. The main planes had been rigged back to get rid of the stagger and the bottom plane cut short outside the first set of interplane struts. The overhang of the top plane was supported by struts running out from the base of the interplane struts. The aileron control wires ran along the leading edge of the lower plane, over pulleys and up the diagonal strut to the leading edge of the upper plane to the ailerons in the customary Airco manner. With the 450 h.p. Napier "Lion" engine it gives a speed of about 145 m.p.h.

(8) THE AIRCO 4.—This machine was standard type except the fairing had been placed over the rear cockpit, making the machine a single-seater. Dimensions:—Span, 42 ft. 4⅝ ins.; gap, 5 ft. 6 ins.; length, 30 ft.; surface, 434 sq. ft.; engine, 375 h.p. Rolls-Royce "Eagle" VIII; speed, 130 m.p.h.

(9) THE AIRCO 9.—Also a standard machine, with the exception that an additional seat was provided in front of the usual pilot's seat just under the centre section, making it a three-seater. Span, 42 ft. 4§ ins.; gap, 5 ft. 6 ins.; length, 30 ft. 10 ins.; surface, 434 sq. ft.; engine, 240 h.p. Siddeley "Puma"; speed, 110 m.p.h.; weight, 3,890 lbs.

(10) THE MARTINSYDE F4 BIPLANE.—The Martinsyde single-seater biplane was a standard machine of the type that beat all records some time ago for climb and speed at height, but was not adopted by the Government until it was too late for the machine to demonstrate what it could do in the sphere for which it was designed. It is fitted with Rolls-Royce "Falcon" engine, which gives it a speed of about 145 m.p.h.

(11) THE NIEUPORT NIGHTHAWK.—The Nieuport single-seater biplane was a standard single-seater biplane of a type adopted by the Government just previous to the signing of the Armistice. Generally speaking, it looks like a Snipe, with an A.B.C. Dragonfly engine and an S.E 5 tail. After putting up a remarkably fine performance it was compelled to retire at West Thurrock owing to a punctured float. It certainly caused an impression at Hendon, but one is inclined to wonder if it was its wonderful manœuvreability in the air or its resplendent "racing colours" that attracted most attention. Dimensions:—Span, 28 ft.; gap, 4 ft. 6 ins.; length, 18 ft. 6 ins.; surface, 270 sq. ft.; engine, A.B.C., 320 h.p. "Dragonfly"; weight, 2,120 lbs.; speed, 151 m.p.h.

(12) BRISTOL MONOPLANE.—The Bristol was the only machine of the monoplane breed competing, and unfortunately was compelled to retire at the end of the first lap owing to trouble with the oil pump. The fuselage is of circular streamline form, and it has a huge vermilion spinner on the airscrew boss. The wings are of curious form, in that the leading edge is crescent-shaped, giving it the appearance when in the air of having bird-form wings, and reminded one of the old Handley Page monoplanes and biplane that used to fly at Hendon in 1912-13. Dimensions: Span, 30 ft. 9 ins.; length, 20 ft. 4 ins.; surface, 145 sq. ft.; engine, 110 h.p. le Rhône; weight, 1,300 lbs.; speed, 130 m.p.h.

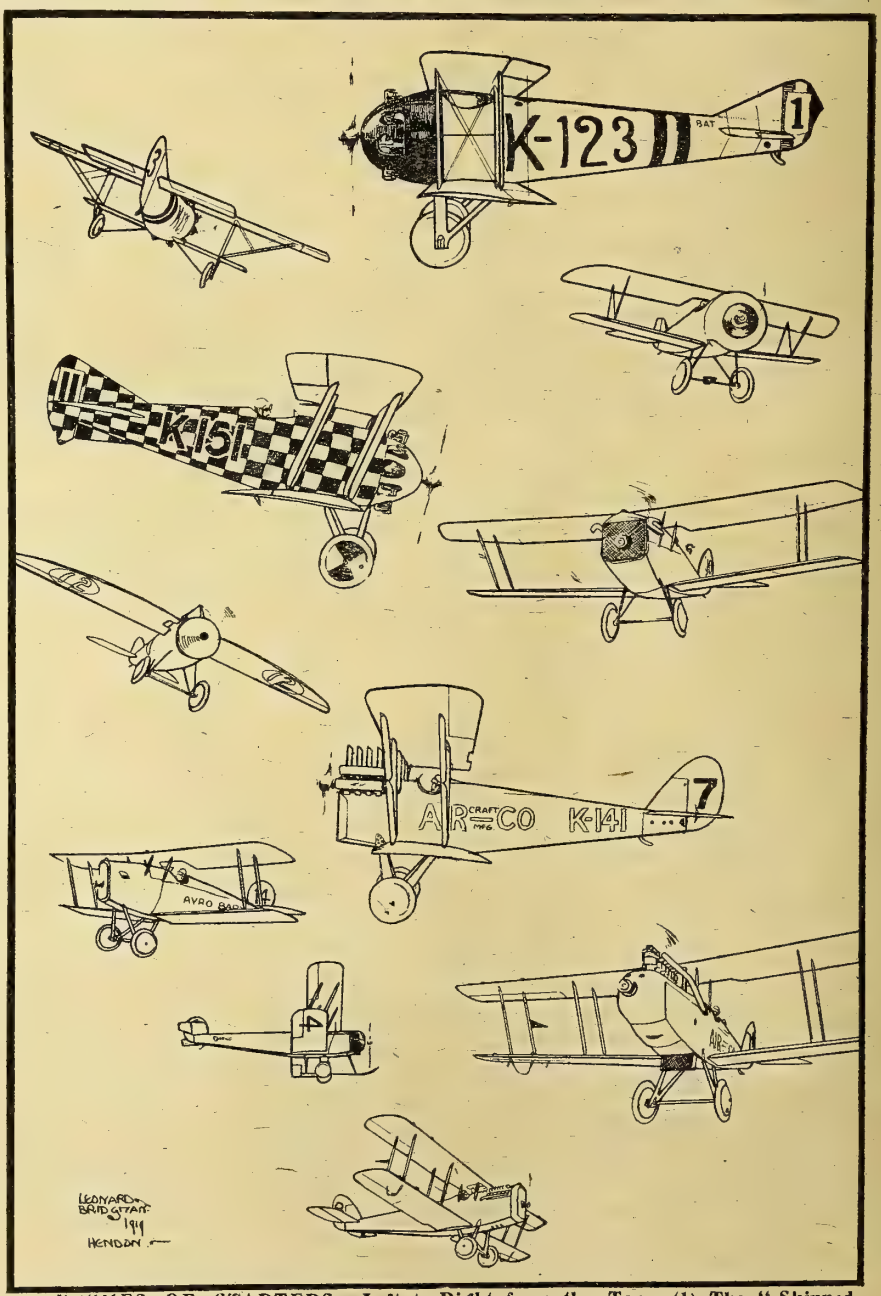
(14) AVRO "BABY."—This little machine put up a wonderful performance in completing the course and winning the "Shell" trophy in the sealed handicap. It has already been described in THE AEROPLANE. Dimensions:—Span, 25 ft.; gap, 4 ft. 6 ins.; length, 17 ft.; surface, 201 sq. ft.; engine, 35 h.p. Green; weight, 857 lbs.; speed, 78 m.p.h.

RESULTS.

The "Daily Mail" Gold Cup (value 200 guineas) and the "Shell" Prize of £500 were won by Capt. Gathergood.

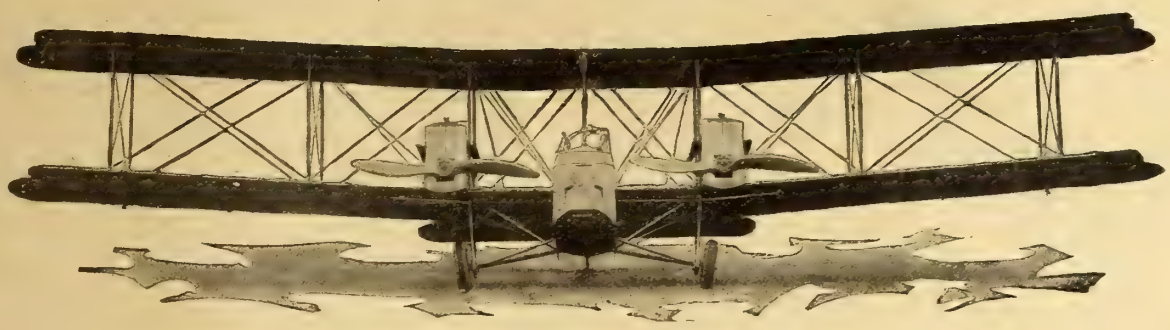
The Second Prize, the "Shell" Trophy and £100, was won by Lieut. Ronald Nisbet.

The Sealed Handicap Prizes of "Shell" Trophies and Prizes of £100, £50, and £25 were won by:—1. Capt. H. A. Hamersley, M.C.; 2. Major C. Draper, D.S.C.; and 3. Lieut. R. Nisbet.



SKETCHES OF STARTERS.—Left to Right from the Top.—(1) The "Skinned Bat"; (2) The Standard Bat; (3) The "Jazz" Nighthawk; (4) The Grahame-White "Dasher"; (5) The Red-nosed Bristol; (6) The Martinsyde "Mother"; (7) The Avro "Baby"; (8) The Airco "Lion"; (9) The Standard Avro; (10) The Airco "Puma"; (11) The Airco "Rolls-Royce."

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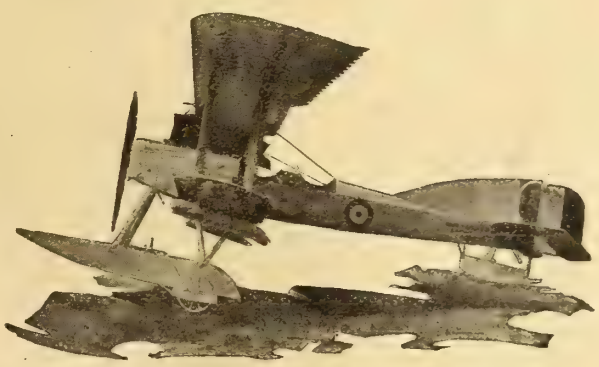


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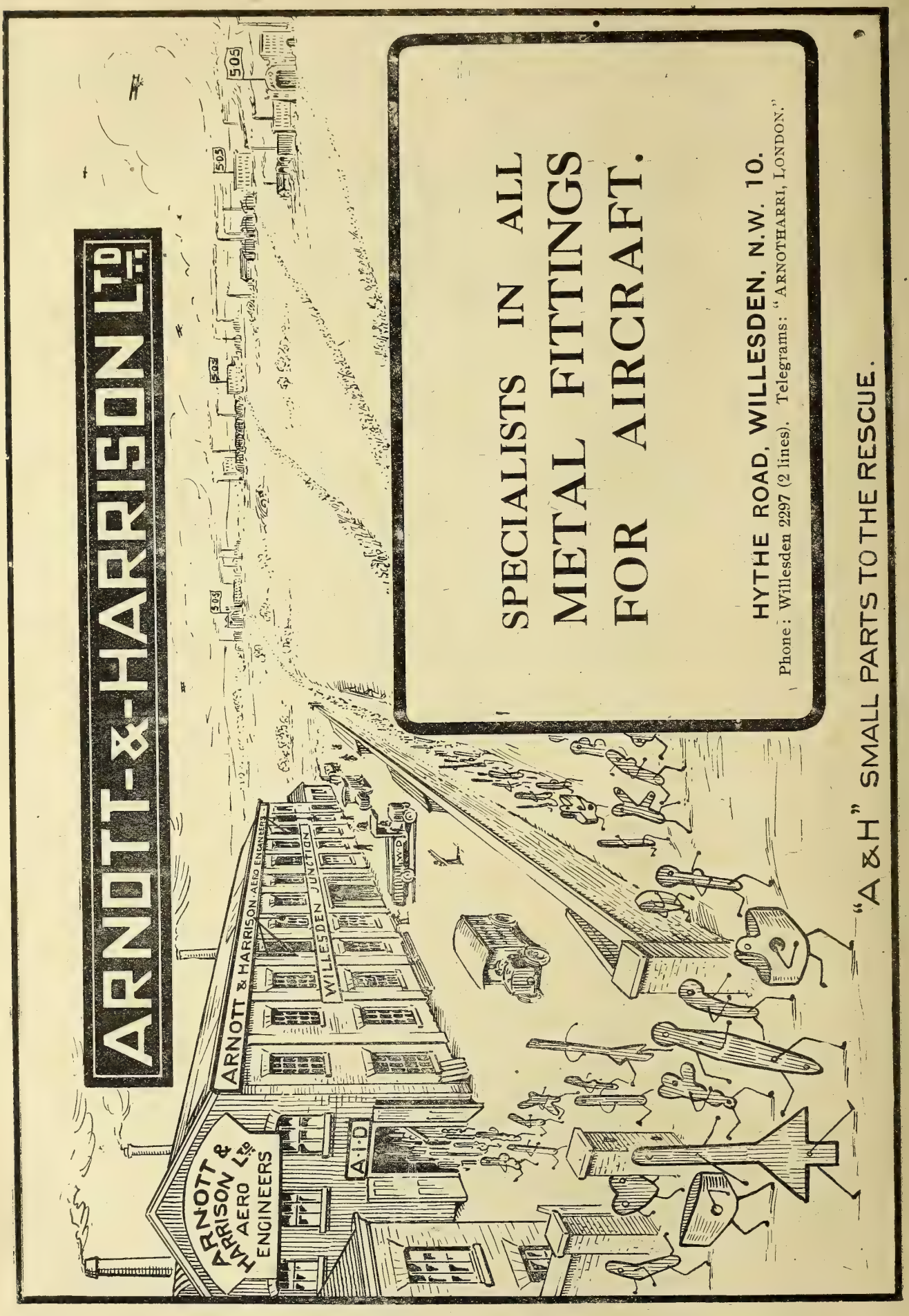
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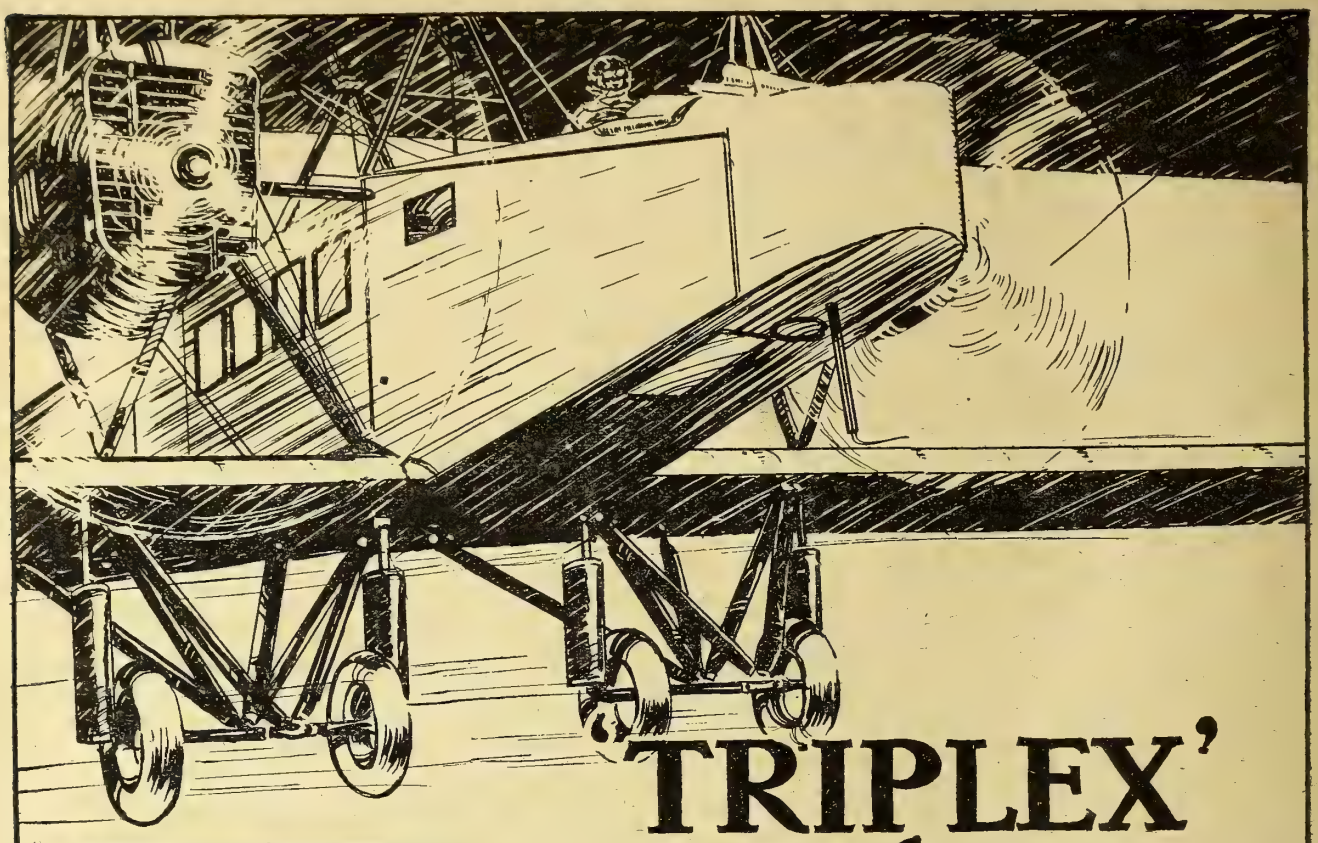
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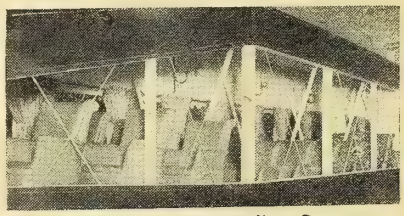
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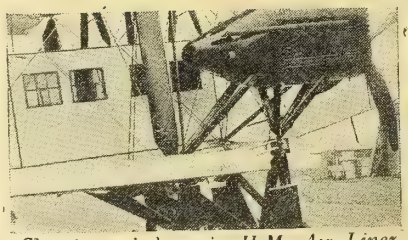
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THE WEEKLY COMMENTARY.

The possibilities of the Diesel type of engine for commercial aviation are considered in an article on "The Development of the Aero Engine" by Capt. Sayers in this number.

For some little while such engines will be heavy as compared with petrol engines, but the possibilities of reliability which may be obtained, together with the almost total abolition of fire risk due to the substitution of heavy oil for petrol, may more than compensate for the extra weight.

The description of the aeroplanes produced by the British Aerial Transport Company is continued in this issue.

The type F.K.26 commercial passenger machine is worthy of special notice. It is one of the handsomest machines that have yet been built, has an extraordinarily fine performance, and handles as easily as a single-seater fighter.

No adjustment of any kind has been found necessary to the machine, which was in perfect trim and balance on its first trial flight.

A report of the Wilbur Wright Memorial Lecture, read before the Royal Aeronautical Society by Mr. Leonard Bairstow, O.B.E., F.R.S., on Wednesday, June 18th, starts in this number.

An account of a visit to the works of the Cosmos Engineering Company, Ltd., at Bristol, appears on page 2534.

THE DEVELOPMENT OF THE AERO-ENGINE, PAST AND FUTURE.—III.

By Capt. W. H. SAYERS, late R.A.F.

In all probability the aero-engine of the not very distant future will be shorn of quite a number of the adjuncts which now cause breakdown.

The Antoinette of 1907 had no carburetter, but employed pump injection of petrol to each cylinder on the induction stroke.

Fuel Injection.

A petrol pump and distributor is admittedly a more complicated mechanism than is a carburetter; but, on the other hand, it is in many respects less sensitive to accidental derangement. A positive piston pump can be relied on to deliver a definite quantity of petrol per stroke, and it is unlikely that a minute fragment of solid matter, or even a drop of water in the petrol, will entirely upset the fuel supply. Moreover, if petrol in liquid form is squirted into an already hot cylinder, there is little risk of ice forming upon the petrol jets.

Even applied directly to present types of engine, the Antoinette system presents a number of advantages.

It dispenses with the need for water-jacketed induction pipes—in fact, it abolishes induction manifolds and all their attendant gas distribution difficulties at once.

On the other hand, particularly when applied to petrol, the method has its own drawbacks.

Petrol and all similar volatile hydro-carbons possess singularly penetrative habits, and it is extremely difficult to design a satisfactory plunger petrol pump. No other type of pump seems suitable, since accurate measurement of the charge given to each cylinder is necessary, together with easy means of varying that measure.

Heavy Oil Engines.

With heavier oils the design of a suitable pump becomes simpler, but heavy oils mean either the adoption of the Diesel system or some special arrangements for vaporisation and ignition of the fuel, at least at starting.

With the Diesel system ignition is automatic, and therefore both carburetter and ignition gear failures vanish. In place thereof there is a risk of failure on the part of the fuel injection system, but there should be a large net gain in reliability.

To obtain automatic ignition it is necessary that the air in the cylinder shall be raised to a temperature sufficient to ignite the fuel when it is injected at the top of the compression stroke. This means that the compression must reach 400 to 500 lbs. per sq. in.—a very much higher figure than that of any petrol engine, and consequently the mean effective pressure and the maximum temperature are both high.

The Disadvantages of the Diesel Type.

Unfortunately the maximum pressure is increased in a larger proportion than is the mean effective pressure.

Thus a Diesel cylinder gives an output of energy per stroke considerably greater than that given by a petrol engine cylinder of the same dimensions, and if the two are run at the same number of strokes per minute the Diesel cylinder will give a much larger horse-power.

This naturally means stronger, therefore heavier, cylinders, pistons, connecting rods, crankshaft, etc., which have to be proportioned for the maximum pressure and not for the mean effective pressure. The weight of the engine proper thus increases at a greater rate than does the M.E.P. and the horse-power developed, and the Diesel type engine is essentially a heavier power plant than is the usual type of petrol engine.

Not only is this the case, but the higher working pressure and temperature produce certain difficulties of cooling. Not that more heat has to be carried away by the cooling water in this type, for the thermal efficiency

is higher and the waste heat to be disposed of is less for a given output than in other types of engine.

But the maximum temperature of the burning gas is very high, and, unless special care is taken in regard to cooling, local overheating, leading to distortion or even fracture of the cylinders and pistons, may occur.

Rapid local dissipation of heat is, of course, hindered by the necessary increased thickness of the cylinder walls and head, and, therefore, the design of cooling water passages calls for great care, and for fairly large water spaces around the cylinder head.

Altogether there is little likelihood of the Diesel type of engine competing with present aero-engines in the matter of weight per horse-power.

Possibilities with Large Units.

For really large powers it may be possible to build such engines at reasonable weights. For instance, a 1,000 h.p. unit at 5 lbs. per h.p. might be possible to-day, but a 100 h.p. unit of the type could probably not be made for much less than 800 lbs.

For the 1,000 h.p. unit the weight of radiators and cooling water would be round about 1,000 lbs., and the fuel and oil consumption per hour should not exceed 400 lbs.

For 1,000 h.p. of petrol engine, water-cooled, the weight of engine will be 2 lbs. per h.p., weight of water and radiator at least the same as that required by the Diesel engine, and the fuel and oil consumption cannot be safely put at less than 500 lbs. per hour.

Thus the relative weights for 1,000 h.p. would be :—

Diesel ..... 5,000 + 1,000 = 6,000 lbs.
Petrol ..... 2,000 + 1,000 = 3,000 lbs.

The Diesel unit thus will weigh not less than twice the petrol unit (3,000 lbs. extra), but will save 100 lbs. weight of fuel per hour, bringing it to equal total weight when carrying 30 hours' fuel, which is not at the moment a condition likely to be called for.

The Importance of Engine Weight.

At the same time it has to be recognised that this extra weight of 3,000 lbs. in a 1,000 h.p. power unit is of rather less importance than would at first appear for commercial purposes. Roughly, one can reach 100 m.p.h. for a gross weight of 18 lbs. per h.p., and a 1,000 h.p. 100 m.p.h. machine will therefore weigh about 18,000 lbs. With the petrol engine at 3,000 lbs. there should be about 8,000 lbs. available for fuel, oil, and cargo, reduced to 5,000 lbs. if the heavier engine is used.

Five hours' fuel for the petrol engine will weigh 2,500 lbs., leaving 5,500 as a useful load. With the Diesel type the fuel weight will be 2,000 lbs., leaving only 3,000 lbs. paying load capacity.

This is, of course, a very great reduction, but it might be worth while if it were possible to obtain real reliability and freedom from risk of fire.

For machines designed for lower speeds the importance of engine weight is greatly reduced.

Thus for a maximum speed of 75 m.p.h. the total weight of the 1,000 h.p. machine would increase to about 30,000 lbs., and the total disposable weight would become about 16,000 lbs. with the petrol engine, or 13,000 with the Diesel. Allowing for 7 hours' fuel in this case to give roughly the same radius of 500 miles, with the petrol engine the useful load is 12,500 lbs., and with the Diesel 10,200 lbs.

This is certainly not a prohibitive price to pay for reliability and abolition of fire risks.

There is therefore an opening for a type of engine of appreciably greater weight/power ratio than that now obtained with petrol engines, particularly for large and relatively slow machines, if such engines can be made absolutely trustworthy, and there is not the slightest doubt that a Diesel type engine of 1,000 h.p. could be produced at some weight round about 5 lbs. per h.p. if the same energy were devoted to the task as has been devoted to the improvement of the aero-engine during the last five years.

The Improbability of British Developments.

It is extremely unlikely that anything of the sort will be done in this country.

Four and a half years of war under a Government entirely devoid of either foresight or hindsight, which has met every kind of trouble by a system of disguised—sometimes very thinly disguised—bribery, which has educated both labour and the manufacturer into believing that they have only to demand whatever ridiculous price they may think fit for their services to obtain it, has made this country no place in which to embark upon research work of an inherently expensive type.

There is, however, the practical certainty that Germany, which has always been an industrious and thrifty country, and which after its war experiences is more than ever used to working hard for its living, will become more and more the centre of engineering development.

Even under the stress of war the German aircraft industry has kept its eyes upon the future, and it is now in a better position to produce useful commercial aircraft than that of any other country.

[One gathers that a German Diesel aero-engine is already in course of production.—Ed.]

It is idle to imagine that any peace treaty terms, commercial boycotts, or system of tariffs will prevent Germany from reaping the benefits of her industry. It may be possible for this country to live in its fools' paradise of laziness for a few years longer behind such artificial shelters, and it may be that Germany will suffer considerably during that period.

Adversity has never yet had any but a strengthening effect upon a great nation—indolence and extravagance invariably lead to decay—and the longer the present state of affairs is prolonged by artificial means the greater will be the disaster to this country when the crash comes.

British aero-engine makers can scarcely be expected to reorganise the economics of the whole country, but if they will condescend to take rather more thought for the future than they have as yet shown any signs of doing they may improve their chances of survival in the lean years which at the moment appear to be inevitable.

A NEW RIGID AIRSHIP.

According to notices appearing in the daily Press, the new rigid airship, R39, now under construction at the works of Sir W. G. Armstrong Whitworth and Co., Ltd., Barlow, near Selby, Yorkshire, is to have an overall length of 685 feet, a maximum diameter of 85 ft. and a gross lift of 80 tons. The power plant is said to consist of six engines of 350 h.p. each, and it is hoped that the speed attained will be over 70 m.p.h.

A POINT FOR DESIGNERS.

In "Engineering," of June 6th, Mr. A. J. Sutton Pippard, M.Sc., A.M.I.C.E., late of the Technical Dept., Dept. of Aircraft Production, points out that the side-wind pressure due to side-slipping imposes a lateral load upon the interplane struts of an aeroplane, additional to the normal load carried in straight flight.

The note gives a method of estimating this effect and of designing struts to meet such loads.

Mr. Pippard's curves show that the importance of this effect is only great in the case of relatively long slender struts.

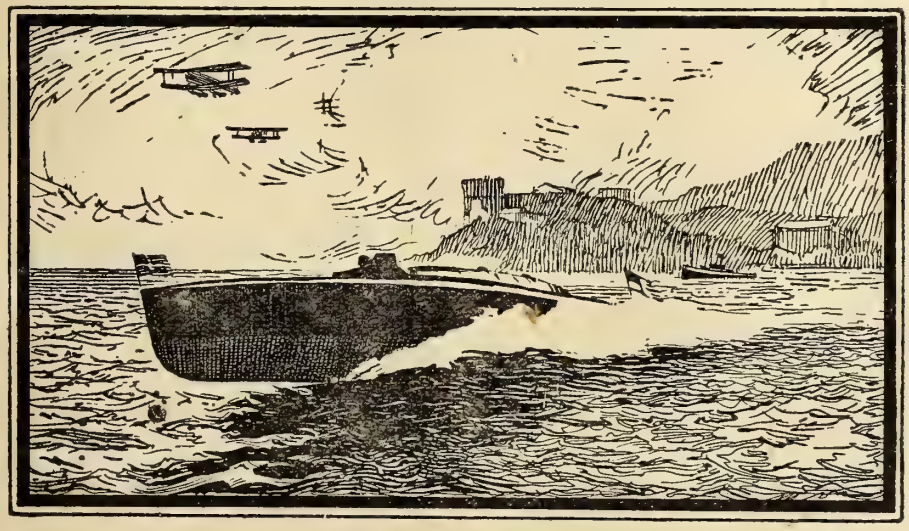
A 900 H.P. SUNBEAM ENGINE.

According to the "Daily Express" of May 11th, the Sunbeam Motor Car Co., Ltd., have just made preliminary tests of a new 12-cylinder "Vee" type engine of 900 normal b.h.p.

No other information is as yet available.

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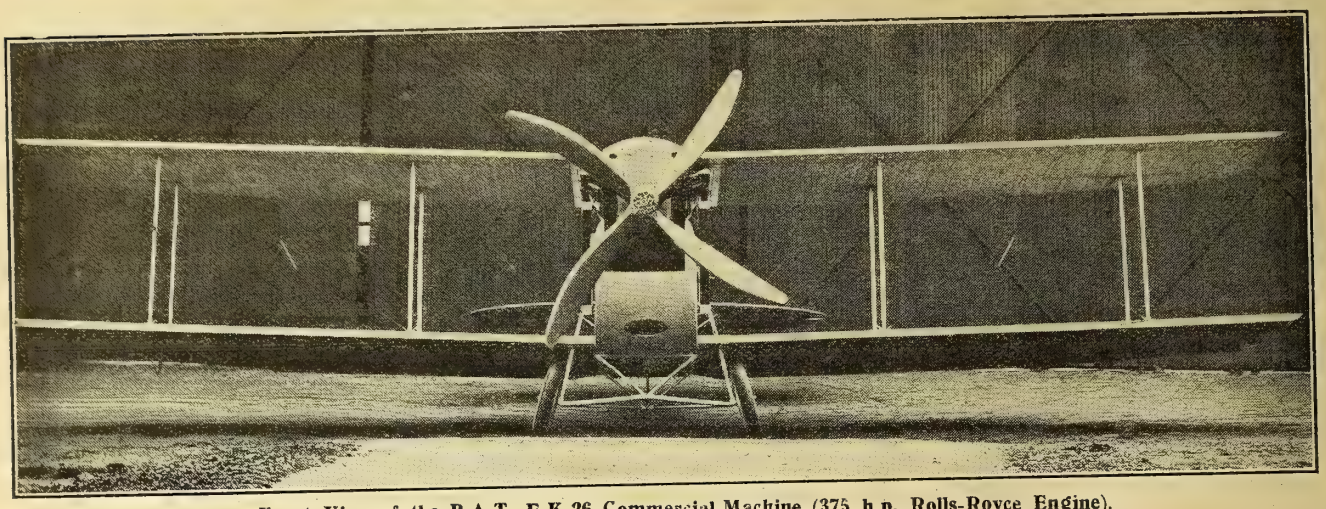
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VI.—The British Aerial Transport Co., Ltd.

(Continued.)



Front View of the B.A.T. F.K.26 Commercial Machine (375 h.p. Rolls-Royce Engine).

THE B.A.T. F.K.26.

The B.A.T. F.K.26 produced by the British Aerial Transport Co , Ltd., to the designs of Mr. Frederick Koolhoven, appears to be the first aeroplane primarily designed as a commercial machine which has been successfully tested since the Armistice. It is a tractor biplane, and is capable of carrying in the specially designed cabin either four passengers or their equivalent weight in goods or mails.

The fuselage is very deep and embodies two forms of construction, the front half being made up of six formers covered with three-ply, the rear half following normal practice in wire-braced girder construction.

The power unit, a 375 h.p. "Eagle" Mark VIII Rolls-Royce engine, is mounted on ash engine bearers carried between the first and second formers. Between the second and third formers, which are more or less bulkheads, are carried the petrol tanks, which have a capacity sufficient for six hours' flying.

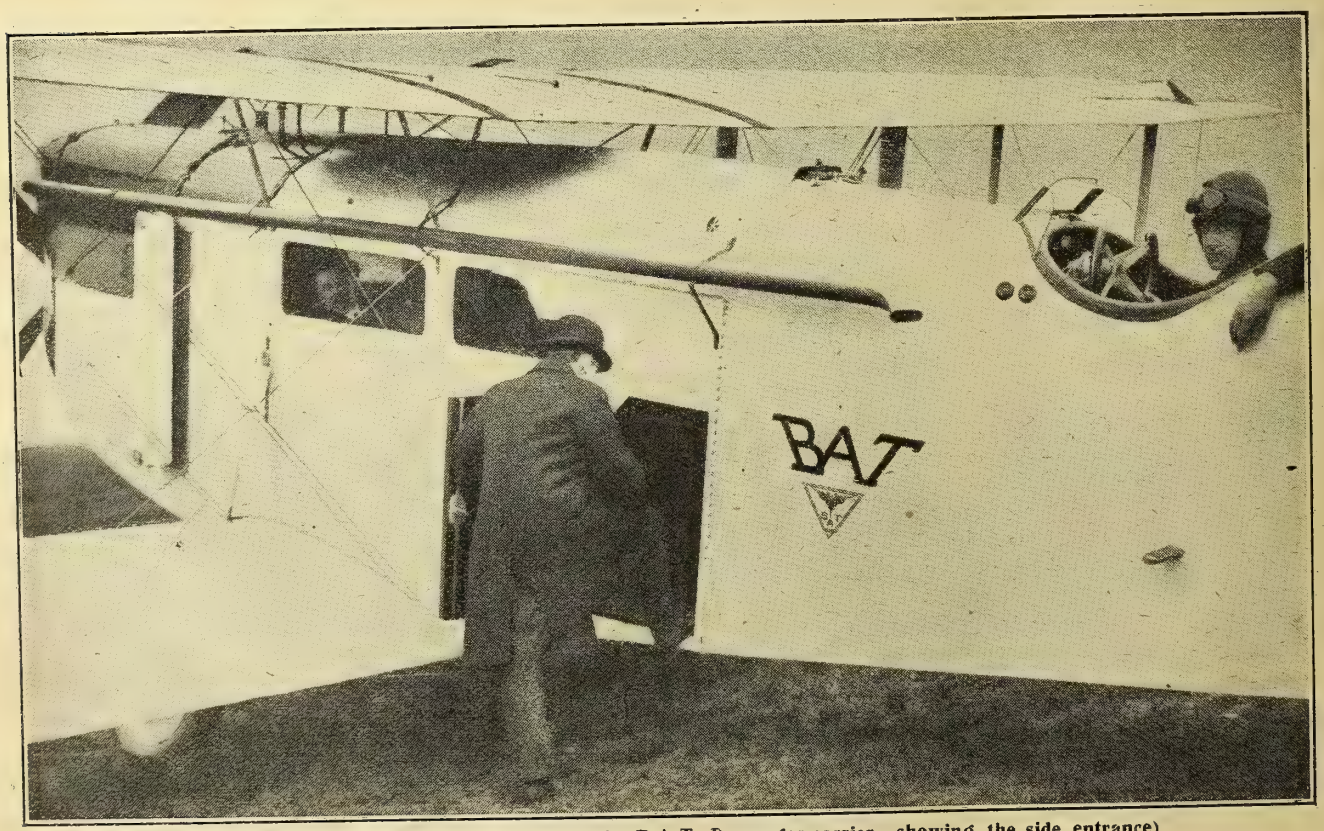
The space from the third to the fifth formers forms the cabin, the fourth former being left open, that is, it has no cross members or three-ply filling, as in the second, third, and fifth formers, the last two forming the front and rear "walls" of the cabin.

Aft of the cabin the wire-braced construction begins, and consists of a girder of six bays, the pilot's seat being situated between the second and third cross-members and well up in the fuselage, thus giving him an excellent view all round.

From the cabin aft the sides of the fuselage are fabric-covered, with a top fairing of three-ply.

The controls are similar to those of the old Deperdussin monoplanes, and consist of an inverted U-shaped member pivoted at the flooring of the cockpit, on which is mounted a wheel which has two segments cut from it top and bottom, as shown in the sketch of the pilot's cockpit.

The elevators are operated by two oval section tubes connected at their front ends to points one on either side halfway up the inverted U and at their rear end to crank-arms on the underside of the elevators, thus giving direct pull and push action.

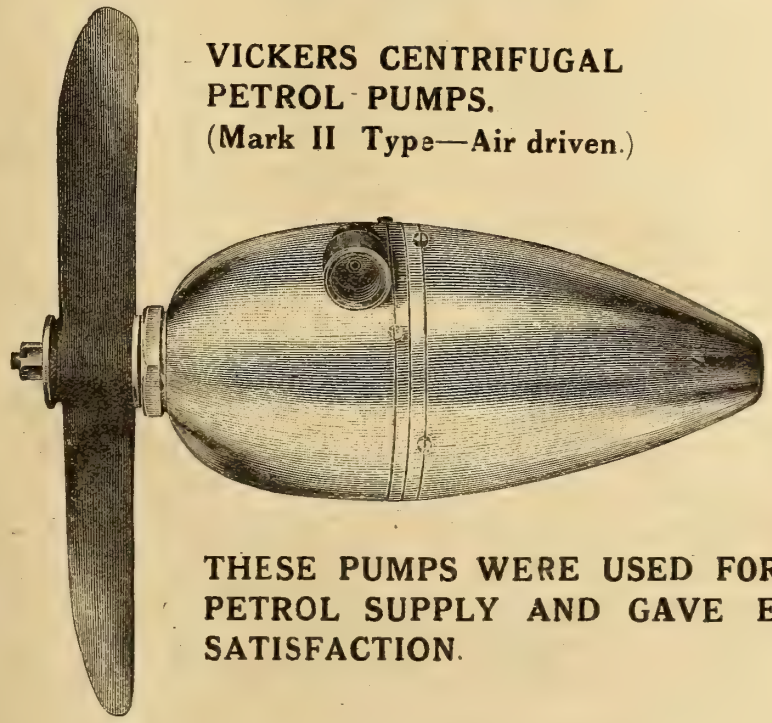


View of the Exterior of the Cabin of the B A.T. Passenger-carrier showing the side entrance)

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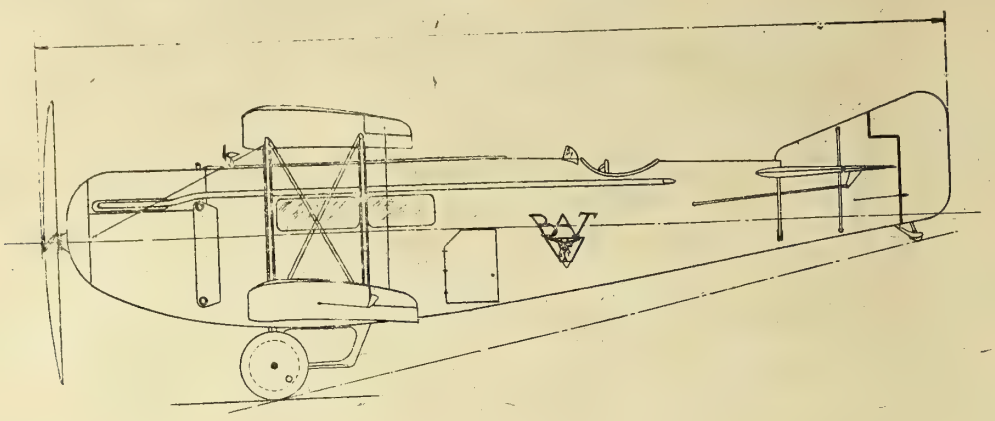
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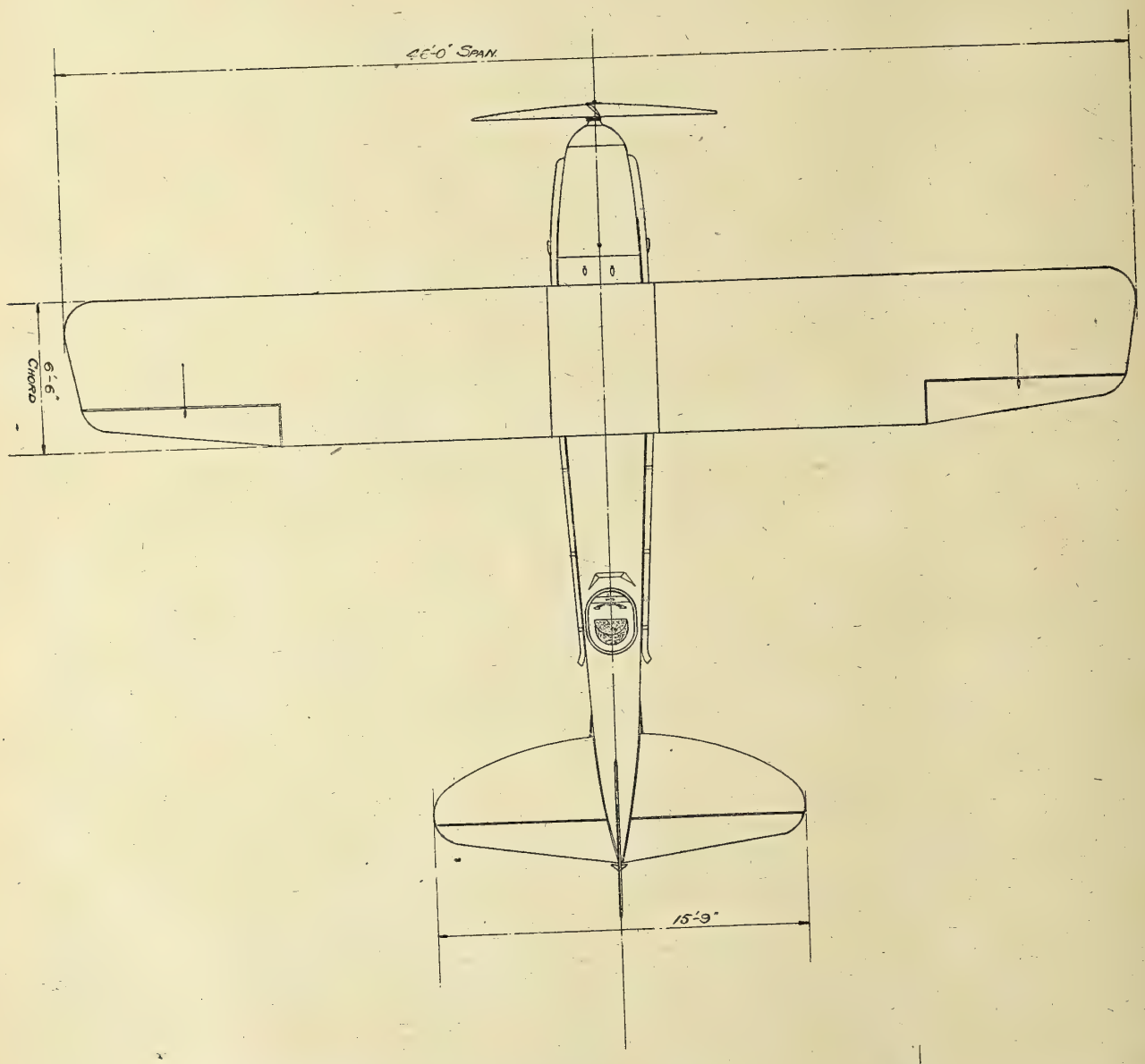
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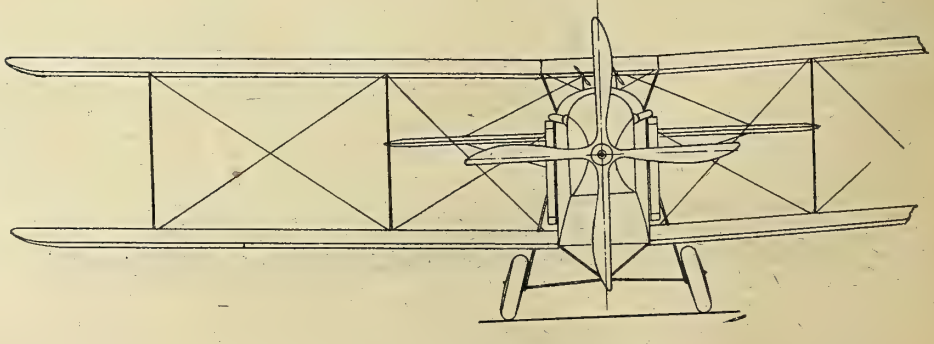
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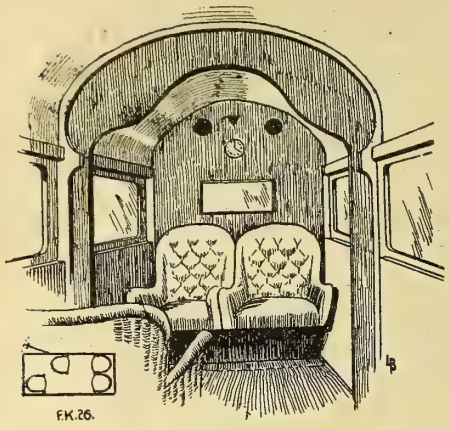
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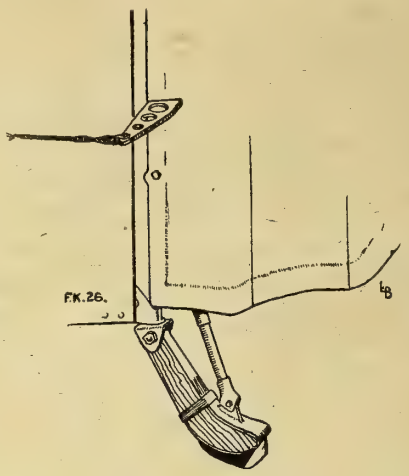
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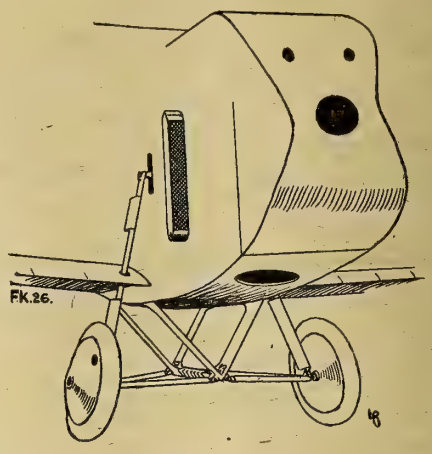
C.D.C.



The Cabin (with plan sketch on left)



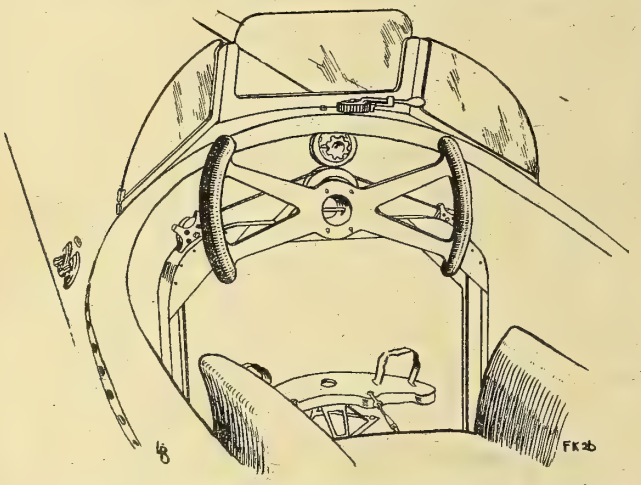
Tail Skid.



Chassis and Radiator.

The rudder control consists of the usual foot-bar.

The tail plane is adjustable, the actuating gear being operated by a wheel situated low down on the left-hand side of the pilot's seat, which is connected to a threaded spindle by a continuous cable. Above the tabular nut on the spindle is a collar connected to the front main spar of the tail plane by means of four



The B.A.T. F.K.26 Passenger Carrier showing the Pilot's seat and the cut-away wheel control.

tubes, two inside the fuselage either side of the central tube, and two streamline tubes running out the wings either side of the fuselage to a point on the front main spar of the tail plane.

The under-carriage consists of two Vees set across the fuselage, the apexes of which are connected fore and aft, and from the Vees two divided axles, two on either side, meet at a wheel hub. From the hubs two tubes run up to two levers which just project through the sides of the fuselage and which are pivoted at their innermost ends to the centre of the third fuselage former. The levers are connected near their outer ends to an oleo and elastic shock-absorber. A sketch is given of the general arrangement of the under-carriage and also of the shock-absorbing device.

The main planes are of equal span, and are connected to upper and lower centre sections, the latter, consisting of two small false wings attached to the side of the fuselage which, with the width of the fuselage, are the same span as the upper centre section, thus the upper and lower main planes are of the same length and consequently interchangeable.

The spars of the lower centre section pass right through the fuselage and are built into the third and fourth formers.

Two pairs of interplane struts are fitted on either side of the fuselage, braced with streamline wires.

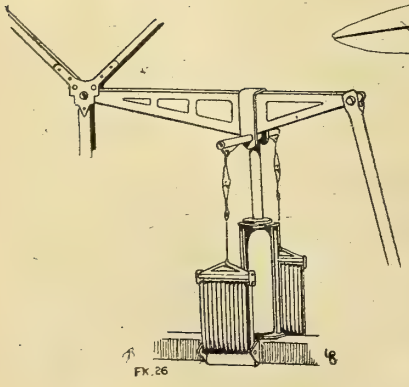
The empennage, of which a sketch is given, is of conventional design, except in plan form.

The tail skid is pivoted to the base of the rudder and a pair of telescopic tubes containing a spring run from the toe of the skid to a lug some distance up the rudder post.

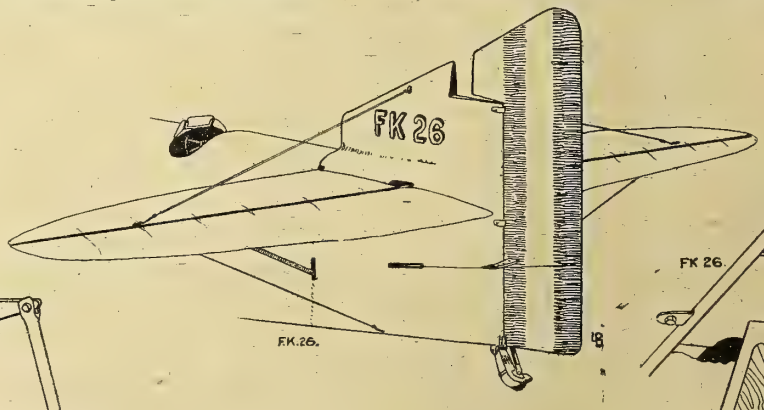
The engine-cooling system consists of two long honeycomb radiators which are carried on either side of the fuselage and connected to two water-tanks inside the fuselage, the temperature therein being controlled by two shutters operating at the back of the radiator.

The oil-tank has an extension which projects throught the side of the fuselage and which has a series of tubes passing through it, thus forming an oil-cooler.

The following table gives the main particulars of this machine:

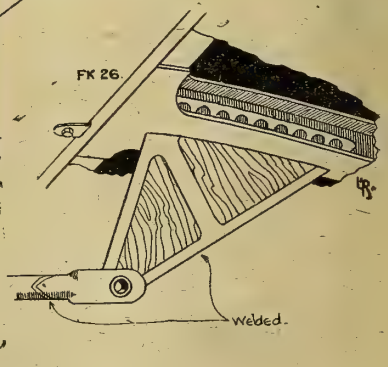


The Internal Shock Absorbers.



The Tail Unit.

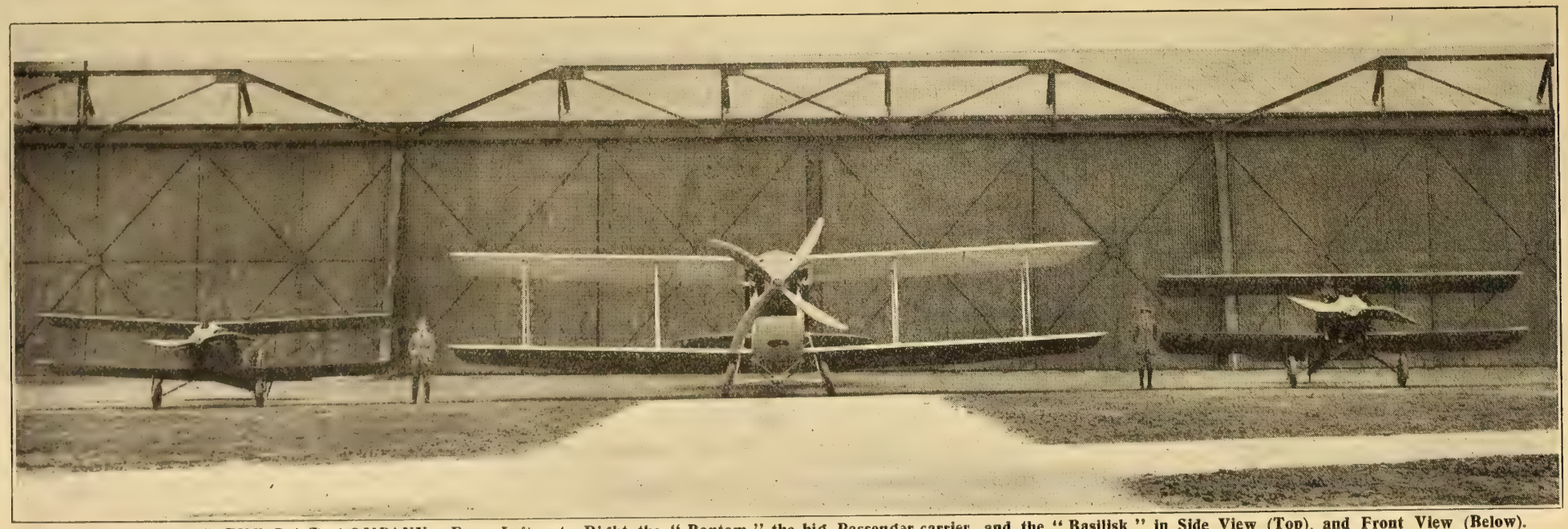
The B.A.T. F.K. 26 Passenger Carrier. Some Details.



The Elevator Lever.

(Continued on page 2533.)





SOME PRODUCTS OF THE B A T. COMPANY.—From Left to Right the "Bantam," the big Passenger-carrier, and the "Basilisk," in Side View (Top), and Front View (Below).

SPECIFICATION.

Type of machine (pilot and 4 passengers) .....Five-seater biplane
Name or type No. of machine .....B.A.T. F.K.26
Purpose for which intended .....Commercial passenger or mail carrying
Span .....46 ft.
Chord .....6 ft 6 in.
Gap, maximum and minimum .....6 ft. 6 in.
Stagger .....Nil
Dihedral .....2 deg. on both wings
Overall length .....34 ft. 8 in.
Overall height .....11 ft. 3 in.
Total area of wings .....580 sq. ft.
Ailerons .....Top and bottom.
Area of each aileron and total area ...4 × 13 sq. ft. = 52 sq. ft.
Span of tail .....15 ft. 9 in.
Total area of tail .....66.6 sq. ft. (including elevators).
Area of elevators .....23.6 sq. ft.
Area of rudder .....10.8 sq. ft.
Area of fin .....8 sq. ft.
Maximum cross-section of body .....20.5 sq. ft. approx.
Side area of body .....142 sq. ft. approx.
Engine (type and max. b.h.p.) ...350 h.p. Rolls-Royce "Eagle" 8
Propeller ...B.A.T. 4-blade, 11 ft. dia. 8/6 in. pitch, 1025 r.p.m.
Weight of machine empty .....2700 lbs.
Load per sq. ft .....7.7 lbs.
Weight per h.p. .....13.0 lbs.
Tank capacity in hours at ¾ throttle .....6 hours.
Tank capacity in gallons .....100 galls.
Disposable load apart from fuel .....1,000 lbs.
Total weight of machine fully loaded .....4,500 lbs.

PERFORMANCE—
Speed low down .....122 m.p.h.
Speed at 10,000 ft. .....110 m.p.h.
Landing speed .....50 m.p.h.
Climb—
To 5,000 ft. .....4 mins.
To 10,000 ft. .....10 mins.
Ceiling 18,000

A VISIT TO THE COSMOS ENGINEERING WORKS.

On Wednesday, June 15th, The Cosmos Engineering Company, Ltd., of Fishponds, Bristol, invited representatives of that portion of the Press which was interested to visit Bristol for the purpose of inspecting their works and watching trial flights of the Cosmos "Jupiter" engine in a Bristol two-seater. The party, including a representative of The Aeroplane, on arrival at Bristol were driven to the residence of Mr. J. A. Taylor, the managing director of the Cosmos Co., where the party—enlarged by the presence of Mr. Herbert Thomas and Capt. Barnwell of the Bristol Co.—were entertained at lunch

After lunch Mr. Taylor, in a brief speech of welcome to the visitors, expressed his firm faith in the future of commercial aviation, and said that it was the ambition of the Cosmos firm to provide the locomotive of the aerial train of the future. The Press, generally, were the great educative organisation of modern times, and it largely depended on their attitude as to whether his hopes would be quickly fulfilled.

The Cosmos Co. had found it a great advantage that they had as such near neighbours the British and Colonial Aeroplane Company, and they were greatly indebted to them for the way in which their staff had assisted in the development of the Cosmos engine.

Mr. A. H. R. Fedden, the designer of the Cosmos engine, said that, as a West Countryman himself, it was his ambition to see a West Country aeroplane with a West Country engine in the very front rank, and, with the assistance of the Bristol Co., he believed that they were well on the way to success.

The company then adjourned to Filton Aerodrome, where a short exhibition flight was made on one of the Bristol company's new two-seater "Badgers," fitted with a Cosmos "Jupiter" engine of 450 h.p

The engine started at the very first attempt, and the machine got away and flew—well, very much as one would expect a machine designed by Capt. Barnwell, with 450 h.p. for a total weight of 2,800 lbs., to fly.

Exigencies of time and space made the demonstration a short one and the party hurried away to Fishponds Works, where they inspected a "Jupiter" engine on the test bench, and a single-cylinder unit, of the same bore and stroke, running endurance tests.

A single-cylinder engine of 5¾-in. bore and 7½-in. stroke running at 1,000 r.p.m. and developing a mean effective pressure of round about 120 lbs. per sq in., with open exhausts in a corrugated iron shed is a disquietening affair. A boiler shop is peaceful by comparison—and the main impression left is that Mr. Fedden has successfully devised a new and appalling form of frightfulness.

The Cosmos "Jupiter" engine has been described generally in The Aeroplane of Jan. 29th, 1919.

The general specification of this engine is as follows:—

No. of cylinders 9
Bore .....5¾ in.
Stroke .....7½ in.
Overall diameter of engine .....52½ in.
Normal power:—
Mark 1, ungeared...450 h.p at 1,800 r.p.m.
Mark 2 and 3, with reduction gear 500 h.p. at 2,000 r.p.m.
Total weight, ungeared model.....662 lbs.

The geared type is made in two models, the "Mark 2," the airscrew geared down to 1,300 r.p.m., and the "Mark 3," geared for an airscrew speed of 660 r.p.m.

The engine fitted to the Bristol "Badger" is of the ungeared, or Mark I, variety.

This machine was designed as a two-seater fighter, and is a very small machine, generally similar in design to the Bristol F-type scout.

Fitted with the "Jupiter" engine the results so far obtained on test are given below:—

Total weight of machine, including two passengers, military load, two machine guns, etc. .....2,800 lbs.
Engine revs. on ground 1,550
Average revs. climbing at 80 m.p.h. 1,600
Revs. flying level at 7,000 feet at 137 m.p.h. 1,850
Climb—
2,000 feet .....1 min. 4 secs.
4,000 feet .....2 min. 10 secs.
6,000 feet .....2 min. 33 secs.
7,000 feet .....4 min. 15 secs.

Illustrations showing the engine installation in the "Badger" are given herewith. Since these were taken the cowling has been somewhat modified, the machine-guns removed, and the passenger's seat has been faired in, and the test results given above will doubtless be considerably improved upon.

It is hoped that it will shortly be possible to visit the Cosmos Works at greater length and describe in detail some of the numerous interesting features of the engines produced there.



The Cosmos "Jupiter" Engine (450 h.p) installed in a Bristol "Badger" Two-seater Fighter.



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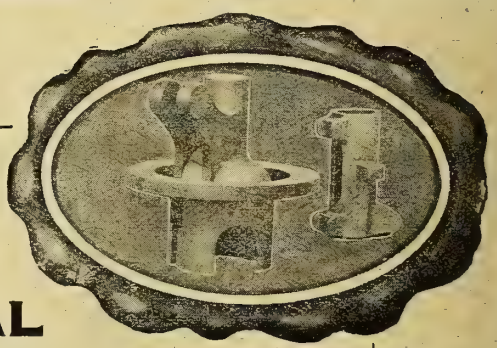
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THE WILBUR WRIGHT MEMORIAL LECTURE.

The annual lecture in memory of the late Wilbur Wright was delivered before the Royal Aeronautical Society at the Theatre of the Royal Society of Arts on Wednesday, June 18th.

The lecturer was Mr. Leonard Bairstod, O.B.E., F.R.S., and his subject, "The Progress of Aviation in the War Period."

Introducing Mr. Bairstow, Major-General R. M. Ruck, the Chairman, announced that the Lord Weir had accepted the Presidency of the Royal Aeronautical Society.

THE LECTURE

It was with great pleasure that the lecturer received an invitation from the Council of the Royal Aeronautical Society to deliver the lecture of 1919 to the memory of Wilbur Wright. Most of us remember the appearance of their aeroplane in Europe about ten years ago and the revolution brought about by their method of lateral control. The effect of European flying was immediate, for the periods of flight began to extend from minutes to hours. I have particular pleasure in adding my tribute to their skill because of the scientific and painstaking way in which they approached the problem of aviation and successively removed one after another of the outstanding difficulties. Their unhurried attack on a difficult problem contrasts strongly with the present irrational worship of the immediately practical.

They were preceded by another distinguished American, Professor Langley, who, with equal patience and little reward, laid the foundations of aerodynamics on which calculations as to the possibility of flight were first made with any reasonable approach to accuracy. That Langley was correct in his estimates of weight and horse power has been shown during the war period by the flight of the man-carrying aeroplane which he designed and made. Maxim, in a remarkable effort, succeeded in producing a steam engine in which each horse-power involved a weight of only half a pound, but aviation had to wait for the petrol motor before flight was achieved.

Both Maxim's and Langley's efforts at flight came to an early end; the latter launched a pilotless aeroplane from the top of a houseboat on the Potomac river, but, probably owing to lack of stability, it dived into the water and was wrecked. Maxim endeavoured to avoid the problems of stability by making his aeroplane captive, but the bending of an axle led to disaster when the wings were taking a lift of 10,000 lbs.

It was in their progress from this point that the Wright brothers made history. Their early flight experiments were directed to the development of controls by means of which the senses of the pilot were introduced into the mechanics of the aeroplane motion. In their aeroplane it was for the first time possible to raise or lower the nose by elevator, turn to right or left by rudder and maintain an even keel by wing warping. At the present time no other controls are used or appear to be required. Of the three controls mentioned, that of wing warping for maintenance of an even keel had not previously been suggested and the ailerons of modern design are mechanical improvements and not changes of principle. The problems of inherent stability were at that time untouched in practice, although Bryan was then working out the mathematical theory which has now been adopted as the best statement and solution of the problem of the disturbed motion of an aeroplane.

I propose to skip the period 1908-1914 and to proceed to some of the relatively highly developed forms of aircraft as they existed at the outbreak of hostilities. At that time a speed of 85 to 90 m.p.h. was considered good with the possibility of climbing to a height of 10,000 feet. Military training proceeded on the hypothesis that flying for reconnaissance and photography would take place at 3,000 feet, whilst fighting in the air was not adequately provided for.

Two types of aeroplane of the early period will be referred to; both have survived on their merits to the present time, although long since past the standard required on active service. The "Avro" aeroplane has to its credit one of the earliest of the many daring and spectacular feats of our flying men, for it was in aeroplanes of this type that two aviators, now Colonel F. Briggs and Major Sippe, flew over the Zeppelin sheds at Friedrichshafen and dropped bombs on their objective.* The horse-power of the engine was 70 as contrasted with the 1,500 horse-power of the largest modern aeroplane flown. In the later periods of the war the "Avro" became the standard elementary training aeroplane and has an excellent record of good service. It appears to be peculiarly free from undesirable characteristics.

The second aeroplane which will be referred to as a good early type is the B.E.2C., which has just been declared obsolete. Much controversy has ranged round this aeroplane, perhaps more than any other, and I can imagine mixed feelings amongst members of the audience at hearing it described as a good aeroplane. Probably most of them will agree, however, that its record as a straightforward flying machine is good and will focus their criticisms on that peculiar feature of the aeroplane which can be best described by saying that it had a strong will of its own. The development of the fighting scout has brought out very clearly the pilot's desire for an aeroplane which is wholly obedient to him even for extraordinary and dangerous manœuvres. Designers have admitted this view and have done their best to meet it. It is not difficult to see that in aerial fighting a balance must be struck between danger from enemy action and danger inherent to the aeroplane.

The B.E.2C. was deliberately designed to have a will of its own and a desire to stay right side up. It was strong and, for those days, reasonably fast, whilst fighting in the air had not begun to show prominently that its excessive stability was a defect. I want to make it quite clear at this point, that, on the other hand, instability is not a desirable characteristic in any aeroplane and certainly not for civil uses; instability leads to accidents. The B.E.2C was unpopular because it was too stable and called for considerable muscular effort in the rapidly recurring emergencies of a fight.

Scientifically and technically the B.E.2C. is one of the most interesting aeroplanes ever built. It showed conclusively that the line of argument developed mathematically by Bryan could be used to calculate the degree of stability of an aeroplane and so paved the way for the design of aeroplanes with the desired characteristics of indifference or stability as required for fighting or bombing. It showed that the will of an aeroplane is not a fortuitous characteristic, but it is one of those quantities over which the designer has a large measure of control.

The B.E.2C. had an engine of 90 h.p., carried pilot and passenger and reached a top speed of over 85 m.p.h. On these points it may be contrasted with the Bristol Fighter, which took one of the favourite places in the later phases of aerial fighting. The engine power was 275 and the top speed over 110 m.p.h. at 10,000 feet, whilst it was able to climb to nearly 20,000 feet. Using such aeroplanes our fighting pilots waited for considerable periods of time at heights of 15,000 feet ready to swoop on an enemy seen at a lower level. With the barometer at 17 inches and the thermometer showing 60 degrees of frost, prolonged effort was no small call on their physical and mental powers. Fitted with two guns firing through the airscrew and a third gun which could be trained in any direction by an observer, this aeroplane was a formidable antagonist.

The usual fighting scout was, however, a single-seater with its 2 fixed guns firing through the airscrew and trained by the motion of the aeroplane. Speeds up to 130 m.p.h. have been reached and the ceiling pushed up to 25,000 feet. This increase of speed and ceiling are accounted for chiefly by the fact that it has been found possible to instal an engine of 200 horse-power in an aeroplane weighing less than 2,000 lbs., a figure which means one horse-power for each ten pounds of load carried.

The large aeroplane, as we now know it, had no representative until the middle period of the war, when the first large type of Handley Page aeroplane began to operate from Dunkirk.† With a total weight of 11,000 lbs. and a horse-power of 550 the aeroplane will be seen to compare on weight per horse-power with the "Avro" and B.E.2C. and has a very similar top speed and ceiling. Another large aeroplane, the DH.10, compares more closely with the Bristol Fighter class and develops a high speed and ceiling.

The question arises: Is there any difference of principle involved in passing from the small aeroplane of 25 feet span to the latest Handley Page of 130 feet span?

ROUGH PREDICTION OF AEROPLANE PERFORMANCE.

(Mr. Bairstow then showed a figure consisting of a pair of curves in which the speed of an aeroplane (a) near the ground and (b) at 10,000 feet, are plotted against the weight per horse-power of the machine.)

It will be noticed that it is the ratio of horse-power to weight which is used and there is sound theoretical reason for this choice. Regarded as an empirical curve, however, it is found that the performances of the smallest and largest aeroplanes are equally well predicted. Like all generalisations it has its limitations, and a designer who has given special attention to one type will be able to give a closer prediction. On the other hand, any record of performance showing striking departure from the curve may be regarded with distrust.

MODEL TO FULL SCALE.

Not only may the curve be applied over the aeroplane range, but also to the larger models tested in a wind channel. It will shortly be possible in one of the wind channels of the National Physical Laboratory to test models so large that the lift will be 200 lbs. and on which the complex effects of the airscrew slipstream can be represented. Without waiting for this new step forward it is already clear that carefully conducted experiments on a complete model aeroplane form the best known guide to new design. I believe that I am correct in saying that both the designs of large aeroplanes by Messrs. Handley Page were specifically based on complete models; the records of the testing institutions show many other instances.

The most direct experimental evidence of the agreement between model and full scale has been provided by a comparison of the

*[What about Major Babbington, D.S.O.? And why omit the Sopwith Tabloids, the first machines to bomb Germany, and still surviving in modified form as the "Pup," "Camel," and "Snipe"? —Ed.].

†[The Dyott and the Fairey twin-engined machines were both built in 1915.—Ed.].

pressure distribution on the upper and lower wings of a biplane. The flight experiments were made at Farnborough by the Royal Aircraft Establishment and the model tests at Teddington. As three of the four surfaces agree within the limits of error of observation on the full scale the curves show no measurable scale effect.

Economics of Flight.

It has been mentioned that the speed of aeroplanes has increased from 85 m.p.h. to 130 m.p.h. in five years and some further improvement may be expected in the future. No equal addition to the speed range is probable and economy suggests a reduction. It is not possible to give a single estimate of whether it pays to fly fast in civil aviation, but for fighting it is the last reserve of superiority which is all important. In the commercial sphere, where time is money, the choice between speed and cost of running depends on how often a man's time is worth more than £10 an hour, or some such figure, and whether the aeroplane can save any of that time for him. Along the grand trunk routes railway traffic is fast, and the demand for the urgent delivery of light goods does not promise immediate support for the aeroplane carrier. For cross-country journeys, and in particular across water, saving of time by the use of aircraft becomes marked, and there appears no reason to doubt that aeronautics, like wireless telegraphy, will find its place in the world's traffic by adding to the possibilities of life and not by any considerable displacement of existing facilities. In some respects it is unfortunate that the war has produced a vigorous industry without the usual concurrent growth of civil demand and without even a clear indication of the correct road along which development should proceed.

It is to be noted that a gross weight of 1,000 lbs. can be carried by an aeroplane of modern type for an expenditure of 25 horse-power, but there is no reserve and the pilot could not climb or cope with down currents. His speed would be about 55 m.p.h. The necessary horse-power for the same load could be reduced by providing bigger wings and flying slower, and it has been pointed out by various writers that the most economical design aerodynamically requires speeds of flight below those of commercial utility.

The aerodynamic quality of the aeroplanes at the beginning of the war was not appreciably less than those of the present day, for all give performances indicated by the curve [referred to above.—Ed.] Progress has followed the development of the aero-motor, which now permits the use of one horse-power for each 8 lbs. of gross weight, whereas in 1914 the same power was yoked to a load of nearly 25 lbs. The most recent of our large aeroplanes carries nearly 20 lbs. per horse-power and its performance on speed and ceiling is not greatly different to that of the "Avro" or B.E.2C. It is now accepted as a fundamental truth that the weight-carrying aeroplane cannot be the fast aeroplane, and the rate at which the horse-power curve is rising shows that the conditions become progressively worse. It needs little imagination to see that increase of top speed beyond presents limits will not easily be attained and that no great increase such as that during the war period is within the limits of reasonable expectation.

A table is given below which is instructive in the economics of aeroplane carriage. The figures are round numbers advisedly to emphasise the fundamental nature of the problem as well as to avoid any undue sense of precision in the calculation. Flight is supposed to take place at about 1,000 feet and the engine to be doing its best. The first column shows the speed of flight, the second the gross weight which can be carried per horse-power, and the third column the percentage of gross weight available for passengers and merchandise for a journey of 500 miles.

Speed of flight, m.p.h.	Gross weight, lbs. per h.p.	Percentage of gross weight available for passengers and merchandise.
60	38	45
70	35	44
80	28	41
90	21	38
100	17	33
110	13	27
120	10	20
130	8	10

It will be seen that the choice lies between a time of six hours and a useful load of 40 per cent. of the total and a time of four hours and 20 per cent. of load useful.

This disadvantageous law of speed can be modified to a small extent by design and the final result is typical of the ordinary engineering compromise. One of the changes of design contemplated involves an increase of landing speed, but until forced landings become very infrequent so that a prepared ground can always be relied upon, it is difficult to imagine any substantial increase on the usual landing speed of 40 to 50 m.p.h.

An appreciable aerodynamic advantage arises from flying high. The formula shows that the original design of an aeroplane does not fix the most economical speed, but only its airspeed. It is further fundamental theorem in aerodynamics that the resistance of an aeroplane is the same at all heights for the same indicated airspeed and as a consequence the work done and fuel consumed on a journey of say 500 miles is the same at all heights. On the other hand, the earth speed for a constant indicated airspeed increases with height in the ratio of 1.16 : 1 at 10,000 feet and 1,37 : 1 at 20,000 feet, and a saving of time results from high flying. The weight of engine would rise somewhat since the power required increases in the same ratio as the earth speed, but the modification of conclusion is not serious.

(To be continued.)

£400 INCLUDING TUITION.

Those who are desirous of owning their own aeroplane and of flying it themselves should be interested to hear that the London and Provincial Aviation Co., Ltd., are placing on the market a two-seater machine, with a 50 h.p. Gnôme engine, having a top speed of about 65 m.p.h. and a ceiling of 9,000 ft., for the sum of £400, which includes the tuition of the purchaser up to the point of taking the Royal Aero Club Certificate.

A CLAUDEL HOBSON ACHIEVEMENT.

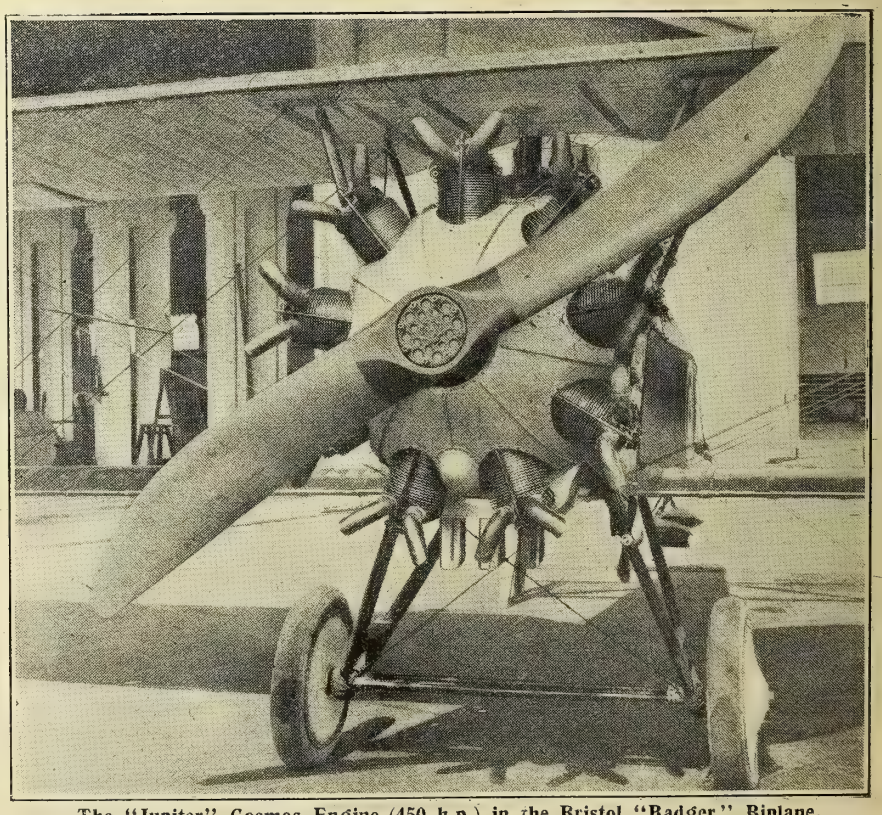
It should be noted that the Rolls-Royce engines of the Vickers "Vimy" machine upon which Capt. Alcock and Lieut. Brown crossed the Atlantic were fitted with Claudel Hobson carburetters.

The war record of Claudel Hobson carburetters is such that this demonstration of their qualities was scarcely needed.

LIGHTING AND STARTING.

The Chloride Electrical Storage Co., Ltd, of Clifton Junction, near Manchester, have just issued an illustrated price list of their "Exide" accumulators for car lighting and starting purposes.

This type of battery has been largely used by the makers of both British and American cars, and they are, therefore, suitable for replacements on cars of both nationalities



The "Jupiter" Cosmos Engine (450 h.p.) in the Bristol "Badger" Biplane.

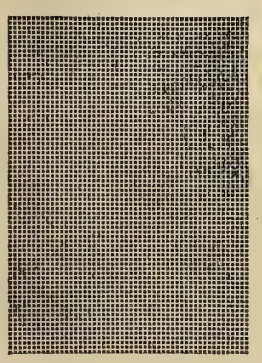
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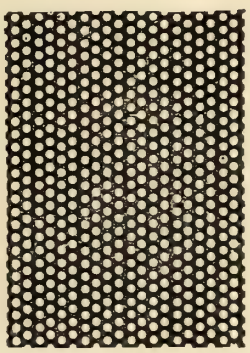
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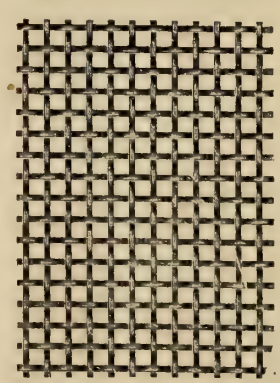
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SPECIAL WIRE GAUZE
FOR
OIL AND PETROL STRAINING.

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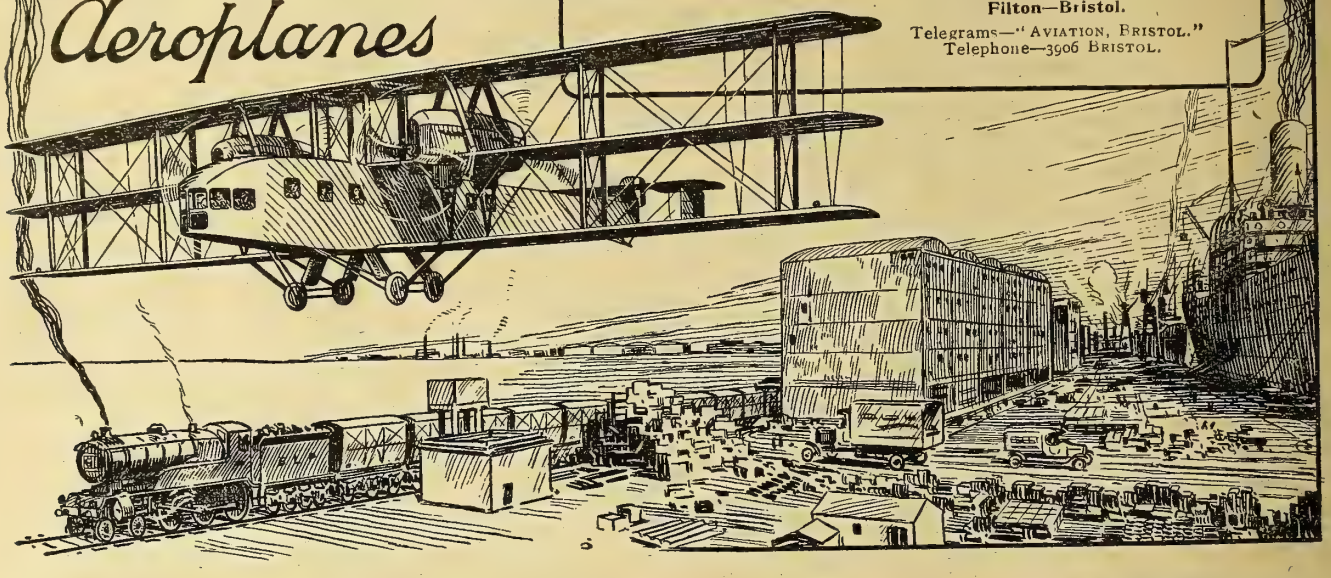
The "Bristol" Aeroplanes

THE FIRST AEROPLANE—

To cross the ANDES—
To attain an altitude of 28,900 feet—
To cross the PYRENEES from Great Britain—
To climb to 10,000 ft. in 5 min. 25 secs. and to 20,000 ft. in 16 min. 15 secs.—

—WAS A "BRISTOL."

For particulars of aircraft for all purposes apply to:
THE BRITISH & COLONIAL AEROPLANE CO., LTD.,
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Telegrams—"Aviation, Bristol."
Telephone—3906 Bristol.

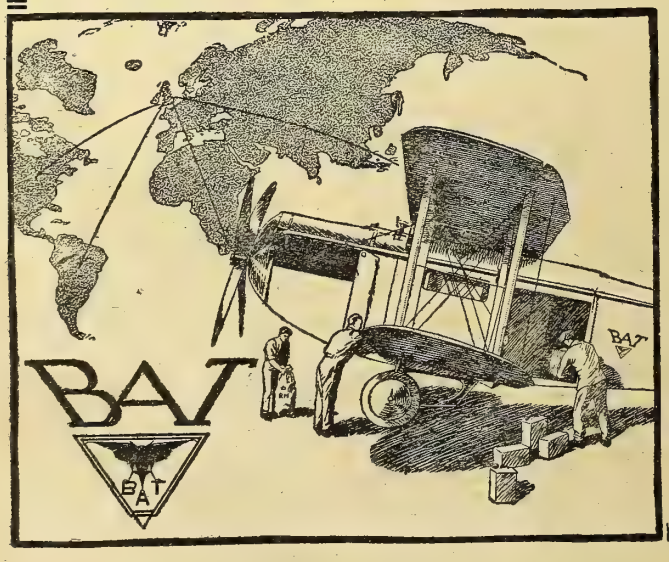


Round the world by Air

is mainly a question of organisation and *choice of flying stock.* As to the second factor, the B.A.T. Company can be of unusual assistance.

For instance, we are the first people out with a purely commercial model (not a modified war type)—the B.A.T., F.K.26—the machine with the largest cargo space and load capacity for its overall size and power yet produced.

Here are some interesting points concerning F.K.26:—



ENGINE:—Rolls-Royce Eagle VIII.

SPEED:—45-120 m.p.h.

CABIN:—Is clear of any transverse cross bracings or other obstruction, and measures 8 ft. by 3 ft. 3 ins. by 6 ft.—this in a machine of only 33 ft. overall length. Direct entry off ground through ordinary door.

LOAD:—With 600 mile range of fuel—2,000 lbs.

FUEL COST AT FULL LOAD: 7·2 pence per mile.

CHASSIS:—A sturdy job, sprung by an unique combination of oleo and rubber shock absorbers.

TAIL:—Can be trimmed in flight from pilot's seat—steering and practically unbreakable tail skid.

GENERAL CONSTRUCTION:—Straightforward—simple to repair and recondition.

A series of these machines is in production. Governments and prospective owners desiring a fleet of these machines—or a single one—are invited to forward their enquiries.

Complete particulars on application to:—

The British Aerial Transport Co. Ltd.
38, Conduit Street, London W.1.

THE AIRCRAFT TRADER

MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

JUNE 19th, 1919.

COPPER.—Upon resumption, after the holidays, the market became much firmer, and there has been a continued improvement. A prominent feature of the market is the interest which is being shown by consumers. The increased demand has resulted in the increase in values, and if the demand continues to improve, it is more than likely that prices will continue to harden.

It is expected that the recent advance in price will affect the prices of manufactured Copper. It should, however, be pointed out that these prices are already out of all proportion to the prices of Ingot, and if an advance is made, it should be very small. There is at present a scarcity of B.S., and this metal is still advancing, offers to purchase at £86 having been declined.

The position in U.S.A. is still very obscure, there has been a fairly good demand, but there is still a lack of confidence, and there is a feeling that certain American influences are endeavouring to force the price up.

COMPARATIVE PRICES.

	Per Ton. £	s.	d.
To-day, June 18th	83	15	0
Last week	89	15	0
Last month	78	2	0
Average price, 1918	115	10	0

TIN.—During the past week this market has been fairly active, and prices have greatly hardened, this has been particularly noticeable since it became known that the American embargo on Tin Imports would be lifted on July 1st. It is expected that there will be a big demand from U.S.A. when this takes place.

On the other hand, it must not be forgotten that American buyers have already been busy placing orders in the East, as stated last week, and it now transpires that consumers on the Pacific Coast have been informed that there are no stocks available for them, and have been instructed to place their orders in the East.

Although a healthier tone is in evidence, and prices are advancing, there is no cause for anxiety, as the world's stocks of Tin are sufficient to meet all demands, even if the stocks here are, at present, only small.

COMPARATIVE PRICES.

	Per Ton. £	s.	d.
To-day, June 18th	242	10	0
Last week	236	15	0
Last month	241	17	0
Average price, 1918	329	11	0

LEAD.—There is a lack of confidence in this market at present, this being due to the increase in Government stocks, and offers of Lead having been made at prices which are less than the official price. There are huge world stocks of Lead available, and although the prices recently quoted are quite reasonable, buyers do not show any desire to purchase quantities beyond their immediate requirements.

There is a brisk business being done in manufactured Lead, and particular attention has been paid to White Lead. It would not be surprising if the price of the latter were advanced. The price of Pig Lead to-day is £23 per ton.

STEEL.—The chief feature of this market at present is the rumour that there is a possibility of the price of coal being advanced again about 4s. 6d. per ton; the rumour has apparently been based on a statement made by Sir Auckland Geddes. If the statement is correct, then the position will be very serious, as the price of Steel will also advance approximately between 15s. and 20s. per ton.

It is a well-known fact that America is already doing a big export business with South Africa, Australia, India and other colonies, and they are doing their utmost to get the Steel trade of Great Britain.

The Steel market generally is in a very unsatisfactory condition, and there are no immediate prospects of improvements. There is still a slump in High-speed and Cast Steel, and the demand shows no signs of reviving.

TIMBER.—This market at the present time continues to show signs of firmness, and the demand continues to increase. Unfortunately, it is becoming increasingly difficult to get supplies into the country, owing to the shortage of freight. The result is that prices are beginning to advance.

Very little Mahogany has been received, and the stocks which were held are being consumed. The demand for this Timber, and also for Walnut, is very good, and the market is in a strong position.

There is very little Silver Spruce available at the present time for Aeroplane construction, and firms whose stocks are low, are likely to be in a serious position, as there is not much prospect of any shipments coming forward.

There are ample supplies of Plywood in the country, and some firms are anxious to dispose of their stocks, owing to the huge quantities which are available in various parts of the country. There does not seem to be any reason to expect a slump in the market. The demand for Plywood will certainly increase in the near future.

A circular recently has been issued by the Board of Trade declaring Plywood from the list of prohibited imports.

FABRIC.—The Aircraft Disposal Board stated at the beginning of June that they were prepared to sell their stocks of Fabric in lots of not less than 80 yards, but from the recent deal with Mr. L. J. Martin, it looks as though they have changed their minds. The particulars of the deal are as follows:—40,000,000 yards of Fabric has been purchased by Mr. Martin, the approximate total price being about £4,000,000. The price must, therefore, be between 1s. 6d. and 1s. 10d. per yard, 36 ins. wide.

If this assumption is correct, then the Ministry cannot be commended. Apparently, it is Mr. Martin's intention to sell the Fabric at prices less than those at which the Belfast Spinners can manufacture. If this is the case, then the Belfast firms will certainly have a grievance against the Ministry.

In any case, the transaction requires further explanation, as the Ministry must have paid about 3s. per yard 36 ins. wide for the Fabric, and it is understood that the price at the present time for the same Fabric would have been much higher than this figure, owing to the increased cost of raw material and labour.



THE DESIGN AND DRAWING OFFICE STAFF OF VICKERS, LTD., who worked on the Vickers "Vimy" Biplane (Rolls-Royce Engines), which won the trans-Atlantic Prize. Mr. H. S. O'Brien, Chief Draughtsman, is seen in the centre. The modesty of Mr. Pierson, the Chief Designer, accounts for his absence from the photograph.

The Winner of

PRATT'S

PRIZE (100 gns.) & TROPHY

MR. CYRIL TURNER

writes:

"Just a line to express my very great satisfaction at being the winner of the splendid trophy and prize you very sportingly put up at Hendon.

My machine ran faultlessly on PRATT'S."

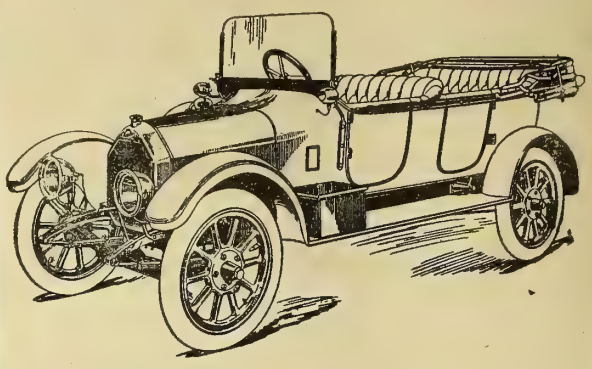
(*Signed*) CYRIL TURNER.

Mr. Turner (Bat Bantam) won the Cross Country Handicap at Hendon on Whit-Monday, doing his fastest lap at a speed of

OVER 120 MILES AN HOUR.

BY APPOINTMENT

Anglo-American Oil Co., Ltd.,
Proprietors of Pratt's "Perfection" Spirit,
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WELL WORTH WAITING FOR.

THE Humber Car represents the accumulated experience of years of scientific motor research, dating from the day that motor engineering was first conceived; for Humber Limited are pioneers of the industry. There exists no slip-shod, hurried building to meet a waiting market: the Humber process in every detail is carried out with that precision and superior skill that has, in the past, made the name of Humber a guarantee of reliability.

The study of our reputation is the study of your riding comfort and complete satisfaction of purchase. The great demand at present for Humber Cars is being met as well as is humanly possible, and it is our regret that we cannot possibly guarantee any further 1919 deliveries; but we feel sure you will realise that the deliveries for 1920 are well worth waiting for.

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A. 193

COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

WANTED—A PROPAGANDIST BUREAU.

(A SUGGESTION TO THE S.B.A.C.) By "MEDWAY."

It strikes me very forcibly that there is considerable danger of Commercial Aeronautics being made a sort of plaything of the stunt-hunting section of the Press. It is just the kind of development that would strike the enterprising journalist as making fine material for a slack season.

Now, any movement which lends itself to this sort of treatment is very liable to have its balance upset. For a time nothing is too charming to be said about it. It is destined to revolutionise the traffic and transport of the world. It is far advanced on the high road to perfection. It is portrayed in glowing colours, with the result that astute people, realising the influence of the daily Press on the public mind, see an admirable opportunity of doubtful company-promoting on a big and profitable scale.

Exaggerated Enthusiasm or Unjustifiable Pessimism.

The trouble is that a period of exaggerated enthusiasm is generally followed by a swing of the pendulum and a period of unjustifiable pessimism or else of total neglect. For the moment the latter is perhaps the more probable. Things will not come along as quickly as enthusiasts had hoped. The papers will get bored with discussing a development which does not appear to materialise to order, which will not bloom with the facility of the sweet-pea, nor rise with the rapidity of standard bread in the baking.

The consequence is that, when, so to speak, the cream has been skimmed off by a journalist who does not care to go far beneath the surface, the rest is left to go sour.

A few months ago the daily papers were nearly full of optimistic articles on the commercial uses of the aeroplane. Anybody with a vestige of knowledge was interviewed and reported at length. Even the most far-fetched and impracticable ideas were set forth in detail, giving good publicity to their inventors, but very doubtful publicity to the movement.

It will be noticed, however, that for the past few weeks the subject appears to have died out. It has been replaced for the time being by topical news relating to the Atlantic Flight. When this latter ceases to be a sensation, there is fair prospect that the whole subject of aeronautics will be regarded for the nonce as having gone stale, and will be neglected until some new and exciting development is in sight.

A Balancing Force Needed.

It seems to me that we are in need of some balancing force; something which, when optimism runs riot, will apply just a sufficiency of cold water, and, when pessimism or neglect appears imminent, will act in such a way as to maintain equilibrium and keep the subject to a reasonable extent before the eyes of the public, gradually feeding out information without overdoing the thing.

In connection with motoring, there has been formed recently what is called the Motor Legislation Committee. Its object is fairly well expressed by the title, but the method of obtaining its object is not quite so obvious. In point of fact, the method in the main amounts to organised propaganda. This means that the Committee must have a really competent staff, and must enlist the sympathy of a number of well-known men prepared to give at least a little of their time to the work with which the Committee is entrusted.

The main trouble of the motor movement at the moment is the risk of adverse legislation having the effect either of restricting the use of vehicles or of allowing the roads on which they must run to deteriorate in order to benefit the railways. The position of commercial aeronautics is different. The main need of the moment is to encourage sane and to discourage insane development. We do not want people to get an idea that if they invest their money in any commercial aerial scheme they will become millionaires in a week, neither do we want them to think that such an investment in itself qualifies them for the lunatic asylum. Again it is undesirable that people should jump to the conclusion that our whole system of commercial aeronautics is within a few inches of perfection. It would be equally unfortunate if they came to the conclusion that we have run up against bad snags over which it is impossible to steer a safe course.

A Disturbing Influence.

In my humble opinion, the Atlantic attempts up to the present have had a disturbing influence on public opinion. This should be corrected by authoritative statements pointing out how very much the Atlantic proposition differs from an ordinary commercial proposition for the running of a service mainly on an overland route. We ought also to be told by people whose words carry weight in what ways the Atlantic attempts have contributed materially to our knowledge and brought the ultimate success of commercial aviation nearer. The general public looks on anything of the kind as a demonstration of what can and what cannot be done. It wants to be made clear that experiments of this kind are rather in the nature of practical research or of pioneering than of demonstrations upon the results of which public opinion should be formed.

If people are drowned or narrowly escape drowning in an attempt to navigate the Niagara Falls, it does not follow that it is inherently unsafe to work a motor barge along a canal. This is more or less an extreme example, but the point is that we must not draw inferences from an unquestionably dangerous venture, recognised as such in informed circles, and apply our conclusions to a comparatively placid and unexciting commercial enterprise.

Organised Propaganda.

I suggest, therefore, that it would be a good thing to have, in connection with commercial aeronautics, an organisation very much on the same lines as the Motor Legislation Committee. This Committee draws its financial support from a big body of Motor Manufacturers and Traders and a big body of Motor Users. The corresponding Committee or Bureau that I have in mind

might be financed on similar lines by the joint effort of trade and using interests. The function of the body would be executive. Its activities ought, I think, to be more or less controlled by a small Committee which should meet fairly frequently and should consider the general trend of public opinion as expressed in the lay Press. Whenever this opinion showed signs of going off the rails in one direction or the other, the executive of the Bureau would be expected to organise propaganda to restore equilibrium.

This would sometimes mean the preparation and placing of articles describing the conditions under which commercial success might fairly be expected in connection with aerial ventures. It would sometimes involve the employment of literary men whose names are well known, and who can therefore get special attention from a public to which the name of the technical specialist is possibly unfamiliar. It would sometimes mean the making of arrangements in which specialists would consent to grant interviews and to discuss certain aspects of aeronautics or certain lessons that may have been learnt from recent experiments.

THE NECESSARY OPPOSITION.

Whenever statements appeared of a kind likely to give the public a distorted view of the real position, the executive of the Bureau would take the matter up and deal with it either by letters to the offending papers or by other means, possibly not altogether disconnected from advertising considerations.

In course of time the Bureau might very possibly come to bear a close resemblance to its prototype. There will, no doubt, be brought forward before long legislative proposals of a restrictive character. Possibly one or two unfortunate accidents will lead to suggestions which, if put into effect in law, would deal a very serious blow to progress. Anything of this kind would be carefully watched, and the necessary opposition organised in advance.

The Motor Industry and the motoring community have suffered from the first from the lack of an organisation on the lines of the one which they have now at last created. If we do not want history to repeat itself in another sphere, it seems to me that we ought to take our precautions without delay, and establish a Bureau which, by organising propaganda in the Press, on the platform and elsewhere, will gradually mould a well-informed public opinion, which will keep the whole development comparatively clear of unsavoury but successful company promotion, and equally will eliminate the risk of hostile prejudice based on ignorance of the true facts.

MR. F. H. ROYCE.

The fame of the Rolls-Royce engine, to which the trans-Atlantic flight has added further laurels, makes interesting the identity of the man responsible for its creation. Yet of all the men whom the motor movement has pushed into the limelight of prominence, it is doubtful if there be one whose personality is so unknown as Mr. F. Henry Royce, M.I.M.E., M.I.E.E., etc., to whose fertility of invention and creative genius the Rolls-Royce owes its unrivalled position in the world to-day.

Born in 1863, the son of a farmer in South Rutlandshire, he was obliged to begin work at an early age owing to the death of his father, who for a few years previous to his death had been the technical expert for a steam flour milling concern. The insight into mechanics afforded by his father's occupation gave young Royce his first incentive to engineering, which was subsequently to make his name world-famous. A few years' apprenticeship at the G.N.R. locomotive works at Peterborough, during which time he devoted himself to the study of mechanical science at the City Guild Technical College under Professors Ayrton and Perry, laid the foundation of his acquaintance with practical mechanics, which has since served him and the motor movement in such good stead.

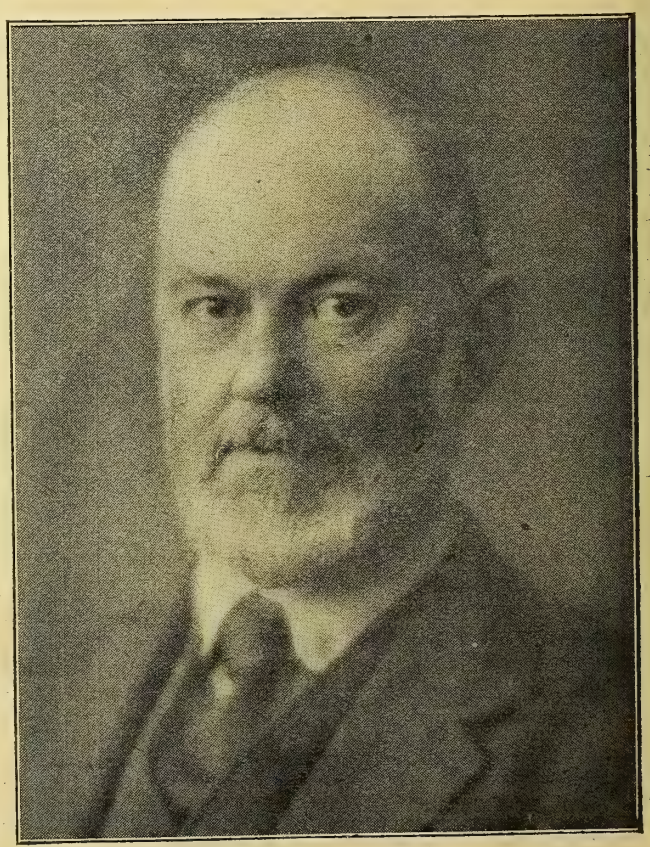
In his eighteenth year he obtained employment at Leeds as an engineering fitter, and worked long hours building and testing machines for the Royal Italian Arsenal, then being built. Before his twentieth birthday he had removed to London, and from the parent company was sent to Liverpool to be chief electrical engineer to the Lancashire Maxim and Weston Company in that city.

The firm of Royce, Limited, was started in 1884, when its founder was of age, in conjunction with Mr. Ernest A. Claremont, of Manchester. From very small beginnings, making arc lamps and dynamos, the firm subsequently branched out into electromotors and electrically driven cranes, in connection with which the name of Royce is famous to this day. The large electrically-driven Goliath cranes are perhaps the best known of Mr. Royce's productions in this line.

It was not until 1903 that he turned his attention to the motor industry, on the invitation of the late the Hon. C. S. Rolls, the outcome being the formation of the firm of Rolls-Royce. From the little 10-h.p. car which first carried the colours of Rolls-Royce, to the enormous Vickers "Vimy" aeroplane, propelled by two Rolls-Royce "Eagle" engines across the Atlantic, it has been the brain of Mr. F. H. Royce which has worked out every minute detail of development and perfection which pertains to the name of Rolls-Royce.

Nor is this renown a matter of appropriating the work of subordinates, as too frequently happens in the case of much advertised geniuses. Mr. Royce is a man who can and does handle any tool like a craftsman, but he is, moreover, equally fertile in designing improvements in tools, as every mechanic in the great works at Derby can bear witness. But more valuable still than personal handicraft is the faculty he possesses of selecting the best men to carry out his designs, to which is largely due the super-excellence of every minute detail of the Rolls-Royce engine and car.

For years Mr. Royce has enjoyed but indifferent health, in fact, his personal appearance would suggest the collegian rather than the mechanical designer whose name will be recorded in history with those of Stephenson and Watt. For the purpose of minimising the physical and mental strain of business, he has spent considerable time during the past few years in the South of France, a sojourn which has happily fitted him for the onerous work of reconstruction looming in the near future. Mr. Royce has been acclaimed by many as a genius. In his case, as in most others in which work of permanent value has been done, genius has been proved to be an infinite capacity for taking pains.



Mr. F. HENRY ROYCE, of Rolls-Royce, Ltd.

Imber Anti-fire Tanks

Messrs. Brown and Melhuish and Mr. Imber are forming a company to manufacture the Imber Anti-fire Tank, for the prevention of fires in aircraft accidents.

The Imber Anti-fire Tank is supplied to, and approved by, His Majesty's Government.

For particulars please communicate immediately with Messrs. Brown & Melhuish, 4 & 8, Park Street Works and St. Albans Place, Islington, N.

Phones: North 2800 and 1774. Wires: Bromelsar, Hibury, London.

The Imber Anti-fire Tank prevents fire in aircraft accidents.

CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

It is understood that arrangements have now been completed for an aerial pleasure service to be run at Brighton during the summer. Land machines and seaplanes will be used, and permission has been granted for the machines to use "The Ladies' Mile" at the north end of the town as a landing ground. A rental of £15 per season will be charged for this ground, and each seaplane will be charged 10s. per week.

FLYING AT HOUNSLOW.

The following cross-country flights were made during the week ending June 22nd :—

One to Brighton and return, one to Derby and return, one to Swansea and return, one to Ascot and return, one to Dunstable and return, one to Southsea and return, one to Margate and return, one flight from Hounslow to Margate, and one flight from Southampton to Margate.

On the flight to Swansea Colonel Henderson's machine left Hounslow at 3.45 p.m. and arrived at Swansea in 2 hrs. 25 min. The return journey commenced at 7.55 p.m., and ended at 10 p.m.—a distance of 360 miles, with two stops for replenishment and a complete inspection of the beach at Swansea. The whole journey occupied 6¼ hours. Over 600 passengers were carried during the week at Hounslow.

PASSENGER CARRYING AT EDGWARE.

A number of passengers were carried on Saturday, Sunday, and Monday with great success by the London and Provincial Aviation Company. An Armstrong-Whitworth (160 h.p. Beardmore) machine has been erected and tested. It carries three passengers quite comfortably, and as soon as this machine has been passed by the Air Ministry it will be used for passenger service. The company are now proceeding with a new passenger-carrying machine with an 80 h.p. Le Rhône engine.

Australia.

Mr. R. Lloyd's aerial survey party have arrived at Burketown, Queensland, after a very rough journey of 2,550 miles across country from Sydney to the Gulf of Carpentaria. They located aerial landing stations and relay and fuel depots on their route, each 390 miles apart, so that a chain of landing stations from Sydney through Queensland and along the Gulf route is now completely charted except for the Darwin site which will be chosen at the end of the survey party's journey. There is to be a station at Borooloola, in the Northern Territory. An alternative interior route will be surveyed from Camooweal to the Catherine River by way of the Newcastle waters and across the heart of the Northern Territory.

Brazil.

According to "Auto Propulsao," of May 15th, the Brazilian Minister of Communications has authorised the publication of official instructions relative to inter-State and foreign aerial transport services in Brazil.

The principal points of the regulations are summed up as follows :—

The network of aerial communications will cover all the State capitals, but concessionaires may, with the permission of the Government, extend their services to other cities if it is found to be desirable on commercial or industrial grounds.

Two years will be allowed to concessionaires for organising connections between capitals.

Concessions carry no monopoly of any kind, they will cover aerial transport of passengers, mails and small parcels as soon as it is considered sufficiently safe.

The obligatory number of journeys, fares and rates are to be fixed by schedules agreed upon with the Government.

No letter or publication may be carried without proper postage stamps.

No passenger or goods service is to be started without previous licence of the Federal Government, which will regulate the conditions of the service under its own direct inspection and supervision.

Concessionaires will be obliged to admit to their workshops and upon their machines cadets of the National Flying Services.

Concessions will be granted for a period of ten years, and concessionaires must undertake to fulfil any obligations ordered by the Government in the future, without any claim to indemnity, in so far as relates to questions involving aerial dominion or the national security.

After two years the Government may order that all commanding officers, pilots and crews of aircraft engaged in such services shall be Brazilian citizens and that the aircraft employed shall be registered as Brazilian at the Inspection Department of the Marine and River Transport Department of the Ministry of Communications.

FICTITIOUS FIGURES ON FLYING.

The following letter has been received :—

Sir,—The various letters from "Ex R.N.V.R.," "Common Sense," and a "Would-be Aviator" on the above subject, do not seem to me to carry the matter much farther, and I am content to leave my figure of £2.65 per ton-mile untouched, considering that it fairly represents the cost of flight at the present day with present-day machines.

I should like, though, to point out, that this figure is a minimum cost, and that "Common Sense's" figures may easily be reached with bad management or bad luck. "Would-be Aviator's" figures for a seaplane station do not astonish me :—I know of a seaplane-carrier wherein the costs of flying came to £69 a ton-mile.

When writing my first letter I took a machine for cost purposes, roughly approximating to the Bristol Braemar, and the performance of this machine, given by "Common Sense," agrees with the actual tests that I have seen. I quite agree with him that some sort of mail case and portable boat are required, but think that 5 cwt. should suffice for these, and that the further deduction of 2 cwt. that he makes is not essential. My load of 15 cwt. with the foregoing assumptions, may then be carried.

I cannot in any way subscribe to the opinions expressed in "Commercial Aircraft Design" XIV, "Speed, its Value and its Cost," by Capt. Sayers, in so far as they advise slow flight as the correct thing to aim for. The whole object of flight is speed. Flight must always be more dangerous, uncertain and expensive than other transport simply *because* of the speed, and for this reason *only* it must have complete monopoly of fast transport (transport where speed is the main consideration).

There may be cases where aircraft have special uses, apart from speed—one can instance exploration, or reaching places inaccessible to other transport—but the main use of flying is, must be, for the quickest possible delivery of light objects.

Speed must be paid for, but, if attainable, is a priceless asset. "R varies as V^2" is a horrible rule, from the money point of view; but it is, like all Nature's laws, fair, if desperate. You cannot drive a car (regardless of cost) at more than, well, say, 100 m.p.h. on the road (even a good road). You cannot drive a ship (regardless of cost) at more than 100 m.p.h. through a sea.

You *can* drive an aeroplane—now—at 140 m.p.h. comfortably, and no speed limit—theoretically—can be seen. The speed of sound, at least, should be attainable. It is granted that special means of landing and starting will be required, but no difficulty is foreseen here, beyond the inevitable speed difficulty of expense.

Pay for it—you can have it. Pay for it—in any other transport—you fail.

I am satisfied that passenger-carrying is hopeless as a regular traffic, apart from war, and Peace Conferences. The wretched human body is heavy, and even a race of pigmies carries too much poundage to pay its way aerially.

I am also convinced that the cost of future commercial flying will be much more than my figure of £2.65 per ton mile, and anticipate that the next 50 years will see a speed of 400 miles per hour, and a rate of £100 per ton mile. This will make passenger-carrying still more impossible, but will not in any way alter the value of flight for mail transport.

It will simply alter the form of mail matter, reducing its weight and bulk to conform to the new conditions. It is quite practicable to reduce photographically the present letter weighing, say, 1 ounce to a photographic facsimile weighing not more than 1/100th of an ounce, and so keep to a reasonable postal figure of, say, 3s. 0d. for a 5,000 mile journey.

Unfortunately, such a process is not likely to be realised with the human body. Naturally, aerial mail transport must grow slowly, the load decreasing in weight as speed and cost increase. At the present moment ordinary letters, weighing, say, ½ ounce, could be carried practicably at 100 miles per hour, but I look forward to micro-photographic mail as the flying load of the future.

Fast transport will bring increased traffic with it, and the photo process herein mentioned, should take a large share of the correspondence now carried out by cable. The proposal being made to adapt flying machines to present traffic by slowing them appears to me entirely mistaken, and comparable to a utilisation of Derby winners for drawing coals. Speed is flight's great exclusive asset—let us not lose perspective, but face facts, and look ahead.

"ENGINEER OFFICER."

A SUCCESSFUL TRIAL.

Another F.5 Flying-boat, built by the Gosport Aircraft Company to the design of the Air Ministry, was successfully launched on Thursday, June 19th, afterwards being towed down to Southampton Water, where it was put through a most successful hour's trial flight by Lieut. D. V. Carnegie, A.F.C., R.A.F., together with a crew of six aboard, including Capt. S. Spreat and Mr. J. Nicholson, both of the Gosport Company.

This makes the third F.5 Flying-boat of this type, built by the Gosport Aircraft Company, which has been successfully tried and delivered to stations on the East Coast by the above officer during the last five weeks.

ATLANTIC FLIGHT

THE
ROLLS-ROYCE ENGINES

installed in the Vickers-Vimy Biplane which crossed the Atlantic piloted by Capt. Sir John Alcock, K.B.E., D.S.C., were fitted with

K·L·G PLUGS

ALL were available, K.L.G. were chosen.

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Telephone: Putney 2132, 2133. **Telegrams: "Kaelgee, 'Phone, London."**

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE TRANS-ATLANTIC COMPETITION.

Capt. Alcock, D.S.C., and Lieut. Whitten Brown reached London from Galway on June 17th, after municipal receptions at Chester, Crewe, and Rugby. In Dublin on their way through they were entertained by the Trinity College authorities.

At Euston, where they arrived at 6.5 p.m., a procession of decorated cars with members of the Royal Aero Club, including Major-General Sir Capel Holden and Lieut.-Commander Perrin, was in waiting. The Mayor of St. Pancras (Mr. G. F. Parsons), the Town Clerk, and other members of the Borough Council were present. Major-General Swinton represented the Controller-General of Civil Aviation, and with him were Colonel S. G. Partridge and Lieut. C. P. Robinson, R.A.F. Brigadier-General R. M. Groves was present on behalf of Brigadier-General Seely, Air Ministry. Vickers, Ltd., who designed and built the machine, were represented on the platform by Sir Francis Barker, Sir Trevor Dawson, Sir Vincent Caillard, and Mr. H. J. Morris. Capt. Acland, manager of the Aviation Dept. of Vickers, Ltd., Capt. Vickers, and Mr. Pierson, from whose design the successful machine was constructed, met the flying men at Holyhead.

From Euston they were taken to the Royal Aero Club, where they were toasted and various congratulatory speeches were delivered.

On June 21st Capt. Alcock and Lieut. Brown, in obedience to the royal command, proceeded to Windsor, where the King himself invested them as Knights Commander in the Order of the British Empire. They had also the honour of being presented to H.R.H. the Prince of Wales.

The Presentation Lunch.

The winners of the trans-Atlantic competition were entertained to lunch at the Savoy by the proprietors of the "Daily Mail" on June 20th. The guests included the most advertised people in modern commerce, and representatives of most of the leading newspapers of to-day. The health of Captain Alcock and Lieut. Brown was proposed by Mr. Thomas Marlowe, the Chairman, in a long and elaborate speech which set forth the features of the flight and the virtues of the victors in full accord with the traditions of English journalism.

Mr. Winston Churchill, Secretary of State for War and Air, honoured the occasion by presenting the prizes, which, including the "Daily Mail's" £10,000 and sundry subsidiary prizes amounted to £13,000. His speech in making the presentation was such an outstanding example of English as it should be spoken that one is obliged to print it verbatim. One acknowledges the report to the "Times."

Mr. Churchill's Speech.

Mr. Churchill said:—

The task which has been entrusted to me is a very pleasing one and a very easy one. It is to present to these two officers who are welcomed here to-day the munificent gift for the advancement of aviation which we owe to the "Daily Mail" newspapers and to those other donors who have just been mentioned by the Chairman in his speech, and after the very excellent speech, Mr. Marlowe, which you have made, touching one after another on all the true and salient points which arise on this occasion, there are very few things which I have to say. Indeed, I can, and shall, do little more than to associate myself with all that you have said.

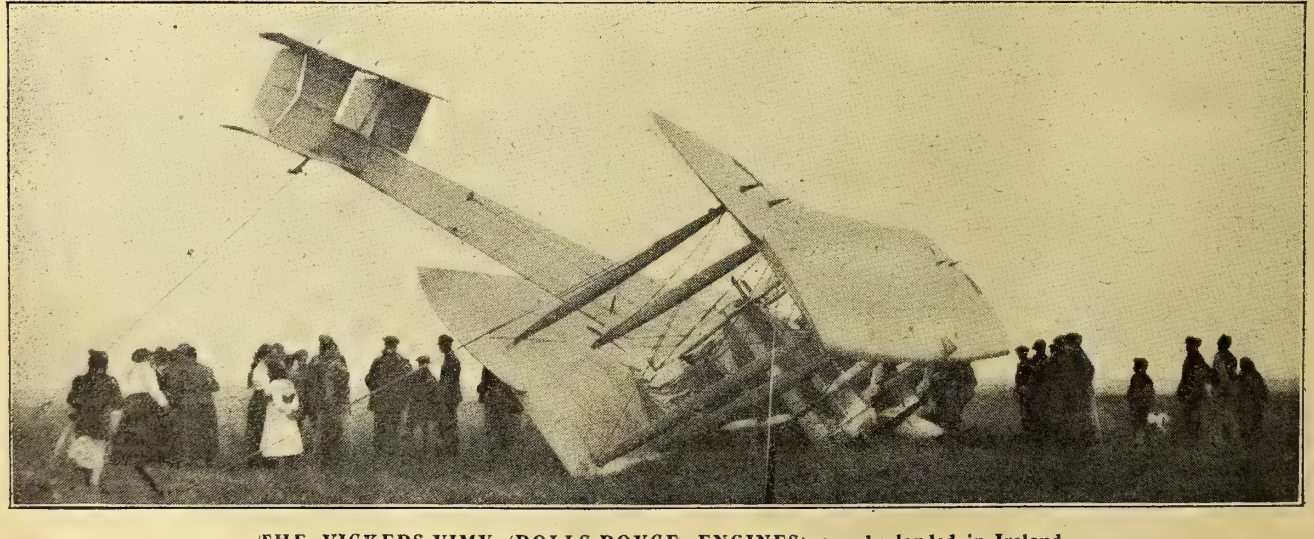
I agree with you, and I feel that everyone here agrees with you, when you have claimed that we are met together to celebrate a most wonderful and valiant achievement. It is an achievement which marks the advance of science, and, as you have pointed out, of engineering, and the increasing triumph of men over nature. But it is also an event which shows that, while we have become more powerfully equipped in all that sort of apparatus, we have also preserved as a race the audacity, the courage, the physical qualities of the old heroic bygone times. By this achievement we are able to see, we are able to assure ourselves, that our civilisation has combined the science of the 20th century with the virility and love of adventure of the knights of old. And, let me add, as you have in your own way, so effectively conveyed to us, with a modesty and courtesy worthy of ancient tradition, and probably far superior to ancient practice.

In 1492 Christopher Columbus sailed across the Atlantic and discovered America. I cannot help feeling that this afternoon we are to some extent in contact with and in relation to that event, and that when we welcome our guests—the heroes of to-day, who have come back from the other side, come to us from America in something less than 16 hours—we are in the presence of another event of something like the same order as that stupendous event which revealed to Europe and Asia the boundless glories and possibilities of the new world across the Atlantic Ocean. How different were those two voyages in all except two conditions—the peril and the pluck; otherwise the difference presents the most violent contrast that could be imagined, but the pluck and peril are of the same order. In the case of Columbus—the Ambassador is my authority—it occupied 90 days to traverse that immense expanse of waters, and our guests to-day have come back across the ocean in less than 16 hours, but into those 16 hours were crammed the concentrated perils, which required the same great human qualities as were exhibited in that long, earlier voyage of ancient times.

And as I have said, we see from these reflections at once the advance of human powers and methods and the preservation unimpaired of the old deep primitive virtues and energies of mankind. It is more than 400 years since Columbus discovered America; it is only 10 since Blériot flew the English Channel—it is not so safe and easy as it sounds, or as is often represented, to fly the English Channel. Anyone who knows the anxieties which arise in the breast of a pilot, possibly even in the breast of a passenger, when that voyage has to be made in mist or at a very low altitude, is in a good position to judge the kind of achievement which we are gathered here to acclaim together to-day.

Think of the broad Atlantic, that terrible waste of desolate waters, tossing in tumult in repeated and almost ceaseless storms, and shrouded with an unbroken canopy of mist. Across this waste, and through this obscurity, two human beings, hurtling through the air, piercing the cloud and darkness, finding their unerring path in spite of every difficulty to their exact objective across those hundreds of miles, arriving almost on schedule time, and at every moment in this voyage liable to destruction from a drop of water in the carburetter, or a spot of oil on their plugs, or a tiny grain of dirt in their feed-pipe, or from any of the other hundred and one indirect causes which in the present state of aeronautics might drag an aeroplane to its fate.

When one considers all these factors I really do not know what we should admire the most in our guests—their audacity, their determination, their skill, their science, their Vickers-Vimy aeroplane, their Rolls-Royce engines, or their good fortune. All these were necessary, and all of them contributed to their achieve-



THE VICKERS-VIMY (ROLLS-ROYCE ENGINES) as she landed in Ireland.

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(See advertisement on page 2568.)

THE IMPROVED LIQUID GLUES CO., Ltd., Gt. Hermitage Street, London, E.1.

ments, and to the event which has brought us all together here this afternoon, to cheer the victors of the first non-stop Atlantic flight. They are the victors. They are the real victors, and they are the only victors. It is no disparagement to the gallantry of Mr. Hawker. It is no disparagement to the brilliantly executed exploits of the United States Navy which, working along Service lines, have obtained results of extraordinary value from a Service point of view, apart from all other points of view. It is no disparagement to any of these gallant and skilful efforts if we say in surveying the Atlantic flight made by Alcock and Brown, "This is it!"

Mr. Marlowe has touched upon another aspect of this flight, and has spoken of its significance in drawing together all the great English-speaking communities that dwell on both sides of the Atlantic. I think here, again, we all agree with him that the significance is very real and very deep. When we study these prodigious efforts which are being made by so many to traverse the Atlantic by air, to bridge the gulf of waters, to annihilate space and time which divide these great communities, when we see these intense, repeated, stupendous efforts, made from so many quarters, can we not feel that they also symbolise the attempt to unite, not merely in the sense of eliminating distance, but the attempt to unite into one harmonious association all those great communities of English-speaking free democracies, which, combined together, working in true comprehension and perfect freedom, constitute an absolute guarantee for their own safety, and the surest promise of the future advantage and security of the world.

I think this great, varied, and distinguished company would wish me to express on their behalf almost the only point in connection with this subject to which Mr. Marlowe did not refer in his admirable address—I mean the great services rendered to aviation by Lord Northcliffe and the "Daily Mail."

That powerful factor in our modern social and political life which is usually described as the "Northcliffe Press," has in its time championed many causes, and some of them have been very excellent causes, but I venture to think there is no cause which they have more consistently championed and which has been better deserving of their support than the popularisation and the development of the art of flying, and the gathering together of a strong public sentiment in favour of great exertions along that path. Now, I think it is very appropriate that this prize which Lord Northcliffe offered should have been won at a juncture when the news of this successful result must have fortified him and cheered him in the severe ordeal from which we have every reason to hope he is successfully emerging.

At the beginning of these few observations, I spoke of the deeds of our two guests to-day being worthy of the knights of old. But why should there only be knights of old? Why should there not be knights to-day? These two officers in the war did their duty in a perfectly straightforward manner, suffering wounds, or captivity, as so many of their comrades have done. They would be the first to say that any personal qualities that they may have displayed, or any personal risks that they may have run, are no greater than those qualities which have been displayed and the risks which have been run by scores of their comrades in the flying services in the long repeated months of peril and effort which have constituted the history of the flying services during the great war. Therefore, it is not in this sense that they would be wished to be singled out for a special honour, but in addition to all those qualities which are so admirable, and which so many of our flying officers have displayed in the course of their duty, our guests this afternoon are forever, as you have said, Mr. Marlowe, associated with a unique world-famous and joyous event. No one has ever flown the Atlantic in a single bound before, and no one will ever fly the Atlantic for the first time in a single bound again. I am very happy to be able to tell you that I have received His Majesty's gracious assent to an immediate award of the Knight Commandership of the Order of the British Empire, to both Captain Alcock and Lieut. Brown.

Now it is my duty to present to you, Captain Alcock, these three cheques—one of £10,000, one of £1,000, and one of £2,100—which constitute and which are your due for having fulfilled the conditions prescribed by those who instituted this most useful and fortunate competition.

Further Proceedings.

The announcement of the knighthoods for Captain Alcock and Mr. Brown was as much a surprise for the heroes of the day as to the others present, for neither had had any warning that this honour was to be conferred on him. Captain Alcock told the writer afterwards that Mr. Churchill had told him during lunch that he had "something for him," but that he (Captain Alcock) thought it was the A.F.C., and he confessed to being swamped at the idea of being Sir John Alcock.

In returning thanks, Captain Alcock read a brief account of the flight across the Atlantic, embodying so much as was true of the various newspaper accounts already published. Mr. Brown, when his turn came, gave an equally lucid and simple account of the flight from the navigator's point of view. Both these officers made a gallant attempt to talk down to the intelligence of their audience, and succeeded admirably. One hopes that at a later date each may be induced to give a lecture on the flight to the Royal Aeronautical Society, before which they could speak in technical terms and could give details which would be without interest to a commercial and journalistic gathering.

The American Point of View.

Mr. J. W. Davis, the American Ambassador, proposed the toast of the Chairman in a way which showed that he is a worthy successor to the former illustrious holders of his office. Extreme pressure on space forbids reporting his speech in full, but certain gems of sound common sense and wit must be recorded. As, for instance:—

"Their flight was a wonderful achievement, one the importance of which can in no respect be underrated. Where, in all the history of mankind, is there a romance to parallel this constant narrowing of the Atlantic Ocean? Columbus first set bounds to it. May I digress for a moment to protest that, when Mr. Churchill turned to me and said, 'Do you know how long it took Columbus to cross the Atlantic?' and I, after scratching my head, said, 'No, I don't, but you can make it at least 90 days.' I had no idea that he intended to underwrite his own ignorance at the expense of mine?

"Then, after Columbus had discovered that, if the winds favoured you, you could really reach something on the other side, Robert Fulton came with his steamboat and proved that the winds had nothing at all to do with it. Next, after the steamship had established communication, Cyrus Field tied the two sides of the Atlantic with cables stronger than the steel of which they were made; and hardly was the romance of Atlantic cables forgotten before men began to whisper to each other by means of the wireless.

"Now, to-day, a man sleeps one night in America and the next in Great Britain. What is it but the drying up of the Atlantic itself? I recall but one case in history where that feat was performed, but it was not a lasting feat. My recollection is that the Red Sea returned to its former habits very shortly, but this I believe to be a permanent reform. You will understand the allusion if I say that in view of the fact that the land on the other side of the Atlantic is 'drying' so fast—there is a large and increasing number of citizens there who rejoice at the shrinkage of the ocean.

"I am not one of those who believe that this is to be a mere freak in human advance and invention, but I confidently look forward to the day when the citizen of the United States will spring to his breakfast and ask whether the morning 'Daily Mail' has come in, and I shall not be surprised if he sends his servant down to see whether a little package has not come along for him by the same post.

"Others have spoken of the effects of this event upon the relationship between our countries. Three thoughts occur to me in this connection. The first thing which seems to me significant about all this enterprise is the magnificent spirit of sportsmanship in which it has been conducted. In all these efforts, by whomsoever made, nothing but the most sportsmanlike spirit has been shown—an earnest desire to be helpful one to another, with 'Hats off and may the best man win.'

"I draw great satisfaction from the thought that in some respects it has been a joint enterprise. All of us thrilled with wonder and admiration at the splendid courage with which Hawker set out to cross the trackless waste and failed by the narrowest of narrow margins. And we took some satisfaction on our side of the water in the care and scrupulous attention which were given to detail in the attempt on the part of our Navy Department. But they, too, were unable to cross the Atlantic in a single leap. Then there came a man born in England and a man born in America, attempting it together—and they won.

"I draw from that the confident assurance and conviction that in any cause and in any enterprise in which they may be united America and Great Britain are truly invincible.

"I get an impression of a constant narrowing of the gulf that divides us, a constant approach not only of our territory and of our shores but of our people, one to another, and if it were possible to compress into a single word all that we shall need for the future to continue the happy relations that now exist I should put it in one word, 'Proximity.' Believe me, the nearer we draw to each other in time and space, in thought and sentiment, and the more we know of one another, the more tolerant we shall be to each other's problems, the more earnest we shall be in each other's help."

One hopes that Mr. Davis' words may prove prophetic, and that in due course trans-Atlantic air lines may be established which will bring about a lasting alliance between the American oligarchy and the British democracy.—C. G. G.

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THE ROYAL AERO CLUB'S WELCOME.

Captain Sir John Alcock and Lieutenant Sir Arthur Brown were the guests of honour at a banquet given by the Royal Aero Club on June 23rd at the Savoy. The affair was altogether enjoyable, not only because of the auspicious occasion, but because it provided the first opportunity since the war for a gathering of all the old-timers of British aeronautics. One hopes that an opportunity for a similar meeting will occur ere long.

The Duke of Atholl, President of the Royal Aero Club, made an ideal chairman, his speeches being brief and to the point, with flashes of humour, and pervaded by a subtle patriarchal air—despite his comparative youth—such as befitted alike his position in the Kingdom of Great Britain and in the Club.

In proposing the health of the two guests, he said that prize or no prize, risk or no risk, British aviators had been determined to be the first to make flight across the Atlantic. Some had tried and failed, but they had covered themselves with honour in the attempt. Captain Alcock and Lieutenant Brown had succeeded. Future schoolboys would link their names with that of Sir Francis Drake and other British heroes of the Western main.

It had been prophesised that machines heavier than air would never fly. He himself had seen the result of official attempts to make machines broken up and scrapped because the idea was ridiculous and expensive. In the days of his youth and folly, when the Wrights were making attempts at gliding in America, he was tied to wings and let go off the side of a Highland mountain 3,000 feet hight, in the hope that he might land on the other side of the valley, to prove the theory of automatic stability. (The reference is to the gliders of Mr. J. W. Dunne, to which Lord Tullibardine, as he then was, gave every assistance.) Fortunately he was blown up hill instead of across the valley.

No one in those days had any illusions as to what the next war would be and as to whom it would be against. They felt that with the aviators would rest one of the great factors of victory, and they knew that in the future with our aviators would be, too, to a very great extent, the maintenance of peace. In conclusion he could not refrain from saying how greatly they appreciated the honour that the King has conferred upon two members of their club.

The highest honour that the Club could confer on aviators was the gold medal of the Royal Aero Club. The Committee of the Club at its last meeting, unanimously decided to confer the medal on Captain Sir John Alcock and Lieutenant Sir Arthur Brown, and he therefore handed one to each of them with their best wishes and congratulations.

Major-General Seely made a typical speech, genial to a degree, full of references to his "old friends" (whose name would appear to be legion), decorated with the finest *nouveau art* oratory, fluent as the revolutions of a Ford, and withal intentionally and genuinely funny in spots. Amid great enthusiasm he announced, with all the weight of his position as a Minister of the Crown and as a Major-General in the King's Army, that he had just heard that the Germans had signed the Peace Treaty, and remarked that no man ever had the chance of making a better speech than that.

It was unfortunate that the papers next day failed to confirm his announcement, and merely stated what the evening papers had published before the dinner, namely, that Germany had agreed to sign. One fears that General Seely's inside information in these days is no better worth backing than was his information concerning the R.F.C. in his pre-war days at the War Office. Still, he is so transparently honest, and he does really mean so well, and he is so very pleased with life, that one feels bound to forgive him for these lapses from accuracy, for which others and not he himself are to blame.

Major-General Sir F. H. Sykes, C.G.C.A., made a neat little speech recalling the work of the pioneers of the R.F.C., and came out quite strongly as a humorist. He described British Aviation as a great partnership of the Services and the Industry, in which Civil Aviation was the very Junior Partner. One hopes that his sense of humour will provide something with boiling oil in it for those of his subordinates who are hindering the development of Civil Aviation.

Captain Sexton, U.S. Navy, made an excellent speech, and was received enthusiastically. Quite frankly, and without intentional sarcasm (or, at any rate, without showing it), he remarked upon the fine reception given to the officers of the N.C. Squadron when they visited London, and promised a still bigger reception (which would be "dead easy"—to use an Americanism) to the crew of the R.34 airship when they reached America.

Perhaps Captain Sexton is more subtle than he appears to be, for one noticed that he referred to our British performance as a flight from the American Islands to the European Islands. It will be remembered that the N.C.4 flew from the mainland of America, *via* sundry islands, to the mainland of Europe.

Sir John Alcock and Sir Arthur Brown replied with the high efficiency of a German Diesel engine—maximum effect in the fewest possible explosions—and thanked the Club for their gold medals. The latter officer remarked in all sincerity, and with absolute truth, that if they had not made the flight somebody else would have done it. Which does not in the least detract from the gallantry of their effort.

Mr. Douglas Vickers, M.P. (Chairman of Vickers, Ltd.), made the excellent suggestion that we should not be satisfied with our aeroplanes till we have beaten nature. He mentioned that the "blue-throat" when migrating flies 1,600 miles from Northern Africa to Norway in a single night, and that a bird of the plover species flies non-stop from Hudson Bay to Brazil, a matter of 3,000 miles. (There, indeed, is something to beat, but one would like to know whether these records have been homologated by the Fédération Aéronautique Internationale, and what is the evidence. Furthermore, considering that the latter bird has to fly nearly all the way over "dry" country it is obviously wiser to do a non-stop run.) Mr. Vickers also stated that the " Daily Mail " prize was no concern of the firm's, being entirely the affair of the pilot and the navigator.

Mr. Claude Johnson, of Rolls-Royce, Ltd., thanked everybody for all the nice things they had said about the engines and remarked that he believed that if such plebeian things as sausages had had a place on the menu that night they would have been described as "Sausage Rolls." He reminded those present that they were dining that night with heroes and said that he was very cognisant of the fact, for he was seated between Mr. Hawker and the future Lady Brown, of whom he said that if in future anybody asked "Which Lady Brown?" one would say "Lady Atlantic Brown, of course." Personally one is not quite clear as to whether Mr. Johnson regards the future Lady Brown as a hero for daring to marry Sir Arthur, or for enduring the anxiety of being engaged to a trans-Atlantic aviator before the flight, but, anyhow, the joke went well. And one believes that the very charming lady in question will in future be known as Lady Atlantic Brown, for she has every right to be proud of the title.

Mr. Pierson, the designer of the Vickers-Vimy, replied—under pressure—with a brief speech of thanks which demonstrated that he personally is a believer in disturbing the air as little as a 100 per cent. efficient aerofoil.

One noticed that throughout the proceedings not a soul mentioned the late lamented Royal Naval Air Service, in which Sir John Alcock did all his war flying and in which he won his D.S.C. This was no doubt an entirely praiseworthy effort to be tactful on the part of the speakers, who presumably desired to spare Sir John any painful memories of his former connection with the Royal Navy, which, thanks to its inefficient co-operation with the aviators in the Mediterranean, left him alone to sink in the Ægean, very much as it left the German Fleet alone at Scapa to sink itself at its own sweet will.—C. G. G.

OTHER COMPETITORS.

The Martinsyde Biplane.

The Martinsyde aeroplane should be completely repaired during the present week. Mr. Raynham intends to attempt the Atlantic flight from Newfoundland to Brooklands on the earliest opportunity.

The Handley Page Biplane.

The Handley Page machine was tested on June 19th in a flight of a little over an hour in order that the new radiators fitted in the early part of last week might be tried adequately. It is rumoured that this aeroplane may be flown to Gibraltar instead of to England in view of Capt. Alcock's success in winning the " Daily Mail " prize.

The Boulton and Paul Entry.

It is stated from Newfoundland that Messrs. Boulton and Paul no longer intend to equip two aeroplanes for the Atlantic flight, and Major ffiske, who is representing them in Newfoundland, has been instructed to cancel all arrangements already completed.

A CENTENARY IN CROSS-ATLANTIC PASSAGES.

It is of interest to note that exactly 100 years before Sir John Alcock sighted the shores of Ireland at the termination of his cross-Atlantic flight the American brig "Savannah," fitted with auxiliary steam power, reached Ireland from America in the first journey made across the Atlantic by the aid of a steam engine. According to tradition, this vessel, when she entered territorial waters, was reported by Irish fishermen to the local S.N.O. as in distress owing to an outbreak of fire. A cutter was sent to her assistance, the commander of which was mystified and baffled by being outdistanced by a ship apparently sailing under bare poles!

A Flight Across America.

According to a report dated June 3rd the United States Army Air Service will shortly attempt a flight across the continent of North America from New York to San Francisco, with one stop on the way.

The machine used will be a Martin bomber (two Liberty engines). The total distance of the flight is 2,750 miles, which, it is expected, will be covered in two days, a stop being made overnight at North Plate, Nebraska, which is 1,520 miles from New York. The machine will carry a crew of five men, of which two will be pilots.

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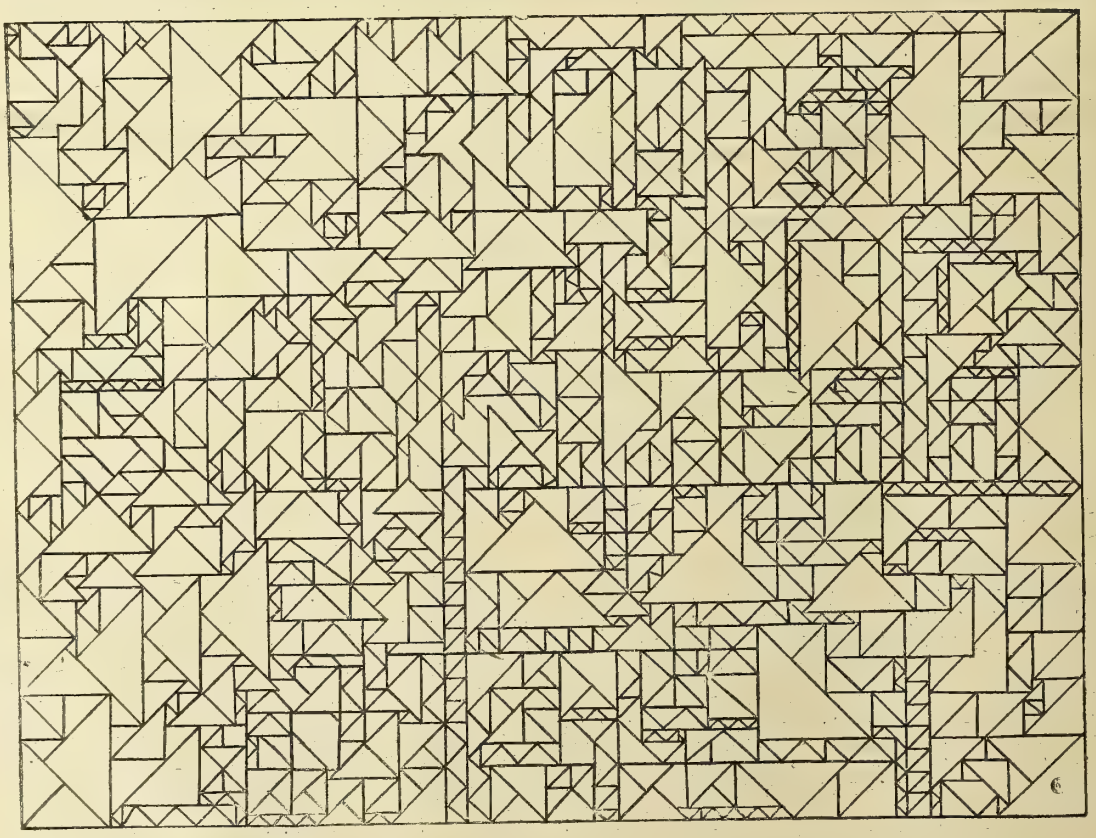
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FROM THE "LONDON GAZETTE."

AIR MINISTRY, June 3rd.

The King has been pleased, on the occasion of His Majesty's birthday to confer the following awards:—

MERITORIOUS SERVICE MEDAL

5755 Ch. Mech. J. W. Airey (Leyburn, Yorks.) (Salonika); 558 Flt. Serjt. A. G. Alcock (Wood Green, N.) (France); 201214 Flt. Serjt. R. E. Alford (Saltash, Cornwall) (Mediterranean); 87948 Serjt.-Maj. T. H. Alford (Burnham, Dorset) (Mesopotamia); 69411 L.A.C. G. Anderson (Aberdeen) (France); 24436 Flt. Serjt. O. Anderson (Lincoln) (France); 38382 A./C.1 B. Ashley (Doncaster) (India); 17433 Ch. Mech. E. C. Aston (Birmingham) (Salonika).

18937 Cpl. W. E. Baines (Hertford) (France); 6680 Serjt. W. J. Bains (Kirkby-in-Ashfield) (I. Force) (France); 205043 Ch. Mech. G. A. Ball (High Wycombe) (Flanders); 314099 Flt. Serjt. J. W. Barcroft (Manchester) (217th Sqdn., Dunkirk); 8741 Serjt. Clk. J. Barlow (Bury) (Egypt); Aus. 266 Ch. Mech. J. H. Barnes (Middle Park, Vic.) (Egypt); 9409 Flt. Serjt. J. C. Bastabal (Battersea, S.W.) (France); 4638 Ch. Mech. W. O. Batchelor (Monkton, Pembroke) (Egypt); 16089 Serjt. Clk. B. R. Bayliss (Thornbury, Glouc.) (I. Force) (France); 16860 Cpl. W. J. Beaumont (Eaton Place, S.W.) (France); 94727 A.C.1 W. J. Beckwith (Cheapside) (France); Aus. 275 Serjt. Mech. J. M. Bennett (Windsor, Vic.) (Egypt); 6116 Ch. Mech. W. Betts (North Walsham) (Egypt); 19430 F./Clk. J. Bicknell (Coventry) (Egypt); 8715 A.C.1 C. H. Bird (Golders Green, N.) (France); 313624 Mas. Mech. L. M. Bird (Wandsworth) (I. Force) (France), 12450 Flt. Serjt. W. J. Bird (Regent's Park, N.W.) (France); 21316 Cpl. Mech. F. T. Birkinshaw (Birmingham) (Egypt); 240395 Cpl. Clk. S. E. Birt (Lydney, Glouc.) (I. Force) (France); 249562 L.A.C. actg. Cpl. W. A. Bishop (Driffield) (France); 18630 Ch. Mech. V. H. Blackman (Acton, W.) (France); 18372 Flt. Serjt. H. F. Bond (Bermondsey, S.E.) (France); 13567 Cpl. (actg. Serjt.) E. B. Boucher (Twickenham) (France); 64710 L.A.C. (actg. Cpl.) P. A. Bovey (Borough, S.E.) (France); 1161 Cpl. L. Bowler (Bedford) (France); 38148 Serjt. H. C. Bowley (Dollis Hill, N.W.) (France); 404072 A.M.1 H. Bowyer (Sandbach, Cheshire) (Egypt); 3910 Serjt. Mech. F. Bradshaw (Manchester) (Egypt); 15328 Cpl. Clk. F. Brindley (Offerton, Stockport) (France); 201192 A.M.T. J. Brown (Canterbury) (France); 11808 Flt. Serjt. J. H. Brown (Thornhill, Dumfries) (France); 3277 Flt. Serjt. J. Bryson (Portsmouth) (France); 8438 Flt. Serjt. C. C. Burchett (Battersea, S.W.) (France); 19755 A.C.1 R. H. Butler (Leicester) (France); 203387 Serjt. Mech. G. J. Bysouth (Kennington) (Dunkirk).

3804 Serjt.-Maj. J. F. Camfield (Westminster, S.W.) (France); 7378 Flt. Serjt. W. Camm (Hull) (France); 9679 Flt. Serjt. F. J. Carrington (Inswich) (France); 29131 Ch. Mech. L. G. Castle (Sutton, Surrey) (Egypt); Aus. 281 Serjt. Mech. A. E. Chadwick (South Yarra, Vic.) (Egypt); 1695 Cpl. Mech. J. Charlcroft (Pulborough) (I. Force) (France); 403066 Flt. Clk. W. Chewter (Newbury) (I. Force) (France); 15318 Cpl. E. T. Clark (Bedminster) (France); 108862 Cpl. Clk. H. Clark (Hull) (I. Force) (France); 8259 L.A.C. C. Cobden (Portsmouth) (France); 16320 Flt. Serjt. T. Collins (Manor Park, E.) (France); 659 Serjt. (actg. Flt. Serjt.) C. H. Condon (Twickenham) (France); 5386 actg. Cpl. J. A. Cooper (Pendleton, Manchester) (France); 217248 Serjt. F. S. Cornish (Stoke Newington, N.) (France); 223100 Flt. Serjt. F. Couchman (Lenham) (Dunkirk); 51403 A.C.1 J. W. Coultas (Scarborough) (France); 75913 A.M.3 S. Coulthurst (Hackney, N.E.) (I. Force) (France); 50819 Cpl. C. Cowden (Dromore, Co. Down) (France); 3068 Ch. Mech. A. Cox (Bletchley Park, Bucks.) (Egypt); 713 Serjt.-Maj. S. C. Crawford (France); 3056 Ch. Mech. A. E. Crispin, D.S.M. (Maidstone) (Mediterranean); 19604 L.A.C. V. Croa" (Worcester) (France); 16177 Serjt. (actg. Flt. Serjt.) A. W. Culver (Putney, S.W.) (France); 209494 Serjt. Mech. J. A. H. Culverwell (Notting Hill, W.) (I. Force) (France); 59048 Serjt. Mech. H. A. Curran (Portsmouth) (France), 1457 Cpl. Mech. H. W. Cutler (Erdington) (Mesopotamia).

3212 Ch. Mech. G. Darcy (Regent's Park, N.W.) (Egypt); 13097 Flt. Serjt. E. A. Davey (Osterley Park) (France); 204795 Flt. Serjt. H. Dawson (Greenhithe, Kent) (France); 16766 Flt. Serjt. H. Deadman (Fulham, S.W.) (France); 42471 A.C.1 A. E. Dennis (Upper Tooting, S.W.) (France); 13694 Flt. Serjt. J. Devonald (Italy); 266718 A.C.2 C. J. Dickenson (Derby) (France); 403616 Ch. Mech. F. E. Dilley (Glasgow) (Egypt); 19705 Flt. Serjt. R. Dolding (Basingstoke) (France); 9622 Cpl. (actg. Serjt.) J. B. Donaldson (Sale) (France); 3890 Serjt.-Maj. C. E. Downie (Glasgow) (France); 17254 Cpl. (actg. Serjt.) E. A. Downs (Catford, S.E.) (France); 16745 Serjt. E. A. Dyer (Brighton) (France).

3630 Ch. Mech. A. C. Eagers (Sheffield) (Egypt); 1570 Ch. Mas. Mech. W. W. Earle (Guildford) (Egypt); 26618 L.A.C. H. C. Eaton (Prescott) (France); 34165 Serjt. Clk. J. Elliott (Yeovil) (France); 3422 Serjt.-Maj. A. C. Emery (Gosport, Hants) (France); 209083 L.A.C. H. H. England (Balham) (Dunkirk); 403749 Ch. Mech. C. E. Eveleigh (Weymouth) (Egypt); 6939 Cpl. C. F. Eyden (Sparkbrook) (France).

28241 L.A.C. B. Farrer (East Grinstead) (France); 5403 Serjt.-Maj. S. Farrow (Lincoln) (France); 9092 Flt. Serjt. R. W. Feast (Brentford) (I. Force) (France); 15917 Flt. Serjt. (temp. Serjt.-Maj.) B. W. Felton (Queensville, Staffs.) (France); 10589 Flt. Serjt. A. J. Fisher (London, S.E.) (France), 207423 Flt. Serjt. R. L. M. Foreman (Acton Hill, W.) (France) 51185 Ch. Mech. J. Fortune (East Lothian) (Egypt); 20088 Serjt. G. Foster (East Ham, E.) (France); 134900 Flt. Serjt. G. C. Fowles (Wishaw, N.B.) (France); Warrant Officer E. A. Fox (Aust. F.C.) (France); 16096 A.M.1 W. McK. Fraser (Edinburgh) (France); 33579 Flt. Serjt. A. G. Freshwater (Hornsey, N.) (France); 402976 L.A.C. (actg. Cpl.) G. R. Friday (Brixton, S.W.) (France).

14170 Ch. Mech. G. Gardner (Warwick) (Mesopotamia); 30313 Flt. Serjt. C. Gibson (Leeds) (France); 12111 Flt. Serjt. J. H. Gill (Italy); 537 Flt. Serjt. J. Goldsmith (Brighton) (France); 4274 Ch. Mech. J. Grant (Inverness) (Egypt); 13565 L.A.C. R. W. Gregory (Wembley Hill, Middx.) (France); 28118 Flt. Serjt. S. Gregory (Bolton) (France); 402561 Cpl. (actg. Serjt.) A. Griffith (Landport) (France).

200782 Flt. Serjt. H. Hamlin (Hatton Garden, E.C.) (France); 12117 Serjt. F. C. Hancock (Brighton) (France); 2731 Serjt.-Maj. E. Harbot (Leicester) (France); 25787 L.A.C. M. E. Hardy (Ilford) (France); 46031 Cpl. F. Harrison (Ebden Bridge, Yorks) (France), 56672 Cpl. W. Hedley (Blyth, North'd.) (I. Force) (France); 12749 Cpl. Mech. W. F. H. Helps (Nunhead, S.E.) (France); 5582 Flt. Serjt. J. R. Henderson (Stockton) (France); 5916 Flt. Serjt. F. Hern (Chipping Norton) (France); 21092 Serjt. Clk. S. V. Hicks (Ilford) (Salonika), 1453 Serjt.-Maj. J. H. R. Higgins (Camden Town, N.W.) (Mesopotamia); 313771 Flt. Serjt. J. T. Hill (Wapping, E.) (France); 19826 Flt. Serjt. T. M. Hill (Battersea) (France); 87884 A.M.1 J. Hipwell (Leicester) (France); 2195 C.M.M. H. Hipwood (Birmingham) (France); 7345 Serjt. L. J. Hirons (Rugby) (France); 9007 Serjt. B. Hoar (Hayling) (France); 823 Flt. Serjt. R. Hollingsworth (Lincoln) (France); 849 Serjt. J. D. Holt (Ashby de la Zouch) (France), 29010 actg. Cpl. Clk. A. W. Hood (Newport Mon.) (France); 32180 L.A.C. H. Holyoake (Leeds) (France); 7042 Cpl. F. N. Hornby (Bournemouth) (France); 12238 Flt. Serjt. D. J. Horsbourgh (Edinburgh) (France); 5596 Flt. Serjt. E. Hoskin (Maltravers) (France); 403638 Serjt. Mech. J. H. S. Hubbard (Cambridge) (Egypt); Aus./12 A.M. K. L. Hudson (Aust. F. Corps) (Mesopotamia).

2511 Cpl. H. H. Humfrey (Forest Gate, E.) (France).

12408 Flt. Serjt. S. F. Isaac (Maidenhead) (France); 13474 Flt. Serjt. W. Ivatts (Italy).

29222 Serjt. Mech. A. D. Jackson (Southend) (Mesopotamia); 16778 Flt. Serjt. A. E. C. Jackson (Islington, N.) (France); 20874 Serjt. H. Jackson (Springbury) (France); 32525 Ch. Mech. W. T. James (Plumstead, S.E.) (Mesopotamia); 16060 L.A.C. F. Jefferys (Limpsfield) (France); 2130 Flt. Serjt. W. Jenkins (Motherwell, N.B.) (France); 40731 Cpl. A. Jenner (Peckham) (France), 5917 Serjt. F. J. Jeuvey (Brockenhurst) (France); 3996 Serjt. H. Jones (Paris); 29544 A.M.2 J. Jones (Oldham) (France); 5652 Flt. Serjt. P. Jones (Tewkesbury) (France); 61440 A.M.1 W. J. Jones (Treglyd Brecon) (Newhaven); 5658 Ch. Mech. W. Jones (Grantham) (Egypt); 30 S.M.1 W. Jones (Littlehampton) (France).

34739 Cpl. G. Kelsey (Streatham) (France); 32557 Serjt. J. Kenyon (Duttinfield) (France); 407037 Flt. Serjt. F. King (Bournemouth) (France); 28822 Serjt. T. Kingsbury (Harringay) (India).

565 Ch. Mech. J. J. Lake (Upper Tooting, S.W.) (Egypt); 403695 Ch. Mech. A. J. Lambert (Brenchley, Kent) (Egypt), 21034 Cpl. C. H. Lane (Thornton Heath) (France); 3491 F./Clk. W. Lansdowne (Tavistock, Devon) (I. Force) (France); 44240 actg. Cpl. H. L. Layton (Holloway, N.) (France); 509 Flt. Serjt. C. E. Lee (Dover) (France); 12129 Flt. Serjt. W. S. Lee (Italy); 37113 Serjt. (actg. Flt. Serjt.) E. Levy (Stamford Hill, N.) (France); 45734 Serjt.-Maj. F. Lewis (Canterbury) (France); 4172 Serjt. Mech. J. N. E. Lewis (Castleford) (Mesopotamia); 6868 Flt. Serjt. R. Lewis (Bayswater, W.) (France); 24227 Serjt. J. R. Longstaff (Woodhall Spa) (France).

64726 L.A.C. J. W. Maclure (Hillingdon) (France); 78635 Serjt-Maj. N. McCormick (Drumcondra) (France); 18511 Flt. Serjt. D. McCutcheon (Riccarton) (France); Mas. Clk. T. McDonald (Hqrs., 64th Naval Wing) (Mediterranean), 87995 Serjt.-Maj. I. R. Macfarlane (Edinburgh) (I. Force) (France); 33433 Ch. Mech. W. C. Mace (Westminster) (Egypt); 17283 Cpl. Mech. J. Mackay (Invergordon) (I. Force) (France); 16240 Serjt. Mech. W. H. Mackenzie (Ilford) (France); 36440 Clk.1 (actg. Cpl. Clk. A. March (Lewisham, S.E.) (Salonika); 3709 Serjt. T. McSwiney (Cricklewood) (France); 21623 actg. Cpl. W. Margerison (Sheffield) (France); 34334 Serjt.-Maj. J. Marshall (Manchester) (France); 175 Serjt.-Maj. C. E. Martin (Peckham, S.E.) (France); 15360 Serjt. C. S. Mason (Hull) (France), 38849 Serjt. T. Mason (Winchmore Hill) (France); 1028 Flt. Serjt. A. Maxwell (Ealing, W.) (France); 403202 Serjt.-Maj. W. R. Maxwell (Sidney Meres, Nova Scotia) (France); 6132 Serjt.-Maj. L. A. May (Cirencester) (France); 4736 Flt. Serjt. N. H. May (Par, Cornwall) (France); 9953 Flt. Serjt. A. J. Meredith (Saltburn-by-Sea) (France); 50217 A.C.1. A. Metson (Highwood, Essex) (France); 1513 Flt. Serjt. H. Miller (Barnwood) (India); 16812 Cpl. H. Miller (Dundee) (France); 6057 Flt. Serjt. G. Monery (Crouch Hill, N.) (France); 21270 Serjt.-Maj. J. R. Moore (High Wycombe) (France); 2216 S.M.1 L. R. Moore (Paris); 303422 Serjt. Clk. A. E. G. Morgan (Abergavenny) (Egypt); 14571 Cpl. L. Morgan (Westminster, S.W.) (France); 200420 Mas. Mech. T. Morris (Redditch) (France); 16949 Flt. Serjt. J. A. Morton (Balloch, Dumbarton) (France); 2161 Flt. Serjt. A. Mottershead (Macclesfield) (France); 23951 T. W. Murgatroyd (Leeds) (France).

9588 Serjt. Mech. C. Naylor (Cleckheaton, Yorks.) (Egypt); 7305 L.A.C. C. B. R. Nelson (Silvertown, E.) (France); 10999 Flt. Serjt. W. Newall (Leeds) (France); 31401 F./Clk. J. Newcomb (Newcastle-on-Tyne) (Egypt); 16087 Serjt.-Maj. I. H. Newholm (Plaistow, E.) (France); 11685 Serjt.-Maj. H. F. C. Nicholson (Woodside, S.E.) (France).

403436 Serjt. Clk. D. C. Oliver (Reigate) (Egypt); 2979 Flt. Serjt. C. Ollis (Birmingham) (France); 203187 Serjt. A. C. Osborne (Hendon, N.W.) (France); 212406 Ch. Mech. O. Ottley (Leytonstone) (France).

10445 Serjt. A. G. Page (Italy); 59628 A.M.2 F. H. Parkes (Wolverhampton) (France); 6333 actg. Cpl. C. Parry (Hereford) (France); 135523 Clk. 1 D. Parry (Aberystwyth) (I. Force) (France); 4206 Flt. Serjt. F. H. Patterson (France); 4216 Serjt.-Maj. W. H. Pearce (Anerley, S.E.) (France); 38937 A.C.1 (actg. Cpl.) A. W. Pegg (Thornton Heath) (France); 253828 A.C.2 F. R. Pearce (X Balloon Sec.) (Egypt); 202174 Serjt.-Maj. H. A. Penfold (Vendome); 12030 Serjt. (actg. Flt. Serjt.) J. A. Perfitt (Harleston) (France); 31012 Ch. Mec. W. Perry (Clapham Common) (Mesopotamia); 7200 L.A.C. W. Peters (Farringdon, nr. Alton) (France); 10525 Serjt. A. S. Philipson (Italy); 202340 Cpl. Mech. R. W. Pierce (Paddington, W.) (France); 3634 Serjt.-Maj. W. Plaice (Burnley) (France); 210222 Ch. Mech. H. Postill (Bridlington) (Flanders), 37986 Serjt. Mech. G. C. Powell (N. Russia); 202480 Flt. Serjt. G. H. Preece (Isleworth) (France); 27021 L.A.C. C. Preston (Leeds) (France); 5877 Flt. Serjt. A. Pulfrey (Nottingham) (France); 203523 Flt. Serjt. W. C. Purslow (St. Helens, Lancs.) (France).

37640 Serjt.-Maj. I. J. W. Ransom (Kensington, W.) (France); 16321 F./Clk. W. R. Rayner (Barnsbury, N.) (Egypt); 1075 L.A.C. (actg. Serjt.) A. E. Reason (Easton Hastings, Herts.) (France); 4008 Flt. Serjt. W. G. Reason (Reading) (France); 17241 Flt. Serjt. W. Reddall (Ealing, W.) (France); 26504 Serjt.-Mech. J. Redding (I. Force) (France); 20442 Ch. Mech. J. R. Reed (Brockley, S.W.) (Egypt); 3365 Serjt. Mech. D. Rhind (Ruskie, Perthshire) (Egypt); 4431 Serjt.-Maj. H. E. Rice (Parlestown, Lancs.) (France), 7615 L.A.C. (actg. Cpl.) W. G. Richards (Hammersmith) (France); 40807 Flt. Serjt. W. Richards (Brixton, S.W.) (France); 47618 L.A.C. W. M. Richards (Maida Vale, W.) (France); 22442 Flt. Serjt. W. H. Richards (Willesden Green) (France); 5781 Flt. Serjt. J. P. Riding (Manchester) (France); 124661 Serjt. C. J. Roberts (Can. For. Corps) (France); 60402 Cpl. E. Roberts (Bethesa) (France); 218808 Serjt.-Maj. T. Roberts (Llandudno) (France); Aus./105 Ch. Mas. Mech. S. R. Robertson (South Yarra, Vic.) (Egypt); 3707 Serjt.-Maj. F. Robins (Yeovil) (France); 8028 Serjt. E. Robinson (Keighley) (France); Aus./236 Cpl. Mech. G. D. Rogers (Glanville, S. Aus.) (Egypt); Aus./124 F./Clk. J. H. Rogers (Hampstead, N.W.) (Egypt); 208162 A./M.1/R. L. Rollings

(H.M.S. "Celandine") (Mediterranean); 033 Flt. Serjt. F. C. Root (Earlsfield, S.W.) (France); 10097 Flt. Serjt. C. A. E. Rose (Cricklewood N.) (France); 15706 Serjt.-Maj. F. W. Rudolph (Durban, S. Afr.) (France); 28310 Cpl. A. Rumsby (Dorking) (France); 4207 Serjt. P. C. Rumsey (Maidstone) (France); 15935 Flt. Serjt. F. Russell (Ilford) (France).

20070 Serjt. H. R. Salmon (West Dulwich) (I. Force) (France); 202709 Flt. Serjt. H. R. Salmon (Hove, Sussex) (Mediterranean); 2279 Serjt.-Maj. I. J. Salmons (Towcester, Northants) (France); 24093 Serjt.-Maj. G. H. Savage (S. Kensington, W.) (Northants) (France); 24108 L.A.C. C. Sellar (Brixton, S.W.) (France); 1184 Flt. Serjt. A. Scott (Montrose) (France); 20411 Serjt. (actg. Flt. Serjt.) R. G. Sharrock (Guthurst) (France); 40224 F./Clk. D. Shaw (Glasgow) (Flanders); 107964 Cpl. Clk. P. R. Shaw (Liscard, Cheshire) (Egypt); 3032 Ch. Mech. W. Shaw (Earlstown, Lancs.) (Egypt); 25631 Cpl. H. S. Shears (E. Dulwich, S.E.) (France); 4506 Cpl. P. C. Shepherd (Paris); 216 S./M. 2 R. T. Short (India); 2014110 Ch. Mech. F. Shrubshall (Newham, nr. Sittingbourne) (France); 26763 L.A.C. L. Sills (Chatham) (France); Aus/11 Cpl. (actg. Flt. Serjt.) J. McK. Sloss (Aust. F. Corps) (Mesopotamia); 57614 actg. Serjt. A. W. Smith (Sevenoaks) (Newhaven); 201594 Serjt.-Maj. A. Smith (Nottingham) (France); 3187 Ch. Mas. Mech. P. Smyth (Galashiels) (I. Force) (France), 31931 Serjt. Mech. H. Snook (Ladywood) (Mesopotamia); 04760 L.A.C. H. Somper (Commercial Road, E.) (France); 404034 Cpl. Mech. T. A. Sparey (Holmwood, Surrey) (Egypt); 29194 Cpl. H. Speck (Paris); 408782 Flt. Serjt. W. H. Stewart (Dorchester) (Mesopotamia); 2048 Serjt.-Maj. F. Stone (Boscombe) (France); 23712 F./Clk. W. E. Sullivan (Lee, S.E.) (Egypt); 22984 Cpl. Mech. D. G. Surridge (Stubbington, Hants) (I. Force) (France); 200082 Ch. Mech. G. W. Sutcliffe (Bayswater, W.) (I. Force) (France); 204885 Cpl. W. Swain (Birmingham) (France).

19353 F./Clk. W. O. Talbot (Bournemouth) (Egypt); 5189 Ch. Mech. H. T. Tame (Birmingham) (France); 18537 Cpl. J. Tannahill (Glasgow) (France); 64084 Flt. Serjt. C. E. Tapper (Chichester) (France); 8223 Serjt. J. D. Tassell (France); 12268 Flt. Serjt. R. P. Taylor (Nottingham) (France); 202261 Serjt. F. J. Terry (Chertsey) (Flanders); 13343 Serjt.-Maj. W. Thaw (Manchester) (France); 6912 Serjt. W. A. Theobald (Felixstowe) (France); 2167 Flt. Serjt. J. B. Thomas (Tonypandy) (France); 13566 L.A.C. F. W. B. Thwaites (Southfields) (France); 19673 A.C. 1 S. A. Tickner (Lower Tooting, S.W.) (France); 34217 Serjt. Mech. C. Tingley (Bosham, Sussex) (Egypt); 18203 Serjt. W. H. Tomison (Glasgow) (France); 24568 Flt. Serjt. W. A. Tracey (N.S. Wales) (France); 37784 F./Clk. A. C. W. Trotman (London, N.) (Mesopotamia); 10989 Cpl. (actg. Serjt.) A. W. Trotter (Ilford, E.) (France); 16676 L.A.C. N. Truckle (Amesbury) (France); 6015 Mas. Mech. W. Turner (Jarrow) (Egypt).

37362 Cpl. T. Venables (X Balloon Sec.) (Egypt); 210174 Serjt. Mech. W. E. Veness (Coleshill, Bucks.) (Flanders); 203427 Mas. Clk. G. Volk (Durban) (I. Force) (France); 69605 Cpl. W. A. Voller (Epsom) (France).

64710 L.A.C. A. Walter (Greenock) (France); 214787 Clk. 1 A. T. Walker (Shepherd's Bush) (Mediterranean); 14259 Ch. Mech. J. N. Walker (Ashton-on-Ribble) (I. Force) (France); 9419 Pte. 1 G. A. Ward (S. Tottenham) (France); 9441 Serjt. J. H. Warley (Middlesbrough) (France); 203447 Flt. Serjt. C. E. Wash (Fishguard); 4132 Ch. Mech. J. Watmough (Ingrow) (France); 32233 L.A.C. J. W. Watts (Nottingham) (France); 48615 Cpl. A. B. Wells (Balham, S.W.) (France); 349 Serjt.-Maj. F. C. Whenham (Kingston-on-Thames) (France); 879 Flt. Serjt. F. C. White (Brighton) (France); 26718 Cpl. (actg. Serjt.) P. A. White (Hanwell, W.) (France); 3787 Serjt.-Maj. C. Whitehead (Bury) (France); 20907 Serjt.-Maj. A. Whitley (Hale, Nottingham) (France); 9408 Flt. Serjt. A. Wigglesworth (Pateley Bridge, Leeds) (France); 219709 Ch. Mech. R. Wilkinson (Blackpool) (Mediterranean); 27840 Serjt. Mech. A. Williams (Talycafn, Denbighshire) (Egypt); 5806 Serjt. C. Williams (Aldershot) (France); 6366 L.A.C. T. Williams (Portsdown) (France); 4683 Serjt. Mech. T. Wilson (Broxburn) (I. Force) (France); 211219 Serjt. W. Wilson (Glasgow) (Flanders); 11368 Cpl. Mech. R. Worsfold (Peckham, S.E.) (France); 10925 Flt. Serjt. F. E. Wright (Woodsetton) (France).

17471 Cpl. Mech. J. T. Yelling (Radstock, Bath) (I. Force) (France); 3809 A.M. 3 (actg. Cpl.) W. Youde (Ulverston) (France); 3686 Mas. Mech. W. Young (Middlesbrough) (France).

65932 Serjt.-Maj. 1 A. Zell (Pimlico, S.W.) (France).

MENTIONED IN DISPATCHES.

The following officers and other ranks of the Royal Air Force have been mentioned in Dispatches and Reports received in the Air Ministry for valuable services rendered during the war :

Capt. W. R. D. Acland (Coast Patrol); Lt. K. F. Alford (Coast Patrol); Maj. J. W. K. Allsop (I. Force) (France); Sec. Lt. W. Anderson (Coast Patrol); Capt. J. W. J. Ashton (Vendome) (Paris).

Lt. G. G. Baird (France); Lt. M. R. Banks (Coast Patrol); Maj. the Hon. M. Baring, O.B.E. (I. Force) (France), Sec. Lt. (Hon. Lt.) A. M. Barron, M.C. (France); Lt. A. G. Bathurst-Norman (I. Force) (France); Lt. H. I. Bell (Lond. Y.) (I. Force) (France); Maj. V. D. Bell, O.B.E. (France); Lt. G. L. Bennet (India); Lt. J. H. Bentham (Coast Patrol); Chaplain Rev. R. S. B. Berry (attd. 1. Force) (France); Capt. J. R. Blunt (Mediterranean); Lt. W. A. Bouette (R. Welsh Fus.) (attd. Paris); Sec. Lt. (Hon. Lt.) W. E. Bottrill (Can. Forces) (I Force) (France); Lt.-Col. F. W. Bowhill, D.S.O. (Mediterranean); Lt. (actg. Capt.) A. W. Brittain, M.B.E. (France); Lt. S. B. Bradley (I. Force) (France); Lt. R. P. Brailli (I. Force) (France); Sec. Lt. A. J. Brister (Coast Patrol); Sec. Lt. C. W. Brown (I. Force) (France); Lt. G. H. Brown (I. Force) (France); Lt. W. H. Brown (Le Bourget); Maj. W. R. Bruce (India); Maj. C. E. Bryant, D.S.O. (France); Capt. the Rev. P. R. Butler, C.F. (I. Force) (France); Capt. L. A. K. Butt (France).

Sec. Lt. D. E. Cameron (France); Maj. G. V. Carey (France); Lt. T. J. Carroll (I. Force) (France); Sec. Lt. A. E. Case (I. Force) (France); Sec. Lt. (actg. Capt.) L. J. Chandler (Coast Patrol); Lt. O. W. Clapp (Egypt); Sec. Lt. H. Clarke (Norf Regt.) (Coast Patrol); Maj. S. M. Cleverley (I. Force) (France); Lt. (actg. Capt.) E. McR. Cockell (I. Force) (France); Sec. Lt. S. F. Cole (Coast Patrol); Lt. C. H. Cooper (Coast Patrol); Sec. Lt. E. A. Copwell (Coast Patrol); Lt. E. O. Cudmore (France); Lt. the Hon. R. Cunliffe (Coast Patrol).

Capt. R. E. H. Daniel (I. Force) (France); Capt. S. L. Dashwood, M.B.E. (France); Sec. Lt. D. W. Davies (Flanders); Sec. Lt. G. J. Davies (Flanders); Capt. F. J. Dean (Coast Patrol); Capt. D. G. Donald (Coast Patrol); Capt. C. N. Downes (Coast Patrol).

Sec. Lt. F. T. Eades (Coast Patrol); Lt. H. Edge (France); Lt. G. H. Elliott (Coast Patrol); Lt. W. C. England (Mediterranean); Maj. (Hon. Lt.-Col.) F. H. L. Errington, C.B. (I. Force) (France).

Lt. M. E. Faithfull (Coast Patrol); Lt. F. Fenwick (Coast Patrol); Sec. Lt. (actg. Capt.) D. G. Fleming (Coast Patrol); Lt. (actg. Capt.) R. M. Foster, D.F.C. (France); Capt. F. M. Fox (Coast Patrol); Sec. Lt. J. W. Fry (I. Force) (France); Sec. Lt. D. J. Fryer (France); Sec. Lt. D. B. C. Fulton (Ægean).

Capt. H. Gardner-Hill, R.A.M.C. (I. Force) (France); Lt. F. F. Garraway (Coast Patrol); Lt. F. A. D. Gauntlett (Coast Patrol); Lt. (catg. Capt.) J. S. Giffard (France); Lt. H. H. Gillingham (A.S.C., M.T.) (Coast Patrol); Sec. Lt. D. C. Girardot (Coast Patrol); Lt. (actg. Capt.) J. McG. Glen, M.C. (R. Scots) (Egypt); Lt. B. W. Godfrey (Flanders); Sec. Lt. P. Goldschmidt, M.B.E. (French Army, attd. R.A.F.) (Paris); Capt. (actg. Maj.) A. Goodfellow (Coast Patrol); Lt. V. D. Grant (Coast Patrol); Sec. Lt. C. S. Gray (Ægean); Capt. (actg. Maj.) B. E. P. Gregg, D.S.C. (Yorks. R.) (Flanders).

Lt. C. S. W. Hall (Coast Patrol), Capt. D. S. W. Hambly (Middl'x V.R.C.) (Flanders); Lt. M. N. Hancocks (Flanders); Lt. F. L. Harding (France); Lt. J. K. Hardy (Mediterranean); Lt. G. R. Hake (Vendome) (Paris); Capt. S. S. Hatfield (Coast Patrol); Lt. N. B. Harris, M.M. (I. Force) (France), Lt. (actg. Capt.) A. A. N. Haywood (Coast Patrol); Maj. J. D. Henry, D.S.O. (Aust. Engrs.) (Egypt); Lt. B. A. Hewett (Flanders); Maj. E. J. Hodsoll (Mediterranean); Sec. Lt. G. F. Holford (I. Force) (France); Maj. P. L. Holmes, D.S.C. (Mediterranean); Lt. R. E. Horton (deceased) (Coast Patrol); Capt. J. F. Horsey (Coast Patrol); Lt. (actg. Maj.) P. C. Hoyland, M.B.E. (France); Lt. C. E. Hughes (Som. L.I.) (Mediterranean); Lt.-Col. (actg. Col.) R. C. S. Hunt (Coast Patrol); Lt. P. H. Hunter (Coast Patrol); Lt. (actg. Capt.) F. Hyde, M.C. (Coast Patrol).

Capt. L. E. Innes-Baillie (R.M.L.I.) (Paris).

Capt. R. Jarman, D.S.C. (Coast Patrol); Sec. Lt. G. M. Jeffrey (France); Sec. Lt. (actg. Capt.) J. W. Jean, D.S.M. (I. Force) (France); Lt. C. H. Jenkinson (France); Maj. E. H. Johnston, O.B.E. (France); Lt. (actg. Capt.) H. G. Jones (Egypt).

Lt. V. Kennedy (I. Force) (France); Sec. Lt. C. F. King (France); Sec. Lt. A. J. Kurn (Coast Patrol).

Lt. C. W. Lambert (Coast Patrol); Sec. Lt. (actg. Lt.) G. Lansdowne (Coast Patrol); Maj. (Hon. Col.) Sir W. R. Lawrence, Bt., G.C.I.E., G.C.V.O., C.B. (I. Force) (France); Capt. O. C. Le Boutillier (Flanders); Sec. Lt. (actg. Lt.) W. J. Ley (I. Force) (France), Lt. (actg. Capt.) A. Lindley (I. Force) (France); Maj. F. J. Linnell (Coast Patrol); Maj. T. V. Lister (Coast Patrol); Lt. J. Lorimer (Can. Inf.) (I. Force) (France); Capt. J. L. Luntley (I. Force) (France); Sec. Lt. J. B. Lynch (Ægean); Capt. (actg. Maj.) M. Lyon (Mediterranean).

Sec. Lt. J. P. McClelland (France); Sec. Lt. A. K. McGill (Coast Patrol); Lt. (actg. Capt.) J. McLaren (S.A. Inf.) (Coast Patrol); Capt. T. D. McLeish (Mediterranean); Sec. Lt. W. A. McLeod (Coast Patrol); Maj. C. S. MacNab (I. Force) (France); Sec. Lt. H. L. Marshall (Coast Patrol); Lt. W. H. Martin (France); Col. (actg. Bt.-Gen.) E. A. D. Masterman, C.B.E., A.F.C. (Coast Patrol); Lt. (actg. Capt.) W. J. Matthews (Tanks Corps) (Coast Patrol); Capt. T. G. Mellanby (France); Sec. Lt. W. Mellor (I. Force) (France); Lt. (actg. Capt.) E. Meynell, D.C.M. (Mediterranean); Maj. J. S. Mills, D.S.C. (Coast Patrol).

Sec. Lt. H. Nelson (I. Force) (France); Sec. Lt. H. W. Nicholl (I. Force) (France); Lt. L. Nicholson, M.M. (R.E. and M.G.C.) (Coast Patrol); Lt. R. A. Nicholson (Coast Patrol).

Sec. Lt. F. O'Donnell (I. Force) (France).

Sec. Lt. C. T. H. Pack (I. Force) (France); Lt. J. Parke, D.F.C. (I. Force) (France); Lt. F. Pascoe (Welsh R.) (I. Force) (France); Sec. Lt. A. V. Pepperell (I. Force) (France); Lt. W. H. D. Phillips (France); Capt. J. W. Pinder, D.F.C. (I. Force) (France); Lt. H. W. Piper (France); Lt. (actg. Capt.) N. P. Playford (Vendome) (Paris); Sec. Lt. F. Polley (I. Force) (France); Capt. O. I. Preston, M.C. (France); Capt. E. R. Pritchard (Coast Patrol); Sec. Lt. D. C. Prodger (Coast Patrol); Lt. W. J. Pullen (H.A.C.) (Flanders); Lt. F. G. Pym (France).

Lt. C. J. Ramsbottom (France); Capt. V. H. Ramsden (Coast Patrol); Capt. E. B. A. Rayner (I. Force) (France); Capt. W. E. Reason (I. Force) (France); Sec. Lt. A. G. V. Reeves (Coast Patrol); Lt. H. Riches (France); Lt.-Col. C. E. Risk (R.M.L.I.) (Mediterranean); Lt. (actg. Capt.) E. L. Roberts (France); Lt. F. C. Robinson (Coast Patrol); Capt. L. H. Rochford, D.S.C., D.F.C. (France); Lt. V. F. A. Rolandi (Coast Patrol); Sec. Lt. J. W. Rose, D.S.M. (Mediterranean); Capt. J. Rothwell (Med. Service) (Coastal Service); Maj. F. T. Ryan, M.C. (R.A.) (France).

Lt. E. H. F. Scott (Coast Patrol); Lt. G. T. Scott (Can. E.F.) (Coast Patrol); Lt. (actg. Capt.) J. C. B. P. Seaver (I. Force) (France); Capt. A. T. Sketchley (Coast Patrol); Lt. J. A. Smale (Coast Patrol); Lt. C. T. Smith (France); Maj. (actg. Lt.-Col.) S. Smith, D.S.O., A.F.C. (France); Maj. T. V. Smith, M.C. (I. Force) (France); Lt. W. Smith (29th Group) (Coast Patrol); Capt. (actg. Maj.) T. R. Spence (Mediterranean); Sec. Lt. C. H. B. Stevenson (I. Force) (France); Capt. R. Millar (Stirling) (Coast Patrol); Capt. C. H. Stokes, D.F.C. (France); Lt. (actg. Capt.) W. P. Suttle (I. Force) (France).

Lt. H. Ll. Tamplin (Coast Patrol); Lt. N. T. Thornelow (Coast Patrol); Sec. Lt. (Hon. Lt.) S. E. Towill (Yorks. Hors.) (I. Force) (France); Capt. (actg. Maj.) H. A. Treadgold, M.D. (R.A.M.C.) (Orkneys); Lt. G. E. Tugwell (Coast Patrol); Maj. (actg. Lt.-Col.) L. Tomkinson (Coast Patrol); Sec. Lt. A. Tytler (France); Sec. Lt. (actg. Lt.) J. E. Tyrrell (Egypt).

Sec. Lt. H. J. Usher (Coast Patrol).

Capt. W. W. Wakefield (Coast Patrol); Sec. Lt. W. Wallace (France); Lt. J. E. Watkins (Adriatic); Lt. (actg. Capt.) G. R. Westmacott, D.S.O. (G. Gds.) (I. Force) (France); Sec. Lt. (actg. Lt.) W. Wheatley (Coast Patrol); Lt. S. R. Winkworth (I. Force) (France); Lt. (actg. Capt.) H. Wing (Egypt); Maj. T. W. Winter (I. Force) (France), Lt. N. H. Witter (Flanders); Capt. T. O. Wood (France); Lt. W. B. Woodland (Coast Patrol); Lt. C. F. R. Woolnough (Coast Patrol); Lt. O. E. Worsley (Mediterranean); Lt. E. C. B. Wright (Coast Patrol).

CIVILIAN CLERGY.

The Rev. W. H. Bryant (Mudros).

WARRANT OFFICERS, NON-COMMISSIONED OFFICERS AND MEN.

210534 A.M.1 A. H. Adams (I. Force) (France); 60157 Flt. Serjt. W. F. Alborn (France); 63101 A.C.1 G. Alexander (France); 7912 L.A.C. J. Alexander (France); 205138 Serjt. T. Ashman (Coast Patrol); 193544 Clk.1 G. T. Atkinson (I. Force) (France); 314092 Flt. Serjt. D. J. Ayres (H.M.S. "Manxman").

107299 Pte.1 L. C. W. Bain (France); 56985 Flt. Clk. A. H. Baker (I. Force) (France); 207988 Flt. Serjt. G. T. Baldwin (France); 218928 A.M.3 L. W. Barber (Coast Patrol), 406873 Serjt. J. Barnes (I. Force) (France); 204978 Ch. Mech. W. J. Barnes (Mediterranean); 6682 Flt. Clk. T. A. Bates (I. Force) (France); 46835 Ch. Mech. E. Belcher (I. Force) (France); 203376 Ch. Mech. G. Bell (Flanders); 222714 Serjt. J. S. Bell (Flanders); 202221 Serjt. Mech. A. T. Bent (I. Force) (France); 15650 A./S.M.2 W. C. Billing (Coast Patrol); 115535 Cpl. W. Bingley (France); 15071 A.C.1 N. H. Birkett (France); 211063 Serjt. Mech. N. W. Bootes (Mediterranean); 215343 actg. Cpl. R. H. Box (Coast Patrol); 235500 actg. Serjt. W. E. Bradford (Ægean); 240649 A.C.2 A. W. Branson (Coast Patrol); 205883 Ch. Mech. F. E. Brisley (Flanders); 200121 Serjt. Mech. M. H. Brown (Mediterranean); 204721 Flt. Serjt. S. W. Brown (I. Force) (France); 225310 L.A.C. T. G. Burrell (Coast Patrol).

20074 Cpl. Clk. B. Cassam (I. Force) (France); 6256 S.M.1 G. Chapman (India); 21476 Serjt. W. F. Chord (India); 46359 Cpl. Mech. W. J. Clark (I. Force) (France); 211593 Ch. Mech. W. F. Clarke (I. Force) (France); 853 Cpl. W. Clarke (France); 16770 Serjt. E. Crooks (France); 4727 Serjt. (actg. Flt. Serjt.) J. Curry (France).

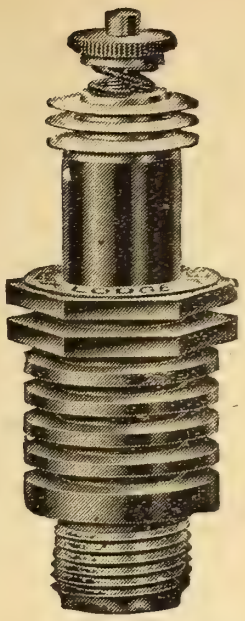
38366 Cpl. E. Davidson (France); 201841 Serjt. Mech. R. S. Denman (Flanders); 130854 C.P.O. (Retd.) A. Dobiear (R.N.) (Vendome); 210468 L.A.C. C. T. F. W. Dobson (Scillies).

216094 Serjt. Clk. R. S. Easthy (I. Force) (France); 12223 Cpl. Mech. L. Edge (I. Force) (France); 39638 Serjt. S. M. Evans (France); 18250 Serjt. Clk. W. C. Exton (I. Force) (France)

52232 A.C.1 W. Farmer (France); 215183 actg. Serjt. Clk. T. J. Fawdry (Mudros).

208221 Serjt. Mech. J. R. Gardner (Ægean); 213556 Serjt. Mech. W. G. Gardner (I. Force) (France); 17130 L.A.C. A. Garfath (France); 18622 A./C. F. J. George (France); 226704 Cpl. Clk. S. J. Goldston (I. Force) (France); 223206 Flt. Serjt. E. Goodman (Vendome) (Paris); 204436 Serjt.

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202611 Cpl. Mech. H. Jackson (Coast Patrol); 53410 Cpl. T. J. Jackson (I. Force) (France); P.O./M15713 Sick Bay Attendant T. P. Jackson (Thasos); 275039 A.M.2 R. Jones (I. Force) (France); 08956 L.A.C. W. N. Jones (France).

214510 Serjt. Clk. J. A. C. Kelland (Ægean); 205938 Cpl. G. W. Kellock (Coast Patrol); 22087 L.A.C. A. Kendrick (France); 19497 Flt. Clk. E. W. King (I. Force) (France); 10338 Serjt. G. T. King (France).

23173 A.M.1 F. Lake (I. Force) (France); 218822 Serjt. Mech. J. W. Lamb (Flanders); 205002 Serjt. Mech. R. G. H. Lamb (Flanders); 47417 L.A.C. U. Lancaster (France); 21251 A.C.1 D. J. Langford (France); 18014 Flt. Clk. W. S. Leigh (I. Force) (France); 213497 Serjt. Obs. W. R. Liddiard, D.S.M. (Coast Patrol); 202962 Serjt. W. F. Lindley (Flanders).

210979 Cpl. Clk. W. McGill (Mediterranean); 38128 L.A.C. G. R. MacFarlane (France); 200760 Cpl. D. MacKenzie (Scillies); 217163 Serjt. Clk. C. M. Maffey (I. Force) (France); 223837 Serjt. P. Manser (Coast Patrol); 252 Serjt.-Maj.1 D. Martin, M.M. (I. Force) (France); 314295 Flt. Serjt. J. Martin (H.M.S. "Riviera"); 203507 Serjt.-Maj. E. W. Mayes, D.S.M. (H.M.S. "Riviera"); 213002 Serjt. Mech. E. C. Mead (I. Force) (France); 9608 Flt. Serjt. R. Mersy (France); 314303 Serjt. J. E. Milner (Otranto); 313834 Flt. Serjt. W. G. Minter (Flanders); 4263 Flt. Serjt. A. Mockford (France); 18495 L.A.C. R. Moffatt (France); 1103 Flt. Serjt. H. J. Moir (France); 4094 Ch. Mech. G. Morrison (I. Force) (France); 16949 Ch. Mech. J. A. Morton (I. Force) (France).

8968 A.C.1 H. S. Newell (France); 19190 Serjt. S. Noble (France).

207515 Serjt. Mech. A. C. Oatway (I. Force) (France); A./314681 Signalman A. R. Osborne (Hornsea) (Coast Patrol).

1050 Flt. Serjt. C. Nunn (France).

17416 A.M.1 C. W. Pankhurst (I. Force) (France); 205706 Serjt. S. F. Patterson (Coast Patrol); 18780 Serjt. J. Penman (France); 212608 Serjt. Mech. J. C. Pickering (Ægean); 24401 A.C.1 J. Pierson (France); 16426 Serjt. A. W. Pilcher (France); 402956 Cpl. F. S. Plumpton (I. Force) (France); 200602 Ch. Mech. A. Poulton (Flanders); 209261 Flt. Serjt. H. W. Powell (Coast Patrol); 202081 Ch. Mech. H. G. Priest (I. Force) (France); 37496 Serjt. Clk. H. T. Pywell (I. Force) (France).

200730 Serjt. W. H. W. Quantrell (Coast Patrol).

51813 Ch. Clk. J. S. R. D. Raweliffe (I. Force) (France); 17388 Ch. Mech. J. Redpath (I. Force) (France); 1105 Serjt. V. H. Ricardo (France); 106796 A.M.1 (actg. Cpl.) J. Riley (I. Force) (France); 29172 Ch. Mech. A. A. Robinson (I. Force) (France); 213628 Flt. Serjt. C. T. Rogers (Vendome) (Paris); 2658 Serjt. Clk. E. Roughton (I. Force) (France); 10013 Flt. Serjt. N. W. Russell (France); 118235 Cpl. Mech. T. Ryan (I. Force) (France).

314875 Serjt. O. E. Sewell (Malta); 313898 Serjt. Clk. A. G. Sheppard (Flanders); 213787 Cpl. Clk. W. C. Shilling (Mediterranean); 17069 Serjt. (actg. Flt. Serjt.) A. Slater (France); 202345 Serjt. Clk. H. A. Smale (I. Force) (France); 3825 Ch. Mech. A. Smallman (I. Force) (France); Flt. Serjt. D. M. Smith (France); 22846 L.A.C. L. T. Smith (France); 23875 Serjt. (actg. Flt. Serjt.) A. Smuth (France); 1254 Ch. Mas. Mech. C. H. Spong (I. Force) (France); 203118 Mas. Mech. T. Stainsfield (Mediterranean); 21435 L.A.C. (actg. Cpl.) H. W. Sutton (France); 220270 Serjt. L. A. Sweny (Coast Patrol).

60442 A.M.1 F. W. Taylor (I. Force) (France); 236217 A.C.1 J. G. Taylor (Ægean); 207871 Cpl. Mech. S. Thomas (Mediterranean); 67962 Cpl. Mech. F. Thompson (I. Force) (France); 763320 C.S.M. H. L. Thompson (Can. Fsty. Corps) (France); 44624 A.M.1 G. H. W. Thorpe (I. Force) (France); 216825 A.C.1 H. G. Tilby (Flanders); 24568 Flt. Serjt. W. A. Tracey (France); 15963 Serjt. W. R. Trelease (France); 81876 Pte.1 W. R. Tunnicliffe (I. Force) (France); 208208 Flt. Serjt. A. Turner (France); 206768 Serjt. H. H. Tuting (Coast Patrol).

A314762 Serjt. E. F. Watson (Malta); 200340 Flt. Serjt. A. Wheater (Coast Patrol); 9401 S./M. G. G. R. White (France); 35191 Cpl. H. White (India); 8332 S.M.1 J. White (France); 17207 Flt. Serjt. A. F. Williams (France); 68012 L.A.C. P. E. Williams (France); 242189 L.A.C. C. H. Wilson (Coast Patrol); 6659 Cpl. Mech. R. S. Windsor (Flanders); 27632 L.A.C. H. Wright (France); 29170 Cpl. W. M. Wright (France); 22916 L.A.C. J. T. Wright (France).

Air Ministry, June 17th.

R.A.F.—Brig.-Gen. (Staff).—Lt.-Col. C. L. N. Newall, C.M.G., A.M., to be graded for purposes of pay and allowances as Brig.-Gen. (Staff), May 1st, whilst empld. as Chief Staff Officer of an Area.

The following temp. appointments are made:—Staff Officers, 2nd Class.—(P.) Capt. A. H. S. Baker, Nov. 18th, 1918, and to be actg. Maj. till April 30th, vice Capt. (Hon. Maj.) (actg. Maj.) R. H. Howell (substituted for notification in "Gazette," April 29th); (T.) Maj. J. T. Babington, D.S.O., June 11th.

Flying Branch.—Lt.-Col. W. R. Freeman, D.S.O., M.C., to be Lt.-Col. (A.), from Group Comdr., June 3rd.

Maj. R. Grey to be actg. Lt.-Col. whilst empld. as Lt.-Col. (A.), April 24th.

Capt. H. C. Irwin to be graded for purposes of pay and allowances of Capt. whilst empld. as Capt. (A'ship), Nov. 8th, 1918 (substituted for notification in "Gazette," May 6th).

Capt. C. A. Hervey to be graded for purposes of pay and allowances of Capt. whilst empld. as Capt. (K.B.), Jan. 1st.

Lt. H. A. Miller to be actg. Capt. whilst empld. as Capt. from Dec. 1st, 1918, to May 27th.

Lt. A. C. Upham to be Lt. (A.), and to relinquish the actg. rank of Capt. on ceasing to be empld. as Capt., March 30th.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts. (A.):—F. C. Hilbert, June 20th, 1918; W. E. Gemmell, July 26th, 1918; S. R. Dickson, Sept. 22nd, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. J. Malcolm (Lt., Can. Forestry Corps), Feb. 7th; Capt. W. J. Rutherford (Lt. (temp. Capt.), Quebec R.), March 31st; Lt. A. A. Browne (Lt., N.Z.), April 24th; Lt. R. Dodds, M.C. (Lt. (temp. Capt.) Cent. Ont. R.), May 4th; Lt. H. A. O'Connor (Lt., R.G.A.), May 10th; Sec. Lt. (Hon. Lt.) S. J. R. B. Simmons (Lt., Lond. R.), May 27th; Sec. Lt. (Hon. Lt.) G. Ibberson (Lt., Border R.), June 2nd.

Transferred to unempld. list:—Sec. Lt. D. Henderson, Jan. 8th; Sec. Lt. I. M. Adams, Jan. 26th, Lt. M. A. Watney, Jan. 27th; Lt. F. S. Clarke, March 4th; Sec. Lt. F. J. Parker, March 14th; Capt. G. L. Hartgill, March 17th; Lt. W. A. Hunter, April 14th; Sec. Lt. F. G. Smith, April 17th (substituted for notification in "Gazette" May 2nd); Sec. Lt. V. R. Hicks, April 18th; Sec. Lt. R. Harris, April 19th; Lt. F. O. Mann, April 25th; Sec. Lt. N. F. Hirst, April 28th; Lt. C. C. G. Girvan, M.C., April 30th; Lt. J. D. Smith, May 1st; Lt. H. H. Foster, May 4th; Sec. Lt. C. L. Hicks, Lt. L. G. Hills, Sec. Lt. E. A. O. Simpson, Sec. Lt. J. H. Taylor, May 8th; Sec. Lt. H. Hill, Sec. Lt. L. Reader, May 13th; Sec. Lt. G. F. Robinson, May 14th; Lt. W. Fairweather (R. Scots. Fus., T.F.) May 16th; Lt. L. H. Ray, Sec. Lt. C. N. Reinhardt, Sec. Lt. A. B. Rosevear, Sec. Lt. C. B. Rutherford, Sec. Lt. H. V. Sariant, Lt. N. B. Scott, Lt. R. G. Searson, Sec. Lt. K. N. Stone, Sec. Lt. R. C. Stout, May 20th; Sec. Lt. A. T. Batchelor, May 22nd (substituted for notification in "Gazette," Jan. 24th); Sec. Lt. A. M. Avery, Sec. Lt. E. L. Evans, Sec. Lt. H. M. Smith, May 23rd; Lt. R. H. Empson (D.L.I., T.F.), May 27th; Sec. Lt. H. H. Fox (London R.), May 28th; Sec. Lt. A. E. Baxter, Sec. Lt. (Hon. Lt.) V. Brent, Lt. J. S. Morgan, Capt. H. Tether, Lt. L. M. Van Eyssen, Sec. Lt. G. Windle, May 29th; Sec. Lt. N. Sillars, Sec. Lt. W. A. Warwick, May 30th; Sec. Lt. R. Coombs-White, Sec. Lt. S. A. Huggard, Sec. Lt. A. L. Pearce, May 31st; Sec. Lt. R. R. E. Dimmick, Sec. Lt. F. D. Wilkinson, June 1st; Lt. R. S. Carroll, A.F.C., June 2nd, 1917; Sec. Lt. G. A. Duthie, Lt. N. L. Garstin, Sec. Lt. F. Hughes, Sec. Lt. H. Jones, June 4th; Lt. E. H. Evans (R.W. Kent R.), June 5th; Lt. C. P. Virgo, June 8th; Lt. H. V. C. Luyt, June 12th; Lt. F. C. U. Dymant, June 13th; Lt. C. H. Flére, June 14th; Lt. F. A. N. Duk (substituted for notification in "Gazette," Feb. 11th), Sec. Lt. N. J. Eddy, Lt. C. W. McL. Gray, June 15th; Sec. Lt. R. Biggs, Lt. O. C. Dawson, D.F.C., Sec. Lt. E. R. Fison, Lt. R. A. Mayne, June 16th; Sec. Lt. A. Mulroy, June 17th.

Lt. (Hon. Maj.) C. R. Ingleby relinquishes his commn. on account of ill-health caused by wounds, and is granted rank of Maj., May 24th.

Lt. (Hon. Capt.) C. E. Holman relinquishes his commn. on account of ill-health, and is granted the rank of Capt., May 29th.

The following relinquish their commns. on account of ill-health and are permitted to retain their rank:—Lt. F. Adams (caused by wounds), May 15th; Lt. W. G. Claxton, D.S.O., D.F.C. (caused by wounds), May 20th; Sec. Lt. R. C. Blanchard (contracted on active service), May 27th.

Lt. W. F. Creery (Conn. Rangers) resigns his commn., and is permitted to retain his rank, June 18th.

The surname of Lt. E. R. James is as now described, and not "Jones," as stated in "Gazette," March 28th.

The notification in "Gazette," Feb. 4th, concerning Lt. C. F. Day (Lt., E. Ontario R.) is cancelled.

The notification in "Gazette," April 18th, concerning Lt. F. G. Carpenter is cancelled.

The notification in "Gazette," April 29th, concerning Sec. Lt. J. Cooke is cancelled.

The notification in "Gazette," May 13th, concerning Sec. Lt. F. D. Cowan is cancelled.

The notification in "Gazette," May 30th, concerning Sec. Lt. A. A. Baker is cancelled.

Administrative Branch.—Maj. R. H. Howell to be Maj., from S.O., Nov. 18th, 1918 (substituted for notification in "Gazette," May 27th).

Maj. F. B. Burton to be Maj., from (S.O.), May 1st.

Sec. Lt. L. J. Grant to be graded for purposes of pay and allowances of Maj. whilst empld. as Maj., May 1st.

Capt. C. D. Smart, M.C., to be Capt., from (A.), June 3rd, 1918 (substituted for notification in "Gazette," April 8th).

J. H. Hannay (temp. Capt., R.A.S.C.) is granted a temp. commn. as Capt., with seny. from April 1st, 1918, Oct. 29th, 1918.

Lts. to be graded for purposes of pay and allowances of Capts. whilst empld. as Capts.:—T. F. Davis, R. T. Kelly, May 1st.

Lt. W. H. Crotty to be graded for purposes of pay and allowances as Capt. whilst empld. as P. T. Officer, May 21st.

Sec. Lt. J. McGilley to be graded for purposes of pay and allowances as Capt. whilst empld. as Capt., May 1st.

Lt. L. H. Hillier to be Lt., from (A.), April 17th.

Lts. to be Lts., from (S.O.):—D. Blairman, F. A. Corbett, May 1st (substituted for notification concerning these officers which appeared in "Gazette," May 16th).

The following are granted temp. commns. as Lts.:—A. E. Enders (Lt. and Qrmr., Spec. List), April 26th, 1918, P. L. Harris (temp. Lt., R. Irish Rif.), Aug. 8th, 1918, with seny. from April 1st, 1918; A. T. Redgwell (temp. Lt., Spec. List), Sept. 17th, 1918, with seny. from April 1st, 1918.

Sec. Lt. W. D. Cooney, to be actg. Lt., with pay and allowances of that rank, while empld. as Lt., from Sept. 16th, 1918, to April 30th (substituted for notification in "Gazette," May 23rd).

Sec. Lt. P. A. Stallard (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt., Sept. 14th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. (actg. Lt.) E. F. P. Bartlett (Lt., Hants R.), Feb. 15th; Capt. E. Mills (Capt. and Qrmr., R. West Kent R.), June 3rd.

Transferred to unempld. list:—Sec. Lt. C. Caldwell, March 5th; Sec. Lt. G. S. Cowan, March 7th; Lt. W. U. Hughes, April 1st; Sec. Lt. A. B. Goodman, April 27th; Sec. Lt. E. T. Taylor (R.F.A., T.F.), April 30th; Sec. Lt. A. Elliott (R. Lancs. R.), May 5th; Capt. A. H. Hulton, May 9th; Sec. Lt. S. B. L. Hall, May 12th; Sec. Lt. W. P. Smitton, May 15th; Lt. N. I. Brockbank, D.F.C., Sec. Lt. G. F. Tidbury, May 31st; Capt. H. A. Maynard, June 1st.

Capt. J. Allen relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, June 5th.

Capt. H. W. Morgan (K.R.R.C.) relinquishes his commn. on account of ill-health contracted on active service, May 29th.

Lt. V. B. Allen relinquishes his commn. on account of ill-health, and is permitted to retain his rank, May 20th (substituted for notification in "Gazette," Feb. 18th).

Lt. F. W. Young (Worc. R.) relinquishes his commn. on account of ill-health contracted on active service, June 2nd.

The notification in "Gazette," May 25th, 1918, concerning Sec. Lt. E. G. Brett is cancelled.

The notification in "Gazette," Dec. 13th, concerning J. H. Hannay is cancelled.

The notification in "Gazette," Jan. 21st, concerning J. H. Hannay is cancelled.

The notification in "Gazette," Feb. 25th, concerning Sec. Lt. J. M. Adams (Gordon Highrs.) is cancelled.

The notification in "Gazette," April 11th, concerning Sec. Lt. F. A. Pritchard is cancelled.

The notification in "Gazette," May 6th, concerning Sec. Lt. C. L. H. Johnson (Essex R.) is cancelled.

The notification in "Gazette," May 27th, concerning Capt. (Hon. Maj.) T. M. Ross is cancelled.

The notification in "Gazette," May 27th, concerning Lt. (Hon. Capt.) F. F. McKenna is cancelled.

The notification in "Gazette," May 30th, concerning Sec. Lt. A. E. H. Hales is cancelled.

Technical Branch.—Lt.-Col. T. E. St. C. Daniel, O.B.E., M.C., to be Lt.-Col., from Deputy Director, April 1st to April 30th (substituted for notification in "Gazette," June 6th).

Capt. C. D. Smart, M.C., to be Lt. (Hon. Capt.), Grade A., from (A.), Feb. 10th (substituted for notification in "Gazette," April 8th).

Lt. F. Briggs to be actg. Capt. whilst empld. as Capt., Grade (B), Dec. 1st, 1918, to April 30th.

Lts. to be graded for purposes of pay and allowances of Capt. whilst empld. as Capts., Grade (A):—(Hon. Capt.) J. F. Bargman, A. Howard, E. F. Moulder, F. Murphy, A. J. M. Ross, May 1st.

Lt. J. E. R. Avery to be graded for purposes of pay and allowances of Capt. whilst empld. as Capt., Grade (B), May 1st.

Lt. R. Macfarlane to be Lt., Grade (A), from (Ad.), May 13th.

Lt. W. a. B. Probart to be Lt., Grade (A), from (Ad.), Nov. 7th, 1918 (substituted for notification in "Gazette," May 20th)

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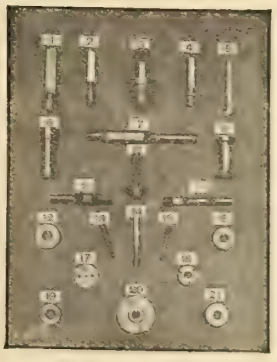
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Lt. A. E. Burton to be Lt., Grade (B), from (Ad.), May 5th.

Sec. Lts. to be graded for purposes of pay and allowances of Lts whilst empld. as Lts., Grade (A):—A. H. Harrison, E. W. Hooton-Smith, May 1st.

Sec. Lt. S. F. Coleman to be Sec Lt., Grade (A), from (A.), May 31st.

Sec. Lt. E. H. Hughes to be Sec. Lt., Grade (A), from Grade (B), Oct. 25th, 1918 (substituted for notification in "Gazette," Jan 24th).

Sec. Lt. J. A. Wilson to be Sec. Lt., Grade (B), from (O), May 31st.

Lt. H. B. Harvey (Lt., R.H. and R.F.A.) relinquishes his commn. on ceasing to be empld., June 3rd.

Sec. Lt. (Hon. Lt.) L. G. Martin has been transferred temporarily to the unempld. list from March 27th to May 7th

Transferred to unempld. list:—Maj. G. Hazelton, Lt. A. Hingston, April 1st; Lt. F. O. Browson, April 15th; Sec. Lt. H. P. Leigh, May 2nd; Capt. H. E. Hickmott, May 3rd; Sec. Lt. (Hon. Lt.) W. A. Hipkiss, May 6th; Lt. (Hon. Capt.) H. J. O. Barnett, May 14th; Sec Lt. (Hon. Capt.) J. E. Appleyard, May 17th; Sec. Lt. H. Davis (E. Yorks. R.), May 23rd; Sec. Lt. E. A. Rapley, May 28th; Sec. Lt. G. R. Barry, Lt. C. G. Boot, Lt. A. W. Furbank, June 2nd; Capt. T. F. Gillespie, June 17th.

Sec. Lt. C. D. Watt relinquishes his commn. on account of ill-health, and is permitted to retain his rank, May 19th (substituted for notification in "Gazette," Jan. 7th).

MEDICAL BRANCH.—A. L. Robinson is granted a temp. commn. as Capt., June 12th.

Capt. R. C. Fuller is transferred to unempld. list, April 10th.

CHAPLAINS BRANCH.—The Rev. J. L. Thomas, M.C. (temp. Chap. to the Forces, 4th Class, R.A.C.D.), is granted a temp. commn. as Chapln. with relative rank of Capt., June 12th.

MEMORANDA.—The following are granted the actg. ranks stated against their names, with effect from May 1st:—

To be actg. Lt.-Cols. whilst specially empld.:—Maj. R. Hall, M.B.E., Maj. E. L. Conran, M.C., Maj. E. H. Sparling, Maj. O. T. Boyd, M.C.

To be actg. Majs. whilst specially empld.:—Capt. L. M. Lilley, O.B.E., Capt. L. J. Bayley, M.C., Capt. F. R. P. Dexter, Capt. F. H. Hawksford, Capt. A. Innes, M.C., Capt. M. A. Seymour, Capt. R. S. Booth, Capt. C. Hodgkinson-Smith, Lt. W. Watson, Lt. F. H. Hooper

To be actg. Capts. whilst specially empld.:—Lt. (Hon. Capt.) L. N. Sutherland, Lt. G. H. Havelock-Sutton, M.C., Lt. A. Eggar, Lt. L. G. Paget, Lt. L. Clarke, Lt. A. J. G. Styran, M.C., Lt. G. C. O'Donnell, Lt. C. E. W. Lockyer, Lt. J. Cullen, A.F.C., Lt. A. E. L. Skinner, M.C., Lt. W. Sharpe, Lt. C. A. Farquharson, Lt. A. D. Makins, Lt. G. J. Blackmore, Lt. A. M. Thomas, Lt. H. D. Lehmann.

The following are granted the actg. rank of Maj. without pay and allowances of that rank whilst empld. as Recruiting Officers, with effect from May 1st:—Capt. W. G. Scott, Lt. E. T. Chapman, Lt. R. Tait, Lt. G. B. Redgrave, Lt. A. R. Harris, Lt. F. V. Bell, Sec. Lt. A. E. H. Hales.

Flt. Cadet 740482 V. Sparkes is granted an honorary commn. as Sec. Lt., June 14th.

The following relinquish their commns. on ceasing to be empld.:—Temp. Hon. Lt. L. G. Parker, April 9th; Temp. Hon. Lt. J. L. Manson, Temp. Hon. Capt. L. F. de Peyrecave, April 16th; Temp. Hon. Capt. C. H. Adams, May 21st; Temp. Hon. Lt. W. C. S. Phillips, June 16th.

AIR MINISTRY, June 20th.

R.A.F.—The following temp. appointments are made at the Air Ministry:—Chief of Air Staff.—Maj.-Gen. Sir H. M. Trenchard, K.C.B., D.S.O., Feb. 11th (substituted for notification in "Gazette," May 20th.

Director of Training and Organisation.—Col. (actg. Maj.-Gen.) P. W. Game, C.B., D.S.O., relinquishes the actg. rank of Maj.-Gen. and to be actg. Brig.-Gen. while so empld., March 8th (substituted for notification in "Gazette," May 20th).

Director of Equipment.—Col. (actg. Maj.-Gen.) C. L. Lambe, C.M.G., D.S.O., relinquishes the actg. rank of Maj.-Gen and to be actg. Brig.-Gen. while so empld., Feb. 27th (substituted for notification in "Gazette," May 20th).

Deputy Directors.—Lt.-Col. E. R. Ludlow-Hewitt, C.M.G., D.S.O., M.C., and to be actg. Col. while so empld., June 1st; Col. B. C. H. Drew, C.M.G., from Director, May 1st to June 7th; Lt.-Col. J. G. Hearson, C.B.E., D.S.O., from Director, May 1st to May 21st, and to be actg. Col. while so empld.

Staff Officer, 1st Class (Air).—Maj. G. J. Watney, May 1st.

Staff Officers, 2nd Class (Air).—Capt. W. E. G. Bryant, Maj. E. G. H. Clarke, M.C., from S.O., 1st Cl., Capt. B. H. Sisson, May 1st. (T.) Capt. (actg. Maj.) L. J. Killmayer, M.B.E., March 13th, and to retain the actg. rank of Maj., till April 30th.

Staff Officers, 3rd Class (Air).—Maj. J. E. Speranza, from S.O., 2nd Class; Capt. W. A. A. Chauncy, from S.O., 2nd Class; Capt. C. S. Morice, M.C.; Capt. R. N. Montagu-Stuart-Wortley, M.C.; Capt. G. L. Tyser, May 1st; Capt. V. R. Gibbs, D.S.C., May 26th. (T.)—Capt. H. M. Earnshaw, June 6th, vice Capt. P. A. Moodie.

Staff Officer, 4th Cl. (Air).—Lt. B. H. Godfrey, May 1st.

The following temp. appointments are made:—Staff Officer with Fleet.—Lt.-Col. R. E. C. Peirse, D.S.O., A.F.C., and to be graded for purposes of pay and allowances as Col., Staff, from (A. and S.), June 5th, vice Lt.-Col. (actg. Col.) R. H. Clark-Hall, D.S.O.

Staff Officers, 1st Class (Air).—Lt.-Col. J. R. W. Smyth-Pigott, D.S.O., May 24th; (P.)—Lt.-Col. L. W. B. Rees, V.C., M.C., A.F.C., April 30th.

Staff Officer, 2nd Class (P.).—Maj. G. F. H. Faithfull, June 10th.

Staff Officer, 3rd Class (P.).—Lt. L. C. Tyson, April 30th

FLYING BRANCH.—Sec. Lt. H. Douglas to be Lt., Oct. 15th, 1918.

Flt. Cadet F. O. Huntrods is granted a temp. commn. as Sec. Lt. (O.), Nov. 30th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. R. Brown, July 13th, 1918; Sec. Lt. (Hon. Maj.) H. Priestman (Maj., New Brun R.), Oct. 5th, 1918; Sec. Lt. T. E. Winkworth (Lt., Can. Forces), Feb. 2nd; Lt. E. E. Burdett (Lt., Cent. Ont. R.), Feb. 21st; Sec. Lt. J. Atkinson (Sec. Lt., Border R., T.F.), March 3rd; Lt. H. B. P. Boyce (Lt., Sask. R.), April 19th; Lt. W. G. Bell (Lt., C. Ont. R.), Lt. W. A. Campbell (Lt., Can. Reserves), May 1st; Sec. Lt. (Hon. Capt.) W. Mackenzie (Capt., N.Z. Dental C.), May 6th; Sec. Lt. (Hon. Lt.) W. J. Dalzeil (Lt., Sask. R.), May 9th; Lt. A. Maxwell (Lt., R. Scots), May 13th); Sec. Lt. (Hon. Lt.) R. A. Neilson (Lt., Can. F. Art.), May 19th; Lt.-Col. W. H. C. Mansfield, D.S.O. (Capt., Shrops. L.I.), May 28th; Lt. A. W. J. Lyons (Sec. Lt., R.A.S.C.), May 30th.

Transferred to unempld. list:—Lt. S. F. Macpherson, Jan. 10th; Lt. J. A. F. Burwash, Feb. 17th; Lt. J. S. Owden, Feb. 19th; Sec. Lt. N. Kirkpatrick, March 1st; Sec. Lt. J. Martin, M.M., March 3rd; Sec. Lt. S. E. Kilbey, March 6th; Lt. W. R. Vane, March 7th (substituted for notification in "Gazette," April 1st); Lt. H. Austin, Lt. W. J. C. Smith, March 15th; Lt. (actg. Capt.) J. S. Ralston, M.C., D.F.C. (Scottish Rifs., T.F.), March 19th; Sec. Lt. J. R. B. Kay, March 25th; Sec. Lt. M. McLean, March 20th; Lt. L. W. Kinzer, Sec. Lt. E. G. MacKay, Sec. Lt. A. E. Naylor, Lt. C. E. Perkins, Sec. Lt. J. W. Weir, April 1st; Lt. A. H. Kerr, April 12th, 1918; Sec. Lt. W. T. Jones, Sec. Lt. A. G. Johnston, April 13th; Sec. Lt. R. E. Kestell, April 14th; Lt. H. J. Buist, April 15th; Lt. W. B. B. Jeffrey, April 16th; Sec. Lt. W. Knight, Sec. Lt. R. A. Macdonald, Sec. Lt. T. J. McGrath, Sec. Lt. G. E. Macklem, Sec. Lt. E. L. Moorhouse, Sec. Lt. C. W. Meyers, Sec. Lt. O. S. McCutcheon, Lt. C. P. MacDonald, Sec. Lt. F. A. Porter, April 19th; Sec. Lt. P. V. Kilby, Lt. J. Parke, D.F.C., April 20th; Lt. N. H. Jay, April 22nd; Lt. E. L. Ward, April 23rd; Sec. Lt. O. K. Kanthack, Sec. Lt. R. P. Kear, April 24th; Sec. Lt. G. G. Cates, Sec. Lt. G. W. Hammond, Lt. B. H. Reynolds, April 25th; Sec. Lt. E. G. Weaver, April 26th; Capt. J. F. Johnson, Sec. Lt. J. W. Kelland, Sec. Lt. S. F. Legge, April 28th; Lt. G. W. Joyce, Sec. Lt. F. C. Marriott, Lt. D. M. McGoun, M.C., April 29th; Lt. J. W. S. Mellish, Sec. Lt. D. G. Tory, April 30th, Capt. I. G. Kelly, May 1st; Sec. Lt. F. Latimer, May 4th; Lt. T. K. Breakett, May 5th; Sec. Lt. C. Keene, Sec. Lt. J. L. Lund, M.C., May 7th; Sec. Lt. F. Johnson, Lt. W. E. Kent, May 8th; Sec Lt. W. G. Perry, Sec. Lt. W. R. Thomson, May 9th; Lt. A. F. Sanders, May 10th; Sec. Lt. F. W. Roadhouse, May 13th; Sec. Lt. R. S. Kenyon, May 14th; Sec. Lt. B. Knee, Lt. M. E. Meredith, Sec. Lt. H. S. Matthews, May 15th, Sec Lt. I. W. Mc Eachran, Sec. Lt. J. Skidmore, May 17th; Lt. C. K. Studd, Lt. R. T. Symond, M.C. (L'pool R., T.F.), May 18th; Sec. Lt. S. R. Darke, Sec. Lt. D. J. Dyer, Lt. E. Frost, Sec. Lt. J. H. Glen, Sec. Lt. A. B. Jones, Sec. Lt. R. H. Nicholls, Sec. Lt. L. S. Ros, Sec. Lt. F. T. Sargent, Sec. Lt. T. W. Seymour, Sec. Lt. L. Satterthwaite, Sec. Lt. W. F. Teale, May 20th; Sec. Lt. C. V. Hicks, May 21st; Sec. Lt. I. L. Dutton, Sec. Lt. S. H. Emerson, Lt. A. McGregor, D.F.C., Lt. H. S. Morton, Sec. Lt. H. P. Moore, May 23rd; Lt. T. Llewelyn, May 24th, Lt. R. Hunter, Lt. E. A. Mallett, May 25th; Capt. E. N. Chandler, D.F.C., Sec. Lt. T. L. James, May 26th; Capt. C. G. Knight, Sec. Lt. J. D. A. Ness, Sec. Lt. R. T. North, May 28th; Lt. B. A. Butt, May 29th; Lt. T. H. Boyd, Sec. Lt. W. H. S. Davis, Lt. E. S. Dean, A.F.C., Capt. D. G. McGregor, Lt. H. A. Pearson, M.C., D.F.C., Lt. L. Seymour, Sec. Lt. H. W. Taylor, M.C., May 30th; Lt. J. R. Budd, Lt. V. A. Bishop, Lt. H. J. Cockman, D.F.C., Sec. Lt. H. N. Callaway, Sec. Lt. H. V. David, Sec. Lt. C. W. Dicks, Sec. Lt. F. J. Griffiths, May 31st; Sec. Lt. J. W. Brown, Lt. L. F. Collin (Essex R., T.F.), June 1st; Sec. Lt. E. V. Kennedy, June 2nd; Lt. J. A. Butler, Lt. J. E. Edgar, Sec. Lt. F. Frith, Lt. J. S. Ralph, June 3rd; Sec. Lt. J. A. Bell (North'd Fus.), Sec. Lt. D. W. P. Boyd, Lt. H. Brown, Sec. Lt. A. F. Brodbeck, Sec. Lt. H. E. Cowley, Lt. F. F. Dutton, M.C., D.F.C, Sec. Lt. R. Ellis, Sec. Lt. N. Ferrand, Sec. Lt. C. E. Garrod, Lt. J. L. Jones, Lt. J. H. L. Purkess, June 4th, Capt. C. W. Carleton, Lt. P. G. Goodger, June 5th; Sec. Lt. W. J. Bradshaw, Sec. Lt. C. Bunch, Lt. H. W. Keight, June 6th; Sec. Lt. H. T. B. Bentley, Lt. A. L. Godfrey, June 7th; Lt. J. E. A. Kernahan, June 11th; Sec. Lt. W. H. E. Graham, Sec. Lt. D. N. King, Sec. Lt. R. G. Lamplough, June 12th, Lt. L. Read, Sec. Lt. B. W. Thwaites, June 13th; Sec. Lt. G. W. H. M. Devenish, Sec. Lt. I. P. B. Davies, Sec. Lt. L. I. Deary, Sec. Lt. C. F. V. Duke, Sec. Lt. C. W. Tante, June 14th; Sec. Lt. H. V. Edkins, Sec. Lt. E. B. Gascoine, Lt. F. W. Thomas, June 15th; Sec. Lt. T. E. Davenport, Sec. Lt. E. H. Dodds, Lt. W. R. Greathead, June 16th; Lt. L. W. Butchart, June 20th.

Capt. C. D. Fuller (Lt., R. Suss. R.) resigns his commn. and is granted the rank of Maj., June 21st.

Capt. W. A. Curtis, D.S.C., relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, June 11th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—J. N. Blacklock, June 4th; S. R. Coward (caused by wounds), June 6th.

Lt. G. M. Shaw (C. Ont. R.) relinquishes his commn. on account of ill-health contracted on active service, May 21st.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—J. D. Irving, Feb. 10th (substituted for notification in "Gazette," Jan. 28th); A. L. Fachnie, June 6th; J. H. Jacques (contracted on active service), June 8th; W. Cowan, June 12th.

The following Sec. Lts. are dismissed the Service:—W. P. Powers, Oct. 4th, 1918 (for absence without leave); G. Wayman, April 23rd.

The name of Sec. Lt. J. Spencer is as now described, and not as stated in "Gazette," May 23rd.

The Christian names of J. A. Fraser are as now described, and not A. J. Fraser, as stated in "Gazette," Oct. 25th, 1918.

The notification in "Gazette," May 23rd concerning A. J. Bird is cancelled.

The notification in "Gazette," April 4th, concerning Lt. W. J. Saunders is cancelled.

The notification in "Gazette," April 11th, concerning Lt. W. B. Walker, D.F.C., is cancelled.

The notification in "Gazette," Jan. 21st, concerning Capt. G. L. Hartgill is cancelled ("Gazette" notice, June 13th, to remain).

The notification in "Gazette," April 15th, concerning Sec. Lt. C. Macpherson is cancelled.

The notification in "Gazette," Oct. 29th, 1918, concerning Sec. Lt. E. P. Smith is cancelled.

The notification in "Gazette," June 10th, concerning Capt. J. Clisdal is cancelled.

The date of appointment of Sec. Lt. (Hon. Capt.) H. W. Beck to be Lt., Nov. 1st, 1918, and not March 29th, as stated in "Gazette," May 23rd.

The date of appointment of Sec. Lt. H. W. Heslop to be Lt. is April 9th, 1918, and not April 2nd, 1918, as stated in "Gazette," March 7th.

ADMINISTRATIVE BRANCH.—The following are granted the actg. rank stated against their names, from May 1st:—Actg. Cols.:—Lt.-Col. F. H. G. Playfair, without pay and allowances of that rank whilst empld. as Permanent President of Courts Martial; Lt.-Col. A. W. C. McFall, without pay and allowances of that rank, whilst empld. as Permanent President of Courts Martial; Maj. W. P. Alexander, with the pay and allowances of Lt.-Col. whilst empld. as Permanent President of Courts Martial. Actg. Lt.-Cols:—Maj. D. Mackenzie, whilst empld. as Permanent President of Courts Martial; J. R. Gould, (Capt., K.A.R.) is granted a temp. commn. as Lt., Aug. 24th, 1918, and to be Hon. Capt.

Sec. Lts. to be Lts.:—R. N. Preece, July 22nd, 1918; W. B. Walker, D.F.C., March 1st.

The following are granted temp. commns. as Sec. Lts.:—H. J. Bamber, R. T. Barton, F. G. Brigden, F. Narris, R. W. Stewart, A. P. Webley, June 16th.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. C. L. H. Johnson (temp. Sec. Lts., Essex R.), Aug. 10th, 1918; Lt. A. Rawlins (Lt., 5th Lnrs.), March 6th; Lt. A. P. G. Vivian (Lt., R. Fus.), May 31st.

Transferred to unempld. list:—Lt. G. W. Cox (R. Highrs., T.F.), Feb. 23rd; Lt. G. J. Ogg (H.L.I.), March 6th; Lt. (Hon. Capt.) C. F. Morris, March 13th; Lt. S. S. Vanderhook, April 14th (substituted for the "Gazette," June 10th); Lt. D. W. Marriott, Sec. Lt. A. D. E. Rippon, April 15th; Sec. Lt. R. D. Davis, April 17th; Sec. Lt. F. Brown, April 21st; Sec. Lt. W. J. Yeldman, May 2nd; Sec. Lt. E. Martin, May 9th; Sec. Lt. F. D. Owen, May 12th; Sec. Lt. H. E. Ray, May 15th; Sec. Lt. G. L. Ross, Capt. N. C. F. Francis, May 16th; Lt. H. F. Cochran, Lt. A. E. Kennedy, Sec. Lt. O. Thamer, May 20th; Lt. J. H. Catleugh, M.B.E., Sec. Lt. E. W. Jackson, May 21st; Lt. G. J. M. Peel, May 22nd; Lt. A. E. Stubbs (Lond. R., T.F.), May 24th; Capt. R. S. C. De Chaffey, May 25th; Sec. Lt. E. L. Girling, May 27th; Lt. E. R. Yates, Lt. G. G. Yeandle, May 28th; Sec. Lt. C. R. Martin, May 31st; Lt. A. Appleby, Sec. Lt. F. J. Pegg, June 1st; Capt. H. F. Mercer, June 2nd; Lt. K. A. Meek, June 3rd; Sec. Lt. A. K. McD. Brown, Sec. Lt. C. H. Place, June 5th; Lt. O. G. Thomas, June 9th; Sec. Lt. J. V. Flanaghan, June 19th.

Lt. J. K. Line relinquishes his commn. on account of ill-health, and is permitted to retain his rank, June 6th.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Lt. G. F. Bishop (Lond. R., T.F.) is dismissed the Service by sentence of a General Court Martial, March 10th.

The notification in "Gazette," Nov. 18th, 1918, concerning J. Inglis (temp. Capt., R. Highrs.) is cancelled.

The notification in "Gazette," March 7th, concerning Lt. F. Crossley is cancelled.

The notification in "Gazette," May 2nd, concerning Sec. Lt. T. A. Chilcott is cancelled.

The notification in "Gazette," June 10th, concerning Sec. Lt. (Hon. Lt.) A. V. Collins is cancelled.

TECHNICAL BRANCH.—R. E. Threlfall (Lt., R.E.) is granted a temp. commn. as Lt., Grade (A), Sept. 14th, 1918 (substituted for notification in "Gazette," Dec. 6th, 1918).

Sec. Lt. W. S. C. Stephens to be Lt., April 2nd, 1918.

Sec. Lts. to be Lts. without pay and allowances of that rank:—A. V. Sutton, April 2nd, 1918; G. F. Kite, Dec. 29th, 1918; R. E. Hussey, Feb. 5th.

The following Cadets are granted temp. commns as Sec. Lts., Grade (B).—1343 G. H. Taylor, 403803 W. J. Cole, 24897 A. Gold, 403562 G. Wells, Nov. 12th, 1918.

Transferred to unempld. list:—Sec. Lt. C. MacPherson, Feb. 20th; Sec. Lt. C. H. Chadwick, March 29th; Lt. N. J. Seline (Monmouth R., T.F.), April 9th; Lt. C. E. Mayron, April 10th; Sec. Lt (Hon. Lt.) H. K. Knight, April 16th; Sec Lt. L. E. Parry, April 19th; Lt. H. P. Jenkinson, Sec. Lt. A. H. Knight, May 1st; Capt. A. D. S. Rice, May 13th; Sec. Lt. H. P. Rashleigh (Lond. R.), Capt L. G. T. Sedgewick, Sec. Lt L. J. Slack, May 14th; Lt. C. M. Attlee, May 15th; Lt. T. C. Sterndale-Bennett, May 19th; Lt. J. B. Saer, May 20th, Sec. Lt J. Rollo, May 21st; Lt. F. C. Laxton, May 23rd; Lt. W. G. Duffield, Sec. Lt (Hon. Lt.) E. G. A. Jones, M.C., Capt. J. A. Payne, May 28th; Lt. R. A. Fearnley, May 30th; Lt. G. M. E. Bayly, Sec Lt. W. A. Downie, Capt. P. P. Eckersley, Sec. Lt. E. T. W. Nockold, May 31st; Lt. A. W. Dow, June 1st; Sec. Lt. R. M. D. Anderson, June 3rd: Capt. E. F. B. Curtiss, June 5th; Sec. Lt. M. W. Tomlinson, June 14th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—J. F. Guinan, June 6th; W. Gregory (caused by wounds), June 11th.

The notification in "Gazette," March 11th, concerning Sec. Lt. C. MacPherson is cancelled.

CHAPLAINS BRANCH.—Capt C. E. Kindersley is transferred to unempld. list, April 23rd.

The Rev. F. H. Wheeler, D.S.O., temp. Chaplain to the Forces, 2nd Class R.A.C.D. (United Board), is granted a temp. commn. as Chaplain, with relative rank of Capt., and is granted the relative rank of Maj. while empld. as Asst. Principal Chaplain (United Board), April 17th.

Memoranda.—Sec Lt. (Hon. Lt.) A. A. J. Poole is granted hon. rank of Capt.

H. H. Stoodley is granted a temp. hon. commn. as Lt., June 4th.

The following Overseas Cadets are granted temp. commns. as Sec. Lts.:—152676 H. F. Blandy, 187255 S. T. Cochrane, 176511 H. H. Devenish, 49397 V. Delplanche, 182108 M. E. Guy, 126805 E. H. Hodgson, 182176 C. H. M. Lowry, 184273 E. P. Oertel, 182277 C. Ryneveld, 216232 W. A. Spurr, Feb. 15th.

The following Cadets are granted hon. commns. as Sec. Lts.:—177475 A. G. Ashbourn, Jan. 15th; 176016 F. J. Pope, Feb. 8th; 538084 E. P. Stanford, Feb. 21st; 5535 J. O. Morrison, March 28th; 44421 W. Garner, April 23rd; 46570 E. Charlton, May 20th.

The following relinquish their commns. on ceasing to be empld.:—Temp. Hon. Lt. D. W. Ditchburn, Feb. 5th; Temp. Hon. Lt. W. J. Parkinson, Feb 23rd; Temp. Hon. Lt. E. Quixley, Temp. Hon. Lt. W. Sutton, Temp. Hon. Lt. G. H. Tattersall, March 16th; Temp. Hon. Lt. G. P. Muirhead, April 16th; Temp. Hon. Lt. M. C. Boff, Temp. Hon. Lt. R. J. Grant, Temp. Hon. Lt. J. B. Greer, Temp. Hon. Lt. R. B. Verney, Temp. Hon. Lt. M. R. Whitham, May 16th; Temp. Hon. Lt. H. L. Luckling, Temp. Hon. Lt. J. A. Turner, May 31st; Temp. Hon Capt. T. Greening, June 15th; Temp. Hon. Lt. F. C. I. Brendel, Temp. Hon. Lt. C. H. Piroth, Temp. Hon. Lt. A. J. Simpson, June 16th.

Transferred to unempld. list:—Lt. D. C. Sutherland, from (S.O.), May 17th; Sec. Lt. (Hon. Capt.) H. F. L. Dixon, from (S.O.), May 31st; Capt. P. A. Moodie, from (S.O.), June 7th.

The notifications in "Gazette," May 9th, concerning the following officers are cancelled:—Lt.-Col. F. H. Playfair, Lt.-Col. A. W. C. McFall, Maj. W. P. Alexander, Maj. D. Mackenzie.

FROM THE COURT CIRCULAR.

MARLBOROUGH HOUSE, June 20th.

Queen Alexandra received Captain J. W. Alcock and Lieutenant A. Whitten Brown to-day.

WINDSOR CASTLE, June 21st.

Captain John Alcock and Lieutenant Arthur Whitten Brown had the honour of being received by the King to-day, when His Majesty conferred upon them the honour of Knighthood and invested them with the Insignia of Knights Commanders of the Most Excellent Order of the British Empire (Civil Division).

ADMIRALTY APPOINTMENTS.

The following appointments are made:—

JUNE 21st.—Comdr.—R. L. Jermain, to "Furious," June 21st.

Ch. Gunners (T.).—A. L. Honeysett, to "Furious," June 19th.

Commd. Shipwt. (late Capt., R.A.F.).—J. W. J. Cheyney, to rank of Shipwt. Lieut., seny., Oct. 24th, 1918.

PERSONAL NOTICES.

NAVAL.

MARRIAGE.

FORBES-BENTLEY—BRISTOW.—On June 7th, 1919, at the parish church of St. Bartholomew the Great, Smithfield, E.C., Capt. Rupert Forbes-Bentley, D.S.C., R.A.F., of Masslands, Beckley, Sussex, was married to Ruth Harriett, elder daughter of Charles Bristow, Bank House, King's Lynn, by the Rev. Tilden Smith.

MILITARY.

DEATH.

FENN.—Capt. Roland Pitt Fenn, Croix de Guerre, R.F.C., 18th Squadron (formerly S.Q.M.S., Surrey Yeomanry), who was reported missing on March 25th, 1918, is now officially presumed killed on that date. He was the only son of the late William George Fenn, of Croydon, and Mrs. Fenn, Warlingham.

ENGAGEMENT.

WHISTLER—GOTTIGNIES.—An engagement is announced between Capt. Harold Alfred Whistler, D.S.O., D.F.C., Dorsetshire Regt., attd. R.A.F., second son of the Rev. A. J. Whistler and Mrs. Whistler, of Warkton Rectory, Kettering, and Hélène Marguerite, second daughter of M. J. Gottignies and Mme. Gottignies, of Marchienne-au-Pont, Belgium.

MARRIAGES.

DUFFUS—GILES.—On June 21st, at St. Agnes Church, Newmarket, Major Chester Stairs Duffus, O.B.E., M.C., R.A.F., only son of Mr. and Mr. Stairs Duffus, of Blackheath, was married to Evelyn Ursula, only daughter of Major G. D. Giles, O.B.E., R.F.A. (T.), and Mrs. Giles, of Douglas Lodge, Newmarket, by the Rev. Colville Wallis, assisted by the Rev. Ernest Powles.

HOLDER—HART.—On June 18th, at the Cathedral Church, Chelmsford, Capt. Frank Douglas Holder, M.C., the Buffs and R.A.F., younger son of Mr. and Mrs. E. Holder, of Purley, Surrey, was married to Cynthia Olive, only daughter of Mr. George W. P. Hart, of Chelmsford, by the Rev. F. S. Paynter, Rector of Springfield.

MASSY—SMITH.—On June 3rd, at Murree, India, Capt. Derek Fitzgerald Massy, 33rd Ind. Cav. and R.A.F., fourth son of the late Major Hugh Ingoldsby Massy and Mrs. Massy, of Stoneville and Cloughnarold, Co. Limerick, Ireland, was married to Margaret Vina Smith, daughter of the late Mrs. Anne Smith, of Hampstead and Bradford.

SORMANI—MORTON.—The marriage is announced as having taken place between Mr. Paul Sormani, West Yorkshire Regt. and R.A.F., only son of the late Henry Sormani and Mrs. Sormani, Charlwood, Sutton, and Dolores, widow of Mr. Rex Morton, London Regt., Pinehurst, Oxted, only daughter of Major and Mrs. Fegen, 58, Ashley Gardens, S.W.

BIRTHS.

BAKER.—On June 11th, at Dieppe, to Renée, the wife of Capt. Lovell D. Baker, late R.F.C.—a daughter.

CORBY.—On June 21st, at Thurlow Park Nursing Home, West Dulwich, the wife of Capt. H. G. Corby, R.M.F., attd. R.A.F., of a son.

AIR FORCE.

ENGAGEMENT.

CATTERSON SMITH—RYLAND.—The engagement is announced of Capt. R. M. Catterson Smith (late R.A.F.), younger son of Mr. and Mrs. Catterson Smith, of Edgbaston, and Caroline Mabel, eldest daughter of the late Mr. and Mrs. Ryland, of Baskerville House, Harborne, Birmingham.

MARRIAGES.

ABELL—ATKIN.—On June 9th, at All Saints Church, Bulkeley, Egypt, Lieut. F. H. Abell, R.A.F., son of the late F. H. Abell, of Cape Town, was married to Gertrude L., daughter of John T. Atkin, of Bulkeley, Egypt, by the Rev. L. Fry.

GARNETT—DAWKINS.—On June 18th, at St. James' Church, Emsworth, Major Hugh Garnett, R.A.F., was married to Enid, widow of C. J. R. Dawkins, 9th Welch, by the Rev. Wilson Pearce, Vicar of Newtown.

KANN—LOVE.—On June 19th, 1919, at St. Saviour's Church, Hampstead, Capt. Raymond Victor Kann, R.A.F., was married to Dorothy, youngest daughter of Mr. and Mrs. P. Love, of 96, Adelaide Road, Hampstead.

KEMP—BENSON.—On June 21st, at Christ Church, Lancaster Gate, Capt. Alan Frederic Kemp, late R.A.F., of 80, Oxford Gardens, W., was married to Madeleine Benson, widow of Lieut. R. C. Benson, R.F.C., and elder daughter of Mr. and Mrs. Geo. Ashby, of The Lodge, Harmondsworth, Middlesex.

BIRTH.

ANGELL.—On June 19th, 1919, at 32, Meadway, Gidea Park, Essex, the wife of Capt. Bruce O. Angell, M.B.E., late R.A.F.—a son.

MAYNE.—On June 18th, at 34, Cathart Road, S.W.10, the wife of Lieut. Blair Otway Mayne, R.A.F., of a son.

SANSOM.—On June 10th, 1919, at 2, The Green, Richmond, the wife of Lieut. W. E. Sansom, A.F.C., R.A.F., of a daughter.

* * *

On June 18th Lieut. C. L. Startup and Air Mechanic Carpenter were flying an Avro biplane at the Northolt Aerodrome, when a seam of the petrol tank burst and the petrol caught fire. The machine was 1,000 ft. up when the fire occurred. Both pilot and passenger climbed out onto the wings, and the pilot contrived to land the machine. Both men are now in hospital, and, it is reported, progressing favourably.

THE NAVY'S AIRSHIP.

The Naval airship, R.29, built by Sir W. C. Armstrong-Whitworth, Ltd., at Selby, which accompanied R.34 on her trials, was, it is stated, the only rigid airship used on active service. On one occasion she engaged with four enemy submarines and succeeded in sinking one of them.

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R.A.F. INVESTITURES.

His Majesty the King will confer the Insignia of the Distinguished Flying Cross and the Air Force Cross on a limited number of officers to whom they have been awarded, at Investitures to be held at Buckingham Palace on Saturday, July 19th and Thursday, July 24th.

Officers who desire to receive their decorations on those dates should apply immediately to the Secretary, Air Ministry, Hotel Cecil, Strand, W.C.2., specifying their full Christian names and surnames, and whether to receive the Distinguished Flying Cross or the Air Force Cross. Arrangements will then be made at the above Investitures as far as possible, and those officers only who receive a summons for a specific date should attend.

Officers who have already applied, some time ago, should repeat their applications now.

Officers who may require tickets for their friends to witness their Investitures should apply to the Central Chancery of the Orders of Knighthood, St. James's Palace, S.W.1, after they have received notices from that Department to attend.

PENSIONS FOR R.A.F. OFFICERS.

The Air Ministry announces that demobilised officers who claim to be suffering from a disability due to, or aggravated by, war service may, notwithstanding their original statement to the contrary on Army Form Z22, submit a claim for pension.

Claims should be forwarded to the Officers' Pension Branch, New North Street, Theobalds Road, W.C.1, in order that a Medical Board may be arranged, and should be accompanied by details of rank, medical category on joining, and last unit.

HONORARY COMMISSIONS FOR R.A.F. CADETS.

It is notified that honorary commissions will be granted to R.A.F. cadets who were under training at the date of the Armistice, and have since been demobilised or returned to the Army. Such honorary commissions, however, will not be awarded to cadets whose training was discontinued on account of unfitness.

A FLIGHT OVER GERMANY.

The British naval airship R34 left the aerodrome at East Fortune at six o'clock on June 17th, and proceeded eastwards over North Berwick, and thence across the North Sea and past the Island of Helgoland. She then skirted the German coast and passed over Wilhelmshaven, Cuxhavn, the Kiel Canal, and Hamburg. The airship then cruised over the southern Baltic.

While she was crossing the Danish coast an aeroplane ascended from Copenhagen and signalled greetings to the British airship. A low altitude was kept as she sailed over the German north-western territory, and the vessel must have been plainly visible to the Germans.

The airship confined her cruise to the German coast-line and coast towns, and did not visit Berlin.

During the whole of the flight R34 was in wireless communication with home, and her long-range apparatus, which had a thorough test, gave the most satisfactory results. In fact, the whole mechanism of the airship, which had a severe trial, especially during the homeward journey, worked magnificently.

The staying power of the vessel was all the more remarkably demonstrated by the fact that during her homeward journey she had a very strong westerly wind for twenty hours against her.

In the opinion of the crew the results of this trial show that the Atlantic flight could be easily accomplished by R34.

The airship was rapidly placed on a war footing before she was ordered to the German coast, and while no bombs were carried, Lewis and Vickers guns were mounted on the cars and on the roof of the ship.

R34 landed at East Fortune early in the morning of June 20th, having covered a distance of 2,000 miles.

AVIATION IN AFGHANISTAN.

Concerning the part played by aircraft in the relief of Fort Thal, Afghanistan, the "Times" correspondent writes on June 5th of a race that took place between an aeroplane and an armoured car to decide which should enter Thal first. He says:—

"It seemed to be a dead-heat, and while the contestants were arguing the point the enemy dropped a shell between them, which ended the dispute. The car hurried off and the aeroplane ascended to search for the gunners."

A CHINESE VISITOR.

Rear-Admiral Woo, of the Chinese Navy, on June 18th, visited the French submarine station and aviation centre at Toulon. He then left for Marseilles, en route for China.

FLYING TO SPAIN.

On June 21st an aeroplane built by the Italian armament firm of G. and O. Ansaldo and Company for the Spanish Government arrived in Madrid, having flown from Barcelona over Tarragona to the capital in 3 hours 15 minutes. The pilot was Lieut. Grasse.



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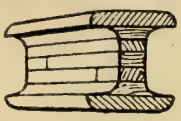
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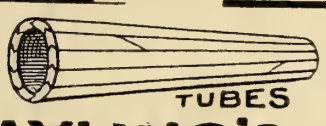
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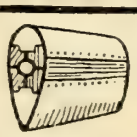


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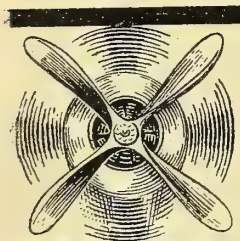
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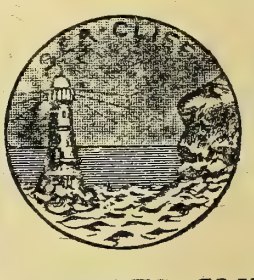
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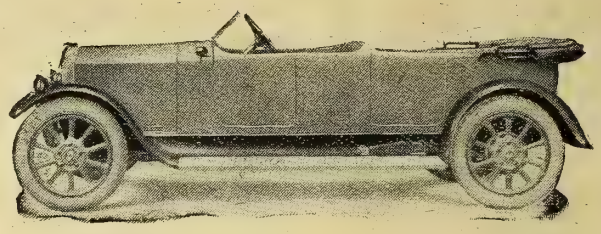
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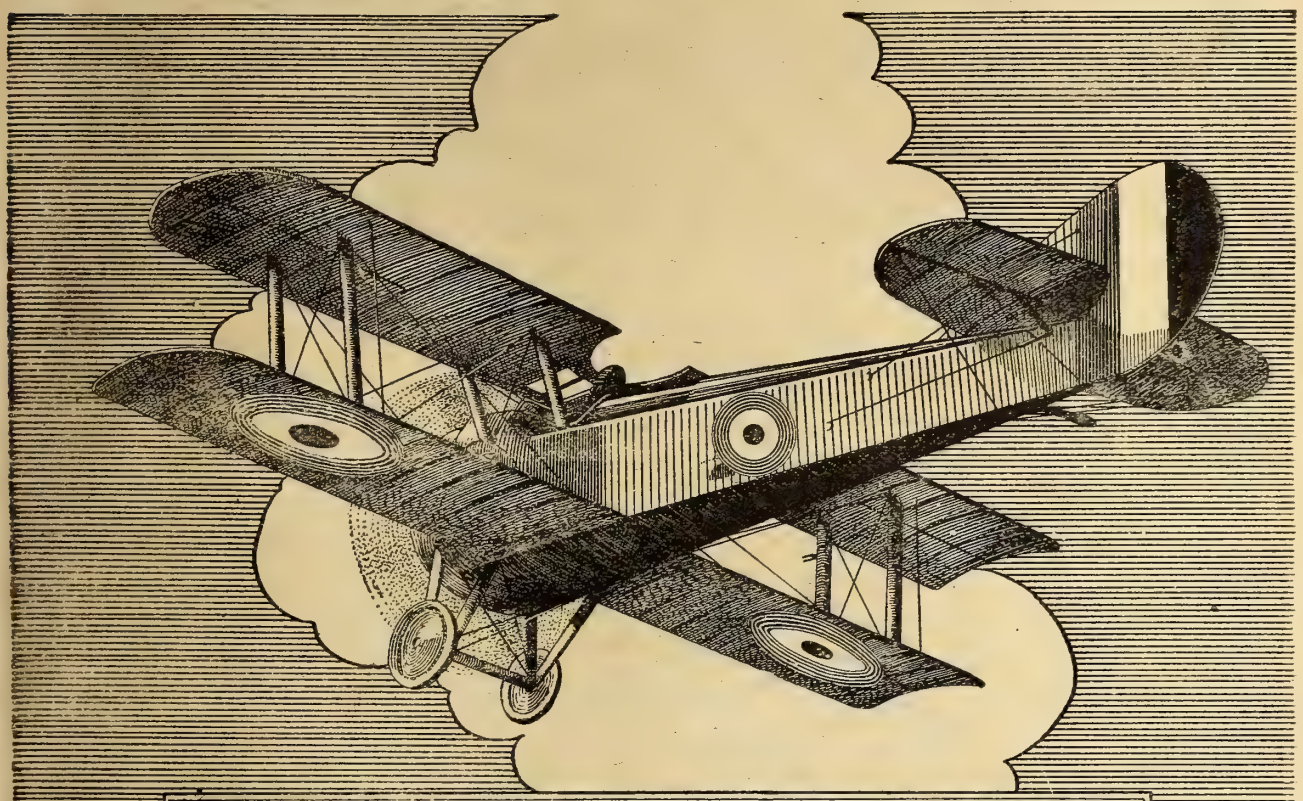
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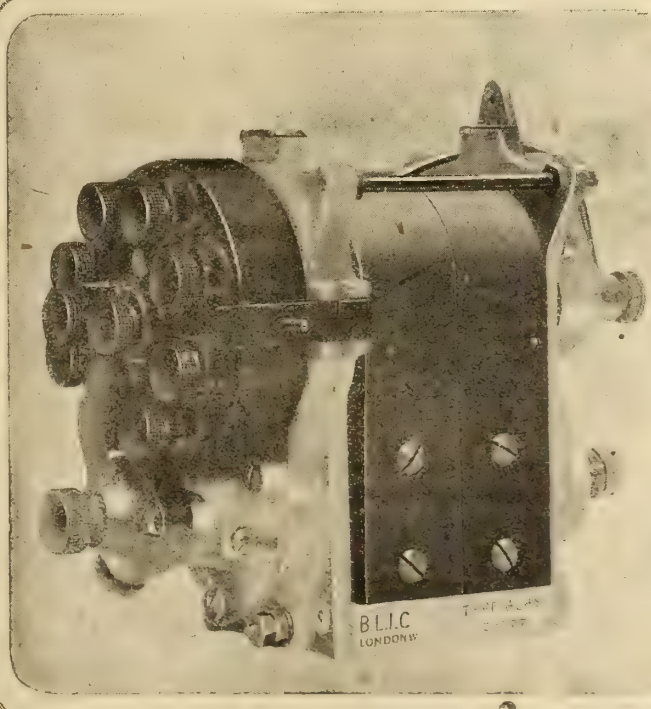
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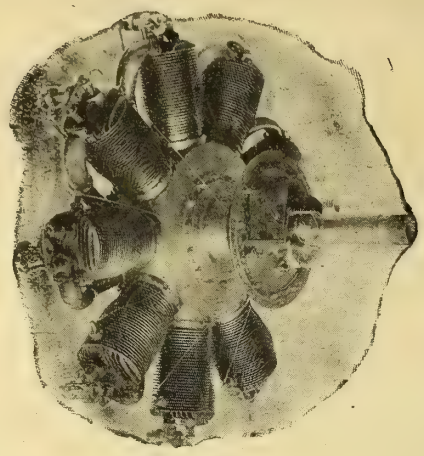

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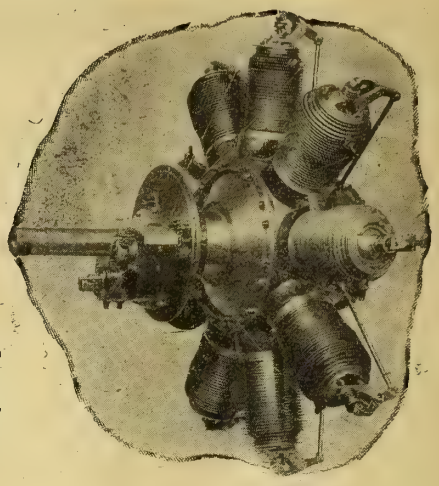
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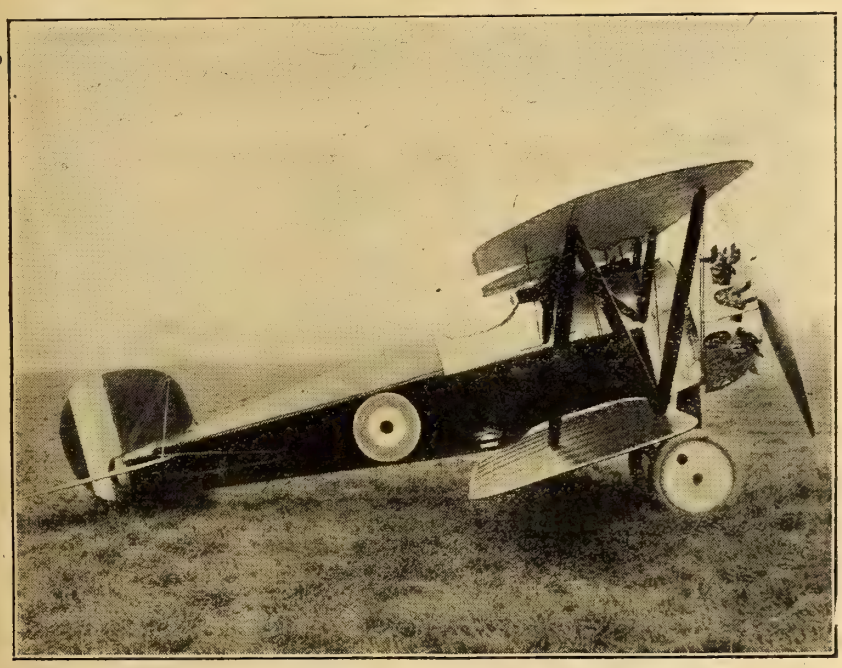
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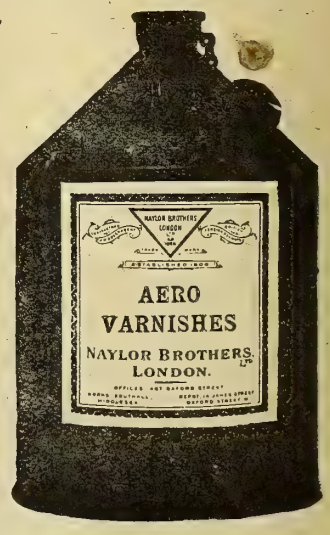
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Accumulators—

The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester. "Chloridic, Pendlebury" Central Manchester, 1638 Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830.

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." 3540 Victoria (3 lines).

Aeroplane Manufacturers—

Aircraft Manufacturing Co., Ltd., Hendon. "Airmanship, Hyde, London." Kingsbury 220.

Armstrong, Sir W., Whitworth & Co., Ltd., Newcastle - on - Tyne. "Armstrong Aviation, Newcastle-on-Tyne." Gosforth 500.

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).

Boulton & Paul, Ltd., Rose Lane, Norwich, "Aviation, Norwich." Norwich 851.

British Aerial Transport Co., Ltd. Head Office: 38, Conduit Street, London, W.1. "Batigram Reg. London" Mayfair 637, 638.

Works: Hythe Road, Willesden, London, N.W.10. "Aerbrirans, Phone, London." Willesden, 2272, 2273

British & Colonial Aeroplane Co., Ltd. (The Bristol Co.), Filton, Bristol. "Aviation, Bristol." Bristol 3006.

British Caudron Co., Ltd., Broadway, Cricklewood, N.W.2. "Caudroplan, Crickle, London." Hampstead 5551.

Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, Phone, London." Hampstead 4403 and 4424.

Dawson, John, & Co., Ltd., Newcastle-on-Tyne. "Dependable, Newcastle-on-Tyne." Central 2604 (2 lines).

Eastbourne Aviation Co., Ltd., Eastbourne. "Aircraft, Eastbourne." Eastbourne 1176.

Gosport Aircraft Co., Gosport. "Flight Gosport." Gosport 217.

Grahame-White Company, Ltd., London Aerodrome, Hendon. "Volplane, Hyde, London." Kingsbury 120.
London Office, 12, Regent Street, S.W.1. Regent 2084.

Handley Page, Ltd., 110, Cricklewood Lane, N.W.2. "Hydrophid, Crickle, London." Hampstead 7420.

Hooper & Co., Ltd., 54, St. James St., Piccadilly, London, S.W. "Sociable, St James, London." Regent 912.

Mann, Egerton & Co, Ltd., Norwich. "Motors, Norwich." Norwich 482 (4 lines).

Martinsyde, Ltd., Brooklands, Byfleet, "Martinsyde, Weybridge." Woking 331; Byfleet 171.

"Nieuport" & General Aircraft Co., Cricklewood, London, N.W.2. "Nieuscout, Crickle, London." Willesden 2455

Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (4 lines).

The Regent Carriage Co., Ltd., 126/132, New King's Road, Fulham, S.W.6. "Carbodis, London." Putney 2240-2241.

Roe, A. V., & Co., Ltd., Manchester. "Triplane, Manchester." City 8530-8531, Manchester.

Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes." Cowes 193.

Short Bros., Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London." Regent 378.

The Siddeley Deasy Motor Car Co., Ltd., Coventry. Coventry 954 "Deasy, Coventry."

Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston." Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd., Southampton. "Supermarin." Woolston 37 (2 lines).

Tarrant, W. G., Byfleet, Surrey. "Tarrant, Byfleet." Byfleet 1, 2 & 3.

Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London." Kensington 6810.

Waring & Gillow, Ltd., Hammersmith. "Warisen, Ox, London." Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil." Yeovil 129.

White, J. Samuel, & Co., Ltd., East Cowes. "White, East Cowes." Cowes 3.

Airships—

Airships, Ltd., High Street, Merton. Wimbledon 1314.

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Short Bros., Rochester, Eastchurch, and Whitehall House, S.W. "Tested, 'Phone, London." Regent 378.

C. G. Spencer and Sons, Ltd. (See under "Balloons").

Aluminium Castings (Sand and Die)

Coan, R. W., 219, Goswell Road, London, E.C.1. "Krankases, Isling, London." City 3846.

Balloons—

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

C. G. Spencer and Sons, Ltd., 50A, Highbury Grove, N.5. "Aeronaut, London." Dalston 1893.

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London" Museum 496.
Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros., Ltd, Gt. Eastern St., E.C.1.

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds." Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London." Vic. 4830

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Vic. 3540 (3 lines).

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N.16. Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.C.2

Buildings—

Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich." Norwich 851

Rubery Owen & Co., Darlaston, South Staffs.

Cable Coverings and Cable Controls—

The Bowden Brake Co., Ltd., Tyseley, Birmingham. "Bowden, Acock's Green." Acock's Green 103 & 104.

Bowden Wire, Ltd, Willesden Junction, "Bowirelim, Harles, London." Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Carburettors—

Hobson, H. M., Ltd., 29, Vauxhall Bridge Road, S.W.2. Victoria 4670.

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London, E.C.3 "Suricodon, Fen, London." Avenue 34 and 35.

Clothing—

Burberry's, Ltd, Haymarket, S.W.1 Regent 2165.

Dunhill's Ltd., Euston Road, N.W.1. "Dunsend, London." North 3405-6.

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Component Parts—

Accles & Pollock, Ltd., Oldbury, Birmingham "Aecles, Oldbury." Oldbury 111 (4 lines).

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, 'Phone, London." Hampstead 4403 & 4404.

P.D.V. Aircraft Co., Ltd., Princes Street, Richmond "Aeros, Richmond." Richmond 1681.

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England "Thompson Bros., Bilston." Bilston 10.

Cords, Tapes, and Threads—

MacLennan, J., & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.

Dopes—

Titanine, Ltd., 175, Piccadilly, W.1. "Tetrafree, Piccy, London." Gerrard 2312

British Cellulose Co., 8, Waterloo Place, S.W.1. "Cellutate, London." Regent 4046.

The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London" Gerrard 280.

Cellon, Ltd., 22, Cork Street, London, W.1. "Ajawb, Reg, London." Gerrard 440.

Robt. Ingham Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.

Engines and Parts—

Allen, W. H., & Co., Ltd., Bedford. "Pump, Bedford." Bedford No. 1.

Arrol-Johnston, Ltd., Dumfries. "Mocar, Dumfries" Dumfries 281-282.

Beardmore Aero Eng., Ltd, 112, Great Portland Street, W.1. "Beardmore, London." Gerrard 238.

The Cosmos Engineering Co., Ltd., Fishponds, Bristol.

Dudbridge Iron Works, Ltd (Salmson), 87, Victoria Street, London, S.W.1. "Aeroflight, Vic, London." Vic 7026.

Gordon Watney & Co., Ltd., Weybridge. "Mercédès, Weybridge." Weybridge 550 (7 lines).

Green Engine Co, Ltd., Twickenham. Richmond 1203.

Gwynnes, Ltd., Hammersmith, W. "Gwynne, Hammersmith." Hammersmith 1910.

Napier & Son, D., Ltd., 14, New Burlington Street, London, W., and at Acton, W. "Nitrifier, London" Gerrard 8926.

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W.1. "Rolhead, London." Gerrard 1654-5-6.

The Siddeley-Deasy Motor Car Co., Ltd., Coventry. Coventry 954. "Deasy, Coventry."

Sunbeam Motor Car Co., Ltd., Wolverhampton. "Moorfield, Wolverhampton." Wolverhampton 985.

The Gnôme & Le Rhône Engine Co., Ltd., 27, Buckingham Gate, S.W.1. "Elevenfold, London." Walthamstow 811 (2 lines).

Walton Motors, Ltd., Walton-on-Thames. "Motors, Walton-on-Thames." Walton-on-Thames 220.

Electrical Accessories—

Belling & Co., Montague Road, Upper Edmonton, N.18. "Belling, Edmonton." Tottenham 1984.

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1. "Installing, Eusroad, London." Museum 70.

The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, 'Phone, London." Willesden 2480.

Electric Cables—

E. Kalker and Co., Coventry. "Kalker, Coventry." Coventry 242.

Johnson & Phillips, Ltd., Charlton, London. S.E.7. "Juno, London." Central 2207; London Wall 1564.

Electric Lighting and Power—

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Mann, Egerton & Co., Ltd., 117, Cleveland Street, London, W. "Installing, Eusroad." Museum 70 (4 lines).

Electro Platers and Metal Polishers' Engineers—

W. Canning & Co., 133-137, Great Hampton Street, Birmingham. "Materials, Birmingham." Birmingham 3622 Central (3 lines)

Flare Lights—

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).

Flexible Shafts—

Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

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Fluxes—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).
The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

Flying Boat Builders—
Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217.

Galvanising—
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.

Gauges—
J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17.
Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196.

Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham." East 407.

Glue—
Cannon, B., & Co., Ltd., Lincoln. London Office, 110, Cannon Street, E.C.4. "Bececoliu, Cannon, London." City 1206.
Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid.) "Excroiden, 'Phone, London." Avenue 4611-2.
Meudine Co., 8, Arthur Street, E.C. Bank 5873.

Goggles—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—
Chas. P. Kinnell and Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).
The Thames Bank (Blackfriars) Iron Co., Ltd., Upper Ground Street, London, S.E.1. "Hot Water, Friars, London." Hop 703.

Instruments—
British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180.

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3. London Wall 9944.
Bray, Gibb & Co, Ltd., 166, Piccadilly, W.1.
S. Sackville & Sons, Duchy Chambers, 4, Clarence Street, Manchester.
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London." Central 156 (2 lines).
Percy Wingfield, 22, Newgate Street, E.C.1. City 4672.

Leather Cloth—
New Pegamoid, Ltd., 134, Queen Victoria Street, London. "Pegamoid, Cent., London." City 9704 (2 lines).

Lubricating Oil Refiners and Merchants—
W. B. Dick & Co, Ltd, 90, Fenchurch Street, E.C.3 Telegrams, Dicotto Fen, London. Avenue 7854 (2 lines.)

Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Asteroidal, Coventry." Coventry 278.

Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservatory, Birmingham." Central 999 (2 lines).

Metal Manufacturers—
Clifford, Chas, & Sons, Ltd., Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432.

Metals in General—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Metal Parts and Fittings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd, Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts and Nuts.) "Bayliss, Wolverhampton." Wolverhampton 1041.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Pulvo Engineering Co., Ltd., 10 to 16, Dane Street, High Holborn, London, W.C.1. "Pulvipult, Phone, London." Holborn 410.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London." Willesden 2480.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10.

Metric Bolts—
Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035.
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London." London Wall 6300.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 793.
MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd., 379/381, Euston Road, London, N.W.1. "Manegecar, Eusroad, London." Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—
British Metal (Kingston), Ltd., Kingston-on-Thames.
The Clegg Metal Engraving Co., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London." Central 11305 & 13466.

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)
C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield." Sheffield 2149

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd, Redditch. "Springs, Redditch." Redditch 61.

Propellers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds." Roundhay 345 (3 lines).
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104
Lang Propeller, Ltd, Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Mann, Egerton & Co., Ltd., Norwich. "Motors, Norwich." Norwich 482 (4 lines).
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466.

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812.
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screwing Die Heads—
Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Mann, Egerton & Co., Ltd., Norwich. "Motors, Norwich." Norwich 482 (4 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton. "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." 3540 Victoria (3 lines).
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10 "Rodynalite, Phone, London." Willesden 2480

Sheet Metal Pressings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
British Metal (Kingston), Ltd., Kingston-on-Thames.
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
British Metal (Kingston), Ltd., Kingston-on-Thames. [Staffs.
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The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

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Solder Manufacturers—
Samuel Mercer & Co., 108, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.
Ripault, Leo., & Co., Ltd. (Oleo Plugs), 64a, Poland Street, W.1. "Ripault, Reg, London." Gerrard 7758.
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

Springs—
Dart Spring Co., West Bromwich. "Dart, West Bromwich." West Bromwich 322.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines).

Steel—
Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield." Sheffield 4607.
Brown Bros., Ltd., Great Eastern St., E.C.1.
Firth, Thos., & Sons, Sheffield. "Firth, Sheffield." Sheffield 3230 to 3237.
Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smithwick 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.

Steel Tubes for Aeroplanes—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Tapes and Smallwares—
MacLennan, John, & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.
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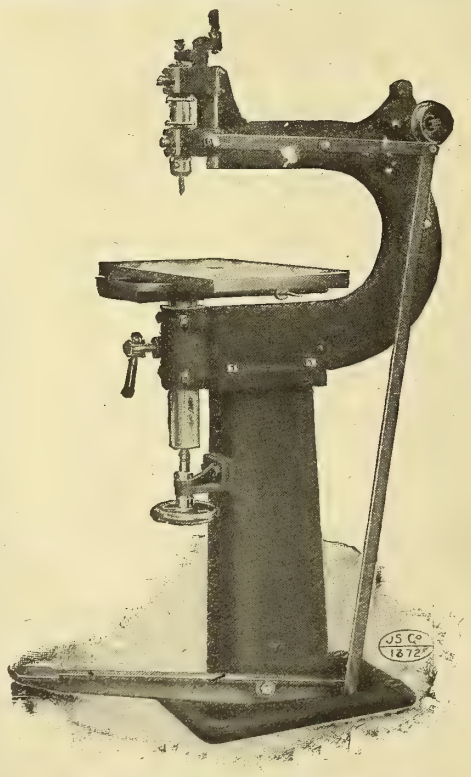
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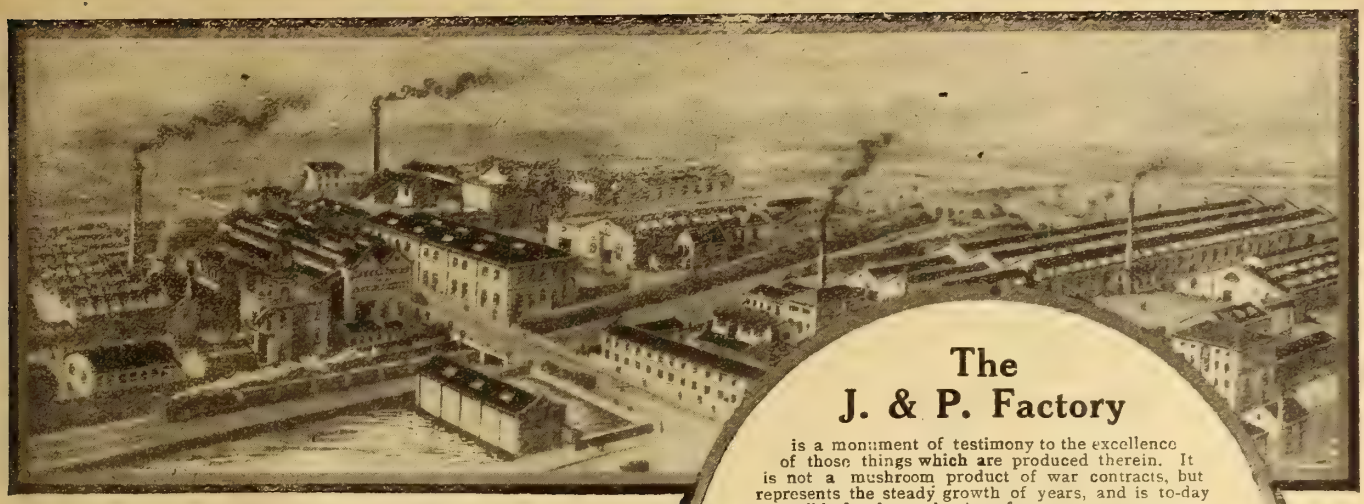
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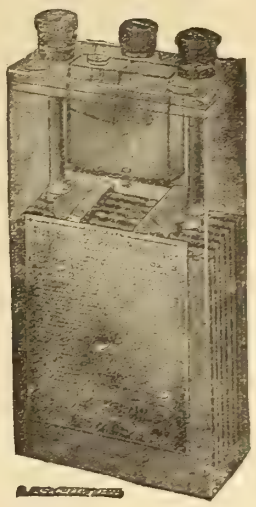
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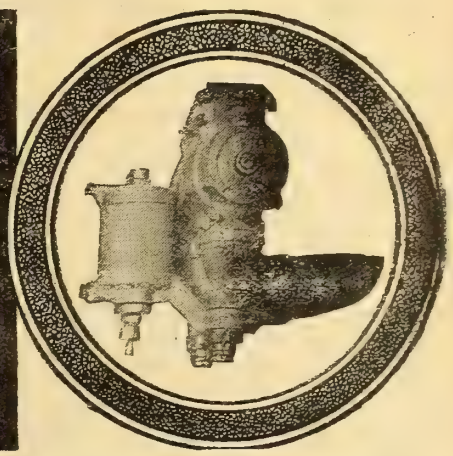
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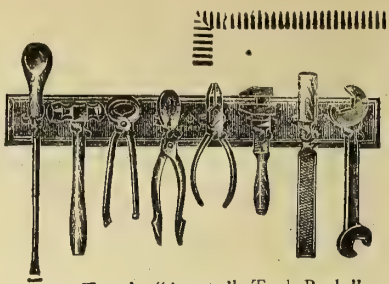
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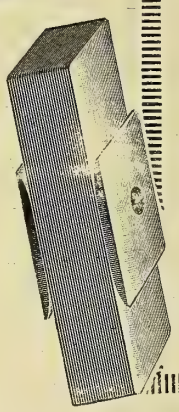


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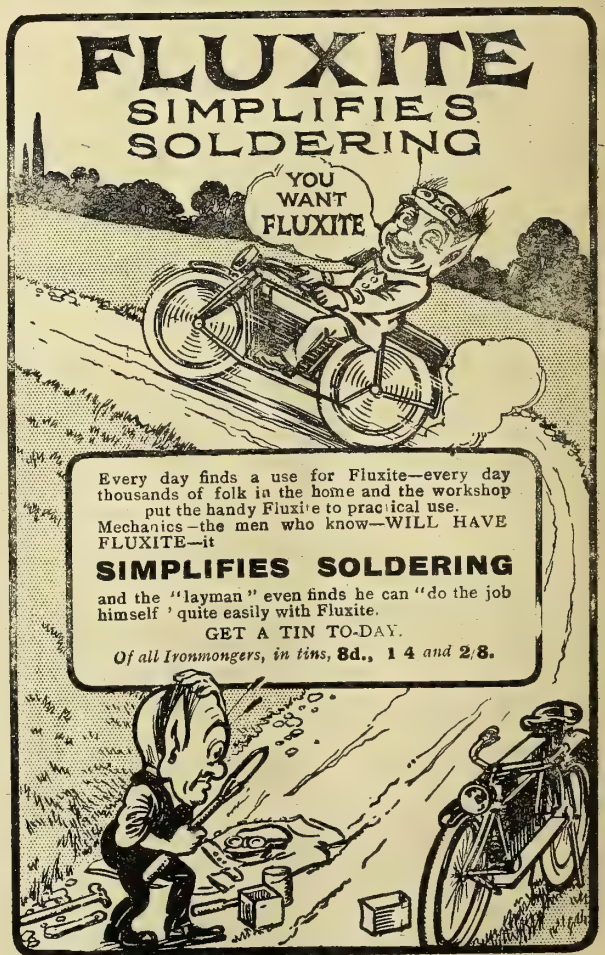
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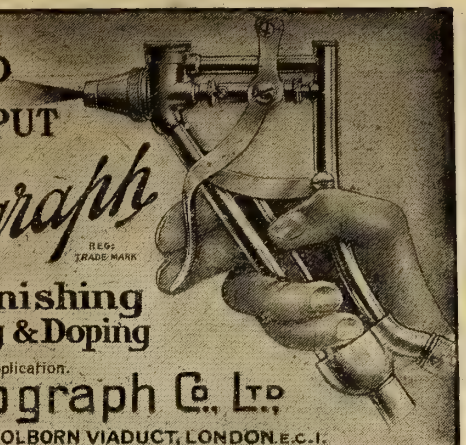
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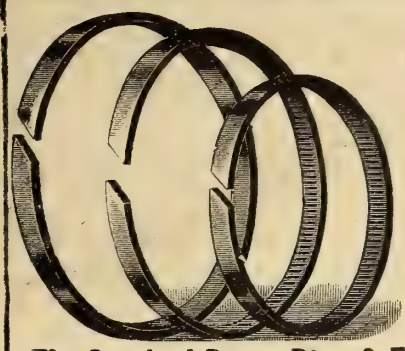
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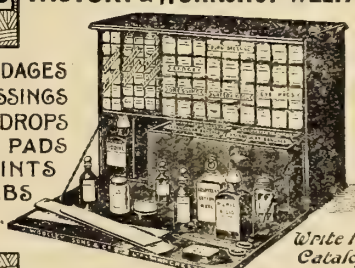
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